<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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subunit; "

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

<400> 2498

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Xaa Ile Gln Ile Thr Leu Asn Asn Thr Thr Asp Arg Lys Ile Glu Asn
1               5                  10                  15

Ile His Ile Gly Glu Lys Lys Leu Pro Ile Gly Met Lys Met His Val
            20                  25                  30

Phe Asn Pro Ile Asp Ser Leu Glu Pro Glu Gly Ser Ile Thr Val Ser
        35                  40                  45

Met Gly Ile Asp Phe Cys Asp Ser Thr Gln Thr Ala Ser Phe Gln Leu
    50                  55                  60

Cys Thr Lys Asp Asp Cys Phe Asn Val Asn Ile Gln Pro Pro Val Gly
65                  70                  75                  80

Glu Leu Leu Leu Pro Val Ala Met Ser Glu Lys Asp Phe Lys Lys Glu
                85                  90                  95

Gln Gly Val Leu Thr Gly Met Asn Glu Thr Ser Ala Val Ile Ile Ala
            100                 105                 110

Ala Pro Gln Asn Phe Thr Pro Ser Val Ile Phe Gln Lys Val Val Asn
        115                 120                 125
```

```
Val Ala Asn Val Gly Ala Val Pro Ser Gly Gln Asp Asn Ile His Arg
    130                 135                 140

Ser Leu Phe Phe Leu Phe Gln Val Cys Ser
145                 150


<210> 2499
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<212> PRT
<213> Homo sapiens

<220>
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<220>
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Met Leu Glu Ser Asn Lys Asp Ser Ala Lys Leu Asp Ala Met Lys Arg
1               5                   10                  15

Ile Val Gly Met Ile Ala Lys Gly Lys Asn Ala Ser Glu Leu Phe Pro
            20                  25                  30

Ala Val Val Lys Asn Val Ala Ser Lys Asn Ile Glu Ile Lys Lys Leu
        35                  40                  45

Val Tyr Val Tyr Leu Val Arg Tyr Ala Glu Glu Gln Gln Asp Leu Ala
    50                  55                  60

Leu Leu Ser Ile Ser Thr Phe Gln Arg Ala Leu Lys Asp Pro Asn Gln
65                  70                  75                  80
```

```
Leu Ile Arg Ala Ser Ala Leu Arg Val Leu Ser Ser Ile Arg Val Pro
                85                  90                  95

Ile Ile Val Pro Ile Met Met Leu Ala Ile Lys Glu Ala Ser Ala Asp
            100                 105                 110

Leu Ser Pro Tyr Val Arg Lys Asn Ala Ala His Ala Ile Gln Lys Leu
        115                 120                 125

Tyr Ser Leu Asp Pro Glu Gln Lys Glu Met Leu Ile Glu Val Ile Glu
    130                 135                 140

Lys Leu Leu Lys Asp Lys Ser Thr Leu Val Ala Gly Ser Val Val Met
145                 150                 155                 160

Ala Phe Glu Glu Val Cys Pro Asp Arg Ile Asp Leu Ile His Lys Asn
                165                 170                 175

Tyr Arg Lys Leu Cys Asn Leu Leu Val Asp Val Glu Glu Trp Gly Gln
            180                 185                 190

Val Val Ile Ile His Met Leu Thr Arg Tyr Ala Arg Thr Gln Phe Val
        195                 200                 205

Ser Pro Trp Lys Glu Gly Asp Glu Leu Glu Asp Asn Gly Lys Asn Phe
    210                 215                 220

Tyr Glu Ser Asp Asp Asp Gln Lys Glu Lys Thr Asp Lys Lys Lys Lys
225                 230                 235                 240

Pro Tyr Thr Met Asp Pro Asp His Arg Leu Leu Ile Arg Asn Thr Lys
                245                 250                 255

Pro Leu Leu Gln Ser Arg Asn Ala Ala Val Val Met Ala Val Ala Gln
            260                 265                 270

Leu Tyr Trp His Ile Ser Pro Lys Ser Glu Ala Gly Ile Ile Ser Lys
        275                 280                 285

Ser Leu Val Arg Leu Leu Arg Ser Asn Arg Glu Val Gln Tyr Ile Val
    290                 295                 300
```

```
Leu Gln Asn Ile Ala Thr Met Ser Ile Gln Arg Lys Gly Met Phe Glu
305                 310                 315                 320

Pro Tyr Leu Lys Ser Phe Tyr Val Arg Ser Thr Asp Pro Thr Met Ile
                325                 330                 335

Lys Thr Leu Lys Leu Glu Ile Leu Thr Asn Leu Ala Asn Glu Ala Asn
            340                 345                 350

Ile Ser Thr Leu Leu Arg Glu Phe Gln Thr Tyr Val Lys Ser Gln Asp
        355                 360                 365

Lys Gln Phe Ala Ala Ala Thr Ile Gln Thr Ile Gly Arg Cys Ala Thr
    370                 375                 380

Asn Ile Leu Glu Val Thr Asp Thr Cys Leu Asn Gly Leu Val Cys Leu
385                 390                 395                 400

Leu Ser Asn Arg Asp Glu Ile Val Val Ala Glu Ser Val Val Val Ile
                405                 410                 415

Lys Lys Leu Leu Gln Met Gln Pro Ala Gln His Gly Glu Ile Ile Lys
            420                 425                 430

His Met Ala Lys Leu Leu Asp Ser Ile Thr Val Pro Val Ala Arg Ala
        435                 440                 445

Ser Ile Leu Trp Leu Ile Gly Glu Asn Cys Glu Arg Val Pro Lys Ile
    450                 455                 460

Ala Pro Asp Val Leu Arg Lys Met Ala Lys Ser Phe Thr Ser Glu Asp
465                 470                 475                 480

Asp Leu Val Lys Leu Gln Ile Leu Asn Leu Gly Ala Lys Leu Tyr Leu
                485                 490                 495

Thr Asn Ser Lys Gln Thr Lys Leu Leu Thr Gln Tyr Ile Leu Asn Leu
            500                 505                 510

Gly Lys Tyr Asp Gln Asn Tyr Asp Ile Arg Asp Arg Thr Arg Phe Ile
        515                 520                 525

Arg Gln Leu Ile Val Pro Asn Val Lys Ser Gly Ala Leu Ser Lys Tyr
```

530 535 540

Ala Lys Lys Ile Phe Leu Ala Gln Lys Pro Ala Pro Leu Leu Glu Ser
545 550 555 560

Pro Phe Lys Asp Arg Asp His Phe Gln Leu Gly Thr Leu Ser His Thr
565 570 575

Leu Asn Ile Lys Ala Thr Gly Tyr Leu Glu Leu Ser Asn Trp Pro Glu
580 585 590

Val Ala Pro Asp Pro Ser Val Arg Asn Val Glu Val Ile Glu Leu Ala
595 600 605

Lys Glu Trp Thr Pro Ala Gly Lys Ala Lys Gln Glu Asn Ser Ala Lys
610 615 620

Lys Phe Tyr Ser Glu Ser Glu Glu Glu Glu Asp Ser Ser Asp Ser Ser
625 630 635 640

Ser Asp Ser Glu Ser Glu Ser Gly Ser Glu Ser Gly Glu Gln Gly Glu
645 650 655

Ser Gly Glu Glu Gly Asp Ser Asn Glu Asp Ser Ser Glu Asp Ser Ser
660 665 670

Ser Glu Gln Asp Ser Glu Ser Gly Arg Glu Ser Gly Leu Glu Asn Lys
675 680 685

Arg Thr Ala Lys Arg Asn Ser Lys Ala Lys Gly Lys Ser Asp Ser Glu
690 695 700

Asp Gly Glu Lys Glu Asn Glu Lys Ser Lys Thr Ser Asp Ser Ser Asn
705 710 715 720

Asp Glu Ser Ser Ser Ile Glu Asp Ser Ser Ser Asp Ser Glu Ser Glu
725 730 735

Ser Glu Pro Glu Ser Glu Ser Glu Ser Arg Arg Val Thr Lys Glu Lys
740 745 750

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

```
Leu Leu Asp Leu Asp Asp Phe Asn Pro Val Ser Thr Pro Val Ala Leu
    770                 775                 780

Pro Thr Pro Ala Leu Ser Pro Ser Leu Met Ala Asp Leu Glu Gly Leu
785                 790                 795                 800

His Leu Ser Thr Ser Ser Ser Val Ile Ser Val Ser Thr Pro Ala Phe
                805                 810                 815

Val Pro Thr Lys Thr His Val Leu Leu His Arg Met Ser Gly Lys Gly
            820                 825                 830

Leu Ala Ala His Tyr Phe Phe Pro Arg Gln Pro Cys Ile Phe Gly Asp
        835                 840                 845

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

Ile Glu Asn Ile His Ile Gly Glu Lys Lys Leu Pro Ile Gly Met Lys
865                 870                 875                 880

Met His Val Phe Asn Pro Ile Asp Ser Leu Glu Pro Glu Gly Ser Ile
                885                 890                 895

Thr Val Ser Met Gly Ile Asp Phe Cys Asp Ser Thr Gln Thr Ala Ser
            900                 905                 910

Phe Gln Leu Cys Thr Lys Asp Asp Cys Phe Asn Val Asn Ile Gln Pro
        915                 920                 925

Pro Val Gly Glu Leu Leu Leu Pro Val Ala Met Ser Glu Lys Asp Phe
    930                 935                 940

Lys Lys Glu Gln Gly Val Leu Thr Gly Met Asn Glu Thr Ser Ala Val
945                 950                 955                 960

Ile Ile Ala Ala Pro Gln Asn Phe Thr Pro Ser Val Ile Phe Gln Lys
                965                 970                 975

Val Val Asn Val Ala Asn Val Gly Ala Val Pro Ser Gly Gln Asp Asn
            980                 985                 990
```

Ile His Arg Phe Ala Ala Lys Thr Val His Ser Gly Ser Leu Met
Leu
995 1000 1005

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

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

Lys Pro Val Leu Ser Gln Gly
1040 1045

<210> 2500
<211> 1082
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adaptor-related prt complex 3, beta 2
subunit; "

<220>
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<223> /note="Uniprot ID: Q13367; "

<220>
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<400> 2500
Met Ser Ala Ala Pro Ala Tyr Ser Glu Asp Lys Gly Gly Ser Ala Gly
1 5 10 15

Pro Gly Glu Pro Glu Tyr Gly His Asp Pro Ala Ser Gly Gly Ile Phe
20 25 30

Ser Ser Asp Tyr Lys Arg His Asp Asp Leu Lys Glu Met Leu Asp Thr
35 40 45

```
Asn Lys Asp Ser Leu Lys Leu Glu Ala Met Lys Arg Ile Val Ala Met
    50                  55                  60

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

Asn Val Ala Cys Lys Asn Ile Glu Val Lys Lys Leu Val Tyr Val Tyr
                85                  90                  95

Leu Val Arg Tyr Ala Glu Glu Gln Gln Asp Leu Ala Leu Leu Ser Ile
            100                 105                 110

Ser Thr Phe Gln Arg Gly Leu Lys Asp Pro Asn Gln Leu Ile Arg Ala
        115                 120                 125

Ser Ala Leu Arg Val Leu Ser Ser Ile Arg Val Pro Ile Ile Val Pro
    130                 135                 140

Ile Met Met Leu Ala Ile Lys Glu Ala Ala Ser Asp Met Ser Pro Tyr
145                 150                 155                 160

Val Arg Lys Thr Ala Ala His Ala Ile Pro Lys Leu Tyr Ser Leu Asp
                165                 170                 175

Ser Asp Gln Lys Asp Gln Leu Ile Glu Val Ile Glu Lys Leu Leu Ala
            180                 185                 190

Asp Lys Thr Thr Leu Val Ala Gly Ser Val Val Met Ala Phe Glu Glu
        195                 200                 205

Val Cys Pro Glu Arg Ile Asp Leu Ile His Lys Asn Tyr Arg Lys Leu
    210                 215                 220

Cys Asn Leu Leu Ile Asp Val Glu Glu Trp Gly Gln Val Val Ile Ile
225                 230                 235                 240

Ser Met Leu Thr Arg Tyr Ala Arg Thr Gln Phe Leu Ser Pro Thr Gln
                245                 250                 255

Asn Glu Ser Leu Leu Glu Glu Asn Ala Glu Lys Ala Phe Tyr Gly Ser
            260                 265                 270
```

```
Glu Glu Asp Glu Ala Lys Gly Ala Gly Ser Glu Glu Thr Ala Ala Ala
        275                 280                 285

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

Leu Leu Arg Asn Thr Lys Pro Leu Leu Gln Ser Arg Ser Ala Ala Val
305                 310                 315                 320

Val Met Ala Val Ala Gln Leu Tyr Phe His Leu Ala Pro Lys Ala Glu
                325                 330                 335

Val Gly Val Ile Ala Lys Ala Leu Val Arg Leu Leu Arg Ser His Ser
            340                 345                 350

Glu Val Gln Tyr Val Val Leu Gln Asn Val Ala Thr Met Ser Ile Lys
        355                 360                 365

Arg Arg Gly Met Phe Glu Pro Tyr Leu Lys Ser Phe Tyr Ile Arg Ser
    370                 375                 380

Thr Asp Pro Thr Gln Ile Lys Ile Leu Lys Leu Glu Val Leu Thr Asn
385                 390                 395                 400

Leu Ala Asn Glu Thr Asn Ile Pro Thr Val Leu Arg Glu Phe Gln Thr
                405                 410                 415

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

Ile Gly Arg Cys Ala Thr Asn Ile Gly Arg Val Arg Asp Thr Cys Leu
        435                 440                 445

Asn Gly Leu Val Gln Leu Leu Ser Asn Arg Asp Glu Leu Val Val Ala
    450                 455                 460

Glu Ser Val Val Val Ile Lys Lys Leu Leu Gln Met Gln Pro Ala Gln
465                 470                 475                 480

His Gly Glu Ile Ile Lys His Leu Ala Lys Leu Thr Asp Asn Ile Gln
                485                 490                 495

Val Pro Met Ala Arg Ala Ser Ile Leu Trp Leu Ile Gly Glu Tyr Cys
```

```
            500                 505                 510

Glu His Val Pro Arg Ile Ala Pro Asp Val Leu Arg Lys Met Ala Lys
        515                 520                 525

Ser Phe Thr Ala Glu Glu Asp Ile Val Lys Leu Gln Val Ile Asn Leu
    530                 535                 540

Ala Ala Lys Leu Tyr Leu Thr Asn Ser Lys Gln Thr Lys Leu Leu Thr
545                 550                 555                 560

Gln Tyr Val Leu Ser Leu Ala Lys Tyr Asp Gln Asn Tyr Asp Ile Arg
                565                 570                 575

Asp Arg Ala Arg Phe Thr Arg Gln Leu Ile Val Pro Ser Glu Gln Gly
            580                 585                 590

Gly Ala Leu Ser Arg His Ala Lys Lys Leu Phe Leu Ala Pro Lys Pro
        595                 600                 605

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

Gly Ser Leu Ser His Leu Leu Asn Ala Lys Ala Thr Gly Tyr Gln Glu
625                 630                 635                 640

Leu Pro Asp Trp Pro Glu Glu Ala Pro Asp Pro Ser Val Arg Asn Val
                645                 650                 655

Glu Val Pro Glu Trp Thr Lys Cys Ser Asn Arg Glu Lys Arg Lys Glu
            660                 665                 670

Lys Glu Lys Pro Phe Tyr Ser Asp Ser Glu Gly Glu Ser Gly Pro Thr
        675                 680                 685

Glu Ser Ala Asp Ser Asp Pro Glu Ser Glu Ser Glu Ser Asp Ser Lys
    690                 695                 700

Ser Ser Ser Glu Ser Gly Ser Gly Glu Ser Ser Ser Glu Ser Asp Asn
705                 710                 715                 720

Glu Asp Gln Asp Glu Asp Glu Glu Lys Gly Arg Gly Ser Glu Ser Glu
                725                 730                 735
```

```
Gln Ser Glu Glu Asp Gly Lys Arg Lys Thr Lys Lys Lys Val Pro Glu
            740                 745                 750

Arg Lys Gly Glu Ala Ser Ser Ser Asp Glu Gly Ser Asp Ser Ser Ser
        755                 760                 765

Ser Ser Ser Glu Ser Glu Met Thr Ser Glu Ser Glu Glu Glu Gln Leu
    770                 775                 780

Glu Pro Ala Ser Trp Ser Arg Lys Thr Pro Pro Ser Ser Lys Ser Ala
785                 790                 795                 800

Pro Ala Thr Lys Glu Ile Ser Leu Leu Asp Leu Glu Asp Phe Thr Pro
                805                 810                 815

Pro Ser Val Gln Pro Val Ser Pro Pro Ala Ile Val Ser Thr Ser Leu
            820                 825                 830

Ala Ala Asp Leu Glu Gly Leu Thr Leu Thr Asp Ser Thr Leu Val Pro
        835                 840                 845

Ser Leu Leu Ser Pro Val Ser Gly Val Gly Arg Gln Glu Leu Leu His
    850                 855                 860

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

Pro Phe Ser Gly Asp Pro His Met Val Ser Val His Ile His Phe Ser
                885                 890                 895

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

Leu Pro Ala Gly Ile Ser Ile Gln Glu Phe Pro Glu Ile Glu Ser Leu
        915                 920                 925

Ala Pro Gly Glu Ser Ala Thr Ala Val Met Gly Ile Asn Phe Cys Asp
    930                 935                 940

Ser Thr Gln Ala Ala Asn Phe Gln Leu Cys Thr Gln Thr Arg Gln Phe
945                 950                 955                 960
```

```
Tyr Val Ser Ile Gln Pro Pro Val Gly Glu Leu Met Ala Pro Val Phe
                965                 970                 975

Met Ser Glu Asn Glu Phe Lys Lys Glu Gln Gly Lys Leu Met Gly Met
            980                 985                 990

Asn Glu Ile Thr Glu Lys Leu Met  Leu Pro Asp Thr Cys  Arg Ser
Asp
        995                 1000                1005

His Ile  Val Val Gln Lys Val  Thr Ala Thr Ala Asn  Leu Gly Arg
    1010                1015                1020

Val Pro  Cys Gly Thr Ser Asp  Glu Tyr Arg Phe Ala  Gly Arg Thr
    1025                1030                1035

Leu Thr  Gly Gly Ser Leu Val  Leu Leu Thr Leu Asp  Ala Arg Pro
    1040                1045                1050

Ala Gly  Ala Ala Gln Leu Thr  Val Asn Ser Glu Lys  Met Val Ile
    1055                1060                1065

Gly Thr  Met Leu Val Lys Asp  Val Ile Gln Ala Leu  Thr Gln
    1070                1075                1080


<210> 2501
<211> 1050
<212> PRT
<213> Homo sapiens

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<223> /note="Uniprot ID:  Q13367; "
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<220>
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Met Ser Ala Ala Pro Ala Tyr Ser Glu Asp Lys Gly Gly Ser Ala Gly
1   5   10   15

Pro Gly Glu Pro Glu Tyr Gly His Asp Pro Ala Ser Gly Gly Ile Phe
            20   25   30

Ser Ser Asp Tyr Lys Arg His Asp Asp Leu Lys Glu Met Leu Asp Thr
        35   40   45

Asn Lys Asp Ser Leu Lys Leu Glu Ala Met Lys Arg Ile Val Ala Met
    50   55   60

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

Asn Val Ala Cys Lys Asn Ile Glu Asp Pro Asn Gln Leu Ile Arg Ala
                85   90   95

Ser Ala Leu Arg Val Leu Ser Ser Ile Arg Val Pro Ile Ile Val Pro
            100   105   110

Ile Met Met Leu Ala Ile Lys Glu Ala Ala Ser Asp Met Ser Pro Tyr
        115   120   125

Val Arg Lys Thr Ala Ala His Ala Ile Pro Lys Leu Tyr Ser Leu Asp
    130   135   140

Ser Asp Gln Lys Asp Gln Leu Ile Glu Val Ile Glu Lys Leu Leu Ala
145   150   155   160

Asp Lys Thr Thr Leu Val Ala Gly Ser Val Val Met Ala Phe Glu Glu
                165   170   175

Val Cys Pro Glu Arg Ile Asp Leu Ile His Lys Asn Tyr Arg Lys Leu
            180   185   190

Cys Asn Leu Leu Ile Asp Val Glu Glu Trp Gly Gln Val Val Ile Ile
        195   200   205

Ser Met Leu Thr Arg Tyr Ala Arg Thr Gln Phe Leu Ser Pro Thr Gln
210 215 220

Asn Glu Ser Leu Leu Glu Glu Asn Ala Glu Lys Ala Phe Tyr Gly Ser
225 230 235 240

Glu Glu Asp Glu Ala Lys Gly Ala Gly Ser Glu Glu Thr Ala Ala Ala
245 250 255

Ala Ala Pro Ser Arg Lys Pro Tyr Val Met Asp Pro Asp His Arg Leu
260 265 270

Leu Leu Arg Asn Thr Lys Pro Leu Leu Gln Ser Arg Ser Ala Ala Val
275 280 285

Val Met Ala Val Ala Gln Leu Tyr Phe His Leu Ala Pro Lys Ala Glu
290 295 300

Val Gly Val Ile Ala Lys Ala Leu Val Arg Leu Leu Arg Ser His Ser
305 310 315 320

Glu Val Gln Tyr Val Val Leu Gln Asn Val Ala Thr Met Ser Ile Lys
325 330 335

Arg Arg Gly Met Phe Glu Pro Tyr Leu Lys Ser Phe Tyr Ile Arg Ser
340 345 350

Thr Asp Pro Thr Gln Ile Lys Ile Leu Lys Leu Glu Val Leu Thr Asn
355 360 365

Leu Ala Asn Glu Thr Asn Ile Pro Thr Val Leu Arg Glu Phe Gln Thr
370 375 380

Tyr Ile Arg Ser Met Asp Lys Asp Phe Val Ala Ala Thr Ile Gln Ala
385 390 395 400

Ile Gly Arg Cys Ala Thr Asn Ile Gly Arg Val Arg Asp Thr Cys Leu
405 410 415

Asn Gly Leu Val Gln Leu Leu Ser Asn Arg Asp Glu Leu Val Val Ala
420 425 430

Glu Ser Val Val Val Ile Lys Lys Leu Leu Gln Met Gln Pro Ala Gln

435 440 445

His Gly Glu Ile Ile Lys His Leu Ala Lys Leu Thr Asp Asn Ile Gln
450 455 460

Val Pro Met Ala Arg Ala Ser Ile Leu Trp Leu Ile Gly Glu Tyr Cys
465 470 475 480

Glu His Val Pro Arg Ile Ala Pro Asp Val Leu Arg Lys Met Ala Lys
485 490 495

Ser Phe Thr Ala Glu Glu Asp Ile Val Lys Leu Gln Val Ile Asn Leu
500 505 510

Ala Ala Lys Leu Tyr Leu Thr Asn Ser Lys Gln Thr Lys Leu Leu Thr
515 520 525

Gln Tyr Val Leu Ser Leu Ala Lys Tyr Asp Gln Asn Tyr Asp Ile Arg
530 535 540

Asp Arg Ala Arg Phe Thr Arg Gln Leu Ile Val Pro Ser Glu Gln Gly
545 550 555 560

Gly Ala Leu Ser Arg His Ala Lys Lys Leu Phe Leu Ala Pro Lys Pro
565 570 575

Ala Pro Val Leu Glu Ser Ser Phe Lys Asp Arg Asp His Phe Gln Leu
580 585 590

Gly Ser Leu Ser His Leu Leu Asn Ala Lys Ala Thr Gly Tyr Gln Glu
595 600 605

Leu Pro Asp Trp Pro Glu Glu Ala Pro Asp Pro Ser Val Arg Asn Val
610 615 620

Glu Val Pro Glu Trp Thr Lys Cys Ser Asn Arg Glu Lys Arg Lys Glu
625 630 635 640

Lys Glu Lys Pro Phe Tyr Ser Asp Ser Glu Gly Glu Ser Gly Pro Thr
645 650 655

Glu Ser Ala Asp Ser Asp Pro Glu Ser Glu Ser Glu Ser Asp Ser Lys
660 665 670

Ser Ser Ser Glu Ser Gly Ser Gly Glu Ser Ser Ser Glu Ser Asp Asn
675 680 685

Glu Asp Gln Asp Glu Asp Glu Glu Lys Gly Arg Gly Ser Glu Ser Glu
690 695 700

Gln Ser Glu Glu Asp Gly Lys Arg Lys Thr Lys Lys Lys Val Pro Glu
705 710 715 720

Arg Lys Gly Glu Ala Ser Ser Ser Asp Glu Gly Ser Asp Ser Ser Ser
725 730 735

Ser Ser Ser Glu Ser Glu Met Thr Ser Glu Ser Glu Glu Glu Gln Leu
740 745 750

Glu Pro Ala Ser Trp Ser Arg Lys Thr Pro Pro Ser Ser Lys Ser Ala
755 760 765

Pro Ala Thr Lys Glu Ile Ser Leu Leu Asp Leu Glu Asp Phe Thr Pro
770 775 780

Pro Ser Val Gln Pro Val Ser Pro Pro Ala Ile Val Ser Thr Ser Leu
785 790 795 800

Ala Ala Asp Leu Glu Gly Leu Thr Leu Thr Asp Ser Thr Leu Val Pro
805 810 815

Ser Leu Leu Ser Pro Val Ser Gly Val Gly Arg Gln Glu Leu Leu His
820 825 830

Arg Val Ala Gly Glu Gly Leu Ala Val Asp Tyr Thr Phe Ser Arg Gln
835 840 845

Pro Phe Ser Gly Asp Pro His Met Val Ser Val His Ile His Phe Ser
850 855 860

Asn Ser Ser Asp Thr Pro Ile Lys Gly Leu His Val Gly Thr Pro Lys
865 870 875 880

Leu Pro Ala Gly Ile Ser Ile Gln Glu Phe Pro Glu Ile Glu Ser Leu
885 890 895

```
Ala Pro Gly Glu Ser Ala Thr Ala Val Met Gly Ile Asn Phe Cys Asp
            900                 905                 910

Ser Thr Gln Ala Ala Asn Phe Gln Leu Cys Thr Gln Thr Arg Gln Phe
        915                 920                 925

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

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

Asn Glu Ile Thr Glu Lys Leu Met Leu Pro Asp Thr Cys Arg Ser Asp
                965                 970                 975

His Ile Val Val Gln Lys Val Thr Ala Thr Ala Asn Leu Gly Arg Val
            980                 985                 990

Pro Cys Gly Thr Ser Asp Glu Tyr  Arg Phe Ala Gly Arg  Thr Leu
Thr
        995                 1000                1005

Gly Gly  Ser Leu Val Leu Leu  Thr Leu Asp Ala Arg  Pro Ala Gly
    1010                1015                1020

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

Met Leu  Val Lys Asp Val Ile  Gln Ala Leu Thr Gln
    1040                1045                1050


<210> 2502
<211> 141
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name:
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subunit; "

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<223> /note="ENSP ID: ENSP00000440719"

<400> 2502
Met Ser Ala Ala Pro Ala Tyr Ser Glu Asp Lys Gly Gly Ser Ala Gly
1 5 10 15

Pro Gly Glu Pro Glu Tyr Gly His Asp Pro Ala Ser Gly Gly Ile Phe
20 25 30

Ser Ser Asp Tyr Lys Arg His Asp Asp Leu Lys Glu Met Leu Asp Thr
35 40 45

Asn Lys Asp Ser Leu Lys Leu Glu Ala Met Lys Arg Ile Val Ala Met
50 55 60

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

Asn Val Ala Cys Lys Asn Ile Glu Val Lys Lys Leu Val Tyr Val Tyr
85 90 95

Leu Val Arg Tyr Ala Glu Glu Gln Gln Asp Leu Ala Leu Leu Ser Ile
100 105 110

Ser Thr Phe Gln Arg Gly Leu Lys Glu Pro Val Val Met Ala Ala Ser
115 120 125

Ser Met Asn His Leu Ser Pro Arg Arg Val Glu Ser Leu
130 135 140

<210> 2503
<211> 1101
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<213> Homo sapiens

<220>
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subunit; "

<220>
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<223> /note="Uniprot ID: Q13367; "

<220>
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<400> 2503
Met Ser Ala Ala Pro Ala Tyr Ser Glu Asp Lys Gly Gly Ser Ala Gly
1 5 10 15

Pro Gly Glu Pro Glu Tyr Gly His Asp Pro Ala Ser Gly Gly Ile Phe
            20 25 30

Ser Ser Asp Tyr Lys Arg His Asp Asp Leu Lys Glu Met Leu Asp Thr
        35 40 45

Asn Lys Asp Ser Leu Lys Leu Glu Ala Met Lys Arg Ile Val Ala Met
    50 55 60

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

Asn Val Ala Cys Lys Asn Ile Glu Val Lys Lys Leu Val Tyr Val Tyr
                85 90 95

Leu Val Arg Tyr Ala Glu Glu Gln Gln Asp Leu Ala Leu Leu Ser Ile
            100 105 110

Ser Thr Phe Gln Arg Gly Leu Lys Asp Pro Asn Gln Leu Ile Arg Ala
        115 120 125

Ser Ala Leu Arg Val Leu Ser Ser Ile Arg Val Pro Ile Ile Val Pro
    130 135 140

Ile Met Met Leu Ala Ile Lys Glu Ala Ala Ser Asp Met Ser Pro Tyr
145 150 155 160

Val Arg Lys Thr Ala Ala His Ala Ile Pro Lys Leu Tyr Ser Leu Asp

```
                165                 170                 175

Ser Asp Gln Lys Asp Gln Leu Ile Glu Val Ile Glu Lys Leu Leu Ala
            180                 185                 190

Asp Lys Thr Thr Leu Val Ala Gly Ser Val Val Met Ala Phe Glu Glu
        195                 200                 205

Val Cys Pro Glu Arg Ile Asp Leu Ile His Lys Asn Tyr Arg Lys Leu
    210                 215                 220

Cys Asn Leu Leu Ile Asp Val Glu Glu Trp Gly Gln Val Val Ile Ile
225                 230                 235                 240

Ser Met Leu Thr Arg Tyr Ala Arg Thr Gln Phe Leu Ser Pro Thr Gln
                245                 250                 255

Asn Glu Ser Leu Leu Glu Glu Asn Ala Glu Lys Ala Phe Tyr Gly Ser
            260                 265                 270

Glu Glu Asp Glu Ala Lys Gly Ala Gly Ser Glu Glu Thr Ala Ala Ala
        275                 280                 285

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

Leu Leu Arg Asn Thr Lys Pro Leu Leu Gln Ser Arg Ser Ala Ala Val
305                 310                 315                 320

Val Met Ala Val Ala Gln Leu Tyr Phe His Leu Ala Pro Lys Ala Glu
                325                 330                 335

Val Gly Val Ile Ala Lys Ala Leu Val Arg Leu Leu Arg Ser His Ser
            340                 345                 350

Glu Val Gln Tyr Val Val Leu Gln Asn Val Ala Thr Met Ser Ile Lys
        355                 360                 365

Arg Arg Gly Met Phe Glu Pro Tyr Leu Lys Ser Phe Tyr Ile Arg Ser
    370                 375                 380

Thr Asp Pro Thr Gln Ile Lys Ile Leu Lys Leu Glu Val Leu Thr Asn
385                 390                 395                 400
```

```
Leu Ala Asn Glu Thr Asn Ile Pro Thr Val Leu Arg Glu Phe Gln Thr
                405                 410                 415

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

Ile Gly Arg Cys Ala Thr Asn Ile Gly Arg Val Arg Asp Thr Cys Leu
        435                 440                 445

Asn Gly Leu Val Gln Leu Leu Ser Asn Arg Asp Glu Leu Val Val Ala
    450                 455                 460

Glu Ser Val Val Val Ile Lys Lys Leu Leu Gln Met Gln Pro Ala Gln
465                 470                 475                 480

His Gly Glu Ile Ile Lys His Leu Ala Lys Leu Thr Asp Asn Ile Gln
                485                 490                 495

Val Pro Met Ala Arg Ala Ser Ile Leu Trp Leu Ile Gly Glu Tyr Cys
            500                 505                 510

Glu His Val Pro Arg Ile Ala Pro Asp Val Leu Arg Lys Met Ala Lys
        515                 520                 525

Ser Phe Thr Ala Glu Glu Asp Ile Val Lys Leu Gln Val Ile Asn Leu
    530                 535                 540

Ala Ala Lys Leu Tyr Leu Thr Asn Ser Lys Gln Thr Lys Leu Leu Thr
545                 550                 555                 560

Gln Tyr Val Leu Ser Leu Ala Lys Tyr Asp Gln Asn Tyr Asp Ile Arg
                565                 570                 575

Asp Arg Ala Arg Phe Thr Arg Gln Leu Ile Val Pro Ser Glu Gln Gly
            580                 585                 590

Gly Ala Leu Ser Arg His Ala Lys Lys Leu Phe Leu Ala Pro Lys Pro
        595                 600                 605

Ala Pro Val Leu Glu Ser Ser Phe Lys Asp Arg Asp His Phe Gln Leu
    610                 615                 620
```

```
Gly Ser Leu Ser His Leu Leu Asn Ala Lys Ala Thr Gly Tyr Gln Glu
625                 630                 635                 640

Leu Pro Asp Trp Pro Glu Glu Ala Pro Asp Pro Ser Val Arg Asn Val
                645                 650                 655

Glu Glu Glu Asp Leu Ser Leu Ile Glu Thr His Val Gly Leu Leu Gly
            660                 665                 670

Glu Tyr Thr Glu Val Pro Glu Trp Thr Lys Cys Ser Asn Arg Glu Lys
        675                 680                 685

Arg Lys Glu Lys Glu Lys Pro Phe Tyr Ser Asp Ser Glu Gly Glu Ser
    690                 695                 700

Gly Pro Thr Glu Ser Ala Asp Ser Asp Pro Glu Ser Glu Ser Glu Ser
705                 710                 715                 720

Asp Ser Lys Ser Ser Ser Glu Ser Gly Ser Gly Glu Ser Ser Ser Glu
                725                 730                 735

Ser Asp Asn Glu Asp Gln Asp Glu Asp Glu Glu Lys Gly Arg Gly Ser
            740                 745                 750

Glu Ser Glu Gln Ser Glu Glu Asp Gly Lys Arg Lys Thr Lys Lys Lys
        755                 760                 765

Val Pro Glu Arg Lys Gly Glu Ala Ser Ser Ser Asp Glu Gly Ser Asp
    770                 775                 780

Ser Ser Ser Ser Ser Ser Glu Ser Glu Met Thr Ser Glu Ser Glu Glu
785                 790                 795                 800

Glu Gln Leu Glu Pro Ala Ser Trp Ser Arg Lys Thr Pro Pro Ser Ser
                805                 810                 815

Lys Ser Ala Pro Ala Thr Lys Glu Ile Ser Leu Leu Asp Leu Glu Asp
            820                 825                 830

Phe Thr Pro Pro Ser Val Gln Pro Val Ser Pro Pro Ala Ile Val Ser
        835                 840                 845
```

```
Thr Ser Leu Ala Ala Asp Leu Glu Gly Leu Thr Leu Thr Asp Ser Thr
    850                 855                 860

Leu Val Pro Ser Leu Leu Ser Pro Val Ser Gly Val Gly Arg Gln Glu
865                 870                 875                 880

Leu Leu His Arg Val Ala Gly Glu Gly Leu Ala Val Asp Tyr Thr Phe
                885                 890                 895

Ser Arg Gln Pro Phe Ser Gly Asp Pro His Met Val Ser Val His Ile
            900                 905                 910

His Phe Ser Asn Ser Ser Asp Thr Pro Ile Lys Gly Leu His Val Gly
        915                 920                 925

Thr Pro Lys Leu Pro Ala Gly Ile Ser Ile Gln Glu Phe Pro Glu Ile
    930                 935                 940

Glu Ser Leu Ala Pro Gly Glu Ser Ala Thr Ala Val Met Gly Ile Asn
945                 950                 955                 960

Phe Cys Asp Ser Thr Gln Ala Ala Asn Phe Gln Leu Cys Thr Gln Thr
                965                 970                 975

Arg Gln Phe Tyr Val Ser Ile Gln Pro Pro Val Gly Glu Leu Met Ala
            980                 985                 990

Pro Val Phe Met Ser Glu Asn Glu  Phe Lys Lys Glu Gln  Gly Lys
Leu
        995                 1000                1005

Met Gly  Met Asn Glu Ile Thr  Glu Lys Leu Met Leu  Pro Asp Thr
    1010                1015                1020

Cys Arg  Ser Asp His Ile Val  Val Gln Lys Val Thr  Ala Thr Ala
    1025                1030                1035

Asn Leu  Gly Arg Val Pro Cys  Gly Thr Ser Asp Glu  Tyr Arg Phe
    1040                1045                1050

Ala Gly  Arg Thr Leu Thr Gly  Gly Ser Leu Val Leu  Leu Thr Leu
    1055                1060                1065
```

```
Asp Ala  Arg Pro Ala Gly Ala  Ala Gln Leu Thr Val  Asn Ser Glu
    1070                1075                1080


Lys Met  Val Ile Gly Thr Met  Leu Val Lys Asp Val  Ile Gln Ala
    1085                1090                1095


Leu Thr  Gln
    1100


<210> 2504
<211> 193
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 599; "

<220>
<221> source
<223> /note="Gene Symbol: AP3B2; "

<220>
<221> source
<223> /note="Gene Name:
      adaptor-related prt complex 3, beta 2
      subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000441961"

<400> 2504
Met Leu Asp Thr Asn Lys Asp Ser Leu Lys Leu Glu Ala Met Lys Arg
1               5                  10                  15


Ile Val Ala Met Ile Ala Arg Gly Lys Asn Ala Ser Asp Leu Phe Pro
            20                  25                  30


Ala Val Val Lys Asn Val Ala Cys Lys Asn Ile Glu Val Lys Lys Leu
        35                  40                  45


Val Tyr Val Tyr Leu Val Arg Tyr Ala Glu Glu Gln Gln Asp Leu Ala
    50                  55                  60


Leu Leu Ser Ile Ser Thr Phe Gln Arg Gly Leu Lys Asp Pro Asn Gln
65                  70                  75                  80


Leu Ile Arg Ala Ser Ala Leu Arg Val Leu Ser Ser Ile Arg Val Pro
```

```
                85                  90                  95

Ile Ile Val Pro Ile Met Met Leu Ala Ile Lys Glu Ala Ala Ser Asp
            100                 105                 110

Met Ser Pro Tyr Val Arg Lys Thr Ala Ala His Ala Ile Pro Lys Leu
        115                 120                 125

Tyr Ser Leu Asp Ser Asp Gln Lys Asp Gln Leu Ile Glu Val Ile Glu
    130                 135                 140

Lys Leu Leu Ala Asp Lys Thr Thr Leu Val Ala Gly Ser Val Val Met
145                 150                 155                 160

Ala Phe Glu Glu Val Cys Pro Glu Arg Ile Asp Leu Ile His Lys Asn
                165                 170                 175

Tyr Arg Lys Leu Cys Asn Leu Leu Ile Asp Val Glu Glu Trp Gly Gln
            180                 185                 190

Val
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<210> 2505
<211> 22
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adaptor-related prt complex 3, beta 2
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445804"

<400> 2505
```
Ile Ser Leu Leu Asp Leu Glu Asp Cys Ser Leu Leu Asn Pro Ser His
1               5                   10                  15
```

```
Leu His Phe Ala Ser Ser
            20


<210> 2506
<211> 1082
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 599; "

<220>
<221> source
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<220>
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      adaptor-related prt complex 3, beta 2
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  Q13367; "

<220>
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<400> 2506
Met Ser Ala Ala Pro Ala Tyr Ser Glu Asp Lys Gly Gly Ser Ala Gly
1               5                  10                  15


Pro Gly Glu Pro Glu Tyr Gly His Asp Pro Ala Ser Gly Gly Ile Phe
            20                  25                  30


Ser Ser Asp Tyr Lys Arg His Asp Asp Leu Lys Glu Met Leu Asp Thr
        35                  40                  45


Asn Lys Asp Ser Leu Lys Leu Glu Ala Met Lys Arg Ile Val Ala Met
    50                  55                  60


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


Asn Val Ala Cys Lys Asn Ile Glu Val Lys Lys Leu Val Tyr Val Tyr
                85                  90                  95
```

```
Leu Val Arg Tyr Ala Glu Glu Gln Gln Asp Leu Ala Leu Leu Ser Ile
            100                 105                 110

Ser Thr Phe Gln Arg Gly Leu Lys Asp Pro Asn Gln Leu Ile Arg Ala
        115                 120                 125

Ser Ala Leu Arg Val Leu Ser Ser Ile Arg Val Pro Ile Ile Val Pro
    130                 135                 140

Ile Met Met Leu Ala Ile Lys Glu Ala Ala Ser Asp Met Ser Pro Tyr
145                 150                 155                 160

Val Arg Lys Thr Ala Ala His Ala Ile Pro Lys Leu Tyr Ser Leu Asp
                165                 170                 175

Ser Asp Gln Lys Asp Gln Leu Ile Glu Val Ile Glu Lys Leu Leu Ala
            180                 185                 190

Asp Lys Thr Thr Leu Val Ala Gly Ser Val Val Met Ala Phe Glu Glu
        195                 200                 205

Val Cys Pro Glu Arg Ile Asp Leu Ile His Lys Asn Tyr Arg Lys Leu
    210                 215                 220

Cys Asn Leu Leu Ile Asp Val Glu Glu Trp Gly Gln Val Val Ile Ile
225                 230                 235                 240

Ser Met Leu Thr Arg Tyr Ala Arg Thr Gln Phe Leu Ser Pro Thr Gln
                245                 250                 255

Asn Glu Ser Leu Leu Glu Glu Asn Ala Glu Lys Ala Phe Tyr Gly Ser
            260                 265                 270

Glu Glu Asp Glu Ala Lys Gly Ala Gly Ser Glu Glu Thr Ala Ala Ala
        275                 280                 285

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

Leu Leu Arg Asn Thr Lys Pro Leu Leu Gln Ser Arg Ser Ala Ala Val
305                 310                 315                 320
```

```
Val Met Ala Val Ala Gln Leu Tyr Phe His Leu Ala Pro Lys Ala Glu
                325                 330                 335

Val Gly Val Ile Ala Lys Ala Leu Val Arg Leu Leu Arg Ser His Ser
            340                 345                 350

Glu Val Gln Tyr Val Val Leu Gln Asn Val Ala Thr Met Ser Ile Lys
        355                 360                 365

Arg Arg Gly Met Phe Glu Pro Tyr Leu Lys Ser Phe Tyr Ile Arg Ser
    370                 375                 380

Thr Asp Pro Thr Gln Ile Lys Ile Leu Lys Leu Glu Val Leu Thr Asn
385                 390                 395                 400

Leu Ala Asn Glu Thr Asn Ile Pro Thr Val Leu Arg Glu Phe Gln Thr
                405                 410                 415

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

Ile Gly Arg Cys Ala Thr Asn Ile Gly Arg Val Arg Asp Thr Cys Leu
        435                 440                 445

Asn Gly Leu Val Gln Leu Leu Ser Asn Arg Asp Glu Leu Val Val Ala
    450                 455                 460

Glu Ser Val Val Val Ile Lys Lys Leu Leu Gln Met Gln Pro Ala Gln
465                 470                 475                 480

His Gly Glu Ile Ile Lys His Leu Ala Lys Leu Thr Asp Asn Ile Gln
                485                 490                 495

Val Pro Met Ala Arg Ala Ser Ile Leu Trp Leu Ile Gly Glu Tyr Cys
            500                 505                 510

Glu His Val Pro Arg Ile Ala Pro Asp Val Leu Arg Lys Met Ala Lys
        515                 520                 525

Ser Phe Thr Ala Glu Glu Asp Ile Val Lys Leu Gln Val Ile Asn Leu
    530                 535                 540

Ala Ala Lys Leu Tyr Leu Thr Asn Ser Lys Gln Thr Lys Leu Leu Thr
```

545 550 555 560

Gln Tyr Val Leu Ser Leu Ala Lys Tyr Asp Gln Asn Tyr Asp Ile Arg
565 570 575

Asp Arg Ala Arg Phe Thr Arg Gln Leu Ile Val Pro Ser Glu Gln Gly
580 585 590

Gly Ala Leu Ser Arg His Ala Lys Lys Leu Phe Leu Ala Pro Lys Pro
595 600 605

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

Gly Ser Leu Ser His Leu Leu Asn Ala Lys Ala Thr Gly Tyr Gln Glu
625 630 635 640

Leu Pro Asp Trp Pro Glu Glu Ala Pro Asp Pro Ser Val Arg Asn Val
645 650 655

Glu Val Pro Glu Trp Thr Lys Cys Ser Asn Arg Glu Lys Arg Lys Glu
660 665 670

Lys Glu Lys Pro Phe Tyr Ser Asp Ser Glu Gly Glu Ser Gly Pro Thr
675 680 685

Glu Ser Ala Asp Ser Asp Pro Glu Ser Glu Ser Glu Ser Asp Ser Lys
690 695 700

Ser Ser Ser Glu Ser Gly Ser Gly Glu Ser Ser Ser Glu Ser Asp Asn
705 710 715 720

Glu Asp Gln Asp Glu Asp Glu Glu Lys Gly Arg Gly Ser Glu Ser Glu
725 730 735

Gln Ser Glu Glu Asp Gly Lys Arg Lys Thr Lys Lys Lys Val Pro Glu
740 745 750

Arg Lys Gly Glu Ala Ser Ser Ser Asp Glu Gly Ser Asp Ser Ser Ser
755 760 765

Ser Ser Ser Glu Ser Glu Met Thr Ser Glu Ser Glu Glu Glu Gln Leu
770 775 780

```
Glu Pro Ala Ser Trp Ser Arg Lys Thr Pro Pro Ser Ser Lys Ser Ala
785                 790                 795                 800

Pro Ala Thr Lys Glu Ile Ser Leu Leu Asp Leu Glu Asp Phe Thr Pro
                805                 810                 815

Pro Ser Val Gln Pro Val Ser Pro Pro Ala Ile Val Ser Thr Ser Leu
            820                 825                 830

Ala Ala Asp Leu Glu Gly Leu Thr Leu Thr Asp Ser Thr Leu Val Pro
        835                 840                 845

Ser Leu Leu Ser Pro Val Ser Gly Val Gly Arg Gln Glu Leu Leu His
    850                 855                 860

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

Pro Phe Ser Gly Asp Pro His Met Val Ser Val His Ile His Phe Ser
                885                 890                 895

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

Leu Pro Ala Gly Ile Ser Ile Gln Glu Phe Pro Glu Ile Glu Ser Leu
        915                 920                 925

Ala Pro Gly Glu Ser Ala Thr Ala Val Met Gly Ile Asn Phe Cys Asp
    930                 935                 940

Ser Thr Gln Ala Ala Asn Phe Gln Leu Cys Thr Gln Thr Arg Gln Phe
945                 950                 955                 960

Tyr Val Ser Ile Gln Pro Pro Val Gly Glu Leu Met Ala Pro Val Phe
                965                 970                 975

Met Ser Glu Asn Glu Phe Lys Lys Glu Gln Gly Lys Leu Met Gly Met
            980                 985                 990

Asn Glu Ile Thr Glu Lys Leu Met  Leu Pro Asp Thr Cys  Arg Ser
Asp
        995                 1000                1005
```

```
His Ile  Val Val Gln Lys Val  Thr Ala Thr Ala Asn  Leu Gly Arg
    1010                1015                1020


Val Pro  Cys Gly Thr Ser Asp  Glu Tyr Arg Phe Ala  Gly Arg Thr
    1025                1030                1035


Leu Thr  Gly Gly Ser Leu Val  Leu Leu Thr Leu Asp  Ala Arg Pro
    1040                1045                1050


Ala Gly  Ala Ala Gln Leu Thr  Val Asn Ser Glu Lys  Met Val Ile
    1055                1060                1065


Gly Thr  Met Leu Val Lys Asp  Val Ile Gln Ala Leu  Thr Gln
    1070                1075                1080


<210> 2507
<211> 1153
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 600; "

<220>
<221> source
<223> /note="Gene Symbol: AP3D1; "

<220>
<221> source
<223> /note="Gene Name:
      adaptor-related prt complex 3, delta 1
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  O14617; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000344055"

<400> 2507
Met Ala Leu Lys Met Val Lys Gly Ser Ile Asp Arg Met Phe Asp Lys
1               5                  10                  15


Asn Leu Gln Asp Leu Val Arg Gly Ile Arg Asn His Lys Glu Asp Glu
            20                  25                  30
```

```
Ala Lys Tyr Ile Ser Gln Cys Ile Asp Glu Ile Lys Gln Glu Leu Lys
        35                  40                  45

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

Leu Gln Met Leu Gly Tyr Asp Ile Ser Trp Ala Ala Phe Asn Ile Ile
65                  70                  75                  80

Glu Val Met Ser Ala Ser Lys Phe Thr Phe Lys Arg Ile Gly Tyr Leu
                85                  90                  95

Ala Ala Ser Gln Ser Phe His Glu Gly Thr Asp Val Ile Met Leu Thr
            100                 105                 110

Thr Asn Gln Ile Arg Lys Asp Leu Ser Ser Pro Ser Gln Tyr Asp Thr
        115                 120                 125

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

Arg Asp Leu Ala Asn Asp Ile Met Thr Leu Met Ser His Thr Lys Pro
145                 150                 155                 160

Tyr Ile Arg Lys Lys Ala Val Leu Ile Met Tyr Lys Val Phe Leu Lys
                165                 170                 175

Tyr Pro Glu Ser Leu Arg Pro Ala Phe Pro Arg Leu Lys Glu Lys Leu
            180                 185                 190

Glu Asp Pro Asp Pro Gly Val Gln Ser Ala Ala Val Asn Val Ile Cys
        195                 200                 205

Glu Leu Ala Arg Arg Asn Pro Lys Asn Tyr Leu Ser Leu Ala Pro Leu
    210                 215                 220

Phe Phe Lys Leu Met Thr Ser Ser Thr Asn Asn Trp Val Leu Ile Lys
225                 230                 235                 240

Ile Ile Lys Leu Phe Gly Ala Leu Thr Pro Leu Glu Pro Arg Leu Gly
                245                 250                 255
```

```
Lys Lys Leu Ile Glu Pro Leu Thr Asn Leu Ile His Ser Thr Ser Ala
            260                 265                 270

Met Ser Leu Leu Tyr Glu Cys Val Asn Thr Val Ile Ala Val Leu Ile
        275                 280                 285

Ser Leu Ser Ser Gly Met Pro Asn His Ser Ala Ser Ile Gln Leu Cys
    290                 295                 300

Val Gln Lys Leu Arg Ile Leu Ile Glu Asp Ser Asp Gln Asn Leu Lys
305                 310                 315                 320

Tyr Leu Gly Leu Leu Ala Met Ser Lys Ile Leu Lys Thr His Pro Lys
                325                 330                 335

Ser Val Gln Ser His Lys Asp Leu Ile Leu Gln Cys Leu Asp Asp Lys
            340                 345                 350

Asp Glu Ser Ile Arg Leu Arg Ala Leu Asp Leu Leu Tyr Gly Met Val
        355                 360                 365

Ser Lys Lys Asn Leu Met Glu Ile Val Lys Lys Leu Met Thr His Val
    370                 375                 380

Asp Lys Ala Glu Gly Thr Thr Tyr Arg Asp Glu Leu Leu Thr Lys Ile
385                 390                 395                 400

Ile Asp Ile Cys Ser Gln Ser Asn Tyr Gln Tyr Ile Thr Asn Phe Glu
                405                 410                 415

Trp Tyr Ile Ser Ile Leu Val Glu Leu Thr Arg Leu Glu Gly Thr Arg
            420                 425                 430

His Gly His Leu Ile Ala Ala Gln Met Leu Asp Val Ala Ile Arg Val
        435                 440                 445

Lys Ala Ile Arg Lys Phe Ala Val Ser Gln Met Ser Ala Leu Leu Asp
    450                 455                 460

Ser Ala His Leu Leu Ala Ser Ser Thr Gln Arg Asn Gly Ile Cys Glu
465                 470                 475                 480

Val Leu Tyr Ala Ala Ala Trp Ile Cys Gly Glu Phe Ser Glu His Leu
```

485 490 495

Gln Glu Pro His His Thr Leu Glu Ala Met Leu Arg Pro Arg Val Thr
500 505 510

Thr Leu Pro Gly His Ile Gln Ala Val Tyr Val Gln Asn Val Val Lys
515 520 525

Leu Tyr Ala Ser Ile Leu Gln Gln Lys Glu Gln Ala Gly Glu Ala Glu
530 535 540

Gly Ala Gln Ala Val Thr Gln Leu Met Val Asp Arg Leu Pro Gln Phe
545 550 555 560

Val Gln Ser Ala Asp Leu Glu Val Gln Glu Arg Ala Ser Cys Ile Leu
565 570 575

Gln Leu Val Lys His Ile Gln Lys Leu Gln Ala Lys Asp Val Pro Val
580 585 590

Ala Glu Glu Val Ser Ala Leu Phe Ala Gly Glu Leu Asn Pro Val Ala
595 600 605

Pro Lys Ala Gln Lys Lys Val Pro Val Pro Glu Gly Leu Asp Leu Asp
610 615 620

Ala Trp Ile Asn Glu Pro Leu Ser Asp Ser Glu Ser Glu Asp Glu Arg
625 630 635 640

Pro Arg Ala Val Phe His Glu Glu Glu Gln Arg Arg Pro Lys His Arg
645 650 655

Pro Ser Glu Ala Asp Glu Glu Glu Leu Ala Arg Arg Arg Glu Ala Arg
660 665 670

Lys Gln Glu Gln Ala Asn Asn Pro Phe Tyr Ile Lys Ser Ser Pro Ser
675 680 685

Pro Gln Lys Arg Tyr Gln Asp Thr Pro Gly Val Glu His Ile Pro Val
690 695 700

Val Gln Ile Asp Leu Ser Val Pro Leu Lys Val Pro Gly Leu Pro Met
705 710 715 720

Ser Asp Gln Tyr Val Lys Leu Glu Glu Glu Arg Arg His Arg Gln Lys
725 730 735

Leu Glu Lys Asp Lys Arg Arg Lys Lys Arg Lys Glu Lys Glu Lys Lys
740 745 750

Gly Lys Arg Arg His Ser Ser Leu Pro Thr Glu Ser Asp Glu Asp Ile
755 760 765

Ala Pro Ala Gln Gln Val Asp Ile Val Thr Glu Glu Met Pro Glu Asn
770 775 780

Ala Leu Pro Ser Asp Glu Asp Asp Lys Asp Pro Asn Asp Pro Tyr Arg
785 790 795 800

Ala Leu Asp Ile Asp Leu Asp Lys Pro Leu Ala Asp Ser Glu Lys Leu
805 810 815

Pro Ile Gln Lys His Arg Asn Thr Glu Thr Ser Lys Ser Pro Glu Lys
820 825 830

Asp Val Pro Met Val Glu Lys Lys Ser Lys Lys Pro Lys Lys Lys Glu
835 840 845

Lys Lys His Lys Glu Lys Glu Arg Asp Lys Glu Lys Lys Lys Glu Lys
850 855 860

Glu Lys Lys Lys Ser Pro Lys Pro Lys Lys Lys Lys His Arg Lys Glu
865 870 875 880

Lys Glu Glu Arg Thr Lys Gly Lys Lys Lys Ser Lys Lys Gln Pro Pro
885 890 895

Gly Ser Glu Glu Ala Ala Gly Glu Pro Val Gln Asn Gly Ala Pro Glu
900 905 910

Glu Glu Gln Leu Pro Pro Glu Ser Ser Tyr Ser Leu Leu Ala Glu Asn
915 920 925

Ser Tyr Val Lys Met Thr Cys Asp Ile Arg Gly Ser Leu Gln Glu Asp
930 935 940

```
Ser Gln Val Thr Val Ala Ile Val Leu Glu Asn Arg Ser Ser Ser Ile
945                 950                 955                 960

Leu Lys Gly Met Glu Leu Ser Val Leu Asp Ser Leu Asn Ala Arg Met
                965                 970                 975

Ala Arg Pro Gln Gly Ser Ser Val His Asp Gly Val Pro Val Pro Phe
            980                 985                 990

Gln Leu Pro Pro Gly Val Ser Asn  Glu Ala Gln Tyr Val  Phe Thr
Ile
        995                 1000                1005

Gln Ser  Ile Val Met Ala Gln  Lys Leu Lys Gly Thr  Leu Ser Phe
    1010                1015                1020

Ile Ala  Lys Asn Asp Glu Gly  Ala Thr His Glu Lys  Leu Asp Phe
    1025                1030                1035

Arg Leu  His Phe Ser Cys Ser  Ser Tyr Leu Ile Thr  Thr Pro Cys
    1040                1045                1050

Tyr Ser  Asp Ala Phe Ala Lys  Leu Leu Glu Ser Gly  Asp Leu Ser
    1055                1060                1065

Met Ser  Ser Ile Lys Val Asp  Gly Ile Arg Met Ser  Phe Gln Asn
    1070                1075                1080

Leu Leu  Ala Lys Ile Cys Phe  His His His Phe Ser  Val Val Glu
    1085                1090                1095

Arg Val  Asp Ser Cys Ala Ser  Met Tyr Ser Arg Ser  Ile Gln Gly
    1100                1105                1110

His His  Val Cys Leu Leu Val  Lys Lys Gly Glu Asn  Ser Val Ser
    1115                1120                1125

Val Asp  Gly Lys Cys Ser Asp  Ser Thr Leu Leu Ser  Asn Leu Leu
    1130                1135                1140

Glu Glu  Met Lys Ala Thr Leu  Ala Lys Cys
    1145                1150
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<210> 2508
<211> 1215
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 600; "

<220>
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<223> /note="Gene Symbol: AP3D1; "

<220>
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<223> /note="Gene Name:
adaptor-related prt complex 3, delta 1
subunit; "

<220>
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<223> /note="Uniprot ID: O14617; "

<220>
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<223> /note="ENSP ID: ENSP00000347416"

<400> 2508
Met Ala Leu Lys Met Val Lys Gly Ser Ile Asp Arg Met Phe Asp Lys
1   5   10   15

Asn Leu Gln Asp Leu Val Arg Gly Ile Arg Asn His Lys Glu Asp Glu
            20   25   30

Ala Lys Tyr Ile Ser Gln Cys Ile Asp Glu Ile Lys Gln Glu Leu Lys
        35   40   45

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

Leu Gln Met Leu Gly Tyr Asp Ile Ser Trp Ala Ala Phe Asn Ile Ile
65   70   75   80

Glu Val Met Ser Ala Ser Lys Phe Thr Phe Lys Arg Ile Gly Tyr Leu
                85   90   95

Ala Ala Ser Gln Ser Phe His Glu Gly Thr Asp Val Ile Met Leu Thr
            100   105   110

```
Thr Asn Gln Ile Arg Lys Asp Leu Ser Ser Pro Ser Gln Tyr Asp Thr
        115                 120                 125

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

Arg Asp Leu Ala Asn Asp Ile Met Thr Leu Met Ser His Thr Lys Pro
145                 150                 155                 160

Tyr Ile Arg Lys Lys Ala Val Leu Ile Met Tyr Lys Val Phe Leu Lys
                165                 170                 175

Tyr Pro Glu Ser Leu Arg Pro Ala Phe Pro Arg Leu Lys Glu Lys Leu
            180                 185                 190

Glu Asp Pro Asp Pro Gly Val Gln Ser Ala Ala Val Asn Val Ile Cys
        195                 200                 205

Glu Leu Ala Arg Arg Asn Pro Lys Asn Tyr Leu Ser Leu Ala Pro Leu
    210                 215                 220

Phe Phe Lys Leu Met Thr Ser Ser Thr Asn Asn Trp Val Leu Ile Lys
225                 230                 235                 240

Ile Ile Lys Leu Phe Gly Ala Leu Thr Pro Leu Glu Pro Arg Leu Gly
                245                 250                 255

Lys Lys Leu Ile Glu Pro Leu Thr Asn Leu Ile His Ser Thr Ser Ala
            260                 265                 270

Met Ser Leu Leu Tyr Glu Cys Val Asn Thr Val Ile Ala Val Leu Ile
        275                 280                 285

Ser Leu Ser Ser Gly Met Pro Asn His Ser Ala Ser Ile Gln Leu Cys
    290                 295                 300

Val Gln Lys Leu Arg Ile Leu Ile Glu Asp Ser Asp Gln Asn Leu Lys
305                 310                 315                 320

Tyr Leu Gly Leu Leu Ala Met Ser Lys Ile Leu Lys Thr His Pro Lys
                325                 330                 335

Ser Val Gln Ser His Lys Asp Leu Ile Leu Gln Cys Leu Asp Asp Lys
```

```
            340                 345                 350

Asp Glu Ser Ile Arg Leu Arg Ala Leu Asp Leu Leu Tyr Gly Met Val
        355                 360                 365

Ser Lys Lys Asn Leu Met Glu Ile Val Lys Lys Leu Met Thr His Val
    370                 375                 380

Asp Lys Ala Glu Gly Thr Thr Tyr Arg Asp Glu Leu Leu Thr Lys Ile
385                 390                 395                 400

Ile Asp Ile Cys Ser Gln Ser Asn Tyr Gln Tyr Ile Thr Asn Phe Glu
                405                 410                 415

Trp Tyr Ile Ser Ile Leu Val Glu Leu Thr Arg Leu Glu Gly Thr Arg
            420                 425                 430

His Gly His Leu Ile Ala Ala Gln Met Leu Asp Val Ala Ile Arg Val
        435                 440                 445

Lys Ala Ile Arg Lys Phe Ala Val Ser Gln Met Ser Ala Leu Leu Asp
    450                 455                 460

Ser Ala His Leu Leu Ala Ser Ser Thr Gln Arg Asn Gly Ile Cys Glu
465                 470                 475                 480

Val Leu Tyr Ala Ala Ala Trp Ile Cys Gly Glu Phe Ser Glu His Leu
                485                 490                 495

Gln Glu Pro His His Thr Leu Glu Ala Met Leu Arg Pro Arg Val Thr
            500                 505                 510

Thr Leu Pro Gly His Ile Gln Ala Val Tyr Val Gln Asn Val Val Lys
        515                 520                 525

Leu Tyr Ala Ser Ile Leu Gln Gln Lys Glu Gln Ala Gly Glu Ala Glu
    530                 535                 540

Gly Ala Gln Ala Val Thr Gln Leu Met Val Asp Arg Leu Pro Gln Phe
545                 550                 555                 560

Val Gln Ser Ala Asp Leu Glu Val Gln Glu Arg Ala Ser Cys Ile Leu
                565                 570                 575
```

```
Gln Leu Val Lys His Ile Gln Lys Leu Gln Ala Lys Asp Val Pro Val
            580                 585                 590

Ala Glu Glu Val Ser Ala Leu Phe Ala Gly Glu Leu Asn Pro Val Ala
        595                 600                 605

Pro Lys Ala Gln Lys Lys Val Pro Val Pro Glu Gly Leu Asp Leu Asp
    610                 615                 620

Ala Trp Ile Asn Glu Pro Leu Ser Asp Ser Glu Ser Glu Asp Glu Arg
625                 630                 635                 640

Pro Arg Ala Val Phe His Glu Glu Glu Gln Arg Arg Pro Lys His Arg
                645                 650                 655

Pro Ser Glu Ala Asp Glu Glu Glu Leu Ala Arg Arg Arg Glu Ala Arg
            660                 665                 670

Lys Gln Glu Gln Ala Asn Asn Pro Phe Tyr Ile Lys Ser Ser Pro Ser
        675                 680                 685

Pro Gln Lys Arg Tyr Gln Asp Thr Pro Gly Val Glu His Ile Pro Val
    690                 695                 700

Val Gln Ile Asp Leu Ser Val Pro Leu Lys Val Pro Gly Leu Pro Met
705                 710                 715                 720

Ser Asp Gln Tyr Val Lys Leu Glu Glu Glu Arg Arg His Arg Gln Lys
                725                 730                 735

Leu Glu Lys Asp Lys Arg Arg Lys Lys Arg Lys Glu Lys Glu Lys Lys
            740                 745                 750

Gly Lys Arg Arg His Ser Ser Leu Pro Thr Glu Ser Asp Glu Asp Ile
        755                 760                 765

Ala Pro Ala Gln Gln Val Asp Ile Val Thr Glu Glu Met Pro Glu Asn
    770                 775                 780

Ala Leu Pro Ser Asp Glu Asp Asp Lys Asp Pro Asn Asp Pro Tyr Arg
785                 790                 795                 800
```

```
Ala Leu Asp Ile Asp Leu Asp Lys Pro Leu Ala Asp Ser Glu Lys Leu
                805                 810                 815

Pro Ile Gln Lys His Arg Asn Thr Glu Thr Ser Lys Ser Pro Glu Lys
            820                 825                 830

Asp Val Pro Met Val Glu Lys Lys Ser Lys Lys Pro Lys Lys Lys Glu
        835                 840                 845

Lys Lys His Lys Glu Lys Glu Arg Asp Lys Glu Lys Lys Lys Glu Lys
    850                 855                 860

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

Pro Ala Pro Ala Pro Ala Pro Ala Pro Val Pro Ser Thr Gly Glu Leu
                885                 890                 895

Ser Val Asn Thr Val Thr Thr Pro Lys Asp Glu Cys Glu Asp Ala Lys
            900                 905                 910

Thr Glu Ala Gln Gly Glu Glu Asp Asp Ala Glu Gly Gln Asp Gln Asp
        915                 920                 925

Lys Lys Ser Pro Lys Pro Lys Lys Lys Lys His Arg Lys Glu Lys Glu
    930                 935                 940

Glu Arg Thr Lys Gly Lys Lys Lys Ser Lys Lys Gln Pro Pro Gly Ser
945                 950                 955                 960

Glu Glu Ala Ala Gly Glu Pro Val Gln Asn Gly Ala Pro Glu Glu Glu
                965                 970                 975

Gln Leu Pro Pro Glu Ser Ser Tyr Ser Leu Leu Ala Glu Asn Ser Tyr
            980                 985                 990

Val Lys Met Thr Cys Asp Ile Arg  Gly Ser Leu Gln Glu  Asp Ser
Gln
        995                 1000                1005

Val Thr  Val Ala Ile Val Leu  Glu Asn Arg Ser Ser  Ser Ile Leu
    1010                1015                1020
```

Lys Gly Met Glu Leu Ser Val Leu Asp Ser Leu Asn Ala Arg Met
1025 1030 1035

Ala Arg Pro Gln Gly Ser Ser Val His Asp Gly Val Pro Val Pro
1040 1045 1050

Phe Gln Leu Pro Pro Gly Val Ser Asn Glu Ala Gln Tyr Val Phe
1055 1060 1065

Thr Ile Gln Ser Ile Val Met Ala Gln Lys Leu Lys Gly Thr Leu
1070 1075 1080

Ser Phe Ile Ala Lys Asn Asp Glu Gly Ala Thr His Glu Lys Leu
1085 1090 1095

Asp Phe Arg Leu His Phe Ser Cys Ser Ser Tyr Leu Ile Thr Thr
1100 1105 1110

Pro Cys Tyr Ser Asp Ala Phe Ala Lys Leu Leu Glu Ser Gly Asp
1115 1120 1125

Leu Ser Met Ser Ser Ile Lys Val Asp Gly Ile Arg Met Ser Phe
1130 1135 1140

Gln Asn Leu Leu Ala Lys Ile Cys Phe His His His Phe Ser Val
1145 1150 1155

Val Glu Arg Val Asp Ser Cys Ala Ser Met Tyr Ser Arg Ser Ile
1160 1165 1170

Gln Gly His His Val Cys Leu Leu Val Lys Lys Gly Glu Asn Ser
1175 1180 1185

Val Ser Val Asp Gly Lys Cys Ser Asp Ser Thr Leu Leu Ser Asn
1190 1195 1200

Leu Leu Glu Glu Met Lys Ala Thr Leu Ala Lys Cys
1205 1210 1215

<210> 2509
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 600; "

<220>
<221> source
<223> /note="Gene Symbol: AP3D1; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 3, delta 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466267"

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

<400> 2509
Xaa Glu Leu Ser Val Leu Asp Ser Leu Asn Ala Arg Met Ala Arg Pro
1 5 10 15

Gln Gly Ser Ser Val His Asp Gly Val Pro Val Pro Phe Gln Leu Pro
20 25 30

Pro Gly Val Ser Asn Glu Ala Gln Tyr Val Phe Thr Ile Gln Ser Ile
35 40 45

Val Met Ala Gln Lys Leu Lys Gly Thr Leu Ser Phe Ile Ala Lys Asn
50 55 60

Asp Glu Gly Ala Thr His Glu Lys Leu Asp Phe Arg Leu His Phe Ser
65 70 75 80

Cys Ser Ser Tyr Leu Ile Thr Thr Pro Cys Tyr Ser Asp Ala Phe Ala
85 90 95

Lys Leu Leu Glu Ser Gly Asp Leu Ser Met Ser Ser Ile Lys Val Asp
100 105 110

Gly Ile Arg Met Ser Phe Gln Asn Leu Leu Ala Lys Ile Cys Phe His
115 120 125

```
His His Phe Ser Gly Leu Leu Lys Leu Trp Pro Arg Ala Ala Gln Glu
    130                 135                 140

Gly Gly Pro Cys Ser Gly Gly Gly Ala Ala Ala Met Gln Cys Pro Gly
145                 150                 155                 160

Ser Leu Thr Leu Pro Ala Leu Leu Gln Leu Trp Ser Glu Trp Thr Pro
                165                 170                 175

Ala Pro Pro Cys Thr Ala Ala Pro Ser Arg Ala Thr Met Ser Ala Ser
            180                 185                 190

Trp
```

<210> 2510
<211> 155
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 600; "

<220>
<221> source
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<220>
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subunit; "

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<223> /note="ENSP ID: ENSP00000468449"

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

<400> 2510

```
Xaa Gly Ser Leu Gln Glu Asp Ser Gln Val Thr Val Ala Ile Val Leu
1               5                   10                  15

Glu Asn Arg Ser Ser Ser Ile Leu Lys Gly Met Glu Leu Ser Val Leu
            20                  25                  30
```

```
Asp Ser Leu Asn Ala Arg Met Ala Arg Pro Gln Gly Ser Ser Val His
        35                  40                  45

Asp Gly Val Pro Val Pro Phe Gln Leu Pro Pro Gly Val Ser Asn Glu
    50                  55                  60

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

Lys Gly Thr Leu Ser Phe Ile Ala Lys Asn Asp Glu Gly Ala Thr His
                85                  90                  95

Glu Lys Leu Asp Phe Arg Leu His Phe Ser Cys Ser Ser Tyr Leu Ile
            100                 105                 110

Thr Thr Pro Cys Tyr Arg Ile Phe Trp Arg Arg Ser Val Phe Thr Thr
        115                 120                 125

Ile Phe Pro Leu Trp Ser Glu Trp Thr Pro Ala Pro Pro Cys Thr Ala
    130                 135                 140

Ala Pro Ser Arg Ala Thr Met Ser Ala Ser Trp
145                 150                 155


<210> 2511
<211> 203
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 600; "

<220>
<221> source
<223> /note="Gene Symbol: AP3D1; "

<220>
<221> source
<223> /note="Gene Name:
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      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481961"
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 2511
Xaa Leu Lys Tyr Pro Glu Ser Leu Arg Pro Ala Phe Pro Arg Leu Lys
1 5 10 15

Glu Lys Leu Glu Asp Pro Asp Pro Gly Val Gln Ser Ala Ala Val Asn
20 25 30

Val Ile Cys Glu Leu Ala Arg Arg Asn Pro Lys Asn Tyr Leu Ser Leu
35 40 45

Ala Pro Leu Phe Phe Lys Leu Met Thr Ser Ser Thr Asn Asn Trp Val
50 55 60

Leu Ile Lys Ile Ile Lys Leu Phe Gly Ala Leu Thr Pro Leu Glu Pro
65 70 75 80

Arg Leu Gly Lys Lys Leu Ile Glu Pro Leu Thr Asn Leu Ile His Ser
85 90 95

Ala His Leu Ala Val Leu Arg His Ala Gln Pro Gln Arg Gln His Pro
100 105 110

Ala Leu Cys Ser Glu Ile Lys Asp Ile Asp Arg Gly Leu Arg Ser Glu
115 120 125

Leu Glu Val Pro Gly Ala Ala Gly Asn Val Gln Asp Pro Glu Asp Pro
130 135 140

Pro Gln Val Arg Ala Val Pro Gln Gly Pro His Pro Ala Val Pro Gly
145 150 155 160

Arg Gln Gly Arg Val His Pro Ala Ala Gly Pro Gly Pro Ala Leu Trp
165 170 175

Asp Gly Val Gln Glu Glu Pro Asp Gly Asp Arg Glu Glu Ala Asp Asp
180 185 190

Pro Arg Arg Gln Gly Arg Gly Tyr His Leu Pro
195 200

<210> 2512
<211> 418
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 601; "

<220>
<221> source
<223> /note="Gene Symbol: AP3M1; "

<220>
<221> source
<223> /note="Gene Name:
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subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2T2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000347408"

<400> 2512
Met Ile His Ser Leu Phe Leu Ile Asn Cys Ser Gly Asp Ile Phe Leu
1   5   10   15

Glu Lys His Trp Lys Ser Val Val Ser Gln Ser Val Cys Asp Tyr Phe
            20   25   30

Phe Glu Ala Gln Glu Lys Ala Ala Asp Val Glu Asn Val Pro Pro Val
        35   40   45

Ile Ser Thr Pro His His Tyr Leu Ile Ser Ile Tyr Arg Asp Lys Leu
    50   55   60

Phe Phe Val Ser Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65   70   75   80

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

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

```
Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
        115                 120                 125

Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Ser Val Val
    130                 135                 140

Asn Ser Ile Thr Gly Ser Ser Asn Val Gly Asp Thr Leu Pro Thr Gly
145                 150                 155                 160

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

Asn Glu Ala Tyr Phe Asp Val Val Glu Glu Ile Asp Ala Ile Ile Asp
            180                 185                 190

Lys Ser Gly Ser Thr Val Phe Ala Glu Ile Gln Gly Val Ile Asp Ala
        195                 200                 205

Cys Ile Lys Leu Ser Gly Met Pro Asp Leu Ser Leu Ser Phe Met Asn
    210                 215                 220

Pro Arg Leu Leu Asp Asp Val Ser Phe His Pro Cys Ile Arg Phe Lys
225                 230                 235                 240

Arg Trp Glu Ser Glu Arg Val Leu Ser Phe Ile Pro Pro Asp Gly Asn
                245                 250                 255

Phe Arg Leu Ile Ser Tyr Arg Val Ser Ser Gln Asn Leu Val Ala Ile
            260                 265                 270

Pro Val Tyr Val Lys His Ser Ile Ser Phe Lys Glu Asn Ser Ser Cys
        275                 280                 285

Gly Arg Phe Asp Ile Thr Ile Gly Pro Lys Gln Asn Met Gly Lys Thr
    290                 295                 300

Ile Glu Gly Ile Thr Val Thr Val His Met Pro Lys Val Val Leu Asn
305                 310                 315                 320

Met Asn Leu Thr Pro Thr Gln Gly Ser Tyr Thr Phe Asp Pro Val Thr
                325                 330                 335
```

```
Lys Val Leu Thr Trp Asp Val Gly Lys Ile Thr Pro Gln Lys Leu Pro
            340                 345                 350

Ser Leu Lys Gly Leu Val Asn Leu Gln Ser Gly Ala Pro Lys Pro Glu
        355                 360                 365

Glu Asn Pro Ser Leu Asn Ile Gln Phe Lys Ile Gln Gln Leu Ala Ile
    370                 375                 380

Ser Gly Leu Lys Val Asn Arg Leu Asp Met Tyr Gly Glu Lys Tyr Lys
385                 390                 395                 400

Pro Phe Lys Gly Val Lys Tyr Val Thr Lys Ala Gly Lys Phe Gln Val
                405                 410                 415

Arg Thr
```

<210> 2513
<211> 418
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 601; "

<220>
<221> source
<223> /note="Gene Symbol: AP3M1; "

<220>
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<223> /note="Gene Name:
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subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2T2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361831"

<400> 2513

```
Met Ile His Ser Leu Phe Leu Ile Asn Cys Ser Gly Asp Ile Phe Leu
1               5                   10                  15

Glu Lys His Trp Lys Ser Val Val Ser Gln Ser Val Cys Asp Tyr Phe
```

```
            20                  25                  30

Phe Glu Ala Gln Glu Lys Ala Ala Asp Val Glu Asn Val Pro Pro Val
        35                  40                  45

Ile Ser Thr Pro His His Tyr Leu Ile Ser Ile Tyr Arg Asp Lys Leu
    50                  55                  60

Phe Phe Val Ser Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65                  70                  75                  80

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

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

Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
        115                 120                 125

Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Ser Val Val
    130                 135                 140

Asn Ser Ile Thr Gly Ser Ser Asn Val Gly Asp Thr Leu Pro Thr Gly
145                 150                 155                 160

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

Asn Glu Ala Tyr Phe Asp Val Val Glu Glu Ile Asp Ala Ile Ile Asp
            180                 185                 190

Lys Ser Gly Ser Thr Val Phe Ala Glu Ile Gln Gly Val Ile Asp Ala
        195                 200                 205

Cys Ile Lys Leu Ser Gly Met Pro Asp Leu Ser Leu Ser Phe Met Asn
    210                 215                 220

Pro Arg Leu Leu Asp Asp Val Ser Phe His Pro Cys Ile Arg Phe Lys
225                 230                 235                 240

Arg Trp Glu Ser Glu Arg Val Leu Ser Phe Ile Pro Pro Asp Gly Asn
                245                 250                 255
```

```
Phe Arg Leu Ile Ser Tyr Arg Val Ser Ser Gln Asn Leu Val Ala Ile
            260                 265                 270

Pro Val Tyr Val Lys His Ser Ile Ser Phe Lys Glu Asn Ser Ser Cys
        275                 280                 285

Gly Arg Phe Asp Ile Thr Ile Gly Pro Lys Gln Asn Met Gly Lys Thr
    290                 295                 300

Ile Glu Gly Ile Thr Val Thr Val His Met Pro Lys Val Val Leu Asn
305                 310                 315                 320

Met Asn Leu Thr Pro Thr Gln Gly Ser Tyr Thr Phe Asp Pro Val Thr
                325                 330                 335

Lys Val Leu Thr Trp Asp Val Gly Lys Ile Thr Pro Gln Lys Leu Pro
            340                 345                 350

Ser Leu Lys Gly Leu Val Asn Leu Gln Ser Gly Ala Pro Lys Pro Glu
        355                 360                 365

Glu Asn Pro Ser Leu Asn Ile Gln Phe Lys Ile Gln Gln Leu Ala Ile
    370                 375                 380

Ser Gly Leu Lys Val Asn Arg Leu Asp Met Tyr Gly Glu Lys Tyr Lys
385                 390                 395                 400

Pro Phe Lys Gly Val Lys Tyr Val Thr Lys Ala Gly Lys Phe Gln Val
                405                 410                 415

Arg Thr
```

<210> 2514
<211> 418
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 602; "

<220>
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<223> /note="Gene Symbol: AP3M2; "

<220>
<221> source
<223> /note="Gene Name:
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subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P53677; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000174653"

<400> 2514

```
Met Ile His Ser Leu Phe Leu Ile Asn Ser Ser Gly Asp Ile Phe Leu
1               5                  10                  15

Glu Lys His Trp Lys Ser Val Val Ser Arg Ser Val Cys Asp Tyr Phe
            20                  25                  30

Phe Glu Ala Gln Glu Arg Ala Thr Glu Ala Glu Asn Val Pro Pro Val
        35                  40                  45

Ile Pro Thr Pro His His Tyr Leu Leu Ser Val Tyr Arg His Lys Ile
    50                  55                  60

Phe Phe Val Ala Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65                  70                  75                  80

Glu Phe Leu His Arg Val Val Asp Thr Phe Gln Asp Tyr Phe Gly Val
                85                  90                  95

Cys Ser Glu Pro Val Ile Lys Asp Asn Val Val Val Val Tyr Glu Val
            100                 105                 110

Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
        115                 120                 125

Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Thr Val Val
    130                 135                 140

Asn Thr Ile Thr Gly Ser Thr Asn Val Gly Asp Gln Leu Pro Thr Gly
145                 150                 155                 160
```

```
Gln Leu Ser Val Val Pro Trp Arg Arg Thr Gly Val Lys Tyr Thr Asn
                165                 170                 175

Asn Glu Ala Tyr Phe Asp Val Ile Glu Glu Ile Asp Ala Ile Ile Asp
            180                 185                 190

Lys Ser Gly Ser Thr Ile Thr Ala Glu Ile Gln Gly Val Ile Asp Ala
        195                 200                 205

Cys Val Lys Leu Thr Gly Met Pro Asp Leu Thr Leu Ser Phe Met Asn
    210                 215                 220

Pro Arg Leu Leu Asp Asp Val Ser Phe His Pro Cys Val Arg Phe Lys
225                 230                 235                 240

Arg Trp Glu Ser Glu Arg Ile Leu Ser Phe Ile Pro Pro Asp Gly Asn
                245                 250                 255

Phe Arg Leu Leu Ser Tyr His Val Ser Ala Gln Asn Leu Val Ala Ile
            260                 265                 270

Pro Val Tyr Val Lys His Asn Ile Ser Phe Arg Asp Ser Ser Ser Leu
        275                 280                 285

Gly Arg Phe Glu Ile Thr Val Gly Pro Lys Gln Thr Met Gly Lys Thr
    290                 295                 300

Ile Glu Gly Val Thr Val Thr Ser Gln Met Pro Lys Gly Val Leu Asn
305                 310                 315                 320

Met Ser Leu Thr Pro Ser Gln Gly Thr His Thr Phe Asp Pro Val Thr
                325                 330                 335

Lys Met Leu Ser Trp Asp Val Gly Lys Ile Asn Pro Gln Lys Leu Pro
            340                 345                 350

Ser Leu Lys Gly Thr Met Ser Leu Gln Ala Gly Ala Ser Lys Pro Asp
        355                 360                 365

Glu Asn Pro Thr Ile Asn Leu Gln Phe Lys Ile Gln Gln Leu Ala Ile
    370                 375                 380

Ser Gly Leu Lys Val Asn Arg Leu Asp Met Tyr Gly Glu Lys Tyr Lys
```

385 390 395 400

Pro Phe Lys Gly Ile Lys Tyr Met Thr Lys Ala Gly Lys Phe Gln Val
405 410 415

Arg Thr

<210> 2515
<211> 418
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 602; "

<220>
<221> source
<223> /note="Gene Symbol: AP3M2; "

<220>
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<223> /note="Gene Name:
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subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P53677; "

<220>
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<223> /note="ENSP ID: ENSP00000380132"

<400> 2515
Met Ile His Ser Leu Phe Leu Ile Asn Ser Ser Gly Asp Ile Phe Leu
1 5 10 15

Glu Lys His Trp Lys Ser Val Val Ser Arg Ser Val Cys Asp Tyr Phe
20 25 30

Phe Glu Ala Gln Glu Arg Ala Thr Glu Ala Glu Asn Val Pro Pro Val
35 40 45

Ile Pro Thr Pro His His Tyr Leu Leu Ser Val Tyr Arg His Lys Ile
50 55 60

Phe Phe Val Ala Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65 70 75 80

```
Glu Phe Leu His Arg Val Val Asp Thr Phe Gln Asp Tyr Phe Gly Val
                85                  90                  95

Cys Ser Glu Pro Val Ile Lys Asp Asn Val Val Val Val Tyr Glu Val
            100                 105                 110

Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
        115                 120                 125

Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Thr Val Val
    130                 135                 140

Asn Thr Ile Thr Gly Ser Thr Asn Val Gly Asp Gln Leu Pro Thr Gly
145                 150                 155                 160

Gln Leu Ser Val Val Pro Trp Arg Arg Thr Gly Val Lys Tyr Thr Asn
                165                 170                 175

Asn Glu Ala Tyr Phe Asp Val Ile Glu Glu Ile Asp Ala Ile Ile Asp
            180                 185                 190

Lys Ser Gly Ser Thr Ile Thr Ala Glu Ile Gln Gly Val Ile Asp Ala
        195                 200                 205

Cys Val Lys Leu Thr Gly Met Pro Asp Leu Thr Leu Ser Phe Met Asn
    210                 215                 220

Pro Arg Leu Leu Asp Asp Val Ser Phe His Pro Cys Val Arg Phe Lys
225                 230                 235                 240

Arg Trp Glu Ser Glu Arg Ile Leu Ser Phe Ile Pro Pro Asp Gly Asn
                245                 250                 255

Phe Arg Leu Leu Ser Tyr His Val Ser Ala Gln Asn Leu Val Ala Ile
            260                 265                 270

Pro Val Tyr Val Lys His Asn Ile Ser Phe Arg Asp Ser Ser Ser Leu
        275                 280                 285

Gly Arg Phe Glu Ile Thr Val Gly Pro Lys Gln Thr Met Gly Lys Thr
    290                 295                 300
```

```
Ile Glu Gly Val Thr Val Thr Ser Gln Met Pro Lys Gly Val Leu Asn
305                 310                 315                 320

Met Ser Leu Thr Pro Ser Gln Gly Thr His Thr Phe Asp Pro Val Thr
                325                 330                 335

Lys Met Leu Ser Trp Asp Val Gly Lys Ile Asn Pro Gln Lys Leu Pro
            340                 345                 350

Ser Leu Lys Gly Thr Met Ser Leu Gln Ala Gly Ala Ser Lys Pro Asp
        355                 360                 365

Glu Asn Pro Thr Ile Asn Leu Gln Phe Lys Ile Gln Gln Leu Ala Ile
    370                 375                 380

Ser Gly Leu Lys Val Asn Arg Leu Asp Met Tyr Gly Glu Lys Tyr Lys
385                 390                 395                 400

Pro Phe Lys Gly Ile Lys Tyr Met Thr Lys Ala Gly Lys Phe Gln Val
                405                 410                 415

Arg Thr
```

<210> 2516
<211> 97
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 602; "

<220>
<221> source
<223> /note="Gene Symbol: AP3M2; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 3, mu 2
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428279"

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

<400> 2516
Xaa Thr Ser Gln Met Pro Lys Gly Val Leu Asn Met Ser Leu Thr Pro
1   5   10   15

Ser Gln Gly Thr His Thr Phe Asp Pro Val Thr Lys Met Leu Ser Trp
            20   25   30

Asp Val Gly Lys Ile Asn Pro Gln Lys Leu Pro Ser Leu Lys Gly Thr
        35   40   45

Met Ser Leu Gln Ala Gly Ala Ser Lys Pro Asp Glu Asn Pro Thr Ile
    50   55   60

Asn Leu Gln Phe Lys Ile Gln Gln Leu Ala Ile Ser Glu Asp Phe His
65   70   75   80

Val Cys Ser Tyr Phe Tyr Phe Gly Thr Thr Gly Pro Phe Gln Asp Ser
                85   90   95

Arg

<210> 2517
<211> 418
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 602; "

<220>
<221> source
<223> /note="Gene Symbol: AP3M2; "

<220>
<221> source
<223> /note="Gene Name:
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      subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P53677; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428787"

<400> 2517
Met Ile His Ser Leu Phe Leu Ile Asn Ser Ser Gly Asp Ile Phe Leu
1   5   10   15

Glu Lys His Trp Lys Ser Val Val Ser Arg Ser Val Cys Asp Tyr Phe
            20   25   30

Phe Glu Ala Gln Glu Arg Ala Thr Glu Ala Glu Asn Val Pro Pro Val
        35   40   45

Ile Pro Thr Pro His His Tyr Leu Leu Ser Val Tyr Arg His Lys Ile
    50   55   60

Phe Phe Val Ala Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65   70   75   80

Glu Phe Leu His Arg Val Val Asp Thr Phe Gln Asp Tyr Phe Gly Val
                85   90   95

Cys Ser Glu Pro Val Ile Lys Asp Asn Val Val Val Val Tyr Glu Val
            100   105   110

Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
        115   120   125

Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Thr Val Val
    130   135   140

Asn Thr Ile Thr Gly Ser Thr Asn Val Gly Asp Gln Leu Pro Thr Gly
145   150   155   160

Gln Leu Ser Val Val Pro Trp Arg Arg Thr Gly Val Lys Tyr Thr Asn
                165   170   175

Asn Glu Ala Tyr Phe Asp Val Ile Glu Glu Ile Asp Ala Ile Ile Asp
            180   185   190

Lys Ser Gly Ser Thr Ile Thr Ala Glu Ile Gln Gly Val Ile Asp Ala
        195   200   205

```
Cys Val Lys Leu Thr Gly Met Pro Asp Leu Thr Leu Ser Phe Met Asn
    210                 215                 220

Pro Arg Leu Leu Asp Asp Val Ser Phe His Pro Cys Val Arg Phe Lys
225                 230                 235                 240

Arg Trp Glu Ser Glu Arg Ile Leu Ser Phe Ile Pro Pro Asp Gly Asn
                245                 250                 255

Phe Arg Leu Leu Ser Tyr His Val Ser Ala Gln Asn Leu Val Ala Ile
            260                 265                 270

Pro Val Tyr Val Lys His Asn Ile Ser Phe Arg Asp Ser Ser Ser Leu
        275                 280                 285

Gly Arg Phe Glu Ile Thr Val Gly Pro Lys Gln Thr Met Gly Lys Thr
    290                 295                 300

Ile Glu Gly Val Thr Val Thr Ser Gln Met Pro Lys Gly Val Leu Asn
305                 310                 315                 320

Met Ser Leu Thr Pro Ser Gln Gly Thr His Thr Phe Asp Pro Val Thr
                325                 330                 335

Lys Met Leu Ser Trp Asp Val Gly Lys Ile Asn Pro Gln Lys Leu Pro
            340                 345                 350

Ser Leu Lys Gly Thr Met Ser Leu Gln Ala Gly Ala Ser Lys Pro Asp
        355                 360                 365

Glu Asn Pro Thr Ile Asn Leu Gln Phe Lys Ile Gln Gln Leu Ala Ile
    370                 375                 380

Ser Gly Leu Lys Val Asn Arg Leu Asp Met Tyr Gly Glu Lys Tyr Lys
385                 390                 395                 400

Pro Phe Lys Gly Ile Lys Tyr Met Thr Lys Ala Gly Lys Phe Gln Val
                405                 410                 415

Arg Thr
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<210> 2518

<211> 131
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000429037"

<400> 2518

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

<210> 2519
<211> 268
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<400> 2519
Met Ile His Ser Leu Phe Leu Ile Asn Ser Ser Gly Asp Ile Phe Leu
1 5 10 15

Glu Lys His Trp Lys Ser Val Val Ser Arg Ser Val Cys Asp Tyr Phe
20 25 30

Phe Glu Ala Gln Glu Arg Ala Thr Glu Ala Glu Asn Val Pro Pro Val
35 40 45

Ile Pro Thr Pro His His Tyr Leu Leu Ser Val Tyr Arg His Lys Ile
50 55 60

Phe Phe Val Ala Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65 70 75 80

Glu Phe Leu His Arg Val Val Asp Thr Phe Gln Asp Tyr Phe Gly Val
85 90 95

Cys Ser Glu Pro Val Ile Lys Asp Asn Val Val Val Val Tyr Glu Val
100 105 110

Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
115 120 125

```
Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Thr Val Val
    130                 135                 140

Asn Thr Ile Thr Gly Ser Thr Asn Val Gly Asp Gln Leu Pro Thr Gly
145                 150                 155                 160

Gln Leu Ser Val Val Pro Trp Arg Arg Thr Gly Val Lys Tyr Thr Asn
                165                 170                 175

Asn Glu Ala Tyr Phe Asp Val Ile Glu Glu Ile Asp Ala Ile Ile Asp
            180                 185                 190

Lys Ser Gly Ser Thr Ile Thr Ala Glu Ile Gln Gly Val Ile Asp Ala
        195                 200                 205

Cys Val Lys Leu Thr Gly Met Pro Asp Leu Thr Leu Ser Phe Met Asn
    210                 215                 220

Pro Arg Leu Leu Asp Asp Val Ser Phe His Pro Cys Val Arg Phe Lys
225                 230                 235                 240

Arg Trp Glu Ser Glu Arg Ile Leu Ser Phe Ile Pro Pro Asp Gly Asn
                245                 250                 255

Phe Arg Leu Leu Ser Tyr His Val Ser Ala Gln Lys
            260                 265


<210> 2520
<211> 139
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<400> 2520
Met Ile His Ser Leu Phe Leu Ile Asn Ser Ser Gly Asp Ile Phe Leu
1   5   10   15

Glu Lys His Trp Lys Ser Val Val Ser Arg Ser Val Cys Asp Tyr Phe
            20   25   30

Phe Glu Ala Gln Glu Arg Ala Thr Glu Ala Glu Asn Val Pro Pro Val
        35   40   45

Ile Pro Thr Pro His His Tyr Leu Leu Ser Val Tyr Arg His Lys Ile
    50   55   60

Phe Phe Val Ala Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65   70   75   80

Glu Phe Leu His Arg Val Val Asp Thr Phe Gln Asp Tyr Phe Gly Val
                85   90   95

Cys Ser Glu Pro Val Ile Lys Asp Asn Val Val Val Val Tyr Glu Val
            100   105   110

Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
        115   120   125

Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile
    130   135

<210> 2521
<211> 48
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subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000429804"

<400> 2521
Pro Thr Ile Asn Leu Gln Phe Lys Ile Gln Gln Leu Ala Ile Ser Gly
1 5 10 15

Leu Lys Val Asn Arg Leu Asp Met Tyr Gly Glu Lys Tyr Lys Pro Phe
20 25 30

Lys Gly Ile Lys Tyr Met Thr Lys Ala Gly Lys Phe Gln Val Arg Thr
35 40 45

<210> 2522
<211> 109
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subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000430200"

<400> 2522
Met Ile His Ser Leu Phe Leu Ile Asn Ser Ser Gly Asp Ile Phe Leu
1 5 10 15

Glu Lys His Trp Lys Ser Val Val Ser Arg Ser Val Cys Asp Tyr Phe
20 25 30

Phe Glu Ala Gln Glu Arg Ala Thr Glu Ala Glu Asn Val Pro Pro Val
35 40 45

Ile Pro Thr Pro His His Tyr Leu Leu Ser Val Tyr Arg His Lys Ile
50 55 60

```
Phe Phe Val Ala Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65                  70                  75                  80


Glu Phe Leu His Arg Val Val Asp Thr Phe Gln Tyr Tyr Cys Ser Gly
                85                  90                  95


Ile Ser Val Leu Met Gln His Thr Gly Pro Phe Ala Gln
            100                 105


<210> 2523
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<223> /note="ENSP ID: ENSP00000430538"

<400> 2523
Met Ile His Ser Leu Phe Leu Ile Asn Ser
1               5                   10


<210> 2524
<211> 287
<212> PRT
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<220>
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<223> /note="Gene Name:
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<220>
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<400> 2524
Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn Ile Leu Lys
1 5 10 15

Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Thr Val Val Asn Thr Ile
20 25 30

Thr Gly Ser Thr Asn Val Gly Asp Gln Leu Pro Thr Gly Gln Leu Ser
35 40 45

Val Val Pro Trp Arg Arg Thr Gly Val Lys Tyr Thr Asn Asn Glu Ala
50 55 60

Tyr Phe Asp Val Ile Glu Glu Ile Asp Ala Ile Ile Asp Lys Ser Gly
65 70 75 80

Ser Thr Ile Thr Ala Glu Ile Gln Gly Val Ile Asp Ala Cys Val Lys
85 90 95

Leu Thr Gly Met Pro Asp Leu Thr Leu Ser Phe Met Asn Pro Arg Leu
100 105 110

Leu Asp Asp Val Ser Phe His Pro Cys Val Arg Phe Lys Arg Trp Glu
115 120 125

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

Leu Ser Tyr His Val Ser Ala Gln Asn Leu Val Ala Ile Pro Val Tyr
145 150 155 160

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

Glu Ile Thr Val Gly Pro Lys Gln Thr Met Gly Lys Thr Ile Glu Gly
180 185 190

```
Val Thr Val Thr Ser Gln Met Pro Lys Gly Val Leu Asn Met Ser Leu
        195                 200                 205

Thr Pro Ser Gln Gly Thr His Thr Phe Asp Pro Val Thr Lys Met Leu
    210                 215                 220

Ser Trp Asp Val Gly Lys Ile Asn Pro Gln Lys Leu Pro Ser Leu Lys
225                 230                 235                 240

Gly Thr Met Ser Leu Gln Ala Gly Ala Ser Lys Pro Asp Glu Asn Pro
                245                 250                 255

Thr Ile Asn Leu Gln Phe Lys Ile Gln Gln Leu Ala Ile Ser Gly Leu
            260                 265                 270

Lys Val Asn Arg Leu Asp Met Tyr Gly Glu Lys Tyr Lys Pro Phe
        275                 280                 285
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<210> 2525
<211> 273
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<223> /note="Uniprot ID: P53677; "

<220>
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<400> 2525

```
Met Ile His Ser Leu Phe Leu Ile Asn Ser Ser Gly Asp Ile Phe Leu
1               5                   10                  15

Glu Lys His Trp Lys Ser Val Val Ser Arg Ser Val Cys Asp Tyr Phe
```

```
            20                  25                  30

Phe Glu Ala Gln Glu Arg Ala Thr Glu Ala Glu Asn Val Pro Pro Val
        35                  40                  45

Ile Pro Thr Pro His His Tyr Leu Leu Ser Val Tyr Arg His Lys Ile
    50                  55                  60

Phe Phe Val Ala Val Ile Gln Thr Glu Val Pro Pro Leu Phe Val Ile
65                  70                  75                  80

Glu Phe Leu His Arg Val Val Asp Thr Phe Gln Asp Tyr Phe Gly Val
                85                  90                  95

Cys Ser Glu Pro Val Ile Lys Asp Asn Val Val Val Val Tyr Glu Val
            100                 105                 110

Leu Glu Glu Met Leu Asp Asn Gly Phe Pro Leu Ala Thr Glu Ser Asn
        115                 120                 125

Ile Leu Lys Glu Leu Ile Lys Pro Pro Thr Ile Leu Arg Thr Val Val
    130                 135                 140

Asn Thr Ile Thr Gly Ser Thr Asn Val Gly Asp Gln Leu Pro Thr Gly
145                 150                 155                 160

Gln Leu Ser Val Val Pro Trp Arg Arg Thr Gly Val Lys Tyr Thr Asn
                165                 170                 175

Asn Glu Ala Tyr Phe Asp Val Ile Glu Glu Ile Asp Ala Ile Ile Asp
            180                 185                 190

Lys Ser Gly Ser Thr Ile Thr Ala Glu Ile Gln Gly Val Ile Asp Ala
        195                 200                 205

Cys Val Lys Leu Thr Gly Met Pro Asp Leu Thr Leu Ser Phe Met Asn
    210                 215                 220

Pro Arg Leu Leu Asp Asp Val Ser Phe His Pro Cys Val Arg Phe Lys
225                 230                 235                 240

Arg Trp Glu Ser Glu Arg Ile Leu Ser Phe Ile Pro Pro Asp Gly Asn
                245                 250                 255
```

```
Phe Arg Leu Leu Ser Tyr His Val Ser Ala Gln Lys Cys Cys Leu Gly
            260                 265                 270

Met



<210> 2526
<211> 193
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 603; "

<220>
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<223> /note="Gene Symbol: AP3S1; "

<220>
<221> source
<223> /note="Gene Name:
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      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  Q92572; "

<220>
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<223> /note="ENSP ID: ENSP00000325369"

<400> 2526
Met Ile Lys Ala Ile Leu Ile Phe Asn Asn His Gly Lys Pro Arg Leu
1               5                  10                  15

Ser Lys Phe Tyr Gln Pro Tyr Ser Glu Asp Thr Gln Gln Gln Ile Ile
            20                  25                  30

Arg Glu Thr Phe His Leu Val Ser Lys Arg Asp Glu Asn Val Cys Asn
        35                  40                  45

Phe Leu Glu Gly Gly Leu Leu Ile Gly Gly Ser Asp Asn Lys Leu Ile
    50                  55                  60

Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65                  70                  75                  80
```

```
Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Val Phe Val Glu Thr
                85                  90                  95

Leu Asp Lys Cys Phe Glu Asn Val Cys Glu Leu Asp Leu Ile Phe His
            100                 105                 110

Val Asp Lys Val His Asn Ile Leu Ala Glu Met Val Met Gly Gly Met
        115                 120                 125

Val Leu Glu Thr Asn Met Asn Glu Ile Val Thr Gln Ile Asp Ala Gln
    130                 135                 140

Asn Lys Leu Glu Lys Ser Glu Ala Gly Leu Ala Gly Ala Pro Ala Arg
145                 150                 155                 160

Ala Val Ser Ala Val Lys Asn Met Asn Leu Pro Glu Ile Pro Arg Asn
                165                 170                 175

Ile Asn Ile Gly Asp Ile Ser Ile Lys Val Pro Asn Leu Pro Ser Phe
            180                 185                 190

Lys
```

<210> 2527
<211> 162
<212> PRT
<213> Homo sapiens

<220>
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<400> 2527

```
Met Ile Lys Ala Ile Leu Ile Phe Asn Asn His Gly Lys Pro Arg Leu
1               5                  10                  15

Ser Lys Phe Tyr Gln Pro Tyr Ser Glu Asp Thr Gln Gln Gln Ile Ile
            20                  25                  30

Arg Glu Thr Phe His Leu Val Ser Lys Arg Asp Glu Asn Val Cys Asn
        35                  40                  45

Phe Leu Glu Gly Gly Leu Leu Ile Gly Gly Ser Asp Asn Lys Leu Ile
    50                  55                  60

Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65                  70                  75                  80

Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Val Phe Val Glu Thr
                85                  90                  95

Leu Asp Lys Cys Phe Glu Asn Val Cys Glu Leu Asp Leu Ile Phe His
            100                 105                 110

Val Asp Lys Val His Asn Ile Leu Ala Glu Met Val Met Gly Gly Met
        115                 120                 125

Val Leu Glu Thr Asn Met Asn Glu Ile Val Thr Gln Ile Asp Ala Gln
    130                 135                 140

Asn Lys Leu Glu Lys Ser Glu Thr Phe Ile Phe Gln Ser Pro Arg Gln
145                 150                 155                 160

Asp Arg
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<210> 2528
<211> 193
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<223> /note="Uniprot ID: P59780; "

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<400> 2528
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1   5   10   15

Val Arg Phe Tyr Gln Arg Phe Pro Glu Glu Ile Gln Gln Gln Ile Val
            20   25   30

Arg Glu Thr Phe His Leu Val Leu Lys Arg Asp Asp Asn Ile Cys Asn
        35   40   45

Phe Leu Glu Gly Gly Ser Leu Ile Gly Gly Ser Asp Tyr Lys Leu Ile
    50   55   60

Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65   70   75   80

Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Val Phe Val Glu Thr
                85   90   95

Leu Asp Lys Cys Phe Glu Asn Val Cys Glu Leu Asp Leu Ile Phe His
            100   105   110

Met Asp Lys Val His Tyr Ile Leu Gln Glu Val Val Met Gly Gly Met
        115   120   125

Val Leu Glu Thr Asn Met Asn Glu Ile Val Ala Gln Ile Glu Ala Gln
    130   135   140

Asn Arg Leu Glu Lys Ser Glu Gly Gly Leu Ser Ala Ala Pro Ala Arg
145   150   155   160

Ala Val Ser Ala Val Lys Asn Ile Asn Leu Pro Glu Ile Pro Arg Asn
                165   170   175

```
Ile Asn Ile Gly Asp Leu Asn Ile Lys Val Pro Asn Leu Ser Gln Phe
            180                 185                 190


Val



<210> 2529
<211> 124
<212> PRT
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<220>
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<223> /note="Uniprot ID:  P59780; "

<220>
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<400> 2529
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1               5                  10                  15


Val Arg Phe Tyr Gln Arg Phe Pro Glu Glu Ile Gln Gln Gln Ile Val
            20                  25                  30


Arg Glu Thr Phe His Leu Val Leu Lys Arg Asp Asp Asn Ile Cys Asn
        35                  40                  45


Phe Leu Glu Gly Gly Ser Leu Ile Gly Gly Ser Asp Tyr Lys Leu Ile
    50                  55                  60


Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65                  70                  75                  80
```

```
Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Leu Lys Lys Arg Glu
                85                  90                  95

Arg Lys Lys Ser Gln Cys Asn Thr Leu Gln Thr Gly Thr Leu Ala Leu
            100                 105                 110

Trp Glu Gln Gly Pro Asp Ile Arg Thr Arg Arg Leu
        115                 120


<210> 2530
<211> 44
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<220>
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<400> 2530
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1               5                   10                  15

Val Arg Phe Tyr Gln Arg Phe Val Thr Arg Arg Asn Ser Thr Ala Asp
            20                  25                  30

Cys Ser Arg Asp Phe Pro Ser Ser Pro Gln Ala Gly
        35                  40


<210> 2531
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<400> 2531
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1 5 10 15

Val Arg Phe Tyr Gln Arg Phe Pro Glu Glu Ile Gln Gln Gln Ile Val
20 25 30

Arg Glu Thr Phe His Leu Val Leu Lys Arg Asp Asp Asn Ile Cys Asn
35 40 45

Phe Leu Glu Gly Gly Ser Leu Ile Gly Gly Ser Asp Tyr Lys Leu Ile
50 55 60

Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65 70 75 80

Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Val His Leu Glu Val
85 90 95

Val Phe Phe Ile Ala Pro Lys Val Phe Val Glu Thr Leu Asp Lys Cys
100 105 110

Phe Glu Asn Val Cys Glu Leu Asp Leu Ile Phe His Met Asp Lys Val
115 120 125

His Tyr Ile Leu Gln Glu Val Val Met Gly Gly Met Val Leu Glu Thr
130 135 140

Asn Met Asn Glu Ile Val Ala Gln Ile Glu Ala Gln Asn Arg Leu Glu
145 150 155 160

Lys Ser Glu Gly Gly Leu Ser Ala Ala Pro Ala Arg Ala Val Ser Ala

```
                165                 170                 175

Val Lys Asn Ile Asn Leu Pro Glu Ile Pro Arg Asn Ile Asn Ile Gly
            180                 185                 190

Asp Leu Asn Ile Lys Val Pro Asn Leu Ser Gln Phe Val
        195                 200                 205


<210> 2532
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<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID:  P59780; "

<220>
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<223> /note="ENSP ID: ENSP00000453288"

<400> 2532
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1               5                   10                  15

Val Arg Phe Tyr Gln Arg Phe Pro Glu Glu Ile Gln Gln Gln Ile Val
            20                  25                  30

Arg Glu Thr Phe His Leu Val Leu Lys Arg Asp Asp Asn Ile Cys Asn
        35                  40                  45

Phe Leu Glu Gly Gly Ser Leu Ile Gly Gly Ser Asp Tyr Lys Leu Ile
    50                  55                  60

Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65                  70                  75                  80
```

Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Leu Lys Lys Arg Glu
85 90 95

Arg Lys Lys Ser Gln Cys Asn Thr Leu Gln Thr Gly Thr Leu Ala Leu
100 105 110

Trp Glu Gln Gly Pro Asp Ile Arg Thr Arg Arg Leu
115 120

<210> 2533
<211> 136
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000453380"

<400> 2533
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1 5 10 15

Val Arg Phe Tyr Gln Arg Phe Pro Glu Glu Ile Gln Gln Gln Ile Val
20 25 30

Arg Glu Thr Phe His Leu Val Leu Lys Arg Asp Asp Asn Ile Cys Asn
35 40 45

Phe Leu Glu Gly Gly Ser Leu Ile Gly Gly Ser Asp Tyr Lys Leu Ile
50 55 60

Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65 70 75 80

```
Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Val His Leu Glu Val
                85                  90                  95

Val Phe Phe Ile Ala Pro Lys Leu Lys Lys Arg Glu Arg Lys Lys Ser
            100                 105                 110

Gln Cys Asn Thr Leu Gln Thr Gly Thr Leu Ala Leu Trp Glu Gln Gly
        115                 120                 125

Pro Asp Ile Arg Thr Arg Arg Leu
    130                 135


<210> 2534
<211> 156
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 604; "

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<223> /note="Gene Name:
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      subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000453852"

<400> 2534
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1               5                  10                  15

Val Arg Phe Tyr Gln Arg Phe Pro Glu Glu Ile Gln Gln Gln Ile Val
            20                  25                  30

Arg Glu Thr Phe His Leu Val Leu Lys Arg Asp Asp Asn Ile Cys Asn
        35                  40                  45

Phe Leu Glu Gly Gly Ser Leu Ile Gly Gly Ser Asp Tyr Lys Leu Ile
    50                  55                  60
```

```
Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys Val Asp Ser Ser
65                  70                  75                  80


Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Val Phe Val Glu Thr
                85                  90                  95


Leu Asp Lys Cys Phe Glu Asn Val Cys Glu Leu Asp Leu Ile Phe His
            100                 105                 110


Met Asp Lys Val His Tyr Ile Leu Gln Glu Val Val Met Gly Gly Met
        115                 120                 125


Val Leu Glu Thr Asn Met Asn Glu Ile Val Ala Gln Ile Glu Ala Gln
    130                 135                 140


Asn Arg Leu Glu Lys Ser Glu Asp Gln Val Leu Ala
145                 150                 155


<210> 2535
<211> 36
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<213> Homo sapiens

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<400> 2535
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1               5                   10                  15


Val Arg Phe Tyr Gln Arg Phe Lys Lys Phe Asn Ser Arg Leu Phe Glu
            20                  25                  30


Arg Leu Ser Ile
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35

<210> 2536
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<213> Homo sapiens

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subunit; "

<220>
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<400> 2536
Met Ile Gln Ala Ile Leu Val Phe Asn Asn His Gly Lys Pro Arg Leu
1 5 10 15

Val Arg Phe Tyr Gln Arg Phe Val Ser Ala Ala Arg Leu His His Ala
20 25 30

Pro Ser Gly Arg Pro Leu Cys Leu Pro Ser Ser Leu Ala Ser Arg Arg
35 40 45

Pro Gly Ala Pro Leu Phe Gly His Leu Gly Leu Leu His Arg Ala
50 55 60

<210> 2537
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<220>
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<220>
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<223> /note="Uniprot ID: Q9Y6B7; "

<220>
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<223> /note="ENSP ID: ENSP00000256658"

<400> 2537

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Met Pro Tyr Leu Gly Ser Glu Asp Val Val Lys Glu Leu Lys Lys Ala
1               5                  10                  15

Leu Cys Asn Pro His Ile Gln Ala Asp Arg Leu Arg Tyr Arg Asn Val
            20                  25                  30

Ile Gln Arg Val Ile Arg Tyr Met Thr Gln Gly Leu Asp Met Ser Gly
        35                  40                  45

Val Phe Met Glu Met Val Lys Ala Ser Ala Thr Val Asp Ile Val Gln
    50                  55                  60

Lys Lys Leu Val Tyr Leu Tyr Met Cys Thr Tyr Ala Pro Leu Lys Pro
65                  70                  75                  80

Asp Leu Ala Leu Leu Ala Ile Asn Thr Leu Cys Lys Asp Cys Ser Asp
                85                  90                  95

Pro Asn Pro Met Val Arg Gly Leu Ala Leu Arg Ser Met Cys Ser Leu
            100                 105                 110

Arg Met Pro Gly Val Gln Glu Tyr Ile Gln Gln Pro Ile Leu Asn Gly
        115                 120                 125

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

Ala Lys Met His Asn Leu His Gly Asp Ser Glu Val Asp Gly Ala Leu
145                 150                 155                 160

Val Asn Glu Leu Tyr Ser Leu Leu Arg Asp Gln Asp Pro Ile Val Val
                165                 170                 175
```

```
Val Asn Cys Leu Arg Ser Leu Glu Glu Ile Leu Lys Gln Glu Gly Gly
            180                 185                 190

Val Val Ile Asn Lys Pro Ile Ala His His Leu Leu Asn Arg Met Ser
        195                 200                 205

Lys Leu Asp Gln Trp Gly Gln Ala Glu Val Leu Asn Phe Leu Leu Arg
    210                 215                 220

Tyr Gln Pro Arg Ser Glu Glu Glu Leu Phe Asp Ile Leu Asn Leu Leu
225                 230                 235                 240

Asp Ser Phe Leu Lys Ser Ser Ser Pro Gly Val Val Met Gly Ala Thr
                245                 250                 255

Lys Leu Phe Leu Ile Leu Ala Lys Met Phe Pro His Val Gln Thr Asp
            260                 265                 270

Val Leu Val Arg Val Lys Gly Pro Leu Leu Ala Ala Cys Ser Ser Glu
        275                 280                 285

Ser Arg Glu Leu Cys Phe Val Ala Leu Cys His Val Arg Gln Ile Leu
    290                 295                 300

His Ser Leu Pro Gly His Phe Ser Ser His Tyr Lys Lys Phe Phe Cys
305                 310                 315                 320

Ser Tyr Ser Glu Pro His Tyr Ile Lys Leu Gln Lys Val Glu Val Leu
                325                 330                 335

Cys Glu Leu Val Asn Asp Glu Asn Val Gln Gln Val Leu Glu Glu Leu
            340                 345                 350

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

Phe Ala Ile Gly Gly Ile Ala Arg Thr Tyr Thr Asp Gln Cys Val Gln
    370                 375                 380

Ile Leu Thr Glu Leu Leu Gly Leu Arg Gln Glu His Ile Thr Thr Val
385                 390                 395                 400
```

```
Val Val Gln Thr Phe Arg Asp Leu Val Trp Leu Cys Pro Gln Cys Thr
                405                 410                 415

Glu Ala Val Cys Gln Ala Leu Pro Gly Cys Glu Glu Asn Ile Gln Asp
            420                 425                 430

Ser Glu Gly Lys Gln Ala Leu Ile Trp Leu Leu Gly Val His Gly Glu
        435                 440                 445

Arg Ile Pro Asn Ala Pro Tyr Val Leu Glu Asp Phe Val Glu Asn Val
    450                 455                 460

Lys Ser Glu Thr Phe Pro Ala Val Lys Met Glu Leu Leu Thr Ala Leu
465                 470                 475                 480

Leu Arg Leu Phe Leu Ser Arg Pro Ala Glu Cys Gln Asp Met Leu Gly
                485                 490                 495

Arg Leu Leu Tyr Tyr Cys Ile Glu Glu Glu Lys Asp Met Ala Val Arg
            500                 505                 510

Asp Arg Gly Leu Phe Tyr Tyr Arg Leu Leu Leu Val Gly Ile Asp Glu
        515                 520                 525

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

Leu Glu Asp Pro Ala Glu Arg Pro Val Asn Ser Trp Ala Ser Asp Phe
545                 550                 555                 560

Asn Thr Leu Val Pro Val Tyr Gly Lys Ala His Trp Ala Thr Ile Ser
                565                 570                 575

Lys Cys Gln Gly Ala Glu Arg Cys Asp Pro Glu Leu Pro Lys Thr Ser
            580                 585                 590

Ser Phe Ala Ala Ser Gly Pro Leu Ile Pro Glu Glu Asn Lys Glu Arg
        595                 600                 605

Val Gln Glu Leu Pro Asp Ser Gly Ala Leu Met Leu Val Pro Asn Arg
    610                 615                 620

Gln Leu Thr Ala Asp Tyr Phe Glu Lys Thr Trp Leu Ser Leu Lys Val
```

625 630 635 640

Ala His Gln Gln Val Leu Pro Trp Arg Gly Glu Phe His Pro Asp Thr
645 650 655

Leu Gln Met Ala Leu Gln Val Val Asn Ile Gln Thr Ile Ala Met Ser
660 665 670

Arg Ala Gly Ser Arg Pro Trp Lys Ala Tyr Leu Ser Ala Gln Asp Asp
675 680 685

Thr Gly Cys Leu Phe Leu Thr Glu Leu Leu Leu Glu Pro Gly Asn Ser
690 695 700

Glu Met Gln Ile Ser Val Lys Gln Asn Glu Ala Arg Thr Glu Thr Leu
705 710 715 720

Asn Ser Phe Ile Ser Val Leu Glu Thr Val Ile Gly Thr Ile Glu Glu
725 730 735

Ile Lys Ser

<210> 2538
<211> 296
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 605; "

<220>
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<223> /note="Gene Symbol: AP4B1; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000358577"

<400> 2538
Met Pro Tyr Leu Gly Ser Glu Asp Val Val Lys Glu Leu Lys Lys Ala
1 5 10 15

```
Leu Cys Asn Pro His Ile Gln Ala Asp Arg Leu Arg Tyr Arg Asn Val
            20                  25                  30

Ile Gln Arg Val Ile Arg Met Pro Gly Val Gln Glu Tyr Ile Gln Gln
        35                  40                  45

Pro Ile Leu Asn Gly Leu Arg Asp Lys Ala Ser Tyr Val Arg Arg Val
    50                  55                  60

Ala Val Leu Gly Cys Ala Lys Met His Asn Leu His Gly Asp Ser Glu
65                  70                  75                  80

Val Asp Gly Ala Leu Val Asn Glu Leu Tyr Ser Leu Leu Arg Asp Gln
                85                  90                  95

Asp Pro Ile Val Val Val Asn Cys Leu Arg Ser Leu Glu Glu Ile Leu
            100                 105                 110

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

Leu Asn Arg Met Ser Lys Leu Asp Gln Trp Gly Gln Ala Glu Val Leu
    130                 135                 140

Asn Phe Leu Leu Arg Tyr Gln Pro Arg Ser Glu Glu Glu Leu Phe Asp
145                 150                 155                 160

Ile Leu Asn Leu Leu Asp Ser Phe Leu Lys Ser Ser Ser Pro Gly Val
                165                 170                 175

Val Met Gly Ala Thr Lys Leu Phe Leu Ile Leu Ala Lys Met Phe Pro
            180                 185                 190

His Val Gln Thr Asp Val Leu Val Arg Val Lys Gly Pro Leu Leu Ala
        195                 200                 205

Ala Cys Ser Ser Glu Ser Arg Glu Leu Cys Phe Val Ala Leu Cys His
    210                 215                 220

Val Arg Gln Ile Leu His Ser Leu Pro Gly His Phe Ser Ser His Tyr
225                 230                 235                 240
```

```
Lys Lys Phe Phe Cys Ser Tyr Ser Glu Pro His Tyr Ile Lys Leu Gln
                245                 250                 255

Lys Val Glu Val Leu Cys Glu Leu Val Asn Asp Glu Asn Val Gln Gln
            260                 265                 270

Val Leu Glu Glu Leu Arg Gly Tyr Cys Thr Asp Val Ser Ala Asp Phe
        275                 280                 285

Ala Gln Ala Ala Ile Phe Ala Ile
    290                 295


<210> 2539
<211> 571
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358580"

<400> 2539
Met Pro Tyr Leu Gly Ser Glu Asp Val Val Lys Glu Leu Lys Lys Ala
1               5                   10                  15

Leu Cys Asn Pro His Ile Gln Ala Asp Arg Leu Arg Tyr Arg Asn Val
            20                  25                  30

Ile Gln Arg Val Ile Arg Met Ser Lys Leu Asp Gln Trp Gly Gln Ala
        35                  40                  45

Glu Val Leu Asn Phe Leu Leu Arg Tyr Gln Pro Arg Ser Glu Glu Glu
    50                  55                  60
```

```
Leu Phe Asp Ile Leu Asn Leu Leu Asp Ser Phe Leu Lys Ser Ser Ser
65                  70                  75                  80

Pro Gly Val Val Met Gly Ala Thr Lys Leu Phe Leu Ile Leu Ala Lys
                85                  90                  95

Met Phe Pro His Val Gln Thr Asp Val Leu Val Arg Val Lys Gly Pro
            100                 105                 110

Leu Leu Ala Ala Cys Ser Ser Glu Ser Arg Glu Leu Cys Phe Val Ala
        115                 120                 125

Leu Cys His Val Arg Gln Ile Leu His Ser Leu Pro Gly His Phe Ser
    130                 135                 140

Ser His Tyr Lys Lys Phe Phe Cys Ser Tyr Ser Glu Pro His Tyr Ile
145                 150                 155                 160

Lys Leu Gln Lys Val Glu Val Leu Cys Glu Leu Val Asn Asp Glu Asn
                165                 170                 175

Val Gln Gln Val Leu Glu Glu Leu Arg Gly Tyr Cys Thr Asp Val Ser
            180                 185                 190

Ala Asp Phe Ala Gln Ala Ala Ile Phe Ala Ile Gly Gly Ile Ala Arg
        195                 200                 205

Thr Tyr Thr Asp Gln Cys Val Gln Ile Leu Thr Glu Leu Leu Gly Leu
    210                 215                 220

Arg Gln Glu His Ile Thr Thr Val Val Val Gln Thr Phe Arg Asp Leu
225                 230                 235                 240

Val Trp Leu Cys Pro Gln Cys Thr Glu Ala Val Cys Gln Ala Leu Pro
                245                 250                 255

Gly Cys Glu Glu Asn Ile Gln Asp Ser Glu Gly Lys Gln Ala Leu Ile
            260                 265                 270

Trp Leu Leu Gly Val His Gly Glu Arg Ile Pro Asn Ala Pro Tyr Val
        275                 280                 285

Leu Glu Asp Phe Val Glu Asn Val Lys Ser Glu Thr Phe Pro Ala Val
```

290 295 300

Lys Met Glu Leu Leu Thr Ala Leu Leu Arg Leu Phe Leu Ser Arg Pro
305 310 315 320

Ala Glu Cys Gln Asp Met Leu Gly Arg Leu Leu Tyr Tyr Cys Ile Glu
325 330 335

Glu Glu Lys Asp Met Ala Val Arg Asp Arg Gly Leu Phe Tyr Tyr Arg
340 345 350

Leu Leu Leu Val Gly Ile Asp Glu Val Lys Arg Ile Leu Cys Ser Pro
355 360 365

Lys Ser Asp Pro Thr Leu Gly Leu Leu Glu Asp Pro Ala Glu Arg Pro
370 375 380

Val Asn Ser Trp Ala Ser Asp Phe Asn Thr Leu Val Pro Val Tyr Gly
385 390 395 400

Lys Ala His Trp Ala Thr Ile Ser Lys Cys Gln Gly Ala Glu Arg Cys
405 410 415

Asp Pro Glu Leu Pro Lys Thr Ser Ser Phe Ala Ala Ser Gly Pro Leu
420 425 430

Ile Pro Glu Glu Asn Lys Glu Arg Val Gln Glu Leu Pro Asp Ser Gly
435 440 445

Ala Leu Met Leu Val Pro Asn Arg Gln Leu Thr Ala Asp Tyr Phe Glu
450 455 460

Lys Thr Trp Leu Ser Leu Lys Val Ala His Gln Gln Val Leu Pro Trp
465 470 475 480

Arg Gly Glu Phe His Pro Asp Thr Leu Gln Met Ala Leu Gln Val Val
485 490 495

Asn Ile Gln Thr Ile Ala Met Ser Arg Ala Gly Ser Arg Pro Trp Lys
500 505 510

Ala Tyr Leu Ser Ala Gln Asp Asp Thr Gly Cys Leu Phe Leu Thr Glu
515 520 525

```
Leu Leu Leu Glu Pro Gly Asn Ser Glu Met Gln Ile Ser Val Lys Gln
    530                 535                 540

Asn Glu Ala Arg Thr Glu Thr Leu Asn Ser Phe Ile Ser Val Leu Glu
545                 550                 555                 560

Thr Val Ile Gly Thr Ile Glu Glu Ile Lys Ser
                565                 570


<210> 2540
<211> 739
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 605; "

<220>
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<223> /note="Gene Name:
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      subunit; "

<220>
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<223> /note="Uniprot ID:  Q9Y6B7; "

<220>
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<223> /note="ENSP ID: ENSP00000358582"

<400> 2540
Met Pro Tyr Leu Gly Ser Glu Asp Val Val Lys Glu Leu Lys Lys Ala
1               5                   10                  15

Leu Cys Asn Pro His Ile Gln Ala Asp Arg Leu Arg Tyr Arg Asn Val
            20                  25                  30

Ile Gln Arg Val Ile Arg Tyr Met Thr Gln Gly Leu Asp Met Ser Gly
        35                  40                  45

Val Phe Met Glu Met Val Lys Ala Ser Ala Thr Val Asp Ile Val Gln
    50                  55                  60
```

```
Lys Lys Leu Val Tyr Leu Tyr Met Cys Thr Tyr Ala Pro Leu Lys Pro
65                  70                  75                  80

Asp Leu Ala Leu Leu Ala Ile Asn Thr Leu Cys Lys Asp Cys Ser Asp
                85                  90                  95

Pro Asn Pro Met Val Arg Gly Leu Ala Leu Arg Ser Met Cys Ser Leu
            100                 105                 110

Arg Met Pro Gly Val Gln Glu Tyr Ile Gln Gln Pro Ile Leu Asn Gly
        115                 120                 125

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

Ala Lys Met His Asn Leu His Gly Asp Ser Glu Val Asp Gly Ala Leu
145                 150                 155                 160

Val Asn Glu Leu Tyr Ser Leu Leu Arg Asp Gln Asp Pro Ile Val Val
                165                 170                 175

Val Asn Cys Leu Arg Ser Leu Glu Glu Ile Leu Lys Gln Glu Gly Gly
            180                 185                 190

Val Val Ile Asn Lys Pro Ile Ala His His Leu Leu Asn Arg Met Ser
        195                 200                 205

Lys Leu Asp Gln Trp Gly Gln Ala Glu Val Leu Asn Phe Leu Leu Arg
    210                 215                 220

Tyr Gln Pro Arg Ser Glu Glu Glu Leu Phe Asp Ile Leu Asn Leu Leu
225                 230                 235                 240

Asp Ser Phe Leu Lys Ser Ser Ser Pro Gly Val Val Met Gly Ala Thr
                245                 250                 255

Lys Leu Phe Leu Ile Leu Ala Lys Met Phe Pro His Val Gln Thr Asp
            260                 265                 270

Val Leu Val Arg Val Lys Gly Pro Leu Leu Ala Ala Cys Ser Ser Glu
        275                 280                 285
```

```
Ser Arg Glu Leu Cys Phe Val Ala Leu Cys His Val Arg Gln Ile Leu
    290                 295                 300

His Ser Leu Pro Gly His Phe Ser Ser His Tyr Lys Lys Phe Phe Cys
305                 310                 315                 320

Ser Tyr Ser Glu Pro His Tyr Ile Lys Leu Gln Lys Val Glu Val Leu
                325                 330                 335

Cys Glu Leu Val Asn Asp Glu Asn Val Gln Gln Val Leu Glu Glu Leu
            340                 345                 350

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

Phe Ala Ile Gly Gly Ile Ala Arg Thr Tyr Thr Asp Gln Cys Val Gln
    370                 375                 380

Ile Leu Thr Glu Leu Leu Gly Leu Arg Gln Glu His Ile Thr Thr Val
385                 390                 395                 400

Val Val Gln Thr Phe Arg Asp Leu Val Trp Leu Cys Pro Gln Cys Thr
                405                 410                 415

Glu Ala Val Cys Gln Ala Leu Pro Gly Cys Glu Glu Asn Ile Gln Asp
            420                 425                 430

Ser Glu Gly Lys Gln Ala Leu Ile Trp Leu Leu Gly Val His Gly Glu
        435                 440                 445

Arg Ile Pro Asn Ala Pro Tyr Val Leu Glu Asp Phe Val Glu Asn Val
    450                 455                 460

Lys Ser Glu Thr Phe Pro Ala Val Lys Met Glu Leu Leu Thr Ala Leu
465                 470                 475                 480

Leu Arg Leu Phe Leu Ser Arg Pro Ala Glu Cys Gln Asp Met Leu Gly
                485                 490                 495

Arg Leu Leu Tyr Tyr Cys Ile Glu Glu Glu Lys Asp Met Ala Val Arg
            500                 505                 510

Asp Arg Gly Leu Phe Tyr Tyr Arg Leu Leu Leu Val Gly Ile Asp Glu
```

```
        515                 520                 525

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

Leu Glu Asp Pro Ala Glu Arg Pro Val Asn Ser Trp Ala Ser Asp Phe
545                 550                 555                 560

Asn Thr Leu Val Pro Val Tyr Gly Lys Ala His Trp Ala Thr Ile Ser
                565                 570                 575

Lys Cys Gln Gly Ala Glu Arg Cys Asp Pro Glu Leu Pro Lys Thr Ser
            580                 585                 590

Ser Phe Ala Ala Ser Gly Pro Leu Ile Pro Glu Glu Asn Lys Glu Arg
        595                 600                 605

Val Gln Glu Leu Pro Asp Ser Gly Ala Leu Met Leu Val Pro Asn Arg
    610                 615                 620

Gln Leu Thr Ala Asp Tyr Phe Glu Lys Thr Trp Leu Ser Leu Lys Val
625                 630                 635                 640

Ala His Gln Gln Val Leu Pro Trp Arg Gly Glu Phe His Pro Asp Thr
                645                 650                 655

Leu Gln Met Ala Leu Gln Val Val Asn Ile Gln Thr Ile Ala Met Ser
            660                 665                 670

Arg Ala Gly Ser Arg Pro Trp Lys Ala Tyr Leu Ser Ala Gln Asp Asp
        675                 680                 685

Thr Gly Cys Leu Phe Leu Thr Glu Leu Leu Leu Glu Pro Gly Asn Ser
    690                 695                 700

Glu Met Gln Ile Ser Val Lys Gln Asn Glu Ala Arg Thr Glu Thr Leu
705                 710                 715                 720

Asn Ser Phe Ile Ser Val Leu Glu Thr Val Ile Gly Thr Ile Glu Glu
                725                 730                 735

Ile Lys Ser
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<210> 2541
<211> 262
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 605; "

<220>
<221> source
<223> /note="Gene Symbol: AP4B1; "

<220>
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<223> /note="Gene Name:
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subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000358584"

<400> 2541
Met Pro Tyr Leu Gly Ser Glu Asp Val Val Lys Glu Leu Lys Lys Ala
1 5 10 15

Leu Cys Asn Pro His Ile Gln Ala Asp Arg Leu Arg Tyr Arg Asn Val
20 25 30

Ile Gln Arg Val Ile Arg Tyr Met Thr Gln Gly Leu Asp Met Ser Gly
35 40 45

Val Phe Met Glu Met Val Lys Ala Ser Ala Thr Val Asp Ile Val Gln
50 55 60

Lys Lys Leu Val Tyr Leu Tyr Met Cys Thr Tyr Ala Pro Leu Lys Pro
65 70 75 80

Asp Leu Ala Leu Leu Ala Ile Asn Thr Leu Cys Lys Asp Cys Ser Asp
85 90 95

Pro Asn Pro Met Val Arg Gly Leu Ala Leu Arg Ser Met Cys Ser Leu
100 105 110

Arg Met Pro Gly Val Gln Glu Tyr Ile Gln Gln Pro Ile Leu Asn Gly
115 120 125

```
Leu Arg Asp Lys Ala Ser Tyr Val Arg Arg Val Ala Val Leu Gly Cys
    130                 135                 140

Ala Lys Met His Asn Leu His Gly Asp Ser Glu Val Asp Gly Ala Leu
145                 150                 155                 160

Val Asn Glu Leu Tyr Ser Leu Leu Arg Asp Gln Asp Pro Ile Val Val
                165                 170                 175

Val Asn Cys Leu Arg Ser Leu Glu Glu Ile Leu Lys Gln Glu Gly Gly
            180                 185                 190

Val Val Ile Asn Lys Pro Ile Ala His His Leu Leu Asn Arg Met Ser
        195                 200                 205

Lys Leu Asp Gln Trp Gly Gln Ala Glu Val Leu Asn Phe Leu Leu Arg
    210                 215                 220

Tyr Gln Pro Arg Ser Glu Glu Glu Leu Phe Asp Ile Leu Asn Leu Leu
225                 230                 235                 240

Asp Ser Phe Leu Lys Ser Ser Ser Pro Gly Val Val Met Gly Ala Thr
                245                 250                 255

Lys Leu Phe Leu Ile Leu
            260
```

<210> 2542
<211> 175
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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subunit; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000393622"

<400> 2542
Met Pro Tyr Leu Gly Ser Glu Asp Val Val Lys Glu Leu Lys Lys Ala
1 5 10 15

Leu Cys Asn Pro His Ile Gln Ala Asp Arg Leu Arg Tyr Arg Asn Val
20 25 30

Ile Gln Arg Val Ile Arg Met Ser Lys Leu Asp Gln Trp Gly Gln Ala
35 40 45

Glu Val Leu Asn Phe Leu Leu Arg Tyr Gln Pro Arg Ser Glu Glu Glu
50 55 60

Leu Phe Asp Ile Leu Asn Leu Leu Asp Ser Phe Leu Lys Ser Ser Ser
65 70 75 80

Pro Gly Val Val Met Gly Ala Thr Lys Leu Phe Leu Ile Leu Ala Lys
85 90 95

Met Phe Pro His Val Gln Thr Asp Val Leu Val Arg Val Lys Gly Pro
100 105 110

Leu Leu Ala Ala Cys Ser Ser Glu Ser Arg Glu Leu Cys Phe Val Ala
115 120 125

Leu Cys His Val Arg Gln Ile Leu His Ser Leu Pro Gly His Phe Ser
130 135 140

Ser His Tyr Lys Lys Phe Phe Cys Ser Tyr Ser Glu Pro His Tyr Ile
145 150 155 160

Lys Leu Gln Lys Val Glu Val Leu Cys Glu Leu Val Asn Asp Glu
165 170 175

<210> 2543
<211> 1137
<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: Q9UPM8; "

<220>
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<223> /note="ENSP ID: ENSP00000261842"

<400> 2543

```
Met Ser Asp Ile Val Glu Lys Thr Leu Thr Ala Leu Pro Gly Leu Phe
1               5                  10                  15

Leu Gln Asn Gln Pro Gly Gly Gly Pro Ala Ala Ala Lys Ala Ser Phe
            20                  25                  30

Ser Ser Arg Leu Gly Ser Leu Val Arg Gly Ile Thr Ala Leu Thr Ser
        35                  40                  45

Lys His Glu Glu Glu Lys Leu Ile Gln Gln Glu Leu Ser Ser Leu Lys
    50                  55                  60

Ala Thr Val Ser Ala Pro Thr Thr Thr Leu Lys Met Met Lys Glu Cys
65                  70                  75                  80

Met Val Arg Leu Ile Tyr Cys Glu Met Leu Gly Tyr Asp Ala Ser Phe
                85                  90                  95

Gly Tyr Ile His Ala Ile Lys Leu Ala Gln Gln Gly Asn Leu Leu Glu
            100                 105                 110

Lys Arg Val Gly Tyr Leu Ala Val Ser Leu Phe Leu His Glu Ser His
        115                 120                 125

Glu Leu Leu Leu Leu Leu Val Asn Thr Val Val Lys Asp Leu Gln Ser
    130                 135                 140

Thr Asn Leu Val Glu Val Cys Met Ala Leu Thr Val Val Ser Gln Ile
145                 150                 155                 160
```

Phe Pro Cys Glu Met Ile Pro Ala Val Leu Pro Leu Ile Glu Asp Lys
165 170 175

Leu Gln His Ser Lys Glu Ile Val Arg Arg Lys Ala Val Leu Ala Leu
180 185 190

Tyr Lys Phe His Leu Ile Ala Pro Asn Gln Val Gln His Ile His Ile
195 200 205

Lys Phe Arg Lys Ala Leu Cys Asp Arg Asp Val Gly Val Met Ala Ala
210 215 220

Ser Leu His Ile Tyr Leu Arg Met Ile Lys Glu Asn Ser Ser Gly Tyr
225 230 235 240

Lys Asp Leu Thr Gly Ser Phe Val Thr Ile Leu Lys Gln Val Val Gly
245 250 255

Gly Lys Leu Pro Val Glu Phe Asn Tyr His Ser Val Pro Ala Pro Trp
260 265 270

Leu Gln Ile Gln Leu Leu Arg Ile Leu Gly Leu Leu Gly Lys Asp Asp
275 280 285

Gln Arg Thr Ser Glu Leu Met Tyr Asp Val Leu Asp Glu Ser Leu Arg
290 295 300

Arg Ala Glu Leu Asn His Asn Val Thr Tyr Ala Ile Leu Phe Glu Cys
305 310 315 320

Val His Thr Val Tyr Ser Ile Tyr Pro Lys Ser Glu Leu Leu Glu Lys
325 330 335

Ala Ala Lys Cys Ile Gly Lys Phe Val Leu Ser Pro Lys Ile Asn Leu
340 345 350

Lys Tyr Leu Gly Leu Lys Ala Leu Thr Tyr Val Ile Gln Gln Asp Pro
355 360 365

Thr Leu Ala Leu Gln His Gln Met Thr Ile Ile Glu Cys Leu Asp His
370 375 380

```
Pro Asp Pro Ile Ile Lys Arg Glu Thr Leu Glu Leu Leu Tyr Arg Ile
385                 390                 395                 400

Thr Asn Ala Gln Asn Ile Thr Val Ile Val Gln Lys Met Leu Glu Tyr
                405                 410                 415

Leu His Gln Ser Lys Glu Glu Tyr Val Ile Val Asn Leu Val Gly Lys
            420                 425                 430

Ile Ala Glu Leu Ala Glu Lys Tyr Ala Pro Asp Asn Ala Trp Phe Ile
        435                 440                 445

Gln Thr Met Asn Ala Val Phe Ser Val Gly Gly Asp Val Met His Pro
    450                 455                 460

Asp Ile Pro Asn Asn Phe Leu Arg Leu Leu Ala Glu Gly Phe Asp Asp
465                 470                 475                 480

Glu Thr Glu Asp Gln Gln Leu Arg Leu Tyr Ala Val Gln Ser Tyr Leu
                485                 490                 495

Thr Leu Leu Asp Met Glu Asn Val Phe Tyr Pro Gln Arg Phe Leu Gln
            500                 505                 510

Val Met Ser Trp Val Leu Gly Glu Tyr Ser Tyr Leu Leu Asp Lys Glu
        515                 520                 525

Thr Pro Glu Glu Val Ile Ala Lys Leu Tyr Lys Leu Leu Met Asn Asp
    530                 535                 540

Ser Val Ser Ser Glu Thr Lys Ala Trp Leu Ile Ala Ala Val Thr Lys
545                 550                 555                 560

Leu Thr Ser Gln Ala His Ser Ser Asn Thr Val Glu Arg Leu Ile His
                565                 570                 575

Glu Phe Thr Ile Ser Leu Asp Thr Cys Met Arg Gln His Ala Phe Glu
            580                 585                 590

Leu Lys His Leu His Glu Asn Val Glu Leu Met Lys Ser Leu Leu Pro
        595                 600                 605
```

```
Val Asp Arg Ser Cys Glu Asp Leu Val Val Asp Ala Ser Leu Ser Phe
    610                 615                 620

Leu Asp Gly Phe Val Ala Glu Gly Leu Ser Gln Gly Ala Ala Pro Tyr
625                 630                 635                 640

Lys Pro Pro His Gln Arg Gln Glu Glu Lys Leu Ser Gln Glu Lys Val
                645                 650                 655

Leu Asn Phe Glu Pro Tyr Gly Leu Ser Phe Ser Ser Ser Gly Phe Thr
            660                 665                 670

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

Asn Ser Ala Glu Thr Gly Leu Lys Glu Thr Asn Ser Leu Lys Leu Glu
    690                 695                 700

Gly Ile Lys Lys Leu Trp Gly Lys Glu Gly Tyr Leu Pro Lys Lys Glu
705                 710                 715                 720

Ser Lys Thr Gly Asp Glu Ser Gly Ala Leu Pro Val Pro Gln Glu Ser
                725                 730                 735

Ile Met Glu Asn Val Asp Gln Ala Ile Thr Lys Lys Asp Gln Ser Gln
            740                 745                 750

Val Leu Thr Gln Ser Lys Glu Glu Lys Glu Lys Gln Leu Leu Ala Ser
        755                 760                 765

Ser Leu Phe Val Gly Leu Gly Ser Glu Ser Thr Ile Asn Leu Leu Gly
    770                 775                 780

Lys Ala Asp Thr Val Ser His Lys Phe Arg Arg Lys Ser Lys Val Lys
785                 790                 795                 800

Glu Ala Lys Ser Gly Glu Thr Thr Ser Thr His Asn Met Thr Cys Ser
                805                 810                 815

Ser Phe Ser Ser Leu Ser Asn Val Ala Tyr Glu Asp Asp Tyr Tyr Ser
            820                 825                 830

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

```
        835                 840                 845

Thr Ser Glu Leu Leu Asp Ser Glu Ser Leu Thr Glu Leu Pro Leu Val
    850                 855                 860

Glu Lys Phe Ser Tyr Cys Ser Leu Ser Thr Pro Ser Leu Phe Ala Asn
865                 870                 875                 880

Asn Asn Met Glu Ile Phe His Pro Pro Gln Ser Thr Ala Ala Ser Val
                885                 890                 895

Ala Lys Glu Ser Ser Leu Ala Ser Ser Phe Leu Glu Glu Thr Thr Glu
            900                 905                 910

Tyr Ile His Ser Asn Ala Met Glu Val Cys Asn Asn Glu Thr Ile Ser
        915                 920                 925

Val Ser Ser Tyr Lys Ile Trp Lys Asp Asp Cys Leu Leu Met Val Trp
    930                 935                 940

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

Ile Phe Pro Ala Glu Asn Phe Lys Val Thr Glu Gln Pro Gly Cys Cys
                965                 970                 975

Leu Pro Val Met Glu Ala Glu Ser Thr Lys Ser Phe Gln Tyr Ser Val
            980                 985                 990

Gln Ile Glu Lys Pro Phe Thr Glu  Gly Asn Leu Thr Gly  Phe Ile
Ser
        995                 1000                1005

Tyr His  Met Met Asp Thr His  Ser Ala Gln Leu Glu  Phe Ser Val
    1010                1015                1020

Asn Leu  Ser Leu Leu Asp Phe  Ile Arg Pro Leu Lys  Ile Ser Ser
    1025                1030                1035

Asp Asp  Phe Gly Lys Leu Trp  Leu Ser Phe Ala Asn  Asp Val Lys
    1040                1045                1050

Gln Asn  Val Lys Met Ser Glu  Ser Gln Ala Ala Leu  Pro Ser Ala
```

```
    1055                1060                1065

Leu Lys  Thr Leu Gln Gln Lys  Leu Arg Leu His Ile  Ile Glu Ile
    1070                1075                1080

Ile Gly  Asn Glu Gly Leu Leu  Ala Cys Gln Leu Leu  Pro Ser Ile
    1085                1090                1095

Pro Cys  Leu Leu His Cys Arg  Val His Ala Asp Val  Leu Ala Leu
    1100                1105                1110

Trp Phe  Arg Ser Ser Cys Ser  Thr Leu Pro Asp Tyr  Leu Leu Tyr
    1115                1120                1125

Gln Cys  Gln Lys Val Met Glu  Gly Ser
    1130                1135


<210> 2544
<211> 218
<212> PRT
<213> Homo sapiens

<220>
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      subunit; "

<220>
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<400> 2544
Met Met Lys Glu Cys Met Val Arg Leu Ile Tyr Cys Glu Met Leu Gly
1               5                  10                  15

Tyr Asp Ala Ser Phe Gly Tyr Ile His Ala Ile Lys Leu Ala Gln Gln
            20                  25                  30

Gly Asn Leu Leu Glu Lys Arg Val Gly Tyr Leu Ala Val Ser Leu Phe
        35                  40                  45
```

```
Leu His Glu Ser His Glu Leu Leu Leu Leu Leu Val Asn Thr Val Val
    50                  55                  60

Lys Asp Leu Gln Ser Thr Asn Leu Val Glu Val Cys Met Ala Leu Thr
65                  70                  75                  80

Val Val Ser Gln Ile Phe Pro Cys Glu Met Ile Pro Ala Val Leu Pro
                85                  90                  95

Leu Ile Glu Asp Lys Leu Gln His Ser Lys Glu Ile Val Arg Arg Lys
            100                 105                 110

Ala Val Leu Ala Leu Tyr Lys Phe His Leu Ile Ala Pro Asn Gln Val
        115                 120                 125

Gln His Ile His Ile Lys Phe Arg Lys Ala Leu Cys Asp Arg Asp Val
    130                 135                 140

Gly Val Met Ala Ala Ser Leu His Ile Tyr Leu Arg Met Ile Lys Glu
145                 150                 155                 160

Asn Ser Ser Gly Tyr Lys Asp Leu Thr Gly Ser Phe Val Thr Ile Leu
                165                 170                 175

Lys Gln Val Val Gly Gly Lys Leu Pro Val Glu Phe Asn Tyr His Ser
            180                 185                 190

Val Pro Ala Pro Trp Leu Gln Ile Gln Leu Leu Arg Ile Leu Gly Leu
        195                 200                 205

Leu Gly Lys Asp Asp Gln Ser Tyr Phe Val
    210                 215


<210> 2545
<211> 321
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AP4E1; "

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<220>
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<400> 2545

```
Met Ser Asp Ile Val Glu Lys Thr Leu Thr Ala Leu Pro Gly Leu Phe
1               5                  10                  15

Leu Gln Asn Gln Pro Gly Gly Gly Pro Ala Ala Ala Lys Ala Ser Phe
            20                  25                  30

Ser Ser Arg Leu Gly Ser Leu Val Arg Gly Ile Thr Ala Leu Thr Ser
        35                  40                  45

Lys His Glu Glu Glu Lys Leu Ile Gln Gln Glu Leu Ser Ser Leu Lys
    50                  55                  60

Ala Thr Val Ser Ala Pro Thr Thr Thr Leu Lys Met Met Lys Glu Cys
65                  70                  75                  80

Met Val Arg Leu Ile Tyr Cys Glu Met Leu Gly Tyr Asp Ala Ser Phe
                85                  90                  95

Gly Tyr Ile His Ala Ile Lys Leu Ala Gln Gln Gly Asn Leu Leu Glu
            100                 105                 110

Lys Arg Val Gly Tyr Leu Ala Val Ser Leu Phe Leu His Glu Ser His
        115                 120                 125

Glu Leu Leu Leu Leu Leu Val Asn Thr Val Val Lys Asp Leu Gln Ser
    130                 135                 140

Thr Asn Leu Val Glu Val Cys Met Ala Leu Thr Val Val Ser Gln Ile
145                 150                 155                 160

Phe Pro Cys Glu Met Ile Pro Ala Val Leu Pro Leu Ile Glu Asp Lys
                165                 170                 175
```

```
Leu Gln His Ser Lys Glu Ile Val Arg Arg Lys Ala Val Leu Ala Leu
            180                 185                 190

Tyr Lys Phe His Leu Ile Ala Pro Asn Gln Val Gln His Ile His Ile
        195                 200                 205

Lys Phe Arg Lys Ala Leu Cys Asp Arg Asp Val Gly Val Met Ala Ala
    210                 215                 220

Ser Leu His Ile Tyr Leu Arg Met Ile Lys Glu Asn Ser Ser Gly Tyr
225                 230                 235                 240

Lys Asp Leu Thr Gly Ser Phe Val Thr Ile Leu Lys Gln Val Val Gly
                245                 250                 255

Gly Lys Leu Pro Val Glu Phe Asn Tyr His Ser Val Pro Ala Pro Trp
            260                 265                 270

Leu Gln Ile Gln Leu Leu Arg Ile Leu Gly Leu Leu Gly Lys Asp Asp
        275                 280                 285

Gln Arg Ser Ser Val Leu Lys Arg Ser Leu Lys Asn Cys Phe Ile Gly
    290                 295                 300

Leu Glu Tyr Tyr Asn Ser Thr Ala Asn Lys Ile Ser Phe Lys Gln Asp
305                 310                 315                 320

Lys
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<210> 2546
<211> 1062
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 606; "

<220>
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subunit; "

<220>
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<220>
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Met Met Lys Glu Cys Met Val Arg Leu Ile Tyr Cys Glu Met Leu Gly
1   5   10   15

Tyr Asp Ala Ser Phe Gly Tyr Ile His Ala Ile Lys Leu Ala Gln Gln
            20   25   30

Gly Asn Leu Leu Glu Lys Arg Val Gly Tyr Leu Ala Val Ser Leu Phe
        35   40   45

Leu His Glu Ser His Glu Leu Leu Leu Leu Leu Val Asn Thr Val Val
    50   55   60

Lys Asp Leu Gln Ser Thr Asn Leu Val Glu Val Cys Met Ala Leu Thr
65   70   75   80

Val Val Ser Gln Ile Phe Pro Cys Glu Met Ile Pro Ala Val Leu Pro
                85   90   95

Leu Ile Glu Asp Lys Leu Gln His Ser Lys Glu Ile Val Arg Arg Lys
            100   105   110

Ala Val Leu Ala Leu Tyr Lys Phe His Leu Ile Ala Pro Asn Gln Val
        115   120   125

Gln His Ile His Ile Lys Phe Arg Lys Ala Leu Cys Asp Arg Asp Val
    130   135   140

Gly Val Met Ala Ala Ser Leu His Ile Tyr Leu Arg Met Ile Lys Glu
145   150   155   160

Asn Ser Ser Gly Tyr Lys Asp Leu Thr Gly Ser Phe Val Thr Ile Leu
                165   170   175

Lys Gln Val Val Gly Gly Lys Leu Pro Val Glu Phe Asn Tyr His Ser
            180   185   190

```
Val Pro Ala Pro Trp Leu Gln Ile Gln Leu Leu Arg Ile Leu Gly Leu
        195                 200                 205

Leu Gly Lys Asp Asp Gln Arg Thr Ser Glu Leu Met Tyr Asp Val Leu
    210                 215                 220

Asp Glu Ser Leu Arg Arg Ala Glu Leu Asn His Asn Val Thr Tyr Ala
225                 230                 235                 240

Ile Leu Phe Glu Cys Val His Thr Val Tyr Ser Ile Tyr Pro Lys Ser
                245                 250                 255

Glu Leu Leu Glu Lys Ala Ala Lys Cys Ile Gly Lys Phe Val Leu Ser
            260                 265                 270

Pro Lys Ile Asn Leu Lys Tyr Leu Gly Leu Lys Ala Leu Thr Tyr Val
        275                 280                 285

Ile Gln Gln Asp Pro Thr Leu Ala Leu Gln His Gln Met Thr Ile Ile
    290                 295                 300

Glu Cys Leu Asp His Pro Asp Pro Ile Ile Lys Arg Glu Thr Leu Glu
305                 310                 315                 320

Leu Leu Tyr Arg Ile Thr Asn Ala Gln Asn Ile Thr Val Ile Val Gln
                325                 330                 335

Lys Met Leu Glu Tyr Leu His Gln Ser Lys Glu Glu Tyr Val Ile Val
            340                 345                 350

Asn Leu Val Gly Lys Ile Ala Glu Leu Ala Glu Lys Tyr Ala Pro Asp
        355                 360                 365

Asn Ala Trp Phe Ile Gln Thr Met Asn Ala Val Phe Ser Val Gly Gly
    370                 375                 380

Asp Val Met His Pro Asp Ile Pro Asn Asn Phe Leu Arg Leu Leu Ala
385                 390                 395                 400

Glu Gly Phe Asp Asp Glu Thr Glu Asp Gln Gln Leu Arg Leu Tyr Ala
                405                 410                 415
```

```
Val Gln Ser Tyr Leu Thr Leu Leu Asp Met Glu Asn Val Phe Tyr Pro
            420                 425                 430

Gln Arg Phe Leu Gln Val Met Ser Trp Val Leu Gly Glu Tyr Ser Tyr
        435                 440                 445

Leu Leu Asp Lys Glu Thr Pro Glu Glu Val Ile Ala Lys Leu Tyr Lys
    450                 455                 460

Leu Leu Met Asn Asp Ser Val Ser Ser Glu Thr Lys Ala Trp Leu Ile
465                 470                 475                 480

Ala Ala Val Thr Lys Leu Thr Ser Gln Ala His Ser Ser Asn Thr Val
                485                 490                 495

Glu Arg Leu Ile His Glu Phe Thr Ile Ser Leu Asp Thr Cys Met Arg
            500                 505                 510

Gln His Ala Phe Glu Leu Lys His Leu His Glu Asn Val Glu Leu Met
        515                 520                 525

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

Ala Ser Leu Ser Phe Leu Asp Gly Phe Val Ala Glu Gly Leu Ser Gln
545                 550                 555                 560

Gly Ala Ala Pro Tyr Lys Pro Pro His Gln Arg Gln Glu Glu Lys Leu
                565                 570                 575

Ser Gln Glu Lys Val Leu Asn Phe Glu Pro Tyr Gly Leu Ser Phe Ser
            580                 585                 590

Ser Ser Gly Phe Thr Gly Arg Gln Ser Pro Ala Gly Ile Ser Leu Gly
        595                 600                 605

Ser Asp Val Ser Gly Asn Ser Ala Glu Thr Gly Leu Lys Glu Thr Asn
    610                 615                 620

Ser Leu Lys Leu Glu Gly Ile Lys Lys Leu Trp Gly Lys Glu Gly Tyr
625                 630                 635                 640
```

```
Leu Pro Lys Lys Glu Ser Lys Thr Gly Asp Glu Ser Gly Ala Leu Pro
                645                 650                 655

Val Pro Gln Glu Ser Ile Met Glu Asn Val Asp Gln Ala Ile Thr Lys
            660                 665                 670

Lys Asp Gln Ser Gln Val Leu Thr Gln Ser Lys Glu Glu Lys Glu Lys
        675                 680                 685

Gln Leu Leu Ala Ser Ser Leu Phe Val Gly Leu Gly Ser Glu Ser Thr
    690                 695                 700

Ile Asn Leu Leu Gly Lys Ala Asp Thr Val Ser His Lys Phe Arg Arg
705                 710                 715                 720

Lys Ser Lys Val Lys Glu Ala Lys Ser Gly Glu Thr Thr Ser Thr His
                725                 730                 735

Asn Met Thr Cys Ser Ser Phe Ser Ser Leu Ser Asn Val Ala Tyr Glu
            740                 745                 750

Asp Asp Tyr Tyr Ser Asn Thr Leu His Asp Thr Gly Asp Lys Glu Leu
        755                 760                 765

Lys Lys Phe Ser Leu Thr Ser Glu Leu Leu Asp Ser Glu Ser Leu Thr
    770                 775                 780

Glu Leu Pro Leu Val Glu Lys Phe Ser Tyr Cys Ser Leu Ser Thr Pro
785                 790                 795                 800

Ser Leu Phe Ala Asn Asn Asn Met Glu Ile Phe His Pro Pro Gln Ser
                805                 810                 815

Thr Ala Ala Ser Val Ala Lys Glu Ser Ser Leu Ala Ser Ser Phe Leu
            820                 825                 830

Glu Glu Thr Thr Glu Tyr Ile His Ser Asn Ala Met Glu Val Cys Asn
        835                 840                 845

Asn Glu Thr Ile Ser Val Ser Ser Tyr Lys Ile Trp Lys Asp Asp Cys
    850                 855                 860

Leu Leu Met Val Trp Ser Val Thr Asn Lys Ser Gly Leu Glu Leu Lys
```

865 870 875 880

Ser Ala Asp Leu Glu Ile Phe Pro Ala Glu Asn Phe Lys Val Thr Glu
885 890 895

Gln Pro Gly Cys Cys Leu Pro Val Met Glu Ala Glu Ser Thr Lys Ser
900 905 910

Phe Gln Tyr Ser Val Gln Ile Glu Lys Pro Phe Thr Glu Gly Asn Leu
915 920 925

Thr Gly Phe Ile Ser Tyr His Met Met Asp Thr His Ser Ala Gln Leu
930 935 940

Glu Phe Ser Val Asn Leu Ser Leu Leu Asp Phe Ile Arg Pro Leu Lys
945 950 955 960

Ile Ser Ser Asp Asp Phe Gly Lys Leu Trp Leu Ser Phe Ala Asn Asp
965 970 975

Val Lys Gln Asn Val Lys Met Ser Glu Ser Gln Ala Ala Leu Pro Ser
980 985 990

Ala Leu Lys Thr Leu Gln Gln Lys Leu Arg Leu His Ile Ile Glu
Ile
995 1000 1005

Ile Gly Asn Glu Gly Leu Leu Ala Cys Gln Leu Leu Pro Ser Ile
1010 1015 1020

Pro Cys Leu Leu His Cys Arg Val His Ala Asp Val Leu Ala Leu
1025 1030 1035

Trp Phe Arg Ser Ser Cys Ser Thr Leu Pro Asp Tyr Leu Leu Tyr
1040 1045 1050

Gln Cys Gln Lys Val Met Glu Gly Ser
1055 1060

<210> 2547
<211> 368
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000453112"

<400> 2547
Met Ser Asp Ile Val Glu Lys Thr Leu Thr Ala Leu Pro Gly Leu Phe
1 5 10 15

Leu Gln Asn Gln Pro Gly Gly Gly Pro Ala Ala Ala Lys Ala Ser Phe
20 25 30

Ser Ser Arg Leu Gly Ser Leu Val Arg Gly Ile Thr Ala Leu Thr Ser
35 40 45

Lys His Glu Glu Glu Lys Leu Ile Gln Gln Glu Leu Ser Ser Leu Lys
50 55 60

Ala Thr Val Ser Ala Pro Thr Thr Thr Leu Lys Met Met Lys Glu Cys
65 70 75 80

Met Val Arg Leu Ile Tyr Cys Glu Met Leu Gly Tyr Asp Ala Ser Phe
85 90 95

Gly Tyr Ile His Ala Ile Lys Leu Ala Gln Gln Gly Asn Leu Leu Glu
100 105 110

Lys Arg Val Gly Tyr Leu Ala Val Ser Leu Phe Leu His Glu Ser His
115 120 125

Glu Leu Leu Leu Leu Leu Val Asn Thr Val Val Lys Asp Leu Gln Ser
130 135 140

Thr Asn Leu Val Glu Val Cys Met Ala Leu Thr Val Val Ser Gln Ile
145 150 155 160

```
Phe Pro Cys Glu Met Ile Pro Ala Val Leu Pro Leu Ile Glu Asp Lys
                165                 170                 175

Leu Gln His Ser Lys Glu Ile Val Arg Arg Lys Ala Val Leu Ala Leu
            180                 185                 190

Tyr Lys Phe His Leu Ile Ala Pro Asn Gln Val Gln His Ile His Ile
        195                 200                 205

Lys Phe Arg Lys Ala Leu Cys Asp Arg Asp Val Gly Val Met Ala Ala
    210                 215                 220

Ser Leu His Ile Tyr Leu Arg Met Ile Lys Glu Asn Ser Ser Gly Tyr
225                 230                 235                 240

Lys Asp Leu Thr Gly Ser Phe Val Thr Ile Leu Lys Gln Val Val Gly
                245                 250                 255

Gly Lys Leu Pro Val Glu Phe Asn Tyr His Ser Val Pro Ala Pro Trp
            260                 265                 270

Leu Gln Ile Gln Leu Leu Arg Ile Leu Gly Leu Leu Gly Lys Asp Asp
        275                 280                 285

Gln Arg Thr Ser Glu Leu Met Tyr Asp Val Leu Asp Glu Ser Leu Arg
    290                 295                 300

Arg Ala Glu Leu Asn His Asn Val Thr Tyr Ala Ile Leu Phe Glu Cys
305                 310                 315                 320

Val His Thr Val Tyr Ser Ile Tyr Pro Lys Ser Glu Leu Leu Glu Lys
                325                 330                 335

Ala Ala Lys Cys Ile Gly Lys Phe Val Leu Ser Pro Lys Ile Asn Leu
            340                 345                 350

Lys Tyr Leu Gly Ser Tyr Ser Gly Ser Ser Thr Pro Asp Asp Asn Asn
        355                 360                 365
```

<210> 2548
<211> 453
<212> PRT

<213> Homo sapiens

<220>
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<400> 2548

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Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1               5                  10                  15


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


Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
        35                  40                  45


Met His His His Gly Arg His Phe Ile His Ile Arg His Ser Gly Leu
    50                  55                  60


Tyr Leu Val Val Thr Thr Ser Glu Asn Val Ser Pro Phe Ser Leu Leu
65                  70                  75                  80


Glu Leu Leu Ser Arg Leu Ala Thr Leu Leu Gly Asp Tyr Cys Gly Ser
                85                  90                  95


Leu Gly Glu Gly Thr Ile Ser Arg Asn Val Ala Leu Val Tyr Glu Leu
            100                 105                 110


Leu Asp Glu Val Leu Asp Tyr Gly Tyr Val Gln Thr Thr Ser Thr Glu
        115                 120                 125
```

```
Met Leu Arg Asn Phe Ile Gln Thr Glu Ala Val Val Ser Lys Pro Phe
    130                 135                 140

Ser Leu Phe Asp Leu Ser Ser Val Gly Leu Phe Gly Ala Glu Thr Gln
145                 150                 155                 160

Gln Ser Lys Val Ala Pro Ser Ser Ala Ala Ser Arg Pro Val Leu Ser
                165                 170                 175

Ser Arg Ser Asp Gln Ser Gln Lys Asn Glu Val Phe Leu Asp Val Val
            180                 185                 190

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

Asp Val Gln Gly Glu Ile Arg Leu Lys Ser Phe Leu Pro Ser Gly Ser
    210                 215                 220

Glu Met Arg Ile Gly Leu Thr Glu Glu Phe Cys Val Gly Lys Ser Glu
225                 230                 235                 240

Leu Arg Gly Tyr Gly Pro Gly Ile Arg Val Asp Glu Val Ser Phe His
                245                 250                 255

Ser Ser Val Asn Leu Asp Glu Phe Glu Ser His Arg Ile Leu Arg Leu
            260                 265                 270

Gln Pro Pro Gln Gly Glu Leu Thr Val Met Arg Tyr Gln Leu Ser Asp
        275                 280                 285

Asp Leu Pro Ser Pro Leu Pro Phe Arg Leu Phe Pro Ser Val Gln Trp
    290                 295                 300

Asp Arg Gly Ser Gly Arg Leu Gln Val Tyr Leu Lys Leu Arg Cys Asp
305                 310                 315                 320

Leu Leu Ser Lys Ser Gln Ala Leu Asn Val Arg Leu His Leu Pro Leu
                325                 330                 335

Pro Arg Gly Val Val Ser Leu Ser Gln Glu Leu Ser Ser Pro Glu Gln
            340                 345                 350

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

```
        355                 360                 365

Gln Gly Gly Ser Gln Leu Ser Gly Leu Phe Gln Met Asp Val Pro Gly
    370                 375                 380

Pro Pro Gly Pro Pro Ser His Gly Leu Ser Thr Ser Ala Ser Pro Leu
385                 390                 395                 400

Gly Leu Gly Pro Ala Ser Leu Ser Phe Glu Leu Pro Arg His Thr Cys
                405                 410                 415

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

Asn Ala Asn Pro His Lys Trp Val Arg His Leu Ser His Ser Asp Ala
        435                 440                 445

Tyr Val Ile Arg Ile
    450


<210> 2549
<211> 64
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000377625"

<400> 2549
Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1               5                   10                  15

Tyr Lys Asp Phe Arg Gly Asp Ser Gly Gly Arg Asp Val Ala Glu Leu
            20                  25                  30
```

```
Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
        35                  40                  45

Met Leu Gly Val Val Ala Gly Ala Cys Asn Pro Ile Tyr Ser Gly Ser
    50                  55                  60


<210> 2550
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<212> PRT
<213> Homo sapiens

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      subunit; "

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<400> 2550
Arg Val Asp Glu Val Ser Phe His Ser Ser Val Asn Leu Asp Glu Phe
1               5                   10                  15

Glu Ser His Arg Ile Leu Arg Leu Gln Pro Pro Gln Gly Glu Leu Thr
            20                  25                  30

Val Met Arg Tyr Gln Leu Ser Asp Asp Leu Pro Ser Pro Leu Pro Phe
        35                  40                  45

Arg Leu Phe Pro Ser Val Gln Trp Asp Arg Gly Ser Gly Arg Leu Gln
    50                  55                  60

Val Tyr Leu Lys Leu Arg Cys Asp Leu Leu Ser Lys Ser Gln Ala Leu
65                  70                  75                  80

Asn Val Arg Leu His Leu Pro Leu Pro Arg Gly Val Val Ser Leu Ser
                85                  90                  95
```

```
Gln Glu Leu Ser Ser Pro Glu Gln Lys Ala Glu Leu Ala Glu Gly Ala
            100                 105                 110

Leu Arg Trp Asp Leu Pro Arg Val Gln Gly Gly Ser Gln Leu Ser Gly
        115                 120                 125

Leu Phe Gln Arg Pro Asn Ile Val Ser Gln Leu Ser Gln Ala Cys Asp
    130                 135                 140

Gly Ala Ile Thr Ser Arg Pro Gly Arg Leu Leu Val His Pro Ala Leu
145                 150                 155                 160


<210> 2551
<211> 138
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 607; "

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<220>
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<223> /note="Gene Name:
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      subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000393723"


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

<400> 2551
Xaa Gln Gly Glu Leu Thr Val Met Arg Tyr Gln Leu Ser Asp Asp Leu
1               5                   10                  15

Pro Ser Pro Leu Pro Phe Arg Leu Phe Pro Ser Val Gln Trp Asp Arg
            20                  25                  30

Gly Ser Gly Arg Leu Gln Val Tyr Leu Lys Leu Arg Cys Asp Leu Leu
        35                  40                  45
```

```
Ser Lys Ser Gln Ala Leu Asn Val Arg Leu His Leu Pro Leu Pro Arg
    50                  55                  60

Gly Val Val Ser Leu Ser Gln Glu Leu Ser Ser Pro Glu Gln Lys Ala
65                  70                  75                  80

Glu Leu Ala Glu Gly Ala Leu Arg Trp Asp Leu Pro Arg Val Gln Gly
                85                  90                  95

Gly Ser Gln Leu Ser Gly Leu Phe Gln Val Arg Phe Leu Arg Leu Ala
            100                 105                 110

Phe Arg Pro Cys Gly Asn Ala Asn Pro His Lys Trp Val Arg His Leu
        115                 120                 125

Ser His Ser Asp Ala Tyr Val Ile Arg Ile
    130                 135


<210> 2552
<211> 218
<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: ENSP00000396928"

<400> 2552
Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1               5                   10                  15

Tyr Lys Asp Phe Arg Gly Asp Ser Gly Gly Arg Asp Val Ala Glu Leu
            20                  25                  30
```

```
Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
        35                  40                  45

Met His His His Gly Arg His Phe Ile His Ile Arg His Ser Gly Leu
    50                  55                  60

Tyr Leu Val Val Thr Thr Ser Glu Asn Val Ser Pro Phe Ser Leu Leu
65                  70                  75                  80

Glu Leu Leu Ser Arg Leu Ala Thr Leu Leu Gly Asp Tyr Cys Gly Ser
                85                  90                  95

Leu Gly Glu Gly Thr Ile Ser Arg Asn Val Ala Leu Val Tyr Glu Leu
            100                 105                 110

Leu Asp Glu Val Leu Asp Tyr Gly Tyr Val Gln Thr Thr Ser Thr Glu
        115                 120                 125

Met Leu Arg Asn Phe Ile Gln Thr Glu Ala Val Val Ser Lys Pro Phe
    130                 135                 140

Ser Leu Phe Asp Leu Ser Ser Val Gly Leu Phe Gly Ala Glu Thr Gln
145                 150                 155                 160

Gln Ser Lys Val Ala Pro Ser Ser Ala Ala Ser Arg Pro Val Leu Ser
                165                 170                 175

Ser Arg Ser Asp Gln Ser Gln Lys Asn Glu Val Phe Leu Asp Val Val
            180                 185                 190

Glu Arg Leu Ser Val Leu Ile Ala Ser Asn Val Met Gly Gln Glu Ser
        195                 200                 205

Gly Ser Met Lys Ser Arg Phe Thr Ala Leu
    210                 215


<210> 2553
<211> 97
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adaptor-related prt complex 4, mu 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400598"

<400> 2553
Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1 5 10 15

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

Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
35 40 45

Met His His His Gly Arg His Phe Ile His Ile Arg His Ser Gly Leu
50 55 60

Tyr Leu Val Val Thr Thr Ser Glu Asn Val Ser Pro Phe Ser Leu Leu
65 70 75 80

Glu Leu Leu Ser Arg Thr Met Ala Met Tyr Arg Pro His Pro Arg Arg
85 90 95

Cys

<210> 2554
<211> 311
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adaptor-related prt complex 4, mu 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401613"

<400> 2554
Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1 5 10 15

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

Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
35 40 45

Met Asp Tyr Gly Tyr Val Gln Thr Thr Ser Thr Glu Met Leu Arg Asn
50 55 60

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

Leu Ser Ser Val Gly Leu Phe Gly Ala Glu Thr Gln Gln Ser Lys Val
85 90 95

Ala Pro Ser Ser Ala Ala Ser Arg Pro Val Leu Ser Ser Arg Ser Asp
100 105 110

Gln Ser Gln Lys Asn Glu Val Phe Leu Asp Val Val Glu Arg Leu Ser
115 120 125

Val Leu Ile Ala Ser Asn Gly Ser Leu Leu Lys Val Asp Val Gln Gly
130 135 140

Glu Ile Arg Leu Lys Ser Phe Leu Pro Ser Gly Ser Glu Met Arg Ile
145 150 155 160

Gly Leu Thr Glu Glu Phe Cys Val Gly Lys Ser Glu Leu Arg Gly Tyr
165 170 175

Gly Pro Gly Ile Arg Val Asp Glu Val Ser Phe His Ser Ser Val Asn
180 185 190

```
Leu Asp Glu Phe Glu Ser His Arg Ile Leu Arg Leu Gln Pro Pro Gln
        195                 200                 205

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

Pro Leu Pro Phe Arg Leu Phe Pro Ser Val Gln Trp Asp Arg Gly Ser
225                 230                 235                 240

Gly Arg Leu Gln Val Tyr Leu Lys Leu Arg Cys Asp Leu Leu Ser Lys
                245                 250                 255

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

Val Ser Leu Ser Gln Glu Leu Ser Ser Pro Glu Gln Lys Ala Glu Leu
        275                 280                 285

Ala Glu Gly Ala Leu Arg Trp Asp Leu Pro Arg Val Gln Gly Gly Ser
    290                 295                 300

Gln Leu Ser Gly Leu Phe Gln
305                 310


<210> 2555
<211> 460
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 607; "

<220>
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<223> /note="Gene Symbol: AP4M1; "

<220>
<221> source
<223> /note="Gene Name:
      adaptor-related prt complex 4, mu 1
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403663"
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<400> 2555
Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1 5 10 15

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

Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
35 40 45

Met Val Thr Ser Gly Gly Arg Arg His His His Gly Arg His Phe Ile
50 55 60

His Ile Arg His Ser Gly Leu Tyr Leu Val Val Thr Thr Ser Glu Asn
65 70 75 80

Val Ser Pro Phe Ser Leu Leu Glu Leu Leu Ser Arg Leu Ala Thr Leu
85 90 95

Leu Gly Asp Tyr Cys Gly Ser Leu Gly Glu Gly Thr Ile Ser Arg Asn
100 105 110

Val Ala Leu Val Tyr Glu Leu Leu Asp Glu Val Leu Asp Tyr Gly Tyr
115 120 125

Val Gln Thr Thr Ser Thr Glu Met Leu Arg Asn Phe Ile Gln Thr Glu
130 135 140

Ala Val Val Ser Lys Pro Phe Ser Leu Phe Asp Leu Ser Ser Val Gly
145 150 155 160

Leu Phe Gly Ala Glu Thr Gln Gln Ser Lys Val Ala Pro Ser Ser Ala
165 170 175

Ala Ser Arg Pro Val Leu Ser Ser Arg Ser Asp Gln Ser Gln Lys Asn
180 185 190

Glu Val Phe Leu Asp Val Val Glu Arg Leu Ser Val Leu Ile Ala Ser
195 200 205

Asn Gly Ser Leu Leu Lys Val Asp Val Gln Gly Glu Ile Arg Leu Lys
210 215 220

Ser Phe Leu Pro Ser Gly Ser Glu Met Arg Ile Gly Leu Thr Glu Glu
225 230 235 240

Phe Cys Val Gly Lys Ser Glu Leu Arg Gly Tyr Gly Pro Gly Ile Arg
245 250 255

Val Asp Glu Val Ser Phe His Ser Ser Val Asn Leu Asp Glu Phe Glu
260 265 270

Ser His Arg Ile Leu Arg Leu Gln Pro Pro Gln Gly Glu Leu Thr Val
275 280 285

Met Arg Tyr Gln Leu Ser Asp Asp Leu Pro Ser Pro Leu Pro Phe Arg
290 295 300

Leu Phe Pro Ser Val Gln Trp Asp Arg Gly Ser Gly Arg Leu Gln Val
305 310 315 320

Tyr Leu Lys Leu Arg Cys Asp Leu Leu Ser Lys Ser Gln Ala Leu Asn
325 330 335

Val Arg Leu His Leu Pro Leu Pro Arg Gly Val Val Ser Leu Ser Gln
340 345 350

Glu Leu Ser Ser Pro Glu Gln Lys Ala Glu Leu Ala Glu Gly Ala Leu
355 360 365

Arg Trp Asp Leu Pro Arg Val Gln Gly Gly Ser Gln Leu Ser Gly Leu
370 375 380

Phe Gln Met Asp Val Pro Gly Pro Pro Gly Pro Pro Ser His Gly Leu
385 390 395 400

Ser Thr Ser Ala Ser Pro Leu Gly Leu Gly Pro Ala Ser Leu Ser Phe
405 410 415

Glu Leu Pro Arg His Thr Cys Ser Gly Leu Gln Val Arg Phe Leu Arg
420 425 430

Leu Ala Phe Arg Pro Cys Gly Asn Ala Asn Pro His Lys Trp Val Arg
435 440 445

His Leu Ser His Ser Asp Ala Tyr Val Ile Arg Ile

450 455 460

<210> 2556
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 607; "

<220>
<221> source
<223> /note="Gene Symbol: AP4M1; "

<220>
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<223> /note="Gene Name:
adaptor-related prt complex 4, mu 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406106"

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

<400> 2556
Xaa Phe His Pro Pro Val Arg Gly Asp Ser Gly Gly Arg Asp Val Ala
1 5 10 15

Glu Leu Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro
20 25 30

Val Val Met His His His Gly Arg His Phe Ile His Ile Arg His Ser
35 40 45

Gly Leu Tyr Leu Val Val Thr Thr Ser Glu Asn Val Ser Pro Phe Ser
50 55 60

Leu Leu Glu Leu Leu Ser Arg Leu Ala Thr Leu Leu Gly Asp Tyr Cys
65 70 75 80

Gly Ser Leu Gly Glu Gly Thr Ile Ser Arg Asn Val Ala Leu Val Tyr
85 90 95

```
Glu Leu Leu Asp Glu Val Leu Asp Tyr Gly Tyr Val Gln Thr Thr Ser
            100                 105                 110

Thr Glu Met Leu Arg Asn Phe Ile Gln Thr Glu Ala Val Val Ser Lys
        115                 120                 125

Pro Phe Ser Leu Phe Asp Leu Ser Ser Val Gly Leu Phe Gly Ala Glu
    130                 135                 140

Thr Gln Gln Ser Lys Val Ala Pro Ser Ser Ala Ala Ser Arg Pro Val
145                 150                 155                 160

Leu Ser Ser Arg Ser Asp Gln Ser Gln Lys Asn Glu Val Phe Leu Asp
                165                 170                 175

Val Val Glu Arg Leu Ser Val Leu Ile Ala Ser Asn Arg Cys Ala Leu
            180                 185                 190

Ala
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<210> 2557
<211> 325
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 607; "

<220>
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<223> /note="Gene Symbol: AP4M1; "

<220>
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<223> /note="Gene Name:
adaptor-related prt complex 4, mu 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406676"

<400> 2557

```
Met Leu Arg Asn Phe Ile Gln Thr Glu Ala Val Val Ser Lys Pro Phe
1               5                   10                  15

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

```
            20                  25                  30

Gln Ser Lys Val Ala Pro Ser Ser Ala Ala Ser Arg Pro Val Leu Ser
        35                  40                  45

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

Glu Arg Leu Ser Val Leu Ile Ala Ser Asn Gly Ser Leu Leu Lys Val
65                  70                  75                  80

Asp Val Gln Gly Glu Ile Arg Leu Lys Ser Phe Leu Pro Ser Gly Ser
                85                  90                  95

Glu Met Arg Ile Gly Leu Thr Glu Glu Phe Cys Val Gly Lys Ser Glu
            100                 105                 110

Leu Arg Gly Tyr Gly Pro Gly Ile Arg Val Asp Glu Val Ser Phe His
        115                 120                 125

Ser Ser Val Asn Leu Asp Glu Phe Glu Ser His Arg Ile Leu Arg Leu
    130                 135                 140

Gln Pro Pro Gln Gly Glu Leu Thr Val Met Arg Tyr Gln Leu Ser Asp
145                 150                 155                 160

Asp Leu Pro Ser Pro Leu Pro Phe Arg Leu Phe Pro Ser Val Gln Trp
                165                 170                 175

Asp Arg Gly Ser Gly Arg Leu Gln Val Tyr Leu Lys Leu Arg Cys Asp
            180                 185                 190

Leu Leu Ser Lys Ser Gln Ala Leu Asn Val Arg Leu His Leu Pro Leu
        195                 200                 205

Pro Arg Gly Val Val Ser Leu Ser Gln Glu Leu Ser Ser Pro Glu Gln
    210                 215                 220

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

Gln Gly Gly Ser Gln Leu Ser Gly Leu Phe Gln Met Asp Val Pro Gly
                245                 250                 255
```

```
Pro Pro Gly Pro Pro Ser His Gly Leu Ser Thr Ser Ala Ser Pro Leu
            260                 265                 270

Gly Leu Gly Pro Ala Ser Leu Ser Phe Glu Leu Pro Arg His Thr Cys
        275                 280                 285

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

Asn Ala Asn Pro His Lys Trp Val Arg His Leu Ser His Ser Asp Ala
305                 310                 315                 320

Tyr Val Ile Arg Ile
                325


<210> 2558
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 607; "

<220>
<221> source
<223> /note="Gene Symbol: AP4M1; "

<220>
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<223> /note="Gene Name:
      adaptor-related prt complex 4, mu 1
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  O00189; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412185"

<400> 2558
Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1               5                   10                  15

Tyr Lys Asp Phe Arg Gly Asp Ser Gly Gly Arg Asp Val Ala Glu Leu
            20                  25                  30
```

```
Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
        35                  40                  45

Met His His His Gly Arg His Phe Ile His Ile Arg His Ser Gly Leu
    50                  55                  60

Tyr Leu Val Val Thr Thr Ser Glu Asn Val Ser Pro Phe Ser Leu Leu
65                  70                  75                  80

Glu Leu Leu Ser Arg Leu Ala Thr Leu Leu Gly Asp Tyr Cys Gly Ser
                85                  90                  95

Leu Gly Glu Gly Thr Ile Ser Arg Asn Val Ala Leu Val Tyr Glu Leu
            100                 105                 110

Leu Asp Glu Val Leu Asp Tyr Gly Tyr Val Gln Thr Thr Ser Thr Glu
        115                 120                 125

Met Leu Arg Asn Phe Ile Gln Thr Glu Ala Val Val Ser Lys Pro Phe
    130                 135                 140

Ser Leu Phe Asp Leu Ser Ser Val Gly Leu Phe Gly Ala Glu Thr Gln
145                 150                 155                 160

Gln Ser Lys Val Ala Pro Ser Ser Ala Ala Ser Arg Pro Val Leu Ser
                165                 170                 175

Ser Arg Ser Asp Gln Ser Gln Lys Asn Glu Val Phe Leu Asp Val Val
            180                 185                 190

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

Asp Val Gln Gly Glu Ile Arg Leu Lys Ser Phe Leu Pro Ser Gly Ser
    210                 215                 220

Glu Met Arg Ile Gly Leu Thr Glu Glu Phe Cys Val Gly Lys Ser Glu
225                 230                 235                 240

Leu Arg Gly Tyr Gly Pro Gly Ile Arg Val Asp Glu Val Ser Phe His
                245                 250                 255
```

```
Ser Ser Val Asn Leu Asp Glu Phe Glu Ser His Arg Ile Leu Arg Leu
            260                 265                 270

Gln Pro Pro Gln Gly Glu Leu Thr Val Met Arg Tyr Gln Leu Ser Asp
        275                 280                 285

Asp Leu Pro Ser Pro Leu Pro Phe Arg Leu Phe Pro Ser Val Gln Trp
    290                 295                 300

Asp Arg Gly Ser Gly Arg Leu Gln Val Tyr Leu Lys Leu Arg Cys Asp
305                 310                 315                 320

Leu Leu Ser Lys Ser Gln Ala Leu Asn Val Arg Leu His Leu Pro Leu
                325                 330                 335

Pro Arg Gly Val Val Ser Leu Ser Gln Glu Leu Ser Ser Pro Glu Gln
            340                 345                 350

Lys Ala Glu Leu Ala Glu Gly Ala Leu Arg Trp Asp Leu Pro Arg Val
        355                 360                 365

Gln Gly Gly Ser Gln Leu Ser Gly Leu Phe Gln Met Asp Val Pro Gly
    370                 375                 380

Pro Pro Gly Pro Pro Ser His Gly Leu Ser Thr Ser Ala Ser Pro Leu
385                 390                 395                 400

Gly Leu Gly Pro Ala Ser Leu Ser Phe Glu Leu Pro Arg His Thr Cys
                405                 410                 415

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

Asn Ala Asn Pro His Lys Trp Val Arg His Leu Ser His Ser Asp Ala
        435                 440                 445

Tyr Val Ile Arg Ile
    450
```

<210> 2559
<211> 265
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 607; "

<220>
<221> source
<223> /note="Gene Symbol: AP4M1; "

<220>
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<223> /note="Gene Name:
adaptor-related prt complex 4, mu 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414286"

<400> 2559
Met Ile Ser Gln Phe Phe Ile Leu Ser Ser Lys Gly Asp Pro Leu Ile
1 5 10 15

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

Phe Tyr Arg Lys Leu Thr Gly Leu Pro Gly Asp Glu Ser Pro Val Val
35 40 45

Met His His His Gly Arg His Phe Ile His Ile Arg His Ser Gly Leu
50 55 60

Tyr Leu Val Val Thr Thr Ser Glu Asn Asp Tyr Gly Tyr Val Gln Thr
65 70 75 80

Thr Ser Thr Glu Met Leu Arg Asn Phe Ile Gln Thr Glu Ala Val Val
85 90 95

Ser Lys Pro Phe Ser Leu Phe Asp Leu Ser Ser Val Gly Leu Phe Gly
100 105 110

Ala Glu Thr Gln Gln Ser Lys Val Ala Pro Ser Ser Ala Ala Ser Arg
115 120 125

Pro Val Leu Ser Ser Arg Ser Asp Gln Ser Gln Lys Asn Glu Val Phe
130 135 140

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

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

Pro Ser Gly Ser Glu Met Arg Ile Gly Leu Thr Glu Glu Phe Cys Val
            180                 185                 190

Gly Lys Ser Glu Leu Arg Gly Tyr Gly Pro Gly Ile Arg Val Asp Glu
        195                 200                 205

Val Ser Phe His Ser Ser Val Asn Leu Asp Glu Phe Glu Ser His Arg
    210                 215                 220

Ile Leu Arg Leu Gln Pro Pro Gln Gly Glu Leu Thr Val Met Arg Tyr
225                 230                 235                 240

Gln Leu Ser Asp Asp Leu Pro Ser Pro Leu Pro Phe Arg Leu Phe Pro
                245                 250                 255

Ser Val Gln Trp Asp Arg Gly Ser Gly
            260                 265


<210> 2560
<211> 159
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 608; "

<220>
<221> source
<223> /note="Gene Symbol: AP4S1; "

<220>
<221> source
<223> /note="Gene Name:
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      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y587; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000216366"
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<400> 2560
Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1 5 10 15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
20 25 30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
35 40 45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
50 55 60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65 70 75 80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
85 90 95

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

Thr Trp Gln Met His Ser Gly Pro Tyr Gln Glu Pro Ile Asp Glu Leu
115 120 125

Pro Lys Ile Cys Ser Ala Leu Glu Pro Gln Gln Thr Cys Phe Ser Pro
130 135 140

Asp Ser Ser Ser Phe Lys Gly Ala Ala Ser Thr Thr Pro Ile Tyr
145 150 155

<210> 2561
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 608; "

<220>
<221> source
<223> /note="Gene Symbol: AP4S1; "

<220>
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<223> /note="Gene Name:

adaptor-related prt complex 4, sigma 1
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y587; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000322508"

<400> 2561
Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1   5   10   15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20   25   30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35   40   45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
    50   55   60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65   70   75   80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85   90   95

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

Thr Trp Gln Met His Ser Gly Pro Tyr Gln Thr Arg Ser Cys Ser Val
        115   120   125

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

Ser Pro Gly Leu Lys
145

<210> 2562
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 608; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
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subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y587; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000334484"

<400> 2562

```
Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1               5                  10                  15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20                  25                  30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35                  40                  45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
    50                  55                  60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65                  70                  75                  80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85                  90                  95

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

Thr Trp Gln Met His Ser Gly Pro Tyr Gln Thr Arg Ser Cys Ser Val
        115                 120                 125

Thr Gln Ala Gly Val Gln Arg Cys Asp His Gly Ser Leu His Pro Gly
    130                 135                 140
```

Ser Pro Gly Leu Lys
145

<210> 2563
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AP4S1; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 4, sigma 1
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y587; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438170"

<400> 2563
Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1   5   10   15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20   25   30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35   40   45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
    50   55   60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65   70   75   80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85   90   95

```
Arg Val Ser Glu Leu Asp Ile Met Phe Asn Leu Asp Lys Val His Ile
            100                 105                 110

Ile Leu Asp Glu Met Val Leu Asn Gly Cys Ile Val Glu Thr Asn Arg
        115                 120                 125

Ala Arg Ile Leu Ala Pro Leu Leu Ile Leu Asp Lys Met Ser Glu Ser
    130                 135                 140


<210> 2564
<211> 135
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<223> /note="Gene Symbol: AP4S1; "

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<400> 2564
Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1               5                  10                  15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20                  25                  30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35                  40                  45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
    50                  55                  60
```

```
Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65                  70                  75                  80


Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85                  90                  95


Arg Val Glu Pro Ile Asp Glu Leu Pro Lys Ile Cys Ser Ala Leu Glu
            100                 105                 110


Pro Gln Gln Thr Cys Phe Ser Pro Asp Ser Ser Ser Phe Lys Gly Ala
        115                 120                 125


Ala Ser Thr Thr Pro Ile Tyr
    130                 135


<210> 2565
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<400> 2565
Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1               5                   10                  15


Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20                  25                  30


Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35                  40                  45


Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
```

```
    50                  55                  60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65                  70                  75                  80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85                  90                  95

Arg Val Ser Glu Leu Asp Ile Met Phe Asn Leu Asp Lys Val His Ile
            100                 105                 110

Ile Leu Asp Glu Met Val Leu Asn Gly Cys Ile Val Glu Thr Asn Arg
        115                 120                 125

Ala Arg Ile Leu Ala
    130


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<400> 2566
Met Ile Lys Phe Phe Leu Met
1               5


<210> 2567
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<400> 2567
Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser Phe
1 5 10 15

Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala Leu
20 25 30

Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile Tyr
35 40 45

Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser Arg
50 55 60

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

Pro Arg Asn

<210> 2568
<211> 98
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<400> 2568
Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1 5 10 15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
20 25 30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
35 40 45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
50 55 60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65 70 75 80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
85 90 95

Arg Val

<210> 2569
<211> 102
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Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1   5   10   15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20   25   30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35   40   45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
    50   55   60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65   70   75   80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85   90   95

Arg Val Val Asn Asn Val
            100

<210> 2570
<211> 144
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Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1   5   10   15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20   25   30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35   40   45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
    50   55   60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65   70   75   80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85   90   95

Arg Val Ser Glu Leu Asp Ile Met Phe Asn Leu Asp Lys Val His Ile
            100   105   110

Ile Leu Asp Glu Met Val Leu Asn Gly Cys Ile Val Glu Thr Asn Arg
        115   120   125

Ala Arg Ile Leu Ala Pro Leu Leu Ile Leu Asp Lys Met Ser Glu Ser
    130   135   140

<210> 2571
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Met Ile Lys Phe Phe Leu Met Val Asn Lys Gln Gly Gln Thr Arg Leu
1   5   10   15

Ser Lys Tyr Tyr Glu His Val Asp Ile Asn Lys Arg Thr Leu Leu Glu
            20   25   30

Thr Glu Val Ile Lys Ser Cys Leu Ser Arg Ser Asn Glu Gln Cys Ser
        35   40   45

Phe Ile Glu Tyr Lys Asp Phe Lys Leu Ile Tyr Arg Gln Tyr Ala Ala
    50   55   60

Leu Phe Ile Val Val Gly Val Asn Asp Thr Glu Asn Glu Met Ala Ile
65   70   75   80

Tyr Glu Phe Ile His Asn Phe Val Glu Val Leu Asp Glu Tyr Phe Ser
                85   90   95

Arg Val Ser Glu Leu Asp Ile Met Phe Asn Leu Asp Lys Val His Ile
            100   105   110

Ile Leu Asp Glu Met Val Leu Asn Gly Cys Ile Val Glu Thr Asn Arg
        115   120   125

Ala Arg Ile Leu Ala Pro Leu Leu Ile Leu Asp Lys Met Ser Glu Ser
    130   135   140

<210> 2572
<211> 878
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Met	Gly	Pro	Leu	Ser	Arg	Asp	Ala	Trp	Ala	Gln	Arg	Leu	Gly	Ala	Phe
1				5				10						15	
Arg	Ala	Ser	Pro	Ser	Ala	Phe	Met	Ala	Gly	Pro	Glu	Gly	Glu	Asp	Leu
		20					25					30			
Gly	Arg	Asp	Leu	Leu	Ser	Asp	Leu	Arg	Ser	Glu	Lys	Leu	Ser	Glu	Gln
	35					40					45				
Thr	Lys	Val	Ser	Leu	Leu	Ala	Leu	Ser	Met	Glu	Tyr	Pro	Ala	Gln	Leu
50					55					60					
Trp	Pro	Asp	Ala	Ser	Ala	Ala	Glu	Val	Ala	Ala	Thr	Ser	Leu	Leu	Asp
65				70					75						80
Thr	Leu	Val	Leu	Leu	Pro	Pro	Arg	Pro	Ser	Ala	Leu	Arg	Arg	Pro	Leu
			85					90					95		
Leu	Leu	Ala	Ala	Thr	Thr	Ala	Leu	Ala	Ala	Gly	Gly	Ala	Leu	Gly	Pro
		100					105					110			
Thr	Ser	Gly	Ala	Ser	Cys	Arg	Leu	Leu	Pro	Leu	Leu	Leu	Gly	Leu	Ala
	115					120					125				
Ala	Gly	Ser	Asp	Leu	Gly	Arg	Gly	Phe	Val	Pro	Ala	Ser	Glu	Gln	Arg
130					135					140					
Pro	Leu	Gln	Ala	Thr	Ala	Cys	Glu	Cys	Leu	Arg	Glu	Leu	Glu	Ser	Cys
145				150					155						160

```
Lys Pro Gly Leu Leu Gly Gly Ser Leu Gly Leu Leu Arg Gly Leu Leu
                165                 170                 175

Gly Gln Glu Gly Pro Val Gln Pro Leu Ser Leu Leu Leu Ala Leu Ala
            180                 185                 190

Leu Arg Asn Thr Leu Val Leu Gln Ser Arg Val Gly Ala Gly Leu Gly
        195                 200                 205

Gly Leu Leu Thr Asp Lys Val Ser Pro Thr Gly Gly Gly Pro Trp Asp
    210                 215                 220

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

Ser Trp Pro Ala Ala Glu Glu Gly Glu Gly Glu Arg Ser Leu Thr Ala
                245                 250                 255

Arg Glu His Ser Pro Glu Glu Ala Arg Glu Leu Arg Ala Ala Val Ile
            260                 265                 270

Gln Leu Leu Asp Thr Ser Tyr Leu Leu Thr Pro Val Ala Gln Ala Gln
        275                 280                 285

Leu Leu Trp Leu Leu Gly Trp Ala Leu Arg Gly Leu Gln Gly Gln Pro
    290                 295                 300

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

Leu Thr Leu Leu His Ala Met Leu Ala Leu Lys Ala Ala Phe Gly Glu
                325                 330                 335

Ala Leu Phe Thr Ala Gln Asp Glu Ala Leu Leu Leu Arg Arg Leu Thr
            340                 345                 350

Leu Ala Ala Gln His Pro Ala Leu Pro Pro Pro Thr His Leu Phe Tyr
        355                 360                 365

Leu His Cys Val Leu Ser Phe Pro Glu Asn Trp Pro Leu Gly Pro Glu
    370                 375                 380

Gly Glu Glu Ala Ala Pro Leu Leu Leu Gly Pro Gln Leu Cys Arg Gly
```

385 390 395 400

Leu Leu Pro Ser Leu Leu His Asp Pro Met Ala Leu Leu Ala Arg Leu
405 410 415

His Leu Leu Cys Leu Leu Cys Ala Glu Glu Glu Glu Glu Glu Lys Gly
420 425 430

Gln Leu Pro Ser Pro Arg His Tyr Leu Glu Glu Leu Leu Ala Gly Leu
435 440 445

Arg Gln Arg Ala Ala Leu Asp Gly Gly Pro Arg Ala Leu Ala Thr Leu
450 455 460

Cys Phe Gln Ala Ser Tyr Leu Val Ala Cys Cys Leu Ala Gly Gln Pro
465 470 475 480

Thr Val Leu Thr Pro Leu Ile His Gly Leu Ala Gln Leu Tyr Gln Ala
485 490 495

Arg Pro Met Leu Ala Pro His Phe Val Asp Leu Leu Asp Gln Val Asp
500 505 510

Ser Glu Leu Arg Glu Pro Leu Lys Val Val Leu Arg Gln Val Val Val
515 520 525

Ser Arg Pro Gly Arg Asp Glu Ala Leu Cys Trp His Leu Gln Met Leu
530 535 540

Ala Lys Val Ala Asp Gly Asp Ala Gln Ser Ala Thr Leu Asn Phe Leu
545 550 555 560

Gln Ala Ala Ala Ala His Cys Thr Asn Trp Asp Leu Gln Gln Gly Leu
565 570 575

Leu Arg Val Cys Arg Ala Leu Leu Arg Ala Gly Val Arg Gly Gly Leu
580 585 590

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

Arg Asp His Ala Arg Leu Tyr Tyr Ile Leu Leu Ala His Leu Ala Ala
610 615 620

```
Pro Lys Leu Gly Val Ala Leu Gly Pro Ser Leu Ala Ala Pro Ala Leu
625                 630                 635                 640

Ala Ser Ser Leu Val Ala Glu Asn Gln Gly Phe Val Ala Ala Leu Met
                645                 650                 655

Val Gln Glu Ala Pro Ala Leu Val Arg Leu Ser Leu Gly Ser His Arg
            660                 665                 670

Val Lys Gly Pro Leu Pro Val Leu Lys Leu Gln Pro Glu Ala Leu Glu
        675                 680                 685

Pro Ile Tyr Ser Leu Glu Leu Arg Phe Arg Val Glu Gly Gln Leu Tyr
    690                 695                 700

Ala Pro Leu Glu Ala Val His Val Pro Cys Leu Cys Pro Gly Arg Pro
705                 710                 715                 720

Ala Arg Pro Leu Leu Leu Pro Leu Gln Pro Arg Cys Pro Ala Pro Ala
                725                 730                 735

Arg Leu Asp Val His Ala Leu Tyr Thr Thr Ser Thr Gly Leu Thr Cys
            740                 745                 750

His Ala His Leu Pro Pro Leu Phe Val Asn Phe Ala Asp Leu Phe Leu
        755                 760                 765

Pro Phe Pro Gln Pro Pro Glu Gly Ala Gly Leu Gly Phe Phe Glu Glu
    770                 775                 780

Leu Trp Asp Ser Cys Leu Pro Glu Gly Ala Glu Ser Arg Val Trp Cys
785                 790                 795                 800

Pro Leu Gly Pro Gln Gly Leu Glu Gly Leu Val Ser Arg His Leu Glu
                805                 810                 815

Pro Phe Val Val Val Ala Gln Pro Pro Thr Ser Tyr Cys Val Ala Ile
            820                 825                 830

His Leu Pro Pro Asp Ser Lys Leu Leu Leu Arg Leu Glu Ala Ala Leu
        835                 840                 845
```

```
Ala Asp Gly Val Pro Val Ala Leu Arg Thr Asp Asp Trp Ala Val Leu
    850                 855                 860

Pro Leu Ala Gly Asp Tyr Leu Arg Gly Leu Ala Ala Ala Val
865                 870                 875


<210> 2573
<211> 490
<212> PRT
<213> Homo sapiens

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Met Ala Gln Arg Ala Val Trp Leu Ile Ser His Glu Pro Gly Thr Pro
1               5                   10                  15

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

Arg Ala Arg Val Phe Asn Gly Ala Ser Tyr Val Pro Val Pro Glu Asp
        35                  40                  45

Gly Pro Phe Leu Lys Ala Leu Leu Phe Glu Leu Arg Leu Leu Asp Asp
    50                  55                  60

Asp Lys Asp Phe Val Glu Ser Arg Asp Ser Cys Ser Arg Ile Asn Lys
65                  70                  75                  80
```

```
Thr Ser Ile Tyr Gly Leu Leu Ile Gly Gly Glu Glu Leu Trp Pro Val
                85                  90                  95

Val Ala Phe Leu Lys Asn Asp Met Ile Tyr Ala Cys Val Pro Leu Val
            100                 105                 110

Glu Gln Thr Leu Ser Pro Arg Pro Pro Leu Ile Ser Val Ser Gly Val
        115                 120                 125

Ser Gln Gly Phe Glu Phe Leu Phe Gly Ile Gln Asp Phe Leu Tyr Ser
    130                 135                 140

Gly Gln Lys Asn Asp Ser Glu Leu Asn Thr Lys Leu Ser Gln Leu Pro
145                 150                 155                 160

Asp Leu Leu Leu Gln Ala Cys Pro Phe Gly Thr Leu Leu Asp Ala Asn
                165                 170                 175

Leu Gln Asn Ser Leu Asp Asn Thr Asn Phe Ala Ser Val Thr Gln Pro
            180                 185                 190

Gln Lys Gln Pro Ala Trp Lys Thr Gly Thr Tyr Lys Gly Lys Pro Gln
        195                 200                 205

Val Ser Ile Ser Ile Thr Glu Lys Val Lys Ser Met Gln Tyr Asp Lys
    210                 215                 220

Gln Gly Ile Ala Asp Thr Trp Gln Val Val Gly Thr Val Thr Cys Lys
225                 230                 235                 240

Cys Asp Leu Glu Gly Ile Met Pro Asn Val Thr Ile Ser Leu Ser Leu
                245                 250                 255

Pro Thr Asn Gly Ser Pro Leu Gln Asp Ile Leu Val His Pro Cys Val
            260                 265                 270

Thr Ser Leu Asp Ser Ala Ile Leu Thr Ser Ser Ser Ile Asp Ala Met
        275                 280                 285

Asp Asp Ser Ala Phe Ser Gly Pro Tyr Lys Phe Pro Phe Thr Pro Pro
    290                 295                 300

Leu Glu Ser Phe Asn Leu Cys Phe Tyr Thr Ser Gln Val Pro Val Pro
```

```
305                 310                 315                 320

Pro Ile Leu Gly Phe Tyr Gln Met Lys Glu Glu Glu Val Gln Leu Arg
                325                 330                 335

Ile Thr Ile Asn Leu Lys Leu His Glu Ser Val Lys Asn Asn Phe Glu
            340                 345                 350

Phe Cys Glu Ala His Ile Pro Phe Tyr Asn Arg Gly Pro Ile Thr His
        355                 360                 365

Leu Glu Tyr Lys Thr Ser Phe Gly Gln Leu Glu Val Phe Arg Glu Lys
    370                 375                 380

Ser Leu Leu Ile Trp Ile Ile Gly Gln Lys Phe Pro Lys Ser Met Glu
385                 390                 395                 400

Ile Ser Leu Ser Gly Thr Val Thr Phe Gly Ala Lys Ser His Glu Lys
                405                 410                 415

Gln Pro Phe Asp Pro Ile Cys Thr Gly Glu Thr Ala Tyr Leu Lys Leu
            420                 425                 430

His Phe Arg Ile Leu Asp Tyr Thr Leu Thr Gly Cys Tyr Ala Asp Gln
        435                 440                 445

His Ser Val Gln Val Phe Ala Ser Gly Lys Pro Lys Ile Ser Ala His
    450                 455                 460

Arg Lys Leu Ile Ser Ser Asp Tyr Tyr Ile Trp Asn Ser Lys Ala Pro
465                 470                 475                 480

Ala Pro Val Thr Tyr Gly Ser Leu Leu Leu
                485                 490


<210> 2574
<211> 504
<212> PRT
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<400> 2574

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Met Ala Gln Arg Ala Val Trp Leu Ile Ser His Glu Pro Gly Thr Pro
1               5                   10                  15

Leu Cys Gly Thr Val Arg Phe Ser Arg Asp Trp Gln Glu Asp Ser Gly
            20                  25                  30

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

Arg Val Phe Asn Gly Ala Ser Tyr Val Pro Val Pro Glu Asp Gly Pro
    50                  55                  60

Phe Leu Lys Ala Leu Leu Phe Glu Leu Arg Leu Leu Asp Asp Asp Lys
65                  70                  75                  80

Asp Phe Val Glu Ser Arg Asp Ser Cys Ser Arg Ile Asn Lys Thr Ser
                85                  90                  95

Ile Tyr Gly Leu Leu Ile Gly Gly Glu Glu Leu Trp Pro Val Val Ala
            100                 105                 110

Phe Leu Lys Asn Asp Met Ile Tyr Ala Cys Val Pro Leu Val Glu Gln
        115                 120                 125

Thr Leu Ser Pro Arg Pro Pro Leu Ile Ser Val Ser Gly Val Ser Gln
    130                 135                 140

Gly Phe Glu Phe Leu Phe Gly Ile Gln Asp Phe Leu Tyr Ser Gly Gln
145                 150                 155                 160

Lys Asn Asp Ser Glu Leu Asn Thr Lys Leu Ser Gln Leu Pro Asp Leu
                165                 170                 175
```

```
Leu Leu Gln Ala Cys Pro Phe Gly Thr Leu Leu Asp Ala Asn Leu Gln
            180                 185                 190

Asn Ser Leu Asp Asn Thr Asn Phe Ala Ser Val Thr Gln Pro Gln Lys
        195                 200                 205

Gln Pro Ala Trp Lys Thr Gly Thr Tyr Lys Gly Lys Pro Gln Val Ser
    210                 215                 220

Ile Ser Ile Thr Glu Lys Val Lys Ser Met Gln Tyr Asp Lys Gln Gly
225                 230                 235                 240

Ile Ala Asp Thr Trp Gln Val Val Gly Thr Val Thr Cys Lys Cys Asp
                245                 250                 255

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

Asn Gly Ser Pro Leu Gln Asp Ile Leu Val His Pro Cys Val Thr Ser
        275                 280                 285

Leu Asp Ser Ala Ile Leu Thr Ser Ser Ser Ile Asp Ala Met Asp Asp
    290                 295                 300

Ser Ala Phe Ser Gly Pro Tyr Lys Phe Pro Phe Thr Pro Pro Leu Glu
305                 310                 315                 320

Ser Phe Asn Leu Cys Phe Tyr Thr Ser Gln Val Pro Val Pro Pro Ile
                325                 330                 335

Leu Gly Phe Tyr Gln Met Lys Glu Glu Glu Val Gln Leu Arg Ile Thr
            340                 345                 350

Ile Asn Leu Lys Leu His Glu Ser Val Lys Asn Asn Phe Glu Phe Cys
        355                 360                 365

Glu Ala His Ile Pro Phe Tyr Asn Arg Gly Pro Ile Thr His Leu Glu
    370                 375                 380

Tyr Lys Thr Ser Phe Gly Gln Leu Glu Val Phe Arg Glu Lys Ser Leu
385                 390                 395                 400
```

```
Leu Ile Trp Ile Ile Gly Gln Lys Phe Pro Lys Ser Met Glu Ile Ser
                405                 410                 415

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

Phe Asp Pro Ile Cys Thr Gly Glu Thr Ala Tyr Leu Lys Leu His Phe
        435                 440                 445

Arg Ile Leu Asp Tyr Thr Leu Thr Gly Cys Tyr Ala Asp Gln His Ser
    450                 455                 460

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

Leu Ile Ser Ser Asp Tyr Tyr Ile Trp Asn Ser Lys Ala Pro Ala Pro
                485                 490                 495

Val Thr Tyr Gly Ser Leu Leu Leu
            500


<210> 2575
<211> 59
<212> PRT
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<220>
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<400> 2575
Leu His Phe Arg Ile Leu Asp Tyr Thr Leu Thr Gly Cys Tyr Ala Asp
1               5                   10                  15

Gln His Ser Val Gln Val Phe Ala Ser Gly Lys Pro Lys Ile Ser Ala
```

```
            20                  25                  30

His Arg Lys Leu Ile Ser Ser Asp Tyr Tyr Ile Trp Asn Ser Lys Ala
        35                  40                  45

Pro Ala Pro Val Thr Tyr Gly Ser Leu Leu Leu
    50                  55

<210> 2576
<211> 38
<212> PRT
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000451306"

<400> 2576
Met Ala Gln Arg Ala Val Trp Leu Ile Ser His Glu Pro Gly Thr Pro
1               5                   10                  15

Leu Cys Gly Thr Val Arg Phe Ser Ser Val Ile Trp Lys Glu Ser Cys
            20                  25                  30

Gln Met Leu Pro Ser Ala
        35

<210> 2577
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 610; "

<220>
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<221> source
<223> /note="Gene Symbol: AP5M1; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 5, mu 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452211"

<400> 2577
Met Ile Tyr Ala Cys Val Pro Leu Val Glu Gln Thr Leu Ser Pro Arg
1 5 10 15

Pro Pro Leu Ile Ser Val Ser Gly Val Ser Gln Gly Phe Glu Phe Leu
20 25 30

Phe Gly Ile Gln Asp Phe Leu Tyr Ser Gly Gln Lys Asn Asp Ser Glu
35 40 45

Leu Asn Thr Lys Leu Ser Gln Leu Pro Asp Leu Leu Leu Gln Ala Cys
50 55 60

Pro Phe Gly Thr Leu Leu Asp Ala Asn Leu Gln Asn Ser Leu Asp Asn
65 70 75 80

Thr

<210> 2578
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 610; "

<220>
<221> source
<223> /note="Gene Symbol: AP5M1; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 5, mu 1
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473837"

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

<400> 2578
Xaa Phe Arg Glu Lys Ser Leu Leu Ile Trp Ile Ile Gly Gln Lys Phe
1 5 10 15

Pro Lys Ser Met Glu Ile Ser Leu Ser Gly Thr Val Thr Phe Gly Ala
20 25 30

Lys Ser His Glu Lys Gln Pro Phe Asp Pro Ile Cys Thr Gly Glu Thr
35 40 45

Ala Tyr Leu Lys Leu His Phe Arg Ile Leu Asp Tyr Thr Leu Thr Gly
50 55 60

Cys Tyr Ala Asp Gln His Ser Val Gln Val Phe Ala Ser Gly Lys Pro
65 70 75 80

Lys Ile Ser Ala Arg Lys Leu His Arg Phe Lys Leu Thr
85 90

<210> 2579
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 611; "

<220>
<221> source
<223> /note="Gene Symbol: AP5S1; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 5, sigma 1
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NUS5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000246041"

<400> 2579
Met Val His Ala Phe Leu Ile His Thr Leu Arg Ala Pro Asn Thr Glu
1   5   10   15

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

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

Leu Arg Lys Glu Gln Ile Leu Ala Val Ala Arg Gln Val Glu Ser Met
    50   55   60

Cys Arg Leu Gln Gln Gln Ala Ser Gly Arg Pro Pro Met Asp Leu Gln
65   70   75   80

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

Ala Phe Arg Leu Ala Ala Glu Asn Pro Phe Gln Glu Pro Arg Thr Val
            100   105   110

Val Trp Leu Gly Val Leu Ser Leu Gly Phe Ala Leu Val Leu Asp Ala
        115   120   125

His Glu Asn Leu Leu Leu Ala Glu Gly Thr Leu Arg Leu Leu Thr Arg
    130   135   140

Leu Leu Leu Asp His Leu Arg Leu Leu Ala Pro Ser Thr Ser Leu Leu
145   150   155   160

Leu Arg Ala Asp Arg Ile Glu Gly Ile Leu Thr Arg Phe Leu Pro His
                165   170   175

Gly Gln Leu Leu Phe Leu Asn Asp Gln Phe Val Gln Gly Leu Glu Lys
            180   185   190

Glu Phe Ser Ala Ala Trp Pro Arg
        195   200

<210> 2580
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 611; "

<220>
<221> source
<223> /note="Gene Symbol: AP5S1; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 5, sigma 1
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NUS5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368886"

<400> 2580
Met Val His Ala Phe Leu Ile His Thr Leu Arg Ala Pro Asn Thr Glu
1   5   10   15

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

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

Leu Arg Lys Glu Gln Ile Leu Ala Val Ala Arg Gln Val Glu Ser Met
    50   55   60

Cys Arg Leu Gln Gln Gln Ala Ser Gly Arg Pro Pro Met Asp Leu Gln
65   70   75   80

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

Ala Phe Arg Leu Ala Ala Glu Asn Pro Phe Gln Glu Pro Arg Thr Val
            100   105   110

```
Val Trp Leu Gly Val Leu Ser Leu Gly Phe Ala Leu Val Leu Asp Ala
        115                 120                 125

His Glu Asn Leu Leu Leu Ala Glu Gly Thr Leu Arg Leu Leu Thr Arg
    130                 135                 140

Leu Leu Leu Asp His Leu Arg Leu Leu Ala Pro Ser Thr Ser Leu Leu
145                 150                 155                 160

Leu Arg Ala Asp Arg Ile Glu Gly Ile Leu Thr Arg Phe Leu Pro His
                165                 170                 175

Gly Gln Leu Leu Phe Leu Asn Asp Gln Phe Val Gln Gly Leu Glu Lys
            180                 185                 190

Glu Phe Ser Ala Ala Trp Pro Arg
        195                 200


<210> 2581
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 611; "

<220>
<221> source
<223> /note="Gene Symbol: AP5S1; "

<220>
<221> source
<223> /note="Gene Name:
      adaptor-related prt complex 5, sigma 1
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368892"

<400> 2581
Met Val His Ala Phe Leu Ile His Thr Leu Arg Ala Pro Asn Thr Glu
1               5                   10                  15

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

Lys Ser Pro Asp Asp Pro Arg Pro His Gly Ala Glu Arg Asp Arg Leu
```

```
        35                  40                  45

Leu Arg Lys Glu Gln Ile Leu Ala Val Ala Arg
    50                  55


<210> 2582
<211> 86
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 611; "

<220>
<221> source
<223> /note="Gene Symbol: AP5S1; "

<220>
<221> source
<223> /note="Gene Name:
      adaptor-related prt complex 5, sigma 1
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405487"

<400> 2582
Met Val His Ala Phe Leu Ile His Thr Leu Arg Ala Pro Asn Thr Glu
1               5                   10                  15


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


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


Leu Arg Lys Glu Gln Ile Leu Ala Val Ala Arg Gln Val Glu Ser Met
    50                  55                  60


Cys Arg Leu Gln Gln Gln Ala Ser Gly Arg Pro Pro Met Asp Leu Gln
65                  70                  75                  80


Pro Gln Ser Ser Asp Glu
                85


<210> 2583
<211> 200
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<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 611; "

<220>
<221> source
<223> /note="Gene Symbol: AP5S1; "

<220>
<221> source
<223> /note="Gene Name:
adaptor-related prt complex 5, sigma 1
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NUS5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481750"

<400> 2583

```
Met Val His Ala Phe Leu Ile His Thr Leu Arg Ala Pro Asn Thr Glu
1               5                  10                  15

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

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

Leu Arg Lys Glu Gln Ile Leu Ala Val Ala Arg Gln Val Glu Ser Met
    50                  55                  60

Cys Arg Leu Gln Gln Gln Ala Ser Gly Arg Pro Pro Met Asp Leu Gln
65                  70                  75                  80

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

Ala Phe Arg Leu Ala Ala Glu Asn Pro Phe Gln Glu Pro Arg Thr Val
            100                 105                 110

Val Trp Leu Gly Val Leu Ser Leu Gly Phe Ala Leu Val Leu Asp Ala
        115                 120                 125
```

```
His Glu Asn Leu Leu Leu Ala Glu Gly Thr Leu Arg Leu Leu Thr Arg
    130                 135                 140

Leu Leu Leu Asp His Leu Arg Leu Leu Ala Pro Ser Thr Ser Leu Leu
145                 150                 155                 160

Leu Arg Ala Asp Arg Ile Glu Gly Ile Leu Thr Arg Phe Leu Pro His
                165                 170                 175

Gly Gln Leu Leu Phe Leu Asn Asp Gln Phe Val Gln Gly Leu Glu Lys
            180                 185                 190

Glu Phe Ser Ala Ala Trp Pro Arg
        195                 200


<210> 2584
<211> 807
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 612; "

<220>
<221> source
<223> /note="Gene Symbol: AP5Z1; "

<220>
<221> source
<223> /note="Gene Name:
      adaptor-related prt complex 5, zeta 1
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  O43299; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000297562"

<400> 2584
Met Phe Ser Ala Gly Ala Glu Ser Leu Leu His Gln Ala Arg Glu Ile
1               5                   10                  15

Gln Asp Glu Glu Leu Lys Lys Phe Cys Ser Arg Ile Cys Lys Leu Leu
            20                  25                  30
```

```
Gln Ala Glu Asp Leu Gly Pro Asp Thr Leu Asp Ser Leu Gln Arg Leu
        35                  40                  45

Phe Leu Ile Ile Ser Ala Thr Lys Tyr Ser Arg Arg Leu Glu Lys Thr
    50                  55                  60

Cys Val Asp Leu Leu Gln Ala Thr Leu Gly Leu Pro Ala Cys Pro Glu
65                  70                  75                  80

Gln Leu Gln Val Leu Cys Ala Ala Ile Leu Arg Glu Met Ser Pro Ser
                85                  90                  95

Asp Ser Leu Ser Leu Ala Trp Asp His Thr Gln Asn Ser Arg Gln Leu
            100                 105                 110

Ser Leu Val Ala Ser Val Leu Leu Ala Gln Gly Asp Arg Asn Glu Glu
        115                 120                 125

Val Arg Ala Val Gly Gln Gly Val Leu Arg Ala Leu Glu Ser Arg Gln
    130                 135                 140

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

Val Val Leu Ser Pro Gly Thr Leu Gln Glu Asp Gln Ala Thr Leu Leu
                165                 170                 175

Ser Lys Arg Leu Val Asp Trp Leu Arg Tyr Ala Ser Leu Gln Gln Gly
            180                 185                 190

Leu Pro His Ser Gly Gly Phe Phe Ser Thr Pro Arg Ala Arg Gln Pro
        195                 200                 205

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

Val Leu Ser Ser Gly His Arg Phe Thr Asp Asp Gln Trp Leu Asn Val
225                 230                 235                 240

Gln Ala Phe Ser Met Leu Arg Ala Trp Leu Leu His Ser Gly Pro Glu
                245                 250                 255

Gly Pro Gly Thr Leu Asp Thr Asp Asp Arg Ser Glu Gln Glu Gly Ser
```

260 265 270

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

Pro Arg Glu Arg Leu Arg Glu Val Ala Phe Glu Tyr Cys Gln Arg Leu
290 295 300

Ile Glu Gln Ser Asn Arg Arg Ala Leu Arg Lys Gly Asp Ser Asp Leu
305 310 315 320

Gln Lys Ala Cys Leu Val Glu Ala Val Leu Val Leu Asp Val Leu Cys
325 330 335

Arg Gln Asp Pro Ser Phe Leu Tyr Arg Ser Leu Ser Cys Leu Lys Ala
340 345 350

Leu His Gly Arg Val Arg Gly Asp Pro Ala Ser Val Arg Val Leu Leu
355 360 365

Pro Leu Ala His Phe Phe Leu Ser His Gly Glu Ala Ala Ala Val Asp
370 375 380

Ser Glu Ala Val Tyr Gln His Leu Phe Thr Arg Ile Pro Val Glu Gln
385 390 395 400

Phe His Ser Pro Met Leu Ala Phe Glu Phe Ile Gln Phe Cys Arg Asp
405 410 415

Asn Leu His Leu Phe Ser Gly His Leu Ser Thr Leu Arg Leu Ser Phe
420 425 430

Pro Asn Leu Phe Lys Phe Leu Ala Trp Asn Ser Pro Pro Leu Thr Ser
435 440 445

Glu Phe Val Ala Leu Leu Pro Ala Leu Val Asp Ala Gly Thr Ala Leu
450 455 460

Glu Met Leu His Ala Leu Leu Asp Leu Pro Cys Leu Thr Ala Val Leu
465 470 475 480

Asp Leu Gln Leu Arg Ser Ala Pro Ala Ala Ser Glu Arg Pro Leu Trp
485 490 495

```
Asp Thr Ser Leu Arg Ala Pro Ser Cys Leu Glu Ala Phe Arg Asp Pro
            500                 505                 510

Gln Phe Gln Gly Leu Phe Gln Tyr Leu Leu Arg Pro Lys Ala Ser Gly
        515                 520                 525

Ala Thr Glu Arg Leu Ala Pro Leu His Gln Leu Leu Gln Pro Met Ala
    530                 535                 540

Gly Cys Ala Arg Val Ala Gln Cys Ala Gln Ala Val Pro Thr Leu Leu
545                 550                 555                 560

Gln Ala Phe Phe Ser Ala Val Thr Gln Val Ala Asp Gly Ser Leu Ile
                565                 570                 575

Asn Gln Leu Ala Leu Leu Leu Leu Gly Arg Ser Asp Ser Leu Tyr Pro
            580                 585                 590

Ala Pro Gly Tyr Ala Ala Gly Val His Ser Val Leu Ser Ser Gln Phe
        595                 600                 605

Leu Ala Leu Cys Thr Leu Lys Pro Ser Leu Val Val Glu Leu Ala Arg
    610                 615                 620

Asp Leu Leu Glu Phe Leu Gly Ser Val Asn Gly Leu Cys Ser Arg Ala
625                 630                 635                 640

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

Thr Tyr Asp Arg Arg Cys Thr Val Glu Gln Ile Asn Lys Phe Phe Glu
            660                 665                 670

Ala Leu Glu Ala Leu Leu Phe Glu Val Thr Gln Cys Arg Pro Ser Ala
        675                 680                 685

Ala Leu Pro Arg Cys Pro Pro Gln Val Val Thr Val Leu Met Thr Thr
    690                 695                 700

Leu Thr Lys Leu Ala Ser Arg Ser Gln Asp Leu Ile Pro Arg Ala Ser
705                 710                 715                 720
```

```
Leu Leu Leu Ser Lys Met Arg Thr Leu Ala His Ser Pro Ala Thr Ser
                725                 730                 735

Ser Thr His Ser Glu Glu Gly Ala Glu Ala Ile Arg Thr Arg Ala Thr
            740                 745                 750

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

Thr Pro Ser Thr Glu Val Cys Ser Pro Arg Tyr His Arg Asp Ala Asn
    770                 775                 780

Thr Ala Leu Pro Leu Ala Leu Arg Thr Val Ser Arg Leu Val Glu Arg
785                 790                 795                 800

Glu Ala Gly Leu Met Pro Gly
                805


<210> 2585
<211> 1536
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 613; "

<220>
<221> source
<223> /note="Gene Symbol: ASXL1; "

<220>
<221> source
<223> /note="Gene Name:
      additional sex combs like transcriptional regulator 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000305119"

<400> 2585
Met Gly Val Val Asn Phe Val Phe Arg Ala Ser Glu Asp Leu Gln Val
1               5                   10                  15

Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys Gln Ile Leu Gln
            20                  25                  30

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

```
        35                  40                  45

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

Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu Phe Thr Leu Lys Lys
65                  70                  75                  80

Asp Ala Leu Gln Trp Ser Arg His Pro Ala Thr Val Glu Gly Glu Glu
                85                  90                  95

Pro Glu Asp Thr Ala Asp Val Glu Ser Cys Gly Ser Asn Glu Ala Ser
            100                 105                 110

Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp Glu Thr Ser Ser Asn
        115                 120                 125

Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro Leu Ser Asn Pro Arg
    130                 135                 140

Asp Ser Tyr Arg Ala Ser Ser Gln Ala Asn Lys Gln Lys Lys Lys Thr
145                 150                 155                 160

Gly Val Met Leu Pro Arg Val Val Leu Thr Pro Leu Lys Val Asn Gly
                165                 170                 175

Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly Cys His Ala Asp Gly
            180                 185                 190

Glu Ser Gly Ser Pro Ser Ser Ser Ser Ser Gly Ser Leu Ala Leu Gly
        195                 200                 205

Ser Ala Ala Ile Arg Gly Gln Ala Glu Val Thr Gln Asp Pro Ala Pro
    210                 215                 220

Leu Leu Arg Gly Phe Arg Lys Pro Ala Thr Gly Gln Met Lys Arg Asn
225                 230                 235                 240

Arg Gly Glu Glu Ile Asp Phe Glu Thr Pro Gly Ser Ile Leu Val Asn
                245                 250                 255

Thr Asn Leu Arg Ala Leu Ile Asn Ser Arg Thr Phe His Ala Leu Pro
            260                 265                 270
```

```
Ser His Phe Gln Gln Gln Leu Leu Phe Leu Leu Pro Glu Val Asp Arg
        275                 280                 285

Gln Val Gly Thr Asp Gly Leu Leu Arg Leu Ser Ser Ser Ala Leu Asn
    290                 295                 300

Asn Glu Phe Phe Thr His Ala Ala Gln Ser Trp Arg Glu Arg Leu Ala
305                 310                 315                 320

Asp Gly Glu Phe Thr His Glu Met Gln Val Arg Ile Arg Gln Glu Met
                325                 330                 335

Glu Lys Glu Lys Lys Val Glu Gln Trp Lys Glu Lys Phe Phe Glu Asp
            340                 345                 350

Tyr Tyr Gly Gln Lys Leu Gly Leu Thr Lys Glu Glu Ser Leu Gln Gln
        355                 360                 365

Asn Val Gly Gln Glu Glu Ala Glu Ile Lys Ser Gly Leu Cys Val Pro
    370                 375                 380

Gly Glu Ser Val Arg Ile Gln Arg Gly Pro Ala Thr Arg Gln Arg Asp
385                 390                 395                 400

Gly His Phe Lys Lys Arg Ser Arg Pro Asp Leu Arg Thr Arg Ala Arg
                405                 410                 415

Arg Asn Leu Tyr Lys Lys Gln Glu Ser Glu Gln Ala Gly Val Ala Lys
            420                 425                 430

Asp Ala Lys Ser Val Ala Ser Asp Val Pro Leu Tyr Lys Asp Gly Glu
        435                 440                 445

Ala Lys Thr Asp Pro Ala Gly Leu Ser Ser Pro His Leu Pro Gly Thr
    450                 455                 460

Ser Ser Ala Ala Pro Asp Leu Glu Gly Pro Glu Phe Pro Val Glu Ser
465                 470                 475                 480

Val Ala Ser Arg Ile Gln Ala Glu Pro Asp Asn Leu Ala Arg Ala Ser
                485                 490                 495
```

```
Ala Ser Pro Asp Arg Ile Pro Ser Leu Pro Gln Glu Thr Val Asp Gln
            500                 505                 510

Glu Pro Lys Asp Gln Lys Arg Lys Ser Phe Glu Gln Ala Ala Ser Ala
        515                 520                 525

Ser Phe Pro Glu Lys Lys Pro Arg Leu Glu Asp Arg Gln Ser Phe Arg
    530                 535                 540

Asn Thr Ile Glu Ser Val His Thr Glu Lys Pro Gln Pro Thr Lys Glu
545                 550                 555                 560

Glu Pro Lys Val Pro Pro Ile Arg Ile Gln Leu Ser Arg Ile Lys Pro
                565                 570                 575

Pro Trp Val Val Lys Gly Gln Pro Thr Tyr Gln Ile Cys Pro Arg Ile
            580                 585                 590

Ile Pro Thr Thr Glu Ser Ser Cys Arg Gly Trp Thr Gly Ala Arg Thr
        595                 600                 605

Leu Ala Asp Ile Lys Ala Arg Ala Leu Gln Val Arg Gly Ala Arg Gly
    610                 615                 620

His His Cys His Arg Glu Ala Ala Thr Thr Ala Ile Gly Gly Gly Gly
625                 630                 635                 640

Gly Pro Gly Gly Gly Gly Gly Gly Ala Thr Asp Glu Gly Gly Gly Arg
                645                 650                 655

Gly Ser Ser Ser Gly Asp Gly Gly Glu Ala Cys Gly His Pro Glu Pro
            660                 665                 670

Arg Gly Gly Pro Ser Thr Pro Gly Lys Cys Thr Ser Asp Leu Gln Arg
        675                 680                 685

Thr Gln Leu Leu Pro Pro Tyr Pro Leu Asn Gly Glu His Thr Gln Ala
    690                 695                 700

Gly Thr Ala Met Ser Arg Ala Arg Arg Glu Asp Leu Pro Ser Leu Arg
705                 710                 715                 720
```

```
Lys Glu Glu Ser Cys Leu Leu Gln Arg Ala Thr Val Gly Leu Thr Asp
                725                 730                 735

Gly Leu Gly Asp Ala Ser Gln Leu Pro Val Ala Pro Thr Gly Asp Gln
            740                 745                 750

Pro Cys Gln Ala Leu Pro Leu Leu Ser Ser Gln Thr Ser Val Ala Glu
        755                 760                 765

Arg Leu Val Glu Gln Pro Gln Leu His Pro Asp Val Arg Thr Glu Cys
    770                 775                 780

Glu Ser Gly Thr Thr Ser Trp Glu Ser Asp Asp Glu Glu Gln Gly Pro
785                 790                 795                 800

Thr Val Pro Ala Asp Asn Gly Pro Ile Pro Ser Leu Val Gly Asp Asp
                805                 810                 815

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

Lys Asp Pro Val Asn Val Thr Pro Ser Ser Thr Pro Glu Ser Ser Pro
        835                 840                 845

Thr Asp Cys Leu Gln Asn Arg Ala Phe Asp Asp Glu Leu Gly Leu Gly
    850                 855                 860

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

Lys Thr Lys Ala Leu Val Ser Asn Ser Ser Leu His Trp Ile Pro Ile
                885                 890                 895

Pro Ser Asn Asp Glu Val Val Lys Gln Pro Lys Pro Glu Ser Arg Glu
            900                 905                 910

His Ile Pro Ser Val Glu Pro Gln Val Gly Glu Glu Trp Glu Lys Ala
        915                 920                 925

Ala Pro Thr Pro Pro Ala Leu Pro Gly Asp Leu Thr Ala Glu Glu Gly
    930                 935                 940

Leu Asp Pro Leu Asp Ser Leu Thr Ser Leu Trp Thr Val Pro Ser Arg
```

945 950 955 960

Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln Gln Val Asp Ile Glu
965 970 975

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

Ser Thr Asp Thr Ala Ser Asp Phe Glu Gly His Leu Thr Glu Asp
Ser
995 1000 1005

Ser Glu Ala Asp Thr Arg Glu Ala Ala Val Thr Lys Gly Ser Ser
1010 1015 1020

Val Asp Lys Asp Glu Lys Pro Asn Trp Asn Gln Ser Ala Pro Leu
1025 1030 1035

Ser Lys Val Asn Gly Asp Met Arg Leu Val Thr Arg Thr Asp Gly
1040 1045 1050

Met Val Ala Pro Gln Ser Trp Val Ser Arg Val Cys Ala Val Arg
1055 1060 1065

Gln Lys Ile Pro Asp Ser Leu Leu Leu Ala Ser Thr Glu Tyr Gln
1070 1075 1080

Pro Arg Ala Val Cys Leu Ser Met Pro Gly Ser Ser Val Glu Ala
1085 1090 1095

Thr Asn Pro Leu Val Met Gln Leu Leu Gln Gly Ser Leu Pro Leu
1100 1105 1110

Glu Lys Val Leu Pro Pro Ala His Asp Asp Ser Met Ser Glu Ser
1115 1120 1125

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

Met Gly Ser Leu His Gly Leu Gly Lys Asn Ser Gly Met Val Asp
1145 1150 1155

Gly Ser Ser Pro Ser Ser Leu Arg Ala Leu Lys Glu Pro Leu Leu

```
    1160                1165                1170

Pro Asp  Ser Cys Glu Thr Gly  Thr Gly Leu Ala Arg  Ile Glu Ala
    1175                1180                1185

Thr Gln  Ala Pro Gly Ala Pro  Gln Lys Asn Cys Lys  Ala Val Pro
    1190                1195                1200

Ser Phe  Asp Ser Leu His Pro  Val Thr Asn Pro Ile  Thr Ser Ser
    1205                1210                1215

Arg Lys  Leu Glu Glu Met Asp  Ser Lys Glu Gln Phe  Ser Ser Phe
    1220                1225                1230

Ser Cys  Glu Asp Gln Lys Glu  Val Arg Ala Met Ser  Gln Asp Ser
    1235                1240                1245

Asn Ser  Asn Ala Ala Pro Gly  Lys Ser Pro Gly Asp  Leu Thr Thr
    1250                1255                1260

Ser Arg  Thr Pro Arg Phe Ser  Ser Pro Asn Val Ile  Ser Phe Gly
    1265                1270                1275

Pro Glu  Gln Thr Gly Arg Ala  Leu Gly Asp Gln Ser  Asn Val Thr
    1280                1285                1290

Gly Gln  Gly Lys Lys Leu Phe  Gly Ser Gly Asn Val  Ala Ala Thr
    1295                1300                1305

Leu Gln  Arg Pro Arg Pro Ala  Asp Pro Met Pro Leu  Pro Ala Glu
    1310                1315                1320

Ile Pro  Pro Val Phe Pro Ser  Gly Lys Leu Gly Pro  Ser Thr Asn
    1325                1330                1335

Ser Met  Ser Gly Gly Val Gln  Thr Pro Arg Glu Asp  Trp Ala Pro
    1340                1345                1350

Lys Pro  His Ala Phe Val Gly  Ser Val Lys Asn Glu  Lys Thr Phe
    1355                1360                1365

Val Gly  Gly Pro Leu Lys Ala  Asn Ala Glu Asn Arg  Lys Ala Thr
    1370                1375                1380
```

```
Gly His  Ser Pro Leu Glu Leu  Val Gly His Leu Glu  Gly Met Pro
    1385                1390                1395

Phe Val  Met Asp Leu Pro Phe  Trp Lys Leu Pro Arg  Glu Pro Gly
    1400                1405                1410

Lys Gly  Leu Ser Glu Pro Leu  Glu Pro Ser Ser Leu  Pro Ser Gln
    1415                1420                1425

Leu Ser  Ile Lys Gln Ala Phe  Tyr Gly Lys Leu Ser  Lys Leu Gln
    1430                1435                1440

Leu Ser  Ser Thr Ser Phe Asn  Tyr Ser Ser Ser Ser  Pro Thr Phe
    1445                1450                1455

Pro Lys  Gly Leu Ala Gly Ser  Val Val Gln Leu Ser  His Lys Ala
    1460                1465                1470

Asn Phe  Gly Ala Ser His Ser  Ala Ser Leu Ser Leu  Gln Met Phe
    1475                1480                1485

Thr Asp  Ser Ser Thr Val Glu  Ser Ile Ser Leu Gln  Cys Ala Cys
    1490                1495                1500

Ser Leu  Lys Ala Met Ile Met  Cys Gln Gly Cys Gly  Ala Phe Cys
    1505                1510                1515

His Asp  Asp Cys Ile Gly Pro  Ser Lys Leu Cys Val  Leu Cys Leu
    1520                1525                1530

Val Val  Arg
    1535


<210> 2586
<211> 1541
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 613; "

<220>
<221> source
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<223> /note="Gene Symbol: ASXL1; "

<220>
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<223> /note="Gene Name:
additional sex combs like transcriptional regulator 1; "

<220>
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<223> /note="Uniprot ID: Q8IXJ9; "

<220>
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<223> /note="ENSP ID: ENSP00000364839"

<400> 2586

```
Met Lys Asp Lys Gln Lys Lys Lys Lys Glu Arg Thr Trp Ala Glu Ala
1               5                   10                  15

Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys
            20                  25                  30

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

Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Ser Asn Ser
    50                  55                  60

Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu
65                  70                  75                  80

Phe Thr Leu Lys Lys Asp Ala Leu Gln Trp Ser Arg His Pro Ala Thr
                85                  90                  95

Val Glu Gly Glu Glu Pro Glu Asp Thr Ala Asp Val Glu Ser Cys Gly
            100                 105                 110

Ser Asn Glu Ala Ser Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp
        115                 120                 125

Glu Thr Ser Ser Asn Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro
    130                 135                 140

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

Gln Lys Lys Lys Thr Gly Val Met Leu Pro Arg Val Val Leu Thr Pro
```

```
                165                 170                 175

Leu Lys Val Asn Gly Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly
            180                 185                 190

Cys His Ala Asp Gly Glu Ser Gly Ser Pro Ser Ser Ser Ser Ser Gly
        195                 200                 205

Ser Leu Ala Leu Gly Ser Ala Ala Ile Arg Gly Gln Ala Glu Val Thr
    210                 215                 220

Gln Asp Pro Ala Pro Leu Leu Arg Gly Phe Arg Lys Pro Ala Thr Gly
225                 230                 235                 240

Gln Met Lys Arg Asn Arg Gly Glu Glu Ile Asp Phe Glu Thr Pro Gly
                245                 250                 255

Ser Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Ser Arg Thr
            260                 265                 270

Phe His Ala Leu Pro Ser His Phe Gln Gln Gln Leu Leu Phe Leu Leu
        275                 280                 285

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

Ser Ser Ala Leu Asn Asn Glu Phe Phe Thr His Ala Ala Gln Ser Trp
305                 310                 315                 320

Arg Glu Arg Leu Ala Asp Gly Glu Phe Thr His Glu Met Gln Val Arg
                325                 330                 335

Ile Arg Gln Glu Met Glu Lys Glu Lys Lys Val Glu Gln Trp Lys Glu
            340                 345                 350

Lys Phe Phe Glu Asp Tyr Tyr Gly Gln Lys Leu Gly Leu Thr Lys Glu
        355                 360                 365

Glu Ser Leu Gln Gln Asn Val Gly Gln Glu Glu Ala Glu Ile Lys Ser
    370                 375                 380

Gly Leu Cys Val Pro Gly Glu Ser Val Arg Ile Gln Arg Gly Pro Ala
385                 390                 395                 400
```

Thr Arg Gln Arg Asp Gly His Phe Lys Lys Arg Ser Arg Pro Asp Leu
405 410 415

Arg Thr Arg Ala Arg Arg Asn Leu Tyr Lys Lys Gln Glu Ser Glu Gln
420 425 430

Ala Gly Val Ala Lys Asp Ala Lys Ser Val Ala Ser Asp Val Pro Leu
435 440 445

Tyr Lys Asp Gly Glu Ala Lys Thr Asp Pro Ala Gly Leu Ser Ser Pro
450 455 460

His Leu Pro Gly Thr Ser Ser Ala Ala Pro Asp Leu Glu Gly Pro Glu
465 470 475 480

Phe Pro Val Glu Ser Val Ala Ser Arg Ile Gln Ala Glu Pro Asp Asn
485 490 495

Leu Ala Arg Ala Ser Ala Ser Pro Asp Arg Ile Pro Ser Leu Pro Gln
500 505 510

Glu Thr Val Asp Gln Glu Pro Lys Asp Gln Lys Arg Lys Ser Phe Glu
515 520 525

Gln Ala Ala Ser Ala Ser Phe Pro Glu Lys Lys Pro Arg Leu Glu Asp
530 535 540

Arg Gln Ser Phe Arg Asn Thr Ile Glu Ser Val His Thr Glu Lys Pro
545 550 555 560

Gln Pro Thr Lys Glu Glu Pro Lys Val Pro Pro Ile Arg Ile Gln Leu
565 570 575

Ser Arg Ile Lys Pro Pro Trp Val Val Lys Gly Gln Pro Thr Tyr Gln
580 585 590

Ile Cys Pro Arg Ile Ile Pro Thr Thr Glu Ser Ser Cys Arg Gly Trp
595 600 605

Thr Gly Ala Arg Thr Leu Ala Asp Ile Lys Ala Arg Ala Leu Gln Val
610 615 620

```
Arg Gly Ala Arg Gly His His Cys His Arg Glu Ala Ala Thr Thr Ala
625                 630                 635                 640

Ile Gly Gly Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Ala Thr Asp
                645                 650                 655

Glu Gly Gly Gly Arg Gly Ser Ser Ser Gly Asp Gly Gly Glu Ala Cys
            660                 665                 670

Gly His Pro Glu Pro Arg Gly Gly Pro Ser Thr Pro Gly Lys Cys Thr
        675                 680                 685

Ser Asp Leu Gln Arg Thr Gln Leu Leu Pro Pro Tyr Pro Leu Asn Gly
    690                 695                 700

Glu His Thr Gln Ala Gly Thr Ala Met Ser Arg Ala Arg Arg Glu Asp
705                 710                 715                 720

Leu Pro Ser Leu Arg Lys Glu Glu Ser Cys Leu Leu Gln Arg Ala Thr
                725                 730                 735

Val Gly Leu Thr Asp Gly Leu Gly Asp Ala Ser Gln Leu Pro Val Ala
            740                 745                 750

Pro Thr Gly Asp Gln Pro Cys Gln Ala Leu Pro Leu Leu Ser Ser Gln
        755                 760                 765

Thr Ser Val Ala Glu Arg Leu Val Glu Gln Pro Gln Leu His Pro Asp
    770                 775                 780

Val Arg Thr Glu Cys Glu Ser Gly Thr Thr Ser Trp Glu Ser Asp Asp
785                 790                 795                 800

Glu Glu Gln Gly Pro Thr Val Pro Ala Asp Asn Gly Pro Ile Pro Ser
                805                 810                 815

Leu Val Gly Asp Asp Thr Leu Glu Lys Gly Thr Gly Gln Ala Leu Asp
            820                 825                 830

Ser His Pro Thr Met Lys Asp Pro Val Asn Val Thr Pro Ser Ser Thr
        835                 840                 845
```

```
Pro Glu Ser Ser Pro Thr Asp Cys Leu Gln Asn Arg Ala Phe Asp Asp
    850                 855                 860

Glu Leu Gly Leu Gly Gly Ser Cys Pro Pro Met Arg Glu Ser Asp Thr
865                 870                 875                 880

Arg Gln Glu Asn Leu Lys Thr Lys Ala Leu Val Ser Asn Ser Ser Leu
                885                 890                 895

His Trp Ile Pro Ile Pro Ser Asn Asp Glu Val Val Lys Gln Pro Lys
            900                 905                 910

Pro Glu Ser Arg Glu His Ile Pro Ser Val Glu Pro Gln Val Gly Glu
        915                 920                 925

Glu Trp Glu Lys Ala Ala Pro Thr Pro Pro Ala Leu Pro Gly Asp Leu
    930                 935                 940

Thr Ala Glu Glu Gly Leu Asp Pro Leu Asp Ser Leu Thr Ser Leu Trp
945                 950                 955                 960

Thr Val Pro Ser Arg Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln
                965                 970                 975

Gln Val Asp Ile Glu Lys Leu Lys Ile Asn Gly Asp Ser Glu Ala Leu
            980                 985                 990

Ser Pro His Gly Glu Ser Thr Asp  Thr Ala Ser Asp Phe  Glu Gly
His
        995                 1000                1005

Leu Thr  Glu Asp Ser Ser Glu  Ala Asp Thr Arg Glu  Ala Ala Val
    1010                1015                1020

Thr Lys  Gly Ser Ser Val Asp  Lys Asp Glu Lys Pro  Asn Trp Asn
    1025                1030                1035

Gln Ser  Ala Pro Leu Ser Lys  Val Asn Gly Asp Met  Arg Leu Val
    1040                1045                1050

Thr Arg  Thr Asp Gly Met Val  Ala Pro Gln Ser Trp  Val Ser Arg
    1055                1060                1065
```

```
Val Cys  Ala Val Arg Gln Lys  Ile Pro Asp Ser Leu  Leu Leu Ala
    1070                 1075                 1080

Ser Thr  Glu Tyr Gln Pro Arg  Ala Val Cys Leu Ser  Met Pro Gly
    1085                 1090                 1095

Ser Ser  Val Glu Ala Thr Asn  Pro Leu Val Met Gln  Leu Leu Gln
    1100                 1105                 1110

Gly Ser  Leu Pro Leu Glu Lys  Val Leu Pro Pro Ala  His Asp Asp
    1115                 1120                 1125

Ser Met  Ser Glu Ser Pro Gln  Val Pro Leu Thr Lys  Asp Gln Ser
    1130                 1135                 1140

His Gly  Ser Leu Arg Met Gly  Ser Leu His Gly Leu  Gly Lys Asn
    1145                 1150                 1155

Ser Gly  Met Val Asp Gly Ser  Ser Pro Ser Ser Leu  Arg Ala Leu
    1160                 1165                 1170

Lys Glu  Pro Leu Leu Pro Asp  Ser Cys Glu Thr Gly  Thr Gly Leu
    1175                 1180                 1185

Ala Arg  Ile Glu Ala Thr Gln  Ala Pro Gly Ala Pro  Gln Lys Asn
    1190                 1195                 1200

Cys Lys  Ala Val Pro Ser Phe  Asp Ser Leu His Pro  Val Thr Asn
    1205                 1210                 1215

Pro Ile  Thr Ser Ser Arg Lys  Leu Glu Glu Met Asp  Ser Lys Glu
    1220                 1225                 1230

Gln Phe  Ser Ser Phe Ser Cys  Glu Asp Gln Lys Glu  Val Arg Ala
    1235                 1240                 1245

Met Ser  Gln Asp Ser Asn Ser  Asn Ala Ala Pro Gly  Lys Ser Pro
    1250                 1255                 1260

Gly Asp  Leu Thr Thr Ser Arg  Thr Pro Arg Phe Ser  Ser Pro Asn
    1265                 1270                 1275

Val Ile  Ser Phe Gly Pro Glu  Gln Thr Gly Arg Ala  Leu Gly Asp
```

```
    1280                1285                1290

Gln Ser  Asn Val Thr Gly Gln  Gly Lys Lys Leu Phe  Gly Ser Gly
    1295                1300                1305

Asn Val  Ala Ala Thr Leu Gln  Arg Pro Arg Pro Ala  Asp Pro Met
    1310                1315                1320

Pro Leu  Pro Ala Glu Ile Pro  Pro Val Phe Pro Ser  Gly Lys Leu
    1325                1330                1335

Gly Pro  Ser Thr Asn Ser Met  Ser Gly Gly Val Gln  Thr Pro Arg
    1340                1345                1350

Glu Asp  Trp Ala Pro Lys Pro  His Ala Phe Val Gly  Ser Val Lys
    1355                1360                1365

Asn Glu  Lys Thr Phe Val Gly  Gly Pro Leu Lys Ala  Asn Ala Glu
    1370                1375                1380

Asn Arg  Lys Ala Thr Gly His  Ser Pro Leu Glu Leu  Val Gly His
    1385                1390                1395

Leu Glu  Gly Met Pro Phe Val  Met Asp Leu Pro Phe  Trp Lys Leu
    1400                1405                1410

Pro Arg  Glu Pro Gly Lys Gly  Leu Ser Glu Pro Leu  Glu Pro Ser
    1415                1420                1425

Ser Leu  Pro Ser Gln Leu Ser  Ile Lys Gln Ala Phe  Tyr Gly Lys
    1430                1435                1440

Leu Ser  Lys Leu Gln Leu Ser  Ser Thr Ser Phe Asn  Tyr Ser Ser
    1445                1450                1455

Ser Ser  Pro Thr Phe Pro Lys  Gly Leu Ala Gly Ser  Val Val Gln
    1460                1465                1470

Leu Ser  His Lys Ala Asn Phe  Gly Ala Ser His Ser  Ala Ser Leu
    1475                1480                1485

Ser Leu  Gln Met Phe Thr Asp  Ser Ser Thr Val Glu  Ser Ile Ser
    1490                1495                1500
```

```
Leu Gln  Cys Ala Cys Ser Leu  Lys Ala Met Ile Met  Cys Gln Gly
    1505                1510                1515

Cys Gly  Ala Phe Cys His Asp  Asp Cys Ile Gly Pro  Ser Lys Leu
    1520                1525                1530

Cys Val  Leu Cys Leu Val Val  Arg
    1535                1540
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<210> 2587
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 613; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000364841"

<400> 2587

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Met Gly Val Val Asn Phe Val Phe Arg Ala Ser Glu Asp Leu Gln Val
1               5                  10                  15

Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys Gln Ile Leu Gln
            20                  25                  30

Val Ile Glu Ala Glu Gly Leu Lys Glu Met Arg Ser Gly Thr Ser Pro
        35                  40                  45

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

Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu Phe Thr Leu Lys
65                  70                  75                  80
```

Val

<210> 2588
<211> 85
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000438654"

<400> 2588
Met Lys Asp Lys Gln Lys Lys Lys Lys Glu Arg Thr Trp Ala Glu Ala
1 5 10 15

Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys
20 25 30

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

Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Ser Asn Ser
50 55 60

Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu
65 70 75 80

Phe Thr Leu Lys Val
85

<210> 2589
<211> 74
<212> PRT
<213> Homo sapiens

<220>

<221> source
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<220>
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<223> /note="Gene Symbol: ASXL1; "

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<220>
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<223> /note="ENSP ID: ENSP00000451216"

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

<400> 2589
Xaa Trp Ala Glu Ala Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala
1 5 10 15

Pro Met Thr Pro Lys Gln Ile Leu Gln Val Ile Glu Ala Glu Gly Leu
20 25 30

Lys Glu Met Arg Ser Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met
35 40 45

Leu His Ser Asn Ser Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro
50 55 60

Gly Arg Ile Ser Leu Phe Thr Leu Lys Val
65 70

<210> 2590
<211> 57
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
additional sex combs like transcriptional regulator 1; "

<220>
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<223> /note="ENSP ID: ENSP00000480361"

<400> 2590
Met Thr Pro Lys Gln Ile Leu Gln Val Ile Glu Ala Glu Gly Leu Lys
1 5 10 15

Glu Met Arg Ser Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu
20 25 30

His Ser Asn Ser Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly
35 40 45

Arg Ile Ser Leu Phe Thr Leu Lys Arg
50 55

<210> 2591
<211> 1541
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 613; "

<220>
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<220>
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<223> /note="Uniprot ID: Q8IXJ9; "

<220>
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<223> /note="ENSP ID: ENSP00000480487"

<400> 2591
Met Lys Asp Lys Gln Lys Lys Lys Lys Glu Arg Thr Trp Ala Glu Ala
1 5 10 15

Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys

```
            20                  25                  30

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

Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Ser Asn Ser
    50                  55                  60

Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu
65                  70                  75                  80

Phe Thr Leu Lys Lys Asp Ala Leu Gln Trp Ser Arg His Pro Ala Thr
                85                  90                  95

Val Glu Gly Glu Glu Pro Glu Asp Thr Ala Asp Val Glu Ser Cys Gly
            100                 105                 110

Ser Asn Glu Ala Ser Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp
        115                 120                 125

Glu Thr Ser Ser Asn Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro
    130                 135                 140

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

Gln Lys Lys Lys Thr Gly Val Met Leu Pro Arg Val Val Leu Thr Pro
                165                 170                 175

Leu Lys Val Asn Gly Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly
            180                 185                 190

Cys His Ala Asp Gly Glu Ser Gly Ser Pro Ser Ser Ser Ser Ser Gly
        195                 200                 205

Ser Leu Ala Leu Gly Ser Ala Ala Ile Arg Gly Gln Ala Glu Val Thr
    210                 215                 220

Gln Asp Pro Ala Pro Leu Leu Arg Gly Phe Arg Lys Pro Ala Thr Gly
225                 230                 235                 240

Gln Met Lys Arg Asn Arg Gly Glu Glu Ile Asp Phe Glu Thr Pro Gly
                245                 250                 255
```

```
Ser Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Ser Arg Thr
            260                 265                 270

Phe His Ala Leu Pro Ser His Phe Gln Gln Gln Leu Leu Phe Leu Leu
        275                 280                 285

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

Ser Ser Ala Leu Asn Asn Glu Phe Phe Thr His Ala Ala Gln Ser Trp
305                 310                 315                 320

Arg Glu Arg Leu Ala Asp Gly Glu Phe Thr His Glu Met Gln Val Arg
                325                 330                 335

Ile Arg Gln Glu Met Glu Lys Glu Lys Lys Val Glu Gln Trp Lys Glu
            340                 345                 350

Lys Phe Phe Glu Asp Tyr Tyr Gly Gln Lys Leu Gly Leu Thr Lys Glu
        355                 360                 365

Glu Ser Leu Gln Gln Asn Val Gly Gln Glu Glu Ala Glu Ile Lys Ser
    370                 375                 380

Gly Leu Cys Val Pro Gly Glu Ser Val Arg Ile Gln Arg Gly Pro Ala
385                 390                 395                 400

Thr Arg Gln Arg Asp Gly His Phe Lys Lys Arg Ser Arg Pro Asp Leu
                405                 410                 415

Arg Thr Arg Ala Arg Arg Asn Leu Tyr Lys Lys Gln Glu Ser Glu Gln
            420                 425                 430

Ala Gly Val Ala Lys Asp Ala Lys Ser Val Ala Ser Asp Val Pro Leu
        435                 440                 445

Tyr Lys Asp Gly Glu Ala Lys Thr Asp Pro Ala Gly Leu Ser Ser Pro
    450                 455                 460

His Leu Pro Gly Thr Ser Ser Ala Ala Pro Asp Leu Glu Gly Pro Glu
465                 470                 475                 480
```

```
Phe Pro Val Glu Ser Val Ala Ser Arg Ile Gln Ala Glu Pro Asp Asn
                485                 490                 495

Leu Ala Arg Ala Ser Ala Ser Pro Asp Arg Ile Pro Ser Leu Pro Gln
            500                 505                 510

Glu Thr Val Asp Gln Glu Pro Lys Asp Gln Lys Arg Lys Ser Phe Glu
        515                 520                 525

Gln Ala Ala Ser Ala Ser Phe Pro Glu Lys Lys Pro Arg Leu Glu Asp
    530                 535                 540

Arg Gln Ser Phe Arg Asn Thr Ile Glu Ser Val His Thr Glu Lys Pro
545                 550                 555                 560

Gln Pro Thr Lys Glu Glu Pro Lys Val Pro Pro Ile Arg Ile Gln Leu
                565                 570                 575

Ser Arg Ile Lys Pro Pro Trp Val Val Lys Gly Gln Pro Thr Tyr Gln
            580                 585                 590

Ile Cys Pro Arg Ile Ile Pro Thr Thr Glu Ser Ser Cys Arg Gly Trp
        595                 600                 605

Thr Gly Ala Arg Thr Leu Ala Asp Ile Lys Ala Arg Ala Leu Gln Val
    610                 615                 620

Arg Gly Ala Arg Gly His His Cys His Arg Glu Ala Ala Thr Thr Ala
625                 630                 635                 640

Ile Gly Gly Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Ala Thr Asp
                645                 650                 655

Glu Gly Gly Gly Arg Gly Ser Ser Ser Gly Asp Gly Gly Glu Ala Cys
            660                 665                 670

Gly His Pro Glu Pro Arg Gly Gly Pro Ser Thr Pro Gly Lys Cys Thr
        675                 680                 685

Ser Asp Leu Gln Arg Thr Gln Leu Leu Pro Pro Tyr Pro Leu Asn Gly
    690                 695                 700
```

```
Glu His Thr Gln Ala Gly Thr Ala Met Ser Arg Ala Arg Arg Glu Asp
705                 710                 715                 720

Leu Pro Ser Leu Arg Lys Glu Glu Ser Cys Leu Leu Gln Arg Ala Thr
                725                 730                 735

Val Gly Leu Thr Asp Gly Leu Gly Asp Ala Ser Gln Leu Pro Val Ala
            740                 745                 750

Pro Thr Gly Asp Gln Pro Cys Gln Ala Leu Pro Leu Leu Ser Ser Gln
        755                 760                 765

Thr Ser Val Ala Glu Arg Leu Val Glu Gln Pro Gln Leu His Pro Asp
    770                 775                 780

Val Arg Thr Glu Cys Glu Ser Gly Thr Thr Ser Trp Glu Ser Asp Asp
785                 790                 795                 800

Glu Glu Gln Gly Pro Thr Val Pro Ala Asp Asn Gly Pro Ile Pro Ser
                805                 810                 815

Leu Val Gly Asp Asp Thr Leu Glu Lys Gly Thr Gly Gln Ala Leu Asp
            820                 825                 830

Ser His Pro Thr Met Lys Asp Pro Val Asn Val Thr Pro Ser Ser Thr
        835                 840                 845

Pro Glu Ser Ser Pro Thr Asp Cys Leu Gln Asn Arg Ala Phe Asp Asp
    850                 855                 860

Glu Leu Gly Leu Gly Gly Ser Cys Pro Pro Met Arg Glu Ser Asp Thr
865                 870                 875                 880

Arg Gln Glu Asn Leu Lys Thr Lys Ala Leu Val Ser Asn Ser Ser Leu
                885                 890                 895

His Trp Ile Pro Ile Pro Ser Asn Asp Glu Val Val Lys Gln Pro Lys
            900                 905                 910

Pro Glu Ser Arg Glu His Ile Pro Ser Val Glu Pro Gln Val Gly Glu
        915                 920                 925

Glu Trp Glu Lys Ala Ala Pro Thr Pro Pro Ala Leu Pro Gly Asp Leu
```

930 935 940

Thr Ala Glu Glu Gly Leu Asp Pro Leu Asp Ser Leu Thr Ser Leu Trp
945 950 955 960

Thr Val Pro Ser Arg Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln
965 970 975

Gln Val Asp Ile Glu Lys Leu Lys Ile Asn Gly Asp Ser Glu Ala Leu
980 985 990

Ser Pro His Gly Glu Ser Thr Asp Thr Ala Ser Asp Phe Glu Gly
His
995 1000 1005

Leu Thr Glu Asp Ser Ser Glu Ala Asp Thr Arg Glu Ala Ala Val
1010 1015 1020

Thr Lys Gly Ser Ser Val Asp Lys Asp Glu Lys Pro Asn Trp Asn
1025 1030 1035

Gln Ser Ala Pro Leu Ser Lys Val Asn Gly Asp Met Arg Leu Val
1040 1045 1050

Thr Arg Thr Asp Gly Met Val Ala Pro Gln Ser Trp Val Ser Arg
1055 1060 1065

Val Cys Ala Val Arg Gln Lys Ile Pro Asp Ser Leu Leu Leu Ala
1070 1075 1080

Ser Thr Glu Tyr Gln Pro Arg Ala Val Cys Leu Ser Met Pro Gly
1085 1090 1095

Ser Ser Val Glu Ala Thr Asn Pro Leu Val Met Gln Leu Leu Gln
1100 1105 1110

Gly Ser Leu Pro Leu Glu Lys Val Leu Pro Pro Ala His Asp Asp
1115 1120 1125

Ser Met Ser Glu Ser Pro Gln Val Pro Leu Thr Lys Asp Gln Ser
1130 1135 1140

His Gly Ser Leu Arg Met Gly Ser Leu His Gly Leu Gly Lys Asn

```
    1145                1150                1155

Ser Gly  Met Val Asp Gly Ser  Ser Pro Ser Ser Leu  Arg Ala Leu
    1160                1165                1170

Lys Glu  Pro Leu Leu Pro Asp  Ser Cys Glu Thr Gly  Thr Gly Leu
    1175                1180                1185

Ala Arg  Ile Glu Ala Thr Gln  Ala Pro Gly Ala Pro  Gln Lys Asn
    1190                1195                1200

Cys Lys  Ala Val Pro Ser Phe  Asp Ser Leu His Pro  Val Thr Asn
    1205                1210                1215

Pro Ile  Thr Ser Ser Arg Lys  Leu Glu Glu Met Asp  Ser Lys Glu
    1220                1225                1230

Gln Phe  Ser Ser Phe Ser Cys  Glu Asp Gln Lys Glu  Val Arg Ala
    1235                1240                1245

Met Ser  Gln Asp Ser Asn Ser  Asn Ala Ala Pro Gly  Lys Ser Pro
    1250                1255                1260

Gly Asp  Leu Thr Thr Ser Arg  Thr Pro Arg Phe Ser  Ser Pro Asn
    1265                1270                1275

Val Ile  Ser Phe Gly Pro Glu  Gln Thr Gly Arg Ala  Leu Gly Asp
    1280                1285                1290

Gln Ser  Asn Val Thr Gly Gln  Gly Lys Lys Leu Phe  Gly Ser Gly
    1295                1300                1305

Asn Val  Ala Ala Thr Leu Gln  Arg Pro Arg Pro Ala  Asp Pro Met
    1310                1315                1320

Pro Leu  Pro Ala Glu Ile Pro  Pro Val Phe Pro Ser  Gly Lys Leu
    1325                1330                1335

Gly Pro  Ser Thr Asn Ser Met  Ser Gly Gly Val Gln  Thr Pro Arg
    1340                1345                1350

Glu Asp  Trp Ala Pro Lys Pro  His Ala Phe Val Gly  Ser Val Lys
    1355                1360                1365
```

```
Asn Glu  Lys Thr Phe Val Gly  Gly Pro Leu Lys Ala  Asn Ala Glu
    1370                1375                1380

Asn Arg  Lys Ala Thr Gly His  Ser Pro Leu Glu Leu  Val Gly His
    1385                1390                1395

Leu Glu  Gly Met Pro Phe Val  Met Asp Leu Pro Phe  Trp Lys Leu
    1400                1405                1410

Pro Arg  Glu Pro Gly Lys Gly  Leu Ser Glu Pro Leu  Glu Pro Ser
    1415                1420                1425

Ser Leu  Pro Ser Gln Leu Ser  Ile Lys Gln Ala Phe  Tyr Gly Lys
    1430                1435                1440

Leu Ser  Lys Leu Gln Leu Ser  Ser Thr Ser Phe Asn  Tyr Ser Ser
    1445                1450                1455

Ser Ser  Pro Thr Phe Pro Lys  Gly Leu Ala Gly Ser  Val Val Gln
    1460                1465                1470

Leu Ser  His Lys Ala Asn Phe  Gly Ala Ser His Ser  Ala Ser Leu
    1475                1480                1485

Ser Leu  Gln Met Phe Thr Asp  Ser Ser Thr Val Glu  Ser Ile Ser
    1490                1495                1500

Leu Gln  Cys Ala Cys Ser Leu  Lys Ala Met Ile Met  Cys Gln Gly
    1505                1510                1515

Cys Gly  Ala Phe Cys His Asp  Asp Cys Ile Gly Pro  Ser Lys Leu
    1520                1525                1530

Cys Val  Leu Cys Leu Val Val  Arg
    1535                1540
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<210> 2592
<211> 1541
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 613; "

<220>
<221> source
<223> /note="Gene Symbol: ASXL1; "

<220>
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<223> /note="Gene Name:
additional sex combs like transcriptional regulator 1; "

<220>
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<223> /note="Uniprot ID: Q8IXJ9; "

<220>
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<223> /note="ENSP ID: ENSP00000481978"

<400> 2592

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Met Lys Asp Lys Gln Lys Lys Lys Lys Glu Arg Thr Trp Ala Glu Ala
1               5                  10                  15

Ala Arg Leu Val Leu Glu Asn Tyr Ser Asp Ala Pro Met Thr Pro Lys
            20                  25                  30

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

Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Ser Asn Ser
    50                  55                  60

Arg Gly Gly Glu Gly Leu Phe Tyr Lys Leu Pro Gly Arg Ile Ser Leu
65                  70                  75                  80

Phe Thr Leu Lys Lys Asp Ala Leu Gln Trp Ser Arg His Pro Ala Thr
                85                  90                  95

Val Glu Gly Glu Glu Pro Glu Asp Thr Ala Asp Val Glu Ser Cys Gly
            100                 105                 110

Ser Asn Glu Ala Ser Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp
        115                 120                 125

Glu Thr Ser Ser Asn Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro
    130                 135                 140

Leu Ser Asn Pro Arg Asp Ser Tyr Arg Ala Ser Ser Gln Ala Asn Lys
```

```
145                 150                 155                 160

Gln Lys Lys Lys Thr Gly Val Met Leu Pro Arg Val Val Leu Thr Pro
                165                 170                 175

Leu Lys Val Asn Gly Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly
            180                 185                 190

Cys His Ala Asp Gly Glu Ser Gly Ser Pro Ser Ser Ser Ser Ser Gly
        195                 200                 205

Ser Leu Ala Leu Gly Ser Ala Ala Ile Arg Gly Gln Ala Glu Val Thr
    210                 215                 220

Gln Asp Pro Ala Pro Leu Leu Arg Gly Phe Arg Lys Pro Ala Thr Gly
225                 230                 235                 240

Gln Met Lys Arg Asn Arg Gly Glu Glu Ile Asp Phe Glu Thr Pro Gly
                245                 250                 255

Ser Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Ser Arg Thr
            260                 265                 270

Phe His Ala Leu Pro Ser His Phe Gln Gln Gln Leu Leu Phe Leu Leu
        275                 280                 285

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

Ser Ser Ala Leu Asn Asn Glu Phe Phe Thr His Ala Ala Gln Ser Trp
305                 310                 315                 320

Arg Glu Arg Leu Ala Asp Gly Glu Phe Thr His Glu Met Gln Val Arg
                325                 330                 335

Ile Arg Gln Glu Met Glu Lys Glu Lys Lys Val Glu Gln Trp Lys Glu
            340                 345                 350

Lys Phe Phe Glu Asp Tyr Tyr Gly Gln Lys Leu Gly Leu Thr Lys Glu
        355                 360                 365

Glu Ser Leu Gln Gln Asn Val Gly Gln Glu Glu Ala Glu Ile Lys Ser
    370                 375                 380
```

```
Gly Leu Cys Val Pro Gly Glu Ser Val Arg Ile Gln Arg Gly Pro Ala
385                 390                 395                 400

Thr Arg Gln Arg Asp Gly His Phe Lys Lys Arg Ser Arg Pro Asp Leu
                405                 410                 415

Arg Thr Arg Ala Arg Arg Asn Leu Tyr Lys Lys Gln Glu Ser Glu Gln
            420                 425                 430

Ala Gly Val Ala Lys Asp Ala Lys Ser Val Ala Ser Asp Val Pro Leu
        435                 440                 445

Tyr Lys Asp Gly Glu Ala Lys Thr Asp Pro Ala Gly Leu Ser Ser Pro
    450                 455                 460

His Leu Pro Gly Thr Ser Ser Ala Ala Pro Asp Leu Glu Gly Pro Glu
465                 470                 475                 480

Phe Pro Val Glu Ser Val Ala Ser Arg Ile Gln Ala Glu Pro Asp Asn
                485                 490                 495

Leu Ala Arg Ala Ser Ala Ser Pro Asp Arg Ile Pro Ser Leu Pro Gln
            500                 505                 510

Glu Thr Val Asp Gln Glu Pro Lys Asp Gln Lys Arg Lys Ser Phe Glu
        515                 520                 525

Gln Ala Ala Ser Ala Ser Phe Pro Glu Lys Lys Pro Arg Leu Glu Asp
    530                 535                 540

Arg Gln Ser Phe Arg Asn Thr Ile Glu Ser Val His Thr Glu Lys Pro
545                 550                 555                 560

Gln Pro Thr Lys Glu Glu Pro Lys Val Pro Pro Ile Arg Ile Gln Leu
                565                 570                 575

Ser Arg Ile Lys Pro Pro Trp Val Val Lys Gly Gln Pro Thr Tyr Gln
            580                 585                 590

Ile Cys Pro Arg Ile Ile Pro Thr Thr Glu Ser Ser Cys Arg Gly Trp
        595                 600                 605
```

```
Thr Gly Ala Arg Thr Leu Ala Asp Ile Lys Ala Arg Ala Leu Gln Val
    610                 615                 620

Arg Gly Ala Arg Gly His His Cys His Arg Glu Ala Ala Thr Thr Ala
625                 630                 635                 640

Ile Gly Gly Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Ala Thr Asp
                645                 650                 655

Glu Gly Gly Gly Arg Gly Ser Ser Ser Gly Asp Gly Gly Glu Ala Cys
            660                 665                 670

Gly His Pro Glu Pro Arg Gly Gly Pro Ser Thr Pro Gly Lys Cys Thr
        675                 680                 685

Ser Asp Leu Gln Arg Thr Gln Leu Leu Pro Pro Tyr Pro Leu Asn Gly
    690                 695                 700

Glu His Thr Gln Ala Gly Thr Ala Met Ser Arg Ala Arg Arg Glu Asp
705                 710                 715                 720

Leu Pro Ser Leu Arg Lys Glu Glu Ser Cys Leu Leu Gln Arg Ala Thr
                725                 730                 735

Val Gly Leu Thr Asp Gly Leu Gly Asp Ala Ser Gln Leu Pro Val Ala
            740                 745                 750

Pro Thr Gly Asp Gln Pro Cys Gln Ala Leu Pro Leu Leu Ser Ser Gln
        755                 760                 765

Thr Ser Val Ala Glu Arg Leu Val Glu Gln Pro Gln Leu His Pro Asp
    770                 775                 780

Val Arg Thr Glu Cys Glu Ser Gly Thr Thr Ser Trp Glu Ser Asp Asp
785                 790                 795                 800

Glu Glu Gln Gly Pro Thr Val Pro Ala Asp Asn Gly Pro Ile Pro Ser
                805                 810                 815

Leu Val Gly Asp Asp Thr Leu Glu Lys Gly Thr Gly Gln Ala Leu Asp
            820                 825                 830
```

```
Ser His Pro Thr Met Lys Asp Pro Val Asn Val Thr Pro Ser Ser Thr
        835                 840                 845

Pro Glu Ser Ser Pro Thr Asp Cys Leu Gln Asn Arg Ala Phe Asp Asp
    850                 855                 860

Glu Leu Gly Leu Gly Gly Ser Cys Pro Pro Met Arg Glu Ser Asp Thr
865                 870                 875                 880

Arg Gln Glu Asn Leu Lys Thr Lys Ala Leu Val Ser Asn Ser Ser Leu
                885                 890                 895

His Trp Ile Pro Ile Pro Ser Asn Asp Glu Val Val Lys Gln Pro Lys
            900                 905                 910

Pro Glu Ser Arg Glu His Ile Pro Ser Val Glu Pro Gln Val Gly Glu
        915                 920                 925

Glu Trp Glu Lys Ala Ala Pro Thr Pro Pro Ala Leu Pro Gly Asp Leu
    930                 935                 940

Thr Ala Glu Glu Gly Leu Asp Pro Leu Asp Ser Leu Thr Ser Leu Trp
945                 950                 955                 960

Thr Val Pro Ser Arg Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln
                965                 970                 975

Gln Val Asp Ile Glu Lys Leu Lys Ile Asn Gly Asp Ser Glu Ala Leu
            980                 985                 990

Ser Pro His Gly Glu Ser Thr Asp  Thr Ala Ser Asp Phe  Glu Gly
His
        995                 1000                1005

Leu Thr  Glu Asp Ser Ser Glu  Ala Asp Thr Arg Glu  Ala Ala Val
    1010                1015                1020

Thr Lys  Gly Ser Ser Val Asp  Lys Asp Glu Lys Pro  Asn Trp Asn
    1025                1030                1035

Gln Ser  Ala Pro Leu Ser Lys  Val Asn Gly Asp Met  Arg Leu Val
    1040                1045                1050
```

```
Thr Arg  Thr Asp Gly Met Val  Ala Pro Gln Ser Trp  Val Ser Arg
    1055                1060                1065

Val Cys  Ala Val Arg Gln Lys  Ile Pro Asp Ser Leu  Leu Leu Ala
    1070                1075                1080

Ser Thr  Glu Tyr Gln Pro Arg  Ala Val Cys Leu Ser  Met Pro Gly
    1085                1090                1095

Ser Ser  Val Glu Ala Thr Asn  Pro Leu Val Met Gln  Leu Leu Gln
    1100                1105                1110

Gly Ser  Leu Pro Leu Glu Lys  Val Leu Pro Pro Ala  His Asp Asp
    1115                1120                1125

Ser Met  Ser Glu Ser Pro Gln  Val Pro Leu Thr Lys  Asp Gln Ser
    1130                1135                1140

His Gly  Ser Leu Arg Met Gly  Ser Leu His Gly Leu  Gly Lys Asn
    1145                1150                1155

Ser Gly  Met Val Asp Gly Ser  Ser Pro Ser Ser Leu  Arg Ala Leu
    1160                1165                1170

Lys Glu  Pro Leu Leu Pro Asp  Ser Cys Glu Thr Gly  Thr Gly Leu
    1175                1180                1185

Ala Arg  Ile Glu Ala Thr Gln  Ala Pro Gly Ala Pro  Gln Lys Asn
    1190                1195                1200

Cys Lys  Ala Val Pro Ser Phe  Asp Ser Leu His Pro  Val Thr Asn
    1205                1210                1215

Pro Ile  Thr Ser Ser Arg Lys  Leu Glu Glu Met Asp  Ser Lys Glu
    1220                1225                1230

Gln Phe  Ser Ser Phe Ser Cys  Glu Asp Gln Lys Glu  Val Arg Ala
    1235                1240                1245

Met Ser  Gln Asp Ser Asn Ser  Asn Ala Ala Pro Gly  Lys Ser Pro
    1250                1255                1260

Gly Asp  Leu Thr Thr Ser Arg  Thr Pro Arg Phe Ser  Ser Pro Asn
```

1265 1270 1275

Val Ile Ser Phe Gly Pro Glu Gln Thr Gly Arg Ala Leu Gly Asp
1280 1285 1290

Gln Ser Asn Val Thr Gly Gln Gly Lys Lys Leu Phe Gly Ser Gly
1295 1300 1305

Asn Val Ala Ala Thr Leu Gln Arg Pro Arg Pro Ala Asp Pro Met
1310 1315 1320

Pro Leu Pro Ala Glu Ile Pro Pro Val Phe Pro Ser Gly Lys Leu
1325 1330 1335

Gly Pro Ser Thr Asn Ser Met Ser Gly Gly Val Gln Thr Pro Arg
1340 1345 1350

Glu Asp Trp Ala Pro Lys Pro His Ala Phe Val Gly Ser Val Lys
1355 1360 1365

Asn Glu Lys Thr Phe Val Gly Gly Pro Leu Lys Ala Asn Ala Glu
1370 1375 1380

Asn Arg Lys Ala Thr Gly His Ser Pro Leu Glu Leu Val Gly His
1385 1390 1395

Leu Glu Gly Met Pro Phe Val Met Asp Leu Pro Phe Trp Lys Leu
1400 1405 1410

Pro Arg Glu Pro Gly Lys Gly Leu Ser Glu Pro Leu Glu Pro Ser
1415 1420 1425

Ser Leu Pro Ser Gln Leu Ser Ile Lys Gln Ala Phe Tyr Gly Lys
1430 1435 1440

Leu Ser Lys Leu Gln Leu Ser Ser Thr Ser Phe Asn Tyr Ser Ser
1445 1450 1455

Ser Ser Pro Thr Phe Pro Lys Gly Leu Ala Gly Ser Val Val Gln
1460 1465 1470

Leu Ser His Lys Ala Asn Phe Gly Ala Ser His Ser Ala Ser Leu
1475 1480 1485

```
Ser Leu  Gln Met Phe Thr Asp  Ser Ser Thr Val Glu  Ser Ile Ser
    1490                1495                1500


Leu Gln  Cys Ala Cys Ser Leu  Lys Ala Met Ile Met  Cys Gln Gly
    1505                1510                1515


Cys Gly  Ala Phe Cys His Asp  Asp Cys Ile Gly Pro  Ser Lys Leu
    1520                1525                1530


Cys Val  Leu Cys Leu Val Val  Arg
    1535                1540


<210> 2593
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<220>
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<220>
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<223> /note="Gene Name:
      additional sex combs like transcriptional regulator 2; "

<220>
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Met Ser His Lys Glu Ile Leu Gln Val Ile Gln Arg Glu Gly Leu Lys
1               5                  10                  15


Glu Ile Ser Ser Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu
            20                  25                  30


His Thr Asn Ser Arg Gly Glu Glu Gly Ile Phe Tyr Lys Val Pro Gly
        35                  40                  45


Arg Met Gly Val Tyr Thr Leu Lys Lys Asp Val Pro Asp Gly Val Lys
    50                  55                  60
```

```
Glu Leu Ser Glu Gly Ser Glu Glu Ser Ser Asp Gly Gln Ser Asp Ser
65                  70                  75                  80

Gln Ser Ser Glu Asn Ser Ser Ser Ser Ser Asp Gly Gly Ser Asn Lys
                85                  90                  95

Glu Gly Lys Lys Ser Arg Trp Lys Arg Lys Val Ser Ser Ser Ser Pro
            100                 105                 110

Gln Ser Gly Cys Pro Ser Pro Thr Ile Pro Ala Gly Lys Val Ile Ser
        115                 120                 125

Pro Ser Gln Lys His Ser Lys Lys Ala Leu Lys Gln Ala Leu Lys Gln
    130                 135                 140

Gln Gln Gln Lys Lys Gln Gln Gln Gln Cys Arg Pro Ser Ile Ser Ile
145                 150                 155                 160

Ser Ser Asn Gln His Leu Ser Leu Lys Thr Val Lys Ala Ala Ser Asp
                165                 170                 175

Ser Val Pro Ala Lys Pro Ala Thr Trp Glu Gly Lys Gln Ser Asp Gly
            180                 185                 190

Gln Thr Gly Ser Pro Gln Asn Ser Asn Ser Ser Phe Ser Ser Ser Val
        195                 200                 205

Lys Val Glu Asn Thr Leu Leu Gly Leu Gly Lys Lys Ser Phe Gln Arg
    210                 215                 220

Ser Glu Arg Leu His Thr Arg Gln Met Lys Arg Thr Lys Cys Ala Asp
225                 230                 235                 240

Ile Asp Val Glu Thr Pro Asp Ser Ile Leu Val Asn Thr Asn Leu Arg
                245                 250                 255

Ala Leu Ile Asn Lys His Thr Phe Ser Val Leu Pro Gly Asp Cys Gln
            260                 265                 270

Gln Arg Leu Leu Leu Leu Leu Pro Glu Val Asp Arg Gln Val Gly Pro
        275                 280                 285

Asp Gly Leu Met Lys Leu Asn Gly Ser Ala Leu Asn Asn Glu Phe Phe
```

290 295 300

Thr Ser Ala Ala Gln Gly Trp Lys Glu Arg Leu Ser Glu Gly Glu Phe
305 310 315 320

Thr Pro Glu Met Gln Val Arg Ile Arg Gln Glu Ile Glu Lys Glu Lys
325 330 335

Lys Val Glu Pro Trp Lys Glu Gln Phe Phe Glu Ser Tyr Tyr Gly Gln
340 345 350

Ser Ser Gly Leu Ser Leu Glu Asp Ser Lys Lys Leu Thr Ala Ser Pro
355 360 365

Ser Asp Pro Lys Val Lys Lys Thr Pro Ala Glu Gln Pro Lys Ser Met
370 375 380

Pro Val Ser Glu Ala Ser Leu Ile Arg Ile Val Pro Val Val Ser Gln
385 390 395 400

Ser Glu Cys Lys Glu Glu Ala Leu Gln Met Ser Ser Pro Gly Arg Lys
405 410 415

Glu Glu Cys Glu Ser Gln Gly Glu Val Gln Pro Asn Phe Ser Thr Ser
420 425 430

Ser Glu Pro Leu Leu Ser Ser Ala Leu Asn Thr His Glu Leu Ser Ser
435 440 445

Ile Leu Pro Ile Lys Cys Pro Lys Asp Glu Asp Leu Leu Glu Gln Lys
450 455 460

Pro Val Thr Ser Ala Glu Gln Glu Ser Glu Lys Asn His Leu Thr Thr
465 470 475 480

Ala Ser Asn Tyr Asn Lys Ser Glu Ser Gln Glu Ser Leu Val Thr Ser
485 490 495

Pro Ser Lys Pro Lys Ser Pro Gly Val Glu Lys Pro Ile Val Lys Pro
500 505 510

Thr Ala Gly Ala Gly Pro Gln Glu Thr Asn Met Lys Glu Pro Leu Ala
515 520 525

```
Thr Leu Val Asp Gln Ser Pro Glu Ser Leu Lys Arg Lys Ser Ser Leu
    530                 535                 540

Thr Gln Glu Glu Ala Pro Val Ser Trp Glu Lys Arg Pro Arg Val Thr
545                 550                 555                 560

Glu Asn Arg Gln His Gln Gln Pro Phe Gln Val Ser Pro Gln Pro Phe
                565                 570                 575

Leu Asn Arg Gly Asp Arg Ile Gln Val Arg Lys Val Pro Pro Leu Lys
            580                 585                 590

Ile Pro Val Ser Arg Ile Ser Pro Met Pro Phe His Pro Ser Gln Val
        595                 600                 605

Ser Pro Arg Ala Arg Phe Pro Val Ser Ile Thr Ser Pro Asn Arg Thr
    610                 615                 620

Gly Ala Arg Thr Leu Ala Asp Ile Lys Ala Lys Ala Gln Leu Val Lys
625                 630                 635                 640

Ala Gln Arg Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala
                645                 650                 655

Ser Val Gly Gly Thr Ile Pro Gly Pro Gly Pro Gly Gly Gly Gln Gly
            660                 665                 670

Pro Gly Glu Gly Gly Glu Gly Gln Thr Ala Arg Gly Gly Ser Pro Gly
        675                 680                 685

Ser Asp Arg Val Ser Glu Thr Gly Lys Gly Pro Thr Leu Glu Leu Ala
    690                 695                 700

Gly Thr Gly Ser Arg Gly Gly Thr Arg Glu Leu Leu Pro Cys Gly Pro
705                 710                 715                 720

Glu Thr Gln Pro Gln Ser Glu Thr Lys Thr Thr Pro Ser Gln Ala Gln
                725                 730                 735

Pro His Ser Val Ser Gly Ala Gln Leu Gln Gln Thr Pro Pro Val Pro
            740                 745                 750
```

```
Pro Thr Pro Ala Val Ser Gly Ala Cys Thr Ser Val Pro Ser Pro Ala
        755                 760                 765

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

Ala Thr Val Ala Ser Val Ser His Pro Gln Gly Pro Ser Ser Cys Arg
785                 790                 795                 800

Gln Glu Lys Ala Pro Ser Pro Thr Gly Pro Ala Leu Ile Ser Gly Ala
                805                 810                 815

Ser Pro Val His Cys Ala Ala Asp Gly Thr Val Glu Leu Lys Ala Gly
            820                 825                 830

Pro Ser Lys Asn Ile Pro Asn Pro Ser Ala Ser Ser Lys Thr Asp Ala
        835                 840                 845

Ser Val Pro Val Ala Val Thr Pro Ser Pro Leu Thr Ser Leu Leu Thr
    850                 855                 860

Thr Ala Thr Leu Glu Lys Leu Pro Val Pro Gln Val Ser Ala Thr Thr
865                 870                 875                 880

Ala Pro Ala Gly Ser Ala Pro Pro Ser Ser Thr Leu Pro Ala Ala Ser
                885                 890                 895

Ser Leu Lys Thr Pro Gly Thr Ser Leu Asn Met Asn Gly Pro Thr Leu
            900                 905                 910

Arg Pro Thr Ser Ser Ile Pro Ala Asn Asn Pro Leu Val Thr Gln Leu
        915                 920                 925

Leu Gln Gly Lys Asp Val Pro Met Glu Gln Ile Leu Pro Lys Pro Leu
    930                 935                 940

Thr Lys Val Glu Met Lys Thr Val Pro Leu Thr Ala Lys Glu Glu Arg
945                 950                 955                 960

Gly Met Gly Ala Leu Ile Ala Thr Asn Thr Thr Glu Asn Ser Thr Arg
                965                 970                 975
```

```
Glu Glu Val Asn Glu Arg Gln Ser His Pro Ala Thr Gln Gln Gln Leu
            980                 985                 990

Gly Lys Thr Leu Gln Ser Lys Gln  Leu Pro Gln Val Pro  Arg Pro
Leu
        995                1000                1005

Gln Leu  Phe Ser Ala Lys Glu  Leu Arg Asp Ser Ser  Ile Asp Thr
    1010                1015                1020

His Gln  Tyr His Glu Gly Leu  Ser Lys Ala Thr Gln  Asp Gln Ile
    1025                1030                1035

Leu Gln  Thr Leu Ile Gln Arg  Val Arg Arg Gln Asn  Leu Leu Ser
    1040                1045                1050

Val Val  Pro Pro Ser Gln Phe  Asn Phe Ala His Ser  Gly Phe Gln
    1055                1060                1065

Leu Glu  Asp Ile Ser Thr Ser  Gln Arg Phe Met Leu  Gly Phe Ala
    1070                1075                1080

Gly Arg  Arg Thr Ser Lys Pro  Ala Met Ala Gly His  Tyr Leu Leu
    1085                1090                1095

Asn Ile  Ser Thr Tyr Gly Arg  Gly Ser Glu Ser Phe  Arg Arg Thr
    1100                1105                1110

His Ser  Val Asn Pro Glu Asp  Arg Phe Cys Leu Ser  Ser Pro Thr
    1115                1120                1125

Glu Ala  Leu Lys Met Gly Tyr  Thr Asp Cys Lys Asn  Ala Thr Gly
    1130                1135                1140

Glu Ser  Ser Ser Ser Lys Glu  Asp Asp Thr Asp Glu  Glu Ser Thr
    1145                1150                1155

Gly Asp  Glu Gln Glu Ser Val  Thr Val Lys Glu Glu  Pro Gln Val
    1160                1165                1170

Ser Gln  Ser Ala Gly Lys Gly  Asp Thr Ser Ser Gly  Pro His Ser
    1175                1180                1185
```

```
Arg Glu  Thr Leu Ser Thr Ser  Asp Cys Leu Ala Ser  Lys Asn Val
    1190                 1195                 1200

Lys Ala  Glu Ile Pro Leu Asn  Glu Gln Thr Thr Leu  Ser Lys Glu
    1205                 1210                 1215

Asn Tyr  Leu Phe Thr Arg Gly  Gln Thr Phe Asp Glu  Lys Thr Leu
    1220                 1225                 1230

Ala Arg  Asp Leu Ile Gln Ala  Ala Gln Lys Gln Met  Ala His Ala
    1235                 1240                 1245

Val Arg  Gly Lys Ala Ile Arg  Ser Ser Pro Glu Leu  Phe Ser Ser
    1250                 1255                 1260

Thr Val  Leu Pro Leu Pro Ala  Asp Ser Pro Thr His  Gln Pro Leu
    1265                 1270                 1275

Leu Leu  Pro Pro Leu Gln Thr  Pro Lys Leu Tyr Gly  Ser Pro Thr
    1280                 1285                 1290

Gln Ile  Gly Pro Ser Tyr Arg  Gly Met Ile Asn Val  Ser Thr Ser
    1295                 1300                 1305

Ser Asp  Met Asp His Asn Ser  Ala Val Pro Gly Ser  Gln Val Ser
    1310                 1315                 1320

Ser Asn  Val Gly Asp Val Met  Ser Phe Ser Val Thr  Val Thr Thr
    1325                 1330                 1335

Ile Pro  Ala Ser Gln Ala Met  Asn Pro Ser Ser His  Gly Gln Thr
    1340                 1345                 1350

Ile Pro  Val Gln Ala Phe Ser  Glu Glu Asn Ser Ile  Glu Gly Thr
    1355                 1360                 1365

Pro Ser  Lys Cys Tyr Cys Arg  Leu Lys Ala Met Ile  Met Cys Lys
    1370                 1375                 1380

Gly Cys  Gly Ala Phe Cys His  Asp Asp Cys Ile Gly  Pro Ser Lys
    1385                 1390                 1395

Leu Cys  Val Ser Cys Leu Val  Val Arg
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1400 1405

<210> 2594
<211> 918
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<223> /note="Gene Symbol: ASXL2; "

<220>
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additional sex combs like transcriptional regulator 2; "

<220>
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<223> /note="Uniprot ID: Q76L83; "

<220>
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Met Lys Arg Thr Lys Cys Ala Asp Ile Asp Val Glu Thr Pro Asp Ser
1 5 10 15

Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Lys His Thr Phe
20 25 30

Ser Val Leu Pro Gly Asp Cys Gln Gln Arg Leu Leu Leu Leu Leu Pro
35 40 45

Glu Val Asp Arg Gln Val Gly Pro Asp Gly Leu Met Lys Leu Asn Gly
50 55 60

Ser Ala Leu Asn Asn Glu Phe Phe Thr Ser Ala Ala Gln Gly Trp Lys
65 70 75 80

Glu Arg Leu Ser Glu Gly Glu Phe Thr Pro Glu Met Gln Val Arg Ile
85 90 95

Arg Gln Glu Ile Glu Lys Glu Lys Lys Val Glu Pro Trp Lys Glu Gln
100 105 110

```
Phe Phe Glu Ser Tyr Tyr Gly Gln Ser Ser Gly Leu Ser Leu Glu Asp
        115                 120                 125

Ser Lys Lys Leu Thr Ala Ser Pro Ser Asp Pro Lys Val Lys Lys Thr
    130                 135                 140

Pro Ala Glu Gln Pro Lys Ser Met Pro Val Ser Glu Ala Ser Leu Ile
145                 150                 155                 160

Arg Ile Val Pro Val Val Ser Gln Ser Glu Cys Lys Glu Glu Ala Leu
                165                 170                 175

Gln Met Ser Ser Pro Gly Arg Lys Glu Glu Cys Glu Ser Gln Gly Glu
            180                 185                 190

Val Gln Pro Asn Phe Ser Thr Ser Ser Glu Pro Leu Leu Ser Ser Ala
        195                 200                 205

Leu Asn Thr His Glu Leu Ser Ser Ile Leu Pro Ile Lys Cys Pro Lys
    210                 215                 220

Asp Glu Asp Leu Leu Glu Gln Lys Pro Val Thr Ser Ala Glu Gln Glu
225                 230                 235                 240

Ser Glu Lys Asn His Leu Thr Thr Ala Ser Asn Tyr Asn Lys Ser Glu
                245                 250                 255

Ser Gln Glu Ser Leu Val Thr Ser Pro Ser Lys Pro Lys Ser Pro Gly
            260                 265                 270

Val Glu Lys Pro Ile Val Lys Pro Thr Ala Gly Ala Gly Pro Gln Glu
        275                 280                 285

Thr Asn Met Lys Glu Pro Leu Ala Thr Leu Val Asp Gln Ser Pro Glu
    290                 295                 300

Ser Leu Lys Arg Lys Ser Ser Leu Thr Gln Glu Glu Ala Pro Val Ser
305                 310                 315                 320

Trp Glu Lys Arg Pro Arg Val Thr Glu Asn Arg Gln His Gln Gln Pro
                325                 330                 335
```

```
Phe Gln Val Ser Pro Gln Pro Phe Leu Asn Arg Gly Asp Arg Ile Gln
            340                 345                 350

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

Met Pro Phe His Pro Ser Gln Val Ser Pro Arg Ala Arg Phe Pro Val
    370                 375                 380

Ser Ile Thr Ser Pro Asn Arg Thr Gly Ala Arg Thr Leu Ala Asp Ile
385                 390                 395                 400

Lys Ala Lys Ala Gln Leu Val Lys Ala Gln Arg Ala Ala Ala Ala Ala
                405                 410                 415

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

Pro Gly Pro Gly Gly Gly Gln Gly Pro Gly Glu Gly Gly Glu Gly Gln
        435                 440                 445

Thr Ala Arg Gly Gly Ser Pro Gly Ser Asp Arg Val Ser Glu Thr Gly
    450                 455                 460

Lys Gly Pro Thr Leu Glu Leu Ala Gly Thr Gly Ser Arg Gly Gly Thr
465                 470                 475                 480

Arg Glu Leu Leu Pro Cys Gly Pro Glu Thr Gln Pro Gln Ser Glu Thr
                485                 490                 495

Lys Thr Thr Pro Ser Gln Ala Gln Pro His Ser Val Ser Gly Ala Gln
            500                 505                 510

Leu Gln Gln Thr Pro Pro Val Pro Pro Thr Pro Ala Val Ser Gly Ala
        515                 520                 525

Cys Thr Ser Val Pro Ser Pro Ala His Ile Glu Lys Leu Asp Asn Glu
    530                 535                 540

Lys Leu Asn Pro Thr Arg Ala Thr Ala Thr Val Ala Ser Val Ser His
545                 550                 555                 560

Pro Gln Gly Pro Ser Ser Cys Arg Gln Glu Lys Ala Pro Ser Pro Thr
```

565 570 575

Gly Phe Gln Leu Glu Asp Ile Ser Thr Ser Gln Arg Phe Met Leu Gly
580 585 590

Phe Ala Gly Arg Arg Thr Ser Lys Pro Ala Met Ala Gly His Tyr Leu
595 600 605

Leu Asn Ile Ser Thr Tyr Gly Arg Gly Ser Glu Ser Phe Arg Arg Thr
610 615 620

His Ser Val Asn Pro Glu Asp Arg Phe Cys Leu Ser Ser Pro Thr Glu
625 630 635 640

Ala Leu Lys Met Gly Tyr Thr Asp Cys Lys Asn Ala Thr Gly Glu Ser
645 650 655

Ser Ser Ser Lys Glu Asp Asp Thr Asp Glu Glu Ser Thr Gly Asp Glu
660 665 670

Gln Glu Ser Val Thr Val Lys Glu Glu Pro Gln Val Ser Gln Ser Ala
675 680 685

Gly Lys Gly Asp Thr Ser Ser Gly Pro His Ser Arg Glu Thr Leu Ser
690 695 700

Thr Ser Asp Cys Leu Ala Ser Lys Asn Val Lys Ala Glu Ile Pro Leu
705 710 715 720

Asn Glu Gln Thr Thr Leu Ser Lys Glu Asn Tyr Leu Phe Thr Arg Gly
725 730 735

Gln Thr Phe Asp Glu Lys Thr Leu Ala Arg Asp Leu Ile Gln Ala Ala
740 745 750

Gln Lys Gln Met Ala His Ala Val Arg Gly Lys Ala Ile Arg Ser Ser
755 760 765

Pro Glu Leu Phe Ser Ser Thr Val Leu Pro Leu Pro Ala Asp Ser Pro
770 775 780

Thr His Gln Pro Leu Leu Leu Pro Pro Leu Gln Thr Pro Lys Leu Tyr
785 790 795 800

```
Gly Ser Pro Thr Gln Ile Gly Pro Ser Tyr Arg Gly Met Ile Asn Val
                805                 810                 815

Ser Thr Ser Ser Asp Met Asp His Asn Ser Ala Val Pro Gly Ser Gln
            820                 825                 830

Val Ser Ser Asn Val Gly Asp Val Met Ser Phe Ser Val Thr Val Thr
        835                 840                 845

Thr Ile Pro Ala Ser Gln Ala Met Asn Pro Ser Ser His Gly Gln Thr
    850                 855                 860

Ile Pro Val Gln Ala Phe Ser Glu Glu Asn Ser Ile Glu Gly Thr Pro
865                 870                 875                 880

Ser Lys Cys Tyr Cys Arg Leu Lys Ala Met Ile Met Cys Lys Gly Cys
                885                 890                 895

Gly Ala Phe Cys His Asp Asp Cys Ile Gly Pro Ser Lys Leu Cys Val
            900                 905                 910

Ser Cys Leu Val Val Arg
        915


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<220>
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Met Arg Glu Lys Gly Arg Arg Lys Lys Gly Arg Thr Trp Ala Glu Ala
1 5 10 15

Ala Lys Thr Val Leu Glu Lys Tyr Pro Asn Thr Pro Met Ser His Lys
20 25 30

Glu Ile Leu Gln Val Ile Gln Arg Glu Gly Leu Lys Glu Ile Arg Ser
35 40 45

Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Thr Asn Ser
50 55 60

Arg Gly Glu Glu Gly Ile Phe Tyr Lys Val Pro Gly Arg Met Gly Val
65 70 75 80

Tyr Thr Leu Lys Lys Asp Val Pro Asp Gly Val Lys Glu Leu Ser Glu
85 90 95

Gly Ser Glu Glu Ser Ser Asp Gly Gln Ser Asp Ser Gln Ser Ser Glu
100 105 110

Asn Ser Ser Ser Ser Ser Asp Gly Gly Ser Asn Lys Glu Gly Lys Lys
115 120 125

Ser Arg Trp Lys Arg Lys Val Ser Ser Ser Ser Pro Gln Ser Gly Cys
130 135 140

Pro Ser Pro Thr Ile Pro Ala Gly Lys Val Ile Ser Pro Ser Gln Lys
145 150 155 160

His Ser Lys Lys Ala Leu Lys Gln Ala Leu Lys Gln Gln Gln Gln Lys
165 170 175

Lys Gln Gln Gln Gln Cys Arg Pro Ser Ile Ser Ile Ser Ser Asn Gln
180 185 190

His Leu Ser Leu Lys Thr Val Lys Ala Ala Ser Asp Ser Val Pro Ala
195 200 205

Lys Pro Ala Thr Trp Glu Gly Lys Gln Ser Asp Gly Gln Thr Gly Ser

```
    210                 215                 220

Pro Gln Asn Ser Asn Ser Ser Phe Ser Ser Ser Val Lys Val Glu Asn
225                 230                 235                 240

Thr Leu Leu Gly Leu Gly Lys Lys Ser Phe Gln Arg Ser Glu Arg Leu
                245                 250                 255

His Thr Arg Gln Met Lys Arg Thr Lys Cys Ala Asp Ile Asp Val Glu
            260                 265                 270

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

Lys His Thr Phe Ser Val Leu Pro Gly Asp Cys Gln Gln Arg Leu Leu
    290                 295                 300

Leu Leu Leu Pro Glu Val Asp Arg Gln Val Gly Pro Asp Gly Leu Met
305                 310                 315                 320

Lys Leu Asn Gly Ser Ala Leu Asn Asn Glu Phe Phe Thr Ser Ala Ala
                325                 330                 335

Gln Gly Trp Lys Glu Arg Leu Ser Glu Gly Glu Phe Thr Pro Glu Met
            340                 345                 350

Gln Val Arg Ile Arg Gln Glu Ile Glu Lys Glu Lys Lys Val Glu Pro
        355                 360                 365

Trp Lys Glu Gln Phe Phe Glu Ser Tyr Tyr Gly Gln Ser Ser Gly Leu
    370                 375                 380

Ser Leu Glu Asp Ser Lys Lys Leu Thr Ala Ser Pro Ser Asp Pro Lys
385                 390                 395                 400

Val Lys Lys Thr Pro Ala Glu Gln Pro Lys Ser Met Pro Val Ser Glu
                405                 410                 415

Ala Ser Leu Ile Arg Ile Val Pro Val Val Ser Gln Ser Glu Cys Lys
            420                 425                 430

Glu Glu Ala Leu Gln Met Ser Ser Pro Gly Arg Lys Glu Glu Cys Glu
        435                 440                 445
```

Ser Gln Gly Glu Val Gln Pro Asn Phe Ser Thr Ser Ser Glu Pro Leu
450 455 460

Leu Ser Ser Ala Leu Asn Thr His Glu Leu Ser Ser Ile Leu Pro Ile
465 470 475 480

Lys Cys Pro Lys Asp Glu Asp Leu Leu Glu Gln Lys Pro Val Thr Ser
485 490 495

Ala Glu Gln Glu Ser Glu Lys Asn His Leu Thr Thr Ala Ser Asn Tyr
500 505 510

Asn Lys Ser Glu Ser Gln Glu Ser Leu Val Thr Ser Pro Ser Lys Pro
515 520 525

Lys Ser Pro Gly Val Glu Lys Pro Ile Val Lys Pro Thr Ala Gly Ala
530 535 540

Gly Pro Gln Glu Thr Asn Met Lys Glu Pro Leu Ala Thr Leu Val Asp
545 550 555 560

Gln Ser Pro Glu Ser Leu Lys Arg Lys Ser Ser Leu Thr Gln Glu Glu
565 570 575

Ala Pro Val Ser Trp Glu Lys Arg Pro Arg Val Thr Glu Asn Arg Gln
580 585 590

His Gln Gln Pro Phe Gln Val Ser Pro Gln Pro Phe Leu Asn Arg Gly
595 600 605

Asp Arg Ile Gln Val Arg Lys Val Pro Pro Leu Lys Ile Pro Val Ser
610 615 620

Arg Ile Ser Pro Met Pro Phe His Pro Ser Gln Val Ser Pro Arg Ala
625 630 635 640

Arg Phe Pro Val Ser Ile Thr Ser Pro Asn Arg Thr Gly Ala Arg Thr
645 650 655

Leu Ala Asp Ile Lys Ala Lys Ala Gln Leu Val Lys Ala Gln Arg Ala
660 665 670

```
Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ser Val Gly Gly
        675                 680                 685

Thr Ile Pro Gly Pro Gly Pro Gly Gly Gly Gln Gly Pro Gly Glu Gly
    690                 695                 700

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

Ser Glu Thr Gly Lys Gly Pro Thr Leu Glu Leu Ala Gly Thr Gly Ser
                725                 730                 735

Arg Gly Gly Thr Arg Glu Leu Leu Pro Cys Gly Pro Glu Thr Gln Pro
            740                 745                 750

Gln Ser Glu Thr Lys Thr Thr Pro Ser Gln Ala Gln Pro His Ser Val
        755                 760                 765

Ser Gly Ala Gln Leu Gln Gln Thr Pro Pro Val Pro Pro Thr Pro Ala
    770                 775                 780

Val Ser Gly Ala Cys Thr Ser Val Pro Ser Pro Ala His Ile Glu Lys
785                 790                 795                 800

Leu Asp Asn Glu Lys Leu Asn Pro Thr Arg Ala Thr Ala Thr Val Ala
                805                 810                 815

Ser Val Ser His Pro Gln Gly Pro Ser Ser Cys Arg Gln Glu Lys Ala
            820                 825                 830

Pro Ser Pro Thr Gly Pro Ala Leu Ile Ser Gly Ala Ser Pro Val His
        835                 840                 845

Cys Ala Ala Asp Gly Thr Val Glu Leu Lys Ala Gly Pro Ser Lys Asn
    850                 855                 860

Ile Pro Asn Pro Ser Ala Ser Ser Lys Thr Asp Ala Ser Val Pro Val
865                 870                 875                 880

Ala Val Thr Pro Ser Pro Leu Thr Ser Leu Leu Thr Thr Ala Thr Leu
                885                 890                 895
```

```
Glu Lys Leu Pro Val Pro Gln Val Ser Ala Thr Thr Ala Pro Ala Gly
            900                 905                 910

Ser Ala Pro Pro Ser Ser Thr Leu Pro Ala Ala Ser Ser Leu Lys Thr
        915                 920                 925

Pro Gly Thr Ser Leu Asn Met Asn Gly Pro Thr Leu Arg Pro Thr Ser
    930                 935                 940

Ser Ile Pro Ala Asn Asn Pro Leu Val Thr Gln Leu Leu Gln Gly Lys
945                 950                 955                 960

Asp Val Pro Met Glu Gln Ile Leu Pro Lys Pro Leu Thr Lys Val Glu
                965                 970                 975

Met Lys Thr Val Pro Leu Thr Ala Lys Glu Glu Arg Gly Met Gly Ala
            980                 985                 990

Leu Ile Ala Thr Asn Thr Thr Glu  Asn Ser Thr Arg Glu  Glu Val
Asn
        995                 1000                1005

Glu Arg  Gln Ser His Pro Ala  Thr Gln Gln Gln Leu  Gly Lys Thr
    1010                1015                1020

Leu Gln  Ser Lys Gln Leu Pro  Gln Val Pro Arg Pro  Leu Gln Leu
    1025                1030                1035

Phe Ser  Ala Lys Glu Leu Arg  Asp Ser Ser Ile Asp  Thr His Gln
    1040                1045                1050

Tyr His  Glu Gly Leu Ser Lys  Ala Thr Gln Asp Gln  Ile Leu Gln
    1055                1060                1065

Thr Leu  Ile Gln Arg Val Arg  Arg Gln Asn Leu Leu  Ser Val Val
    1070                1075                1080

Pro Pro  Ser Gln Phe Asn Phe  Ala His Ser Gly Phe  Gln Leu Glu
    1085                1090                1095

Asp Ile  Ser Thr Ser Gln Arg  Phe Met Leu Gly Phe  Ala Gly Arg
    1100                1105                1110
```

```
Arg Thr  Ser Lys Pro Ala Met  Ala Gly His Tyr Leu  Leu Asn Ile
    1115                1120                1125

Ser Thr  Tyr Gly Arg Gly Ser  Glu Ser Phe Arg Arg  Thr His Ser
    1130                1135                1140

Val Asn  Pro Glu Asp Arg Phe  Cys Leu Ser Ser Pro  Thr Glu Ala
    1145                1150                1155

Leu Lys  Met Gly Tyr Thr Asp  Cys Lys Asn Ala Thr  Gly Glu Ser
    1160                1165                1170

Ser Ser  Ser Lys Glu Asp Asp  Thr Asp Glu Glu Ser  Thr Gly Asp
    1175                1180                1185

Glu Gln  Glu Ser Val Thr Val  Lys Glu Glu Pro Gln  Val Ser Gln
    1190                1195                1200

Ser Ala  Gly Lys Gly Asp Thr  Ser Ser Gly Pro His  Ser Arg Glu
    1205                1210                1215

Thr Leu  Ser Thr Ser Asp Cys  Leu Ala Ser Lys Asn  Val Lys Ala
    1220                1225                1230

Glu Ile  Pro Leu Asn Glu Gln  Thr Thr Leu Ser Lys  Glu Asn Tyr
    1235                1240                1245

Leu Phe  Thr Arg Gly Gln Thr  Phe Asp Glu Lys Thr  Leu Ala Arg
    1250                1255                1260

Asp Leu  Ile Gln Ala Ala Gln  Lys Gln Met Ala His  Ala Val Arg
    1265                1270                1275

Gly Lys  Ala Ile Arg Ser Ser  Pro Glu Leu Phe Ser  Ser Thr Val
    1280                1285                1290

Leu Pro  Leu Pro Ala Asp Ser  Pro Thr His Gln Pro  Leu Leu Leu
    1295                1300                1305

Pro Pro  Leu Gln Thr Pro Lys  Leu Tyr Gly Ser Pro  Thr Gln Ile
    1310                1315                1320

Gly Pro  Ser Tyr Arg Gly Met  Ile Asn Val Ser Thr  Ser Ser Asp
```

```
    1325                1330                1335

Met Asp  His Asn Ser Ala Val  Pro Gly Ser Gln Val  Ser Ser Asn
    1340                1345                1350

Val Gly  Asp Val Met Ser Phe  Ser Val Thr Val Thr  Thr Ile Pro
    1355                1360                1365

Ala Ser  Gln Ala Met Asn Pro  Ser Ser His Gly Gln  Thr Ile Pro
    1370                1375                1380

Val Gln  Ala Phe Ser Glu Glu  Asn Ser Ile Glu Gly  Thr Pro Ser
    1385                1390                1395

Lys Cys  Tyr Cys Arg Leu Lys  Ala Met Ile Met Cys  Lys Gly Cys
    1400                1405                1410

Gly Ala  Phe Cys His Asp Asp  Cys Ile Gly Pro Ser  Lys Leu Cys
    1415                1420                1425

Val Ser  Cys Leu Val Val Arg
    1430                1435


<210> 2596
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Met Lys Asp Lys Arg Lys Lys Lys Asp Arg Thr Trp Ala Glu Ala Ala
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Arg Leu Ala Leu Glu Lys His Pro Asn Ser Pro Met Thr Ala Lys Gln
20 25 30

Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys Glu Thr Ser Gly Thr
35 40 45

Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Thr Asn Thr Arg Ile
50 55 60

Gly Asp Gly Thr Phe Phe Lys Ile Pro Gly Lys Ser Gly Leu Tyr Ala
65 70 75 80

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

Val Cys Glu Ser Glu Leu Asp Gly Thr Asp Met Ala Glu Ala Asn Ala
100 105 110

His Gly Glu Glu Asn Gly Val Cys Ser Lys Gln Val Thr Asp Glu Ala
115 120 125

Ser Ser Thr Arg Asp Ser Ser Leu Thr Asn Thr Ala Val Gln Ser Lys
130 135 140

Leu Val Ser Ser Phe Gln Gln His Thr Lys Lys Ala Leu Lys Gln Ala
145 150 155 160

Leu Arg Gln Gln Gln Lys Arg Arg Asn Gly Val Ser Met Met Val Asn
165 170 175

Lys Thr Val Pro Arg Val Val Leu Thr Pro Leu Lys Val Ser Asp Glu
180 185 190

Gln Ser Asp Ser Pro Ser Gly Ser Glu Ser Lys Asn Gly Glu Ala Asp
195 200 205

Ser Ser Asp Lys Glu Met Lys His Gly Gln Lys Ser Pro Thr Gly Lys
210 215 220

```
Gln Thr Ser Gln His Leu Lys Arg Leu Lys Lys Ser Gly Leu Gly His
225                 230                 235                 240

Leu Lys Trp Thr Lys Ala Glu Asp Ile Asp Ile Glu Thr Pro Gly Ser
                245                 250                 255

Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Lys His Thr Phe
            260                 265                 270

Ala Ser Leu Pro Gln His Phe Gln Gln Tyr Leu Leu Leu Leu Leu Pro
        275                 280                 285

Glu Val Asp Arg Gln Met Gly Ser Asp Gly Ile Leu Arg Leu Ser Thr
    290                 295                 300

Ser Ala Leu Asn Asn Glu Phe Phe Ala Tyr Ala Ala Gln Gly Trp Lys
305                 310                 315                 320

Gln Arg Leu Ala Glu Gly Glu Phe Thr Pro Glu Met Gln Leu Arg Ile
                325                 330                 335

Arg Gln Glu Ile Glu Lys Glu Lys Lys Thr Glu Pro Trp Lys Glu Lys
            340                 345                 350

Phe Phe Glu Arg Phe Tyr Gly Glu Lys Leu Gly Met Ser Arg Glu Glu
        355                 360                 365

Ser Val Lys Leu Thr Thr Gly Pro Asn Asn Ala Gly Ala Gln Ser Ser
    370                 375                 380

Ser Ser Cys Gly Thr Ser Gly Leu Pro Val Ser Ala Gln Thr Ala Leu
385                 390                 395                 400

Ala Glu Gln Gln Pro Lys Ser Met Lys Ser Pro Ala Ser Pro Glu Pro
                405                 410                 415

Gly Phe Cys Ala Thr Leu Cys Pro Met Val Glu Ile Pro Pro Lys Asp
            420                 425                 430

Ile Met Ala Glu Leu Glu Ser Glu Asp Ile Leu Ile Pro Glu Glu Ser
        435                 440                 445

Val Ile Gln Glu Glu Ile Ala Glu Glu Val Glu Thr Ser Ile Cys Glu
```

```
    450                 455                 460

Cys Gln Asp Glu Asn His Lys Thr Ile Pro Glu Phe Ser Glu Glu Ala
465                 470                 475                 480

Glu Ser Leu Thr Asn Ser His Glu Glu Pro Gln Ile Ala Pro Pro Glu
                485                 490                 495

Asp Asn Leu Glu Ser Cys Val Met Met Asn Asp Val Leu Glu Thr Leu
            500                 505                 510

Pro His Ile Glu Val Lys Ile Glu Gly Lys Ser Glu Ser Pro Gln Glu
        515                 520                 525

Glu Met Thr Val Val Ile Asp Gln Leu Glu Val Cys Asp Ser Leu Ile
    530                 535                 540

Pro Ser Thr Ser Ser Met Thr His Val Ser Asp Thr Glu His Lys Glu
545                 550                 555                 560

Ser Glu Thr Ala Val Glu Thr Ser Thr Pro Lys Ile Lys Thr Gly Ser
                565                 570                 575

Ser Ser Leu Glu Gly Gln Phe Pro Asn Glu Gly Ile Ala Ile Asp Met
            580                 585                 590

Glu Leu Gln Ser Asp Pro Glu Glu Gln Leu Ser Glu Asn Ala Cys Ile
        595                 600                 605

Ser Glu Thr Ser Phe Ser Ser Glu Ser Pro Glu Gly Ala Cys Thr Ser
    610                 615                 620

Leu Pro Ser Pro Gly Gly Glu Thr Gln Ser Thr Ser Glu Glu Ser Cys
625                 630                 635                 640

Thr Pro Ala Ser Leu Glu Thr Thr Phe Cys Ser Glu Val Ser Ser Thr
                645                 650                 655

Glu Asn Thr Asp Lys Tyr Asn Gln Arg Asn Ser Thr Asp Glu Asn Phe
            660                 665                 670

His Ala Ser Leu Met Ser Glu Ile Ser Pro Ile Ser Thr Ser Pro Glu
        675                 680                 685
```

```
Ile Ser Glu Ala Ser Leu Met Ser Asn Leu Pro Leu Thr Ser Glu Ala
    690                 695                 700

Ser Pro Val Ser Asn Leu Pro Leu Thr Ser Glu Thr Ser Pro Met Ser
705                 710                 715                 720

Asp Leu Pro Leu Thr Ser Glu Thr Ser Ser Val Ser Ser Met Leu Leu
                725                 730                 735

Thr Ser Glu Thr Thr Phe Val Ser Ser Leu Pro Leu Pro Ser Glu Thr
            740                 745                 750

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

Arg Lys Ser Pro Ser Val Ser Glu Glu Pro Leu Ser Pro Gln Lys Asp
    770                 775                 780

Glu Ser Ser Ala Thr Ala Lys Pro Leu Gly Glu Asn Leu Thr Ser Gln
785                 790                 795                 800

Gln Lys Asn Leu Ser Asn Thr Pro Glu Pro Ile Ile Met Ser Ser Ser
                805                 810                 815

Ser Ile Ala Pro Glu Ala Phe Pro Ser Glu Asp Leu His Asn Lys Thr
            820                 825                 830

Leu Ser Gln Gln Thr Cys Lys Ser His Val Asp Thr Glu Lys Pro Tyr
        835                 840                 845

Pro Ala Ser Ile Pro Glu Leu Ala Ser Thr Glu Met Ile Lys Val Lys
    850                 855                 860

Asn His Ser Val Leu Gln Arg Thr Glu Lys Lys Val Leu Pro Ser Pro
865                 870                 875                 880

Leu Glu Leu Ser Val Phe Ser Glu Gly Thr Asp Asn Lys Gly Asn Glu
                885                 890                 895

Leu Pro Ser Ala Lys Leu Gln Asp Lys Gln Tyr Ile Ser Ser Val Asp
            900                 905                 910
```

```
Lys Ala Pro Phe Ser Glu Gly Ser Arg Asn Lys Thr His Lys Gln Gly
        915                 920                 925

Ser Thr Gln Ser Arg Leu Glu Thr Ser His Thr Ser Lys Ser Ser Glu
    930                 935                 940

Pro Ser Lys Ser Pro Asp Gly Ile Arg Asn Glu Ser Arg Asp Ser Glu
945                 950                 955                 960

Ile Ser Lys Arg Lys Thr Ala Glu Gln His Ser Phe Gly Ile Cys Lys
                965                 970                 975

Glu Lys Arg Ala Arg Ile Glu Asp Asp Gln Ser Thr Arg Asn Ile Ser
            980                 985                 990

Ser Ser Ser Pro Pro Glu Lys Glu  Gln Pro Pro Arg Glu  Glu Pro
Arg
        995                 1000                1005

Val Pro  Pro Leu Lys Ile Gln  Leu Ser Lys Ile Gly  Pro Pro Phe
    1010                1015                1020

Ile Ile  Lys Ser Gln Pro Val  Ser Lys Pro Glu Ser  Arg Ala Ser
    1025                1030                1035

Thr Ser  Thr Ser Val Ser Gly  Gly Arg Asn Thr Gly  Ala Arg Thr
    1040                1045                1050

Leu Ala  Asp Ile Lys Ala Arg  Ala Gln Gln Ala Arg  Ala Gln Arg
    1055                1060                1065

Glu Ala  Ala Ala Ala Ala Ala  Val Ala Ala Ala Ala  Ser Ile Val
    1070                1075                1080

Ser Gly  Ala Met Gly Ser Pro  Gly Glu Gly Gly Lys  Thr Arg Thr
    1085                1090                1095

Leu Ala  His Ile Lys Glu Gln  Thr Lys Ala Lys Leu  Phe Ala Lys
    1100                1105                1110

His Gln  Ala Arg Ala His Leu  Phe Gln Thr Ser Lys  Glu Thr Arg
    1115                1120                1125
```

```
Leu Pro  Pro Pro Leu Ser Ser  Lys Glu Gly Pro Pro  Asn Leu Glu
    1130                1135                1140

Val Ser  Ser Thr Pro Glu Thr  Lys Met Glu Gly Ser  Thr Gly Val
    1145                1150                1155

Ile Ile  Val Asn Pro Asn Cys  Arg Ser Pro Ser Asn  Lys Ser Ala
    1160                1165                1170

His Leu  Arg Glu Thr Thr Thr  Val Leu Gln Gln Ser  Leu Asn Pro
    1175                1180                1185

Ser Lys  Leu Pro Glu Thr Ala  Thr Asp Leu Ser Val  His Ser Ser
    1190                1195                1200

Asp Glu  Asn Ile Pro Val Ser  His Leu Ser Glu Lys  Ile Val Ser
    1205                1210                1215

Ser Thr  Ser Ser Glu Asn Ser  Ser Val Pro Met Leu  Phe Asn Lys
    1220                1225                1230

Asn Ser  Val Pro Val Ser Val  Cys Ser Thr Ala Ile  Ser Gly Ala
    1235                1240                1245

Ile Lys  Glu His Pro Phe Val  Ser Ser Val Asp Lys  Ser Ser Val
    1250                1255                1260

Leu Met  Ser Val Asp Ser Ala  Asn Thr Thr Ile Ser  Ala Cys Asn
    1265                1270                1275

Ile Ser  Met Leu Lys Thr Ile  Gln Gly Thr Asp Thr  Pro Cys Ile
    1280                1285                1290

Ala Ile  Ile Pro Lys Cys Ile  Glu Ser Thr Pro Ile  Ser Ala Thr
    1295                1300                1305

Thr Glu  Gly Ser Ser Ile Ser  Ser Ser Met Asp Asp  Lys Gln Leu
    1310                1315                1320

Leu Ile  Ser Ser Ser Ser Ala  Ser Asn Leu Val Ser  Thr Gln Tyr
    1325                1330                1335
```

```
Thr Ser  Val Pro Thr Pro Ser  Ile Gly Asn Asn Leu  Pro Asn Leu
    1340                1345                1350

Ser Thr  Ser Ser Val Leu Ile  Pro Pro Met Gly Ile  Asn Asn Arg
    1355                1360                1365

Phe Pro  Ser Glu Lys Ile Ala  Ile Pro Gly Ser Glu  Glu Gln Ala
    1370                1375                1380

Thr Val  Ser Met Gly Thr Thr  Val Arg Ala Ala Leu  Ser Cys Ser
    1385                1390                1395

Asp Ser  Val Ala Val Thr Asp  Ser Leu Val Ala His  Pro Thr Val
    1400                1405                1410

Ala Met  Phe Thr Gly Asn Met  Leu Thr Ile Asn Ser  Tyr Asp Ser
    1415                1420                1425

Pro Pro  Lys Leu Ser Ala Glu  Ser Leu Asp Lys Asn  Ser Gly Pro
    1430                1435                1440

Arg Asn  Arg Ala Asp Asn Ser  Gly Lys Pro Gln Gln  Pro Pro Gly
    1445                1450                1455

Gly Phe  Ala Pro Ala Ala Ile  Asn Arg Ser Ile Pro  Cys Lys Val
    1460                1465                1470

Ile Val  Asp His Ser Thr Thr  Leu Thr Ser Ser Leu  Ser Leu Thr
    1475                1480                1485

Val Ser  Val Glu Ser Ser Glu  Ala Ser Leu Asp Leu  Gln Gly Arg
    1490                1495                1500

Pro Val  Arg Thr Glu Ala Ser  Val Gln Pro Val Ala  Cys Pro Gln
    1505                1510                1515

Val Ser  Val Ile Ser Arg Pro  Glu Pro Val Ala Asn  Glu Gly Ile
    1520                1525                1530

Asp His  Ser Ser Thr Phe Ile  Ala Ala Ser Ala Ala  Lys Gln Asp
    1535                1540                1545

Ser Lys  Thr Leu Pro Ala Thr  Cys Thr Ser Leu Arg  Glu Leu Pro
```

1550 1555 1560

Leu Val Pro Asp Lys Leu Asn Glu Pro Thr Ala Pro Ser His Asn
1565 1570 1575

Phe Ala Glu Gln Ala Arg Gly Pro Ala Pro Phe Lys Ser Glu Ala
1580 1585 1590

Asp Thr Thr Cys Ser Asn Gln Tyr Asn Pro Ser Asn Arg Ile Cys
1595 1600 1605

Trp Asn Asp Asp Gly Met Arg Ser Thr Gly Gln Pro Leu Val Thr
1610 1615 1620

His Ser Gly Ser Ser Lys Gln Lys Glu Tyr Leu Glu Gln Ser Cys
1625 1630 1635

Pro Lys Ala Ile Lys Thr Glu His Ala Asn Tyr Leu Asn Val Ser
1640 1645 1650

Glu Leu His Pro Arg Asn Leu Val Thr Asn Val Ala Leu Pro Val
1655 1660 1665

Lys Ser Glu Leu His Glu Ala Asp Lys Gly Phe Arg Met Asp Thr
1670 1675 1680

Glu Asp Phe Pro Gly Pro Glu Leu Pro Pro Pro Ala Ala Glu Gly
1685 1690 1695

Ala Ser Ser Val Gln Gln Thr Gln Asn Met Lys Ala Ser Thr Ser
1700 1705 1710

Ser Pro Met Glu Glu Ala Ile Ser Leu Ala Thr Asp Ala Leu Lys
1715 1720 1725

Arg Val Pro Gly Ala Gly Ser Ser Gly Cys Arg Leu Ser Ser Val
1730 1735 1740

Glu Ala Asn Asn Pro Leu Val Thr Gln Leu Leu Gln Gly Asn Leu
1745 1750 1755

Pro Leu Glu Lys Val Leu Pro Gln Pro Arg Leu Gly Ala Lys Leu
1760 1765 1770

```
Glu Ile  Asn Arg Leu Pro Leu  Pro Leu Gln Thr Thr  Ser Val Gly
    1775                1780                1785

Lys Thr  Ala Pro Glu Arg Asn  Val Glu Ile Pro Pro  Ser Ser Pro
    1790                1795                1800

Asn Pro  Asp Gly Lys Gly Tyr  Leu Ala Gly Thr Leu  Ala Pro Leu
    1805                1810                1815

Gln Met  Arg Lys Arg Glu Asn  His Pro Lys Lys Arg  Val Ala Arg
    1820                1825                1830

Thr Val  Gly Glu His Thr Gln  Val Lys Cys Glu Pro  Gly Lys Leu
    1835                1840                1845

Leu Val  Glu Pro Asp Val Lys  Gly Val Pro Cys Val  Ile Ser Ser
    1850                1855                1860

Gly Ile  Ser Gln Leu Gly His  Ser Gln Pro Phe Lys  Gln Glu Trp
    1865                1870                1875

Leu Asn  Lys His Ser Met Gln  Asn Arg Ile Val His  Ser Pro Glu
    1880                1885                1890

Val Lys  Gln Gln Lys Arg Leu  Leu Pro Ser Cys Ser  Phe Gln Gln
    1895                1900                1905

Asn Leu  Phe His Val Asp Lys  Asn Gly Gly Phe His  Thr Asp Ala
    1910                1915                1920

Gly Thr  Ser His Arg Gln Gln  Phe Tyr Gln Met Pro  Val Ala Ala
    1925                1930                1935

Arg Gly  Pro Ile Pro Thr Ala  Ala Leu Leu Gln Ala  Ser Ser Lys
    1940                1945                1950

Thr Pro  Val Gly Cys Asn Ala  Phe Ala Phe Asn Arg  His Leu Glu
    1955                1960                1965

Gln Lys  Gly Leu Gly Glu Val  Ser Leu Ser Ser Ala  Pro His Gln
    1970                1975                1980
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```
Leu Arg  Leu Ala Asn Met Leu  Ser Pro Asn Met Pro  Met Lys Glu
    1985                1990                1995

Gly Asp  Glu Val Gly Gly Thr  Ala His Thr Met Pro  Asn Lys Ala
    2000                2005                2010

Leu Val  His Pro Pro Pro Pro  Pro Pro Pro Pro Pro  Pro Pro Pro
    2015                2020                2025

Leu Ala  Leu Pro Pro Pro Pro  Pro Pro Pro Pro Pro  Leu Pro Pro
    2030                2035                2040

Pro Leu  Pro Asn Ala Glu Val  Pro Ser Asp Gln Lys  Gln Pro Pro
    2045                2050                2055

Val Thr  Met Glu Thr Thr Lys  Arg Leu Ser Trp Pro  Gln Ser Thr
    2060                2065                2070

Gly Ile  Cys Ser Asn Ile Lys  Ser Glu Pro Leu Ser  Phe Glu Glu
    2075                2080                2085

Gly Leu  Ser Ser Ser Cys Glu  Leu Gly Met Lys Gln  Val Ser Tyr
    2090                2095                2100

Asp Gln  Asn Glu Met Lys Glu  Gln Leu Lys Ala Phe  Ala Leu Lys
    2105                2110                2115

Ser Ala  Asp Phe Ser Ser Tyr  Leu Leu Ser Glu Pro  Gln Lys Pro
    2120                2125                2130

Phe Thr  Gln Leu Ala Ala Gln  Lys Met Gln Val Gln  Gln Gln Gln
    2135                2140                2145

Gln Leu  Cys Gly Asn Tyr Pro  Thr Ile His Phe Gly  Ser Thr Ser
    2150                2155                2160

Phe Lys  Arg Ala Ala Ser Ala  Ile Glu Lys Ser Ile  Gly Ile Leu
    2165                2170                2175

Gly Ser  Gly Ser Asn Pro Ala  Thr Gly Leu Ser Gly  Gln Asn Ala
    2180                2185                2190
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```
Gln Met  Pro Val Gln Asn Phe  Ala Asp Ser Ser Asn  Ala Asp Glu
    2195                 2200                 2205


Leu Glu  Leu Lys Cys Ser Cys  Arg Leu Lys Ala Met  Ile Val Cys
    2210                 2215                 2220


Lys Gly  Cys Gly Ala Phe Cys  His Asp Asp Cys Ile  Gly Pro Ser
    2225                 2230                 2235


Lys Leu  Cys Val Ala Cys Leu  Val Val Arg
    2240                 2245


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Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1               5                  10                  15


Glu Thr Arg Pro Arg His Gly Leu Glu Thr Ala Leu Val Cys Met Lys
            20                  25                  30


Asp Leu Pro Pro Met Lys Asp Leu Gly Gln Leu Ser Met Met Ile Ile
        35                  40                  45


Leu Glu Pro Gln Leu Leu Ser Cys Trp Ser
    50                  55


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<212> PRT
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Met Lys Asp Lys Arg Lys Lys Lys Asp Arg Thr Trp Ala Glu Ala Ala
1 5 10 15

Arg Leu Ala Leu Glu Lys His Pro Asn Ser Pro Met Thr Ala Lys Gln
20 25 30

Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys Glu Thr Arg Asn Gly
35 40 45

Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His Thr Asn Thr Arg
50 55 60

Ile Gly Asp Gly Thr Phe Phe Lys Ile Pro Gly Lys Ser Gly Leu Tyr
65 70 75 80

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

Leu Val Cys Glu Ser Glu Leu Asp Gly Thr Asp Met Ala Glu Ala Asn
100 105 110

Ala His Gly Glu Glu Asn Gly Val Cys Ser Lys Gln Val Thr Asp Glu
115 120 125

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

```
Lys Leu Val Ser Ser Phe Gln Gln His Thr Lys Lys Ala Leu Lys Gln
145                 150                 155                 160

Ala Leu Arg Gln Gln Gln Lys Arg Arg Asn Gly Val Ser Met Met Val
                165                 170                 175

Asn Lys Thr Val Pro Arg Val Val Leu Thr Pro Leu Lys Val Ser Asp
            180                 185                 190

Glu Gln Ser Asp Ser Pro Ser Gly Ser Glu Ser Lys Asn Gly Glu Ala
        195                 200                 205

Asp Ser Ser Asp Lys Glu Met Lys His Gly Gln Lys Ser Pro Thr Gly
    210                 215                 220

Lys Gln Thr Ser Gln His Leu Lys Arg Leu Lys Lys Ser Gly Leu Gly
225                 230                 235                 240

His Leu Lys Trp Thr Lys Ala Glu Asp Ile Asp Ile Glu Thr Pro Gly
                245                 250                 255

Ser Ile Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Lys His Thr
            260                 265                 270

Phe Ala Ser Leu Pro Gln His Phe Gln Gln Tyr Leu Leu Leu Leu Leu
        275                 280                 285

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

Met Val Pro Ile Ser Gly Gly Cys His Glu Ile Lys Met Ser
305                 310                 315


<210> 2599
<211> 174
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ASXL3; "
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<220>
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<223> /note="Gene Name:
additional sex combs like transcriptional regulator 3; "

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

<400> 2599
Xaa Ala Glu Ala Ala Arg Leu Ala Leu Glu Lys His Pro Asn Ser Pro
1 5 10 15

Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
20 25 30

Glu Thr Arg Asn Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu
35 40 45

His Thr Asn Thr Arg Ile Gly Asp Gly Thr Phe Phe Lys Ile Pro Gly
50 55 60

Lys Ser Gly Leu Tyr Ala Leu Lys Lys Glu Glu Ser Ser Cys Pro Ala
65 70 75 80

Asp Gly Thr Leu Asp Leu Val Cys Glu Ser Glu Leu Asp Gly Thr Asp
85 90 95

Met Ala Glu Ala Asn Ala His Gly Glu Glu Asn Gly Val Cys Ser Lys
100 105 110

Gln Val Thr Asp Glu Ala Ser Ser Thr Arg Asp Ser Ser Leu Thr Asn
115 120 125

Thr Ala Val Gln Ser Lys Leu Val Ser Ser Phe Gln Gln His Thr Lys
130 135 140

Lys Ala Leu Lys Gln Ala Leu Arg Gln Gln Gln Lys Arg Arg Asn Gly
145 150 155 160

Val Ser Met Met Val Asn Lys Thr Val Pro Arg Val Val Leu

165 170

<210> 2600
<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:
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<220>
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<400> 2600
Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1 5 10 15

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

Cys Val

<210> 2601
<211> 61
<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: ENSP00000466073"

<400> 2601
Met Lys Asp Lys Arg Lys Lys Lys Asp Arg Thr Trp Ala Glu Ala Ala
1   5   10   15

Arg Leu Ala Leu Glu Lys His Pro Asn Ser Pro Met Thr Ala Lys Gln
            20   25   30

Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys Glu Thr Ser Leu Val
        35   40   45

Ser Asp Pro Gly Met Ala Trp Arg Gln Arg Trp Cys Val
    50   55   60

<210> 2602
<211> 148
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
      additional sex combs like transcriptional regulator 3; "

<220>
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<400> 2602
Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1   5   10   15

Glu Thr Ser Ser Gly Arg Gln Lys Ala Gln Ile Lys Val Gly Ser Val
            20   25   30

Arg Phe Cys Gly Thr Ser Pro Leu Ala Cys Leu Asn Ala Met Leu His
        35   40   45

Thr Asn Thr Arg Ile Gly Asp Gly Thr Phe Phe Lys Ile Pro Gly Lys
    50   55   60

```
Ser Gly Leu Tyr Ala Leu Lys Lys Glu Glu Ser Ser Cys Pro Ala Asp
65                  70                  75                  80

Gly Thr Leu Asp Leu Val Cys Glu Ser Glu Leu Asp Gly Thr Asp Met
                85                  90                  95

Ala Glu Ala Asn Ala His Gly Glu Glu Asn Gly Val Cys Ser Lys Gln
            100                 105                 110

Val Thr Asp Glu Ala Ser Ser Thr Arg Asp Ser Ser Leu Thr Asn Thr
        115                 120                 125

Ala Val Gln Ser Lys Leu Val Ser Ser Phe Gln Gln His Thr Lys Lys
    130                 135                 140

Ala Leu Lys Gln
145
```

<210> 2603
<211> 58
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
additional sex combs like transcriptional regulator 3; "

<220>
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<223> /note="ENSP ID: ENSP00000466655"

<400> 2603

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Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1               5                   10                  15

Glu Thr Arg Pro Arg His Gly Leu Glu Thr Ala Leu Val Cys Met Lys
            20                  25                  30
```

Asp Leu Pro Pro Met Lys Asp Leu Gly Gln Leu Ser Met Met Ile Ile
        35   40   45

Leu Glu Pro Gln Leu Leu Ser Cys Trp Ser
    50   55

<210> 2604
<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:
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<220>
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<223> /note="ENSP ID: ENSP00000467648"

<400> 2604
Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1   5   10   15

Glu Thr Ser Ser Gly Arg Gln Lys Ala Gln Ile Lys Val Gly Ser Val
            20   25   30

Arg Phe

<210> 2605
<211> 34
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>

<221> source
<223> /note="Gene Name:
additional sex combs like transcriptional regulator 3; "

<220>
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<223> /note="ENSP ID: ENSP00000467907"

<400> 2605
Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1 5 10 15

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

Cys Val

<210> 2606
<211> 179
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
additional sex combs like transcriptional regulator 3; "

<220>
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<223> /note="ENSP ID: ENSP00000468024"

<400> 2606
Lys Arg Lys Lys Lys Asp Arg Thr Trp Ala Glu Ala Ala Arg Leu Ala
1 5 10 15

Leu Glu Lys His Pro Asn Ser Pro Met Thr Ala Lys Gln Ile Leu Glu
20 25 30

Val Ile Gln Lys Glu Gly Leu Lys Glu Thr Ser Gly Thr Ser Pro Leu
35 40 45

Ala Cys Leu Asn Ala Met Leu His Thr Asn Thr Arg Ile Gly Asp Gly

```
    50                  55                  60

Thr Phe Phe Lys Ile Pro Gly Lys Ser Gly Leu Tyr Ala Leu Lys Lys
65                  70                  75                  80

Glu Glu Ser Ser Cys Pro Ala Asp Gly Thr Leu Asp Leu Val Cys Glu
                85                  90                  95

Ser Glu Leu Asp Gly Thr Asp Met Ala Glu Ala Asn Ala His Gly Glu
            100                 105                 110

Glu Asn Gly Val Cys Ser Lys Gln Val Thr Asp Glu Ala Ser Ser Thr
        115                 120                 125

Arg Asp Ser Ser Leu Thr Asn Thr Ala Val Gln Ser Lys Leu Val Ser
    130                 135                 140

Ser Phe Gln Gln His Thr Lys Lys Ala Leu Lys Gln Ala Leu Arg Gln
145                 150                 155                 160

Gln Gln Lys Arg Arg Asn Gly Val Ser Met Met Val Asn Lys Thr Val
                165                 170                 175

Pro Arg Val
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<210> 2607
<211> 19
<212> PRT
<213> Homo sapiens

<220>
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additional sex combs like transcriptional regulator 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468264"

<400> 2607
Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1   5   10   15

Glu Thr Arg

<210> 2608
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 615; "

<220>
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<223> /note="Gene Symbol: ASXL3; "

<220>
<221> source
<223> /note="Gene Name:
      additional sex combs like transcriptional regulator 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468533"

<400> 2608
Met Thr Ala Lys Gln Ile Leu Glu Val Ile Gln Lys Glu Gly Leu Lys
1   5   10   15

Glu Thr Arg Pro Arg His Gly Leu Glu Thr Ala Leu Val Cys Met Lys
            20   25   30

Asp Leu Pro Pro Met Lys Asp Leu Gly Gln Leu Ser Met Met Ile Ile
        35   40   45

Leu Glu Pro Gln Leu Leu Ser Cys Trp Ser
    50   55

<210> 2609
<211> 768
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADD1; "

<220>
<221> source
<223> /note="Gene Name:
adducin 1 (alpha); "

<220>
<221> source
<223> /note="Uniprot ID: P35611; "

<220>
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<223> /note="ENSP ID: ENSP00000264758"

<400> 2609
Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1   5   10   15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
            20   25   30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
        35   40   45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
    50   55   60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65   70   75   80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85   90   95

Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
            100   105   110

Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115   120   125

Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
    130   135   140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145   150   155   160

```
Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
                165                 170                 175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
            180                 185                 190

Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
        195                 200                 205

Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
    210                 215                 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
225                 230                 235                 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
                245                 250                 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
            260                 265                 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
        275                 280                 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
    290                 295                 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305                 310                 315                 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
                325                 330                 335

Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
            340                 345                 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
        355                 360                 365

Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
    370                 375                 380
```

```
Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu
385                 390                 395                 400

Arg Glu Lys Ser Lys Lys Tyr Ser Asp Val Glu Val Pro Ala Ser Val
                405                 410                 415

Thr Gly Tyr Ser Phe Ala Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro
            420                 425                 430

Leu Arg His Ser Phe Gln Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu
        435                 440                 445

Asn Ser Gly Arg Gly Asp Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser
    450                 455                 460

Ser Pro Lys Ser Lys Thr Lys Val Trp Thr Asn Ile Thr His Asp His
465                 470                 475                 480

Val Lys Pro Leu Leu Gln Ser Leu Ser Ser Gly Val Cys Val Pro Ser
                485                 490                 495

Cys Ile Thr Asn Cys Leu Trp Thr Lys Glu Asp Gly His Arg Thr Ser
            500                 505                 510

Thr Ser Ala Val Pro Asn Leu Phe Val Pro Leu Asn Thr Asn Pro Lys
        515                 520                 525

Glu Val Gln Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln Asp
    530                 535                 540

Ile Lys Thr Ala Gly Pro Gln Ser Gln Val Leu Cys Gly Val Val Met
545                 550                 555                 560

Asp Arg Ser Leu Val Gln Gly Glu Leu Val Thr Ala Ser Lys Ala Ile
                565                 570                 575

Ile Glu Lys Glu Tyr Gln Pro His Val Ile Val Ser Thr Thr Gly Pro
            580                 585                 590

Asn Pro Phe Thr Thr Leu Thr Asp Arg Glu Leu Glu Glu Tyr Arg Arg
        595                 600                 605

Glu Val Glu Arg Lys Gln Lys Gly Ser Glu Glu Asn Leu Asp Glu Ala
```

```
    610                 615                 620

Arg Glu Gln Lys Glu Lys Ser Pro Pro Asp Gln Pro Ala Val Pro His
625                 630                 635                 640

Pro Pro Pro Ser Thr Pro Ile Lys Leu Glu Glu Asp Leu Val Pro Glu
                645                 650                 655

Pro Thr Thr Gly Asp Asp Ser Asp Ala Ala Thr Phe Lys Pro Thr Leu
            660                 665                 670

Pro Asp Leu Ser Pro Asp Glu Pro Ser Glu Ala Leu Gly Phe Pro Met
        675                 680                 685

Leu Glu Lys Glu Glu Glu Ala His Arg Pro Pro Ser Pro Thr Glu Ala
    690                 695                 700

Pro Thr Glu Ala Ser Pro Glu Pro Ala Pro Asp Pro Ala Pro Val Ala
705                 710                 715                 720

Glu Glu Ala Ala Pro Ser Ala Val Glu Glu Gly Ala Ala Ala Asp Pro
                725                 730                 735

Gly Ser Asp Gly Ser Pro Gly Lys Ser Pro Ser Lys Lys Lys Lys Lys
            740                 745                 750

Phe Arg Thr Pro Ser Phe Leu Lys Lys Ser Lys Lys Lys Ser Asp Ser
        755                 760                 765


<210> 2610
<211> 662
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 616; "

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<221> source
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<223> /note="Gene Name:
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Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1   5   10   15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
            20   25   30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
        35   40   45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
    50   55   60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65   70   75   80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85   90   95

Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
            100   105   110

Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115   120   125

Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
    130   135   140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145   150   155   160

Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
                165   170   175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
            180   185   190

```
Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
        195                 200                 205

Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
    210                 215                 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
225                 230                 235                 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
                245                 250                 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
            260                 265                 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
        275                 280                 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
    290                 295                 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305                 310                 315                 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
                325                 330                 335

Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
            340                 345                 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
        355                 360                 365

Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
    370                 375                 380

Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu
385                 390                 395                 400

Arg Glu Lys Ser Lys Lys Tyr Ser Asp Val Glu Val Pro Ala Ser Val
                405                 410                 415

Thr Gly Tyr Ser Phe Ala Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro
```

```
            420                 425                 430

Leu Arg His Ser Phe Gln Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu
        435                 440                 445

Asn Ser Gly Arg Gly Asp Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser
    450                 455                 460

Ser Pro Lys Ser Lys Thr Lys Trp Thr Lys Glu Asp Gly His Arg Thr
465                 470                 475                 480

Ser Thr Ser Ala Val Pro Asn Leu Phe Val Pro Leu Asn Thr Asn Pro
                485                 490                 495

Lys Glu Val Gln Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln
            500                 505                 510

Asp Ile Lys Thr Ala Gly Pro Gln Ser Gln Val Leu Cys Gly Val Val
        515                 520                 525

Met Asp Arg Ser Leu Val Gln Asp Ala Pro Leu Ser Asp Cys Thr Glu
    530                 535                 540

Thr Ile Glu Gly Leu Glu Leu Thr Glu Gln Thr Phe Ser Pro Ala Lys
545                 550                 555                 560

Ser Leu Ser Phe Arg Lys Gly Glu Leu Val Thr Ala Ser Lys Ala Ile
                565                 570                 575

Ile Glu Lys Glu Tyr Gln Pro His Val Ile Val Ser Thr Thr Gly Pro
            580                 585                 590

Asn Pro Phe Thr Thr Leu Thr Asp Arg Glu Leu Glu Glu Tyr Arg Arg
        595                 600                 605

Glu Val Glu Arg Lys Gln Lys Gly Ser Glu Glu Asn Leu Asp Glu Ala
    610                 615                 620

Arg Glu Gln Lys Glu Lys Ser Pro Pro Asp Gln Pro Ala Val Pro His
625                 630                 635                 640

Pro Pro Pro Ser Thr Pro Ile Lys Leu Glu Glu Gly Asp Gly Cys Ala
                645                 650                 655
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Arg Glu Tyr Leu Leu Pro
660

<210> 2611
<211> 662
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 616; "

<220>
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<220>
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<400> 2611
Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1 5 10 15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
20 25 30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
35 40 45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
50 55 60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65 70 75 80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
85 90 95

```
Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
            100                 105                 110

Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115                 120                 125

Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
    130                 135                 140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145                 150                 155                 160

Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
                165                 170                 175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
            180                 185                 190

Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
        195                 200                 205

Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
    210                 215                 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
225                 230                 235                 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
                245                 250                 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
            260                 265                 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
        275                 280                 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
    290                 295                 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305                 310                 315                 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
```

```
                325                 330                 335

Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
            340                 345                 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
        355                 360                 365

Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
    370                 375                 380

Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu
385                 390                 395                 400

Arg Glu Lys Ser Lys Lys Tyr Ser Asp Val Glu Val Pro Ala Ser Val
                405                 410                 415

Thr Gly Tyr Ser Phe Ala Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro
            420                 425                 430

Leu Arg His Ser Phe Gln Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu
        435                 440                 445

Asn Ser Gly Arg Gly Asp Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser
    450                 455                 460

Ser Pro Lys Ser Lys Thr Lys Val Trp Thr Asn Ile Thr His Asp His
465                 470                 475                 480

Val Lys Pro Leu Leu Gln Ser Leu Ser Ser Gly Val Cys Val Pro Ser
                485                 490                 495

Cys Ile Thr Asn Cys Leu Trp Thr Lys Glu Asp Gly His Arg Thr Ser
            500                 505                 510

Thr Ser Ala Val Pro Asn Leu Phe Val Pro Leu Asn Thr Asn Pro Lys
        515                 520                 525

Glu Val Gln Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln Asp
    530                 535                 540

Ile Lys Thr Ala Gly Pro Gln Ser Gln Val Leu Cys Gly Val Val Met
545                 550                 555                 560
```

```
Asp Arg Ser Leu Val Gln Gly Glu Leu Val Thr Ala Ser Lys Ala Ile
                565                 570                 575

Ile Glu Lys Glu Tyr Gln Pro His Val Ile Val Ser Thr Thr Gly Pro
            580                 585                 590

Asn Pro Phe Thr Thr Leu Thr Asp Arg Glu Leu Glu Glu Tyr Arg Arg
        595                 600                 605

Glu Val Glu Arg Lys Gln Lys Gly Ser Glu Glu Asn Leu Asp Glu Ala
    610                 615                 620

Arg Glu Gln Lys Glu Lys Ser Pro Pro Asp Gln Pro Ala Val Pro His
625                 630                 635                 640

Pro Pro Pro Ser Thr Pro Ile Lys Leu Glu Glu Gly Asp Gly Cys Ala
                645                 650                 655

Arg Glu Tyr Leu Leu Pro
            660


<210> 2612
<211> 662
<212> PRT
<213> Homo sapiens

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<400> 2612
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Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1               5                  10                  15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
            20                  25                  30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
        35                  40                  45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
    50                  55                  60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65                  70                  75                  80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85                  90                  95

Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
            100                 105                 110

Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115                 120                 125

Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
    130                 135                 140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145                 150                 155                 160

Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
                165                 170                 175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
            180                 185                 190

Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
        195                 200                 205

Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
    210                 215                 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
```

225 230 235 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
245 250 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
260 265 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
275 280 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
290 295 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305 310 315 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
325 330 335

Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
340 345 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
355 360 365

Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
370 375 380

Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu
385 390 395 400

Arg Glu Lys Ser Lys Lys Tyr Ser Asp Val Glu Val Pro Ala Ser Val
405 410 415

Thr Gly Tyr Ser Phe Ala Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro
420 425 430

Leu Arg His Ser Phe Gln Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu
435 440 445

Asn Ser Gly Arg Gly Asp Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser
450 455 460

Ser Pro Lys Ser Lys Thr Lys Val Trp Thr Asn Ile Thr His Asp His
465 470 475 480

Val Lys Pro Leu Leu Gln Ser Leu Ser Ser Gly Val Cys Val Pro Ser
485 490 495

Cys Ile Thr Asn Cys Leu Trp Thr Lys Glu Asp Gly His Arg Thr Ser
500 505 510

Thr Ser Ala Val Pro Asn Leu Phe Val Pro Leu Asn Thr Asn Pro Lys
515 520 525

Glu Val Gln Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln Asp
530 535 540

Ile Lys Thr Ala Gly Pro Gln Ser Gln Val Leu Cys Gly Val Val Met
545 550 555 560

Asp Arg Ser Leu Val Gln Gly Glu Leu Val Thr Ala Ser Lys Ala Ile
565 570 575

Ile Glu Lys Glu Tyr Gln Pro His Val Ile Val Ser Thr Thr Gly Pro
580 585 590

Asn Pro Phe Thr Thr Leu Thr Asp Arg Glu Leu Glu Glu Tyr Arg Arg
595 600 605

Glu Val Glu Arg Lys Gln Lys Gly Ser Glu Glu Asn Leu Asp Glu Ala
610 615 620

Arg Glu Gln Lys Glu Lys Ser Pro Pro Asp Gln Pro Ala Val Pro His
625 630 635 640

Pro Pro Pro Ser Thr Pro Ile Lys Leu Glu Glu Gly Asp Gly Cys Ala
645 650 655

Arg Glu Tyr Leu Leu Pro
660

<210> 2613
<211> 737
<212> PRT

<213> Homo sapiens

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<400> 2613

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Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1               5                   10                  15


Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
            20                  25                  30


Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
        35                  40                  45


Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
    50                  55                  60


Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65                  70                  75                  80


Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85                  90                  95


Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
            100                 105                 110


Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115                 120                 125


Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
```

130 135 140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145 150 155 160

Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
165 170 175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
180 185 190

Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
195 200 205

Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
210 215 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
225 230 235 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
245 250 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
260 265 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
275 280 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
290 295 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305 310 315 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
325 330 335

Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
340 345 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
355 360 365

```
Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
    370                 375                 380

Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu
385                 390                 395                 400

Arg Glu Lys Ser Lys Lys Tyr Ser Asp Val Glu Val Pro Ala Ser Val
                405                 410                 415

Thr Gly Tyr Ser Phe Ala Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro
            420                 425                 430

Leu Arg His Ser Phe Gln Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu
        435                 440                 445

Asn Ser Gly Arg Gly Asp Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser
    450                 455                 460

Ser Pro Lys Ser Lys Thr Lys Trp Thr Lys Glu Asp Gly His Arg Thr
465                 470                 475                 480

Ser Thr Ser Ala Val Pro Asn Leu Phe Val Pro Leu Asn Thr Asn Pro
                485                 490                 495

Lys Glu Val Gln Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln
            500                 505                 510

Asp Ile Lys Thr Ala Gly Pro Gln Ser Gln Val Leu Cys Gly Val Val
        515                 520                 525

Met Asp Arg Ser Leu Val Gln Gly Glu Leu Val Thr Ala Ser Lys Ala
    530                 535                 540

Ile Ile Glu Lys Glu Tyr Gln Pro His Val Ile Val Ser Thr Thr Gly
545                 550                 555                 560

Pro Asn Pro Phe Thr Thr Leu Thr Asp Arg Glu Leu Glu Glu Tyr Arg
                565                 570                 575

Arg Glu Val Glu Arg Lys Gln Lys Gly Ser Glu Glu Asn Leu Asp Glu
            580                 585                 590
```

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

His Pro Pro Pro Ser Thr Pro Ile Lys Leu Glu Glu Asp Leu Val Pro
    610                 615                 620

Glu Pro Thr Thr Gly Asp Asp Ser Asp Ala Ala Thr Phe Lys Pro Thr
625                 630                 635                 640

Leu Pro Asp Leu Ser Pro Asp Glu Pro Ser Glu Ala Leu Gly Phe Pro
                645                 650                 655

Met Leu Glu Lys Glu Glu Glu Ala His Arg Pro Pro Ser Pro Thr Glu
            660                 665                 670

Ala Pro Thr Glu Ala Ser Pro Glu Pro Ala Pro Asp Pro Ala Pro Val
        675                 680                 685

Ala Glu Glu Ala Ala Pro Ser Ala Val Glu Glu Gly Ala Ala Ala Asp
    690                 695                 700

Pro Gly Ser Asp Gly Ser Pro Gly Lys Ser Pro Ser Lys Lys Lys Lys
705                 710                 715                 720

Lys Phe Arg Thr Pro Ser Phe Leu Lys Lys Ser Lys Lys Lys Ser Asp
                725                 730                 735

Ser
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<210> 2614
<211> 400
<212> PRT
<213> Homo sapiens

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<400> 2614

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Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1               5                  10                  15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
            20                  25                  30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
        35                  40                  45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
    50                  55                  60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65                  70                  75                  80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85                  90                  95

Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
            100                 105                 110

Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115                 120                 125

Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
    130                 135                 140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145                 150                 155                 160

Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
                165                 170                 175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
            180                 185                 190

Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
        195                 200                 205
```

```
Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
    210                 215                 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
225                 230                 235                 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
                245                 250                 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
            260                 265                 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
        275                 280                 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
    290                 295                 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305                 310                 315                 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
                325                 330                 335

Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
            340                 345                 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
        355                 360                 365

Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
    370                 375                 380

Asp Asn Leu Gly Tyr Arg Thr Gly Ser Ser Gly Arg Arg Gln Asp Gly
385                 390                 395                 400
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<210> 2615
<211> 632
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 616; "

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<223> /note="Gene Name:
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<220>
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<400> 2615

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Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1               5                   10                  15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
            20                  25                  30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
        35                  40                  45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
    50                  55                  60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65                  70                  75                  80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85                  90                  95

Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
            100                 105                 110

Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115                 120                 125

Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
    130                 135                 140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145                 150                 155                 160

Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
```

```
                165                 170                 175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
            180                 185                 190

Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
        195                 200                 205

Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
    210                 215                 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
225                 230                 235                 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
                245                 250                 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
            260                 265                 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
        275                 280                 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
    290                 295                 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305                 310                 315                 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
                325                 330                 335

Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
            340                 345                 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
        355                 360                 365

Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
    370                 375                 380

Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu
385                 390                 395                 400
```

```
Arg Glu Lys Ser Lys Lys Tyr Ser Asp Val Glu Val Pro Ala Ser Val
                405                 410                 415

Thr Gly Tyr Ser Phe Ala Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro
            420                 425                 430

Leu Arg His Ser Phe Gln Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu
        435                 440                 445

Asn Ser Gly Arg Gly Asp Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser
    450                 455                 460

Ser Pro Lys Ser Lys Thr Lys Trp Thr Lys Glu Asp Gly His Arg Thr
465                 470                 475                 480

Ser Thr Ser Ala Val Pro Asn Leu Phe Val Pro Leu Asn Thr Asn Pro
                485                 490                 495

Lys Glu Val Gln Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln
            500                 505                 510

Asp Ile Lys Thr Ala Gly Pro Gln Ser Gln Val Leu Cys Gly Val Val
        515                 520                 525

Met Asp Arg Ser Leu Val Gln Gly Glu Leu Val Thr Ala Ser Lys Ala
    530                 535                 540

Ile Ile Glu Lys Glu Tyr Gln Pro His Val Ile Val Ser Thr Thr Gly
545                 550                 555                 560

Pro Asn Pro Phe Thr Thr Leu Thr Asp Arg Glu Leu Glu Glu Tyr Arg
                565                 570                 575

Arg Glu Val Glu Arg Lys Gln Lys Gly Ser Glu Glu Asn Leu Asp Glu
            580                 585                 590

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

His Pro Pro Pro Ser Thr Pro Ile Lys Leu Glu Glu Ala Gly Asp Gly
    610                 615                 620
```

Cys Ala Arg Glu Tyr Leu Leu Pro
625 630

<210> 2616
<211> 137
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Name:
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<223> /note="ENSP ID: ENSP00000421918"

<400> 2616
Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1 5 10 15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
20 25 30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
35 40 45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
50 55 60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65 70 75 80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
85 90 95

Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
100 105 110

Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn

115 120 125

Asp Leu Arg Gly Ser Asp Ser Ile Ala
130 135

<210> 2617
<211> 663
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 616; "

<220>
<221> source
<223> /note="Gene Symbol: ADD1; "

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<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000423024"

<400> 2617
Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1 5 10 15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
20 25 30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
35 40 45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
50 55 60

Pro Ala Phe Cys Glu Glu Leu Glu Ser Met Ile Gln Glu Gln Phe Lys
65 70 75 80

Lys Gly Lys Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
85 90 95

Phe Met Thr Thr Asn Val Pro Asn Val Tyr Pro Ala Ala Pro Gln Gly
100 105 110

```
Gly Met Ala Ala Leu Asn Met Ser Leu Gly Met Val Thr Pro Val Asn
        115                 120                 125

Asp Leu Arg Gly Ser Asp Ser Ile Ala Tyr Asp Lys Gly Glu Lys Leu
    130                 135                 140

Leu Arg Cys Lys Leu Ala Ala Phe Tyr Arg Leu Ala Asp Leu Phe Gly
145                 150                 155                 160

Trp Ser Gln Leu Ile Tyr Asn His Ile Thr Thr Arg Val Asn Ser Glu
                165                 170                 175

Gln Glu His Phe Leu Ile Val Pro Phe Gly Leu Leu Tyr Ser Glu Val
            180                 185                 190

Thr Ala Ser Ser Leu Val Lys Ile Asn Leu Gln Gly Asp Ile Val Asp
        195                 200                 205

Arg Gly Ser Thr Asn Leu Gly Val Asn Gln Ala Gly Phe Thr Leu His
    210                 215                 220

Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Lys Cys Val Val His Ile
225                 230                 235                 240

His Thr Pro Ala Gly Ala Ala Val Ser Ala Met Lys Cys Gly Leu Leu
                245                 250                 255

Pro Ile Ser Pro Glu Ala Leu Ser Leu Gly Glu Val Ala Tyr His Asp
            260                 265                 270

Tyr His Gly Ile Leu Val Asp Glu Glu Glu Lys Val Leu Ile Gln Lys
        275                 280                 285

Asn Leu Gly Pro Lys Ser Lys Val Leu Ile Leu Arg Asn His Gly Leu
    290                 295                 300

Val Ser Val Gly Glu Ser Val Glu Glu Ala Phe Tyr Tyr Ile His Asn
305                 310                 315                 320

Leu Val Val Ala Cys Glu Ile Gln Val Arg Thr Leu Ala Ser Ala Gly
                325                 330                 335
```

```
Gly Pro Asp Asn Leu Val Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys
            340                 345                 350

Ser Arg Ser Pro Gly Ser Pro Val Gly Glu Gly Thr Gly Ser Pro Pro
        355                 360                 365

Lys Trp Gln Ile Gly Glu Gln Glu Phe Glu Ala Leu Met Arg Met Leu
    370                 375                 380

Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu
385                 390                 395                 400

Arg Glu Lys Ser Lys Lys Tyr Ser Asp Val Glu Val Pro Ala Ser Val
                405                 410                 415

Thr Gly Tyr Ser Phe Ala Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro
            420                 425                 430

Leu Arg His Ser Phe Gln Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu
        435                 440                 445

Asn Ser Gly Arg Gly Asp Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser
    450                 455                 460

Ser Pro Lys Ser Lys Thr Lys Val Trp Thr Asn Ile Thr His Asp His
465                 470                 475                 480

Val Lys Pro Leu Leu Gln Ser Leu Ser Ser Gly Val Cys Val Pro Ser
                485                 490                 495

Cys Ile Thr Asn Cys Leu Trp Thr Lys Glu Asp Gly His Arg Thr Ser
            500                 505                 510

Thr Ser Ala Val Pro Asn Leu Phe Val Pro Leu Asn Thr Asn Pro Lys
        515                 520                 525

Glu Val Gln Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln Asp
    530                 535                 540

Ile Lys Thr Ala Gly Pro Gln Ser Gln Val Leu Cys Gly Val Val Met
545                 550                 555                 560

Asp Arg Ser Leu Val Gln Gly Glu Leu Val Thr Ala Ser Lys Ala Ile
```

565 570 575

Ile Glu Lys Glu Tyr Gln Pro His Val Ile Val Ser Thr Thr Gly Pro
580 585 590

Asn Pro Phe Thr Thr Leu Thr Asp Arg Glu Leu Glu Glu Tyr Arg Arg
595 600 605

Glu Val Glu Arg Lys Gln Lys Gly Ser Glu Glu Asn Leu Asp Glu Ala
610 615 620

Arg Glu Gln Lys Glu Lys Ser Pro Pro Asp Gln Pro Ala Val Pro His
625 630 635 640

Pro Pro Pro Ser Thr Pro Ile Lys Leu Glu Glu Ala Gly Asp Gly Cys
645 650 655

Ala Arg Glu Tyr Leu Leu Pro
660

<210> 2618
<211> 444
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 616; "

<220>
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<223> /note="Gene Symbol: ADD1; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000424143"

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

<400> 2618
Xaa Val Leu Ile Leu Arg Asn His Gly Leu Val Ser Val Gly Glu Ser

```
1               5                   10                  15

Val Glu Glu Ala Phe Tyr Tyr Ile His Asn Leu Val Val Ala Cys Glu
            20                  25                  30

Ile Gln Val Arg Thr Leu Ala Ser Ala Gly Gly Pro Asp Asn Leu Val
        35                  40                  45

Leu Leu Asn Pro Glu Lys Tyr Lys Ala Lys Ser Arg Ser Pro Gly Ser
    50                  55                  60

Pro Val Gly Glu Gly Thr Gly Ser Pro Pro Lys Trp Gln Ile Gly Glu
65                  70                  75                  80

Gln Glu Phe Glu Ala Leu Met Arg Met Leu Asp Asn Leu Gly Tyr Arg
                85                  90                  95

Thr Gly Tyr Pro Tyr Arg Tyr Pro Ala Leu Arg Glu Lys Ser Lys Lys
            100                 105                 110

Tyr Ser Asp Val Glu Val Pro Ala Ser Val Thr Gly Tyr Ser Phe Ala
        115                 120                 125

Ser Asp Gly Asp Ser Gly Thr Cys Ser Pro Leu Arg His Ser Phe Gln
    130                 135                 140

Lys Gln Gln Arg Glu Lys Thr Arg Trp Leu Asn Ser Gly Arg Gly Asp
145                 150                 155                 160

Glu Ala Ser Glu Glu Gly Gln Asn Gly Ser Ser Pro Lys Ser Lys Thr
                165                 170                 175

Lys Val Trp Thr Asn Ile Thr His Asp His Val Lys Pro Leu Leu Gln
            180                 185                 190

Ser Leu Ser Ser Gly Val Cys Val Pro Ser Cys Ile Thr Asn Cys Leu
        195                 200                 205

Trp Thr Lys Glu Asp Gly His Arg Thr Ser Thr Ser Ala Val Pro Asn
    210                 215                 220

Leu Phe Val Pro Leu Asn Thr Asn Pro Lys Glu Val Gln Glu Met Arg
225                 230                 235                 240
```

```
Asn Lys Ile Arg Glu Gln Asn Leu Gln Asp Ile Lys Thr Ala Gly Pro
                245                 250                 255

Gln Ser Gln Val Leu Cys Gly Val Val Met Asp Arg Ser Leu Val Gln
            260                 265                 270

Gly Glu Leu Val Thr Ala Ser Lys Ala Ile Ile Glu Lys Glu Tyr Gln
        275                 280                 285

Pro His Val Ile Val Ser Thr Thr Gly Pro Asn Pro Phe Thr Thr Leu
    290                 295                 300

Thr Asp Arg Glu Leu Glu Glu Tyr Arg Arg Glu Val Glu Arg Lys Gln
305                 310                 315                 320

Lys Gly Ser Glu Glu Asn Leu Asp Glu Ala Arg Glu Gln Lys Glu Lys
                325                 330                 335

Ser Pro Pro Asp Gln Pro Ala Val Pro His Pro Pro Pro Ser Thr Pro
            340                 345                 350

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

Ser Asp Ala Ala Thr Phe Lys Pro Thr Leu Pro Asp Leu Ser Pro Asp
    370                 375                 380

Glu Pro Ser Glu Ala Leu Gly Phe Pro Met Leu Glu Lys Glu Glu Glu
385                 390                 395                 400

Ala His Arg Pro Pro Ser Pro Thr Glu Ala Pro Thr Glu Ala Ser Pro
                405                 410                 415

Glu Pro Ala Pro Asp Pro Ala Pro Val Ala Glu Glu Ala Ala Pro Ser
            420                 425                 430

Ala Val Glu Glu Gly Ala Ala Ala Asp Pro Gly Ser
        435                 440
```

<210> 2619
<211> 69
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 616; "

<220>
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<223> /note="Gene Symbol: ADD1; "

<220>
<221> source
<223> /note="Gene Name:
adducin 1 (alpha); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425703"

<400> 2619
Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1 5 10 15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
20 25 30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
35 40 45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
50 55 60

Pro Val Leu Val Trp
65

<210> 2620
<211> 142
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 616; "

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<223> /note="Gene Symbol: ADD1; "

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<223> /note="Gene Name:
adducin 1 (alpha); "

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<400> 2620
Met Asn Gly Asp Ser Arg Ala Ala Val Val Thr Ser Pro Pro Pro Thr
1   5   10   15

Thr Ala Pro His Lys Glu Arg Tyr Phe Asp Arg Val Asp Glu Asn Asn
            20   25   30

Pro Glu Tyr Leu Arg Glu Arg Asn Met Ala Pro Asp Leu Arg Gln Asp
        35   40   45

Phe Asn Met Met Glu Gln Lys Lys Arg Val Ser Met Ile Leu Gln Ser
    50   55   60

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

Gly Leu Leu Tyr Ser Glu Val Thr Ala Ser Ser Leu Val Lys Ile Asn
                85   90   95

Leu Gln Gly Asp Ile Val Asp Arg Gly Ser Thr Asn Leu Gly Val Asn
            100   105   110

Gln Ala Gly Phe Thr Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp
        115   120   125

Val Lys Cys Val Val His Ile His Thr Pro Ala Gly Ala Ala
    130   135   140

<210> 2621
<211> 105
<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
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<400> 2621
Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Leu Gln Asp Ile Lys Thr
1 5 10 15

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

Leu Val Gln Arg Ile Trp Thr Arg Leu Glu Asn Arg Lys Lys Arg Val
35 40 45

Leu Gln Thr Ser Leu Arg Ser Pro Thr Arg Leu Pro Ala Leu Pro Ser
50 55 60

Ser Trp Arg Lys Thr Leu Cys Arg Ser Arg Leu Leu Glu Met Thr Val
65 70 75 80

Met Leu Pro Pro Leu Ser Gln Leu Ser Pro Ile Cys Pro Leu Met Asn
85 90 95

Leu Gln Lys His Ser Ala Ser Gln Cys
100 105

<210> 2622
<211> 114
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adducin 1 (alpha); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441388"

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

<400> 2622
Xaa Val Ser Thr Thr Gly Pro Asn Pro Phe Thr Thr Leu Thr Asp Arg
1   5   10   15

Glu Leu Glu Glu Tyr Arg Arg Glu Val Glu Arg Lys Gln Lys Gly Ser
            20   25   30

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

Asp Gln Pro Ala Val Pro His Pro Pro Pro Ser Thr Pro Ile Lys Leu
    50   55   60

Glu Glu Gly Lys Thr Asp Leu Tyr Val Ser Cys Asp Gln Thr Leu Cys
65   70   75   80

Arg Ser Arg Leu Leu Glu Met Thr Val Met Leu Pro Pro Leu Ser Gln
                85   90   95

Leu Ser Pro Ile Cys Pro Leu Met Asn Leu Gln Lys His Ser Ala Ser
            100   105   110

Gln Cys

<210> 2623
<211> 726
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADD2; "

<220>
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<223> /note="Gene Name:
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<223> /note="Uniprot ID: P35612; "

<220>
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<400> 2623
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1   5   10   15

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

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
        35   40   45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
    50   55   60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65   70   75   80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
                85   90   95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
            100   105   110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
        115   120   125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
    130   135   140

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145   150   155   160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
                165   170   175

Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Val Asn Ile Leu Gly
            180   185   190

```
Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
        195                 200                 205

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
    210                 215                 220

Ile Ile His Leu His Thr Pro Ala Thr Ala Ala Val Ser Ala Met Lys
225                 230                 235                 240

Trp Gly Leu Leu Pro Val Ser His Asn Ala Leu Leu Val Gly Asp Met
                245                 250                 255

Ala Tyr Tyr Asp Phe Asn Gly Glu Met Glu Gln Glu Ala Asp Arg Ile
            260                 265                 270

Asn Leu Gln Lys Cys Leu Gly Pro Thr Cys Lys Ile Leu Val Leu Arg
        275                 280                 285

Asn His Gly Val Val Ala Leu Gly Asp Thr Val Glu Glu Ala Phe Tyr
    290                 295                 300

Lys Ile Phe His Leu Gln Ala Ala Cys Glu Ile Gln Val Ser Ala Leu
305                 310                 315                 320

Ser Ser Ala Gly Gly Val Glu Asn Leu Ile Leu Leu Glu Gln Glu Lys
                325                 330                 335

His Arg Pro His Glu Val Gly Ser Val Gln Trp Ala Gly Ser Thr Phe
            340                 345                 350

Gly Pro Met Gln Lys Ser Arg Leu Gly Glu His Glu Phe Glu Ala Leu
        355                 360                 365

Met Arg Met Leu Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Thr Tyr Arg
    370                 375                 380

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

Pro Ala Thr Val Thr Ala Phe Val Phe Glu Glu Asp Gly Ala Pro Val
                405                 410                 415
```

```
Pro Ala Leu Arg Gln His Ala Gln Lys Gln Gln Lys Glu Lys Thr Arg
            420                 425                 430

Trp Leu Asn Thr Pro Asn Thr Tyr Leu Arg Val Asn Val Ala Asp Glu
        435                 440                 445

Val Gln Arg Ser Met Gly Ser Pro Arg Pro Lys Thr Thr Trp Met Lys
    450                 455                 460

Ala Asp Glu Val Glu Lys Ser Ser Ser Gly Met Pro Ile Arg Ile Glu
465                 470                 475                 480

Asn Pro Asn Gln Phe Val Pro Leu Tyr Thr Asp Pro Gln Glu Val Leu
                485                 490                 495

Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Arg Gln Asp Val Lys Ser
            500                 505                 510

Ala Gly Pro Gln Ser Gln Leu Leu Ala Ser Val Ile Ala Glu Lys Ser
        515                 520                 525

Arg Ser Pro Ser Thr Glu Ser Gln Leu Met Ser Lys Gly Asp Glu Asp
    530                 535                 540

Thr Lys Asp Asp Ser Glu Glu Thr Val Pro Asn Pro Phe Ser Gln Leu
545                 550                 555                 560

Thr Asp Gln Glu Leu Glu Glu Tyr Lys Lys Glu Val Glu Arg Lys Lys
                565                 570                 575

Leu Glu Leu Asp Gly Glu Lys Glu Thr Ala Pro Glu Glu Pro Gly Ser
            580                 585                 590

Pro Ala Lys Ser Ala Pro Ala Ser Pro Val Gln Ser Pro Ala Lys Glu
        595                 600                 605

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

Gly Thr Lys Lys Thr Glu Thr Ser Lys Ala Ala Thr Thr Glu Pro Glu
625                 630                 635                 640

Thr Thr Gln Pro Glu Gly Val Val Val Asn Gly Arg Glu Glu Glu Gln
```

645 650 655

Thr Ala Glu Glu Ile Leu Ser Lys Gly Leu Ser Gln Met Thr Thr Ser
660 665 670

Ala Asp Thr Asp Val Asp Thr Ser Lys Asp Lys Thr Glu Ser Val Thr
675 680 685

Ser Gly Pro Met Ser Pro Glu Gly Ser Pro Ser Lys Ser Pro Ser Lys
690 695 700

Lys Lys Lys Lys Phe Arg Thr Pro Ser Phe Leu Lys Lys Ser Lys Lys
705 710 715 720

Lys Glu Lys Val Glu Ser
725

<210> 2624
<211> 643
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
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<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="Uniprot ID: P35612; "

<220>
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<223> /note="ENSP ID: ENSP00000347972"

<400> 2624
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1 5 10 15

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

```
Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
        35                  40                  45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
    50                  55                  60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65                  70                  75                  80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
                85                  90                  95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
            100                 105                 110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
        115                 120                 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
    130                 135                 140

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145                 150                 155                 160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
                165                 170                 175

Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Val Asn Ile Leu Gly
            180                 185                 190

Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
        195                 200                 205

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
    210                 215                 220

Ile Ile His Leu His Thr Pro Ala Thr Ala Ala Val Ser Ala Met Lys
225                 230                 235                 240

Trp Gly Leu Leu Pro Val Ser His Asn Ala Leu Leu Val Gly Asp Met
                245                 250                 255
```

```
Ala Tyr Tyr Asp Phe Asn Gly Glu Met Glu Gln Glu Ala Asp Arg Ile
            260                 265                 270

Asn Leu Gln Lys Cys Leu Gly Pro Thr Cys Lys Ile Leu Val Leu Arg
        275                 280                 285

Asn His Gly Val Val Ala Leu Gly Asp Thr Val Glu Glu Ala Phe Tyr
    290                 295                 300

Lys Ile Phe His Leu Gln Ala Ala Cys Glu Ile Gln Val Ser Ala Leu
305                 310                 315                 320

Ser Ser Ala Gly Gly Val Glu Asn Leu Ile Leu Leu Glu Gln Glu Lys
                325                 330                 335

His Arg Pro His Glu Val Gly Ser Val Gln Trp Ala Gly Ser Thr Phe
            340                 345                 350

Gly Pro Met Gln Lys Ser Arg Leu Gly Glu His Glu Phe Glu Ala Leu
        355                 360                 365

Met Arg Met Leu Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Thr Tyr Arg
    370                 375                 380

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

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

Pro Ala Leu Arg Gln His Ala Gln Lys Gln Gln Lys Glu Lys Thr Arg
            420                 425                 430

Trp Leu Asn Thr Pro Asn Thr Tyr Leu Arg Val Asn Val Ala Asp Glu
        435                 440                 445

Val Gln Arg Ser Met Gly Ser Pro Arg Pro Lys Thr Thr Trp Met Lys
    450                 455                 460

Ala Asp Glu Val Glu Lys Ser Ser Ser Gly Met Pro Ile Arg Ile Glu
465                 470                 475                 480

Asn Pro Asn Gln Phe Val Pro Leu Tyr Thr Asp Pro Gln Glu Val Leu
```

485 490 495

Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Arg Gln Asp Val Lys Ser
500 505 510

Ala Gly Pro Gln Ser Gln Leu Leu Ala Ser Val Ile Ala Glu Lys Ser
515 520 525

Arg Ser Pro Ser Thr Glu Ser Gln Leu Met Ser Lys Gly Asp Glu Asp
530 535 540

Thr Lys Asp Asp Ser Glu Glu Thr Val Pro Asn Pro Phe Ser Gln Leu
545 550 555 560

Thr Asp Gln Glu Leu Glu Glu Tyr Lys Lys Glu Val Glu Arg Lys Lys
565 570 575

Leu Glu Leu Asp Glu Thr Gly Gln Glu Arg Glu Pro Gly Ser Gly Pro
580 585 590

Ala Val Cys Glu Phe Phe Ser Val Ala Leu His Ile Trp Ser Asn Ile
595 600 605

Leu Glu Arg Lys Lys Leu Pro Gln Lys Ser Leu Ala His Leu Gln Ser
610 615 620

Leu His Leu Leu Leu Gln Cys Arg Ala Gln Arg Arg Arg Gln Arg Gln
625 630 635 640

Arg Ala Leu

<210> 2625
<211> 726
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>

<221> source
<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="Uniprot ID: P35612; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384303"

<400> 2625

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Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1               5                  10                  15

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

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
        35                  40                  45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
    50                  55                  60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65                  70                  75                  80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
                85                  90                  95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
            100                 105                 110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
        115                 120                 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
    130                 135                 140

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145                 150                 155                 160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
                165                 170                 175
```

```
Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Val Asn Ile Leu Gly
            180                 185                 190

Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
        195                 200                 205

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
    210                 215                 220

Ile Ile His Leu His Thr Pro Ala Thr Ala Ala Val Ser Ala Met Lys
225                 230                 235                 240

Trp Gly Leu Leu Pro Val Ser His Asn Ala Leu Leu Val Gly Asp Met
                245                 250                 255

Ala Tyr Tyr Asp Phe Asn Gly Glu Met Glu Gln Glu Ala Asp Arg Ile
            260                 265                 270

Asn Leu Gln Lys Cys Leu Gly Pro Thr Cys Lys Ile Leu Val Leu Arg
        275                 280                 285

Asn His Gly Val Val Ala Leu Gly Asp Thr Val Glu Glu Ala Phe Tyr
    290                 295                 300

Lys Ile Phe His Leu Gln Ala Ala Cys Glu Ile Gln Val Ser Ala Leu
305                 310                 315                 320

Ser Ser Ala Gly Gly Val Glu Asn Leu Ile Leu Leu Glu Gln Glu Lys
                325                 330                 335

His Arg Pro His Glu Val Gly Ser Val Gln Trp Ala Gly Ser Thr Phe
            340                 345                 350

Gly Pro Met Gln Lys Ser Arg Leu Gly Glu His Glu Phe Glu Ala Leu
        355                 360                 365

Met Arg Met Leu Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Thr Tyr Arg
    370                 375                 380

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

Pro Ala Thr Val Thr Ala Phe Val Phe Glu Glu Asp Gly Ala Pro Val
```

405 410 415

Pro Ala Leu Arg Gln His Ala Gln Lys Gln Gln Lys Glu Lys Thr Arg
420 425 430

Trp Leu Asn Thr Pro Asn Thr Tyr Leu Arg Val Asn Val Ala Asp Glu
435 440 445

Val Gln Arg Ser Met Gly Ser Pro Arg Pro Lys Thr Thr Trp Met Lys
450 455 460

Ala Asp Glu Val Glu Lys Ser Ser Ser Gly Met Pro Ile Arg Ile Glu
465 470 475 480

Asn Pro Asn Gln Phe Val Pro Leu Tyr Thr Asp Pro Gln Glu Val Leu
485 490 495

Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Arg Gln Asp Val Lys Ser
500 505 510

Ala Gly Pro Gln Ser Gln Leu Leu Ala Ser Val Ile Ala Glu Lys Ser
515 520 525

Arg Ser Pro Ser Thr Glu Ser Gln Leu Met Ser Lys Gly Asp Glu Asp
530 535 540

Thr Lys Asp Asp Ser Glu Glu Thr Val Pro Asn Pro Phe Ser Gln Leu
545 550 555 560

Thr Asp Gln Glu Leu Glu Glu Tyr Lys Lys Glu Val Glu Arg Lys Lys
565 570 575

Leu Glu Leu Asp Gly Glu Lys Glu Thr Ala Pro Glu Glu Pro Gly Ser
580 585 590

Pro Ala Lys Ser Ala Pro Ala Ser Pro Val Gln Ser Pro Ala Lys Glu
595 600 605

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

Gly Thr Lys Lys Thr Glu Thr Ser Lys Ala Ala Thr Thr Glu Pro Glu
625 630 635 640

```
Thr Thr Gln Pro Glu Gly Val Val Val Asn Gly Arg Glu Glu Glu Gln
                645                 650                 655

Thr Ala Glu Glu Ile Leu Ser Lys Gly Leu Ser Gln Met Thr Thr Ser
            660                 665                 670

Ala Asp Thr Asp Val Asp Thr Ser Lys Asp Lys Thr Glu Ser Val Thr
        675                 680                 685

Ser Gly Pro Met Ser Pro Glu Gly Ser Pro Ser Lys Ser Pro Ser Lys
    690                 695                 700

Lys Lys Lys Lys Phe Arg Thr Pro Ser Phe Leu Lys Lys Ser Lys Lys
705                 710                 715                 720

Lys Glu Lys Val Glu Ser
                725
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<210> 2626
<211> 726
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
<221> source
<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="Uniprot ID: P35612; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384677"

<400> 2626

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Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1               5                  10                  15
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```
Gly Gln Pro Tyr Phe Asp Arg Phe Ser Glu Asp Asp Pro Glu Tyr Met
            20                  25                  30

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
        35                  40                  45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
    50                  55                  60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65                  70                  75                  80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
                85                  90                  95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
            100                 105                 110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
        115                 120                 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
    130                 135                 140

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145                 150                 155                 160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
                165                 170                 175

Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Val Asn Ile Leu Gly
            180                 185                 190

Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
        195                 200                 205

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
    210                 215                 220

Ile Ile His Leu His Thr Pro Ala Thr Ala Ala Val Ser Ala Met Lys
225                 230                 235                 240

Trp Gly Leu Leu Pro Val Ser His Asn Ala Leu Leu Val Gly Asp Met
```

245 250 255

Ala Tyr Tyr Asp Phe Asn Gly Glu Met Glu Gln Glu Ala Asp Arg Ile
260 265 270

Asn Leu Gln Lys Cys Leu Gly Pro Thr Cys Lys Ile Leu Val Leu Arg
275 280 285

Asn His Gly Val Val Ala Leu Gly Asp Thr Val Glu Glu Ala Phe Tyr
290 295 300

Lys Ile Phe His Leu Gln Ala Ala Cys Glu Ile Gln Val Ser Ala Leu
305 310 315 320

Ser Ser Ala Gly Gly Val Glu Asn Leu Ile Leu Leu Glu Gln Glu Lys
325 330 335

His Arg Pro His Glu Val Gly Ser Val Gln Trp Ala Gly Ser Thr Phe
340 345 350

Gly Pro Met Gln Lys Ser Arg Leu Gly Glu His Glu Phe Glu Ala Leu
355 360 365

Met Arg Met Leu Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Thr Tyr Arg
370 375 380

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

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

Pro Ala Leu Arg Gln His Ala Gln Lys Gln Gln Lys Glu Lys Thr Arg
420 425 430

Trp Leu Asn Thr Pro Asn Thr Tyr Leu Arg Val Asn Val Ala Asp Glu
435 440 445

Val Gln Arg Ser Met Gly Ser Pro Arg Pro Lys Thr Thr Trp Met Lys
450 455 460

Ala Asp Glu Val Glu Lys Ser Ser Ser Gly Met Pro Ile Arg Ile Glu
465 470 475 480

```
Asn Pro Asn Gln Phe Val Pro Leu Tyr Thr Asp Pro Gln Glu Val Leu
                485                 490                 495

Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Arg Gln Asp Val Lys Ser
            500                 505                 510

Ala Gly Pro Gln Ser Gln Leu Leu Ala Ser Val Ile Ala Glu Lys Ser
        515                 520                 525

Arg Ser Pro Ser Thr Glu Ser Gln Leu Met Ser Lys Gly Asp Glu Asp
    530                 535                 540

Thr Lys Asp Asp Ser Glu Glu Thr Val Pro Asn Pro Phe Ser Gln Leu
545                 550                 555                 560

Thr Asp Gln Glu Leu Glu Glu Tyr Lys Lys Glu Val Glu Arg Lys Lys
                565                 570                 575

Leu Glu Leu Asp Gly Glu Lys Glu Thr Ala Pro Glu Glu Pro Gly Ser
            580                 585                 590

Pro Ala Lys Ser Ala Pro Ala Ser Pro Val Gln Ser Pro Ala Lys Glu
        595                 600                 605

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

Gly Thr Lys Lys Thr Glu Thr Ser Lys Ala Ala Thr Thr Glu Pro Glu
625                 630                 635                 640

Thr Thr Gln Pro Glu Gly Val Val Val Asn Gly Arg Glu Glu Glu Gln
                645                 650                 655

Thr Ala Glu Glu Ile Leu Ser Lys Gly Leu Ser Gln Met Thr Thr Ser
            660                 665                 670

Ala Asp Thr Asp Val Asp Thr Ser Lys Asp Lys Thr Glu Ser Val Thr
        675                 680                 685

Ser Gly Pro Met Ser Pro Glu Gly Ser Pro Ser Lys Ser Pro Ser Lys
    690                 695                 700
```

```
Lys Lys Lys Lys Phe Arg Thr Pro Ser Phe Leu Lys Lys Ser Lys Lys
705                 710                 715                 720


Lys Glu Lys Val Glu Ser
                725


<210> 2627
<211> 559
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
<221> source
<223> /note="Gene Name:
      adducin 2 (beta); "

<220>
<221> source
<223> /note="Uniprot ID:  P35612; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388072"

<400> 2627
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1               5                   10                  15


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


Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
        35                  40                  45


Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
    50                  55                  60


Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65                  70                  75                  80


Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
```

```
                85                  90                  95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
            100                 105                 110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
        115                 120                 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
    130                 135                 140

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145                 150                 155                 160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
                165                 170                 175

Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Val Asn Ile Leu Gly
            180                 185                 190

Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
        195                 200                 205

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
    210                 215                 220

Ile Ile His Leu His Thr Pro Ala Thr Ala Ala Val Ser Ala Met Lys
225                 230                 235                 240

Trp Gly Leu Leu Pro Val Ser His Asn Ala Leu Leu Val Gly Asp Met
                245                 250                 255

Ala Tyr Tyr Asp Phe Asn Gly Glu Met Glu Gln Glu Ala Asp Arg Ile
            260                 265                 270

Asn Leu Gln Lys Cys Leu Gly Pro Thr Cys Lys Ile Leu Val Leu Arg
        275                 280                 285

Asn His Gly Val Val Ala Leu Gly Asp Thr Val Glu Glu Ala Phe Tyr
    290                 295                 300

Lys Ile Phe His Leu Gln Ala Ala Cys Glu Ile Gln Val Ser Ala Leu
305                 310                 315                 320
```

```
Ser Ser Ala Gly Gly Val Glu Asn Leu Ile Leu Leu Glu Gln Glu Lys
                325                 330                 335

His Arg Pro His Glu Val Gly Ser Val Gln Trp Ala Gly Ser Thr Phe
            340                 345                 350

Gly Pro Met Gln Lys Ser Arg Leu Gly Glu His Glu Phe Glu Ala Leu
        355                 360                 365

Met Arg Met Leu Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Thr Tyr Arg
    370                 375                 380

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

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

Pro Ala Leu Arg Gln His Ala Gln Lys Gln Gln Lys Glu Lys Thr Arg
            420                 425                 430

Trp Leu Asn Thr Pro Asn Thr Tyr Leu Arg Val Asn Val Ala Asp Glu
        435                 440                 445

Val Gln Arg Ser Met Gly Ser Pro Arg Pro Lys Thr Thr Trp Met Lys
    450                 455                 460

Ala Asp Glu Val Glu Lys Ser Ser Ser Gly Met Pro Ile Arg Ile Glu
465                 470                 475                 480

Asn Pro Asn Gln Phe Val Pro Leu Tyr Thr Asp Pro Gln Glu Val Leu
                485                 490                 495

Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Arg Gln Asp Val Lys Ser
            500                 505                 510

Ala Gly Pro Gln Ser Gln Leu Leu Ala Ser Val Ile Ala Glu Lys Ser
        515                 520                 525

Arg Ser Pro Val Glu Gln Arg Leu Pro Leu Thr Gly Gly Glu Thr Cys
    530                 535                 540
```

Leu Pro Ser Gly Ser Ser Val Pro Gly Ala Gly Leu Gln Asp Pro
545 550 555

<210> 2628
<211> 575
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
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<223> /note="Gene Name:
adducin 2 (beta); "

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<223> /note="Uniprot ID: P35612; "

<220>
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<400> 2628
Met Pro Arg Arg Arg Val Pro Gly Ala Asn Cys Lys Pro Thr Gly Lys
1 5 10 15

Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
20 25 30

Gly Gln Pro Tyr Phe Asp Arg Phe Ser Glu Asp Asp Pro Glu Tyr Met
35 40 45

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
50 55 60

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
65 70 75 80

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
85 90 95

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser

```
            100                 105                 110

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

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
    130                 135                 140

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
145                 150                 155                 160

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
                165                 170                 175

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
            180                 185                 190

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

Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
    210                 215                 220

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
225                 230                 235                 240

Ile Ile His Leu His Thr Pro Ala Thr Ala Ala Val Ser Ala Met Lys
                245                 250                 255

Trp Gly Leu Leu Pro Val Ser His Asn Ala Leu Leu Val Gly Asp Met
            260                 265                 270

Ala Tyr Tyr Asp Phe Asn Gly Glu Met Glu Gln Glu Ala Asp Arg Ile
        275                 280                 285

Asn Leu Gln Lys Cys Leu Gly Pro Thr Cys Lys Ile Leu Val Leu Arg
    290                 295                 300

Asn His Gly Val Val Ala Leu Gly Asp Thr Val Glu Glu Ala Phe Tyr
305                 310                 315                 320

Lys Ile Phe His Leu Gln Ala Ala Cys Glu Ile Gln Val Ser Ala Leu
                325                 330                 335
```

```
Ser Ser Ala Gly Gly Val Glu Asn Leu Ile Leu Leu Glu Gln Glu Lys
            340                 345                 350

His Arg Pro His Glu Val Gly Ser Val Gln Trp Ala Gly Ser Thr Phe
        355                 360                 365

Gly Pro Met Gln Lys Ser Arg Leu Gly Glu His Glu Phe Glu Ala Leu
    370                 375                 380

Met Arg Met Leu Asp Asn Leu Gly Tyr Arg Thr Gly Tyr Thr Tyr Arg
385                 390                 395                 400

His Pro Phe Val Gln Glu Lys Thr Lys His Lys Ser Glu Val Glu Ile
                405                 410                 415

Pro Ala Thr Val Thr Ala Phe Val Phe Glu Glu Asp Gly Ala Pro Val
            420                 425                 430

Pro Ala Leu Arg Gln His Ala Gln Lys Gln Gln Lys Glu Lys Thr Arg
        435                 440                 445

Trp Leu Asn Thr Pro Asn Thr Tyr Leu Arg Val Asn Val Ala Asp Glu
    450                 455                 460

Val Gln Arg Ser Met Gly Ser Pro Arg Pro Lys Thr Thr Trp Met Lys
465                 470                 475                 480

Ala Asp Glu Val Glu Lys Ser Ser Ser Gly Met Pro Ile Arg Ile Glu
                485                 490                 495

Asn Pro Asn Gln Phe Val Pro Leu Tyr Thr Asp Pro Gln Glu Val Leu
            500                 505                 510

Glu Met Arg Asn Lys Ile Arg Glu Gln Asn Arg Gln Asp Val Lys Ser
        515                 520                 525

Ala Gly Pro Gln Ser Gln Leu Leu Ala Ser Val Ile Ala Glu Lys Ser
    530                 535                 540

Arg Ser Pro Val Glu Gln Arg Leu Pro Leu Thr Gly Gly Glu Thr Cys
545                 550                 555                 560
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Leu Pro Ser Gly Ser Ser Val Pro Gly Ala Gly Leu Gln Asp Pro
565 570 575

<210> 2629
<211> 17
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
<221> source
<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403722"

<400> 2629
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1 5 10 15

Gly

<210> 2630
<211> 226
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
<221> source
<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412357"

<400> 2630
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1 5 10 15

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

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
35 40 45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
50 55 60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65 70 75 80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
85 90 95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
100 105 110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
115 120 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
130 135 140

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145 150 155 160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
165 170 175

Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Val Asn Ile Leu Gly
180 185 190

Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
195 200 205

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
210 215 220

Ile Ile
225

<210> 2631
<211> 142
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
<221> source
<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412681"

<400> 2631
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1 5 10 15

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

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
35 40 45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
50 55 60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65 70 75 80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
85 90 95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
100 105 110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys

115 120 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg
130 135 140

<210> 2632
<211> 332
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 617; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414546"

<400> 2632
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1 5 10 15

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

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
35 40 45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
50 55 60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65 70 75 80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
85 90 95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
100 105 110

```
Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
        115                 120                 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
    130                 135                 140

Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145                 150                 155                 160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
                165                 170                 175

Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Val Asn Ile Leu Gly
            180                 185                 190

Glu Val Val Glu Lys Gly Ser Ser Cys Phe Pro Val Asp Thr Thr Gly
        195                 200                 205

Phe Cys Leu His Ser Ala Ile Tyr Ala Ala Arg Pro Asp Val Arg Cys
    210                 215                 220

Ile Ile His Leu His Thr Pro Ala Thr Ala Ala Val Ser Ala Met Lys
225                 230                 235                 240

Trp Gly Leu Leu Pro Val Ser His Asn Ala Leu Leu Val Gly Asp Met
                245                 250                 255

Ala Tyr Tyr Asp Phe Asn Gly Glu Met Glu Gln Glu Ala Asp Arg Ile
            260                 265                 270

Asn Leu Gln Lys Cys Leu Gly Pro Thr Cys Lys Ser Thr Glu Ser Gln
        275                 280                 285

Leu Met Ser Lys Gly Asp Glu Asp Thr Lys Asp Asp Ser Glu Glu Thr
    290                 295                 300

Val Pro Asn Pro Phe Ser Gln Leu Thr Asp Gln Glu Leu Glu Glu Tyr
305                 310                 315                 320

Lys Lys Glu Val Glu Arg Lys Lys Leu Glu Leu Asp
                325                 330
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<210> 2633
<211> 279
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 617; "

<220>
<221> source
<223> /note="Gene Symbol: ADD2; "

<220>
<221> source
<223> /note="Gene Name:
adducin 2 (beta); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430243"

<400> 2633
Met Ser Glu Glu Thr Val Pro Glu Ala Ala Ser Pro Pro Pro Pro Gln
1 5 10 15

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

Arg Leu Arg Asn Arg Ala Ala Asp Leu Arg Gln Asp Phe Asn Leu Met
35 40 45

Glu Gln Lys Lys Arg Val Thr Met Ile Leu Gln Ser Pro Ser Phe Arg
50 55 60

Glu Glu Leu Glu Gly Leu Ile Gln Glu Gln Met Lys Lys Gly Asn Asn
65 70 75 80

Ser Ser Asn Ile Trp Ala Leu Arg Gln Ile Ala Asp Phe Met Ala Ser
85 90 95

Thr Ser His Ala Val Phe Pro Thr Ser Ser Met Asn Val Ser Met Met
100 105 110

Thr Pro Ile Asn Asp Leu His Thr Ala Asp Ser Leu Asn Leu Ala Lys
115 120 125

Gly Glu Arg Leu Met Arg Cys Lys Ile Ser Ser Val Tyr Arg Leu Leu
130 135 140

```
Asp Leu Tyr Gly Trp Ala Gln Leu Ser Asp Thr Tyr Val Thr Leu Arg
145                 150                 155                 160

Val Ser Lys Glu Gln Asp His Phe Leu Ile Ser Pro Lys Gly Val Ser
                165                 170                 175

Cys Ser Glu Val Thr Ala Ser Ser Leu Ile Lys Glu Val Leu Glu Met
            180                 185                 190

Arg Asn Lys Ile Arg Glu Gln Asn Arg Gln Asp Val Lys Ser Ala Gly
        195                 200                 205

Pro Gln Ser Gln Leu Leu Ala Ser Val Ile Ala Glu Lys Ser Arg Ser
    210                 215                 220

Pro Ser Thr Glu Ser Gln Leu Met Ser Lys Gly Asp Glu Asp Thr Lys
225                 230                 235                 240

Asp Asp Ser Glu Glu Thr Val Pro Asn Pro Phe Ser Gln Leu Thr Asp
                245                 250                 255

Gln Glu Leu Glu Glu Tyr Lys Lys Glu Val Glu Arg Lys Lys Leu Glu
            260                 265                 270

Leu Asp Glu Thr Gly Gln Glu
        275
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<210> 2634
<211> 674
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 618; "

<220>
<221> source
<223> /note="Gene Symbol: ADD3; "

<220>
<221> source
<223> /note="Gene Name:
adducin 3
(gamma); "

<220>
<221> source
<223> /note="Uniprot ID: Q9UEY8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000277900"

<400> 2634
Met Ser Ser Asp Ala Ser Gln Gly Val Ile Thr Thr Pro Pro Pro Pro
1   5   10   15

Ser Met Pro His Lys Glu Arg Tyr Phe Asp Arg Ile Asn Glu Asn Asp
            20   25   30

Pro Glu Tyr Ile Arg Glu Arg Asn Met Ser Pro Asp Leu Arg Gln Asp
        35   40   45

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

Pro Ala Phe Arg Glu Asp Leu Glu Cys Leu Ile Gln Glu Gln Met Lys
65   70   75   80

Lys Gly His Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85   90   95

Tyr Ile Met Ala Asn Ser Phe Ser Gly Phe Ser Ser Pro Pro Leu Ser
            100   105   110

Leu Gly Met Val Thr Pro Ile Asn Asp Leu Pro Gly Ala Asp Thr Ser
        115   120   125

Ser Tyr Val Lys Gly Glu Lys Leu Thr Arg Cys Lys Leu Ala Ser Leu
    130   135   140

Tyr Arg Leu Val Asp Leu Phe Gly Trp Ala His Leu Ala Asn Thr Tyr
145   150   155   160

Ile Ser Val Arg Ile Ser Lys Glu Gln Asp His Ile Ile Ile Ile Pro
                165   170   175

Arg Gly Leu Ser Phe Ser Glu Ala Thr Ala Ser Asn Leu Val Lys Val
            180   185   190

```
Asn Ile Ile Gly Glu Val Val Asp Gln Gly Ser Thr Asn Leu Lys Ile
        195                 200                 205

Asp His Thr Gly Phe Ser Pro His Ala Ala Ile Tyr Ser Thr Arg Pro
    210                 215                 220

Asp Val Lys Cys Val Ile His Ile His Thr Leu Ala Thr Ala Ala Val
225                 230                 235                 240

Ser Ser Met Lys Cys Gly Ile Leu Pro Ile Ser Gln Glu Ser Leu Leu
                245                 250                 255

Leu Gly Asp Val Ala Tyr Tyr Asp Tyr Gln Gly Ser Leu Glu Glu Gln
            260                 265                 270

Glu Glu Arg Ile Gln Leu Gln Lys Val Leu Gly Pro Ser Cys Lys Val
        275                 280                 285

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

Glu Ala Phe His Tyr Ile Phe Asn Val Gln Leu Ala Cys Glu Ile Gln
305                 310                 315                 320

Val Gln Ala Leu Ala Gly Ala Gly Gly Val Asp Asn Leu His Val Leu
                325                 330                 335

Asp Phe Gln Lys Tyr Lys Ala Phe Thr Tyr Thr Val Ala Ala Ser Gly
            340                 345                 350

Gly Gly Gly Val Asn Met Gly Ser His Gln Lys Trp Lys Val Gly Glu
        355                 360                 365

Ile Glu Phe Glu Gly Leu Met Arg Thr Leu Asp Asn Leu Gly Tyr Arg
    370                 375                 380

Thr Gly Tyr Ala Tyr Arg His Pro Leu Ile Arg Glu Lys Pro Arg His
385                 390                 395                 400

Lys Ser Asp Val Glu Ile Pro Ala Thr Val Thr Ala Phe Ser Phe Glu
                405                 410                 415

Asp Asp Thr Val Pro Leu Ser Pro Leu Lys Tyr Met Ala Gln Arg Gln
```

```
            420                 425                 430

Gln Arg Glu Lys Thr Arg Trp Leu Asn Ser Pro Asn Thr Tyr Met Lys
        435                 440                 445

Val Asn Val Pro Glu Glu Ser Arg Asn Gly Glu Thr Ser Pro Arg Thr
    450                 455                 460

Lys Ile Thr Trp Met Lys Ala Glu Asp Ser Ser Lys Val Ser Gly Gly
465                 470                 475                 480

Thr Pro Ile Lys Ile Glu Asp Pro Asn Gln Phe Val Pro Leu Asn Thr
                485                 490                 495

Asn Pro Asn Glu Val Leu Glu Lys Arg Asn Lys Ile Arg Glu Gln Asn
            500                 505                 510

Arg Tyr Asp Leu Lys Thr Ala Gly Pro Gln Ser Gln Leu Leu Ala Gly
        515                 520                 525

Ile Val Val Asp Lys Pro Pro Ser Thr Met Gln Phe Glu Asp Asp Asp
    530                 535                 540

His Gly Pro Pro Ala Pro Pro Asn Pro Phe Ser His Leu Thr Glu Gly
545                 550                 555                 560

Glu Leu Glu Glu Tyr Lys Arg Thr Ile Glu Arg Lys Gln Gln Gly Leu
                565                 570                 575

Glu Glu Asn His Glu Leu Phe Ser Lys Ser Phe Ile Ser Met Glu Val
            580                 585                 590

Pro Val Met Val Val Asn Gly Lys Asp Asp Met His Asp Val Glu Asp
        595                 600                 605

Glu Leu Ala Lys Arg Val Ser Arg Leu Ser Thr Ser Thr Thr Ile Glu
    610                 615                 620

Asn Ile Glu Ile Thr Ile Lys Ser Pro Glu Lys Ile Glu Glu Val Leu
625                 630                 635                 640

Ser Pro Glu Gly Ser Pro Ser Lys Ser Pro Ser Lys Lys Lys Lys Lys
                645                 650                 655
```

```
Phe Arg Thr Pro Ser Phe Leu Lys Lys Asn Lys Lys Lys Glu Lys Val
            660                 665                 670

Glu Ala
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<210> 2635
<211> 706
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 618; "

<220>
<221> source
<223> /note="Gene Symbol: ADD3; "

<220>
<221> source
<223> /note="Gene Name:
adducin 3
(gamma); "

<220>
<221> source
<223> /note="Uniprot ID: Q9UEY8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348381"

<400> 2635

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Met Ser Ser Asp Ala Ser Gln Gly Val Ile Thr Thr Pro Pro Pro Pro
1               5                  10                  15

Ser Met Pro His Lys Glu Arg Tyr Phe Asp Arg Ile Asn Glu Asn Asp
            20                  25                  30

Pro Glu Tyr Ile Arg Glu Arg Asn Met Ser Pro Asp Leu Arg Gln Asp
        35                  40                  45

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

Pro Ala Phe Arg Glu Asp Leu Glu Cys Leu Ile Gln Glu Gln Met Lys
65                  70                  75                  80
```

```
Lys Gly His Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85                  90                  95

Tyr Ile Met Ala Asn Ser Phe Ser Gly Phe Ser Ser Pro Pro Leu Ser
            100                 105                 110

Leu Gly Met Val Thr Pro Ile Asn Asp Leu Pro Gly Ala Asp Thr Ser
        115                 120                 125

Ser Tyr Val Lys Gly Glu Lys Leu Thr Arg Cys Lys Leu Ala Ser Leu
    130                 135                 140

Tyr Arg Leu Val Asp Leu Phe Gly Trp Ala His Leu Ala Asn Thr Tyr
145                 150                 155                 160

Ile Ser Val Arg Ile Ser Lys Glu Gln Asp His Ile Ile Ile Ile Pro
                165                 170                 175

Arg Gly Leu Ser Phe Ser Glu Ala Thr Ala Ser Asn Leu Val Lys Val
            180                 185                 190

Asn Ile Ile Gly Glu Val Val Asp Gln Gly Ser Thr Asn Leu Lys Ile
        195                 200                 205

Asp His Thr Gly Phe Ser Pro His Ala Ala Ile Tyr Ser Thr Arg Pro
    210                 215                 220

Asp Val Lys Cys Val Ile His Ile His Thr Leu Ala Thr Ala Ala Val
225                 230                 235                 240

Ser Ser Met Lys Cys Gly Ile Leu Pro Ile Ser Gln Glu Ser Leu Leu
                245                 250                 255

Leu Gly Asp Val Ala Tyr Tyr Asp Tyr Gln Gly Ser Leu Glu Glu Gln
            260                 265                 270

Glu Glu Arg Ile Gln Leu Gln Lys Val Leu Gly Pro Ser Cys Lys Val
        275                 280                 285

Leu Val Leu Arg Asn His Gly Val Val Ala Leu Gly Glu Thr Leu Glu
    290                 295                 300
```

```
Glu Ala Phe His Tyr Ile Phe Asn Val Gln Leu Ala Cys Glu Ile Gln
305                 310                 315                 320

Val Gln Ala Leu Ala Gly Ala Gly Gly Val Asp Asn Leu His Val Leu
                325                 330                 335

Asp Phe Gln Lys Tyr Lys Ala Phe Thr Tyr Thr Val Ala Ala Ser Gly
            340                 345                 350

Gly Gly Gly Val Asn Met Gly Ser His Gln Lys Trp Lys Val Gly Glu
        355                 360                 365

Ile Glu Phe Glu Gly Leu Met Arg Thr Leu Asp Asn Leu Gly Tyr Arg
    370                 375                 380

Thr Gly Tyr Ala Tyr Arg His Pro Leu Ile Arg Glu Lys Pro Arg His
385                 390                 395                 400

Lys Ser Asp Val Glu Ile Pro Ala Thr Val Thr Ala Phe Ser Phe Glu
                405                 410                 415

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

Gln Arg Glu Lys Thr Arg Trp Leu Asn Ser Pro Asn Thr Tyr Met Lys
        435                 440                 445

Val Asn Val Pro Glu Glu Ser Arg Asn Gly Glu Thr Ser Pro Arg Thr
    450                 455                 460

Lys Ile Thr Trp Met Lys Ala Glu Asp Ser Ser Lys Val Ser Gly Gly
465                 470                 475                 480

Thr Pro Ile Lys Ile Glu Asp Pro Asn Gln Phe Val Pro Leu Asn Thr
                485                 490                 495

Asn Pro Asn Glu Val Leu Glu Lys Arg Asn Lys Ile Arg Glu Gln Asn
            500                 505                 510

Arg Tyr Asp Leu Lys Thr Ala Gly Pro Gln Ser Gln Leu Leu Ala Gly
        515                 520                 525

Ile Val Val Asp Lys Pro Pro Ser Thr Met Gln Phe Glu Asp Asp Asp
```

```
    530                 535                 540

His Gly Pro Pro Ala Pro Pro Asn Pro Phe Ser His Leu Thr Glu Gly
545                 550                 555                 560

Glu Leu Glu Glu Tyr Lys Arg Thr Ile Glu Arg Lys Gln Gln Gly Leu
                565                 570                 575

Glu Asp Ala Glu Gln Glu Leu Leu Ser Asp Asp Ala Ser Ser Val Ser
            580                 585                 590

Gln Ile Gln Ser Gln Thr Gln Ser Pro Gln Asn Val Pro Glu Lys Leu
        595                 600                 605

Glu Glu Asn His Glu Leu Phe Ser Lys Ser Phe Ile Ser Met Glu Val
    610                 615                 620

Pro Val Met Val Val Asn Gly Lys Asp Asp Met His Asp Val Glu Asp
625                 630                 635                 640

Glu Leu Ala Lys Arg Val Ser Arg Leu Ser Thr Ser Thr Thr Ile Glu
                645                 650                 655

Asn Ile Glu Ile Thr Ile Lys Ser Pro Glu Lys Ile Glu Glu Val Leu
            660                 665                 670

Ser Pro Glu Gly Ser Pro Ser Lys Ser Pro Ser Lys Lys Lys Lys Lys
        675                 680                 685

Phe Arg Thr Pro Ser Phe Leu Lys Lys Asn Lys Lys Lys Glu Lys Val
    690                 695                 700

Glu Ala
705


<210> 2636
<211> 674
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 618; "

<220>
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<221> source
<223> /note="Gene Symbol: ADD3; "

<220>
<221> source
<223> /note="Gene Name:
adducin 3
(gamma); "

<220>
<221> source
<223> /note="Uniprot ID: Q9UEY8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000353286"

<400> 2636

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Met Ser Ser Asp Ala Ser Gln Gly Val Ile Thr Thr Pro Pro Pro Pro
1               5                  10                  15

Ser Met Pro His Lys Glu Arg Tyr Phe Asp Arg Ile Asn Glu Asn Asp
            20                  25                  30

Pro Glu Tyr Ile Arg Glu Arg Asn Met Ser Pro Asp Leu Arg Gln Asp
        35                  40                  45

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

Pro Ala Phe Arg Glu Asp Leu Glu Cys Leu Ile Gln Glu Gln Met Lys
65                  70                  75                  80

Lys Gly His Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85                  90                  95

Tyr Ile Met Ala Asn Ser Phe Ser Gly Phe Ser Ser Pro Pro Leu Ser
            100                 105                 110

Leu Gly Met Val Thr Pro Ile Asn Asp Leu Pro Gly Ala Asp Thr Ser
        115                 120                 125

Ser Tyr Val Lys Gly Glu Lys Leu Thr Arg Cys Lys Leu Ala Ser Leu
    130                 135                 140

Tyr Arg Leu Val Asp Leu Phe Gly Trp Ala His Leu Ala Asn Thr Tyr
145                 150                 155                 160
```

```
Ile Ser Val Arg Ile Ser Lys Glu Gln Asp His Ile Ile Ile Ile Pro
                165                 170                 175

Arg Gly Leu Ser Phe Ser Glu Ala Thr Ala Ser Asn Leu Val Lys Val
            180                 185                 190

Asn Ile Ile Gly Glu Val Val Asp Gln Gly Ser Thr Asn Leu Lys Ile
        195                 200                 205

Asp His Thr Gly Phe Ser Pro His Ala Ala Ile Tyr Ser Thr Arg Pro
    210                 215                 220

Asp Val Lys Cys Val Ile His Ile His Thr Leu Ala Thr Ala Ala Val
225                 230                 235                 240

Ser Ser Met Lys Cys Gly Ile Leu Pro Ile Ser Gln Glu Ser Leu Leu
                245                 250                 255

Leu Gly Asp Val Ala Tyr Tyr Asp Tyr Gln Gly Ser Leu Glu Glu Gln
            260                 265                 270

Glu Glu Arg Ile Gln Leu Gln Lys Val Leu Gly Pro Ser Cys Lys Val
        275                 280                 285

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

Glu Ala Phe His Tyr Ile Phe Asn Val Gln Leu Ala Cys Glu Ile Gln
305                 310                 315                 320

Val Gln Ala Leu Ala Gly Ala Gly Gly Val Asp Asn Leu His Val Leu
                325                 330                 335

Asp Phe Gln Lys Tyr Lys Ala Phe Thr Tyr Thr Val Ala Ala Ser Gly
            340                 345                 350

Gly Gly Gly Val Asn Met Gly Ser His Gln Lys Trp Lys Val Gly Glu
        355                 360                 365

Ile Glu Phe Glu Gly Leu Met Arg Thr Leu Asp Asn Leu Gly Tyr Arg
    370                 375                 380
```

```
Thr Gly Tyr Ala Tyr Arg His Pro Leu Ile Arg Glu Lys Pro Arg His
385                 390                 395                 400

Lys Ser Asp Val Glu Ile Pro Ala Thr Val Thr Ala Phe Ser Phe Glu
                405                 410                 415

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

Gln Arg Glu Lys Thr Arg Trp Leu Asn Ser Pro Asn Thr Tyr Met Lys
        435                 440                 445

Val Asn Val Pro Glu Glu Ser Arg Asn Gly Glu Thr Ser Pro Arg Thr
    450                 455                 460

Lys Ile Thr Trp Met Lys Ala Glu Asp Ser Ser Lys Val Ser Gly Gly
465                 470                 475                 480

Thr Pro Ile Lys Ile Glu Asp Pro Asn Gln Phe Val Pro Leu Asn Thr
                485                 490                 495

Asn Pro Asn Glu Val Leu Glu Lys Arg Asn Lys Ile Arg Glu Gln Asn
            500                 505                 510

Arg Tyr Asp Leu Lys Thr Ala Gly Pro Gln Ser Gln Leu Leu Ala Gly
        515                 520                 525

Ile Val Val Asp Lys Pro Pro Ser Thr Met Gln Phe Glu Asp Asp Asp
    530                 535                 540

His Gly Pro Pro Ala Pro Pro Asn Pro Phe Ser His Leu Thr Glu Gly
545                 550                 555                 560

Glu Leu Glu Glu Tyr Lys Arg Thr Ile Glu Arg Lys Gln Gln Gly Leu
                565                 570                 575

Glu Glu Asn His Glu Leu Phe Ser Lys Ser Phe Ile Ser Met Glu Val
            580                 585                 590

Pro Val Met Val Val Asn Gly Lys Asp Asp Met His Asp Val Glu Asp
        595                 600                 605

Glu Leu Ala Lys Arg Val Ser Arg Leu Ser Thr Ser Thr Thr Ile Glu
```

610 615 620

Asn Ile Glu Ile Thr Ile Lys Ser Pro Glu Lys Ile Glu Glu Val Leu
625 630 635 640

Ser Pro Glu Gly Ser Pro Ser Lys Ser Pro Ser Lys Lys Lys Lys Lys
645 650 655

Phe Arg Thr Pro Ser Phe Leu Lys Lys Asn Lys Lys Lys Glu Lys Val
660 665 670

Glu Ala

<210> 2637
<211> 672
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 618; "

<220>
<221> source
<223> /note="Gene Symbol: ADD3; "

<220>
<221> source
<223> /note="Gene Name:
adducin 3
(gamma); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480646"

<400> 2637
Met Ser Ser Asp Ala Ser Gln Gly Val Ile Thr Thr Pro Pro Pro Pro
1 5 10 15

Ser Met Pro His Lys Glu Arg Tyr Phe Asp Arg Ile Asn Glu Asn Asp
20 25 30

Pro Glu Tyr Ile Arg Glu Arg Asn Met Ser Pro Asp Leu Arg Gln Asp
35 40 45

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

```
Pro Ala Phe Arg Glu Asp Leu Glu Cys Leu Ile Gln Glu Gln Met Lys
65                  70                  75                  80

Lys Gly His Asn Pro Thr Gly Leu Leu Ala Leu Gln Gln Ile Ala Asp
                85                  90                  95

Tyr Ile Met Ala Asn Ser Phe Ser Gly Phe Ser Ser Pro Pro Leu Ser
            100                 105                 110

Leu Gly Met Val Thr Pro Ile Asn Asp Leu Pro Gly Ala Asp Thr Ser
        115                 120                 125

Ser Tyr Val Lys Gly Glu Lys Leu Thr Arg Cys Lys Leu Ala Ser Leu
    130                 135                 140

Tyr Arg Leu Val Asp Leu Phe Gly Trp Ala His Leu Ala Asn Thr Tyr
145                 150                 155                 160

Ile Ser Val Arg Ile Ser Lys Glu Gln Asp His Ile Ile Ile Ile Pro
                165                 170                 175

Arg Gly Leu Ser Phe Ser Glu Ala Thr Ala Ser Asn Leu Val Lys Val
            180                 185                 190

Asn Ile Ile Gly Glu Val Val Asp Gln Gly Ser Thr Asn Leu Lys Ile
        195                 200                 205

Asp His Thr Gly Phe Ser Pro His Ala Ala Ile Tyr Ser Thr Arg Pro
    210                 215                 220

Asp Val Lys Cys Val Ile His Ile His Thr Leu Ala Thr Ala Ala Val
225                 230                 235                 240

Ser Ser Met Lys Cys Gly Ile Leu Pro Ile Ser Gln Glu Ser Leu Leu
                245                 250                 255

Leu Gly Asp Val Ala Tyr Tyr Asp Tyr Gln Gly Ser Leu Glu Glu Gln
            260                 265                 270

Glu Glu Arg Ile Gln Leu Gln Lys Val Leu Gly Pro Ser Cys Lys Val
        275                 280                 285
```

```
Leu Val Leu Arg Asn His Gly Val Val Ala Leu Gly Glu Thr Leu Glu
    290                 295                 300

Glu Ala Phe His Tyr Ile Phe Asn Val Gln Leu Ala Cys Glu Ile Gln
305                 310                 315                 320

Val Gln Ala Leu Ala Gly Ala Gly Gly Val Asp Asn Leu His Val Leu
                325                 330                 335

Asp Phe Gln Lys Tyr Lys Ala Phe Thr Tyr Thr Val Ala Ala Ser Gly
            340                 345                 350

Gly Gly Gly Val Asn Met Gly Ser His Gln Lys Trp Lys Val Gly Glu
        355                 360                 365

Ile Glu Phe Glu Gly Leu Met Arg Thr Leu Asp Asn Leu Gly Tyr Arg
    370                 375                 380

Thr Gly Tyr Ala Tyr Arg His Pro Leu Ile Arg Glu Lys Pro Arg His
385                 390                 395                 400

Lys Ser Asp Val Glu Ile Pro Ala Thr Val Thr Ala Phe Ser Phe Glu
                405                 410                 415

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

Glu Lys Thr Arg Trp Leu Asn Ser Pro Asn Thr Tyr Met Lys Val Asn
        435                 440                 445

Val Pro Glu Glu Ser Arg Asn Gly Glu Thr Ser Pro Arg Thr Lys Ile
    450                 455                 460

Thr Trp Met Lys Ala Glu Asp Ser Ser Lys Val Ser Gly Gly Thr Pro
465                 470                 475                 480

Ile Lys Ile Glu Asp Pro Asn Gln Phe Val Pro Leu Asn Thr Asn Pro
                485                 490                 495

Asn Glu Val Leu Glu Lys Arg Asn Lys Ile Arg Glu Gln Asn Arg Tyr
            500                 505                 510
```

```
Asp Leu Lys Thr Ala Gly Pro Gln Ser Gln Leu Leu Ala Gly Ile Val
        515                 520                 525

Val Asp Lys Pro Pro Ser Thr Met Gln Phe Glu Asp Asp Asp His Gly
    530                 535                 540

Pro Pro Ala Pro Pro Asn Pro Phe Ser His Leu Thr Glu Gly Glu Leu
545                 550                 555                 560

Glu Glu Tyr Lys Arg Thr Ile Glu Arg Lys Gln Gln Gly Leu Glu Glu
                565                 570                 575

Asn His Glu Leu Phe Ser Lys Ser Phe Ile Ser Met Glu Val Pro Val
            580                 585                 590

Met Val Val Asn Gly Lys Asp Asp Met His Asp Val Glu Asp Glu Leu
        595                 600                 605

Ala Lys Arg Val Ser Arg Leu Ser Thr Ser Thr Thr Ile Glu Asn Ile
    610                 615                 620

Glu Ile Thr Ile Lys Ser Pro Glu Lys Ile Glu Glu Val Leu Ser Pro
625                 630                 635                 640

Glu Gly Ser Pro Ser Lys Ser Pro Ser Lys Lys Lys Lys Lys Phe Arg
                645                 650                 655

Thr Pro Ser Phe Leu Lys Lys Asn Lys Lys Lys Glu Lys Val Glu Ala
            660                 665                 670


<210> 2638
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 619; "

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

<220>
<221> source
<223> /note="Gene Name:
      adenine phosphoribosyltransferase; "
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<220>
<221> source
<223> /note="Uniprot ID: P07741; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367615"

<400> 2638
Met Ala Asp Ser Glu Leu Gln Leu Val Glu Gln Arg Ile Arg Ser Phe
1   5   10   15

Pro Asp Phe Pro Thr Pro Gly Val Val Phe Arg Asp Ile Ser Pro Val
            20   25   30

Leu Lys Asp Pro Ala Ser Phe Arg Ala Ala Ile Gly Leu Leu Ala Arg
        35   40   45

His Leu Lys Ala Thr His Gly Gly Arg Ile Asp Tyr Ile Ala Gly Leu
    50   55   60

Asp Ser Arg Gly Phe Leu Phe Gly Pro Ser Leu Ala Gln Glu Leu Gly
65   70   75   80

Leu Gly Cys Val Leu Ile Arg Lys Arg Gly Lys Leu Pro Gly Pro Thr
                85   90   95

Leu Trp Ala Ser Tyr Ser Leu Glu Tyr Gly Lys Ala Glu Leu Glu Ile
            100   105   110

Gln Lys Asp Ala Leu Glu Pro Gly Gln Arg Val Val Val Val Asp Asp
        115   120   125

Leu Leu Ala Thr Gly Gly Thr Met Asn Ala Ala Cys Glu Leu Leu Gly
    130   135   140

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

Ser Leu Lys Gly Arg Glu Lys Leu Ala Pro Val Pro Phe Phe Ser Leu
                165   170   175

Leu Gln Tyr Glu
            180

<210> 2639
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 619; "

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

<220>
<221> source
<223> /note="Gene Name:
adenine phosphoribosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: P07741; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397007"

<400> 2639
Met Ala Asp Ser Glu Leu Gln Leu Val Glu Gln Arg Ile Arg Ser Phe
1   5   10   15

Pro Asp Phe Pro Thr Pro Gly Val Val Phe Arg Asp Ile Ser Pro Val
            20   25   30

Leu Lys Asp Pro Ala Ser Phe Arg Ala Ala Ile Gly Leu Leu Ala Arg
        35   40   45

His Leu Lys Ala Thr His Gly Gly Arg Ile Asp Tyr Ile Ala Gly Leu
    50   55   60

Asp Ser Arg Gly Phe Leu Phe Gly Pro Ser Leu Ala Gln Glu Leu Gly
65   70   75   80

Leu Gly Cys Val Leu Ile Arg Lys Arg Gly Lys Leu Pro Gly Pro Thr
                85   90   95

Leu Trp Ala Ser Tyr Ser Leu Glu Tyr Gly Lys Ala Glu Leu Glu Ile
            100   105   110

Gln Lys Asp Ala Leu Glu Pro Gly Gln Arg Val Val Val Val Asp Asp

115 120 125

Leu Leu Ala Thr Gly Val
130

<210> 2640
<211> 162
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 619; "

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

<220>
<221> source
<223> /note="Gene Name:
adenine phosphoribosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455692"

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

<400> 2640
Xaa Ala Asp Ser Glu Leu Gln Leu Val Glu Gln Arg Ile Arg Ser Phe
1 5 10 15

Pro Asp Phe Pro Thr Pro Gly Val Val Phe Arg Asp Ile Ser Pro Val
20 25 30

Leu Lys Asp Pro Ala Ser Phe Arg Ala Ala Ile Gly Leu Leu Ala Arg
35 40 45

His Leu Lys Ala Thr His Gly Gly Arg Ile Asp Tyr Ile Ala Gly Leu
50 55 60

Asp Ser Arg Gly Phe Leu Phe Gly Pro Ser Leu Ala Gln Glu Leu Gly
65 70 75 80

Leu Gly Cys Val Leu Ile Arg Lys Arg Gly Lys Leu Pro Gly Pro Thr

```
                85                  90                  95

Leu Trp Ala Ser Tyr Ser Leu Glu Tyr Gly Lys Ala Glu Leu Glu Ile
            100                 105                 110

Gln Lys Asp Ala Leu Glu Pro Gly Gln Arg Val Val Val Val Asp Asp
        115                 120                 125

Leu Leu Ala Thr Gly Gly Ala Gly Leu Glu His Leu Leu Ser Ala Ala
    130                 135                 140

Gln Ala Asn Trp Gly Pro His Pro Pro Ile Pro Arg Asn His Glu Arg
145                 150                 155                 160

Cys Leu
```

<210> 2641
<211> 148
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 619; "

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

<220>
<221> source
<223> /note="Gene Name:
adenine phosphoribosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455749"

<400> 2641

```
Met Ala Asp Ser Glu Leu Gln Leu Val Glu Gln Arg Ile Arg Ser Phe
1               5                   10                  15

Pro Asp Phe Pro Thr Pro Gly Val Val Phe Arg Asp Ile Ser Pro Val
            20                  25                  30

Leu Lys Asp Pro Ala Ser Phe Arg Ala Ala Ile Gly Leu Leu Ala Arg
        35                  40                  45
```

```
His Leu Lys Ala Thr His Gly Gly Arg Ile Asp Tyr Ile Ala Gly Leu
    50                  55                  60

Asp Ser Arg Gly Phe Leu Phe Gly Pro Ser Leu Ala Gln Glu Leu Gly
65                  70                  75                  80

Leu Gly Cys Val Leu Ile Arg Lys Arg Gly Lys Leu Pro Gly Pro Thr
                85                  90                  95

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

Thr Glu Pro Asn Tyr Thr Gln Arg Glu Asn Ala Val Asn Ser Phe Pro
        115                 120                 125

Thr Arg Ala Val Ser Cys Pro Pro Val Pro Gln Gly Arg Glu Pro Gln
    130                 135                 140

Asp Asn Thr Arg
145
```

<210> 2642
<211> 153
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 619; "

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

<220>
<221> source
<223> /note="Gene Name:
adenine phosphoribosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456012"

<400> 2642

```
Met Ala Asp Ser Glu Leu Gln Leu Val Glu Gln Arg Ile Arg Ser Phe
1               5                   10                  15

Pro Asp Phe Pro Thr Pro Gly Val Val Phe Arg Asp Ile Ser Pro Val
```

```
            20                  25                  30

Leu Lys Asp Pro Ala Ser Phe Arg Ala Ala Ile Gly Leu Leu Ala Arg
        35                  40                  45

His Leu Lys Ala Thr His Gly Gly Arg Ile Asp Tyr Ile Ala Gly Glu
    50                  55                  60

Cys Pro Val Ala Ala Ser Arg Ala Leu Pro Pro Leu Arg Ala Pro Arg
65                  70                  75                  80

Ala Glu Leu Glu Ile Gln Lys Asp Ala Leu Glu Pro Gly Gln Arg Val
                85                  90                  95

Val Val Val Asp Asp Leu Leu Ala Thr Gly Gly Thr Met Asn Ala Ala
            100                 105                 110

Cys Glu Leu Leu Gly Arg Leu Gln Ala Glu Val Leu Glu Cys Val Ser
        115                 120                 125

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

Pro Phe Phe Ser Leu Leu Gln Tyr Glu
145                 150


<210> 2643
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 619; "

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

<220>
<221> source
<223> /note="Gene Name:
      adenine phosphoribosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456905"
```

<400> 2643
Met Ala Asp Ser Glu Leu Gln Leu Val Glu Gln Arg Ile Arg Ser Phe
1   5   10   15

Pro Asp Phe Pro Thr Pro Gly Val Val Phe Arg Asp Ile Ser Pro Val
            20   25   30

Leu Lys Asp Pro Ala Ser Phe Arg Ala Ala Ile Gly Leu Leu Ala Arg
        35   40   45

His Leu Lys Ala Thr His Gly Gly Arg Ile Asp Tyr Ile Ala Gly
    50   55   60

<210> 2644
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 619; "

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

<220>
<221> source
<223> /note="Gene Name:
      adenine phosphoribosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457964"

<400> 2644
Met Ala Asp Ser Glu Leu Gln Leu Val Glu Gln Arg Ile Arg Ser Phe
1   5   10   15

Pro Asp Phe Pro Thr Pro Gly Val Val Phe Arg Asp Ile Ser Pro Val
            20   25   30

Leu Lys Asp Pro Ala Ser Phe Arg Ala Ala Ile Gly Leu Leu Ala Arg
        35   40   45

His Leu Lys Ala Thr His Gly Gly Arg Ile Asp Tyr Ile Ala Gly
    50   55   60

<210> 2645

<211> 2303
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 620; "

<220>
<221> source
<223> /note="Gene Symbol: APC2; "

<220>
<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli 2; "

<220>
<221> source
<223> /note="Uniprot ID: O95996; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000233607"

<400> 2645

```
Met Ala Ser Ser Val Ala Pro Tyr Glu Gln Leu Val Arg Gln Val Glu
1               5                  10                  15

Ala Leu Lys Ala Glu Asn Ser His Leu Arg Gln Glu Leu Arg Asp Asn
            20                  25                  30

Ser Ser His Leu Ser Lys Leu Glu Thr Glu Thr Ser Gly Met Lys Glu
        35                  40                  45

Val Leu Lys His Leu Gln Gly Lys Leu Glu Gln Glu Ala Arg Val Leu
    50                  55                  60

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

Met Asp Ile Thr Ser Leu Tyr Asn Leu Lys Phe Gln Pro Pro Thr Leu
                85                  90                  95

Gly Pro Glu Pro Ala Ala Arg Thr Pro Glu Gly Ser Pro Val His Gly
            100                 105                 110

Ser Gly Pro Ser Lys Asp Ser Phe Gly Glu Leu Ser Arg Ala Thr Ile
        115                 120                 125
```

```
Arg Leu Leu Glu Glu Leu Asp Arg Glu Arg Cys Phe Leu Leu Asn Glu
    130                 135                 140

Ile Glu Lys Glu Glu Lys Glu Lys Leu Trp Tyr Tyr Ser Gln Leu Gln
145                 150                 155                 160

Gly Leu Ser Lys Arg Leu Asp Glu Leu Pro His Val Glu Thr Gln Phe
                165                 170                 175

Ser Met Gln Met Asp Leu Ile Arg Gln Gln Leu Glu Phe Glu Ala Gln
            180                 185                 190

His Ile Arg Ser Leu Met Glu Glu Arg Phe Gly Thr Ser Asp Glu Met
        195                 200                 205

Val Gln Arg Ala Gln Ile Arg Ala Ser Arg Leu Glu Gln Ile Asp Lys
    210                 215                 220

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

Leu Leu Ala Val Lys Ser Val Pro Val Asp Glu Asp Pro Glu Thr Glu
                245                 250                 255

Val Pro Thr His Pro Glu Asp Gly Thr Pro Gln Pro Gly Asn Ser Lys
            260                 265                 270

Val Glu Val Val Phe Trp Leu Leu Ser Met Leu Ala Thr Arg Asp Gln
        275                 280                 285

Glu Asp Thr Ala Arg Thr Leu Leu Ala Met Ser Ser Ser Pro Glu Ser
    290                 295                 300

Cys Val Ala Met Arg Arg Ser Gly Cys Leu Pro Leu Leu Leu Gln Ile
305                 310                 315                 320

Leu His Gly Thr Glu Ala Ala Ala Gly Gly Arg Ala Gly Ala Pro Gly
                325                 330                 335

Ala Pro Gly Ala Lys Asp Ala Arg Met Arg Ala Asn Ala Ala Leu His
            340                 345                 350
```

```
Asn Ile Val Phe Ser Gln Pro Asp Gln Gly Leu Ala Arg Lys Glu Met
        355                 360                 365

Arg Val Leu His Val Leu Glu Gln Ile Arg Ala Tyr Cys Glu Thr Cys
    370                 375                 380

Trp Asp Trp Leu Gln Ala Arg Asp Gly Gly Pro Glu Gly Gly Gly Ala
385                 390                 395                 400

Gly Ser Ala Pro Ile Pro Ile Glu Pro Gln Ile Cys Gln Ala Thr Cys
                405                 410                 415

Ala Val Met Lys Leu Ser Phe Asp Glu Glu Tyr Arg Arg Ala Met Asn
            420                 425                 430

Glu Leu Gly Gly Leu Gln Ala Val Ala Glu Leu Leu Gln Val Asp Tyr
        435                 440                 445

Glu Met His Lys Met Thr Arg Asp Pro Leu Asn Leu Ala Leu Arg Arg
    450                 455                 460

Tyr Ala Gly Met Thr Leu Thr Asn Leu Thr Phe Gly Asp Val Ala Asn
465                 470                 475                 480

Lys Ala Thr Leu Cys Ala Arg Arg Gly Cys Met Glu Ala Ile Val Ala
                485                 490                 495

Gln Leu Ala Ser Asp Ser Glu Glu Leu His Gln Val Val Ser Ser Ile
            500                 505                 510

Leu Arg Asn Leu Ser Trp Arg Ala Asp Ile Asn Ser Lys Lys Val Leu
        515                 520                 525

Arg Glu Ala Gly Ser Val Thr Ala Leu Val Gln Cys Val Leu Arg Ala
    530                 535                 540

Thr Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu Trp Asn Leu
545                 550                 555                 560

Ser Ala His Ser Thr Glu Asn Lys Ala Ala Ile Cys Gln Val Asp Gly
                565                 570                 575

Ala Leu Gly Phe Leu Val Ser Thr Leu Thr Tyr Lys Cys Gln Ser Asn
```

580 585 590

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

Ser Leu Val Ala Thr Arg Glu Asp Tyr Arg Gln Val Leu Arg Asp His
610 615 620

Asn Cys Leu Gln Thr Leu Leu Gln His Leu Thr Ser His Ser Leu Thr
625 630 635 640

Ile Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser Ala Arg Ser
645 650 655

Ala Arg Asp Gln Glu Leu Leu Trp Asp Leu Gly Ala Val Gly Met Leu
660 665 670

Arg Asn Leu Val His Ser Lys His Lys Met Ile Ala Met Gly Ser Ala
675 680 685

Ala Ala Leu Arg Asn Leu Leu Ala His Arg Pro Ala Lys His Gln Ala
690 695 700

Ala Ala Thr Ala Val Ser Pro Gly Ser Cys Val Pro Ser Leu Tyr Val
705 710 715 720

Arg Lys Gln Arg Ala Leu Glu Ala Glu Leu Asp Ala Arg His Leu Ala
725 730 735

Gln Ala Leu Glu His Leu Glu Lys Gln Gly Pro Pro Ala Ala Glu Ala
740 745 750

Ala Thr Lys Lys Pro Leu Pro Pro Leu Arg His Leu Asp Gly Leu Ala
755 760 765

Gln Asp Tyr Ala Ser Asp Ser Gly Cys Phe Asp Asp Asp Asp Ala Pro
770 775 780

Ser Ser Leu Ala Ala Ala Ala Ala Thr Gly Glu Pro Ala Ser Pro Ala
785 790 795 800

Ala Leu Ser Leu Phe Leu Gly Ser Pro Phe Leu Gln Gly Gln Ala Leu
805 810 815

```
Ala Arg Thr Pro Pro Thr Arg Arg Gly Gly Lys Glu Ala Glu Lys Asp
            820                 825                 830

Thr Ser Gly Glu Ala Ala Val Ala Ala Lys Ala Lys Ala Lys Leu Ala
        835                 840                 845

Leu Ala Val Ala Arg Ile Asp Gln Leu Val Glu Asp Ile Ser Ala Leu
    850                 855                 860

His Thr Ser Ser Asp Asp Ser Phe Ser Leu Ser Ser Gly Asp Pro Gly
865                 870                 875                 880

Gln Glu Ala Pro Arg Glu Gly Arg Ala Gln Ser Cys Ser Pro Cys Arg
                885                 890                 895

Gly Pro Glu Gly Gly Arg Arg Glu Ala Gly Ser Arg Ala His Pro Leu
            900                 905                 910

Leu Arg Leu Lys Ala Ala His Ala Ser Leu Ser Asn Asp Ser Leu Asn
        915                 920                 925

Ser Gly Ser Ala Ser Asp Gly Tyr Cys Pro Arg Glu His Met Leu Pro
    930                 935                 940

Cys Pro Leu Ala Ala Leu Ala Ser Arg Arg Glu Asp Pro Arg Cys Gly
945                 950                 955                 960

Gln Pro Arg Pro Ser Arg Leu Asp Leu Asp Leu Pro Gly Cys Gln Ala
                965                 970                 975

Glu Pro Pro Ala Arg Glu Ala Thr Ser Ala Asp Ala Arg Val Arg Thr
            980                 985                 990

Ile Lys Leu Ser Pro Thr Tyr Gln  His Val Pro Leu Leu  Glu Gly
Ala
        995                 1000                1005

Ser Arg  Ala Gly Ala Glu Pro  Leu Ala Gly Pro Gly  Ile Ser Pro
    1010                1015                1020

Gly Ala  Arg Lys Gln Ala Trp  Leu Pro Ala Asp His  Leu Ser Lys
    1025                1030                1035
```

```
Val Pro  Glu Lys Leu Ala Ala  Ala Pro Leu Ser Val  Ala Ser Lys
    1040                1045                1050

Ala Leu  Gln Lys Leu Ala Ala  Gln Glu Gly Pro Leu  Ser Leu Ser
    1055                1060                1065

Arg Cys  Ser Ser Leu Ser Ser  Leu Ser Ser Ala Gly  Arg Pro Gly
    1070                1075                1080

Pro Ser  Glu Gly Gly Asp Leu  Asp Asp Ser Asp Ser  Ser Leu Glu
    1085                1090                1095

Gly Leu  Glu Glu Ala Gly Pro  Ser Glu Ala Glu Leu  Asp Ser Thr
    1100                1105                1110

Trp Arg  Ala Pro Gly Ala Thr  Ser Leu Pro Val Ala  Ile Pro Ala
    1115                1120                1125

Pro Arg  Arg Asn Arg Gly Arg  Gly Leu Gly Val Glu  Asp Ala Thr
    1130                1135                1140

Pro Ser  Ser Ser Ser Glu Asn  Tyr Val Gln Glu Thr  Pro Leu Val
    1145                1150                1155

Leu Ser  Arg Cys Ser Ser Val  Ser Ser Leu Gly Ser  Phe Glu Ser
    1160                1165                1170

Pro Ser  Ile Ala Ser Ser Ile  Pro Ser Glu Pro Cys  Ser Gly Gln
    1175                1180                1185

Gly Ser  Gly Thr Ile Ser Pro  Ser Glu Leu Pro Asp  Ser Pro Gly
    1190                1195                1200

Gln Thr  Met Pro Pro Ser Arg  Ser Lys Thr Pro Pro  Leu Ala Pro
    1205                1210                1215

Ala Pro  Gln Gly Pro Pro Glu  Ala Thr Gln Phe Ser  Leu Gln Trp
    1220                1225                1230

Glu Ser  Tyr Val Lys Arg Phe  Leu Asp Ile Ala Asp  Cys Arg Glu
    1235                1240                1245
```

```
Arg Cys  Arg Leu Pro Ser Glu  Leu Asp Ala Gly Ser  Val Arg Phe
    1250                1255                1260

Thr Val  Glu Lys Pro Asp Glu  Asn Phe Ser Cys Ala  Ser Ser Leu
    1265                1270                1275

Ser Ala  Leu Ala Leu His Glu  His Tyr Val Gln Gln  Asp Val Glu
    1280                1285                1290

Leu Arg  Leu Leu Pro Ser Ala  Cys Pro Glu Arg Gly  Gly Gly Ala
    1295                1300                1305

Gly Gly  Ala Gly Leu His Phe  Ala Gly His Arg Arg  Arg Glu Glu
    1310                1315                1320

Gly Pro  Ala Pro Thr Gly Ser  Arg Pro Arg Gly Ala  Ala Asp Gln
    1325                1330                1335

Glu Leu  Glu Leu Leu Arg Glu  Cys Leu Gly Ala Ala  Val Pro Ala
    1340                1345                1350

Arg Leu  Arg Lys Val Ala Ser  Ala Leu Val Pro Gly  Arg Arg Ala
    1355                1360                1365

Leu Pro  Val Pro Val Tyr Met  Leu Val Pro Ala Pro  Ala Pro Ala
    1370                1375                1380

Gln Glu  Asp Asp Ser Cys Thr  Asp Ser Ala Glu Gly  Thr Pro Val
    1385                1390                1395

Asn Phe  Ser Ser Ala Ala Ser  Leu Ser Asp Glu Thr  Leu Gln Gly
    1400                1405                1410

Pro Pro  Arg Asp Gln Pro Gly  Gly Pro Ala Gly Arg  Gln Arg Pro
    1415                1420                1425

Thr Gly  Arg Pro Thr Ser Ala  Arg Gln Ala Met Gly  His Arg His
    1430                1435                1440

Lys Ala  Gly Gly Ala Gly Arg  Ser Ala Glu Gln Ser  Arg Gly Ala
    1445                1450                1455
```

```
Gly Lys  Asn Arg Ala Gly Leu  Glu Leu Pro Leu Gly  Arg Pro Pro
    1460                1465                1470

Ser Ala  Pro Ala Asp Lys Asp  Gly Ser Lys Pro Gly  Arg Thr Arg
    1475                1480                1485

Gly Asp  Gly Ala Leu Gln Ser  Leu Cys Leu Thr Thr  Pro Thr Glu
    1490                1495                1500

Glu Ala  Val Tyr Cys Phe Tyr  Gly Asn Asp Ser Asp  Glu Glu Pro
    1505                1510                1515

Pro Ala  Ala Ala Pro Thr Pro  Thr His Arg Arg Thr  Ser Ala Ile
    1520                1525                1530

Pro Arg  Ala Phe Thr Arg Glu  Arg Pro Gln Gly Arg  Lys Glu Ala
    1535                1540                1545

Pro Ala  Pro Ser Lys Ala Ala  Pro Ala Ala Pro Pro  Pro Ala Arg
    1550                1555                1560

Thr Gln  Pro Ser Leu Ile Ala  Asp Glu Thr Pro Pro  Cys Tyr Ser
    1565                1570                1575

Leu Ser  Ser Ser Ala Ser Ser  Leu Ser Glu Pro Glu  Pro Ser Glu
    1580                1585                1590

Pro Pro  Ala Val His Pro Arg  Gly Arg Glu Pro Ala  Val Thr Lys
    1595                1600                1605

Asp Pro  Gly Pro Gly Gly Gly  Arg Asp Ser Ser Pro  Ser Pro Arg
    1610                1615                1620

Ala Ala  Glu Glu Leu Leu Gln  Arg Cys Ile Ser Ser  Ala Leu Pro
    1625                1630                1635

Arg Arg  Arg Pro Pro Val Ser  Gly Leu Arg Arg Arg  Lys Pro Arg
    1640                1645                1650

Ala Thr  Arg Leu Asp Glu Arg  Pro Ala Glu Gly Ser  Arg Glu Arg
    1655                1660                1665

Gly Glu  Glu Ala Ala Gly Ser  Asp Arg Ala Ser Asp  Leu Asp Ser
```

1670 1675 1680

Val Glu Trp Arg Ala Ile Gln Glu Gly Ala Asn Ser Ile Val Thr
1685 1690 1695

Trp Leu His Gln Ala Ala Ala Ala Thr Arg Glu Ala Ser Ser Glu
1700 1705 1710

Ser Asp Ser Ile Leu Ser Phe Val Ser Gly Leu Ser Val Gly Ser
1715 1720 1725

Thr Leu Gln Pro Pro Lys His Arg Lys Gly Arg Gln Ala Glu Gly
1730 1735 1740

Glu Met Gly Ser Ala Arg Arg Pro Glu Lys Arg Gly Ala Ala Ser
1745 1750 1755

Val Lys Thr Ser Gly Ser Pro Arg Ser Pro Ala Gly Pro Glu Lys
1760 1765 1770

Pro Arg Gly Thr Gln Lys Thr Thr Pro Gly Val Pro Ala Val Leu
1775 1780 1785

Arg Gly Arg Thr Val Ile Tyr Val Pro Ser Pro Ala Pro Arg Ala
1790 1795 1800

Gln Pro Lys Gly Thr Pro Gly Pro Arg Ala Thr Pro Arg Lys Val
1805 1810 1815

Ala Pro Pro Cys Leu Ala Gln Pro Ala Ala Pro Ala Lys Val Pro
1820 1825 1830

Ser Pro Gly Gln Gln Arg Ser Arg Ser Leu His Arg Pro Ala Lys
1835 1840 1845

Thr Ser Glu Leu Ala Thr Leu Ser Gln Pro Pro Arg Ser Ala Thr
1850 1855 1860

Pro Pro Ala Arg Leu Ala Lys Thr Pro Ser Ser Ser Ser Ser Gln
1865 1870 1875

Thr Ser Pro Ala Ser Gln Pro Leu Pro Arg Lys Arg Pro Pro Val
1880 1885 1890

```
Thr Gln  Ala Ala Gly Ala Leu  Pro Gly Pro Gly Ala  Ser Pro Val
    1895                1900                1905

Pro Lys  Thr Pro Ala Arg Thr  Leu Leu Ala Lys Gln  His Lys Thr
    1910                1915                1920

Gln Arg  Ser Pro Val Arg Ile  Pro Phe Met Gln Arg  Pro Ala Arg
    1925                1930                1935

Arg Gly  Pro Pro Pro Leu Ala  Arg Ala Val Pro Glu  Pro Gly Pro
    1940                1945                1950

Arg Gly  Arg Ala Gly Thr Glu  Ala Gly Pro Gly Ala  Arg Gly Gly
    1955                1960                1965

Arg Leu  Gly Leu Val Arg Val  Ala Ser Ala Leu Ser  Ser Gly Ser
    1970                1975                1980

Glu Ser  Ser Asp Arg Ser Gly  Phe Arg Arg Gln Leu  Thr Phe Ile
    1985                1990                1995

Lys Glu  Ser Pro Gly Leu Arg  Arg Arg Arg Ser Glu  Leu Ser Ser
    2000                2005                2010

Ala Glu  Ser Ala Ala Ser Ala  Pro Gln Gly Ala Ser  Pro Arg Arg
    2015                2020                2025

Gly Arg  Pro Ala Leu Pro Ala  Val Phe Leu Cys Ser  Ser Arg Cys
    2030                2035                2040

Glu Glu  Leu Arg Ala Ala Pro  Arg Gln Gly Pro Ala  Pro Ala Arg
    2045                2050                2055

Gln Arg  Pro Pro Ala Ala Arg  Pro Ser Pro Gly Glu  Arg Pro Ala
    2060                2065                2070

Arg Arg  Thr Thr Ser Glu Ser  Pro Ser Arg Leu Pro  Val Arg Ala
    2075                2080                2085

Pro Ala  Ala Arg Pro Glu Thr  Val Lys Arg Tyr Ala  Ser Leu Pro
    2090                2095                2100
```

```
His Ile  Ser Val Ala Arg Arg  Pro Asp Gly Ala Val  Pro Ala Ala
    2105                2110                2115

Pro Ala  Ser Ala Asp Ala Ala  Arg Arg Ser Ser Asp  Gly Glu Pro
    2120                2125                2130

Arg Pro  Leu Pro Arg Val Ala  Ala Pro Gly Thr Thr  Trp Arg Arg
    2135                2140                2145

Ile Arg  Asp Glu Asp Val Pro  His Ile Leu Arg Ser  Thr Leu Pro
    2150                2155                2160

Ala Thr  Ala Leu Pro Leu Arg  Gly Ser Thr Pro Glu  Asp Ala Pro
    2165                2170                2175

Ala Gly  Pro Pro Pro Arg Lys  Thr Ser Asp Ala Val  Val Gln Thr
    2180                2185                2190

Glu Glu  Val Ala Ala Pro Lys  Thr Asn Ser Ser Thr  Ser Pro Ser
    2195                2200                2205

Leu Glu  Thr Arg Glu Pro Pro  Gly Ala Pro Ala Gly  Gly Gln Leu
    2210                2215                2220

Ser Leu  Leu Gly Ser Asp Val  Asp Gly Pro Ser Leu  Ala Lys Ala
    2225                2230                2235

Pro Ile  Ser Ala Pro Phe Val  His Glu Gly Leu Gly  Val Ala Val
    2240                2245                2250

Gly Gly  Phe Pro Ala Ser Arg  His Gly Ser Pro Ser  Arg Ser Ala
    2255                2260                2265

Arg Val  Pro Pro Phe Asn Tyr  Val Pro Ser Pro Met  Val Val Ala
    2270                2275                2280

Ala Thr  Thr Asp Ser Ala Ala  Glu Lys Ala Pro Ala  Thr Ala Ser
    2285                2290                2295

Ala Thr  Leu Leu Glu
    2300
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Ala Leu Lys Ala Glu Asn Ser His Leu Arg Gln Glu Leu Arg Asp Asn
20 25 30

Ser Ser His Leu Ser Lys Leu Glu Thr Glu Thr Ser Gly Met Lys Glu
35 40 45

Val Leu Lys His Leu Gln Gly Lys Leu Glu Gln Glu Ala Arg Val Leu
50 55 60

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

Met Asp Ile Thr Ser Leu Tyr Asn Leu Lys Phe Gln Pro Pro Thr Leu
85 90 95

Gly Pro Glu Pro Ala Ala Arg Thr Pro Glu Gly Ser Pro Val His Gly
100 105 110

Ser Gly Pro Ser Lys Asp Ser Phe Gly Glu Leu Ser Arg Ala Thr Ile
115 120 125

Arg Leu Leu Glu Glu Leu Asp Arg Glu Arg Cys Phe Leu Leu Asn Glu
130 135 140

```
Ile Glu Lys Glu Glu Lys Glu Lys Leu Trp Tyr Tyr Ser Gln Leu Gln
145                 150                 155                 160

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

Met Gln Met Asp Leu Ile Arg Gln Gln Leu Glu Phe Glu Ala Gln His
            180                 185                 190

Ile Arg Ser Leu Met Glu Glu Arg Phe Gly Thr Ser Asp Glu Met Val
        195                 200                 205

Gln Arg Ala Gln Ile Arg Ala Ser Arg Leu Glu Gln Ile Asp Lys Glu
    210                 215                 220

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

Leu Ala Val Lys Ser Val Pro Val Asp Glu Asp Pro Glu Thr Glu Val
                245                 250                 255

Pro Thr His Pro Glu Asp Gly Thr Pro Gln Pro Gly Asn Ser Lys Val
            260                 265                 270

Glu Val Val Phe Trp Leu Leu Ser Met Leu Ala Thr Arg Asp Gln Glu
        275                 280                 285

Asp Thr Ala Arg Thr Leu Leu Ala Met Ser Ser Ser Pro Glu Ser Cys
    290                 295                 300

Val Ala Met Arg Arg Ser Gly Cys Leu Pro Leu Leu Leu Gln Ile Leu
305                 310                 315                 320

His Gly Thr Glu Ala Ala Ala Gly Gly Arg Ala Gly Ala Pro Gly Ala
                325                 330                 335

Pro Gly Ala Lys Asp Ala Arg Met Arg Ala Asn Ala Ala Leu His Asn
            340                 345                 350

Ile Val Phe Ser Gln Pro Asp Gln Gly Leu Ala Arg Lys Glu Met Arg
        355                 360                 365
```

```
Val Leu His Val Leu Glu Gln Ile Arg Ala Tyr Cys Glu Thr Cys Trp
    370                 375                 380

Asp Trp Leu Gln Ala Arg Asp Gly Gly Pro Glu Gly Gly Gly Ala Gly
385                 390                 395                 400

Ser Ala Pro Ile Pro Ile Glu Pro Gln Ile Cys Gln Ala Thr Cys Ala
                405                 410                 415

Val Met Lys Leu Ser Phe Asp Glu Glu Tyr Arg Arg Ala Met Asn Glu
            420                 425                 430

Leu Gly Gly Leu Gln Ala Val Ala Glu Leu Leu Gln Val Asp Tyr Glu
        435                 440                 445

Met His Lys Met Thr Arg Asp Pro Leu Asn Leu Ala Leu Arg Arg Tyr
    450                 455                 460

Ala Gly Met Thr Leu Thr Asn Leu Thr Phe Gly Asp Val Ala Asn Lys
465                 470                 475                 480

Ala Thr Leu Cys Ala Arg Arg Gly Cys Met Glu Ala Ile Val Ala Gln
                485                 490                 495

Leu Ala Ser Asp Ser Glu Glu Leu His Gln Val Val Ser Ser Ile Leu
            500                 505                 510

Arg Asn Leu Ser Trp Arg Ala Asp Ile Asn Ser Lys Lys Val Leu Arg
        515                 520                 525

Glu Ala Gly Ser Val Thr Ala Leu Val Gln Cys Val Leu Arg Ala Thr
    530                 535                 540

Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu Trp Asn Leu Ser
545                 550                 555                 560

Ala His Ser Thr Glu Asn Lys Ala Ala Ile Cys Gln Val Asp Gly Ala
                565                 570                 575

Leu Gly Phe Leu Val Ser Thr Leu Thr Tyr Lys Cys Gln Ser Asn Ser
            580                 585                 590
```

```
Leu Ala Ile Ile Glu Ser Gly Gly Gly Ile Leu Arg Asn Val Ser Ser
        595                 600                 605

Leu Val Ala Thr Arg Glu Asp Tyr Arg Gln Val Leu Arg Asp His Asn
    610                 615                 620

Cys Leu Gln Thr Leu Leu Gln His Leu Thr Ser His Ser Leu Thr Ile
625                 630                 635                 640

Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser Ala Arg Ser Ala
                645                 650                 655

Arg Asp Gln Glu Leu Leu Trp Asp Leu Gly Ala Val Gly Met Leu Arg
            660                 665                 670

Asn Leu Val His Ser Lys His Lys Met Ile Ala Met Gly Ser Ala Ala
        675                 680                 685

Ala Leu Arg Asn Leu Leu Ala His Arg Pro Ala Lys His Gln Ala Ala
    690                 695                 700

Ala Thr Ala Val Ser Pro Gly Ser Cys Val Pro Ser Leu Tyr Val Arg
705                 710                 715                 720

Lys Gln Arg Ala Leu Glu Ala Glu Leu Asp
                725                 730


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Met Ala Ser Ser Val Ala Pro Tyr Glu Gln Leu Val Arg Gln Val Glu
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Ala Leu Lys Ala Glu Asn Ser His Leu Arg Gln Glu Leu Arg Asp Asn
            20   25   30

Ser Ser His Leu Ser Lys Leu Glu Thr Glu Thr Ser Gly Met Lys Glu
        35   40   45

Val Leu Lys His Leu Gln Gly Lys Leu Glu Gln Glu Ala Arg Val Leu
    50   55   60

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

Met Asp Ile Thr Ser Leu Tyr Asn Leu Lys Phe Gln Pro Pro Thr Leu
                85   90   95

Gly Pro Glu Pro Ala Ala Arg Thr Pro Glu Gly Ser Pro Val His Gly
            100   105   110

Ser Gly Pro Ser Lys Asp Ser Phe Gly Glu Leu Ser Arg Ala Thr Ile
        115   120   125

Arg Leu Leu Glu Glu Leu Asp Arg Glu Arg Cys Phe Leu Leu Asn Glu
    130   135   140

Ile Glu Lys Glu Glu Lys Glu Lys Leu Trp Tyr Tyr Ser Gln Leu Gln
145   150   155   160

Gly Leu Ser Lys Arg Leu Asp Glu Leu Pro His Val Glu Thr Gln Phe
                165   170   175

Ser Met Gln Met Asp Leu Ile Arg Gln Gln Leu Glu Phe Glu Ala Gln
            180   185   190

His Ile Arg Ser Leu Met Glu Glu Arg Phe Gly Thr Ser Asp Glu Met
        195   200   205

```
Val Gln Arg Ala Gln Ile Arg Ala Ser Arg Leu Glu Gln Ile Asp Lys
    210                 215                 220

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

Leu Leu Ala Val Lys Ser Val Pro Val Asp Glu Asp Pro Glu Thr Glu
                245                 250                 255

Val Pro Thr His Pro Glu Asp Gly Thr Pro Gln Pro Gly Asn Ser Lys
            260                 265                 270

Val Glu Val Val Phe Trp Leu Leu Ser Met Leu Ala Thr Arg Asp Gln
        275                 280                 285

Glu Asp Thr Ala Arg Thr Leu Leu Ala Met Ser Ser Ser Pro Glu Ser
    290                 295                 300

Cys Val Ala Met Arg Arg Ser Gly Cys Leu Pro Leu Leu Leu Gln Ile
305                 310                 315                 320

Leu His Gly Thr Glu Ala Ala Ala Gly Gly Arg Ala Gly Ala Pro Gly
                325                 330                 335

Ala Pro Gly Ala Lys Asp Ala Arg Met Arg Ala Asn Ala Ala Leu His
            340                 345                 350

Asn Ile Val Phe Ser Gln Pro Asp Gln Gly Leu Ala Arg Lys Glu Met
        355                 360                 365

Arg Val Leu His Val Leu Glu Gln Ile Arg Ala Tyr Cys Glu Thr Cys
    370                 375                 380

Trp Asp Trp Leu Gln Ala Arg Asp Gly Gly Pro Glu Gly Gly Gly Ala
385                 390                 395                 400

Gly Ser Ala Pro Ile Pro Ile Glu Pro Gln Ile Cys Gln Ala Thr Cys
                405                 410                 415

Ala Val Met Lys Leu Ser Phe Asp Glu Glu Tyr Arg Arg Ala Met Asn
            420                 425                 430
```

```
Glu Leu Gly Gly Leu Gln Ala Val Ala Glu Leu Leu Gln Val Asp Tyr
        435                 440                 445

Glu Met His Lys Met Thr Arg Asp Pro Leu Asn Leu Ala Leu Arg Arg
    450                 455                 460

Tyr Ala Gly Met Thr Leu Thr Asn Leu Thr Phe Gly Asp Val Ala Asn
465                 470                 475                 480

Lys Ala Thr Leu Cys Ala Arg Arg Gly Cys Met Glu Ala Ile Val Ala
                485                 490                 495

Gln Leu Ala Ser Asp Ser Glu Glu Leu His Gln Val Val Ser Ser Ile
            500                 505                 510

Leu Arg Asn Leu Ser Trp Arg Ala Asp Ile Asn Ser Lys Lys Val Leu
        515                 520                 525

Arg Glu Ala Gly Ser Val Thr Ala Leu Val Gln Cys Val Leu Arg Ala
    530                 535                 540

Thr Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu Trp Asn Leu
545                 550                 555                 560

Ser Ala His Ser Thr Glu Asn Lys Ala Ala Ile Cys Gln Val Asp Gly
                565                 570                 575

Ala Leu Gly Phe Leu Val Ser Thr Leu Thr Tyr Lys Cys Gln Ser Asn
            580                 585                 590

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

Ser Leu Val Ala Thr Arg Glu Asp Tyr Arg Gln Val Leu Arg Asp His
    610                 615                 620

Asn Cys Leu Gln Thr Leu Leu Gln His Leu Thr Ser His Ser Leu Thr
625                 630                 635                 640

Ile Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser Ala Arg Ser
                645                 650                 655

Ala Arg Asp Gln Glu Leu Leu Trp Asp Leu Gly Ala Val Gly Met Leu
```

660 665 670

Arg Asn Leu Val His Ser Lys His Lys Met Ile Ala Met Gly Ser Ala
675 680 685

Ala Ala Leu Arg Asn Leu Leu Ala His Arg Pro Ala Lys His Gln Ala
690 695 700

Ala Ala Thr Ala Val Ser Pro Gly Ser Cys Val Pro Ser Leu Tyr Val
705 710 715 720

Arg Lys Gln Arg Ala Leu Glu Ala Glu Leu Asp Ala Arg His Leu Ala
725 730 735

Gln Ala Leu Glu His Leu Glu Lys Gln Gly Pro Pro Ala Ala Glu Ala
740 745 750

Ala Thr Lys Lys Pro Leu Pro Pro Leu Arg His Leu Asp Gly Leu Ala
755 760 765

Gln Asp Tyr Ala Ser Asp Ser Gly Cys Phe Asp Asp Asp Asp Ala Pro
770 775 780

Ser Ser Leu Ala Ala Ala Ala Ala Thr Gly Glu Pro Ala Ser Pro Ala
785 790 795 800

Ala Leu Ser Leu Phe Leu Gly Ser Pro Phe Leu Gln Gly Gln Ala Leu
805 810 815

Ala Arg Thr Pro Pro Thr Arg Arg Gly Gly Lys Glu Ala Glu Lys Asp
820 825 830

Thr Ser Gly Glu Ala Ala Val Ala Ala Lys Ala Lys Ala Lys Leu Ala
835 840 845

Leu Ala Val Ala Arg Ile Asp Gln Leu Val Glu Asp Ile Ser Ala Leu
850 855 860

His Thr Ser Ser Asp Asp Ser Phe Ser Leu Ser Ser Gly Asp Pro Gly
865 870 875 880

Gln Glu Ala Pro Arg Glu Gly Arg Ala Gln Ser Cys Ser Pro Cys Arg
885 890 895

```
Gly Pro Glu Gly Gly Arg Arg Glu Ala Gly Ser Arg Ala His Pro Leu
            900                 905                 910

Leu Arg Leu Lys Ala Ala His Ala Ser Leu Ser Asn Asp Ser Leu Asn
        915                 920                 925

Ser Gly Ser Ala Ser Asp Gly Tyr Cys Pro Arg Glu His Met Leu Pro
    930                 935                 940

Cys Pro Leu Ala Ala Leu Ala Ser Arg Arg Glu Asp Pro Arg Cys Gly
945                 950                 955                 960

Gln Pro Arg Pro Ser Arg Leu Asp Leu Asp Leu Pro Gly Cys Gln Ala
                965                 970                 975

Glu Pro Pro Ala Arg Glu Ala Thr Ser Ala Asp Ala Arg Val Arg Thr
            980                 985                 990

Ile Lys Leu Ser Pro Thr Tyr Gln  His Val Pro Leu Leu  Glu Gly
Ala
        995                 1000                1005

Ser Arg  Ala Gly Ala Glu Pro  Leu Ala Gly Pro Gly  Ile Ser Pro
    1010                1015                1020

Gly Ala  Arg Lys Gln Ala Trp  Leu Pro Ala Asp His  Leu Ser Lys
    1025                1030                1035

Val Pro  Glu Lys Leu Ala Ala  Ala Pro Leu Ser Val  Ala Ser Lys
    1040                1045                1050

Ala Leu  Gln Lys Leu Ala Ala  Gln Glu Gly Pro Leu  Ser Leu Ser
    1055                1060                1065

Arg Cys  Ser Ser Leu Ser Ser  Leu Ser Ser Ala Gly  Arg Pro Gly
    1070                1075                1080

Pro Ser  Glu Gly Gly Asp Leu  Asp Asp Ser Asp Ser  Ser Leu Glu
    1085                1090                1095

Gly Leu  Glu Glu Ala Gly Pro  Ser Glu Ala Glu Leu  Asp Ser Thr
    1100                1105                1110
```

```
Trp Arg  Ala Pro Gly Ala Thr  Ser Leu Pro Val Ala  Ile Pro Ala
    1115                1120                1125

Pro Arg  Arg Asn Arg Gly Arg  Gly Leu Gly Val Glu  Asp Ala Thr
    1130                1135                1140

Pro Ser  Ser Ser Ser Glu Asn  Tyr Val Gln Glu Thr  Pro Leu Val
    1145                1150                1155

Leu Ser  Arg Cys Ser Ser Val  Ser Ser Leu Gly Ser  Phe Glu Ser
    1160                1165                1170

Pro Ser  Ile Ala Ser Ser Ile  Pro Ser Glu Pro Cys  Ser Gly Gln
    1175                1180                1185

Gly Ser  Gly Thr Ile Ser Pro  Ser Glu Leu Pro Asp  Ser Pro Gly
    1190                1195                1200

Gln Thr  Met Pro Pro Ser Arg  Ser Lys Thr Pro Pro  Leu Ala Pro
    1205                1210                1215

Ala Pro  Gln Gly Pro Pro Glu  Ala Thr Gln Phe Ser  Leu Gln Trp
    1220                1225                1230

Glu Ser  Tyr Val Lys Arg Phe  Leu Asp Ile Ala Asp  Cys Arg Glu
    1235                1240                1245

Arg Cys  Arg Leu Pro Ser Glu  Leu Asp Ala Gly Ser  Val Arg Phe
    1250                1255                1260

Thr Val  Glu Lys Pro Asp Glu  Asn Phe Ser Cys Ala  Ser Ser Leu
    1265                1270                1275

Ser Ala  Leu Ala Leu His Glu  His Tyr Val Gln Gln  Asp Val Glu
    1280                1285                1290

Leu Arg  Leu Leu Pro Ser Ala  Cys Pro Glu Arg Gly  Gly Gly Ala
    1295                1300                1305

Gly Gly  Ala Gly Leu His Phe  Ala Gly His Arg Arg  Arg Glu Glu
    1310                1315                1320
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Gly Pro  Ala Pro Thr Gly Ser  Arg Pro Arg Gly Ala  Ala Asp Gln
    1325                1330                1335

Glu Leu  Glu Leu Leu Arg Glu  Cys Leu Gly Ala Ala  Val Pro Ala
    1340                1345                1350

Arg Leu  Arg Lys Val Ala Ser  Ala Leu Val Pro Gly  Arg Arg Ala
    1355                1360                1365

Leu Pro  Val Pro Val Tyr Met  Leu Val Pro Ala Pro  Ala Pro Ala
    1370                1375                1380

Gln Glu  Asp Asp Ser Cys Thr  Asp Ser Ala Glu Gly  Thr Pro Val
    1385                1390                1395

Asn Phe  Ser Ser Ala Ala Ser  Leu Ser Asp Glu Thr  Leu Gln Gly
    1400                1405                1410

Pro Pro  Arg Asp Gln Pro Gly  Gly Pro Ala Gly Arg  Gln Arg Pro
    1415                1420                1425

Thr Gly  Arg Pro Thr Ser Ala  Arg Gln Ala Met Gly  His Arg His
    1430                1435                1440

Lys Ala  Gly Gly Ala Gly Arg  Ser Ala Glu Gln Ser  Arg Gly Ala
    1445                1450                1455

Gly Lys  Asn Arg Ala Gly Leu  Glu Leu Pro Leu Gly  Arg Pro Pro
    1460                1465                1470

Ser Ala  Pro Ala Asp Lys Asp  Gly Ser Lys Pro Gly  Arg Thr Arg
    1475                1480                1485

Gly Asp  Gly Ala Leu Gln Ser  Leu Cys Leu Thr Thr  Pro Thr Glu
    1490                1495                1500

Glu Ala  Val Tyr Cys Phe Tyr  Gly Asn Asp Ser Asp  Glu Glu Pro
    1505                1510                1515

Pro Ala  Ala Ala Pro Thr Pro  Thr His Arg Arg Thr  Ser Ala Ile
    1520                1525                1530
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Pro Arg Ala Phe Thr Arg Glu Arg Pro Gln Gly Arg Lys Glu Ala
1535 1540 1545

Pro Ala Pro Ser Lys Ala Ala Pro Ala Ala Pro Pro Pro Ala Arg
1550 1555 1560

Thr Gln Pro Ser Leu Ile Ala Asp Glu Thr Pro Pro Cys Tyr Ser
1565 1570 1575

Leu Ser Ser Ser Ala Ser Ser Leu Ser Glu Pro Glu Pro Ser Glu
1580 1585 1590

Pro Pro Ala Val His Pro Arg Gly Arg Glu Pro Ala Val Thr Lys
1595 1600 1605

Asp Pro Gly Pro Gly Gly Gly Arg Asp Ser Ser Pro Ser Pro Arg
1610 1615 1620

Ala Ala Glu Glu Leu Leu Gln Arg Cys Ile Ser Ser Ala Leu Pro
1625 1630 1635

Arg Arg Arg Pro Pro Val Ser Gly Leu Arg Arg Arg Lys Pro Arg
1640 1645 1650

Ala Thr Arg Leu Asp Glu Arg Pro Ala Glu Gly Ser Arg Glu Arg
1655 1660 1665

Gly Glu Glu Ala Ala Gly Ser Asp Arg Ala Ser Asp Leu Asp Ser
1670 1675 1680

Val Glu Trp Arg Ala Ile Gln Glu Gly Ala Asn Ser Ile Val Thr
1685 1690 1695

Trp Leu His Gln Ala Ala Ala Ala Thr Arg Glu Ala Ser Ser Glu
1700 1705 1710

Ser Asp Ser Ile Leu Ser Phe Val Ser Gly Leu Ser Val Gly Ser
1715 1720 1725

Thr Leu Gln Pro Pro Lys His Arg Lys Gly Arg Gln Ala Glu Gly
1730 1735 1740

Glu Met Gly Ser Ala Arg Arg Pro Glu Lys Arg Gly Ala Ala Ser

1745 1750 1755

Val Lys Thr Ser Gly Ser Pro Arg Ser Pro Ala Gly Pro Glu Lys
1760 1765 1770

Pro Arg Gly Thr Gln Lys Thr Thr Pro Gly Val Pro Ala Val Leu
1775 1780 1785

Arg Gly Arg Thr Val Ile Tyr Val Pro Ser Pro Ala Pro Arg Ala
1790 1795 1800

Gln Pro Lys Gly Thr Pro Gly Pro Arg Ala Thr Pro Arg Lys Val
1805 1810 1815

Ala Pro Pro Cys Leu Ala Gln Pro Ala Ala Pro Ala Lys Val Pro
1820 1825 1830

Ser Pro Gly Gln Gln Arg Ser Arg Ser Leu His Arg Pro Ala Lys
1835 1840 1845

Thr Ser Glu Leu Ala Thr Leu Ser Gln Pro Pro Arg Ser Ala Thr
1850 1855 1860

Pro Pro Ala Arg Leu Ala Lys Thr Pro Ser Ser Ser Ser Ser Gln
1865 1870 1875

Thr Ser Pro Ala Ser Gln Pro Leu Pro Arg Lys Arg Pro Pro Val
1880 1885 1890

Thr Gln Ala Ala Gly Ala Leu Pro Gly Pro Gly Ala Ser Pro Val
1895 1900 1905

Pro Lys Thr Pro Ala Arg Thr Leu Leu Ala Lys Gln His Lys Thr
1910 1915 1920

Gln Arg Ser Pro Val Arg Ile Pro Phe Met Gln Arg Pro Ala Arg
1925 1930 1935

Arg Gly Pro Pro Pro Leu Ala Arg Ala Val Pro Glu Pro Gly Pro
1940 1945 1950

Arg Gly Arg Ala Gly Thr Glu Ala Gly Pro Gly Ala Arg Gly Gly
1955 1960 1965

```
Arg Leu  Gly Leu Val Arg Val  Ala Ser Ala Leu Ser  Ser Gly Ser
    1970                1975                1980

Glu Ser  Ser Asp Arg Ser Gly  Phe Arg Arg Gln Leu  Thr Phe Ile
    1985                1990                1995

Lys Glu  Ser Pro Gly Leu Arg  Arg Arg Arg Ser Glu  Leu Ser Ser
    2000                2005                2010

Ala Glu  Ser Ala Ala Ser Ala  Pro Gln Gly Ala Ser  Pro Arg Arg
    2015                2020                2025

Gly Arg  Pro Ala Leu Pro Ala  Val Phe Leu Cys Ser  Ser Arg Cys
    2030                2035                2040

Glu Glu  Leu Arg Ala Ala Pro  Arg Gln Gly Pro Ala  Pro Ala Arg
    2045                2050                2055

Gln Arg  Pro Pro Ala Ala Arg  Pro Ser Pro Gly Glu  Arg Pro Ala
    2060                2065                2070

Arg Arg  Thr Thr Ser Glu Ser  Pro Ser Arg Leu Pro  Val Arg Ala
    2075                2080                2085

Pro Ala  Ala Arg Pro Glu Thr  Val Lys Arg Tyr Ala  Ser Leu Pro
    2090                2095                2100

His Ile  Ser Val Ala Arg Arg  Pro Asp Gly Ala Val  Pro Ala Ala
    2105                2110                2115

Pro Ala  Ser Ala Asp Ala Ala  Arg Arg Ser Ser Asp  Gly Glu Pro
    2120                2125                2130

Arg Pro  Leu Pro Arg Val Ala  Ala Pro Gly Thr Thr  Trp Arg Arg
    2135                2140                2145

Ile Arg  Asp Glu Asp Val Pro  His Ile Leu Arg Ser  Thr Leu Pro
    2150                2155                2160

Ala Thr  Ala Leu Pro Leu Arg  Gly Ser Thr Pro Glu  Asp Ala Pro
    2165                2170                2175
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Ala Gly  Pro Pro Pro Arg Lys  Thr Ser Asp Ala Val  Val Gln Thr
    2180                2185                2190

Glu Glu  Val Ala Ala Pro Lys  Thr Asn Ser Ser Thr  Ser Pro Ser
    2195                2200                2205

Leu Glu  Thr Arg Glu Pro Pro  Gly Ala Pro Ala Gly  Gly Gln Leu
    2210                2215                2220

Ser Leu  Leu Gly Ser Asp Val  Asp Gly Pro Ser Leu  Ala Lys Ala
    2225                2230                2235

Pro Ile  Ser Ala Pro Phe Val  His Glu Gly Leu Gly  Val Ala Val
    2240                2245                2250

Gly Gly  Phe Pro Ala Ser Arg  His Gly Ser Pro Ser  Arg Ser Ala
    2255                2260                2265

Arg Val  Pro Pro Phe Asn Tyr  Val Pro Ser Pro Met  Val Val Ala
    2270                2275                2280

Ala Thr  Thr Asp Ser Ala Ala  Glu Lys Ala Pro Ala  Thr Ala Ser
    2285                2290                2295

Ala Thr  Leu Leu Glu
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<223> /note="Gene Name:
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<220>
<221> source
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<223> /note="ENSP ID: ENSP00000466173"

<400> 2648

```
Met Ala Ser Ser Val Ala Pro Tyr Glu Gln Leu Val Arg Gln Val Glu
1               5                  10                  15

Ala Leu Lys Ala Glu Asn Ser His Leu Arg Gln Glu Leu Arg Asp Asn
            20                  25                  30

Ser Ser His Leu Ser Lys Leu Glu Thr Glu Thr Ser Gly Met Lys Glu
        35                  40                  45

Val Leu Lys His Leu Gln Gly Lys Leu Glu Gln Glu Ala Arg Val Leu
    50                  55                  60

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

Met Asp Ile Thr Ser Leu Tyr Asn Leu Lys Phe Gln Pro Pro Thr Leu
                85                  90                  95

Gly Pro Glu Pro Ala Ala Arg Thr Pro Glu Gly Ser Pro Val His Gly
            100                 105                 110

Ser Gly Pro Ser Lys Asp Ser Phe Gly Glu Leu Ser Arg Ala Thr Ile
        115                 120                 125

Arg Leu Leu Glu Glu Leu Asp Arg Glu Arg Cys Phe Leu Leu Asn Glu
    130                 135                 140

Ile Glu Lys Glu Glu Lys Glu Lys Leu Trp Tyr Tyr Ser Gln Leu Gln
145                 150                 155                 160

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

Met Gln Met Asp Leu Ile Arg Gln Gln Leu Glu Phe Glu Ala Gln His
            180                 185                 190

Ile
```

<210> 2649
<211> 170

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 620; "

<220>
<221> source
<223> /note="Gene Symbol: APC2; "

<220>
<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466803"

<400> 2649
Met Ala Ser Ser Val Ala Pro Tyr Glu Gln Leu Val Arg Gln Val Glu
1 5 10 15

Ala Leu Lys Ala Glu Asn Ser His Leu Arg Gln Glu Leu Arg Asp Asn
20 25 30

Ser Ser His Leu Ser Lys Leu Glu Thr Glu Thr Ser Gly Met Lys Glu
35 40 45

Val Leu Lys His Leu Gln Gly Lys Leu Glu Gln Glu Ala Arg Val Leu
50 55 60

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

Met Asp Ile Thr Ser Leu Tyr Asn Leu Lys Phe Gln Pro Pro Thr Leu
85 90 95

Gly Pro Glu Pro Ala Ala Arg Thr Pro Glu Gly Ser Pro Val His Gly
100 105 110

Ser Gly Pro Ser Lys Asp Ser Phe Gly Glu Leu Ser Arg Ala Thr Ile
115 120 125

Arg Leu Leu Glu Glu Leu Asp Arg Glu Arg Cys Phe Leu Leu Asn Glu
130 135 140

```
Ile Glu Lys Glu Glu Lys Glu Lys Leu Trp Tyr Tyr Ser Gln Leu Gln
145                 150                 155                 160


Gly Leu Ser Lys Arg Leu Asp Glu Leu Pro
                165                 170


<210> 2650
<211> 702
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 620; "

<220>
<221> source
<223> /note="Gene Symbol: APC2; "

<220>
<221> source
<223> /note="Gene Name:
      adenomatosis polyposis coli 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467073"

<400> 2650
Met Ala Ser Ser Val Ala Pro Tyr Glu Gln Leu Val Arg Gln Val Glu
1               5                   10                  15


Ala Leu Lys Ala Glu Asn Ser His Leu Arg Gln Glu Leu Arg Asp Asn
            20                  25                  30


Ser Ser His Leu Ser Lys Leu Glu Thr Glu Thr Ser Gly Met Lys Glu
        35                  40                  45


Val Leu Lys His Leu Gln Gly Lys Leu Glu Gln Glu Ala Arg Val Leu
    50                  55                  60


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


Met Asp Ile Thr Ser Leu Tyr Asn Leu Lys Phe Gln Pro Pro Thr Leu
                85                  90                  95


Gly Pro Glu Pro Ala Ala Arg Thr Pro Glu Gly Ser Pro Val His Gly
            100                 105                 110
```

Ser Gly Pro Ser Lys Asp Ser Phe Gly Glu Leu Ser Arg Ala Thr Ile
115 120 125

Arg Leu Leu Glu Glu Leu Asp Arg Glu Arg Cys Phe Leu Leu Asn Glu
130 135 140

Ile Glu Lys Glu Glu Lys Glu Lys Leu Trp Tyr Tyr Ser Gln Leu Gln
145 150 155 160

Gly Leu Ser Lys Arg Leu Asp Glu Leu Pro His Val Glu Thr Gln Phe
165 170 175

Ser Met Gln Met Asp Leu Ile Arg Gln Gln Leu Glu Phe Glu Ala Gln
180 185 190

His Ile Arg Ser Leu Met Glu Glu Arg Phe Gly Thr Ser Asp Glu Met
195 200 205

Val Gln Arg Ala Gln Ile Arg Ala Ser Arg Leu Glu Gln Ile Asp Lys
210 215 220

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

Leu Leu Ala Val Lys Ser Val Pro Val Asp Glu Asp Pro Glu Thr Glu
245 250 255

Val Pro Thr His Pro Glu Asp Gly Thr Pro Gln Pro Gly Asn Ser Lys
260 265 270

Val Glu Val Val Phe Trp Leu Leu Ser Met Leu Ala Thr Arg Asp Gln
275 280 285

Glu Asp Thr Ala Arg Thr Leu Leu Ala Met Ser Ser Ser Pro Glu Ser
290 295 300

Cys Val Ala Met Arg Arg Ser Gly Cys Leu Pro Leu Leu Leu Gln Ile
305 310 315 320

Leu His Gly Thr Glu Ala Ala Ala Gly Gly Arg Ala Gly Ala Pro Gly
325 330 335

```
Ala Pro Gly Ala Lys Asp Ala Arg Met Arg Ala Asn Ala Ala Leu His
            340                 345                 350

Asn Ile Val Phe Ser Gln Pro Asp Gln Gly Leu Ala Arg Lys Glu Met
        355                 360                 365

Arg Val Leu His Val Leu Glu Gln Ile Arg Ala Tyr Cys Glu Thr Cys
    370                 375                 380

Trp Asp Trp Leu Gln Ala Arg Asp Gly Gly Pro Glu Gly Gly Gly Ala
385                 390                 395                 400

Gly Ser Ala Pro Ile Pro Ile Glu Pro Gln Ile Cys Gln Ala Thr Cys
                405                 410                 415

Ala Val Met Lys Leu Ser Phe Asp Glu Glu Tyr Arg Arg Ala Met Asn
            420                 425                 430

Glu Leu Gly Gly Leu Gln Ala Val Ala Glu Leu Leu Gln Val Asp Tyr
        435                 440                 445

Glu Met His Lys Met Thr Arg Asp Pro Leu Asn Leu Ala Leu Arg Arg
    450                 455                 460

Tyr Ala Gly Met Thr Leu Thr Asn Leu Thr Phe Gly Asp Val Ala Asn
465                 470                 475                 480

Lys Ala Thr Leu Cys Ala Arg Arg Gly Cys Met Glu Ala Ile Val Ala
                485                 490                 495

Gln Leu Ala Ser Asp Ser Glu Glu Leu His Gln Val Val Ser Ser Ile
            500                 505                 510

Leu Arg Asn Leu Ser Trp Arg Ala Asp Ile Asn Ser Lys Lys Val Leu
        515                 520                 525

Arg Glu Ala Gly Ser Val Thr Ala Leu Val Gln Cys Val Leu Arg Ala
    530                 535                 540

Thr Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu Trp Asn Leu
545                 550                 555                 560
```

```
Ser Ala His Ser Thr Glu Asn Lys Ala Ala Ile Cys Gln Val Asp Gly
                565                 570                 575

Ala Leu Gly Phe Leu Val Ser Thr Leu Thr Tyr Lys Cys Gln Ser Asn
            580                 585                 590

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

Ser Leu Val Ala Thr Arg Glu Asp Tyr Arg Gln Val Leu Arg Asp His
    610                 615                 620

Asn Cys Leu Gln Thr Leu Leu Gln His Leu Thr Ser His Ser Leu Thr
625                 630                 635                 640

Ile Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser Ala Arg Ser
                645                 650                 655

Ala Arg Asp Gln Glu Leu Leu Trp Asp Leu Gly Ala Val Gly Met Leu
            660                 665                 670

Arg Asn Leu Val His Ser Lys His Lys Met Ile Ala Met Gly Ser Ala
        675                 680                 685

Ala Ala Leu Arg Asn Leu Leu Ala His Arg Pro Ala Lys His
    690                 695                 700


<210> 2651
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 620; "

<220>
<221> source
<223> /note="Gene Symbol: APC2; "

<220>
<221> source
<223> /note="Gene Name:
      adenomatosis polyposis coli 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468199"
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<400> 2651
Met Ala Ser Ser Val Ala Pro Tyr Glu Gln Leu Val Arg Gln Val Glu
1   5   10   15

Ala Leu Lys Ala Glu Asn Ser His Leu Arg Gln Glu Leu Arg Asp Asn
            20   25   30

Ser Ser His Leu Ser Lys Leu Glu Thr Glu Thr Ser Gly Met Lys Glu
        35   40   45

Val Leu Lys His Leu Gln Gly Lys Leu Glu Gln Glu Ala Arg Val Leu
    50   55   60

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

Met Asp Ile Thr Ser Leu Tyr Asn Leu Lys Phe Gln Pro Pro Thr Leu
                85   90   95

Gly Pro Glu Pro Ala Ala Arg Thr Pro Glu Gly Ser Pro Val His Gly
            100   105   110

Ser Gly Pro Ser Lys Asp Ser Phe Gly Glu Leu Ser Arg Ala Thr Ile
        115   120   125

Arg Leu Leu Glu Glu Leu Asp Arg Glu Arg
    130   135

<210> 2652
<211> 514
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 621; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1; "

<220>
<221> source
<223> /note="Gene Name:
      adenomatosis polyposis coli down-regulated 1; "

<220>

<221> source
<223> /note="Uniprot ID: Q8J025; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000347433"

<400> 2652
Met Ser Trp Pro Arg Arg Leu Leu Leu Arg Tyr Leu Phe Pro Ala Leu
1   5   10   15

Leu Leu His Gly Leu Gly Glu Gly Ser Ala Leu Leu His Pro Asp Ser
            20   25   30

Arg Ser His Pro Arg Ser Leu Glu Lys Ser Ala Trp Arg Ala Phe Lys
        35   40   45

Glu Ser Gln Cys His His Met Leu Lys His Leu His Asn Gly Ala Arg
    50   55   60

Ile Thr Val Gln Met Pro Pro Thr Ile Glu Gly His Trp Val Ser Thr
65   70   75   80

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

Phe Tyr His Asn Asn Thr Phe Lys Ala Tyr Gln Phe Tyr Tyr Gly Ser
            100   105   110

Asn Arg Cys Thr Asn Pro Thr Tyr Thr Leu Ile Ile Arg Gly Lys Ile
        115   120   125

Arg Leu Arg Gln Ala Ser Trp Ile Ile Arg Gly Gly Thr Glu Ala Asp
    130   135   140

Tyr Gln Leu His Asn Val Gln Val Ile Cys His Thr Glu Ala Val Ala
145   150   155   160

Glu Lys Leu Gly Gln Gln Val Asn Arg Thr Cys Pro Gly Phe Leu Ala
                165   170   175

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

Glu Asn Gly Cys Glu Cys Thr Lys Ala Val Asn Phe Ala Met His Glu

195 200 205

Leu Gln Leu Ile Arg Val Glu Lys Gln Tyr Leu His His Asn Leu Asp
210 215 220

His Leu Val Glu Glu Leu Phe Leu Gly Asp Ile His Thr Asp Ala Thr
225 230 235 240

Gln Arg Met Phe Tyr Arg Pro Ser Ser Tyr Gln Pro Pro Leu Gln Asn
245 250 255

Ala Lys Asn His Asp His Ala Cys Ile Ala Cys Arg Ile Ile Tyr Arg
260 265 270

Ser Asp Glu His His Pro Pro Ile Leu Pro Pro Lys Ala Asp Leu Thr
275 280 285

Ile Gly Leu His Gly Glu Trp Val Ser Gln Arg Cys Glu Val Arg Pro
290 295 300

Glu Val Leu Phe Leu Thr Arg His Phe Ile Phe His Asp Asn Asn Asn
305 310 315 320

Thr Trp Glu Gly His Tyr Tyr His Tyr Ser Asp Pro Val Cys Lys His
325 330 335

Pro Thr Phe Ser Ile Tyr Ala Arg Gly Arg Tyr Ser Arg Gly Val Leu
340 345 350

Ser Ser Arg Val Met Gly Gly Thr Glu Phe Val Phe Lys Val Asn His
355 360 365

Met Lys Val Thr Pro Met Asp Ala Ala Thr Ala Ser Leu Leu Asn Val
370 375 380

Phe Asn Gly Asn Glu Cys Gly Ala Glu Gly Ser Trp Gln Val Gly Ile
385 390 395 400

Gln Gln Asp Val Thr His Thr Asn Gly Cys Val Ala Leu Gly Ile Lys
405 410 415

Leu Pro His Thr Glu Tyr Glu Ile Phe Lys Met Glu Gln Asp Ala Arg
420 425 430

```
Gly Arg Tyr Leu Leu Phe Asn Gly Gln Arg Pro Ser Asp Gly Ser Ser
        435                 440                 445

Pro Asp Arg Pro Glu Lys Arg Ala Thr Ser Tyr Gln Met Pro Leu Val
    450                 455                 460

Gln Cys Ala Ser Ser Ser Pro Arg Ala Glu Asp Leu Ala Glu Asp Ser
465                 470                 475                 480

Gly Ser Ser Leu Tyr Gly Arg Ala Pro Gly Arg His Thr Trp Ser Leu
                485                 490                 495

Leu Leu Ala Ala Leu Ala Cys Leu Val Pro Leu Leu His Trp Asn Ile
            500                 505                 510

Arg Arg
```

<210> 2653
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 621; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1; "

<220>
<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli down-regulated 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404930"

<400> 2653

```
Met Ser Trp Pro Arg Arg Leu Leu Leu Arg Tyr Leu Phe Pro Ala Leu
1               5                   10                  15

Leu Leu His Glu Pro Arg Pro Cys Leu His Arg Leu Ser Asp His Leu
            20                  25                  30
```

Ser Val Arg Arg Ala Pro Pro Ser His Pro Ala Pro Lys Gly Arg Pro
35 40 45

Asp His Arg Pro Ala Arg Gly Val Gly Glu Pro Ala Leu
50 55 60

<210> 2654
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 621; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1; "

<220>
<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli down-regulated 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463104"

<400> 2654
Met Ser Trp Pro Arg Arg Leu Leu Leu Arg Tyr Leu Phe Pro Ala Leu
1 5 10 15

Leu Leu His Gly Leu Gly Glu Gly Ser Ala Leu Leu His Pro Asp Ser
20 25 30

Arg Ser His Pro Arg Ser Leu Glu Lys Ser Ala Trp Arg Ala Phe Lys
35 40 45

Glu Ser Gln Cys His His Met Leu Lys His Leu His Asn Gly Ala Arg
50 55 60

Ile Thr Val Gln Met Pro Pro Thr Ile Glu Gly His Trp Val Ser Thr
65 70 75 80

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

Phe Tyr His Asn Asn Thr Phe Lys Ala Tyr Gln Phe Tyr Tyr Gly Ser
100 105 110

```
Asn Arg Cys Thr Asn Pro Thr Tyr Thr Leu Ile Ile Arg Gly Lys Ile
        115                 120                 125

Arg Leu Arg Gln Ala Ser Trp Ile Ile Arg Gly Gly Thr Glu Ala Asp
    130                 135                 140

Tyr Gln Leu His Asn Val Gln Gly His Gly Arg His Arg Val Arg Val
145                 150                 155                 160

Gln Ser Glu Ser His Glu Gly His Pro His Gly Cys Gly His Ser Leu
                165                 170                 175

Thr Ala Gln Arg Leu Gln Arg Glu
            180
```

<210> 2655
<211> 22
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 621; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1; "

<220>
<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli down-regulated 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463110"

<400> 2655

```
Met Ser Trp Pro Arg Arg Leu Leu Leu Arg Tyr Leu Phe Pro Ala Leu
1               5                   10                  15

Leu Leu His Ala Val Lys
            20
```

<210> 2656
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 621; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1; "

<220>
<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli down-regulated 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464649"

<400> 2656
Pro Glu Asp Val Leu Pro Ala Leu Gln Leu Pro Ala Pro Ser Ala Glu
1 5 10 15

Cys Gln Val Glu Met Gly Phe His His Val Gly Gln Asp Gly Leu Gln
20 25 30

Leu Pro Thr Ser Ser Asp Pro Pro Ala Leu Ala Ser Gln Ser Ala Gly
35 40 45

Ile Thr Gly Val Ser His Arg Pro Pro Gly Arg His Leu Ser Asn Asp
50 55 60

Leu Arg Thr Thr Thr Met Pro Ala Ser Pro Val Gly Ser Ser Ile Gly
65 70 75 80

Gln Thr Ser Thr Thr Leu Pro Ser Cys Pro Gln Arg Gln Thr
85 90

<210> 2657
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 621; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1; "

<220>

<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli down-regulated 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476491"

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

<400> 2657

```
Xaa Asp Val Ala Tyr Asp Leu Trp Arg Glu Glu Asn Gly Cys Glu Cys
1               5                  10                  15

Thr Lys Ala Val Asn Phe Ala Met His Glu Leu Gln Leu Ile Arg Val
            20                  25                  30

Glu Lys Gln Tyr Leu His His Asn Leu Asp His Leu Val Glu Glu Leu
        35                  40                  45

Phe Leu Gly Asp Ile His Thr Asp Ala Thr Gln Arg Met Phe Tyr Arg
    50                  55                  60

Pro Ser Ser Tyr Gln Pro Pro Leu Gln Asn Ala Lys Cys Ala Ala Glu
65                  70                  75                  80

Ser Ser Gly Ser Phe Gln Ile Leu Pro Gln Asp Ser Ser Glu Lys Glu
                85                  90                  95

Gln Asn Gly Leu Ser His Trp Cys Leu Ser Arg Pro Gly His Gln Lys
            100                 105                 110

Asp Trp Ala Leu Cys Ala His Ala Gly Pro Ala Thr Ala Gly Cys Pro
        115                 120                 125

Ser Cys Leu Trp Pro Pro Ala Glu Thr Gly Arg Lys Ala Gly Arg Thr
    130                 135                 140

Ser Ser Lys Thr Val His Ala Cys Pro Gly Glu Ala Gly Thr Ser Ser
145                 150                 155                 160

Phe Glu Leu Phe Tyr Phe Pro Asn Cys Trp Ser Ile Glu Thr Lys Leu
                165                 170                 175
```

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

Pro Leu Glu Thr Gly His Arg Val Lys Ile Glu Thr Leu Ser Gln Leu
        195                 200                 205

Val Phe Leu Ser Phe Ile Gln Leu Cys Cys Glu Val Gln Ser Pro Leu
    210                 215                 220

Ala Asn Lys
225


<210> 2658
<211> 501
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 622; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1L; "

<220>
<221> source
<223> /note="Gene Name:
      adenomatosis polyposis coli down-regulated
      1-like; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NCL9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360191"

<400> 2658
Met Pro Ala Ala Met Leu Pro Tyr Ala Cys Val Leu Val Leu Leu Gly
1               5                  10                  15

Ala His Thr Ala Pro Ala Ala Gly Glu Ala Gly Gly Ser Cys Leu Arg
            20                  25                  30

Trp Glu Pro His Cys Gln Gln Pro Leu Pro Asp Arg Val Pro Ser Thr
        35                  40                  45
```

```
Ala Ile Leu Pro Pro Arg Leu Asn Gly Pro Trp Ile Ser Thr Gly Cys
    50                  55                  60

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

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

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

Arg Arg Ala Ser Trp Val Thr Arg Gly Ala Thr Glu Ala Asp Tyr His
        115                 120                 125

Leu His Lys Val Gly Ile Val Phe His Ser Arg Arg Ala Leu Val Asp
    130                 135                 140

Val Thr Gly Arg Leu Asn Gln Thr Arg Ala Gly Arg Asp Cys Ala Arg
145                 150                 155                 160

Arg Leu Pro Pro Ala Arg Ala Trp Leu Pro Gly Ala Leu Tyr Glu Leu
                165                 170                 175

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

Met His Glu Leu Ser Leu Val Arg Val Gln Arg Arg Leu Gln Pro Gln
        195                 200                 205

Pro Arg Ala Ser Pro Arg Leu Val Glu Glu Leu Tyr Leu Gly Asp Ile
    210                 215                 220

His Thr Asp Pro Ala Glu Arg Arg His Tyr Arg Pro Thr Gly Tyr Gln
225                 230                 235                 240

Arg Pro Leu Gln Ser Ala Leu His His Val Gln Pro Cys Pro Ala Cys
                245                 250                 255

Gly Leu Ile Ala Arg Ser Asp Val His His Pro Pro Val Leu Pro Pro
            260                 265                 270
```

```
Pro Leu Ala Leu Pro Leu His Leu Gly Gly Trp Trp Val Ser Ser Gly
        275                 280                 285

Cys Glu Val Arg Pro Ala Val Leu Phe Leu Thr Arg Leu Phe Thr Phe
    290                 295                 300

His Gly His Ser Arg Ser Trp Glu Gly Tyr Tyr His His Phe Ser Asp
305                 310                 315                 320

Pro Ala Cys Arg Gln Pro Thr Phe Thr Val Tyr Ala Ala Gly Arg Tyr
                325                 330                 335

Thr Arg Gly Thr Pro Ser Thr Arg Val Arg Gly Gly Thr Glu Leu Val
            340                 345                 350

Phe Glu Val Thr Arg Ala His Val Thr Pro Met Asp Gln Val Thr Thr
        355                 360                 365

Ala Met Leu Asn Phe Ser Glu Pro Ser Ser Cys Gly Gly Ala Gly Ala
    370                 375                 380

Trp Ser Met Gly Thr Glu Arg Asp Val Thr Ala Thr Asn Gly Cys Leu
385                 390                 395                 400

Pro Leu Gly Ile Arg Leu Pro His Val Glu Tyr Glu Leu Phe Lys Met
                405                 410                 415

Glu Gln Asp Pro Leu Gly Gln Ser Leu Leu Phe Ile Gly Gln Arg Pro
            420                 425                 430

Thr Asp Gly Ser Ser Pro Asp Thr Pro Glu Lys Arg Pro Thr Ser Tyr
        435                 440                 445

Gln Ala Pro Leu Val Leu Cys His Gly Glu Ala Pro Asp Phe Ser Arg
    450                 455                 460

Pro Pro Gln His Arg Pro Ser Leu Gln Lys His Pro Ser Thr Gly Gly
465                 470                 475                 480

Leu His Ile Ala Pro Phe Pro Leu Leu Pro Leu Val Leu Gly Leu Ala
                485                 490                 495

Phe Leu His Trp Leu
```

500

<210> 2659
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 622; "

<220>
<221> source
<223> /note="Gene Symbol: APCDD1L; "

<220>
<221> source
<223> /note="Gene Name:
adenomatosis polyposis coli down-regulated
1-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396856"

<400> 2659
Met Ala Glu Asn Ser Gly Pro Gly Val Arg Pro Pro Gly Trp Glu Ala
1 5 10 15

Gln Ile Asn Ile Ile Ser Thr Arg Leu Ala Leu Ala His Thr Ala Pro
20 25 30

Ala Ala Gly Glu Ala Gly Gly Ser Cys Leu Arg Trp Glu Pro His Cys
35 40 45

Gln Gln Pro Leu Pro Asp Arg Val Pro Ser Thr Ala Ile Leu Pro Pro
50 55 60

Arg Leu Asn Gly Pro Trp Ile Ser Thr Gly Cys Glu Val Arg Pro Gly
65 70 75 80

<210> 2660
<211> 2843
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 623; "

<220>

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

<220>
<221> source
<223> /note="Gene Name:
adenomatous polyposis coli; "

<220>
<221> source
<223> /note="Uniprot ID: P25054; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000257430"

<400> 2660
Met Ala Ala Ala Ser Tyr Asp Gln Leu Leu Lys Gln Val Glu Ala Leu
1 5 10 15

Lys Met Glu Asn Ser Asn Leu Arg Gln Glu Leu Glu Asp Asn Ser Asn
20 25 30

His Leu Thr Lys Leu Glu Thr Glu Ala Ser Asn Met Lys Glu Val Leu
35 40 45

Lys Gln Leu Gln Gly Ser Ile Glu Asp Glu Ala Met Ala Ser Ser Gly
50 55 60

Gln Ile Asp Leu Leu Glu Arg Leu Lys Glu Leu Asn Leu Asp Ser Ser
65 70 75 80

Asn Phe Pro Gly Val Lys Leu Arg Ser Lys Met Ser Leu Arg Ser Tyr
85 90 95

Gly Ser Arg Glu Gly Ser Val Ser Ser Arg Ser Gly Glu Cys Ser Pro
100 105 110

Val Pro Met Gly Ser Phe Pro Arg Arg Gly Phe Val Asn Gly Ser Arg
115 120 125

Glu Ser Thr Gly Tyr Leu Glu Glu Leu Glu Lys Glu Arg Ser Leu Leu
130 135 140

Leu Ala Asp Leu Asp Lys Glu Glu Lys Glu Lys Asp Trp Tyr Tyr Ala
145 150 155 160

```
Gln Leu Gln Asn Leu Thr Lys Arg Ile Asp Ser Leu Pro Leu Thr Glu
                165                 170                 175

Asn Phe Ser Leu Gln Thr Asp Met Thr Arg Arg Gln Leu Glu Tyr Glu
            180                 185                 190

Ala Arg Gln Ile Arg Val Ala Met Glu Glu Gln Leu Gly Thr Cys Gln
        195                 200                 205

Asp Met Glu Lys Arg Ala Gln Arg Arg Ile Ala Arg Ile Gln Gln Ile
    210                 215                 220

Glu Lys Asp Ile Leu Arg Ile Arg Gln Leu Leu Gln Ser Gln Ala Thr
225                 230                 235                 240

Glu Ala Glu Arg Ser Ser Gln Asn Lys His Glu Thr Gly Ser His Asp
                245                 250                 255

Ala Glu Arg Gln Asn Glu Gly Gln Gly Val Gly Glu Ile Asn Met Ala
            260                 265                 270

Thr Ser Gly Asn Gly Gln Gly Ser Thr Thr Arg Met Asp His Glu Thr
        275                 280                 285

Ala Ser Val Leu Ser Ser Ser Ser Thr His Ser Ala Pro Arg Arg Leu
    290                 295                 300

Thr Ser His Leu Gly Thr Lys Val Glu Met Val Tyr Ser Leu Leu Ser
305                 310                 315                 320

Met Leu Gly Thr His Asp Lys Asp Asp Met Ser Arg Thr Leu Leu Ala
                325                 330                 335

Met Ser Ser Ser Gln Asp Ser Cys Ile Ser Met Arg Gln Ser Gly Cys
            340                 345                 350

Leu Pro Leu Leu Ile Gln Leu Leu His Gly Asn Asp Lys Asp Ser Val
        355                 360                 365

Leu Leu Gly Asn Ser Arg Gly Ser Lys Glu Ala Arg Ala Arg Ala Ser
    370                 375                 380

Ala Ala Leu His Asn Ile Ile His Ser Gln Pro Asp Asp Lys Arg Gly
```

385 390 395 400

Arg Arg Glu Ile Arg Val Leu His Leu Leu Glu Gln Ile Arg Ala Tyr
405 410 415

Cys Glu Thr Cys Trp Glu Trp Gln Glu Ala His Glu Pro Gly Met Asp
420 425 430

Gln Asp Lys Asn Pro Met Pro Ala Pro Val Glu His Gln Ile Cys Pro
435 440 445

Ala Val Cys Val Leu Met Lys Leu Ser Phe Asp Glu Glu His Arg His
450 455 460

Ala Met Asn Glu Leu Gly Gly Leu Gln Ala Ile Ala Glu Leu Leu Gln
465 470 475 480

Val Asp Cys Glu Met Tyr Gly Leu Thr Asn Asp His Tyr Ser Ile Thr
485 490 495

Leu Arg Arg Tyr Ala Gly Met Ala Leu Thr Asn Leu Thr Phe Gly Asp
500 505 510

Val Ala Asn Lys Ala Thr Leu Cys Ser Met Lys Gly Cys Met Arg Ala
515 520 525

Leu Val Ala Gln Leu Lys Ser Glu Ser Glu Asp Leu Gln Gln Val Ile
530 535 540

Ala Ser Val Leu Arg Asn Leu Ser Trp Arg Ala Asp Val Asn Ser Lys
545 550 555 560

Lys Thr Leu Arg Glu Val Gly Ser Val Lys Ala Leu Met Glu Cys Ala
565 570 575

Leu Glu Val Lys Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu
580 585 590

Trp Asn Leu Ser Ala His Cys Thr Glu Asn Lys Ala Asp Ile Cys Ala
595 600 605

Val Asp Gly Ala Leu Ala Phe Leu Val Gly Thr Leu Thr Tyr Arg Ser
610 615 620

```
Gln Thr Asn Thr Leu Ala Ile Ile Glu Ser Gly Gly Gly Ile Leu Arg
625                 630                 635                 640

Asn Val Ser Ser Leu Ile Ala Thr Asn Glu Asp His Arg Gln Ile Leu
                645                 650                 655

Arg Glu Asn Asn Cys Leu Gln Thr Leu Leu Gln His Leu Lys Ser His
            660                 665                 670

Ser Leu Thr Ile Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser
        675                 680                 685

Ala Arg Asn Pro Lys Asp Gln Glu Ala Leu Trp Asp Met Gly Ala Val
    690                 695                 700

Ser Met Leu Lys Asn Leu Ile His Ser Lys His Lys Met Ile Ala Met
705                 710                 715                 720

Gly Ser Ala Ala Ala Leu Arg Asn Leu Met Ala Asn Arg Pro Ala Lys
                725                 730                 735

Tyr Lys Asp Ala Asn Ile Met Ser Pro Gly Ser Ser Leu Pro Ser Leu
            740                 745                 750

His Val Arg Lys Gln Lys Ala Leu Glu Ala Glu Leu Asp Ala Gln His
        755                 760                 765

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

His Arg Ser Lys Gln Arg His Lys Gln Ser Leu Tyr Gly Asp Tyr Val
785                 790                 795                 800

Phe Asp Thr Asn Arg His Asp Asp Asn Arg Ser Asp Asn Phe Asn Thr
                805                 810                 815

Gly Asn Met Thr Val Leu Ser Pro Tyr Leu Asn Thr Thr Val Leu Pro
            820                 825                 830

Ser Ser Ser Ser Ser Arg Gly Ser Leu Asp Ser Ser Arg Ser Glu Lys
        835                 840                 845
```

```
Asp Arg Ser Leu Glu Arg Glu Arg Gly Ile Gly Leu Gly Asn Tyr His
    850                 855                 860

Pro Ala Thr Glu Asn Pro Gly Thr Ser Ser Lys Arg Gly Leu Gln Ile
865                 870                 875                 880

Ser Thr Thr Ala Ala Gln Ile Ala Lys Val Met Glu Glu Val Ser Ala
                885                 890                 895

Ile His Thr Ser Gln Glu Asp Arg Ser Ser Gly Ser Thr Thr Glu Leu
            900                 905                 910

His Cys Val Thr Asp Glu Arg Asn Ala Leu Arg Arg Ser Ser Ala Ala
        915                 920                 925

His Thr His Ser Asn Thr Tyr Asn Phe Thr Lys Ser Glu Asn Ser Asn
    930                 935                 940

Arg Thr Cys Ser Met Pro Tyr Ala Lys Leu Glu Tyr Lys Arg Ser Ser
945                 950                 955                 960

Asn Asp Ser Leu Asn Ser Val Ser Ser Ser Asp Gly Tyr Gly Lys Arg
                965                 970                 975

Gly Gln Met Lys Pro Ser Ile Glu Ser Tyr Ser Glu Asp Asp Glu Ser
            980                 985                 990

Lys Phe Cys Ser Tyr Gly Gln Tyr  Pro Ala Asp Leu Ala  His Lys
Ile
        995                 1000                1005

His Ser  Ala Asn His Met Asp  Asp Asn Asp Gly Glu  Leu Asp Thr
    1010                1015                1020

Pro Ile  Asn Tyr Ser Leu Lys  Tyr Ser Asp Glu Gln  Leu Asn Ser
    1025                1030                1035

Gly Arg  Gln Ser Pro Ser Gln  Asn Glu Arg Trp Ala  Arg Pro Lys
    1040                1045                1050

His Ile  Ile Glu Asp Glu Ile  Lys Gln Ser Glu Gln  Arg Gln Ser
    1055                1060                1065
```

```
Arg Asn  Gln Ser Thr Thr Tyr  Pro Val Tyr Thr Glu  Ser Thr Asp
    1070                1075                1080

Asp Lys  His Leu Lys Phe Gln  Pro His Phe Gly Gln  Gln Glu Cys
    1085                1090                1095

Val Ser  Pro Tyr Arg Ser Arg  Gly Ala Asn Gly Ser  Glu Thr Asn
    1100                1105                1110

Arg Val  Gly Ser Asn His Gly  Ile Asn Gln Asn Val  Ser Gln Ser
    1115                1120                1125

Leu Cys  Gln Glu Asp Asp Tyr  Glu Asp Asp Lys Pro  Thr Asn Tyr
    1130                1135                1140

Ser Glu  Arg Tyr Ser Glu Glu  Glu Gln His Glu Glu  Glu Glu Arg
    1145                1150                1155

Pro Thr  Asn Tyr Ser Ile Lys  Tyr Asn Glu Glu Lys  Arg His Val
    1160                1165                1170

Asp Gln  Pro Ile Asp Tyr Ser  Leu Lys Tyr Ala Thr  Asp Ile Pro
    1175                1180                1185

Ser Ser  Gln Lys Gln Ser Phe  Ser Phe Ser Lys Ser  Ser Ser Gly
    1190                1195                1200

Gln Ser  Ser Lys Thr Glu His  Met Ser Ser Ser Ser  Glu Asn Thr
    1205                1210                1215

Ser Thr  Pro Ser Ser Asn Ala  Lys Arg Gln Asn Gln  Leu His Pro
    1220                1225                1230

Ser Ser  Ala Gln Ser Arg Ser  Gly Gln Pro Gln Lys  Ala Ala Thr
    1235                1240                1245

Cys Lys  Val Ser Ser Ile Asn  Gln Glu Thr Ile Gln  Thr Tyr Cys
    1250                1255                1260

Val Glu  Asp Thr Pro Ile Cys  Phe Ser Arg Cys Ser  Ser Leu Ser
    1265                1270                1275
```

Ser Leu Ser Ser Ala Glu Asp Glu Ile Gly Cys Asn Gln Thr Thr
1280 1285 1290

Gln Glu Ala Asp Ser Ala Asn Thr Leu Gln Ile Ala Glu Ile Lys
1295 1300 1305

Glu Lys Ile Gly Thr Arg Ser Ala Glu Asp Pro Val Ser Glu Val
1310 1315 1320

Pro Ala Val Ser Gln His Pro Arg Thr Lys Ser Ser Arg Leu Gln
1325 1330 1335

Gly Ser Ser Leu Ser Ser Glu Ser Ala Arg His Lys Ala Val Glu
1340 1345 1350

Phe Ser Ser Gly Ala Lys Ser Pro Ser Lys Ser Gly Ala Gln Thr
1355 1360 1365

Pro Lys Ser Pro Pro Glu His Tyr Val Gln Glu Thr Pro Leu Met
1370 1375 1380

Phe Ser Arg Cys Thr Ser Val Ser Ser Leu Asp Ser Phe Glu Ser
1385 1390 1395

Arg Ser Ile Ala Ser Ser Val Gln Ser Glu Pro Cys Ser Gly Met
1400 1405 1410

Val Ser Gly Ile Ile Ser Pro Ser Asp Leu Pro Asp Ser Pro Gly
1415 1420 1425

Gln Thr Met Pro Pro Ser Arg Ser Lys Thr Pro Pro Pro Pro Pro
1430 1435 1440

Gln Thr Ala Gln Thr Lys Arg Glu Val Pro Lys Asn Lys Ala Pro
1445 1450 1455

Thr Ala Glu Lys Arg Glu Ser Gly Pro Lys Gln Ala Ala Val Asn
1460 1465 1470

Ala Ala Val Gln Arg Val Gln Val Leu Pro Asp Ala Asp Thr Leu
1475 1480 1485

Leu His Phe Ala Thr Glu Ser Thr Pro Asp Gly Phe Ser Cys Ser

1490 1495 1500

Ser Ser Leu Ser Ala Leu Ser Leu Asp Glu Pro Phe Ile Gln Lys
1505 1510 1515

Asp Val Glu Leu Arg Ile Met Pro Pro Val Gln Glu Asn Asp Asn
1520 1525 1530

Gly Asn Glu Thr Glu Ser Glu Gln Pro Lys Glu Ser Asn Glu Asn
1535 1540 1545

Gln Glu Lys Glu Ala Glu Lys Thr Ile Asp Ser Glu Lys Asp Leu
1550 1555 1560

Leu Asp Asp Ser Asp Asp Asp Asp Ile Glu Ile Leu Glu Glu Cys
1565 1570 1575

Ile Ile Ser Ala Met Pro Thr Lys Ser Ser Arg Lys Ala Lys Lys
1580 1585 1590

Pro Ala Gln Thr Ala Ser Lys Leu Pro Pro Pro Val Ala Arg Lys
1595 1600 1605

Pro Ser Gln Leu Pro Val Tyr Lys Leu Leu Pro Ser Gln Asn Arg
1610 1615 1620

Leu Gln Pro Gln Lys His Val Ser Phe Thr Pro Gly Asp Asp Met
1625 1630 1635

Pro Arg Val Tyr Cys Val Glu Gly Thr Pro Ile Asn Phe Ser Thr
1640 1645 1650

Ala Thr Ser Leu Ser Asp Leu Thr Ile Glu Ser Pro Pro Asn Glu
1655 1660 1665

Leu Ala Ala Gly Glu Gly Val Arg Gly Gly Ala Gln Ser Gly Glu
1670 1675 1680

Phe Glu Lys Arg Asp Thr Ile Pro Thr Glu Gly Arg Ser Thr Asp
1685 1690 1695

Glu Ala Gln Gly Gly Lys Thr Ser Ser Val Thr Ile Pro Glu Leu
1700 1705 1710

```
Asp Asp  Asn Lys Ala Glu Glu  Gly Asp Ile Leu Ala  Glu Cys Ile
    1715                1720                1725

Asn Ser  Ala Met Pro Lys Gly  Lys Ser His Lys Pro  Phe Arg Val
    1730                1735                1740

Lys Lys  Ile Met Asp Gln Val  Gln Gln Ala Ser Ala  Ser Ser Ser
    1745                1750                1755

Ala Pro  Asn Lys Asn Gln Leu  Asp Gly Lys Lys Lys  Lys Pro Thr
    1760                1765                1770

Ser Pro  Val Lys Pro Ile Pro  Gln Asn Thr Glu Tyr  Arg Thr Arg
    1775                1780                1785

Val Arg  Lys Asn Ala Asp Ser  Lys Asn Asn Leu Asn  Ala Glu Arg
    1790                1795                1800

Val Phe  Ser Asp Asn Lys Asp  Ser Lys Lys Gln Asn  Leu Lys Asn
    1805                1810                1815

Asn Ser  Lys Val Phe Asn Asp  Lys Leu Pro Asn Asn  Glu Asp Arg
    1820                1825                1830

Val Arg  Gly Ser Phe Ala Phe  Asp Ser Pro His His  Tyr Thr Pro
    1835                1840                1845

Ile Glu  Gly Thr Pro Tyr Cys  Phe Ser Arg Asn Asp  Ser Leu Ser
    1850                1855                1860

Ser Leu  Asp Phe Asp Asp Asp  Asp Val Asp Leu Ser  Arg Glu Lys
    1865                1870                1875

Ala Glu  Leu Arg Lys Ala Lys  Glu Asn Lys Glu Ser  Glu Ala Lys
    1880                1885                1890

Val Thr  Ser His Thr Glu Leu  Thr Ser Asn Gln Gln  Ser Ala Asn
    1895                1900                1905

Lys Thr  Gln Ala Ile Ala Lys  Gln Pro Ile Asn Arg  Gly Gln Pro
    1910                1915                1920
```

Lys Pro Ile Leu Gln Lys Gln Ser Thr Phe Pro Gln Ser Ser Lys
1925 1930 1935

Asp Ile Pro Asp Arg Gly Ala Ala Thr Asp Glu Lys Leu Gln Asn
1940 1945 1950

Phe Ala Ile Glu Asn Thr Pro Val Cys Phe Ser His Asn Ser Ser
1955 1960 1965

Leu Ser Ser Leu Ser Asp Ile Asp Gln Glu Asn Asn Asn Lys Glu
1970 1975 1980

Asn Glu Pro Ile Lys Glu Thr Glu Pro Pro Asp Ser Gln Gly Glu
1985 1990 1995

Pro Ser Lys Pro Gln Ala Ser Gly Tyr Ala Pro Lys Ser Phe His
2000 2005 2010

Val Glu Asp Thr Pro Val Cys Phe Ser Arg Asn Ser Ser Leu Ser
2015 2020 2025

Ser Leu Ser Ile Asp Ser Glu Asp Asp Leu Leu Gln Glu Cys Ile
2030 2035 2040

Ser Ser Ala Met Pro Lys Lys Lys Lys Pro Ser Arg Leu Lys Gly
2045 2050 2055

Asp Asn Glu Lys His Ser Pro Arg Asn Met Gly Gly Ile Leu Gly
2060 2065 2070

Glu Asp Leu Thr Leu Asp Leu Lys Asp Ile Gln Arg Pro Asp Ser
2075 2080 2085

Glu His Gly Leu Ser Pro Asp Ser Glu Asn Phe Asp Trp Lys Ala
2090 2095 2100

Ile Gln Glu Gly Ala Asn Ser Ile Val Ser Ser Leu His Gln Ala
2105 2110 2115

Ala Ala Ala Ala Cys Leu Ser Arg Gln Ala Ser Ser Asp Ser Asp
2120 2125 2130

Ser Ile Leu Ser Leu Lys Ser Gly Ile Ser Leu Gly Ser Pro Phe
2135 2140 2145

His Leu Thr Pro Asp Gln Glu Glu Lys Pro Phe Thr Ser Asn Lys
2150 2155 2160

Gly Pro Arg Ile Leu Lys Pro Gly Glu Lys Ser Thr Leu Glu Thr
2165 2170 2175

Lys Lys Ile Glu Ser Glu Ser Lys Gly Ile Lys Gly Gly Lys Lys
2180 2185 2190

Val Tyr Lys Ser Leu Ile Thr Gly Lys Val Arg Ser Asn Ser Glu
2195 2200 2205

Ile Ser Gly Gln Met Lys Gln Pro Leu Gln Ala Asn Met Pro Ser
2210 2215 2220

Ile Ser Arg Gly Arg Thr Met Ile His Ile Pro Gly Val Arg Asn
2225 2230 2235

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

Lys Thr Pro Ala Ser Lys Ser Pro Ser Glu Gly Gln Thr Ala Thr
2255 2260 2265

Thr Ser Pro Arg Gly Ala Lys Pro Ser Val Lys Ser Glu Leu Ser
2270 2275 2280

Pro Val Ala Arg Gln Thr Ser Gln Ile Gly Gly Ser Ser Lys Ala
2285 2290 2295

Pro Ser Arg Ser Gly Ser Arg Asp Ser Thr Pro Ser Arg Pro Ala
2300 2305 2310

Gln Gln Pro Leu Ser Arg Pro Ile Gln Ser Pro Gly Arg Asn Ser
2315 2320 2325

Ile Ser Pro Gly Arg Asn Gly Ile Ser Pro Pro Asn Lys Leu Ser
2330 2335 2340

Gln Leu Pro Arg Thr Ser Ser Pro Ser Thr Ala Ser Thr Lys Ser

2345 2350 2355

Ser Gly Ser Gly Lys Met Ser Tyr Thr Ser Pro Gly Arg Gln Met
2360 2365 2370

Ser Gln Gln Asn Leu Thr Lys Gln Thr Gly Leu Ser Lys Asn Ala
2375 2380 2385

Ser Ser Ile Pro Arg Ser Glu Ser Ala Ser Lys Gly Leu Asn Gln
2390 2395 2400

Met Asn Asn Gly Asn Gly Ala Asn Lys Lys Val Glu Leu Ser Arg
2405 2410 2415

Met Ser Ser Thr Lys Ser Ser Gly Ser Glu Ser Asp Arg Ser Glu
2420 2425 2430

Arg Pro Val Leu Val Arg Gln Ser Thr Phe Ile Lys Glu Ala Pro
2435 2440 2445

Ser Pro Thr Leu Arg Arg Lys Leu Glu Glu Ser Ala Ser Phe Glu
2450 2455 2460

Ser Leu Ser Pro Ser Ser Arg Pro Ala Ser Pro Thr Arg Ser Gln
2465 2470 2475

Ala Gln Thr Pro Val Leu Ser Pro Ser Leu Pro Asp Met Ser Leu
2480 2485 2490

Ser Thr His Ser Ser Val Gln Ala Gly Gly Trp Arg Lys Leu Pro
2495 2500 2505

Pro Asn Leu Ser Pro Thr Ile Glu Tyr Asn Asp Gly Arg Pro Ala
2510 2515 2520

Lys Arg His Asp Ile Ala Arg Ser His Ser Glu Ser Pro Ser Arg
2525 2530 2535

Leu Pro Ile Asn Arg Ser Gly Thr Trp Lys Arg Glu His Ser Lys
2540 2545 2550

His Ser Ser Ser Leu Pro Arg Val Ser Thr Trp Arg Arg Thr Gly
2555 2560 2565

Ser Ser Ser Ser Ile Leu Ser Ala Ser Ser Glu Ser Ser Glu Lys
2570 2575 2580

Ala Lys Ser Glu Asp Glu Lys His Val Asn Ser Ile Ser Gly Thr
2585 2590 2595

Lys Gln Ser Lys Glu Asn Gln Val Ser Ala Lys Gly Thr Trp Arg
2600 2605 2610

Lys Ile Lys Glu Asn Glu Phe Ser Pro Thr Asn Ser Thr Ser Gln
2615 2620 2625

Thr Val Ser Ser Gly Ala Thr Asn Gly Ala Glu Ser Lys Thr Leu
2630 2635 2640

Ile Tyr Gln Met Ala Pro Ala Val Ser Lys Thr Glu Asp Val Trp
2645 2650 2655

Val Arg Ile Glu Asp Cys Pro Ile Asn Asn Pro Arg Ser Gly Arg
2660 2665 2670

Ser Pro Thr Gly Asn Thr Pro Pro Val Ile Asp Ser Val Ser Glu
2675 2680 2685

Lys Ala Asn Pro Asn Ile Lys Asp Ser Lys Asp Asn Gln Ala Lys
2690 2695 2700

Gln Asn Val Gly Asn Gly Ser Val Pro Met Arg Thr Val Gly Leu
2705 2710 2715

Glu Asn Arg Leu Asn Ser Phe Ile Gln Val Asp Ala Pro Asp Gln
2720 2725 2730

Lys Gly Thr Glu Ile Lys Pro Gly Gln Asn Asn Pro Val Pro Val
2735 2740 2745

Ser Glu Thr Asn Glu Ser Ser Ile Val Glu Arg Thr Pro Phe Ser
2750 2755 2760

Ser Ser Ser Ser Ser Lys His Ser Ser Pro Ser Gly Thr Val Ala
2765 2770 2775

```
Ala Arg  Val Thr Pro Phe Asn  Tyr Asn Pro Ser Pro  Arg Lys Ser
    2780                2785                2790


Ser Ala  Asp Ser Thr Ser Ala  Arg Pro Ser Gln Ile  Pro Thr Pro
    2795                2800                2805


Val Asn  Asn Asn Thr Lys Lys  Arg Asp Ser Lys Thr  Asp Ser Thr
    2810                2815                2820


Glu Ser  Ser Gly Thr Gln Ser  Pro Lys Arg His Ser  Gly Ser Tyr
    2825                2830                2835


Leu Val  Thr Ser Val
    2840


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Met Tyr Ala Ser Leu Gly Ser Gly Pro Val Ala Pro Leu Pro Ala Ser
1               5                  10                  15


Val Pro Pro Ser Val Leu Gly Ser Trp Ser Thr Gly Gly Ser Arg Ser
            20                  25                  30


Cys Val Arg Gln Glu Thr Lys Ser Pro Gly Gly Ala Arg Thr Ser Gly
        35                  40                  45


His Trp Ala Ser Val Trp Gln Glu Val Leu Lys Gln Leu Gln Gly Ser
```

```
    50                  55                  60

Ile Glu Asp Glu Ala Met Ala Ser Ser Gly Gln Ile Asp Leu Leu Glu
65                  70                  75                  80

Arg Leu Lys Glu Leu Asn Leu Asp Ser Ser Asn Phe Pro Gly Val Lys
                85                  90                  95

Leu Arg Ser Lys Met Ser Leu Arg Ser Tyr Gly Ser Arg Glu Gly Ser
            100                 105                 110

Val Ser Ser Arg Ser Gly Glu Cys Ser Pro Val Pro Met Gly Ser Phe
        115                 120                 125

Pro Arg Arg Gly Phe Val Asn Gly Ser Arg Glu Ser Thr Gly Tyr Leu
    130                 135                 140

Glu Glu Leu Glu Lys Glu Arg Ser Leu Leu Leu Ala Asp Leu Asp Lys
145                 150                 155                 160

Glu Glu Lys Glu Lys Asp Trp Tyr Tyr Ala Gln Leu Gln Asn Leu Thr
                165                 170                 175

Lys Arg Ile Asp Ser Leu Pro Leu Thr Glu Asn Phe Ser Leu Gln Thr
            180                 185                 190

Asp Met Thr Arg Arg Gln Leu Glu Tyr Glu Ala Arg Gln Ile Arg Val
        195                 200                 205

Ala Met Glu Glu Gln Leu Gly Thr Cys Gln Asp Met Glu Lys Arg Ala
    210                 215                 220

Gln Arg Ser Ser Gln Asn Lys His Glu Thr Gly Ser His Asp Ala Glu
225                 230                 235                 240

Arg Gln Asn Glu Gly Gln Gly Val Gly Glu Ile Asn Met Ala Thr Ser
                245                 250                 255

Gly Asn Gly Gln Gly Ser Thr Thr Arg Met Asp His Glu Thr Ala Ser
            260                 265                 270

Val Leu Ser Ser Ser Ser Thr His Ser Ala Pro Arg Arg Leu Thr Ser
        275                 280                 285
```

```
His Leu Gly Thr Lys Val Glu Met Val Tyr Ser Leu Leu Ser Met Leu
    290                 295                 300

Gly Thr His Asp Lys Asp Asp Met Ser Arg Thr Leu Leu Ala Met Ser
305                 310                 315                 320

Ser Ser Gln Asp Ser Cys Ile Ser Met Arg Gln Ser Gly Cys Leu Pro
                325                 330                 335

Leu Leu Ile Gln Leu Leu His Gly Asn Asp Lys Asp Ser Val Leu Leu
            340                 345                 350

Gly Asn Ser Arg Gly Ser Lys Glu Ala Arg Ala Arg Ala Ser Ala Ala
        355                 360                 365

Leu His Asn Ile Ile His Ser Gln Pro Asp Asp Lys Arg Gly Arg Arg
    370                 375                 380

Glu Ile Arg Val Leu His Leu Leu Glu Gln Ile Arg Ala Tyr Cys Glu
385                 390                 395                 400

Thr Cys Trp Glu Trp Gln Glu Ala His Glu Pro Gly Met Asp Gln Asp
                405                 410                 415

Lys Asn Pro Met Pro Ala Pro Val Glu His Gln Ile Cys Pro Ala Val
            420                 425                 430

Cys Val Leu Met Lys Leu Ser Phe Asp Glu Glu His Arg His Ala Met
        435                 440                 445

Asn Glu Leu Gly Gly Leu Gln Ala Ile Ala Glu Leu Leu Gln Val Asp
    450                 455                 460

Cys Glu Met Tyr Gly Leu Thr Asn Asp His Tyr Ser Ile Thr Leu Arg
465                 470                 475                 480

Arg Tyr Ala Gly Met Ala Leu Thr Asn Leu Thr Phe Gly Asp Val Ala
                485                 490                 495

Asn Lys Ala Thr Leu Cys Ser Met Lys Gly Cys Met Arg Ala Leu Val
            500                 505                 510
```

```
Ala Gln Leu Lys Ser Glu Ser Glu Asp Leu Gln Gln Val Ile Ala Ser
        515                 520                 525

Val Leu Arg Asn Leu Ser Trp Arg Ala Asp Val Asn Ser Lys Lys Thr
    530                 535                 540

Leu Arg Glu Val Gly Ser Val Lys Ala Leu Met Glu Cys Ala Leu Glu
545                 550                 555                 560

Val Lys Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu Trp Asn
                565                 570                 575

Leu Ser Ala His Cys Thr Glu Asn Lys Ala Asp Ile Cys Ala Val Asp
            580                 585                 590

Gly Ala Leu Ala Phe Leu Val Gly Thr Leu Thr Tyr Arg Ser Gln Thr
        595                 600                 605

Asn Thr Leu Ala Ile Ile Glu Ser Gly Gly Gly Ile Leu Arg Asn Val
    610                 615                 620

Ser Ser Leu Ile Ala Thr Asn Glu Asp His Arg Gln Ile Leu Arg Glu
625                 630                 635                 640

Asn Asn Cys Leu Gln Thr Leu Leu Gln His Leu Lys Ser His Ser Leu
                645                 650                 655

Thr Ile Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser Ala Arg
            660                 665                 670

Asn Pro Lys Asp Gln Glu Ala Leu Trp Asp Met Gly Ala Val Ser Met
        675                 680                 685

Leu Lys Asn Leu Ile His Ser Lys His Lys Met Ile Ala Met Gly Ser
    690                 695                 700

Ala Ala Ala Leu Arg Asn Leu Met Ala Asn Arg Pro Ala Lys Tyr Lys
705                 710                 715                 720

Asp Ala Asn Ile Met Ser Pro Gly Ser Ser Leu Pro Ser Leu His Val
                725                 730                 735
```

```
Arg Lys Gln Lys Ala Leu Glu Ala Glu Leu Asp Ala Gln His Leu Ser
            740                 745                 750

Glu Thr Phe Asp Asn Ile Asp Asn Leu Ser Pro Lys Ala Ser His Arg
        755                 760                 765

Ser Lys Gln Arg His Lys Gln Ser Leu Tyr Gly Asp Tyr Val Phe Asp
    770                 775                 780

Thr Asn Arg His Asp Asp Asn Arg Ser Asp Asn Phe Asn Thr Gly Asn
785                 790                 795                 800

Met Thr Val Leu Ser Pro Tyr Leu Asn Thr Thr Val Leu Pro Ser Ser
                805                 810                 815

Ser Ser Ser Arg Gly Ser Leu Asp Ser Ser Arg Ser Glu Lys Asp Arg
            820                 825                 830

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

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

Thr Ala Ala Gln Ile Ala Lys Val Met Glu Glu Val Ser Ala Ile His
865                 870                 875                 880

Thr Ser Gln Glu Asp Arg Ser Ser Gly Ser Thr Thr Glu Leu His Cys
                885                 890                 895

Val Thr Asp Glu Arg Asn Ala Leu Arg Arg Ser Ser Ala Ala His Thr
            900                 905                 910

His Ser Asn Thr Tyr Asn Phe Thr Lys Ser Glu Asn Ser Asn Arg Thr
        915                 920                 925

Cys Ser Met Pro Tyr Ala Lys Leu Glu Tyr Lys Arg Ser Ser Asn Asp
    930                 935                 940

Ser Leu Asn Ser Val Ser Ser Ser Asp Gly Tyr Gly Lys Arg Gly Gln
945                 950                 955                 960

Met Lys Pro Ser Ile Glu Ser Tyr Ser Glu Asp Asp Glu Ser Lys Phe
```

965 970 975

Cys Ser Tyr Gly Gln Tyr Pro Ala Asp Leu Ala His Lys Ile His Ser
980 985 990

Ala Asn His Met Asp Asp Asn Asp Gly Glu Leu Asp Thr Pro Ile Asn
995 1000 1005

Tyr Ser Leu Lys Tyr Ser Asp Glu Gln Leu Asn Ser Gly Arg Gln
1010 1015 1020

Ser Pro Ser Gln Asn Glu Arg Trp Ala Arg Pro Lys His Ile Ile
1025 1030 1035

Glu Asp Glu Ile Lys Gln Ser Glu Gln Arg Gln Ser Arg Asn Gln
1040 1045 1050

Ser Thr Thr Tyr Pro Val Tyr Thr Glu Ser Thr Asp Asp Lys His
1055 1060 1065

Leu Lys Phe Gln Pro His Phe Gly Gln Gln Glu Cys Val Ser Pro
1070 1075 1080

Tyr Arg Ser Arg Gly Ala Asn Gly Ser Glu Thr Asn Arg Val Gly
1085 1090 1095

Ser Asn His Gly Ile Asn Gln Asn Val Ser Gln Ser Leu Cys Gln
1100 1105 1110

Glu Asp Asp Tyr Glu Asp Asp Lys Pro Thr Asn Tyr Ser Glu Arg
1115 1120 1125

Tyr Ser Glu Glu Glu Gln His
1130 1135

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Met Ala Ala Ala Ser Tyr Asp Gln Leu Leu Lys Gln Val Glu Ala Leu
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Lys Met Glu Asn Ser Asn Leu Arg Gln Glu Leu Glu Asp Asn Ser Asn
20 25 30

His Leu Thr Lys Leu Glu Thr Glu Ala Ser Asn Met Lys Glu Val Leu
35 40 45

Lys Gln Leu Gln Gly Ser Ile Glu Asp Glu Ala Met Ala Ser Ser Gly
50 55 60

Gln Ile Asp Leu Leu Glu Arg Leu Lys Glu Leu Asn Leu Asp Ser Ser
65 70 75 80

Asn Phe Pro Gly Val Lys Leu Arg Ser Lys Met Ser Leu Arg Ser Tyr
85 90 95

Gly Ser Arg Glu Gly Ser Val Ser Ser Arg Ser Gly Glu Cys Ser Pro
100 105 110

Val Pro Met Gly Ser Phe Pro Arg Arg Gly Phe Val Asn Gly Ser Arg
115 120 125

Glu Ser Thr Gly Tyr Leu Glu Glu Leu Glu Lys Glu Arg Ser Leu Leu
130 135 140

Leu Ala Asp Leu Asp Lys Glu Glu Lys Glu Lys Asp Trp Tyr Tyr Ala
145 150 155 160

Gln Leu Gln Asn Leu Thr Lys Arg Ile Asp Ser Leu Pro Leu Thr Glu
165 170 175

```
Asn Phe Ser Leu Gln Thr Asp Met Thr Arg Arg Gln Leu Glu Tyr Glu
            180                 185                 190

Ala Arg Gln Ile Arg Val Ala Met Glu Glu Gln Leu Gly Thr Cys Gln
        195                 200                 205

Asp Met Glu Lys Arg Ala Gln Arg Arg Ile Ala Arg Ile Gln Gln Ile
    210                 215                 220

Glu Lys Asp Ile Leu Arg Ile Arg Gln Leu Leu Gln Ser Gln Ala Thr
225                 230                 235                 240

Glu Ala Glu Arg Ser Ser Gln Asn Lys His Glu Thr Gly Ser His Asp
                245                 250                 255

Ala Glu Arg Gln Asn Glu Gly Gln Gly Val Gly Glu Ile Asn Met Ala
            260                 265                 270

Thr Ser Gly Asn Gly Gln Gly Ser Thr Thr Arg Met Asp His Glu Thr
        275                 280                 285

Ala Ser Val Leu Ser Ser Ser Ser Thr His Ser Ala Pro Arg Arg Leu
    290                 295                 300

Thr Ser His Leu Gly Thr Lys Val Glu Met Val Tyr Ser Leu Leu Ser
305                 310                 315                 320

Met Leu Gly Thr His Asp Lys Asp Asp Met Ser Arg Thr Leu Leu Ala
                325                 330                 335

Met Ser Ser Ser Gln Asp Ser Cys Ile Ser Met Arg Gln Ser Gly Cys
            340                 345                 350

Leu Pro Leu Leu Ile Gln Leu Leu His Gly Asn Asp Lys Asp Ser Val
        355                 360                 365

Leu Leu Gly Asn Ser Arg Gly Ser Lys Glu Ala Arg Ala Arg Ala Ser
    370                 375                 380

Ala Ala Leu His Asn Ile Ile His Ser Gln Pro Asp Asp Lys Arg Gly
385                 390                 395                 400
```

```
Arg Arg Glu Ile Arg Val Leu His Leu Leu Glu Gln Ile Arg Ala Tyr
                405                 410                 415

Cys Glu Thr Cys Trp Glu Trp Gln Glu Ala His Glu Pro Gly Met Asp
            420                 425                 430

Gln Asp Lys Asn Pro Met Pro Ala Pro Val Glu His Gln Ile Cys Pro
        435                 440                 445

Ala Val Cys Val Leu Met Lys Leu Ser Phe Asp Glu Glu His Arg His
    450                 455                 460

Ala Met Asn Glu Leu Gly Gly Leu Gln Ala Ile Ala Glu Leu Leu Gln
465                 470                 475                 480

Val Asp Cys Glu Met Tyr Gly Leu Thr Asn Asp His Tyr Ser Ile Thr
                485                 490                 495

Leu Arg Arg Tyr Ala Gly Met Ala Leu Thr Asn Leu Thr Phe Gly Asp
            500                 505                 510

Val Ala Asn Lys Ala Thr Leu Cys Ser Met Lys Gly Cys Met Arg Ala
        515                 520                 525

Leu Val Ala Gln Leu Lys Ser Glu Ser Glu Asp Leu Gln Gln Val Ile
    530                 535                 540

Ala Ser Val Leu Arg Asn Leu Ser Trp Arg Ala Asp Val Asn Ser Lys
545                 550                 555                 560

Lys Thr Leu Arg Glu Val Gly Ser Val Lys Ala Leu Met Glu Cys Ala
                565                 570                 575

Leu Glu Val Lys Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu
            580                 585                 590

Trp Asn Leu Ser Ala His Cys Thr Glu Asn Lys Ala Asp Ile Cys Ala
        595                 600                 605

Val Asp Gly Ala Leu Ala Phe Leu Val Gly Thr Leu Thr Tyr Arg Ser
    610                 615                 620

Gln Thr Asn Thr Leu Ala Ile Ile Glu Ser Gly Gly Gly Ile Leu Arg
```

625 630 635 640

Asn Val Ser Ser Leu Ile Ala Thr Asn Glu Asp His Arg Gln Ile Leu
645 650 655

Arg Glu Asn Asn Cys Leu Gln Thr Leu Leu Gln His Leu Lys Ser His
660 665 670

Ser Leu Thr Ile Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser
675 680 685

Ala Arg Asn Pro Lys Asp Gln Glu Ala Leu Trp Asp Met Gly Ala Val
690 695 700

Ser Met Leu Lys Asn Leu Ile His Ser Lys His Lys Met Ile Ala Met
705 710 715 720

Gly Ser Ala Ala Ala Leu Arg Asn Leu Met Ala Asn Arg Pro Ala Lys
725 730 735

Tyr Lys Asp Ala Asn Ile Met Ser Pro Gly Ser Ser Leu Pro Ser Leu
740 745 750

His Val Arg Lys Gln Lys Ala Leu Glu Ala Glu Leu Asp Ala Gln His
755 760 765

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

His Arg Ser Lys Gln Arg His Lys Gln Ser Leu Tyr Gly Asp Tyr Val
785 790 795 800

Phe Asp Thr Asn Arg His Asp Asp Asn Arg Ser Asp Asn Phe Asn Thr
805 810 815

Gly Asn Met Thr Val Leu Ser Pro Tyr Leu Asn Thr Thr Val Leu Pro
820 825 830

Ser Ser Ser Ser Ser Arg Gly Ser Leu Asp Ser Ser Arg Ser Glu Lys
835 840 845

Asp Arg Ser Leu Glu Arg Glu Arg Gly Ile Gly Leu Gly Asn Tyr His
850 855 860

```
Pro Ala Thr Glu Asn Pro Gly Thr Ser Ser Lys Arg Gly Leu Gln Ile
865                 870                 875                 880

Ser Thr Thr Ala Ala Gln Ile Ala Lys Val Met Glu Glu Val Ser Ala
                885                 890                 895

Ile His Thr Ser Gln Glu Asp Arg Ser Ser Gly Ser Thr Thr Glu Leu
            900                 905                 910

His Cys Val Thr Asp Glu Arg Asn Ala Leu Arg Arg Ser Ser Ala Ala
        915                 920                 925

His Thr His Ser Asn Thr Tyr Asn Phe Thr Lys Ser Glu Asn Ser Asn
    930                 935                 940

Arg Thr Cys Ser Met Pro Tyr Ala Lys Leu Glu Tyr Lys Arg Ser Ser
945                 950                 955                 960

Asn Asp Ser Leu Asn Ser Val Ser Ser Ser Asp Gly Tyr Gly Lys Arg
                965                 970                 975

Gly Gln Met Lys Pro Ser Ile Glu Ser Tyr Ser Glu Asp Asp Glu Ser
            980                 985                 990

Lys Phe Cys Ser Tyr Gly Gln Tyr  Pro Ala Asp Leu Ala  His Lys
Ile
        995                 1000                1005

His Ser  Ala Asn His Met Asp  Asp Asn Asp Gly Glu  Leu Asp Thr
    1010                1015                1020

Pro Ile  Asn Tyr Ser Leu Lys  Tyr Ser Asp Glu Gln  Leu Asn Ser
    1025                1030                1035

Gly Arg  Gln Ser Pro Ser Gln  Asn Glu Arg Trp Ala  Arg Pro Lys
    1040                1045                1050

His Ile  Ile Glu Asp Glu Ile  Lys Gln Ser Glu Gln  Arg Gln Ser
    1055                1060                1065

Arg Asn  Gln Ser Thr Thr Tyr  Pro Val Tyr Thr Glu  Ser Thr Asp
    1070                1075                1080
```

```
Asp Lys  His Leu Lys Phe Gln  Pro His Phe Gly Gln  Gln Glu Cys
    1085                1090                1095

Val Ser  Pro Tyr Arg Ser Arg  Gly Ala Asn Gly Ser  Glu Thr Asn
    1100                1105                1110

Arg Val  Gly Ser Asn His Gly  Ile Asn Gln Asn Val  Ser Gln Ser
    1115                1120                1125

Leu Cys  Gln Glu Asp Asp Tyr  Glu Asp Asp Lys Pro  Thr Asn Tyr
    1130                1135                1140

Ser Glu  Arg Tyr Ser Glu Glu  Glu Gln His Glu Glu  Glu Glu Arg
    1145                1150                1155

Pro Thr  Asn Tyr Ser Ile Lys  Tyr Asn Glu Glu Lys  Arg His Val
    1160                1165                1170

Asp Gln  Pro Ile Asp Tyr Ser  Leu Lys Tyr Ala Thr  Asp Ile Pro
    1175                1180                1185

Ser Ser  Gln Lys Gln Ser Phe  Ser Phe Ser Lys Ser  Ser Ser Gly
    1190                1195                1200

Gln Ser  Ser Lys Thr Glu His  Met Ser Ser Ser Ser  Glu Asn Thr
    1205                1210                1215

Ser Thr  Pro Ser Ser Asn Ala  Lys Arg Gln Asn Gln  Leu His Pro
    1220                1225                1230

Ser Ser  Ala Gln Ser Arg Ser  Gly Gln Pro Gln Lys  Ala Ala Thr
    1235                1240                1245

Cys Lys  Val Ser Ser Ile Asn  Gln Glu Thr Ile Gln  Thr Tyr Cys
    1250                1255                1260

Val Glu  Asp Thr Pro Ile Cys  Phe Ser Arg Cys Ser  Ser Leu Ser
    1265                1270                1275

Ser Leu  Ser Ser Ala Glu Asp  Glu Ile Gly Cys Asn  Gln Thr Thr
    1280                1285                1290
```

Gln Glu Ala Asp Ser Ala Asn Thr Leu Gln Ile
    1295   1300

<210> 2663
<211> 287
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 623; "

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

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<223> /note="Gene Name:
      adenomatous polyposis coli; "

<220>
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Met Ala Ala Ala Ser Tyr Asp Gln Leu Leu Lys Gln Val Glu Ala Leu
1   5   10   15

Lys Met Glu Asn Ser Asn Leu Arg Gln Glu Leu Glu Asp Asn Ser Asn
            20   25   30

His Leu Thr Lys Leu Glu Thr Glu Ala Ser Asn Met Lys Glu Val Leu
        35   40   45

Lys Gln Leu Gln Gly Ser Ile Glu Asp Glu Ala Met Ala Ser Ser Gly
    50   55   60

Gln Ile Asp Leu Leu Glu Arg Leu Lys Glu Leu Asn Leu Asp Ser Ser
65   70   75   80

Asn Phe Pro Gly Val Lys Leu Arg Ser Lys Met Ser Leu Arg Ser Tyr
                85   90   95

Gly Ser Arg Glu Gly Ser Val Ser Ser Arg Ser Gly Glu Cys Ser Pro
            100   105   110

Val Pro Met Gly Ser Phe Pro Arg Arg Gly Phe Val Asn Gly Ser Arg

```
        115                 120                 125

Glu Ser Thr Gly Tyr Leu Glu Glu Leu Glu Lys Glu Arg Ser Leu Leu
    130                 135                 140

Leu Ala Asp Leu Asp Lys Glu Glu Lys Glu Lys Asp Trp Tyr Tyr Ala
145                 150                 155                 160

Gln Leu Gln Asn Leu Thr Lys Arg Ile Asp Ser Leu Pro Leu Thr Glu
                165                 170                 175

Asn Phe Ser Leu Gln Thr Asp Met Thr Arg Arg Gln Leu Glu Tyr Glu
            180                 185                 190

Ala Arg Gln Ile Arg Val Ala Met Glu Glu Gln Leu Gly Thr Cys Gln
        195                 200                 205

Asp Met Glu Lys Arg Ala Gln Arg Arg Ile Ala Arg Ile Gln Gln Ile
    210                 215                 220

Glu Lys Asp Ile Leu Arg Ile Arg Gln Leu Leu Gln Ser Gln Ala Thr
225                 230                 235                 240

Glu Ala Glu Arg Ser Ser Gln Asn Lys His Glu Thr Gly Ser His Asp
                245                 250                 255

Ala Glu Arg Gln Asn Glu Gly Gln Gly Val Gly Glu Ile Asn Met Ala
            260                 265                 270

Thr Ser Gly Asn Gly Gln Ile Glu Lys Met Arg Met Phe Glu Cys
        275                 280                 285


<210> 2664
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<400> 2664
Met Ala Ala Ala Ser Tyr Asp Gln Leu Leu Lys Gln Val Glu Ala Leu
1 5 10 15

Lys Met Glu Asn Ser Asn Leu Arg Gln Glu Leu Glu Asp Asn Ser Asn
20 25 30

His Leu Thr Lys Leu Glu Thr Glu Ala Ser Asn Met Lys Glu Val Leu
35 40 45

Lys Gln Leu Gln Gly Ser Ile Glu Asp Glu Ala Met Ala Ser Ser Gly
50 55 60

Gln Ile Asp Leu Leu Glu Arg Leu Lys Glu Leu Asn Leu Asp Ser Ser
65 70 75 80

Asn Phe Pro Gly Val Lys Leu Arg Ser Lys Met Ser Leu Arg Ser Tyr
85 90 95

Gly Ser Arg Glu Gly Ser Val Ser Ser Arg Ser Gly Glu Cys Ser Pro
100 105 110

Val Pro Met Gly Ser Phe
115

<210> 2665
<211> 2843
<212> PRT
<213> Homo sapiens

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<400> 2665
Met Ala Ala Ala Ser Tyr Asp Gln Leu Leu Lys Gln Val Glu Ala Leu
1   5   10   15

Lys Met Glu Asn Ser Asn Leu Arg Gln Glu Leu Glu Asp Asn Ser Asn
            20   25   30

His Leu Thr Lys Leu Glu Thr Glu Ala Ser Asn Met Lys Glu Val Leu
        35   40   45

Lys Gln Leu Gln Gly Ser Ile Glu Asp Glu Ala Met Ala Ser Ser Gly
    50   55   60

Gln Ile Asp Leu Leu Glu Arg Leu Lys Glu Leu Asn Leu Asp Ser Ser
65   70   75   80

Asn Phe Pro Gly Val Lys Leu Arg Ser Lys Met Ser Leu Arg Ser Tyr
                85   90   95

Gly Ser Arg Glu Gly Ser Val Ser Ser Arg Ser Gly Glu Cys Ser Pro
            100   105   110

Val Pro Met Gly Ser Phe Pro Arg Arg Gly Phe Val Asn Gly Ser Arg
        115   120   125

Glu Ser Thr Gly Tyr Leu Glu Glu Leu Glu Lys Glu Arg Ser Leu Leu
    130   135   140

Leu Ala Asp Leu Asp Lys Glu Glu Lys Glu Lys Asp Trp Tyr Tyr Ala
145   150   155   160

Gln Leu Gln Asn Leu Thr Lys Arg Ile Asp Ser Leu Pro Leu Thr Glu
                165   170   175

Asn Phe Ser Leu Gln Thr Asp Met Thr Arg Arg Gln Leu Glu Tyr Glu
            180   185   190

```
Ala Arg Gln Ile Arg Val Ala Met Glu Glu Gln Leu Gly Thr Cys Gln
        195                 200                 205

Asp Met Glu Lys Arg Ala Gln Arg Arg Ile Ala Arg Ile Gln Gln Ile
    210                 215                 220

Glu Lys Asp Ile Leu Arg Ile Arg Gln Leu Leu Gln Ser Gln Ala Thr
225                 230                 235                 240

Glu Ala Glu Arg Ser Ser Gln Asn Lys His Glu Thr Gly Ser His Asp
                245                 250                 255

Ala Glu Arg Gln Asn Glu Gly Gln Gly Val Gly Glu Ile Asn Met Ala
            260                 265                 270

Thr Ser Gly Asn Gly Gln Gly Ser Thr Thr Arg Met Asp His Glu Thr
        275                 280                 285

Ala Ser Val Leu Ser Ser Ser Ser Thr His Ser Ala Pro Arg Arg Leu
    290                 295                 300

Thr Ser His Leu Gly Thr Lys Val Glu Met Val Tyr Ser Leu Leu Ser
305                 310                 315                 320

Met Leu Gly Thr His Asp Lys Asp Asp Met Ser Arg Thr Leu Leu Ala
                325                 330                 335

Met Ser Ser Ser Gln Asp Ser Cys Ile Ser Met Arg Gln Ser Gly Cys
            340                 345                 350

Leu Pro Leu Leu Ile Gln Leu Leu His Gly Asn Asp Lys Asp Ser Val
        355                 360                 365

Leu Leu Gly Asn Ser Arg Gly Ser Lys Glu Ala Arg Ala Arg Ala Ser
    370                 375                 380

Ala Ala Leu His Asn Ile Ile His Ser Gln Pro Asp Asp Lys Arg Gly
385                 390                 395                 400

Arg Arg Glu Ile Arg Val Leu His Leu Leu Glu Gln Ile Arg Ala Tyr
                405                 410                 415
```

```
Cys Glu Thr Cys Trp Glu Trp Gln Glu Ala His Glu Pro Gly Met Asp
            420                 425                 430

Gln Asp Lys Asn Pro Met Pro Ala Pro Val Glu His Gln Ile Cys Pro
        435                 440                 445

Ala Val Cys Val Leu Met Lys Leu Ser Phe Asp Glu Glu His Arg His
    450                 455                 460

Ala Met Asn Glu Leu Gly Gly Leu Gln Ala Ile Ala Glu Leu Leu Gln
465                 470                 475                 480

Val Asp Cys Glu Met Tyr Gly Leu Thr Asn Asp His Tyr Ser Ile Thr
                485                 490                 495

Leu Arg Arg Tyr Ala Gly Met Ala Leu Thr Asn Leu Thr Phe Gly Asp
            500                 505                 510

Val Ala Asn Lys Ala Thr Leu Cys Ser Met Lys Gly Cys Met Arg Ala
        515                 520                 525

Leu Val Ala Gln Leu Lys Ser Glu Ser Glu Asp Leu Gln Gln Val Ile
    530                 535                 540

Ala Ser Val Leu Arg Asn Leu Ser Trp Arg Ala Asp Val Asn Ser Lys
545                 550                 555                 560

Lys Thr Leu Arg Glu Val Gly Ser Val Lys Ala Leu Met Glu Cys Ala
                565                 570                 575

Leu Glu Val Lys Lys Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu
            580                 585                 590

Trp Asn Leu Ser Ala His Cys Thr Glu Asn Lys Ala Asp Ile Cys Ala
        595                 600                 605

Val Asp Gly Ala Leu Ala Phe Leu Val Gly Thr Leu Thr Tyr Arg Ser
    610                 615                 620

Gln Thr Asn Thr Leu Ala Ile Ile Glu Ser Gly Gly Gly Ile Leu Arg
625                 630                 635                 640
```

```
Asn Val Ser Ser Leu Ile Ala Thr Asn Glu Asp His Arg Gln Ile Leu
                645                 650                 655

Arg Glu Asn Asn Cys Leu Gln Thr Leu Leu Gln His Leu Lys Ser His
            660                 665                 670

Ser Leu Thr Ile Val Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser
        675                 680                 685

Ala Arg Asn Pro Lys Asp Gln Glu Ala Leu Trp Asp Met Gly Ala Val
    690                 695                 700

Ser Met Leu Lys Asn Leu Ile His Ser Lys His Lys Met Ile Ala Met
705                 710                 715                 720

Gly Ser Ala Ala Ala Leu Arg Asn Leu Met Ala Asn Arg Pro Ala Lys
                725                 730                 735

Tyr Lys Asp Ala Asn Ile Met Ser Pro Gly Ser Ser Leu Pro Ser Leu
            740                 745                 750

His Val Arg Lys Gln Lys Ala Leu Glu Ala Glu Leu Asp Ala Gln His
        755                 760                 765

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

His Arg Ser Lys Gln Arg His Lys Gln Ser Leu Tyr Gly Asp Tyr Val
785                 790                 795                 800

Phe Asp Thr Asn Arg His Asp Asp Asn Arg Ser Asp Asn Phe Asn Thr
                805                 810                 815

Gly Asn Met Thr Val Leu Ser Pro Tyr Leu Asn Thr Thr Val Leu Pro
            820                 825                 830

Ser Ser Ser Ser Ser Arg Gly Ser Leu Asp Ser Ser Arg Ser Glu Lys
        835                 840                 845

Asp Arg Ser Leu Glu Arg Glu Arg Gly Ile Gly Leu Gly Asn Tyr His
    850                 855                 860

Pro Ala Thr Glu Asn Pro Gly Thr Ser Ser Lys Arg Gly Leu Gln Ile
```

865 870 875 880

Ser Thr Thr Ala Ala Gln Ile Ala Lys Val Met Glu Glu Val Ser Ala
885 890 895

Ile His Thr Ser Gln Glu Asp Arg Ser Ser Gly Ser Thr Thr Glu Leu
900 905 910

His Cys Val Thr Asp Glu Arg Asn Ala Leu Arg Arg Ser Ser Ala Ala
915 920 925

His Thr His Ser Asn Thr Tyr Asn Phe Thr Lys Ser Glu Asn Ser Asn
930 935 940

Arg Thr Cys Ser Met Pro Tyr Ala Lys Leu Glu Tyr Lys Arg Ser Ser
945 950 955 960

Asn Asp Ser Leu Asn Ser Val Ser Ser Ser Asp Gly Tyr Gly Lys Arg
965 970 975

Gly Gln Met Lys Pro Ser Ile Glu Ser Tyr Ser Glu Asp Asp Glu Ser
980 985 990

Lys Phe Cys Ser Tyr Gly Gln Tyr Pro Ala Asp Leu Ala His Lys
Ile
995 1000 1005

His Ser Ala Asn His Met Asp Asp Asn Asp Gly Glu Leu Asp Thr
1010 1015 1020

Pro Ile Asn Tyr Ser Leu Lys Tyr Ser Asp Glu Gln Leu Asn Ser
1025 1030 1035

Gly Arg Gln Ser Pro Ser Gln Asn Glu Arg Trp Ala Arg Pro Lys
1040 1045 1050

His Ile Ile Glu Asp Glu Ile Lys Gln Ser Glu Gln Arg Gln Ser
1055 1060 1065

Arg Asn Gln Ser Thr Thr Tyr Pro Val Tyr Thr Glu Ser Thr Asp
1070 1075 1080

Asp Lys His Leu Lys Phe Gln Pro His Phe Gly Gln Gln Glu Cys

1085 1090 1095

Val Ser Pro Tyr Arg Ser Arg Gly Ala Asn Gly Ser Glu Thr Asn
1100 1105 1110

Arg Val Gly Ser Asn His Gly Ile Asn Gln Asn Val Ser Gln Ser
1115 1120 1125

Leu Cys Gln Glu Asp Asp Tyr Glu Asp Asp Lys Pro Thr Asn Tyr
1130 1135 1140

Ser Glu Arg Tyr Ser Glu Glu Glu Gln His Glu Glu Glu Glu Arg
1145 1150 1155

Pro Thr Asn Tyr Ser Ile Lys Tyr Asn Glu Glu Lys Arg His Val
1160 1165 1170

Asp Gln Pro Ile Asp Tyr Ser Leu Lys Tyr Ala Thr Asp Ile Pro
1175 1180 1185

Ser Ser Gln Lys Gln Ser Phe Ser Phe Ser Lys Ser Ser Ser Gly
1190 1195 1200

Gln Ser Ser Lys Thr Glu His Met Ser Ser Ser Ser Glu Asn Thr
1205 1210 1215

Ser Thr Pro Ser Ser Asn Ala Lys Arg Gln Asn Gln Leu His Pro
1220 1225 1230

Ser Ser Ala Gln Ser Arg Ser Gly Gln Pro Gln Lys Ala Ala Thr
1235 1240 1245

Cys Lys Val Ser Ser Ile Asn Gln Glu Thr Ile Gln Thr Tyr Cys
1250 1255 1260

Val Glu Asp Thr Pro Ile Cys Phe Ser Arg Cys Ser Ser Leu Ser
1265 1270 1275

Ser Leu Ser Ser Ala Glu Asp Glu Ile Gly Cys Asn Gln Thr Thr
1280 1285 1290

Gln Glu Ala Asp Ser Ala Asn Thr Leu Gln Ile Ala Glu Ile Lys
1295 1300 1305

```
Glu Lys  Ile Gly Thr Arg Ser  Ala Glu Asp Pro Val  Ser Glu Val
    1310                1315                1320

Pro Ala  Val Ser Gln His Pro  Arg Thr Lys Ser Ser  Arg Leu Gln
    1325                1330                1335

Gly Ser  Ser Leu Ser Ser Glu  Ser Ala Arg His Lys  Ala Val Glu
    1340                1345                1350

Phe Ser  Ser Gly Ala Lys Ser  Pro Ser Lys Ser Gly  Ala Gln Thr
    1355                1360                1365

Pro Lys  Ser Pro Pro Glu His  Tyr Val Gln Glu Thr  Pro Leu Met
    1370                1375                1380

Phe Ser  Arg Cys Thr Ser Val  Ser Ser Leu Asp Ser  Phe Glu Ser
    1385                1390                1395

Arg Ser  Ile Ala Ser Ser Val  Gln Ser Glu Pro Cys  Ser Gly Met
    1400                1405                1410

Val Ser  Gly Ile Ile Ser Pro  Ser Asp Leu Pro Asp  Ser Pro Gly
    1415                1420                1425

Gln Thr  Met Pro Pro Ser Arg  Ser Lys Thr Pro Pro  Pro Pro Pro
    1430                1435                1440

Gln Thr  Ala Gln Thr Lys Arg  Glu Val Pro Lys Asn  Lys Ala Pro
    1445                1450                1455

Thr Ala  Glu Lys Arg Glu Ser  Gly Pro Lys Gln Ala  Ala Val Asn
    1460                1465                1470

Ala Ala  Val Gln Arg Val Gln  Val Leu Pro Asp Ala  Asp Thr Leu
    1475                1480                1485

Leu His  Phe Ala Thr Glu Ser  Thr Pro Asp Gly Phe  Ser Cys Ser
    1490                1495                1500

Ser Ser  Leu Ser Ala Leu Ser  Leu Asp Glu Pro Phe  Ile Gln Lys
    1505                1510                1515
```

```
Asp Val  Glu Leu Arg Ile Met  Pro Pro Val Gln Glu  Asn Asp Asn
     1520                1525                1530

Gly Asn  Glu Thr Glu Ser Glu  Gln Pro Lys Glu Ser  Asn Glu Asn
     1535                1540                1545

Gln Glu  Lys Glu Ala Glu Lys  Thr Ile Asp Ser Glu  Lys Asp Leu
     1550                1555                1560

Leu Asp  Asp Ser Asp Asp Asp  Asp Ile Glu Ile Leu  Glu Glu Cys
     1565                1570                1575

Ile Ile  Ser Ala Met Pro Thr  Lys Ser Ser Arg Lys  Ala Lys Lys
     1580                1585                1590

Pro Ala  Gln Thr Ala Ser Lys  Leu Pro Pro Pro Val  Ala Arg Lys
     1595                1600                1605

Pro Ser  Gln Leu Pro Val Tyr  Lys Leu Leu Pro Ser  Gln Asn Arg
     1610                1615                1620

Leu Gln  Pro Gln Lys His Val  Ser Phe Thr Pro Gly  Asp Asp Met
     1625                1630                1635

Pro Arg  Val Tyr Cys Val Glu  Gly Thr Pro Ile Asn  Phe Ser Thr
     1640                1645                1650

Ala Thr  Ser Leu Ser Asp Leu  Thr Ile Glu Ser Pro  Pro Asn Glu
     1655                1660                1665

Leu Ala  Ala Gly Glu Gly Val  Arg Gly Gly Ala Gln  Ser Gly Glu
     1670                1675                1680

Phe Glu  Lys Arg Asp Thr Ile  Pro Thr Glu Gly Arg  Ser Thr Asp
     1685                1690                1695

Glu Ala  Gln Gly Gly Lys Thr  Ser Ser Val Thr Ile  Pro Glu Leu
     1700                1705                1710

Asp Asp  Asn Lys Ala Glu Glu  Gly Asp Ile Leu Ala  Glu Cys Ile
     1715                1720                1725
```

```
Asn Ser  Ala Met Pro Lys Gly  Lys Ser His Lys Pro  Phe Arg Val
    1730                1735                1740

Lys Lys  Ile Met Asp Gln Val  Gln Gln Ala Ser Ala  Ser Ser Ser
    1745                1750                1755

Ala Pro  Asn Lys Asn Gln Leu  Asp Gly Lys Lys Lys  Lys Pro Thr
    1760                1765                1770

Ser Pro  Val Lys Pro Ile Pro  Gln Asn Thr Glu Tyr  Arg Thr Arg
    1775                1780                1785

Val Arg  Lys Asn Ala Asp Ser  Lys Asn Asn Leu Asn  Ala Glu Arg
    1790                1795                1800

Val Phe  Ser Asp Asn Lys Asp  Ser Lys Lys Gln Asn  Leu Lys Asn
    1805                1810                1815

Asn Ser  Lys Val Phe Asn Asp  Lys Leu Pro Asn Asn  Glu Asp Arg
    1820                1825                1830

Val Arg  Gly Ser Phe Ala Phe  Asp Ser Pro His His  Tyr Thr Pro
    1835                1840                1845

Ile Glu  Gly Thr Pro Tyr Cys  Phe Ser Arg Asn Asp  Ser Leu Ser
    1850                1855                1860

Ser Leu  Asp Phe Asp Asp Asp  Asp Val Asp Leu Ser  Arg Glu Lys
    1865                1870                1875

Ala Glu  Leu Arg Lys Ala Lys  Glu Asn Lys Glu Ser  Glu Ala Lys
    1880                1885                1890

Val Thr  Ser His Thr Glu Leu  Thr Ser Asn Gln Gln  Ser Ala Asn
    1895                1900                1905

Lys Thr  Gln Ala Ile Ala Lys  Gln Pro Ile Asn Arg  Gly Gln Pro
    1910                1915                1920

Lys Pro  Ile Leu Gln Lys Gln  Ser Thr Phe Pro Gln  Ser Ser Lys
    1925                1930                1935

Asp Ile  Pro Asp Arg Gly Ala  Ala Thr Asp Glu Lys  Leu Gln Asn
```

1940 1945 1950

Phe Ala Ile Glu Asn Thr Pro Val Cys Phe Ser His Asn Ser Ser
1955 1960 1965

Leu Ser Ser Leu Ser Asp Ile Asp Gln Glu Asn Asn Asn Lys Glu
1970 1975 1980

Asn Glu Pro Ile Lys Glu Thr Glu Pro Pro Asp Ser Gln Gly Glu
1985 1990 1995

Pro Ser Lys Pro Gln Ala Ser Gly Tyr Ala Pro Lys Ser Phe His
2000 2005 2010

Val Glu Asp Thr Pro Val Cys Phe Ser Arg Asn Ser Ser Leu Ser
2015 2020 2025

Ser Leu Ser Ile Asp Ser Glu Asp Asp Leu Leu Gln Glu Cys Ile
2030 2035 2040

Ser Ser Ala Met Pro Lys Lys Lys Lys Pro Ser Arg Leu Lys Gly
2045 2050 2055

Asp Asn Glu Lys His Ser Pro Arg Asn Met Gly Gly Ile Leu Gly
2060 2065 2070

Glu Asp Leu Thr Leu Asp Leu Lys Asp Ile Gln Arg Pro Asp Ser
2075 2080 2085

Glu His Gly Leu Ser Pro Asp Ser Glu Asn Phe Asp Trp Lys Ala
2090 2095 2100

Ile Gln Glu Gly Ala Asn Ser Ile Val Ser Ser Leu His Gln Ala
2105 2110 2115

Ala Ala Ala Ala Cys Leu Ser Arg Gln Ala Ser Ser Asp Ser Asp
2120 2125 2130

Ser Ile Leu Ser Leu Lys Ser Gly Ile Ser Leu Gly Ser Pro Phe
2135 2140 2145

His Leu Thr Pro Asp Gln Glu Glu Lys Pro Phe Thr Ser Asn Lys
2150 2155 2160

```
Gly Pro  Arg Ile Leu Lys Pro  Gly Glu Lys Ser Thr  Leu Glu Thr
    2165                2170                2175

Lys Lys  Ile Glu Ser Glu Ser  Lys Gly Ile Lys Gly  Gly Lys Lys
    2180                2185                2190

Val Tyr  Lys Ser Leu Ile Thr  Gly Lys Val Arg Ser  Asn Ser Glu
    2195                2200                2205

Ile Ser  Gly Gln Met Lys Gln  Pro Leu Gln Ala Asn  Met Pro Ser
    2210                2215                2220

Ile Ser  Arg Gly Arg Thr Met  Ile His Ile Pro Gly  Val Arg Asn
    2225                2230                2235

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

Lys Thr  Pro Ala Ser Lys Ser  Pro Ser Glu Gly Gln  Thr Ala Thr
    2255                2260                2265

Thr Ser  Pro Arg Gly Ala Lys  Pro Ser Val Lys Ser  Glu Leu Ser
    2270                2275                2280

Pro Val  Ala Arg Gln Thr Ser  Gln Ile Gly Gly Ser  Ser Lys Ala
    2285                2290                2295

Pro Ser  Arg Ser Gly Ser Arg  Asp Ser Thr Pro Ser  Arg Pro Ala
    2300                2305                2310

Gln Gln  Pro Leu Ser Arg Pro  Ile Gln Ser Pro Gly  Arg Asn Ser
    2315                2320                2325

Ile Ser  Pro Gly Arg Asn Gly  Ile Ser Pro Pro Asn  Lys Leu Ser
    2330                2335                2340

Gln Leu  Pro Arg Thr Ser Ser  Pro Ser Thr Ala Ser  Thr Lys Ser
    2345                2350                2355

Ser Gly  Ser Gly Lys Met Ser  Tyr Thr Ser Pro Gly  Arg Gln Met
    2360                2365                2370
```

```
Ser Gln  Gln Asn Leu Thr Lys  Gln Thr Gly Leu Ser  Lys Asn Ala
    2375                2380                2385

Ser Ser  Ile Pro Arg Ser Glu  Ser Ala Ser Lys Gly  Leu Asn Gln
    2390                2395                2400

Met Asn  Asn Gly Asn Gly Ala  Asn Lys Lys Val Glu  Leu Ser Arg
    2405                2410                2415

Met Ser  Ser Thr Lys Ser Ser  Gly Ser Glu Ser Asp  Arg Ser Glu
    2420                2425                2430

Arg Pro  Val Leu Val Arg Gln  Ser Thr Phe Ile Lys  Glu Ala Pro
    2435                2440                2445

Ser Pro  Thr Leu Arg Arg Lys  Leu Glu Glu Ser Ala  Ser Phe Glu
    2450                2455                2460

Ser Leu  Ser Pro Ser Ser Arg  Pro Ala Ser Pro Thr  Arg Ser Gln
    2465                2470                2475

Ala Gln  Thr Pro Val Leu Ser  Pro Ser Leu Pro Asp  Met Ser Leu
    2480                2485                2490

Ser Thr  His Ser Ser Val Gln  Ala Gly Gly Trp Arg  Lys Leu Pro
    2495                2500                2505

Pro Asn  Leu Ser Pro Thr Ile  Glu Tyr Asn Asp Gly  Arg Pro Ala
    2510                2515                2520

Lys Arg  His Asp Ile Ala Arg  Ser His Ser Glu Ser  Pro Ser Arg
    2525                2530                2535

Leu Pro  Ile Asn Arg Ser Gly  Thr Trp Lys Arg Glu  His Ser Lys
    2540                2545                2550

His Ser  Ser Ser Leu Pro Arg  Val Ser Thr Trp Arg  Arg Thr Gly
    2555                2560                2565

Ser Ser  Ser Ser Ile Leu Ser  Ala Ser Ser Glu Ser  Ser Glu Lys
    2570                2575                2580
```

```
Ala Lys  Ser Glu Asp Glu Lys  His Val Asn Ser Ile  Ser Gly Thr
    2585                 2590                 2595

Lys Gln  Ser Lys Glu Asn Gln  Val Ser Ala Lys Gly  Thr Trp Arg
    2600                 2605                 2610

Lys Ile  Lys Glu Asn Glu Phe  Ser Pro Thr Asn Ser  Thr Ser Gln
    2615                 2620                 2625

Thr Val  Ser Ser Gly Ala Thr  Asn Gly Ala Glu Ser  Lys Thr Leu
    2630                 2635                 2640

Ile Tyr  Gln Met Ala Pro Ala  Val Ser Lys Thr Glu  Asp Val Trp
    2645                 2650                 2655

Val Arg  Ile Glu Asp Cys Pro  Ile Asn Asn Pro Arg  Ser Gly Arg
    2660                 2665                 2670

Ser Pro  Thr Gly Asn Thr Pro  Pro Val Ile Asp Ser  Val Ser Glu
    2675                 2680                 2685

Lys Ala  Asn Pro Asn Ile Lys  Asp Ser Lys Asp Asn  Gln Ala Lys
    2690                 2695                 2700

Gln Asn  Val Gly Asn Gly Ser  Val Pro Met Arg Thr  Val Gly Leu
    2705                 2710                 2715

Glu Asn  Arg Leu Asn Ser Phe  Ile Gln Val Asp Ala  Pro Asp Gln
    2720                 2725                 2730

Lys Gly  Thr Glu Ile Lys Pro  Gly Gln Asn Asn Pro  Val Pro Val
    2735                 2740                 2745

Ser Glu  Thr Asn Glu Ser Ser  Ile Val Glu Arg Thr  Pro Phe Ser
    2750                 2755                 2760

Ser Ser  Ser Ser Ser Lys His  Ser Ser Pro Ser Gly  Thr Val Ala
    2765                 2770                 2775

Ala Arg  Val Thr Pro Phe Asn  Tyr Asn Pro Ser Pro  Arg Lys Ser
    2780                 2785                 2790

Ser Ala  Asp Ser Thr Ser Ala  Arg Pro Ser Gln Ile  Pro Thr Pro
```

```
    2795                2800                2805

Val Asn  Asn Asn Thr Lys Lys  Arg Asp Ser Lys Thr  Asp Ser Thr
    2810                2815                2820

Glu Ser  Ser Gly Thr Gln Ser  Pro Lys Arg His Ser  Gly Ser Tyr
    2825                2830                2835

Leu Val  Thr Ser Val
    2840

<210> 2666
<211> 272
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 623; "

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

<220>
<221> source
<223> /note="Gene Name:
      adenomatous polyposis coli; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473355"

<400> 2666
Leu Ser Phe Asp Glu Glu His Arg His Ala Met Asn Glu Leu Gly Arg
1               5                  10                  15

Lys Ala Thr Arg Gly Ile Ser Ser Gln Glu Leu Gly Gln Gly Leu Ser
            20                  25                  30

Gly Gly Leu Gln Ala Ile Ala Glu Leu Leu Gln Val Asp Cys Glu Met
        35                  40                  45

Tyr Gly Leu Thr Asn Asp His Tyr Ser Ile Thr Leu Arg Arg Tyr Ala
    50                  55                  60

Gly Met Ala Leu Thr Asn Leu Thr Phe Gly Asp Val Ala Asn Lys Ala
65                  70                  75                  80
```

```
Thr Leu Cys Ser Met Lys Gly Cys Met Arg Ala Leu Val Ala Gln Leu
                85                  90                  95

Lys Ser Glu Ser Glu Asp Leu Gln Gln Val Ile Ala Ser Val Leu Arg
            100                 105                 110

Asn Leu Ser Trp Arg Ala Asp Val Asn Ser Lys Lys Thr Leu Arg Glu
        115                 120                 125

Val Gly Ser Val Lys Ala Leu Met Glu Cys Ala Leu Glu Val Lys Lys
    130                 135                 140

Glu Ser Thr Leu Lys Ser Val Leu Ser Ala Leu Trp Asn Leu Ser Ala
145                 150                 155                 160

His Cys Thr Glu Asn Lys Ala Asp Ile Cys Ala Val Asp Gly Ala Leu
                165                 170                 175

Ala Phe Leu Val Gly Thr Leu Thr Tyr Arg Ser Gln Thr Asn Thr Leu
            180                 185                 190

Ala Ile Ile Glu Ser Gly Gly Gly Ile Leu Arg Asn Val Ser Ser Leu
        195                 200                 205

Ile Ala Thr Asn Glu Asp His Arg Gln Ile Leu Arg Glu Asn Asn Cys
    210                 215                 220

Leu Gln Thr Leu Leu Gln His Leu Lys Ser His Ser Leu Thr Ile Val
225                 230                 235                 240

Ser Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser Ala Arg Asn Pro Lys
                245                 250                 255

Asp Gln Glu Ala Leu Trp Asp Met Gly Ala Val Ser Met Leu Lys Asn
            260                 265                 270
```

<210> 2667
<211> 58
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 623; "

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

<220>
<221> source
<223> /note="Gene Name:
adenomatous polyposis coli; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481752"

<400> 2667
Met Tyr Ala Ser Leu Gly Ser Gly Pro Val Ala Pro Leu Pro Ala Ser
1 5 10 15

Val Pro Pro Ser Val Leu Gly Ser Trp Ser Thr Gly Gly Ser Arg Ser
20 25 30

Cys Val Arg Gln Glu Thr Lys Ser Pro Gly Gly Ala Arg Thr Ser Gly
35 40 45

His Trp Ala Ser Val Trp Gln Val Gln Gly
50 55

<210> 2668
<211> 51
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 623; "

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

<220>
<221> source
<223> /note="Gene Name:
adenomatous polyposis coli; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484935"

<220>
<221> MOD_RES
<222> (1)..(1)

<223> Any amino acid

<400> 2668
Xaa Pro Ala Pro Val Glu His Gln Ile Cys Pro Ala Val Cys Val Leu
1 5 10 15

Met Lys Leu Ser Phe Asp Glu Glu His Arg His Ala Met Asn Glu Leu
            20 25 30

Gly Ile Asn Pro Gln Lys Arg Ile Glu Cys Leu Met Glu Phe Val Ser
        35 40 45

Thr Leu His
    50

<210> 2669
<211> 326
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 624; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA1; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine A1 receptor; "

<220>
<221> source
<223> /note="Uniprot ID: P30542; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000308549"

<400> 2669
Met Pro Pro Ser Ile Ser Ala Phe Gln Ala Ala Tyr Ile Gly Ile Glu
1 5 10 15

Val Leu Ile Ala Leu Val Ser Val Pro Gly Asn Val Leu Val Ile Trp
            20 25 30

Ala Val Lys Val Asn Gln Ala Leu Arg Asp Ala Thr Phe Cys Phe Ile
        35 40 45

```
Val Ser Leu Ala Val Ala Asp Val Ala Val Gly Ala Leu Val Ile Pro
    50                  55                  60

Leu Ala Ile Leu Ile Asn Ile Gly Pro Gln Thr Tyr Phe His Thr Cys
65                  70                  75                  80

Leu Met Val Ala Cys Pro Val Leu Ile Leu Thr Gln Ser Ser Ile Leu
                85                  90                  95

Ala Leu Leu Ala Ile Ala Val Asp Arg Tyr Leu Arg Val Lys Ile Pro
            100                 105                 110

Leu Arg Tyr Lys Met Val Val Thr Pro Arg Arg Ala Ala Val Ala Ile
        115                 120                 125

Ala Gly Cys Trp Ile Leu Ser Phe Val Val Gly Leu Thr Pro Met Phe
    130                 135                 140

Gly Trp Asn Asn Leu Ser Ala Val Glu Arg Ala Trp Ala Ala Asn Gly
145                 150                 155                 160

Ser Met Gly Glu Pro Val Ile Lys Cys Glu Phe Glu Lys Val Ile Ser
                165                 170                 175

Met Glu Tyr Met Val Tyr Phe Asn Phe Phe Val Trp Val Leu Pro Pro
            180                 185                 190

Leu Leu Leu Met Val Leu Ile Tyr Leu Glu Val Phe Tyr Leu Ile Arg
        195                 200                 205

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

Tyr Tyr Gly Lys Glu Leu Lys Ile Ala Lys Ser Leu Ala Leu Ile Leu
225                 230                 235                 240

Phe Leu Phe Ala Leu Ser Trp Leu Pro Leu His Ile Leu Asn Cys Ile
                245                 250                 255

Thr Leu Phe Cys Pro Ser Cys His Lys Pro Ser Ile Leu Thr Tyr Ile
            260                 265                 270
```

```
Ala Ile Phe Leu Thr His Gly Asn Ser Ala Met Asn Pro Ile Val Tyr
        275                 280                 285

Ala Phe Arg Ile Gln Lys Phe Arg Val Thr Phe Leu Lys Ile Trp Asn
    290                 295                 300

Asp His Phe Arg Cys Gln Pro Ala Pro Pro Ile Asp Glu Asp Leu Pro
305                 310                 315                 320

Glu Glu Arg Pro Asp Asp
                325
```

<210> 2670
<211> 326
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 624; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA1; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A1 receptor; "

<220>
<221> source
<223> /note="Uniprot ID: P30542; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000338435"

<400> 2670

```
Met Pro Pro Ser Ile Ser Ala Phe Gln Ala Ala Tyr Ile Gly Ile Glu
1               5                   10                  15

Val Leu Ile Ala Leu Val Ser Val Pro Gly Asn Val Leu Val Ile Trp
            20                  25                  30

Ala Val Lys Val Asn Gln Ala Leu Arg Asp Ala Thr Phe Cys Phe Ile
        35                  40                  45

Val Ser Leu Ala Val Ala Asp Val Ala Val Gly Ala Leu Val Ile Pro
    50                  55                  60
```

```
Leu Ala Ile Leu Ile Asn Ile Gly Pro Gln Thr Tyr Phe His Thr Cys
65                  70                  75                  80

Leu Met Val Ala Cys Pro Val Leu Ile Leu Thr Gln Ser Ser Ile Leu
                85                  90                  95

Ala Leu Leu Ala Ile Ala Val Asp Arg Tyr Leu Arg Val Lys Ile Pro
            100                 105                 110

Leu Arg Tyr Lys Met Val Val Thr Pro Arg Arg Ala Ala Val Ala Ile
        115                 120                 125

Ala Gly Cys Trp Ile Leu Ser Phe Val Val Gly Leu Thr Pro Met Phe
    130                 135                 140

Gly Trp Asn Asn Leu Ser Ala Val Glu Arg Ala Trp Ala Ala Asn Gly
145                 150                 155                 160

Ser Met Gly Glu Pro Val Ile Lys Cys Glu Phe Glu Lys Val Ile Ser
                165                 170                 175

Met Glu Tyr Met Val Tyr Phe Asn Phe Phe Val Trp Val Leu Pro Pro
            180                 185                 190

Leu Leu Leu Met Val Leu Ile Tyr Leu Glu Val Phe Tyr Leu Ile Arg
        195                 200                 205

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

Tyr Tyr Gly Lys Glu Leu Lys Ile Ala Lys Ser Leu Ala Leu Ile Leu
225                 230                 235                 240

Phe Leu Phe Ala Leu Ser Trp Leu Pro Leu His Ile Leu Asn Cys Ile
                245                 250                 255

Thr Leu Phe Cys Pro Ser Cys His Lys Pro Ser Ile Leu Thr Tyr Ile
            260                 265                 270

Ala Ile Phe Leu Thr His Gly Asn Ser Ala Met Asn Pro Ile Val Tyr
        275                 280                 285
```

```
Ala Phe Arg Ile Gln Lys Phe Arg Val Thr Phe Leu Lys Ile Trp Asn
    290                 295                 300

Asp His Phe Arg Cys Gln Pro Ala Pro Pro Ile Asp Glu Asp Leu Pro
305                 310                 315                 320

Glu Glu Arg Pro Asp Asp
                325
```

<210> 2671
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 624; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA1; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A1 receptor; "

<220>
<221> source
<223> /note="Uniprot ID: P30542; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356204"

<400> 2671

```
Met Pro Pro Ser Ile Ser Ala Phe Gln Ala Ala Tyr Ile Gly Ile Glu
1               5                  10                  15

Val Leu Ile Ala Leu Val Ser Val Pro Gly Asn Val Leu Val Ile Trp
            20                  25                  30

Ala Val Lys Val Asn Gln Ala Leu Arg Asp Ala Thr Phe Cys Phe Ile
        35                  40                  45

Val Ser Leu Ala Val Ala Asp Val Ala Val Gly Ala Leu Val Ile Pro
    50                  55                  60

Leu Ala Ile Leu Ile Asn Ile Gly Pro Gln Thr Tyr Phe His Thr Cys
```

65 70 75 80

Leu Met Val Ala Cys Pro Val Leu Ile Leu Thr Gln Ser Ser Ile Leu
85 90 95

Ala Leu Leu Ala Ile Ala Val Asp Arg Tyr Leu Arg Val Lys Ile Pro
100 105 110

Leu Arg Arg Ile Ser Gln Cys Met Ala Ser Thr Lys Ser
115 120 125

<210> 2672
<211> 326
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 624; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA1; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A1 receptor; "

<220>
<221> source
<223> /note="Uniprot ID: P30542; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356205"

<400> 2672
Met Pro Pro Ser Ile Ser Ala Phe Gln Ala Ala Tyr Ile Gly Ile Glu
1 5 10 15

Val Leu Ile Ala Leu Val Ser Val Pro Gly Asn Val Leu Val Ile Trp
20 25 30

Ala Val Lys Val Asn Gln Ala Leu Arg Asp Ala Thr Phe Cys Phe Ile
35 40 45

Val Ser Leu Ala Val Ala Asp Val Ala Val Gly Ala Leu Val Ile Pro
50 55 60

```
Leu Ala Ile Leu Ile Asn Ile Gly Pro Gln Thr Tyr Phe His Thr Cys
65                  70                  75                  80

Leu Met Val Ala Cys Pro Val Leu Ile Leu Thr Gln Ser Ser Ile Leu
                85                  90                  95

Ala Leu Leu Ala Ile Ala Val Asp Arg Tyr Leu Arg Val Lys Ile Pro
            100                 105                 110

Leu Arg Tyr Lys Met Val Val Thr Pro Arg Arg Ala Ala Val Ala Ile
        115                 120                 125

Ala Gly Cys Trp Ile Leu Ser Phe Val Val Gly Leu Thr Pro Met Phe
    130                 135                 140

Gly Trp Asn Asn Leu Ser Ala Val Glu Arg Ala Trp Ala Ala Asn Gly
145                 150                 155                 160

Ser Met Gly Glu Pro Val Ile Lys Cys Glu Phe Glu Lys Val Ile Ser
                165                 170                 175

Met Glu Tyr Met Val Tyr Phe Asn Phe Phe Val Trp Val Leu Pro Pro
            180                 185                 190

Leu Leu Leu Met Val Leu Ile Tyr Leu Glu Val Phe Tyr Leu Ile Arg
        195                 200                 205

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

Tyr Tyr Gly Lys Glu Leu Lys Ile Ala Lys Ser Leu Ala Leu Ile Leu
225                 230                 235                 240

Phe Leu Phe Ala Leu Ser Trp Leu Pro Leu His Ile Leu Asn Cys Ile
                245                 250                 255

Thr Leu Phe Cys Pro Ser Cys His Lys Pro Ser Ile Leu Thr Tyr Ile
            260                 265                 270

Ala Ile Phe Leu Thr His Gly Asn Ser Ala Met Asn Pro Ile Val Tyr
        275                 280                 285
```

```
Ala Phe Arg Ile Gln Lys Phe Arg Val Thr Phe Leu Lys Ile Trp Asn
    290                 295                 300

Asp His Phe Arg Cys Gln Pro Ala Pro Pro Ile Asp Glu Asp Leu Pro
305                 310                 315                 320

Glu Glu Arg Pro Asp Asp
                325
```

<210> 2673
<211> 210
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 624; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA1; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A1 receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483953"

<400> 2673

```
Met Val Val Thr Pro Arg Arg Ala Ala Val Ala Ile Ala Gly Cys Trp
1               5                   10                  15

Ile Leu Ser Phe Val Val Gly Leu Thr Pro Met Phe Gly Trp Asn Asn
            20                  25                  30

Leu Ser Ala Val Glu Arg Ala Trp Ala Ala Asn Gly Ser Met Gly Glu
        35                  40                  45

Pro Val Ile Lys Cys Glu Phe Glu Lys Val Ile Ser Met Glu Tyr Met
    50                  55                  60

Val Tyr Phe Asn Phe Phe Val Trp Val Leu Pro Pro Leu Leu Leu Met
65                  70                  75                  80

Val Leu Ile Tyr Leu Glu Val Phe Tyr Leu Ile Arg Lys Gln Leu Asn
                85                  90                  95
```

```
Lys Lys Val Ser Ala Ser Ser Gly Asp Pro Gln Lys Tyr Tyr Gly Lys
            100                 105                 110

Glu Leu Lys Ile Ala Lys Ser Leu Ala Leu Ile Leu Phe Leu Phe Ala
        115                 120                 125

Leu Ser Trp Leu Pro Leu His Ile Leu Asn Cys Ile Thr Leu Phe Cys
    130                 135                 140

Pro Ser Cys His Lys Pro Ser Ile Leu Thr Tyr Ile Ala Ile Phe Leu
145                 150                 155                 160

Thr His Gly Asn Ser Ala Met Asn Pro Ile Val Tyr Ala Phe Arg Ile
                165                 170                 175

Gln Lys Phe Arg Val Thr Phe Leu Lys Ile Trp Asn Asp His Phe Arg
            180                 185                 190

Cys Gln Pro Ala Pro Pro Ile Asp Glu Asp Leu Pro Glu Glu Arg Pro
        195                 200                 205

Asp Asp
    210


<210> 2674
<211> 412
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 625; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA2A; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine A2a receptor; "

<220>
<221> source
<223> /note="Uniprot ID:  P29274; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000336630"

<400> 2674
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile
1 5 10 15

Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp Ala Val Trp
20 25 30

Leu Asn Ser Asn Leu Gln Asn Val Thr Asn Tyr Phe Val Val Ser Leu
35 40 45

Ala Ala Ala Asp Ile Ala Val Gly Val Leu Ala Ile Pro Phe Ala Ile
50 55 60

Thr Ile Ser Thr Gly Phe Cys Ala Ala Cys His Gly Cys Leu Phe Ile
65 70 75 80

Ala Cys Phe Val Leu Val Leu Thr Gln Ser Ser Ile Phe Ser Leu Leu
85 90 95

Ala Ile Ala Ile Asp Arg Tyr Ile Ala Ile Arg Ile Pro Leu Arg Tyr
100 105 110

Asn Gly Leu Val Thr Gly Thr Arg Ala Lys Gly Ile Ile Ala Ile Cys
115 120 125

Trp Val Leu Ser Phe Ala Ile Gly Leu Thr Pro Met Leu Gly Trp Asn
130 135 140

Asn Cys Gly Gln Pro Lys Glu Gly Lys Asn His Ser Gln Gly Cys Gly
145 150 155 160

Glu Gly Gln Val Ala Cys Leu Phe Glu Asp Val Val Pro Met Asn Tyr
165 170 175

Met Val Tyr Phe Asn Phe Phe Ala Cys Val Leu Val Pro Leu Leu Leu
180 185 190

Met Leu Gly Val Tyr Leu Arg Ile Phe Leu Ala Ala Arg Arg Gln Leu
195 200 205

Lys Gln Met Glu Ser Gln Pro Leu Pro Gly Glu Arg Ala Arg Ser Thr

210 215 220

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

Leu Phe Ala Leu Cys Trp Leu Pro Leu His Ile Ile Asn Cys Phe Thr
245 250 255

Phe Phe Cys Pro Asp Cys Ser His Ala Pro Leu Trp Leu Met Tyr Leu
260 265 270

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

Ala Tyr Arg Ile Arg Glu Phe Arg Gln Thr Phe Arg Lys Ile Ile Arg
290 295 300

Ser His Val Leu Arg Gln Gln Glu Pro Phe Lys Ala Ala Gly Thr Ser
305 310 315 320

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

Arg Leu Asn Gly His Pro Pro Gly Val Trp Ala Asn Gly Ser Ala Pro
340 345 350

His Pro Glu Arg Arg Pro Asn Gly Tyr Ala Leu Gly Leu Val Ser Gly
355 360 365

Gly Ser Ala Gln Glu Ser Gln Gly Asn Thr Gly Leu Pro Asp Val Glu
370 375 380

Leu Leu Ser His Glu Leu Lys Gly Val Cys Pro Glu Pro Pro Gly Leu
385 390 395 400

Asp Asp Pro Leu Ala Gln Asp Gly Ala Gly Val Ser
405 410

<210> 2675
<211> 64
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 625; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA2A; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A2a receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397071"

<400> 2675
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile
1 5 10 15

Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp Ala Val Trp
20 25 30

Leu Asn Ser Asn Leu Gln Asn Val Thr Asn Tyr Phe Val Val Ser Leu
35 40 45

Ala Ala Ala Asp Ile Ala Val Gly Val Leu Ala Ile Pro Phe Ala Ile
50 55 60

<210> 2676
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 625; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA2A; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A2a receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400190"

<400> 2676
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile

```
1               5                   10                  15

Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp Ala Val Trp
            20                  25                  30

Leu Asn Ser Asn Leu Gln Asn Val Thr Asn Tyr Phe Val Val Ser Leu
        35                  40                  45

Ala Ala Ala Asp Ile Ala Val Gly Val Leu Ala Ile Pro Phe Ala Ile
    50                  55                  60

Thr Ile Ser Thr Gly Phe Cys Ala Ala Cys His Gly
65                  70                  75


<210> 2677
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 625; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
      adenosine A2a receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404497"

<400> 2677
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile
1               5                   10                  15

Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp Ala Val Trp
            20                  25                  30

Leu Asn Ser Asn Leu Gln Asn Val Thr Asn Tyr Phe Val Val Ser Leu
        35                  40                  45

Ala Ala Ala Asp Ile Ala Val Gly Val Leu Ala Ile Pro Phe Ala Ile
    50                  55                  60
```

```
Thr Ile Ser Thr Gly Phe Cys Ala Ala Cys His Gly Cys Leu Phe Ile
65                  70                  75                  80


Ala Cys Phe Val Leu Val Leu
                85


<210> 2678
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 625; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA2A; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine A2a receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414802"

<400> 2678
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile
1               5                   10                  15


Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp Ala Val Trp
            20                  25                  30


Leu Asn Ser Asn Leu Gln Asn Val Thr Asn Tyr Phe Val Val Ser Leu
        35                  40                  45


Ala Ala Ala Asp Ile Ala Val Gly Val Leu Ala Ile Pro Phe Ala Ile
    50                  55                  60


Thr Ile Ser Thr Gly Phe Cys Ala Ala Cys His Gly Cys Leu Phe Ile
65                  70                  75                  80


Ala Cys Phe Val Leu Val Leu Thr Gln Ser Ser Ile Phe Ser Leu Leu
                85                  90                  95


Ala Ile Ala Ile Asp Arg Tyr Ile Ala Ile Arg Ile Pro Leu Arg Tyr
```

```
            100                 105                 110

Asn Gly Leu Val Thr Gly Thr Arg Ala Lys Gly Ile Ile Ala Ile Cys
        115                 120                 125

Trp Val Leu Ser Phe Ala Ile Gly Leu Thr Pro Met Leu Gly Trp Asn
    130                 135                 140

Asn Cys Gly Gln Pro Lys Glu Gly Lys Asn His Ser Gln Gly Cys Gly
145                 150                 155                 160

Glu Gly Gln Val Ala Cys Leu Phe Glu Asp Val Val Pro Met Asn Tyr
                165                 170                 175

Met Val Tyr Phe Asn Phe Phe Ala Cys Val Leu Val Pro Leu Leu Leu
            180                 185                 190

Met Leu Gly Val Tyr Leu Arg Ile Phe Leu Ala Ala Arg Arg Gln Leu
        195                 200                 205

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

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

Leu Phe Ala Leu Cys Trp Leu Pro Leu His Ile Ile Asn Cys Phe Thr
                245                 250                 255

Phe Phe Cys Pro Asp Cys Ser His Ala Pro Leu Trp Leu Met Tyr Leu
            260                 265                 270

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

Ala Tyr Arg Ile Arg Glu Phe Arg Gln Thr Phe Arg Lys Ile Ile Arg
    290                 295                 300

Ser His Val Leu Arg Gln Gln Glu Pro Phe Lys Ala Ala Gly Thr Ser
305                 310                 315                 320

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

```
Arg Leu Asn Gly His Pro Pro Gly Val Trp Ala Asn Gly Ser Ala Pro
            340                 345                 350

His Pro Glu Arg Arg Pro Asn Gly Tyr Ala Leu Gly Leu
        355                 360                 365


<210> 2679
<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 625; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA2A; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine A2a receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473799"

<400> 2679
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile
1               5                   10                  15

Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp Ala Val Trp
            20                  25                  30

Leu Asn Ser Asn Leu Gln Asn Val Thr Asn Tyr Phe Val Val Ser Leu
        35                  40                  45

Ala Ala Ala Asp Ile Ala Val Gly Val Leu Ala Ile Pro Phe Ala Ile
    50                  55                  60

Thr Ile Ser Thr Gly Phe Cys Ala Ala Cys His Gly Cys Leu Phe Ile
65                  70                  75                  80

Ala Cys Phe Val Leu Val Leu Thr Gln Ser Ser Ile Phe Ser Leu Leu
                85                  90                  95
```

```
Ala Ile Ala Ile Asp Arg Tyr Ile Ala Ile Arg Ile
            100                 105


<210> 2680
<211> 83
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 625; "

<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: ENSP00000474097"

<400> 2680
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile
1               5                  10                  15


Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp Ala Val Trp
            20                  25                  30


Leu Asn Ser Asn Leu Gln Asn Val Thr Asn Tyr Phe Val Val Ser Leu
        35                  40                  45


Ala Ala Ala Asp Ile Ala Val Gly Val Leu Ala Ile Pro Phe Ala Ile
    50                  55                  60


Thr Ile Ser Thr Gly Phe Cys Ala Ala Cys His Gly Cys Leu Phe Ile
65                  70                  75                  80


Ala Cys Phe



<210> 2681
<211> 6
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Payload ID: 625; "

<220>
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<220>
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<223> /note="Gene Name:
adenosine A2a receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000474895"

<400> 2681
Met Pro Ile Met Gly Ser
1 5

<210> 2682
<211> 29
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADORA2A; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A2a receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000475000"

<400> 2682
Met Pro Ile Met Gly Ser Ser Val Tyr Ile Thr Val Glu Leu Ala Ile
1 5 10 15

Ala Val Leu Ala Ile Leu Gly Asn Val Leu Val Cys Trp
20 25

<210> 2683
<211> 332
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 626; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA2B; "

<220>
<221> source
<223> /note="Gene Name:
adenosine A2b receptor; "

<220>
<221> source
<223> /note="Uniprot ID: P29275; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000304501"

<400> 2683

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Met Leu Leu Glu Thr Gln Asp Ala Leu Tyr Val Ala Leu Glu Leu Val
1               5                  10                  15

Ile Ala Ala Leu Ser Val Ala Gly Asn Val Leu Val Cys Ala Ala Val
            20                  25                  30

Gly Thr Ala Asn Thr Leu Gln Thr Pro Thr Asn Tyr Phe Leu Val Ser
        35                  40                  45

Leu Ala Ala Ala Asp Val Ala Val Gly Leu Phe Ala Ile Pro Phe Ala
    50                  55                  60

Ile Thr Ile Ser Leu Gly Phe Cys Thr Asp Phe Tyr Gly Cys Leu Phe
65                  70                  75                  80

Leu Ala Cys Phe Val Leu Val Leu Thr Gln Ser Ser Ile Phe Ser Leu
                85                  90                  95

Leu Ala Val Ala Val Asp Arg Tyr Leu Ala Ile Cys Val Pro Leu Arg
            100                 105                 110

Tyr Lys Ser Leu Val Thr Gly Thr Arg Ala Arg Gly Val Ile Ala Val
        115                 120                 125

Leu Trp Val Leu Ala Phe Gly Ile Gly Leu Thr Pro Phe Leu Gly Trp
    130                 135                 140
```

```
Asn Ser Lys Asp Ser Ala Thr Asn Asn Cys Thr Glu Pro Trp Asp Gly
145                 150                 155                 160

Thr Thr Asn Glu Ser Cys Cys Leu Val Lys Cys Leu Phe Glu Asn Val
                165                 170                 175

Val Pro Met Ser Tyr Met Val Tyr Phe Asn Phe Phe Gly Cys Val Leu
            180                 185                 190

Pro Pro Leu Leu Ile Met Leu Val Ile Tyr Ile Lys Ile Phe Leu Val
        195                 200                 205

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

Thr Leu Gln Arg Glu Ile His Ala Ala Lys Ser Leu Ala Met Ile Val
225                 230                 235                 240

Gly Ile Phe Ala Leu Cys Trp Leu Pro Val His Ala Val Asn Cys Val
                245                 250                 255

Thr Leu Phe Gln Pro Ala Gln Gly Lys Asn Lys Pro Lys Trp Ala Met
            260                 265                 270

Asn Met Ala Ile Leu Leu Ser His Ala Asn Ser Val Val Asn Pro Ile
        275                 280                 285

Val Tyr Ala Tyr Arg Asn Arg Asp Phe Arg Tyr Thr Phe His Lys Ile
    290                 295                 300

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

Gln Ala Gly Val Gln Pro Ala Leu Gly Val Gly Leu
                325                 330


<210> 2684
<211> 318
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 627; "
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
adenosine A3 receptor; "

<220>
<221> source
<223> /note="Uniprot ID: P0DMS8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000241356"

<400> 2684
Met Pro Asn Asn Ser Thr Ala Leu Ser Leu Ala Asn Val Thr Tyr Ile
1 5 10 15

Thr Met Glu Ile Phe Ile Gly Leu Cys Ala Ile Val Gly Asn Val Leu
            20 25 30

Val Ile Cys Val Val Lys Leu Asn Pro Ser Leu Gln Thr Thr Thr Phe
        35 40 45

Tyr Phe Ile Val Ser Leu Ala Leu Ala Asp Ile Ala Val Gly Val Leu
    50 55 60

Val Met Pro Leu Ala Ile Val Val Ser Leu Gly Ile Thr Ile His Phe
65 70 75 80

Tyr Ser Cys Leu Phe Met Thr Cys Leu Leu Leu Ile Phe Thr His Ala
                85 90 95

Ser Ile Met Ser Leu Leu Ala Ile Ala Val Asp Arg Tyr Leu Arg Val
            100 105 110

Lys Leu Thr Val Arg Tyr Lys Arg Val Thr Thr His Arg Arg Ile Trp
        115 120 125

Leu Ala Leu Gly Leu Cys Trp Leu Val Ser Phe Leu Val Gly Leu Thr
    130 135 140

Pro Met Phe Gly Trp Asn Met Lys Leu Thr Ser Glu Tyr His Arg Asn
145 150 155 160

```
Val Thr Phe Leu Ser Cys Gln Phe Val Ser Val Met Arg Met Asp Tyr
                165                 170                 175

Met Val Tyr Phe Ser Phe Leu Thr Trp Ile Phe Ile Pro Leu Val Val
            180                 185                 190

Met Cys Ala Ile Tyr Leu Asp Ile Phe Tyr Ile Ile Arg Asn Lys Leu
        195                 200                 205

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

Glu Phe Lys Thr Ala Lys Ser Leu Phe Leu Val Leu Phe Leu Phe Ala
225                 230                 235                 240

Leu Ser Trp Leu Pro Leu Ser Ile Ile Asn Cys Ile Ile Tyr Phe Asn
                245                 250                 255

Gly Glu Val Pro Gln Leu Val Leu Tyr Met Gly Ile Leu Leu Ser His
            260                 265                 270

Ala Asn Ser Met Met Asn Pro Ile Val Tyr Ala Tyr Lys Ile Lys Lys
        275                 280                 285

Phe Lys Glu Thr Tyr Leu Leu Ile Leu Lys Ala Cys Val Val Cys His
    290                 295                 300

Pro Ser Asp Ser Leu Asp Thr Ser Ile Glu Lys Asn Ser Glu
305                 310                 315


<210> 2685
<211> 123
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 627; "

<220>
<221> source
<223> /note="Gene Symbol: ADORA3; "

<220>
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<223> /note="Gene Name:
adenosine A3 receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000488073"

<400> 2685
Met Pro Asn Asn Ser Thr Ala Leu Ser Leu Ala Asn Val Thr Tyr Ile
1 5 10 15

Thr Met Glu Ile Phe Ile Gly Leu Cys Ala Ile Val Gly Asn Val Leu
20 25 30

Val Ile Cys Val Val Lys Leu Asn Pro Ser Leu Gln Thr Thr Thr Phe
35 40 45

Tyr Phe Ile Val Ser Leu Ala Leu Ala Asp Ile Ala Val Gly Val Leu
50 55 60

Val Met Pro Leu Ala Ile Val Val Ser Leu Gly Ile Thr Ile His Phe
65 70 75 80

Tyr Ser Cys Leu Phe Met Thr Cys Leu Leu Leu Ile Phe Thr His Ala
85 90 95

Ser Ile Met Ser Leu Leu Ala Ile Ala Val Asp Arg Tyr Leu Arg Val
100 105 110

Lys Leu Thr Val Ser Ser Ile Ser Pro Thr Leu
115 120

<210> 2686
<211> 363
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 628; "

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

<220>
<221> source
<223> /note="Gene Name:
adenosine deaminase; "

<220>
<221> source
<223> /note="Uniprot ID: P00813; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361965"

<400> 2686
Met Ala Gln Thr Pro Ala Phe Asp Lys Pro Lys Val Glu Leu His Val
1   5   10   15

His Leu Asp Gly Ser Ile Lys Pro Glu Thr Ile Leu Tyr Tyr Gly Arg
            20   25   30

Arg Arg Gly Ile Ala Leu Pro Ala Asn Thr Ala Glu Gly Leu Leu Asn
        35   40   45

Val Ile Gly Met Asp Lys Pro Leu Thr Leu Pro Asp Phe Leu Ala Lys
    50   55   60

Phe Asp Tyr Tyr Met Pro Ala Ile Ala Gly Cys Arg Glu Ala Ile Lys
65   70   75   80

Arg Ile Ala Tyr Glu Phe Val Glu Met Lys Ala Lys Glu Gly Val Val
                85   90   95

Tyr Val Glu Val Arg Tyr Ser Pro His Leu Leu Ala Asn Ser Lys Val
            100   105   110

Glu Pro Ile Pro Trp Asn Gln Ala Glu Gly Asp Leu Thr Pro Asp Glu
        115   120   125

Val Val Ala Leu Val Gly Gln Gly Leu Gln Glu Gly Glu Arg Asp Phe
    130   135   140

Gly Val Lys Ala Arg Ser Ile Leu Cys Cys Met Arg His Gln Pro Asn
145   150   155   160

Trp Ser Pro Lys Val Val Glu Leu Cys Lys Lys Tyr Gln Gln Gln Thr
                165   170   175

Val Val Ala Ile Asp Leu Ala Gly Asp Glu Thr Ile Pro Gly Ser Ser
            180   185   190

```
Leu Leu Pro Gly His Val Gln Ala Tyr Gln Glu Ala Val Lys Ser Gly
        195                 200                 205

Ile His Arg Thr Val His Ala Gly Glu Val Gly Ser Ala Glu Val Val
    210                 215                 220

Lys Glu Ala Val Asp Ile Leu Lys Thr Glu Arg Leu Gly His Gly Tyr
225                 230                 235                 240

His Thr Leu Glu Asp Gln Ala Leu Tyr Asn Arg Leu Arg Gln Glu Asn
                245                 250                 255

Met His Phe Glu Ile Cys Pro Trp Ser Ser Tyr Leu Thr Gly Ala Trp
            260                 265                 270

Lys Pro Asp Thr Glu His Ala Val Ile Arg Leu Lys Asn Asp Gln Ala
        275                 280                 285

Asn Tyr Ser Leu Asn Thr Asp Asp Pro Leu Ile Phe Lys Ser Thr Leu
    290                 295                 300

Asp Thr Asp Tyr Gln Met Thr Lys Arg Asp Met Gly Phe Thr Glu Glu
305                 310                 315                 320

Glu Phe Lys Arg Leu Asn Ile Asn Ala Ala Lys Ser Ser Phe Leu Pro
                325                 330                 335

Glu Asp Glu Lys Arg Glu Leu Leu Asp Leu Leu Tyr Lys Ala Tyr Gly
            340                 345                 350

Met Pro Pro Ser Ala Ser Ala Gly Gln Asn Leu
        355                 360


<210> 2687
<211> 263
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 628; "

<220>
<221> source
<223> /note="Gene Symbol: ADA; "
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<220>
<221> source
<223> /note="Gene Name:
adenosine deaminase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440946"

<400> 2687
Met Ala Gln Thr Pro Ala Phe Asp Lys Pro Lys Val Glu Leu His Val
1 5 10 15

His Leu Asp Gly Ser Ile Lys Pro Glu Thr Ile Leu Tyr Tyr Gly Arg
20 25 30

Arg Arg Gly Ile Ala Leu Pro Ala Asn Thr Ala Glu Gly Leu Leu Asn
35 40 45

Val Ile Gly Met Asp Lys Pro Leu Thr Leu Pro Asp Phe Leu Ala Lys
50 55 60

Phe Asp Tyr Tyr Met Pro Ala Ile Ala Gly Cys Arg Glu Ala Ile Lys
65 70 75 80

Arg Ile Ala Tyr Glu Phe Val Glu Met Lys Ala Lys Glu Gly Val Val
85 90 95

Tyr Val Glu Val Arg Tyr Ser Pro His Leu Leu Ala Asn Ser Lys Val
100 105 110

Glu Pro Ile Pro Trp Asn Gln Ala Glu Gly Asp Leu Thr Pro Asp Glu
115 120 125

Val Val Ala Leu Val Gly Gln Gly Leu Gln Glu Gly Glu Arg Asp Phe
130 135 140

Gly Val Lys Ala Arg Ser Ile Leu Cys Cys Met Arg His Gln Pro Asn
145 150 155 160

Trp Ser Pro Lys Val Val Glu Leu Cys Lys Lys Tyr Gln Gln Gln Thr
165 170 175

Val Val Ala Ile Asp Leu Ala Gly Asp Glu Thr Ile Pro Gly Ser Ser
180 185 190

```
Leu Leu Pro Gly His Val Gln Ala Tyr Gln Glu Ala Val Lys Ser Gly
        195                 200                 205

Ile His Arg Thr Val His Ala Gly Glu Val Gly Ser Ala Glu Val Val
    210                 215                 220

Lys Glu Ala Val Asp Ile Leu Lys Thr Glu Arg Leu Gly His Gly Tyr
225                 230                 235                 240

His Thr Leu Glu Asp Gln Ala Leu Tyr Asn Arg Leu Arg Gln Glu Asn
                245                 250                 255

Met His Phe Glu Ala Gln Lys
            260


<210> 2688
<211> 339
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 628; "

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

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000441818"

<400> 2688
Met Ala Gln Thr Pro Ala Phe Asp Lys Pro Lys Val Glu Leu His Val
1               5                   10                  15

His Leu Asp Gly Ser Ile Lys Pro Glu Thr Ile Leu Tyr Tyr Gly Arg
            20                  25                  30

Arg Arg Gly Ile Ala Leu Pro Ala Asn Thr Ala Glu Gly Leu Leu Asn
        35                  40                  45
```

```
Val Ile Gly Met Asp Lys Pro Leu Thr Leu Pro Asp Phe Leu Ala Lys
    50                  55                  60

Phe Asp Tyr Tyr Met Pro Ala Ile Ala Gly Cys Arg Glu Ala Ile Lys
65                  70                  75                  80

Arg Ile Ala Tyr Glu Phe Val Glu Met Lys Ala Lys Glu Gly Val Val
                85                  90                  95

Tyr Val Glu Val Arg Tyr Ser Pro His Leu Leu Ala Asn Ser Lys Val
            100                 105                 110

Glu Pro Ile Pro Trp Asn Gln Ala Glu Gly Asp Leu Thr Pro Asp Glu
        115                 120                 125

Val Val Ala Leu Val Gly Gln Gly Leu Gln Glu Gly Glu Arg Asp Phe
    130                 135                 140

Gly Val Lys Ala Arg Ser Ile Leu Cys Cys Met Arg His Gln Pro Asn
145                 150                 155                 160

Trp Ser Pro Lys Val Val Glu Leu Cys Lys Lys Tyr Gln Gln Gln Thr
                165                 170                 175

Val Val Ala Ile Asp Leu Ala Gly Asp Glu Thr Ile Pro Gly Ser Ser
            180                 185                 190

Leu Leu Pro Gly His Val Gln Ala Tyr Gln Ala Val Asp Ile Leu Lys
        195                 200                 205

Thr Glu Arg Leu Gly His Gly Tyr His Thr Leu Glu Asp Gln Ala Leu
    210                 215                 220

Tyr Asn Arg Leu Arg Gln Glu Asn Met His Phe Glu Ile Cys Pro Trp
225                 230                 235                 240

Ser Ser Tyr Leu Thr Gly Ala Trp Lys Pro Asp Thr Glu His Ala Val
                245                 250                 255

Ile Arg Leu Lys Asn Asp Gln Ala Asn Tyr Ser Leu Asn Thr Asp Asp
            260                 265                 270

Pro Leu Ile Phe Lys Ser Thr Leu Asp Thr Asp Tyr Gln Met Thr Lys
```

```
        275                 280                 285

Arg Asp Met Gly Phe Thr Glu Glu Glu Phe Lys Arg Leu Asn Ile Asn
    290                 295                 300

Ala Ala Lys Ser Ser Phe Leu Pro Glu Asp Glu Lys Arg Glu Leu Leu
305                 310                 315                 320

Asp Leu Leu Tyr Lys Ala Tyr Gly Met Pro Pro Ser Ala Ser Ala Gly
                325                 330                 335

Gln Asn Leu
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<210> 2689
<211> 75
<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:
adenosine deaminase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446464"

<400> 2689

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Met Ala Gln Thr Pro Ala Phe Asp Lys Pro Lys Val Glu Leu His Val
1               5                   10                  15

His Leu Asp Gly Ser Ile Lys Pro Glu Thr Ile Leu Tyr Tyr Gly Arg
            20                  25                  30

Arg Arg Gly Ile Ala Leu Pro Ala Asn Thr Ala Glu Gly Leu Leu Asn
        35                  40                  45

Val Ile Gly Met Asp Lys Pro Leu Thr Leu Pro Asp Phe Leu Ala Lys
    50                  55                  60
```

```
Phe Asp Tyr Tyr Met Pro Ala Ile Ala Arg Leu
65                  70                  75


<210> 2690
<211> 576
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 629; "

<220>
<221> source
<223> /note="Gene Symbol: ADAD1; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine deaminase
      domain containing 1
      (testis-specific); "

<220>
<221> source
<223> /note="Uniprot ID:  Q96M93; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000296513"

<400> 2690
Met Ala Ser Asn Asn His Trp Phe Gln Ser Ser Gln Val Pro Ser Phe
1               5                  10                  15


Ala Gln Met Leu Lys Lys Asn Leu Pro Val Gln Pro Ala Thr Lys Thr
            20                  25                  30


Ile Thr Thr Pro Thr Gly Trp Ser Ser Glu Ser Tyr Gly Leu Ser Lys
        35                  40                  45


Met Ala Ser Lys Val Thr Gln Val Thr Gly Asn Phe Pro Glu Pro Leu
    50                  55                  60


Leu Ser Lys Asn Leu Ser Ser Ile Ser Asn Pro Val Leu Pro Pro Lys
65                  70                  75                  80


Lys Ile Pro Lys Glu Phe Ile Met Lys Tyr Lys Arg Gly Glu Ile Asn
                85                  90                  95
```

```
Pro Val Ser Ala Leu His Gln Phe Ala Gln Met Gln Arg Val Gln Leu
            100                 105                 110

Asp Leu Lys Glu Thr Val Thr Thr Gly Asn Val Met Gly Pro Tyr Phe
        115                 120                 125

Ala Phe Cys Ala Val Val Asp Gly Ile Gln Tyr Lys Thr Gly Leu Gly
    130                 135                 140

Gln Asn Lys Lys Glu Ser Arg Ser Asn Ala Ala Lys Leu Ala Leu Asp
145                 150                 155                 160

Glu Leu Leu Gln Leu Asp Glu Pro Glu Pro Arg Ile Leu Glu Thr Ser
                165                 170                 175

Gly Pro Pro Pro Phe Pro Ala Glu Pro Val Val Leu Ser Glu Leu Ala
            180                 185                 190

Tyr Val Ser Lys Val His Tyr Glu Gly Arg His Ile Gln Tyr Ala Lys
        195                 200                 205

Ile Ser Gln Ile Val Lys Glu Arg Phe Asn Gln Leu Ile Ser Asn Arg
    210                 215                 220

Ser Glu Tyr Leu Lys Tyr Ser Ser Ser Leu Ala Ala Phe Ile Ile Glu
225                 230                 235                 240

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

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

Ala Val Val Thr Ala Arg Arg Ser Leu Leu Arg Tyr Phe Tyr Arg Gln
        275                 280                 285

Leu Leu Leu Phe Tyr Ser Lys Asn Pro Ala Met Met Glu Lys Ser Ile
    290                 295                 300

Phe Cys Thr Glu Pro Thr Ser Asn Leu Leu Thr Leu Lys Gln Asn Ile
305                 310                 315                 320
```

```
Asn Ile Cys Leu Tyr Met Asn Gln Leu Pro Lys Gly Ser Ala Gln Ile
                325                 330                 335

Lys Ser Gln Leu Arg Leu Asn Pro His Ser Ile Ser Ala Phe Glu Ala
            340                 345                 350

Asn Glu Glu Leu Cys Leu His Val Ala Val Glu Gly Lys Ile Tyr Leu
        355                 360                 365

Thr Val Tyr Cys Pro Lys Asp Gly Val Asn Arg Ile Ser Ser Met Ser
    370                 375                 380

Ser Ser Asp Lys Leu Thr Arg Trp Glu Val Leu Gly Val Gln Gly Ala
385                 390                 395                 400

Leu Leu Ser His Phe Ile Gln Pro Val Tyr Ile Ser Ser Ile Leu Ile
                405                 410                 415

Gly Asp Gly Asn Cys Ser Asp Thr Arg Gly Leu Glu Ile Ala Ile Lys
            420                 425                 430

Gln Arg Val Asp Asp Ala Leu Thr Ser Lys Leu Pro Met Phe Tyr Leu
        435                 440                 445

Val Asn Arg Pro His Ile Ser Leu Val Pro Ser Ala Tyr Pro Leu Gln
    450                 455                 460

Met Asn Leu Glu Tyr Lys Phe Leu Ser Leu Asn Trp Ala Gln Gly Asp
465                 470                 475                 480

Val Ser Leu Glu Ile Val Asp Gly Leu Ser Gly Lys Ile Thr Glu Ser
                485                 490                 495

Ser Pro Phe Lys Ser Gly Met Ser Met Ala Ser Arg Leu Cys Lys Ala
            500                 505                 510

Ala Met Leu Ser Arg Phe Asn Leu Leu Ala Lys Glu Ala Lys Lys Glu
        515                 520                 525

Leu Leu Glu Ala Gly Thr Tyr His Ala Ala Lys Cys Met Ser Ala Ser
    530                 535                 540

Tyr Gln Glu Ala Lys Cys Lys Leu Lys Ser Tyr Leu Gln Gln His Gly
```

```
545                 550                 555                 560

Tyr Gly Ser Trp Ile Val Lys Ser Pro Cys Ile Glu Gln Phe Asn Met
                565                 570                 575


<210> 2691
<211> 565
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 629; "

<220>
<221> source
<223> /note="Gene Symbol: ADAD1; "

<220>
<221> source
<223> /note="Gene Name:
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      domain containing 1
      (testis-specific); "

<220>
<221> source
<223> /note="Uniprot ID:  Q96M93; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000373376"

<400> 2691
Met Ala Ser Asn Asn His Trp Phe Gln Ser Ser Gln Val Pro Ser Phe
1               5                   10                  15


Ala Gln Met Leu Lys Lys Asn Leu Pro Val Gln Pro Ala Thr Lys Thr
            20                  25                  30


Ile Thr Thr Pro Thr Gly Trp Ser Ser Glu Ser Tyr Gly Leu Ser Lys
        35                  40                  45


Met Ala Ser Lys Val Thr Gln Val Thr Gly Asn Phe Pro Glu Pro Leu
    50                  55                  60


Leu Ser Lys Asn Leu Ser Ser Ile Ser Asn Pro Val Leu Pro Pro Lys
65                  70                  75                  80


Lys Ile Pro Lys Glu Phe Ile Met Lys Tyr Lys Arg Gly Glu Ile Asn
```

```
                85                  90                  95

Pro Val Ser Ala Leu His Gln Phe Ala Gln Met Gln Arg Val Gln Leu
            100                 105                 110

Asp Leu Lys Glu Thr Val Thr Thr Gly Asn Val Met Gly Pro Tyr Phe
        115                 120                 125

Ala Phe Cys Ala Val Val Asp Gly Ile Gln Tyr Lys Thr Gly Leu Gly
    130                 135                 140

Gln Asn Lys Lys Glu Ser Arg Ser Asn Ala Ala Lys Leu Ala Leu Asp
145                 150                 155                 160

Glu Leu Leu Gln Leu Asp Glu Pro Glu Pro Arg Ile Leu Glu Thr Ser
                165                 170                 175

Gly Pro Pro Pro Phe Pro Ala Glu Pro Val Val Leu Ser Glu Leu Ala
            180                 185                 190

Tyr Val Ser Lys Val His Tyr Glu Gly Arg His Ile Gln Tyr Ala Lys
        195                 200                 205

Ile Ser Gln Ile Val Lys Glu Arg Phe Asn Gln Leu Ile Ser Asn Arg
    210                 215                 220

Ser Glu Tyr Leu Lys Tyr Ser Ser Ser Leu Ala Ala Phe Ile Ile Glu
225                 230                 235                 240

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

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

Ala Val Val Thr Ala Arg Arg Ser Leu Leu Ser Lys Asn Pro Ala Met
        275                 280                 285

Met Glu Lys Ser Ile Phe Cys Thr Glu Pro Thr Ser Asn Leu Leu Thr
    290                 295                 300

Leu Lys Gln Asn Ile Asn Ile Cys Leu Tyr Met Asn Gln Leu Pro Lys
305                 310                 315                 320
```

```
Gly Ser Ala Gln Ile Lys Ser Gln Leu Arg Leu Asn Pro His Ser Ile
                325                 330                 335

Ser Ala Phe Glu Ala Asn Glu Glu Leu Cys Leu His Val Ala Val Glu
            340                 345                 350

Gly Lys Ile Tyr Leu Thr Val Tyr Cys Pro Lys Asp Gly Val Asn Arg
        355                 360                 365

Ile Ser Ser Met Ser Ser Ser Asp Lys Leu Thr Arg Trp Glu Val Leu
    370                 375                 380

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

Ser Ser Ile Leu Ile Gly Asp Gly Asn Cys Ser Asp Thr Arg Gly Leu
                405                 410                 415

Glu Ile Ala Ile Lys Gln Arg Val Asp Asp Ala Leu Thr Ser Lys Leu
            420                 425                 430

Pro Met Phe Tyr Leu Val Asn Arg Pro His Ile Ser Leu Val Pro Ser
        435                 440                 445

Ala Tyr Pro Leu Gln Met Asn Leu Glu Tyr Lys Phe Leu Ser Leu Asn
    450                 455                 460

Trp Ala Gln Gly Asp Val Ser Leu Glu Ile Val Asp Gly Leu Ser Gly
465                 470                 475                 480

Lys Ile Thr Glu Ser Ser Pro Phe Lys Ser Gly Met Ser Met Ala Ser
                485                 490                 495

Arg Leu Cys Lys Ala Ala Met Leu Ser Arg Phe Asn Leu Leu Ala Lys
            500                 505                 510

Glu Ala Lys Lys Glu Leu Leu Glu Ala Gly Thr Tyr His Ala Ala Lys
        515                 520                 525

Cys Met Ser Ala Ser Tyr Gln Glu Ala Lys Cys Lys Leu Lys Ser Tyr
    530                 535                 540
```

```
Leu Gln Gln His Gly Tyr Gly Ser Trp Ile Val Lys Ser Pro Cys Ile
545                 550                 555                 560


Glu Gln Phe Asn Met
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<210> 2692
<211> 558
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADAD1; "

<220>
<221> source
<223> /note="Gene Name:
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      domain containing 1
      (testis-specific); "

<220>
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<220>
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<400> 2692
Met Leu Lys Lys Asn Leu Pro Val Gln Pro Ala Thr Lys Thr Ile Thr
1               5                   10                  15


Thr Pro Thr Gly Trp Ser Ser Glu Ser Tyr Gly Leu Ser Lys Met Ala
            20                  25                  30


Ser Lys Val Thr Gln Val Thr Gly Asn Phe Pro Glu Pro Leu Leu Ser
        35                  40                  45


Lys Asn Leu Ser Ser Ile Ser Asn Pro Val Leu Pro Pro Lys Lys Ile
    50                  55                  60


Pro Lys Glu Phe Ile Met Lys Tyr Lys Arg Gly Glu Ile Asn Pro Val
65                  70                  75                  80
```

```
Ser Ala Leu His Gln Phe Ala Gln Met Gln Arg Val Gln Leu Asp Leu
                85                  90                  95

Lys Glu Thr Val Thr Thr Gly Asn Val Met Gly Pro Tyr Phe Ala Phe
            100                 105                 110

Cys Ala Val Val Asp Gly Ile Gln Tyr Lys Thr Gly Leu Gly Gln Asn
        115                 120                 125

Lys Lys Glu Ser Arg Ser Asn Ala Ala Lys Leu Ala Leu Asp Glu Leu
    130                 135                 140

Leu Gln Leu Asp Glu Pro Glu Pro Arg Ile Leu Glu Thr Ser Gly Pro
145                 150                 155                 160

Pro Pro Phe Pro Ala Glu Pro Val Val Leu Ser Glu Leu Ala Tyr Val
                165                 170                 175

Ser Lys Val His Tyr Glu Gly Arg His Ile Gln Tyr Ala Lys Ile Ser
            180                 185                 190

Gln Ile Val Lys Glu Arg Phe Asn Gln Leu Ile Ser Asn Arg Ser Glu
        195                 200                 205

Tyr Leu Lys Tyr Ser Ser Ser Leu Ala Ala Phe Ile Ile Glu Arg Ala
    210                 215                 220

Gly Gln His Glu Val Val Ala Ile Gly Thr Gly Glu Tyr Asn Tyr Ser
225                 230                 235                 240

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

Val Thr Ala Arg Arg Ser Leu Leu Arg Tyr Phe Tyr Arg Gln Leu Leu
            260                 265                 270

Leu Phe Tyr Ser Lys Asn Pro Ala Met Met Glu Lys Ser Ile Phe Cys
        275                 280                 285

Thr Glu Pro Thr Ser Asn Leu Leu Thr Leu Lys Gln Asn Ile Asn Ile
    290                 295                 300
```

```
Cys Leu Tyr Met Asn Gln Leu Pro Lys Gly Ser Ala Gln Ile Lys Ser
305                 310                 315                 320

Gln Leu Arg Leu Asn Pro His Ser Ile Ser Ala Phe Glu Ala Asn Glu
                325                 330                 335

Glu Leu Cys Leu His Val Ala Val Glu Gly Lys Ile Tyr Leu Thr Val
            340                 345                 350

Tyr Cys Pro Lys Asp Gly Val Asn Arg Ile Ser Ser Met Ser Ser Ser
        355                 360                 365

Asp Lys Leu Thr Arg Trp Glu Val Leu Gly Val Gln Gly Ala Leu Leu
    370                 375                 380

Ser His Phe Ile Gln Pro Val Tyr Ile Ser Ser Ile Leu Ile Gly Asp
385                 390                 395                 400

Gly Asn Cys Ser Asp Thr Arg Gly Leu Glu Ile Ala Ile Lys Gln Arg
                405                 410                 415

Val Asp Asp Ala Leu Thr Ser Lys Leu Pro Met Phe Tyr Leu Val Asn
            420                 425                 430

Arg Pro His Ile Ser Leu Val Pro Ser Ala Tyr Pro Leu Gln Met Asn
        435                 440                 445

Leu Glu Tyr Lys Phe Leu Ser Leu Asn Trp Ala Gln Gly Asp Val Ser
    450                 455                 460

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

Phe Lys Ser Gly Met Ser Met Ala Ser Arg Leu Cys Lys Ala Ala Met
                485                 490                 495

Leu Ser Arg Phe Asn Leu Leu Ala Lys Glu Ala Lys Lys Glu Leu Leu
            500                 505                 510

Glu Ala Gly Thr Tyr His Ala Ala Lys Cys Met Ser Ala Ser Tyr Gln
        515                 520                 525

Glu Ala Lys Cys Lys Leu Lys Ser Tyr Leu Gln Gln His Gly Tyr Gly
```

```
    530                 535                 540

Ser Trp Ile Val Lys Ser Pro Cys Ile Glu Gln Phe Asn Met
545                 550                 555


<210> 2693
<211> 156
<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>
<221> source
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<400> 2693
Met Ala Ser Asn Asn His Trp Phe Gln Ser Ser Gln Val Pro Ser Phe
1               5                   10                  15


Ala Gln Met Leu Lys Lys Asn Leu Pro Val Gln Pro Ala Thr Lys Thr
            20                  25                  30


Ile Thr Thr Pro Thr Gly Trp Ser Ser Glu Ser Tyr Gly Leu Ser Lys
        35                  40                  45


Met Ala Ser Lys Val Thr Gln Val Thr Gly Asn Phe Pro Glu Pro Leu
    50                  55                  60


Leu Ser Lys Asn Leu Ser Ser Ile Ser Asn Pro Val Leu Pro Pro Lys
65                  70                  75                  80


Lys Ile Pro Lys Glu Phe Ile Met Lys Tyr Lys Arg Gly Glu Ile Asn
                85                  90                  95


Pro Val Ser Ala Leu His Gln Phe Ala Gln Met Gln Arg Val Gln Leu
```

100 105 110

Asp Leu Lys Glu Thr Val Thr Thr Gly Asn Val Met Gly Pro Tyr Phe
115 120 125

Ala Phe Cys Ala Val Val Asp Gly Ile Gln Tyr Lys Thr Gly Leu Gly
130 135 140

Gln Asn Lys Lys Glu Ser Arg Ser Asn Ala Ala Lys
145 150 155

<210> 2694
<211> 241
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ADAD1; "

<220>
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<223> /note="Gene Name:
adenosine deaminase
domain containing 1
(testis-specific); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397254"

<400> 2694
Met Ala Ser Asn Asn His Trp Phe Gln Ser Ser Gln Val Pro Ser Phe
1 5 10 15

Ala Gln Met Leu Lys Lys Asn Leu Pro Val Gln Pro Ala Thr Lys Thr
20 25 30

Ile Thr Thr Pro Thr Gly Trp Ser Ser Glu Ser Tyr Gly Leu Ser Lys
35 40 45

Met Ala Ser Lys Val Thr Gln Val Thr Gly Asn Phe Pro Glu Pro Leu
50 55 60

Leu Ser Lys Asn Leu Ser Ser Ile Ser Asn Pro Val Leu Pro Pro Lys

65 70 75 80

Lys Ile Pro Lys Glu Phe Ile Met Lys Tyr Lys Arg Gly Glu Ile Asn
85 90 95

Pro Val Ser Ala Leu His Gln Phe Ala Gln Met Gln Arg Val Gln Leu
100 105 110

Asp Leu Lys Glu Thr Val Thr Thr Gly Asn Val Met Gly Pro Tyr Phe
115 120 125

Ala Phe Cys Ala Val Val Asp Gly Ile Gln Tyr Lys Thr Gly Leu Gly
130 135 140

Gln Asn Lys Lys Glu Ser Arg Ser Asn Ala Ala Lys Leu Ala Leu Asp
145 150 155 160

Glu Leu Leu Gln Leu Asp Glu Pro Glu Pro Arg Ile Leu Glu Thr Ser
165 170 175

Gly Pro Pro Pro Phe Pro Ala Glu Pro Val Val Leu Ser Glu Leu Ala
180 185 190

Tyr Val Ser Lys Val His Tyr Glu Gly Arg His Ile Gln Tyr Ala Lys
195 200 205

Ile Ser Gln Ile Val Lys Glu Arg Phe Asn Gln Leu Ile Ser Asn Arg
210 215 220

Ser Glu Tyr Leu Lys Tyr Ser Ser Ser Leu Ala Ala Phe Ile Ile Glu
225 230 235 240

Arg

<210> 2695
<211> 665
<212> PRT
<213> Homo sapiens

<220>
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<220>

<221> source
<223> /note="Gene Symbol: ADAD2; "

<220>
<221> source
<223> /note="Gene Name:
adenosine deaminase
domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NCV1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000268624"

<400> 2695

```
Met Ala Ser Ala Ser Gln Gly Ala Asp Asp Asp Gly Ser Arg Arg Lys
1               5                  10                  15


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


Arg Pro Leu Pro Ala Gln Ala Gln Ser Ala Trp Gly Pro Ala Pro Ala
        35                  40                  45


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


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


Ala Arg Ala Trp Glu Asn Leu Gly Glu Gln Met Gly Lys Ala Pro Arg
                85                  90                  95


Val Pro Val Pro Pro Ala Gly Leu Ser Leu Pro Leu Lys Asp Pro Pro
            100                 105                 110


Ala Ser Gln Ala Val Ser Leu Leu Thr Glu Tyr Ala Ala Ser Leu Gly
        115                 120                 125


Ile Phe Leu Leu Phe Arg Glu Asp Gln Pro Pro Gly Lys Val Phe Lys
    130                 135                 140


Tyr Arg Ala Pro Gly Gly Glu Glu Leu Lys Ala Met Cys Leu Trp Gln
145                 150                 155                 160
```

```
Val Glu Val Leu Arg Ala Phe Leu Leu Arg Thr Gly Trp Arg Gly Leu
                165                 170                 175

Trp Arg Gly Asp Leu Asp Leu Gly Pro Asp Ser Ser Trp Ala Asn Arg
            180                 185                 190

Leu Pro Phe Leu Leu Ile Cys Glu Met Glu Ser Arg Ile Pro Ala Val
        195                 200                 205

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

Gly Val Val Cys Pro Ala Gly Thr Ala Asn Ser Lys Thr Glu Ala Lys
225                 230                 235                 240

Gln Gln Ala Ala Leu Ser Ala Leu Cys Tyr Ile Arg Ser Gln Leu Glu
                245                 250                 255

Asn Pro Glu Ser Pro Gln Thr Ser Ser Arg Pro Pro Leu Ala Pro Leu
            260                 265                 270

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

Ser Ala Gly Phe Asp Leu Leu Leu Asp Glu Arg Ser Pro Tyr Trp Ala
    290                 295                 300

Cys Lys Gly Thr Val Ala Gly Val Ile Leu Glu Arg Gly Trp Ala Val
305                 310                 315                 320

Ser Ala Pro Ser Cys Thr Glu Ile Pro Arg Ala Arg Gly His Val Lys
                325                 330                 335

Glu Ile Tyr Lys Leu Val Ala Leu Gly Thr Gly Ser Ser Cys Cys Ala
            340                 345                 350

Gly Trp Leu Glu Phe Ser Gly Gln Gln Leu His Asp Cys His Gly Leu
        355                 360                 365

Val Ile Ala Arg Arg Ala Leu Leu Arg Phe Leu Phe Arg Gln Leu Leu
    370                 375                 380
```

```
Leu Ala Thr Gln Gly Gly Pro Lys Gly Lys Glu Gln Ser Val Leu Ala
385                 390                 395                 400

Pro Gln Pro Gly Pro Gly Pro Pro Phe Thr Leu Lys Pro Arg Val Phe
                405                 410                 415

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

Tyr Leu Pro Pro Thr Ser Glu Gly Gly Leu Pro His Ser Pro Pro Met
        435                 440                 445

Arg Leu Gln Ala His Val Leu Gly Gln Leu Lys Pro Val Cys Tyr Val
    450                 455                 460

Ala Pro Ser Leu Cys Asp Thr His Val Gly Cys Leu Ser Ala Ser Asp
465                 470                 475                 480

Lys Leu Ala Arg Trp Ala Val Leu Gly Leu Gly Gly Ala Leu Leu Ala
                485                 490                 495

His Leu Val Ser Pro Leu Tyr Ser Thr Ser Leu Ile Leu Ala Asp Ser
            500                 505                 510

Cys His Asp Pro Pro Thr Leu Ser Arg Ala Ile His Thr Arg Pro Cys
        515                 520                 525

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

Ala Leu His Leu Phe Ala Gly Pro Pro Val Ala Pro Ser Glu Pro Thr
545                 550                 555                 560

Pro Asp Thr Cys Arg Gly Leu Ser Leu Asn Trp Ser Leu Gly Asp Pro
                565                 570                 575

Gly Ile Glu Val Val Asp Val Ala Thr Gly Arg Val Lys Ala Asn Ala
            580                 585                 590

Ala Leu Gly Pro Pro Ser Arg Leu Cys Lys Ala Ser Phe Leu Arg Ala
        595                 600                 605

Phe His Gln Ala Ala Arg Ala Val Gly Lys Pro Tyr Leu Leu Ala Leu
```

```
    610                 615                 620

Lys Thr Tyr Glu Ala Ala Lys Ala Gly Pro Tyr Gln Glu Ala Arg Arg
625                 630                 635                 640

Gln Leu Ser Leu Leu Leu Asp Gln Gln Gly Leu Gly Ala Trp Pro Ser
                645                 650                 655

Lys Pro Leu Val Gly Lys Phe Arg Asn
            660                 665


<210> 2696
<211> 583
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADAD2; "

<220>
<221> source
<223> /note="Gene Name:
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      domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NCV1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000325153"

<400> 2696
Met Ala Ser Ala Ser Gln Gly Ala Asp Asp Asp Gly Ser Arg Arg Lys
1               5                   10                  15

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

Arg Pro Leu Pro Ala Gln Ala Gln Ser Ala Trp Gly Pro Ala Pro Ala
        35                  40                  45

Pro Ala Thr Tyr Arg Ala Glu Gly Gly Trp Pro Gln Val Ser Val Leu
    50                  55                  60
```

```
Arg Asp Ser Gly Pro Gly Ala Gly Ala Gly Val Gly Glu Leu Gly Ala
65                  70                  75                  80

Ala Arg Ala Trp Glu Asn Leu Gly Glu Gln Met Gly Lys Ala Pro Arg
                85                  90                  95

Val Pro Val Pro Pro Ala Gly Leu Ser Leu Pro Leu Lys Asp Pro Pro
            100                 105                 110

Ala Ser Gln Ala Val Ser Leu Leu Thr Glu Tyr Ala Ala Ser Leu Gly
        115                 120                 125

Ile Phe Leu Leu Phe Arg Glu Asp Gln Pro Pro Gly Pro Cys Phe Pro
    130                 135                 140

Phe Ser Val Ser Ala Glu Leu Asp Gly Val Val Cys Pro Ala Gly Thr
145                 150                 155                 160

Ala Asn Ser Lys Thr Glu Ala Lys Gln Gln Ala Ala Leu Ser Ala Leu
                165                 170                 175

Cys Tyr Ile Arg Ser Gln Leu Glu Asn Pro Glu Ser Pro Gln Thr Ser
            180                 185                 190

Ser Arg Pro Pro Leu Ala Pro Leu Ser Val Glu Asn Ile Leu Thr His
        195                 200                 205

Glu Gln Arg Cys Ala Ala Leu Val Ser Ala Gly Phe Asp Leu Leu Leu
    210                 215                 220

Asp Glu Arg Ser Pro Tyr Trp Ala Cys Lys Gly Thr Val Ala Gly Val
225                 230                 235                 240

Ile Leu Glu Arg Glu Ile Pro Arg Ala Arg Gly His Val Lys Glu Ile
                245                 250                 255

Tyr Lys Leu Val Ala Leu Gly Thr Gly Ser Ser Cys Cys Ala Gly Trp
            260                 265                 270

Leu Glu Phe Ser Gly Gln Gln Leu His Asp Cys His Gly Leu Val Ile
        275                 280                 285
```

```
Ala Arg Arg Ala Leu Leu Arg Phe Leu Phe Arg Gln Leu Leu Leu Ala
    290                 295                 300

Thr Gln Gly Gly Pro Lys Gly Lys Glu Gln Ser Val Leu Ala Pro Gln
305                 310                 315                 320

Pro Gly Pro Gly Pro Pro Phe Thr Leu Lys Pro Arg Val Phe Leu His
                325                 330                 335

Leu Tyr Ile Ser Asn Thr Pro Lys Gly Ala Ala Arg Asp Ile Tyr Leu
            340                 345                 350

Pro Pro Thr Ser Glu Gly Gly Leu Pro His Ser Pro Pro Met Arg Leu
        355                 360                 365

Gln Ala His Val Leu Gly Gln Leu Lys Pro Val Cys Tyr Val Ala Pro
    370                 375                 380

Ser Leu Cys Asp Thr His Val Gly Cys Leu Ser Ala Ser Asp Lys Leu
385                 390                 395                 400

Ala Arg Trp Ala Val Leu Gly Leu Gly Gly Ala Leu Leu Ala His Leu
                405                 410                 415

Val Ser Pro Leu Tyr Ser Thr Ser Leu Ile Leu Ala Asp Ser Cys His
            420                 425                 430

Asp Pro Pro Thr Leu Ser Arg Ala Ile His Thr Arg Pro Cys Leu Asp
        435                 440                 445

Ser Val Leu Gly Pro Cys Leu Pro Pro Pro Tyr Val Arg Thr Ala Leu
    450                 455                 460

His Leu Phe Ala Gly Pro Pro Val Ala Pro Ser Glu Pro Thr Pro Asp
465                 470                 475                 480

Thr Cys Arg Gly Leu Ser Leu Asn Trp Ser Leu Gly Asp Pro Gly Ile
                485                 490                 495

Glu Val Val Asp Val Ala Thr Gly Arg Val Lys Ala Asn Ala Ala Leu
            500                 505                 510
```

```
Gly Pro Pro Ser Arg Leu Cys Lys Ala Ser Phe Leu Arg Ala Phe His
        515                 520                 525

Gln Ala Ala Arg Ala Val Gly Lys Pro Tyr Leu Leu Ala Leu Lys Thr
    530                 535                 540

Tyr Glu Ala Ala Lys Ala Gly Pro Tyr Gln Glu Ala Arg Arg Gln Leu
545                 550                 555                 560

Ser Leu Leu Leu Asp Gln Gln Gly Leu Gly Ala Trp Pro Ser Lys Pro
                565                 570                 575

Leu Val Gly Lys Phe Arg Asn
            580


<210> 2697
<211> 267
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 630; "

<220>
<221> source
<223> /note="Gene Symbol: ADAD2; "

<220>
<221> source
<223> /note="Gene Name:
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      domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454950"


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

<400> 2697
Xaa Glu Leu Gly Ala Ala Arg Ala Trp Glu Asn Leu Gly Glu Gln Met
1               5                   10                  15

Gly Lys Ala Pro Arg Val Pro Val Pro Pro Ala Gly Leu Ser Leu Pro
            20                  25                  30
```

```
Leu Lys Asp Pro Pro Ala Ser Gln Ala Val Ser Leu Leu Thr Glu Tyr
        35                  40                  45

Ala Ala Ser Leu Gly Ile Phe Leu Leu Phe Arg Glu Asp Gln Pro Pro
    50                  55                  60

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

Cys Pro Ala Gly Thr Ala Asn Ser Lys Thr Glu Ala Lys Gln Gln Ala
                85                  90                  95

Ala Leu Ser Ala Leu Cys Tyr Ile Arg Ser Gln Leu Glu Asn Pro Glu
            100                 105                 110

Asn Ile Leu Thr His Glu Gln Arg Cys Ala Ala Leu Val Ser Ala Gly
        115                 120                 125

Phe Asp Leu Leu Leu Asp Glu Arg Ser Pro Tyr Trp Ala Cys Lys Gly
    130                 135                 140

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

His Val Lys Glu Ile Tyr Lys Leu Val Ala Leu Gly Thr Gly Ser Ser
                165                 170                 175

Cys Cys Ala Gly Trp Leu Glu Phe Ser Gly Gln Gln Leu His Asp Cys
            180                 185                 190

His Gly Leu Val Ile Ala Arg Arg Ala Leu Leu Arg Phe Leu Phe Arg
        195                 200                 205

Gln Leu Leu Leu Ala Thr Gln Gly Gly Pro Lys Gly Lys Glu Gln Ser
    210                 215                 220

Val Leu Ala Pro Gln Pro Gly Pro Gly Pro Pro Phe Thr Leu Lys Pro
225                 230                 235                 240

Arg Val Phe Leu His Leu Tyr Ile Ser Asn Thr Pro Lys Gly Ala Ala
                245                 250                 255
```

```
Arg Asp Ile Tyr Leu Pro Pro Thr Ser Glu Gly
            260                 265


<210> 2698
<211> 931
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 631; "

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

<220>
<221> source
<223> /note="Gene Name:
      adenosine deaminase, RNA-specific; "

<220>
<221> source
<223> /note="Uniprot ID:  P55265; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357456"

<400> 2698
Met Ala Glu Ile Lys Glu Lys Ile Cys Asp Tyr Leu Phe Asn Val Ser
1               5                  10                  15


Asp Ser Ser Ala Leu Asn Leu Ala Lys Asn Ile Gly Leu Thr Lys Ala
            20                  25                  30


Arg Asp Ile Asn Ala Val Leu Ile Asp Met Glu Arg Gln Gly Asp Val
        35                  40                  45


Tyr Arg Gln Gly Thr Thr Pro Pro Ile Trp His Leu Thr Asp Lys Lys
    50                  55                  60


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


Ala Pro Ala Ala Ile Pro Glu Thr Lys Arg Asn Ala Glu Phe Leu Thr
                85                  90                  95


Cys Asn Ile Pro Thr Ser Asn Ala Ser Asn Asn Met Val Thr Thr Glu
            100                 105                 110
```

```
Lys Val Glu Asn Gly Gln Glu Pro Val Ile Lys Leu Glu Asn Arg Gln
        115                 120                 125

Glu Ala Arg Pro Glu Pro Ala Arg Leu Lys Pro Pro Val His Tyr Asn
    130                 135                 140

Gly Pro Ser Lys Ala Gly Tyr Val Asp Phe Glu Asn Gly Gln Trp Ala
145                 150                 155                 160

Thr Asp Asp Ile Pro Asp Asp Leu Asn Ser Ile Arg Ala Ala Pro Gly
                165                 170                 175

Glu Phe Arg Ala Ile Met Glu Met Pro Ser Phe Tyr Ser His Gly Leu
            180                 185                 190

Pro Arg Cys Ser Pro Tyr Lys Lys Leu Thr Glu Cys Gln Leu Lys Asn
        195                 200                 205

Pro Ile Ser Gly Leu Leu Glu Tyr Ala Gln Phe Ala Ser Gln Thr Cys
    210                 215                 220

Glu Phe Asn Met Ile Glu Gln Ser Gly Pro Pro His Glu Pro Arg Phe
225                 230                 235                 240

Lys Phe Gln Val Val Ile Asn Gly Arg Glu Phe Pro Pro Ala Glu Ala
                245                 250                 255

Gly Ser Lys Lys Val Ala Lys Gln Asp Ala Ala Met Lys Ala Met Thr
            260                 265                 270

Ile Leu Leu Glu Glu Ala Lys Ala Lys Asp Ser Gly Lys Ser Glu Glu
        275                 280                 285

Ser Ser His Tyr Ser Thr Glu Lys Glu Ser Glu Lys Thr Ala Glu Ser
    290                 295                 300

Gln Thr Pro Thr Pro Ser Ala Thr Ser Phe Phe Ser Gly Lys Ser Pro
305                 310                 315                 320

Val Thr Thr Leu Leu Glu Cys Met His Lys Leu Gly Asn Ser Cys Glu
                325                 330                 335
```

```
Phe Arg Leu Leu Ser Lys Glu Gly Pro Ala His Glu Pro Lys Phe Gln
            340                 345                 350

Tyr Cys Val Ala Val Gly Ala Gln Thr Phe Pro Ser Val Ser Ala Pro
        355                 360                 365

Ser Lys Lys Val Ala Lys Gln Met Ala Ala Glu Glu Ala Met Lys Ala
    370                 375                 380

Leu His Gly Glu Ala Thr Asn Ser Met Ala Ser Asp Asn Gln Pro Glu
385                 390                 395                 400

Gly Met Ile Ser Glu Ser Leu Asp Asn Leu Glu Ser Met Met Pro Asn
                405                 410                 415

Lys Val Arg Lys Ile Gly Glu Leu Val Arg Tyr Leu Asn Thr Asn Pro
            420                 425                 430

Val Gly Gly Leu Leu Glu Tyr Ala Arg Ser His Gly Phe Ala Ala Glu
        435                 440                 445

Phe Lys Leu Val Asp Gln Ser Gly Pro Pro His Glu Pro Lys Phe Val
    450                 455                 460

Tyr Gln Ala Lys Val Gly Gly Arg Trp Phe Pro Ala Val Cys Ala His
465                 470                 475                 480

Ser Lys Lys Gln Gly Lys Gln Glu Ala Ala Asp Ala Ala Leu Arg Val
                485                 490                 495

Leu Ile Gly Glu Asn Glu Lys Ala Glu Arg Met Gly Phe Thr Glu Val
            500                 505                 510

Thr Pro Val Thr Gly Ala Ser Leu Arg Arg Thr Met Leu Leu Leu Ser
        515                 520                 525

Arg Ser Pro Glu Ala Gln Pro Lys Thr Leu Pro Leu Thr Gly Ser Thr
    530                 535                 540

Phe His Asp Gln Ile Ala Met Leu Ser His Arg Cys Phe Asn Thr Leu
545                 550                 555                 560
```

```
Thr Asn Ser Phe Gln Pro Ser Leu Leu Gly Arg Lys Ile Leu Ala Ala
                565                 570                 575

Ile Ile Met Lys Lys Asp Ser Glu Asp Met Gly Val Val Val Ser Leu
            580                 585                 590

Gly Thr Gly Asn Arg Cys Val Lys Gly Asp Ser Leu Ser Leu Lys Gly
        595                 600                 605

Glu Thr Val Asn Asp Cys His Ala Glu Ile Ile Ser Arg Arg Gly Phe
    610                 615                 620

Ile Arg Phe Leu Tyr Ser Glu Leu Met Lys Tyr Asn Ser Gln Thr Ala
625                 630                 635                 640

Lys Asp Ser Ile Phe Glu Pro Ala Lys Gly Gly Glu Lys Leu Gln Ile
                645                 650                 655

Lys Lys Thr Val Ser Phe His Leu Tyr Ile Ser Thr Ala Pro Cys Gly
            660                 665                 670

Asp Gly Ala Leu Phe Asp Lys Ser Cys Ser Asp Arg Ala Met Glu Ser
        675                 680                 685

Thr Glu Ser Arg His Tyr Pro Val Phe Glu Asn Pro Lys Gln Gly Lys
    690                 695                 700

Leu Arg Thr Lys Val Glu Asn Gly Glu Gly Thr Ile Pro Val Glu Ser
705                 710                 715                 720

Ser Asp Ile Val Pro Thr Trp Asp Gly Ile Arg Leu Gly Glu Arg Leu
                725                 730                 735

Arg Thr Met Ser Cys Ser Asp Lys Ile Leu Arg Trp Asn Val Leu Gly
            740                 745                 750

Leu Gln Gly Ala Leu Leu Thr His Phe Leu Gln Pro Ile Tyr Leu Lys
        755                 760                 765

Ser Val Thr Leu Gly Tyr Leu Phe Ser Gln Gly His Leu Thr Arg Ala
    770                 775                 780

Ile Cys Cys Arg Val Thr Arg Asp Gly Ser Ala Phe Glu Asp Gly Leu
```

```
785                 790                 795                 800

Arg His Pro Phe Ile Val Asn His Pro Lys Val Gly Arg Val Ser Ile
                805                 810                 815

Tyr Asp Ser Lys Arg Gln Ser Gly Lys Thr Lys Glu Thr Ser Val Asn
            820                 825                 830

Trp Cys Leu Ala Asp Gly Tyr Asp Leu Glu Ile Leu Asp Gly Thr Arg
        835                 840                 845

Gly Thr Val Asp Gly Pro Arg Asn Glu Leu Ser Arg Val Ser Lys Lys
    850                 855                 860

Asn Ile Phe Leu Leu Phe Lys Lys Leu Cys Ser Phe Arg Tyr Arg Arg
865                 870                 875                 880

Asp Leu Leu Arg Leu Ser Tyr Gly Glu Ala Lys Lys Ala Ala Arg Asp
                885                 890                 895

Tyr Glu Thr Ala Lys Asn Tyr Phe Lys Lys Gly Leu Lys Asp Met Gly
            900                 905                 910

Tyr Gly Asn Trp Ile Ser Lys Pro Gln Glu Glu Lys Asn Phe Tyr Leu
        915                 920                 925

Cys Pro Val
    930


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Met Asn Pro Arg Gln Gly Tyr Ser Leu Ser Gly Tyr Tyr Thr His Pro
1   5   10   15

Phe Gln Gly Tyr Glu His Arg Gln Leu Arg Tyr Gln Gln Pro Gly Pro
            20   25   30

Gly Ser Ser Pro Ser Ser Phe Leu Leu Lys Gln Ile Glu Phe Leu Lys
        35   40   45

Gly Gln Leu Pro Glu Ala Pro Val Ile Gly Lys Gln Thr Pro Ser Leu
    50   55   60

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

Ser Ser Thr Arg Gly Arg Gln Val Asp Ile Arg Gly Val Pro Arg Gly
                85   90   95

Val His Leu Arg Ser Gln Gly Leu Gln Arg Gly Phe Gln His Pro Ser
            100   105   110

Pro Arg Gly Arg Ser Leu Pro Gln Arg Gly Val Asp Cys Leu Ser Ser
        115   120   125

His Phe Gln Glu Leu Ser Ile Tyr Gln Asp Gln Glu Gln Arg Ile Leu
    130   135   140

Lys Phe Leu Glu Glu Leu Gly Glu Gly Lys Ala Thr Thr Ala His Asp
145   150   155   160

Leu Ser Gly Lys Leu Gly Thr Pro Lys Lys Glu Ile Asn Arg Val Leu
                165   170   175

Tyr Ser Leu Ala Lys Lys Gly Lys Leu Gln Lys Glu Ala Gly Thr Pro
            180   185   190

```
Pro Leu Trp Lys Ile Ala Val Ser Thr Gln Ala Trp Asn Gln His Ser
        195                 200                 205

Gly Val Val Arg Pro Asp Gly His Ser Gln Gly Ala Pro Asn Ser Asp
    210                 215                 220

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

Leu Leu Glu Pro Phe Ile Ala Val Ser Ala Gln Ala Trp Asn Gln His
                245                 250                 255

Ser Gly Val Val Arg Pro Asp Ser His Ser Gln Gly Ser Pro Asn Ser
            260                 265                 270

Asp Pro Gly Leu Glu Pro Glu Asp Ser Asn Ser Thr Ser Ala Leu Glu
        275                 280                 285

Asp Pro Leu Glu Phe Leu Asp Met Ala Glu Ile Lys Glu Lys Ile Cys
    290                 295                 300

Asp Tyr Leu Phe Asn Val Ser Asp Ser Ser Ala Leu Asn Leu Ala Lys
305                 310                 315                 320

Asn Ile Gly Leu Thr Lys Ala Arg Asp Ile Asn Ala Val Leu Ile Asp
                325                 330                 335

Met Glu Arg Gln Gly Asp Val Tyr Arg Gln Gly Thr Thr Pro Pro Ile
            340                 345                 350

Trp His Leu Thr Asp Lys Lys Arg Glu Arg Met Gln Ile Lys Arg Asn
        355                 360                 365

Thr Asn Ser Val Pro Glu Thr Ala Pro Ala Ala Ile Pro Glu Thr Lys
    370                 375                 380

Arg Asn Ala Glu Phe Leu Thr Cys Asn Ile Pro Thr Ser Asn Ala Ser
385                 390                 395                 400

Asn Asn Met Val Thr Thr Glu Lys Val Glu Asn Gly Gln Glu Pro Val
                405                 410                 415

Ile Lys Leu Glu Asn Arg Gln Glu Ala Arg Pro Glu Pro Ala Arg Leu
```

```
            420                 425                 430

Lys Pro Pro Val His Tyr Asn Gly Pro Ser Lys Ala Gly Tyr Val Asp
        435                 440                 445

Phe Glu Asn Gly Gln Trp Ala Thr Asp Asp Ile Pro Asp Asp Leu Asn
    450                 455                 460

Ser Ile Arg Ala Ala Pro Gly Glu Phe Arg Ala Ile Met Glu Met Pro
465                 470                 475                 480

Ser Phe Tyr Ser His Gly Leu Pro Arg Cys Ser Pro Tyr Lys Lys Leu
                485                 490                 495

Thr Glu Cys Gln Leu Lys Asn Pro Ile Ser Gly Leu Leu Glu Tyr Ala
            500                 505                 510

Gln Phe Ala Ser Gln Thr Cys Glu Phe Asn Met Ile Glu Gln Ser Gly
        515                 520                 525

Pro Pro His Glu Pro Arg Phe Lys Phe Gln Val Val Ile Asn Gly Arg
    530                 535                 540

Glu Phe Pro Pro Ala Glu Ala Gly Ser Lys Lys Val Ala Lys Gln Asp
545                 550                 555                 560

Ala Ala Met Lys Ala Met Thr Ile Leu Leu Glu Glu Ala Lys Ala Lys
                565                 570                 575

Asp Ser Gly Lys Ser Glu Glu Ser Ser His Tyr Ser Thr Glu Lys Glu
            580                 585                 590

Ser Glu Lys Thr Ala Glu Ser Gln Thr Pro Thr Pro Ser Ala Thr Ser
        595                 600                 605

Phe Phe Ser Gly Lys Ser Pro Val Thr Thr Leu Leu Glu Cys Met His
    610                 615                 620

Lys Leu Gly Asn Ser Cys Glu Phe Arg Leu Leu Ser Lys Glu Gly Pro
625                 630                 635                 640

Ala His Glu Pro Lys Phe Gln Tyr Cys Val Ala Val Gly Ala Gln Thr
                645                 650                 655
```

```
Phe Pro Ser Val Ser Ala Pro Ser Lys Lys Val Ala Lys Gln Met Ala
            660                 665                 670

Ala Glu Glu Ala Met Lys Ala Leu His Gly Glu Ala Thr Asn Ser Met
        675                 680                 685

Ala Ser Asp Asn Gln Pro Glu Gly Met Ile Ser Glu Ser Leu Asp Asn
    690                 695                 700

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

Arg Tyr Leu Asn Thr Asn Pro Val Gly Gly Leu Leu Glu Tyr Ala Arg
                725                 730                 735

Ser His Gly Phe Ala Ala Glu Phe Lys Leu Val Asp Gln Ser Gly Pro
            740                 745                 750

Pro His Glu Pro Lys Phe Val Tyr Gln Ala Lys Val Gly Gly Arg Trp
        755                 760                 765

Phe Pro Ala Val Cys Ala His Ser Lys Lys Gln Gly Lys Gln Glu Ala
    770                 775                 780

Ala Asp Ala Ala Leu Arg Val Leu Ile Gly Glu Asn Glu Lys Ala Glu
785                 790                 795                 800

Arg Met Gly Phe Thr Glu Val Thr Pro Val Thr Gly Ala Ser Leu Arg
                805                 810                 815

Arg Thr Met Leu Leu Leu Ser Arg Ser Pro Glu Ala Gln Pro Lys Thr
            820                 825                 830

Leu Pro Leu Thr Gly Ser Thr Phe His Asp Gln Ile Ala Met Leu Ser
        835                 840                 845

His Arg Cys Phe Asn Thr Leu Thr Asn Ser Phe Gln Pro Ser Leu Leu
    850                 855                 860

Gly Arg Lys Ile Leu Ala Ala Ile Ile Met Lys Lys Asp Ser Glu Asp
865                 870                 875                 880
```

```
Met Gly Val Val Val Ser Leu Gly Thr Gly Asn Arg Cys Val Lys Gly
                885                 890                 895

Asp Ser Leu Ser Leu Lys Gly Glu Thr Val Asn Asp Cys His Ala Glu
            900                 905                 910

Ile Ile Ser Arg Arg Gly Phe Ile Arg Phe Leu Tyr Ser Glu Leu Met
        915                 920                 925

Lys Tyr Asn Ser Gln Thr Ala Lys Asp Ser Ile Phe Glu Pro Ala Lys
    930                 935                 940

Gly Gly Glu Lys Leu Gln Ile Lys Lys Thr Val Ser Phe His Leu Tyr
945                 950                 955                 960

Ile Ser Thr Ala Pro Cys Gly Asp Gly Ala Leu Phe Asp Lys Ser Cys
                965                 970                 975

Ser Asp Arg Ala Met Glu Ser Thr Glu Ser Arg His Tyr Pro Val Phe
            980                 985                 990

Glu Asn Pro Lys Gln Gly Lys Leu  Arg Thr Lys Val Glu  Asn Gly
Glu
        995                 1000                1005

Gly Thr  Ile Pro Val Glu Ser  Ser Asp Ile Val Pro  Thr Trp Asp
    1010                1015                1020

Gly Ile  Arg Leu Gly Glu Arg  Leu Arg Thr Met Ser  Cys Ser Asp
    1025                1030                1035

Lys Ile  Leu Arg Trp Asn Val  Leu Gly Leu Gln Gly  Ala Leu Leu
    1040                1045                1050

Thr His  Phe Leu Gln Pro Ile  Tyr Leu Lys Ser Val  Thr Leu Gly
    1055                1060                1065

Tyr Leu  Phe Ser Gln Gly His  Leu Thr Arg Ala Ile  Cys Cys Arg
    1070                1075                1080

Val Thr  Arg Asp Gly Ser Ala  Phe Glu Asp Gly Leu  Arg His Pro
    1085                1090                1095
```

```
Phe Ile  Val Asn His Pro Lys  Val Gly Arg Val Ser  Ile Tyr Asp
    1100                1105                1110

Ser Lys  Arg Gln Ser Gly Lys  Thr Lys Glu Thr Ser  Val Asn Trp
    1115                1120                1125

Cys Leu  Ala Asp Gly Tyr Asp  Leu Glu Ile Leu Asp  Gly Thr Arg
    1130                1135                1140

Gly Thr  Val Asp Gly Pro Arg  Asn Glu Leu Ser Arg  Val Ser Lys
    1145                1150                1155

Lys Asn  Ile Phe Leu Leu Phe  Lys Lys Leu Cys Ser  Phe Arg Tyr
    1160                1165                1170

Arg Arg  Asp Leu Leu Arg Leu  Ser Tyr Gly Glu Ala  Lys Lys Ala
    1175                1180                1185

Ala Arg  Asp Tyr Glu Thr Ala  Lys Asn Tyr Phe Lys  Lys Gly Leu
    1190                1195                1200

Lys Asp  Met Gly Tyr Gly Asn  Trp Ile Ser Lys Pro  Gln Glu Glu
    1205                1210                1215

Lys Asn  Phe Tyr Leu Cys Pro  Val
    1220                1225


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<223> /note="ENSP ID: ENSP00000431794"

<400> 2700
Gly Tyr Ser Leu Ser Gly Tyr Tyr Thr His Pro Phe Gln Gly Tyr Glu
1 5 10 15

His Arg Gln Leu Arg Tyr Gln Gln Pro Gly Pro Gly Ser Ser Pro Ser
20 25 30

Ser Phe Leu Leu Lys Gln Ile Glu Phe Leu Lys Gly Gln Leu Pro Glu
35 40 45

Ala Pro Val Ile Gly Lys Gln Thr Pro Ser Leu Pro Pro Ser Leu Pro
50 55 60

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

Arg Gln Val Asp Ile Arg Gly Val Pro Arg Gly Val His Leu Arg Ser
85 90 95

Gln Gly Leu Gln Arg Gly Phe Gln His Pro Ser Pro Arg Gly Arg Ser
100 105 110

Leu Pro Gln Arg Gly Val Asp Cys Leu Ser Ser His Phe Gln Glu Leu
115 120 125

Ser Ile Tyr Gln Asp Gln Glu Gln Arg Ile Leu Lys Phe Leu Glu Glu
130 135 140

Leu Gly Glu Gly Lys Ala Thr Thr Ala His Asp Leu Ser Gly Lys Leu
145 150 155 160

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

Lys Gly Lys Leu Gln Lys Glu Ala Gly Thr Pro Pro Leu Trp Lys Ile
180 185 190

Ala Val Ser Thr Gln Ala Trp Asn Gln His Ser Gly Val Val Arg Pro
195 200 205

Asp Gly His Ser Gln Gly Ala Pro Asn Ser Asp Pro Ser Leu Glu Pro
210 215 220

```
Glu Asp Arg Asn Ser Thr Ser Val Ser Glu Asp Leu Leu Glu Pro Phe
225                 230                 235                 240

Ile Ala Val Ser Ala Gln Ala Trp Asn Gln His Ser Gly Val Val Arg
                245                 250                 255

Pro Asp Ser His Ser Gln Gly Ser Pro Asn Ser Asp Pro Gly Leu Glu
            260                 265                 270

Pro Glu Asp Ser Asn Ser Thr Ser Ala Leu Glu Asp Pro Leu Glu Phe
        275                 280                 285

Leu Asp Met Ala Glu Ile Lys Glu Lys Ile Cys Asp Tyr Leu Phe Asn
    290                 295                 300

Val Ser Asp Ser Ser Ala Leu Asn Leu Ala Lys Asn Ile Gly Leu Thr
305                 310                 315                 320

Lys Ala Arg Asp Ile Asn Ala Val Leu Ile Asp Met Glu Arg Gln Gly
                325                 330                 335

Asp Val Tyr Arg Gln Gly Thr Thr Pro Pro Ile Trp His Leu Thr Asp
            340                 345                 350

Lys Lys Arg Glu Arg Met Gln Ile Lys Arg Asn Thr Asn Ser Val Pro
        355                 360                 365

Glu Thr Ala Pro Ala Ala Ile Pro Glu Thr Lys Arg Asn Ala Glu Phe
    370                 375                 380

Leu Thr Cys Asn Ile Pro Thr Ser Asn Ala Ser Asn Asn Met Val Thr
385                 390                 395                 400

Thr Glu Lys Val Glu Asn Gly Gln Glu Pro Val Ile Lys Leu Glu Asn
                405                 410                 415

Arg Gln Glu Ala Arg Pro Glu Pro Ala Arg Leu Lys Pro Pro Val His
            420                 425                 430

Tyr Asn Gly Pro Ser Lys Ala Gly Tyr Val Asp Phe Glu Asn Gly Gln
        435                 440                 445
```

```
Trp Ala Thr Asp Asp Ile Pro Asp Asp Leu Asn Ser Ile Arg Ala Ala
    450                 455                 460

Pro Gly Glu Phe Arg Ala Ile Met Glu Met Pro Ser Phe Tyr Ser His
465                 470                 475                 480

Gly Leu Pro Arg Cys Ser Pro Tyr Lys Lys Leu Thr Glu Cys Gln Leu
                485                 490                 495

Lys Asn Pro Ile Ser Gly Leu Leu Glu Tyr Ala Gln Phe Ala Ser Gln
            500                 505                 510

Thr Cys Glu Phe Asn Met Ile Glu Gln Ser Gly Pro Pro His Glu Pro
        515                 520                 525

Arg Phe Lys Phe Gln Val Val Ile Asn Gly Arg Glu Phe Pro Pro Ala
    530                 535                 540

Glu Ala Gly Ser Lys Lys Val Ala Lys Gln Asp Ala Ala Met Lys Ala
545                 550                 555                 560

Met Thr Ile Leu Leu Glu Glu Ala Lys Ala Lys Asp Ser Gly Lys Ser
                565                 570                 575

Glu Glu Ser Ser His Tyr Ser Thr Glu Lys Glu Ser Glu Lys Thr Ala
            580                 585                 590

Glu Ser Gln Thr Pro Thr Pro Ser Ala Thr Ser Phe Phe Ser Gly Lys
        595                 600                 605

Ser Pro Val Thr Thr Leu Leu Glu Cys Met His Lys Leu Gly Asn Ser
    610                 615                 620

Cys Glu Phe Arg Leu Leu Ser Lys Glu Gly Pro Ala His Glu Pro Lys
625                 630                 635                 640

Phe Gln Tyr Cys Val Ala Val Gly Ala Gln Thr Phe Pro Ser Val Ser
                645                 650                 655

Ala Pro Ser Lys Lys Val Ala Lys Gln Met Ala Ala Glu Glu Ala Met
            660                 665                 670
```

```
Lys Ala Leu His Gly Glu Ala Thr Asn Ser Met Ala Ser Asp Asn Gln
        675                 680                 685

Pro Glu Gly Met Ile Ser Glu Ser Leu Asp Asn Leu Glu Ser Met Met
    690                 695                 700

Pro Asn Lys Val Arg Lys Ile Gly Glu Leu Val Arg Tyr Leu Asn Thr
705                 710                 715                 720

Asn Pro Val Gly Gly Leu Leu Glu Tyr Ala Arg Ser His Gly Phe Ala
                725                 730                 735

Ala Glu Phe Lys Leu Val Asp Gln Ser Gly Pro Pro His Glu Pro Lys
            740                 745                 750

Phe Val Tyr Gln Ala Lys Val Gly Gly Arg Trp Phe Pro Ala Val Cys
        755                 760                 765

Ala His Ser Lys Lys Gln Gly Lys Gln Glu Ala Ala Asp Ala Ala Leu
    770                 775                 780

Arg Val Leu Ile Gly Glu Asn Glu Lys Ala Glu Arg Met Gly Phe Thr
785                 790                 795                 800

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

Ser His Arg Cys Phe Asn Thr Leu Thr Asn Ser Phe Gln Pro Ser Leu
            820                 825                 830

Leu Gly Arg Lys Ile Leu Ala Ala Ile Ile Met Lys Lys Asp Ser Glu
        835                 840                 845

Asp Met Gly Val Val Val Ser Leu Gly Thr Gly Asn Arg Cys Val Lys
    850                 855                 860

Gly Asp Ser Leu Ser Leu Lys Gly Glu Thr Val Asn Asp Cys His Ala
865                 870                 875                 880

Glu Ile Ile Ser Arg Arg Gly Phe Ile Arg Phe Leu Tyr Ser Glu Leu
                885                 890                 895

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

900 905 910

Lys Gly Gly Glu Lys Leu Gln Ile Lys Lys Thr Val Ser Phe His Leu
915 920 925

Tyr Ile Ser Thr Ala Pro Cys Gly Asp Gly Ala Leu Phe Asp Lys Ser
930 935 940

Cys Ser Asp Arg Ala Met Glu Ser Thr Glu Ser Arg His Tyr Pro Val
945 950 955 960

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

Glu Gly Thr Ile Pro Val Glu Ser Ser Asp Ile Val Pro Thr Trp Asp
980 985 990

Gly Ile Arg Leu Gly Glu Arg Leu Arg Thr Met Ser Cys Ser Asp
Lys
995 1000 1005

Ile Leu Arg Trp Asn Val Leu Gly Leu Gln Gly Ala Leu Leu Thr
1010 1015 1020

His Phe Leu Gln Pro Ile Tyr Leu Lys Ser Val Thr Leu Gly Tyr
1025 1030 1035

Leu Phe Ser Gln Gly His Leu Thr Arg Ala Ile Cys Cys Arg Val
1040 1045 1050

Thr Arg Asp Gly Ser Ala Phe Glu Asp Gly Leu Arg His Pro Phe
1055 1060 1065

Ile Val Asn His Pro Lys Val Gly Arg Val Ser Ile Tyr Asp Ser
1070 1075 1080

Lys Arg Gln Ser Gly Lys Thr Lys Glu Thr Ser Val Asn Trp Cys
1085 1090 1095

Leu Ala Asp Gly Tyr Asp Leu Glu Ile Leu Asp Gly Thr Arg Gly
1100 1105 1110

Thr Val Asp Gly Pro Arg Asn Glu Leu Ser Arg Val Ser Lys Lys

```
    1115                1120                1125

Asn Ile  Phe Leu Leu Phe Lys  Lys Leu Cys Ser Phe  Arg Tyr Arg
    1130                1135                1140

Arg Asp  Leu Leu Arg Leu Ser  Tyr Gly Glu Ala Lys  Lys Ala Ala
    1145                1150                1155

Arg Asp  Tyr Glu Thr Ala Lys  Asn Tyr Phe Lys Lys  Gly Leu Lys
    1160                1165                1170

Asp Met  Gly Tyr Gly Asn Trp  Ile Ser Lys Pro Gln  Glu Glu Lys
    1175                1180                1185

Asn Phe  Tyr Leu Cys Pro Val
    1190                1195


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Met Asp Ile Glu Asp Glu Glu Asn Met Ser Ser Ser Ser Thr Asp Val
1               5                  10                  15

Lys Glu Asn Arg Asn Leu Asp Asn Val Ser Pro Lys Asp Gly Ser Thr
            20                  25                  30
```

```
Pro Gly Pro Gly Glu Gly Ser Gln Leu Ser Asn Gly Gly Gly Gly Gly
        35                  40                  45

Pro Gly Arg Lys Arg Pro Leu Glu Glu Gly Ser Asn Gly His Ser Lys
    50                  55                  60

Tyr Arg Leu Lys Lys Arg Arg Lys Thr Pro Gly Pro Val Leu Pro Lys
65                  70                  75                  80

Asn Ala Leu Met Gln Leu Asn Glu Ile Lys Pro Gly Leu Gln Tyr Thr
                85                  90                  95

Leu Leu Ser Gln Thr Gly Pro Val His Ala Pro Leu Phe Val Met Ser
            100                 105                 110

Val Glu Val Asn Gly Gln Val Phe Glu Gly Ser Gly Pro Thr Lys Lys
        115                 120                 125

Lys Ala Lys Leu His Ala Ala Glu Lys Ala Leu Arg Ser Phe Val Gln
    130                 135                 140

Phe Pro Asn Ala Ser Glu Ala His Leu Ala Met Gly Arg Thr Leu Ser
145                 150                 155                 160

Val Asn Thr Asp Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu
                165                 170                 175

Phe Asn Gly Phe Glu Thr Pro Asp Lys Ala Glu Pro Pro Phe Tyr Val
            180                 185                 190

Gly Ser Asn Gly Asp Asp Ser Phe Ser Ser Ser Gly Asp Leu Ser Leu
        195                 200                 205

Ser Ala Ser Pro Val Pro Ala Ser Leu Ala Gln Pro Pro Leu Pro Val
    210                 215                 220

Leu Pro Pro Phe Pro Pro Pro Ser Gly Lys Asn Pro Val Met Ile Leu
225                 230                 235                 240

Asn Glu Leu Arg Pro Gly Leu Lys Tyr Asp Phe Leu Ser Glu Ser Gly
                245                 250                 255
```

```
Glu Ser His Ala Lys Ser Phe Val Met Ser Val Val Val Asp Gly Gln
            260                 265                 270

Phe Phe Glu Gly Ser Gly Arg Asn Lys Lys Leu Ala Lys Ala Arg Ala
        275                 280                 285

Ala Gln Ser Ala Leu Ala Ala Ile Phe Asn Leu His Leu Asp Gln Thr
    290                 295                 300

Pro Ser Arg Gln Pro Ile Pro Ser Glu Gly Leu Gln Leu His Leu Pro
305                 310                 315                 320

Gln Val Leu Ala Asp Ala Val Ser Arg Leu Val Leu Gly Lys Phe Gly
                325                 330                 335

Asp Leu Thr Asp Asn Phe Ser Ser Pro His Ala Arg Arg Lys Val Leu
            340                 345                 350

Ala Gly Val Val Met Thr Thr Gly Thr Asp Val Lys Asp Ala Lys Val
        355                 360                 365

Ile Ser Val Ser Thr Gly Thr Lys Cys Ile Asn Gly Glu Tyr Met Ser
    370                 375                 380

Asp Arg Gly Leu Ala Leu Asn Asp Cys His Ala Glu Ile Ile Ser Arg
385                 390                 395                 400

Arg Ser Leu Leu Arg Phe Leu Tyr Thr Gln Leu Glu Leu Tyr Leu Asn
                405                 410                 415

Asn Lys Asp Asp Gln Lys Arg Ser Ile Phe Gln Lys Ser Glu Arg Gly
            420                 425                 430

Gly Phe Arg Leu Lys Glu Asn Val Gln Phe His Leu Tyr Ile Ser Thr
        435                 440                 445

Ser Pro Cys Gly Asp Ala Arg Ile Phe Ser Pro His Glu Pro Ile Leu
    450                 455                 460

Glu Glu Pro Ala Asp Arg His Pro Asn Arg Lys Ala Arg Gly Gln Leu
465                 470                 475                 480

Arg Thr Lys Ile Glu Ser Gly Glu Gly Thr Ile Pro Val Arg Ser Asn
```

485 490 495

Ala Ser Ile Gln Thr Trp Asp Gly Val Leu Gln Gly Glu Arg Leu Leu
500 505 510

Thr Met Ser Cys Ser Asp Lys Ile Ala Arg Trp Asn Val Val Gly Ile
515 520 525

Gln Gly Ser Leu Leu Ser Ile Phe Val Glu Pro Ile Tyr Phe Ser Ser
530 535 540

Ile Ile Leu Gly Ser Leu Tyr His Gly Asp His Leu Ser Arg Ala Met
545 550 555 560

Tyr Gln Arg Ile Ser Asn Ile Glu Asp Leu Pro Pro Leu Tyr Thr Leu
565 570 575

Asn Lys Pro Leu Leu Ser Gly Ile Ser Asn Ala Glu Ala Arg Gln Pro
580 585 590

Gly Lys Ala Pro Asn Phe Ser Val Asn Trp Thr Val Gly Asp Ser Ala
595 600 605

Ile Glu Val Ile Asn Ala Thr Thr Gly Lys Asp Glu Leu Gly Arg Ala
610 615 620

Ser Arg Leu Cys Lys His Ala Leu Tyr Cys Arg Trp Met Arg Val His
625 630 635 640

Gly Lys Val Pro Ser His Leu Leu Arg Ser Lys Ile Thr Lys Pro Asn
645 650 655

Val Tyr His Glu Ser Lys Leu Ala Ala Lys Glu Tyr Gln Ala Ala Lys
660 665 670

Ala Arg Leu Phe Thr Ala Phe Ile Lys Ala Gly Leu Gly Ala Trp Val
675 680 685

Glu Lys Pro Thr Glu Gln Asp Gln Phe Ser Leu Thr Pro
690 695 700

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<212> PRT
<213> Homo sapiens

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Met Asp Ile Glu Asp Glu Glu Asn Met Ser Ser Ser Ser Thr Asp Val
1 5 10 15

Lys Glu Asn Arg Asn Leu Asp Asn Val Ser Pro Lys Asp Gly Ser Thr
20 25 30

Pro Gly Pro Gly Glu Gly Ser Gln Leu Ser Asn Gly Gly Gly Gly Gly
35 40 45

Pro Gly Arg Lys Arg Pro Leu Glu Glu Gly Ser Asn Gly His Ser Lys
50 55 60

Tyr Arg Leu Lys Lys Arg Arg Lys Thr Pro Gly Pro Val Leu Pro Lys
65 70 75 80

Asn Ala Leu Met Gln Leu Asn Glu Ile Lys Pro Gly Leu Gln Tyr Thr
85 90 95

Leu Leu Ser Gln Thr Gly Pro Val His Ala Pro Leu Phe Val Met Ser
100 105 110

Val Glu Val Asn Gly Gln Val Phe Glu Gly Ser Gly Pro Thr Lys Lys
115 120 125

```
Lys Ala Lys Leu His Ala Ala Glu Lys Ala Leu Arg Ser Phe Val Gln
    130                 135                 140

Phe Pro Asn Ala Ser Glu Ala His Leu Ala Met Gly Arg Thr Leu Ser
145                 150                 155                 160

Val Asn Thr Asp Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu
                165                 170                 175

Phe Asn Gly Phe Glu Thr Pro Asp Lys Ala Glu Pro Pro Phe Tyr Val
            180                 185                 190

Gly Ser Asn Gly Asp Asp Ser Phe Ser Ser Ser Gly Asp Leu Ser Leu
        195                 200                 205

Ser Ala Ser Pro Val Pro Ala Ser Leu Ala Gln Pro Pro Leu Pro Val
    210                 215                 220

Leu Pro Pro Phe Pro Pro Pro Ser Gly Lys Asn Pro Val Met Ile Leu
225                 230                 235                 240

Asn Glu Leu Arg Pro Gly Leu Lys Tyr Asp Phe Leu Ser Glu Ser Gly
                245                 250                 255

Glu Ser His Ala Lys Ser Phe Val Met Ser Val Val Val Asp Gly Gln
            260                 265                 270

Phe Phe Glu Gly Ser Gly Arg Asn Lys Lys Leu Ala Lys Ala Arg Ala
        275                 280                 285

Ala Gln Ser Ala Leu Ala Ala Ile Phe Asn Leu His Leu Asp Gln Thr
    290                 295                 300

Pro Ser Arg Gln Pro Ile Pro Ser Glu Gly Leu Gln Leu His Leu Pro
305                 310                 315                 320

Gln Val Leu Ala Asp Ala Val Ser Arg Leu Val Leu Gly Lys Phe Gly
                325                 330                 335

Asp Leu Thr Asp Asn Phe Ser Ser Pro His Ala Arg Arg Lys Val Leu
            340                 345                 350

Ala Gly Val Val Met Thr Thr Gly Thr Asp Val Lys Asp Ala Lys Val
```

```
        355                 360                 365

Ile Ser Val Ser Thr Gly Thr Lys Cys Ile Asn Gly Glu Tyr Met Ser
    370                 375                 380

Asp Arg Gly Leu Ala Leu Asn Asp Cys His Ala Glu Ile Ile Ser Arg
385                 390                 395                 400

Arg Ser Leu Leu Arg Phe Leu Tyr Thr Gln Leu Glu Leu Tyr Leu Asn
                405                 410                 415

Asn Lys Asp Asp Gln Lys Arg Ser Ile Phe Gln Lys Ser Glu Arg Gly
            420                 425                 430

Gly Phe Arg Leu Lys Glu Asn Val Gln Phe His Leu Tyr Ile Ser Thr
        435                 440                 445

Ser Pro Cys Gly Asp Ala Arg Ile Phe Ser Pro His Glu Pro Ile Leu
    450                 455                 460

Glu Gly Ser Arg Ser Tyr Thr Gln Ala Gly Val Gln Trp Cys Asn His
465                 470                 475                 480

Gly Ser Leu Gln Pro Arg Pro Pro Gly Leu Leu Ser Asp Pro Ser Thr
                485                 490                 495

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

Asn Arg Lys Ala Arg Gly Gln Leu Arg Thr Lys Ile Glu Ser Gly Glu
        515                 520                 525

Gly Thr Ile Pro Val Arg Ser Asn Ala Ser Ile Gln Thr Trp Asp Gly
    530                 535                 540

Val Leu Gln Gly Glu Arg Leu Leu Thr Met Ser Cys Ser Asp Lys Ile
545                 550                 555                 560

Ala Arg Trp Asn Val Val Gly Ile Gln Gly Ser Leu Leu Ser Ile Phe
                565                 570                 575

Val Glu Pro Ile Tyr Phe Ser Ser Ile Ile Leu Gly Ser Leu Tyr His
            580                 585                 590
```

```
Gly Asp His Leu Ser Arg Ala Met Tyr Gln Arg Ile Ser Asn Ile Glu
        595                 600                 605

Asp Leu Pro Pro Leu Tyr Thr Leu Asn Lys Pro Leu Leu Ser Gly Ile
    610                 615                 620

Ser Asn Ala Glu Ala Arg Gln Pro Gly Lys Ala Pro Asn Phe Ser Val
625                 630                 635                 640

Asn Trp Thr Val Gly Asp Ser Ala Ile Glu Val Ile Asn Ala Thr Thr
                645                 650                 655

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

Tyr Cys Arg Trp Met Arg Val His Gly Lys Val Pro Ser His Leu Leu
        675                 680                 685

Arg Ser Lys Ile Thr Lys Pro Asn Val Tyr His Glu Ser Lys Leu Ala
    690                 695                 700

Ala Lys Glu Tyr Gln Ala Ala Lys Ala Arg Leu Phe Thr Ala Phe Ile
705                 710                 715                 720

Lys Ala Gly Leu Gly Ala Trp Val Glu Lys Pro Thr Glu Gln Asp Gln
                725                 730                 735

Phe Ser Leu Thr Pro
            740


<210> 2703
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<223> /note="Gene Name:
adenosine deaminase, RNA-specific, B1; "

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<223> /note="Uniprot ID: P78563; "

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<400> 2703

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Met Asp Ile Glu Asp Glu Glu Asn Met Ser Ser Ser Ser Thr Asp Val
1               5                  10                  15

Lys Glu Asn Arg Asn Leu Asp Asn Val Ser Pro Lys Asp Gly Ser Thr
            20                  25                  30

Pro Gly Pro Gly Glu Gly Ser Gln Leu Ser Asn Gly Gly Gly Gly Gly
        35                  40                  45

Pro Gly Arg Lys Arg Pro Leu Glu Glu Gly Ser Asn Gly His Ser Lys
    50                  55                  60

Tyr Arg Leu Lys Lys Arg Arg Lys Thr Pro Gly Pro Val Leu Pro Lys
65                  70                  75                  80

Asn Ala Leu Met Gln Leu Asn Glu Ile Lys Pro Gly Leu Gln Tyr Thr
                85                  90                  95

Leu Leu Ser Gln Thr Gly Pro Val His Ala Pro Leu Phe Val Met Ser
            100                 105                 110

Val Glu Val Asn Gly Gln Val Phe Glu Gly Ser Gly Pro Thr Lys Lys
        115                 120                 125

Lys Ala Lys Leu His Ala Ala Glu Lys Ala Leu Arg Ser Phe Val Gln
    130                 135                 140

Phe Pro Asn Ala Ser Glu Ala His Leu Ala Met Gly Arg Thr Leu Ser
145                 150                 155                 160

Val Asn Thr Asp Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu
                165                 170                 175

Phe Asn Gly Phe Glu Thr Pro Asp Lys Ala Glu Pro Pro Phe Tyr Val
```

```
            180                 185                 190

Gly Ser Asn Gly Asp Asp Ser Phe Ser Ser Ser Gly Asp Leu Ser Leu
        195                 200                 205

Ser Ala Ser Pro Val Pro Ala Ser Leu Ala Gln Pro Pro Leu Pro Val
    210                 215                 220

Leu Pro Pro Phe Pro Pro Pro Ser Gly Lys Asn Pro Val Met Ile Leu
225                 230                 235                 240

Asn Glu Leu Arg Pro Gly Leu Lys Tyr Asp Phe Leu Ser Glu Ser Gly
                245                 250                 255

Glu Ser His Ala Lys Ser Phe Val Met Ser Val Val Val Asp Gly Gln
            260                 265                 270

Phe Phe Glu Gly Ser Gly Arg Asn Lys Lys Leu Ala Lys Ala Arg Ala
        275                 280                 285

Ala Gln Ser Ala Leu Ala Ala Ile Phe Asn Leu His Leu Asp Gln Thr
    290                 295                 300

Pro Ser Arg Gln Pro Ile Pro Ser Glu Gly Leu Gln Leu His Leu Pro
305                 310                 315                 320

Gln Val Leu Ala Asp Ala Val Ser Arg Leu Val Leu Gly Lys Phe Gly
                325                 330                 335

Asp Leu Thr Asp Asn Phe Ser Ser Pro His Ala Arg Arg Lys Val Leu
            340                 345                 350

Ala Gly Val Val Met Thr Thr Gly Thr Asp Val Lys Asp Ala Lys Val
        355                 360                 365

Ile Ser Val Ser Thr Gly Thr Lys Cys Ile Asn Gly Glu Tyr Met Ser
    370                 375                 380

Asp Arg Gly Leu Ala Leu Asn Asp Cys His Ala Glu Ile Ile Ser Arg
385                 390                 395                 400

Arg Ser Leu Leu Arg Phe Leu Tyr Thr Gln Leu Glu Leu Tyr Leu Asn
                405                 410                 415
```

```
Asn Lys Asp Asp Gln Lys Arg Ser Ile Phe Gln Lys Ser Glu Arg Gly
            420                 425                 430

Gly Phe Arg Leu Lys Glu Asn Val Gln Phe His Leu Tyr Ile Ser Thr
        435                 440                 445

Ser Pro Cys Gly Asp Ala Arg Ile Phe Ser Pro His Glu Pro Ile Leu
    450                 455                 460

Glu Gly Ser Arg Ser Tyr Thr Gln Ala Gly Val Gln Trp Cys Asn His
465                 470                 475                 480

Gly Ser Leu Gln Pro Arg Pro Pro Gly Leu Leu Ser Asp Pro Ser Thr
                485                 490                 495

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

Asn Arg Lys Ala Arg Gly Gln Leu Arg Thr Lys Ile Glu Ser Gly Glu
        515                 520                 525

Gly Thr Ile Pro Val Arg Ser Asn Ala Ser Ile Gln Thr Trp Asp Gly
    530                 535                 540

Val Leu Gln Gly Glu Arg Leu Leu Thr Met Ser Cys Ser Asp Lys Ile
545                 550                 555                 560

Ala Arg Trp Asn Val Val Gly Ile Gln Gly Ser Leu Leu Ser Ile Phe
                565                 570                 575

Val Glu Pro Ile Tyr Phe Ser Ser Ile Ile Leu Gly Ser Leu Tyr His
            580                 585                 590

Gly Asp His Leu Ser Arg Ala Met Tyr Gln Arg Ile Ser Asn Ile Glu
        595                 600                 605

Asp Leu Pro Pro Leu Tyr Thr Leu Asn Lys Pro Leu Leu Ser Gly Ile
    610                 615                 620

Ser Asn Ala Glu Ala Arg Gln Pro Gly Lys Ala Pro Asn Phe Ser Val
625                 630                 635                 640
```

```
Asn Trp Thr Val Gly Asp Ser Ala Ile Glu Val Ile Asn Ala Thr Thr
                645                 650                 655

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

Tyr Cys Arg Trp Met Arg Val His Gly Lys Val Pro Ser His Leu Leu
        675                 680                 685

Arg Ser Lys Ile Thr Lys Pro Asn Val Tyr His Glu Ser Lys Leu Ala
    690                 695                 700

Ala Lys Glu Tyr Gln Ala Ala Lys Val His
705                 710


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Met Asp Ile Glu Asp Glu Glu Asn Met Ser Ser Ser Ser Thr Asp Val
1               5                   10                  15

Lys Glu Asn Arg Asn Leu Asp Asn Val Ser Pro Lys Asp Gly Ser Thr
            20                  25                  30

Pro Gly Pro Gly Glu Gly Ser Gln Leu Ser Asn Gly Gly Gly Gly Gly
        35                  40                  45

Pro Gly Arg Lys Arg Pro Leu Glu Glu Gly Ser Asn Gly His Ser Lys
```

```
    50                  55                  60

Tyr Arg Leu Lys Lys Arg Arg Lys Thr Pro Gly Pro Val Leu Pro Lys
65                  70                  75                  80

Asn Ala Leu Met Gln Leu Asn Glu Ile Lys Pro Gly Leu Gln Tyr Thr
                85                  90                  95

Leu Leu Ser Gln Thr Gly Pro Val His Ala Pro Leu Phe Val Met Ser
            100                 105                 110

Val Glu Val Asn Gly Gln Val Phe Glu Gly Ser Gly Pro Thr Lys Lys
        115                 120                 125

Lys Ala Lys Leu His Ala Ala Glu Lys Ala Leu Arg Ser
    130                 135                 140


<210> 2705
<211> 741
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<400> 2705
Met Asp Ile Glu Asp Glu Glu Asn Met Ser Ser Ser Ser Thr Asp Val
1               5                   10                  15

Lys Glu Asn Arg Asn Leu Asp Asn Val Ser Pro Lys Asp Gly Ser Thr
            20                  25                  30
```

```
Pro Gly Pro Gly Glu Gly Ser Gln Leu Ser Asn Gly Gly Gly Gly Gly
        35                  40                  45

Pro Gly Arg Lys Arg Pro Leu Glu Glu Gly Ser Asn Gly His Ser Lys
    50                  55                  60

Tyr Arg Leu Lys Lys Arg Arg Lys Thr Pro Gly Pro Val Leu Pro Lys
65                  70                  75                  80

Asn Ala Leu Met Gln Leu Asn Glu Ile Lys Pro Gly Leu Gln Tyr Thr
                85                  90                  95

Leu Leu Ser Gln Thr Gly Pro Val His Ala Pro Leu Phe Val Met Ser
            100                 105                 110

Val Glu Val Asn Gly Gln Val Phe Glu Gly Ser Gly Pro Thr Lys Lys
        115                 120                 125

Lys Ala Lys Leu His Ala Ala Glu Lys Ala Leu Arg Ser Phe Val Gln
    130                 135                 140

Phe Pro Asn Ala Ser Glu Ala His Leu Ala Met Gly Arg Thr Leu Ser
145                 150                 155                 160

Val Asn Thr Asp Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu
                165                 170                 175

Phe Asn Gly Phe Glu Thr Pro Asp Lys Ala Glu Pro Pro Phe Tyr Val
            180                 185                 190

Gly Ser Asn Gly Asp Asp Ser Phe Ser Ser Ser Gly Asp Leu Ser Leu
        195                 200                 205

Ser Ala Ser Pro Val Pro Ala Ser Leu Ala Gln Pro Pro Leu Pro Val
    210                 215                 220

Leu Pro Pro Phe Pro Pro Pro Ser Gly Lys Asn Pro Val Met Ile Leu
225                 230                 235                 240

Asn Glu Leu Arg Pro Gly Leu Lys Tyr Asp Phe Leu Ser Glu Ser Gly
                245                 250                 255
```

```
Glu Ser His Ala Lys Ser Phe Val Met Ser Val Val Val Asp Gly Gln
            260                 265                 270

Phe Phe Glu Gly Ser Gly Arg Asn Lys Lys Leu Ala Lys Ala Arg Ala
        275                 280                 285

Ala Gln Ser Ala Leu Ala Ala Ile Phe Asn Leu His Leu Asp Gln Thr
    290                 295                 300

Pro Ser Arg Gln Pro Ile Pro Ser Glu Gly Leu Gln Leu His Leu Pro
305                 310                 315                 320

Gln Val Leu Ala Asp Ala Val Ser Arg Leu Val Leu Gly Lys Phe Gly
                325                 330                 335

Asp Leu Thr Asp Asn Phe Ser Ser Pro His Ala Arg Arg Lys Val Leu
            340                 345                 350

Ala Gly Val Val Met Thr Thr Gly Thr Asp Val Lys Asp Ala Lys Val
        355                 360                 365

Ile Ser Val Ser Thr Gly Thr Lys Cys Ile Asn Gly Glu Tyr Met Ser
    370                 375                 380

Asp Arg Gly Leu Ala Leu Asn Asp Cys His Ala Glu Ile Ile Ser Arg
385                 390                 395                 400

Arg Ser Leu Leu Arg Phe Leu Tyr Thr Gln Leu Glu Leu Tyr Leu Asn
                405                 410                 415

Asn Lys Asp Asp Gln Lys Arg Ser Ile Phe Gln Lys Ser Glu Arg Gly
            420                 425                 430

Gly Phe Arg Leu Lys Glu Asn Val Gln Phe His Leu Tyr Ile Ser Thr
        435                 440                 445

Ser Pro Cys Gly Asp Ala Arg Ile Phe Ser Pro His Glu Pro Ile Leu
    450                 455                 460

Glu Gly Ser Arg Ser Tyr Thr Gln Ala Gly Val Gln Trp Cys Asn His
465                 470                 475                 480

Gly Ser Leu Gln Pro Arg Pro Pro Gly Leu Leu Ser Asp Pro Ser Thr
```

485 490 495

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

Asn Arg Lys Ala Arg Gly Gln Leu Arg Thr Lys Ile Glu Ser Gly Glu
515 520 525

Gly Thr Ile Pro Val Arg Ser Asn Ala Ser Ile Gln Thr Trp Asp Gly
530 535 540

Val Leu Gln Gly Glu Arg Leu Leu Thr Met Ser Cys Ser Asp Lys Ile
545 550 555 560

Ala Arg Trp Asn Val Val Gly Ile Gln Gly Ser Leu Leu Ser Ile Phe
565 570 575

Val Glu Pro Ile Tyr Phe Ser Ser Ile Ile Leu Gly Ser Leu Tyr His
580 585 590

Gly Asp His Leu Ser Arg Ala Met Tyr Gln Arg Ile Ser Asn Ile Glu
595 600 605

Asp Leu Pro Pro Leu Tyr Thr Leu Asn Lys Pro Leu Leu Ser Gly Ile
610 615 620

Ser Asn Ala Glu Ala Arg Gln Pro Gly Lys Ala Pro Asn Phe Ser Val
625 630 635 640

Asn Trp Thr Val Gly Asp Ser Ala Ile Glu Val Ile Asn Ala Thr Thr
645 650 655

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

Tyr Cys Arg Trp Met Arg Val His Gly Lys Val Pro Ser His Leu Leu
675 680 685

Arg Ser Lys Ile Thr Lys Pro Asn Val Tyr His Glu Ser Lys Leu Ala
690 695 700

Ala Lys Glu Tyr Gln Ala Ala Lys Ala Arg Leu Phe Thr Ala Phe Ile
705 710 715 720

```
Lys Ala Gly Leu Gly Ala Trp Val Glu Lys Pro Thr Glu Gln Asp Gln
                725                 730                 735


Phe Ser Leu Thr Pro
            740


<210> 2706
<211> 741
<212> PRT
<213> Homo sapiens

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Met Asp Ile Glu Asp Glu Glu Asn Met Ser Ser Ser Ser Thr Asp Val
1               5                   10                  15


Lys Glu Asn Arg Asn Leu Asp Asn Val Ser Pro Lys Asp Gly Ser Thr
            20                  25                  30


Pro Gly Pro Gly Glu Gly Ser Gln Leu Ser Asn Gly Gly Gly Gly Gly
        35                  40                  45


Pro Gly Arg Lys Arg Pro Leu Glu Glu Gly Ser Asn Gly His Ser Lys
    50                  55                  60


Tyr Arg Leu Lys Lys Arg Arg Lys Thr Pro Gly Pro Val Leu Pro Lys
65                  70                  75                  80
```

```
Asn Ala Leu Met Gln Leu Asn Glu Ile Lys Pro Gly Leu Gln Tyr Thr
                85                  90                  95

Leu Leu Ser Gln Thr Gly Pro Val His Ala Pro Leu Phe Val Met Ser
            100                 105                 110

Val Glu Val Asn Gly Gln Val Phe Glu Gly Ser Gly Pro Thr Lys Lys
        115                 120                 125

Lys Ala Lys Leu His Ala Ala Glu Lys Ala Leu Arg Ser Phe Val Gln
    130                 135                 140

Phe Pro Asn Ala Ser Glu Ala His Leu Ala Met Gly Arg Thr Leu Ser
145                 150                 155                 160

Val Asn Thr Asp Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu
                165                 170                 175

Phe Asn Gly Phe Glu Thr Pro Asp Lys Ala Glu Pro Pro Phe Tyr Val
            180                 185                 190

Gly Ser Asn Gly Asp Asp Ser Phe Ser Ser Ser Gly Asp Leu Ser Leu
        195                 200                 205

Ser Ala Ser Pro Val Pro Ala Ser Leu Ala Gln Pro Pro Leu Pro Val
    210                 215                 220

Leu Pro Pro Phe Pro Pro Pro Ser Gly Lys Asn Pro Val Met Ile Leu
225                 230                 235                 240

Asn Glu Leu Arg Pro Gly Leu Lys Tyr Asp Phe Leu Ser Glu Ser Gly
                245                 250                 255

Glu Ser His Ala Lys Ser Phe Val Met Ser Val Val Val Asp Gly Gln
            260                 265                 270

Phe Phe Glu Gly Ser Gly Arg Asn Lys Lys Leu Ala Lys Ala Arg Ala
        275                 280                 285

Ala Gln Ser Ala Leu Ala Ala Ile Phe Asn Leu His Leu Asp Gln Thr
    290                 295                 300

Pro Ser Arg Gln Pro Ile Pro Ser Glu Gly Leu Gln Leu His Leu Pro
```

305 310 315 320

Gln Val Leu Ala Asp Ala Val Ser Arg Leu Val Leu Gly Lys Phe Gly
325 330 335

Asp Leu Thr Asp Asn Phe Ser Ser Pro His Ala Arg Arg Lys Val Leu
340 345 350

Ala Gly Val Val Met Thr Thr Gly Thr Asp Val Lys Asp Ala Lys Val
355 360 365

Ile Ser Val Ser Thr Gly Thr Lys Cys Ile Asn Gly Glu Tyr Met Ser
370 375 380

Asp Arg Gly Leu Ala Leu Asn Asp Cys His Ala Glu Ile Ile Ser Arg
385 390 395 400

Arg Ser Leu Leu Arg Phe Leu Tyr Thr Gln Leu Glu Leu Tyr Leu Asn
405 410 415

Asn Lys Asp Asp Gln Lys Arg Ser Ile Phe Gln Lys Ser Glu Arg Gly
420 425 430

Gly Phe Arg Leu Lys Glu Asn Val Gln Phe His Leu Tyr Ile Ser Thr
435 440 445

Ser Pro Cys Gly Asp Ala Arg Ile Phe Ser Pro His Glu Pro Ile Leu
450 455 460

Glu Gly Ser Arg Ser Tyr Thr Gln Ala Gly Val Gln Trp Cys Asn His
465 470 475 480

Gly Ser Leu Gln Pro Arg Pro Pro Gly Leu Leu Ser Asp Pro Ser Thr
485 490 495

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

Asn Arg Lys Ala Arg Gly Gln Leu Arg Thr Lys Ile Glu Ser Gly Glu
515 520 525

Gly Thr Ile Pro Val Arg Ser Asn Ala Ser Ile Gln Thr Trp Asp Gly
530 535 540

```
Val Leu Gln Gly Glu Arg Leu Leu Thr Met Ser Cys Ser Asp Lys Ile
545                 550                 555                 560

Ala Arg Trp Asn Val Val Gly Ile Gln Gly Ser Leu Leu Ser Ile Phe
                565                 570                 575

Val Glu Pro Ile Tyr Phe Ser Ser Ile Ile Leu Gly Ser Leu Tyr His
            580                 585                 590

Gly Asp His Leu Ser Arg Ala Met Tyr Gln Arg Ile Ser Asn Ile Glu
        595                 600                 605

Asp Leu Pro Pro Leu Tyr Thr Leu Asn Lys Pro Leu Leu Ser Gly Ile
    610                 615                 620

Ser Asn Ala Glu Ala Arg Gln Pro Gly Lys Ala Pro Asn Phe Ser Val
625                 630                 635                 640

Asn Trp Thr Val Gly Asp Ser Ala Ile Glu Val Ile Asn Ala Thr Thr
                645                 650                 655

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

Tyr Cys Arg Trp Met Arg Val His Gly Lys Val Pro Ser His Leu Leu
        675                 680                 685

Arg Ser Lys Ile Thr Lys Pro Asn Val Tyr His Glu Ser Lys Leu Ala
    690                 695                 700

Ala Lys Glu Tyr Gln Ala Ala Lys Ala Arg Leu Phe Thr Ala Phe Ile
705                 710                 715                 720

Lys Ala Gly Leu Gly Ala Trp Val Glu Lys Pro Thr Glu Gln Asp Gln
                725                 730                 735

Phe Ser Leu Thr Pro
            740
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<210> 2707
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<213> Homo sapiens

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<220>
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<400> 2707

Met	Asp	Ile	Glu	Asp	Glu	Glu	Asn	Met	Ser	Ser	Ser	Ser	Thr	Asp	Val
1				5					10					15	

Lys	Glu	Asn	Arg	Asn	Leu	Asp	Asn	Val	Ser	Pro	Lys	Asp	Gly	Ser	Thr
			20					25					30		

Pro	Gly	Pro	Gly	Glu	Gly	Ser	Gln	Leu	Ser	Asn	Gly	Gly	Gly	Gly	Gly
		35					40					45			

Pro	Gly	Arg	Lys	Arg	Pro	Leu	Glu	Glu	Gly	Ser	Asn	Gly	His	Ser	Lys
	50					55					60				

Tyr	Arg	Leu	Lys	Lys	Arg	Arg	Lys	Thr	Pro	Gly	Pro	Val	Leu	Pro	Lys
65					70					75					80

Asn	Ala	Leu	Met	Gln	Leu	Asn	Glu	Ile	Lys	Pro	Gly	Leu	Gln	Tyr	Thr
				85					90					95	

Leu	Leu	Ser	Gln	Thr	Gly	Pro	Val	His	Ala	Pro	Leu	Phe	Val	Met	Ser
			100					105					110		

Val	Glu	Val	Asn	Gly	Gln	Val	Phe	Glu	Gly	Ser	Gly	Pro	Thr	Lys	Lys
		115					120					125			

Lys	Ala	Lys	Leu	His	Ala	Ala	Glu	Lys	Ala	Leu	Arg	Ser	Phe	Val	Gln

```
    130                 135                 140

Phe Pro Asn Ala Ser Glu Ala His Leu Ala Met Gly Arg Thr Leu Ser
145                 150                 155                 160

Val Asn Thr Asp Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu
                165                 170                 175

Phe Asn Gly Phe Glu Thr Pro Asp Lys Ala Glu Pro Pro Phe Tyr Val
            180                 185                 190

Gly Ser Asn Gly Asp Asp Ser Phe Ser Ser Ser Gly Asp Leu Ser Leu
        195                 200                 205

Ser Ala Ser Pro Val Pro Ala Ser Leu Ala Gln Pro Pro Leu Pro Val
    210                 215                 220

Leu Pro Pro Phe Pro Pro Pro Ser Gly Lys Asn Pro Val Met Ile Leu
225                 230                 235                 240

Asn Glu Leu Arg Pro Gly Leu Lys Tyr Asp Phe Leu Ser Glu Ser Gly
                245                 250                 255

Glu Ser His Ala Lys Ser Phe Val Met Ser Val Val Val Asp Gly Gln
            260                 265                 270

Phe Phe Glu Gly Ser Gly Arg Asn Lys Lys Leu Ala Lys Ala Arg Ala
        275                 280                 285

Ala Gln Ser Ala Leu Ala Ala Ile Phe Asn Leu His Leu Asp Gln Thr
    290                 295                 300

Pro Ser Arg Gln Pro Ile Pro Ser Glu Gly Leu Gln Leu His Leu Pro
305                 310                 315                 320

Gln Val Leu Ala Asp Ala Val Ser Arg Leu Val Leu Gly Lys Phe Gly
                325                 330                 335

Asp Leu Thr Asp Asn Phe Ser Ser Pro His Ala Arg Arg Lys Val Leu
            340                 345                 350

Ala Gly Val Val Met Thr Thr Gly Thr Asp Val Lys Asp Ala Lys Val
        355                 360                 365
```

```
Ile Ser Val Ser Thr Gly Thr Lys Cys Ile Asn Gly Glu Tyr Met Ser
    370                 375                 380

Asp Arg Gly Leu Ala Leu Asn Asp Cys His Ala Glu Ile Ile Ser Arg
385                 390                 395                 400

Arg Ser Leu Leu Arg Phe Leu Tyr Thr Gln Leu Glu Leu Tyr Leu Asn
                405                 410                 415

Asn Lys Asp Asp Gln Lys Arg Ser Ile Phe Gln Lys Ser Glu Arg Gly
            420                 425                 430

Gly Phe Arg Leu Lys Glu Asn Val Gln Phe His Leu Tyr Ile Ser Thr
        435                 440                 445

Ser Pro Cys Gly Asp Ala Arg Ile Phe Ser Pro His Glu Pro Ile Leu
    450                 455                 460

Glu Glu Pro Ala Asp Arg His Pro Asn Arg Lys Ala Arg Gly Gln Leu
465                 470                 475                 480

Arg Thr Lys Ile Glu Ser Gly Glu Gly Thr Ile Pro Val Arg Ser Asn
                485                 490                 495

Ala Ser Ile Gln Thr Trp Asp Gly Val Leu Gln Gly Glu Arg Leu Leu
            500                 505                 510

Thr Met Ser Cys Ser Asp Lys Ile Ala Arg Trp Asn Val Val Gly Ile
        515                 520                 525

Gln Gly Ser Leu Leu Ser Ile Phe Val Glu Pro Ile Tyr Phe Ser Ser
    530                 535                 540

Ile Ile Leu Gly Ser Leu Tyr His Gly Asp His Leu Ser Arg Ala Met
545                 550                 555                 560

Tyr Gln Arg Ile Ser Asn Ile Glu Asp Leu Pro Pro Leu Tyr Thr Leu
                565                 570                 575

Asn Lys Pro Leu Leu Ser Gly Ile Ser Asn Ala Glu Ala Arg Gln Pro
            580                 585                 590
```

```
Gly Lys Ala Pro Asn Phe Ser Val Asn Trp Thr Val Gly Asp Ser Ala
        595                 600                 605

Ile Glu Val Ile Asn Ala Thr Thr Gly Lys Asp Glu Leu Gly Arg Ala
    610                 615                 620

Ser Arg Leu Cys Lys His Ala Leu Tyr Cys Arg Trp Met Arg Val His
625                 630                 635                 640

Gly Lys Val Pro Ser His Leu Leu Arg Ser Lys Ile Thr Lys Pro Asn
                645                 650                 655

Val Tyr His Glu Ser Lys Leu Ala Ala Lys Glu Tyr Gln Ala Ala Lys
            660                 665                 670

Ala Arg Leu Phe Thr Ala Phe Ile Lys Ala Gly Leu Gly Ala Trp Val
        675                 680                 685

Glu Lys Pro Thr Glu Gln Asp Gln Phe Ser Leu Thr Pro
    690                 695                 700


<210> 2708
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<213> Homo sapiens

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<220>
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<220>
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<400> 2708
Met Ala Asn Glu His Thr Leu Ile His Pro Ala Ser Ile Glu Asp Pro
1               5                   10                  15

Leu Glu Ala Arg Pro Met Ser Asp Glu Asp Pro Glu Asp Glu Asp Ala
```

```
            20                  25                  30

Leu Pro Ala Arg Trp Lys Lys Glu Met Gly Arg Lys Arg Lys Arg Thr
        35                  40                  45

Ile Ala Thr Leu
    50
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<210> 2709
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<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000486475"

<400> 2709

```
Met Lys Ile Pro Arg Met Lys Thr Pro Cys Gln Pro Asp Arg Asn Ser
1               5                   10                  15

Leu Arg Gln Ser Arg Asn Pro Gln Lys Tyr Phe Ala Met Asp Ile Glu
            20                  25                  30

Asp Glu Glu Asn Met Ser Ser Ser Ser Thr Asp Val Lys Glu Asn Arg
        35                  40                  45

Asn Leu Asp Asn Val Ser Pro Lys Asp Gly Ser Thr Pro Gly Pro Gly
    50                  55                  60

Glu Gly Ser Gln Leu Ser Asn Gly Gly Gly Gly Gly Pro Gly Arg Lys
65                  70                  75                  80
```

```
Arg Pro Leu Glu Glu Gly Ser Asn Gly His Ser Lys Tyr Arg Leu Lys
                85                  90                  95

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

Gln Leu Asn Glu Ile Lys Pro Gly Leu Gln Tyr Thr Leu Leu Ser Gln
        115                 120                 125

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

Gly Gln Val Phe Glu Gly Ser Gly Pro Thr Lys Lys Lys Ala Lys Leu
145                 150                 155                 160

His Ala Ala Glu Lys Ala Leu Arg Ser Phe Val Gln Phe Pro Asn Ala
                165                 170                 175

Ser Glu Ala His Leu Ala Met Gly Arg Thr Leu Ser Val Asn Thr Asp
            180                 185                 190

Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu Phe Asn Gly Phe
        195                 200                 205

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

Asp Asp Ser Phe Ser Ser Ser Gly Asp Leu Ser Leu Ser Ala Ser Pro
225                 230                 235                 240

Val Pro Ala Ser Leu Ala Gln Pro Pro Leu Pro Val Leu Pro Pro Phe
                245                 250                 255

Pro Pro Pro Ser Gly Lys Asn Pro Val Met Ile Leu Asn Glu Leu Arg
            260                 265                 270

Pro Gly Leu Lys Tyr Asp Phe Leu Ser Glu Ser Gly Glu Ser His Ala
        275                 280                 285

Lys Ser Phe Val Met Ser Val Val Val Asp Gly Gln Phe Phe Glu Gly
    290                 295                 300
```

```
Ser Gly Arg Asn Lys Lys Leu Ala Lys Ala Arg Ala Ala Gln Ser Ala
305                 310                 315                 320

Leu Ala Ala Ile Phe Asn Leu His Leu Asp Gln Thr Pro Ser Arg Gln
                325                 330                 335

Pro Ile Pro Ser Glu Gly Leu Gln Leu His Leu Pro Gln Val Leu Ala
            340                 345                 350

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

Asn Phe Ser Ser Pro His Ala Arg Arg Lys Val Leu Ala Gly Val Val
    370                 375                 380

Met Thr Thr Gly Thr Asp Val Lys Asp Ala Lys Val Ile Ser Val Ser
385                 390                 395                 400

Thr Gly Thr Lys Cys Ile Asn Gly Glu Tyr Met Ser Asp Arg Gly Leu
                405                 410                 415

Ala Leu Asn Asp Cys His Ala Glu Ile Ile Ser Arg Arg Ser Leu Leu
            420                 425                 430

Arg Phe Leu Tyr Thr Gln Leu Glu Leu Tyr Leu Asn Asn Lys Asp Asp
        435                 440                 445

Gln Lys Arg Ser Ile Phe Gln Lys Ser Glu Arg Gly Gly Phe Arg Leu
    450                 455                 460

Lys Glu Asn Val Gln Phe His Leu Tyr Ile Ser Thr Ser Pro Cys Gly
465                 470                 475                 480

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

Asp Arg His Pro Asn Arg Lys Ala Arg Gly Gln Leu Arg Thr Lys Ile
            500                 505                 510

Glu Ser Gly Glu Gly Thr Ile Pro Val Arg Ser Asn Ala Ser Ile Gln
        515                 520                 525

Thr Trp Asp Gly Val Leu Gln Gly Glu Arg Leu Leu Thr Met Ser Cys
```

530 535 540

Ser Asp Lys Ile Ala Arg Trp Asn Val Val Gly Ile Gln Gly Ser Leu
545 550 555 560

Leu Ser Ile Phe Val Glu Pro Ile Tyr Phe Ser Ser Ile Ile Leu Gly
565 570 575

Ser Leu Tyr His Gly Asp His Leu Ser Arg Ala Met Tyr Gln Arg Ile
580 585 590

Ser Asn Ile Glu Asp Leu Pro Pro Leu Tyr Thr Leu Asn Lys Pro Leu
595 600 605

Leu Ser Gly Ile Ser Asn Ala Glu Ala Arg Gln Pro Gly Lys Ala Pro
610 615 620

Asn Phe Ser Val Asn Trp Thr Val Gly Asp Ser Ala Ile Glu Val Ile
625 630 635 640

Asn Ala Thr Thr Gly Lys Asp Glu Leu Gly Arg Ala Ser Arg Leu Cys
645 650 655

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

Ser His Leu Leu Arg Ser Lys Ile Thr Lys Pro Asn Val Tyr His Glu
675 680 685

Ser Lys Leu Ala Ala Lys Glu Tyr Gln Ala Ala Lys Ala Arg Leu Phe
690 695 700

Thr Ala Phe Ile Lys Ala Gly Leu Gly Ala Trp Val Glu Lys Pro Thr
705 710 715 720

Glu Gln Asp Gln Phe Ser Leu Thr Pro
725

<210> 2710
<211> 141
<212> PRT
<213> Homo sapiens

<220>

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<223> /note="Gene Name:
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(non-functional); "

<220>
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<400> 2710
Met Ser His Arg Met Glu Gly Val Gly Gln Leu Pro Ala Ser Tyr Arg
1 5 10 15

His Asn Arg Pro Leu Leu Ser Gly Val Ser Asp Ala Glu Ala Arg Gln
20 25 30

Pro Gly Lys Ser Pro Pro Phe Ser Met Asn Trp Val Val Gly Ser Ala
35 40 45

Asp Leu Glu Ile Ile Asn Ala Thr Thr Gly Arg Arg Ser Cys Gly Gly
50 55 60

Pro Ser Arg Leu Cys Lys His Val Leu Ser Ala Arg Trp Ala Arg Leu
65 70 75 80

Tyr Gly Arg Leu Ser Thr Arg Thr Pro Ser Pro Gly Asp Thr Pro Ser
85 90 95

Met Tyr Cys Glu Ala Lys Leu Gly Ala His Thr Tyr Gln Ser Val Lys
100 105 110

Gln Gln Leu Phe Lys Ala Phe Gln Lys Ala Gly Leu Gly Thr Trp Val
115 120 125

Arg Lys Pro Pro Glu Gln Gln Gln Phe Leu Leu Thr Leu
130 135 140

<210> 2711
<211> 248
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q9NS39; "

<220>
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<400> 2711
Met Gly Leu Trp Ser Pro Val Pro Gly Asn Ser Val Pro Arg Ala Pro
1   5   10   15

Val Met Ala Gly Leu Gly Leu Gly His Ser Gln Gly Ala Pro Gln Gly
            20   25   30

Pro His Asp Gly Lys Thr Asp Arg Ser Ser Gly Pro Gly Arg Arg Arg
        35   40   45

Thr Glu Arg Thr Arg Leu Pro Gly Leu Leu Gly Gly Ala Pro Leu Thr
    50   55   60

Ala Gly Ser Pro His Arg Trp Asn Val Leu Gly Leu Gln Gly Ala Leu
65   70   75   80

Leu Ser His Phe Val Glu Pro Val Tyr Leu Gln Ser Ile Val Val Gly
                85   90   95

Ser Leu His His Thr Gly His Leu Ala Arg Val Met Ser His Arg Met
            100   105   110

Glu Gly Val Gly Gln Leu Pro Ala Ser Tyr Arg His Asn Arg Pro Leu
        115   120   125

```
Leu Ser Gly Val Ser Asp Ala Glu Ala Arg Gln Pro Gly Lys Ser Pro
    130                 135                 140

Pro Phe Ser Met Asn Trp Val Val Gly Ser Ala Asp Leu Glu Ile Ile
145                 150                 155                 160

Asn Ala Thr Thr Gly Arg Arg Ser Cys Gly Gly Pro Ser Arg Leu Cys
                165                 170                 175

Lys His Val Leu Ser Ala Arg Trp Ala Arg Leu Tyr Gly Arg Leu Ser
            180                 185                 190

Thr Arg Thr Pro Ser Pro Gly Asp Thr Pro Ser Met Tyr Cys Glu Ala
        195                 200                 205

Lys Leu Gly Ala His Thr Tyr Gln Ser Val Lys Gln Gln Leu Phe Lys
    210                 215                 220

Ala Phe Gln Lys Ala Gly Leu Gly Thr Trp Val Arg Lys Pro Pro Glu
225                 230                 235                 240

Gln Gln Gln Phe Leu Leu Thr Leu
                245
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<210> 2712
<211> 739
<212> PRT
<213> Homo sapiens

<220>
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<220>
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(non-functional); "

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<223> /note="Uniprot ID: Q9NS39; "

<220>
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<223> /note="ENSP ID: ENSP00000370713"

<400> 2712

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

Gln Leu Lys Cys Lys Ser Lys Arg Arg Arg Arg Arg Arg Ser Lys Arg
            20                  25                  30

Lys Asp Lys Val Ser Ile Leu Ser Thr Phe Leu Ala Pro Phe Lys His
        35                  40                  45

Leu Ser Pro Gly Ile Thr Asn Thr Glu Asp Asp Asp Thr Leu Ser Thr
    50                  55                  60

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

Arg Pro Pro Pro Ser Gly Asp Arg Ala Arg Gly Gly Ala Pro Gly Ala
                85                  90                  95

Lys Arg Lys Arg Pro Leu Glu Glu Gly Asn Gly Gly His Leu Cys Lys
            100                 105                 110

Leu Gln Leu Val Trp Lys Lys Leu Ser Trp Ser Val Ala Pro Lys Asn
        115                 120                 125

Ala Leu Val Gln Leu His Glu Leu Arg Pro Gly Leu Gln Tyr Arg Thr
    130                 135                 140

Val Ser Gln Thr Gly Pro Val His Ala Pro Val Phe Ala Val Ala Val
145                 150                 155                 160

Glu Val Asn Gly Leu Thr Phe Glu Gly Thr Gly Pro Thr Lys Lys Lys
                165                 170                 175

Ala Lys Met Arg Ala Ala Glu Leu Ala Leu Arg Ser Phe Val Gln Phe
            180                 185                 190

Pro Asn Ala Cys Gln Ala His Leu Ala Met Gly Gly Gly Pro Gly Pro
        195                 200                 205

Gly Thr Asp Phe Thr Ser Asp Gln Ala Asp Phe Pro Asp Thr Leu Phe
    210                 215                 220
```

```
Gln Glu Phe Glu Pro Pro Ala Pro Arg Pro Gly Leu Ala Gly Gly Arg
225                 230                 235                 240

Pro Gly Asp Ala Ala Leu Leu Ser Ala Ala Tyr Gly Arg Arg Arg Leu
                245                 250                 255

Leu Cys Arg Ala Leu Asp Leu Val Gly Pro Thr Pro Ala Thr Pro Ala
            260                 265                 270

Ala Pro Gly Glu Arg Asn Pro Val Val Leu Leu Asn Arg Leu Arg Ala
        275                 280                 285

Gly Leu Arg Tyr Val Cys Leu Ala Glu Pro Ala Glu Arg Arg Ala Arg
    290                 295                 300

Ser Phe Val Met Ala Val Ser Val Asp Gly Arg Thr Phe Glu Gly Ser
305                 310                 315                 320

Gly Arg Ser Lys Lys Leu Ala Arg Gly Gln Ala Ala Gln Ala Ala Leu
                325                 330                 335

Gln Glu Leu Phe Asp Ile Gln Met Pro Gly His Ala Pro Gly Arg Ala
            340                 345                 350

Arg Arg Thr Pro Met Pro Gln Glu Phe Ala Asp Ser Ile Ser Gln Leu
        355                 360                 365

Val Thr Gln Lys Phe Arg Glu Val Thr Thr Asp Leu Thr Pro Met His
    370                 375                 380

Ala Arg His Lys Ala Leu Ala Gly Ile Val Met Thr Lys Gly Leu Asp
385                 390                 395                 400

Ala Arg Gln Ala Gln Val Val Ala Leu Ser Ser Gly Thr Lys Cys Ile
                405                 410                 415

Ser Gly Glu His Leu Ser Asp Gln Gly Leu Val Val Asn Asp Cys His
            420                 425                 430

Ala Glu Val Val Ala Arg Arg Ala Phe Leu His Phe Leu Tyr Thr Gln
        435                 440                 445
```

```
Leu Glu Leu His Leu Ser Lys Arg Arg Glu Asp Ser Glu Arg Ser Ile
    450                 455                 460

Phe Val Arg Leu Lys Glu Gly Gly Tyr Arg Leu Arg Glu Asn Ile Leu
465                 470                 475                 480

Phe His Leu Tyr Val Ser Thr Ser Pro Cys Gly Asp Ala Arg Leu His
                485                 490                 495

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

Arg Lys Phe Arg Gly His Leu Arg Thr Lys Ile Glu Ser Gly Glu Gly
        515                 520                 525

Thr Val Pro Val Arg Gly Pro Ser Ala Val Gln Thr Trp Asp Gly Val
    530                 535                 540

Leu Leu Gly Glu Gln Leu Ile Thr Met Ser Cys Thr Asp Lys Ile Ala
545                 550                 555                 560

Arg Trp Asn Val Leu Gly Leu Gln Gly Ala Leu Leu Ser His Phe Val
                565                 570                 575

Glu Pro Val Tyr Leu Gln Ser Ile Val Val Gly Ser Leu His His Thr
            580                 585                 590

Gly His Leu Ala Arg Val Met Ser His Arg Met Glu Gly Val Gly Gln
        595                 600                 605

Leu Pro Ala Ser Tyr Arg His Asn Arg Pro Leu Leu Ser Gly Val Ser
    610                 615                 620

Asp Ala Glu Ala Arg Gln Pro Gly Lys Ser Pro Pro Phe Ser Met Asn
625                 630                 635                 640

Trp Val Val Gly Ser Ala Asp Leu Glu Ile Ile Asn Ala Thr Thr Gly
                645                 650                 655

Arg Arg Ser Cys Gly Gly Pro Ser Arg Leu Cys Lys His Val Leu Ser
            660                 665                 670
```

```
Ala Arg Trp Ala Arg Leu Tyr Gly Arg Leu Ser Thr Arg Thr Pro Ser
        675                 680                 685

Pro Gly Asp Thr Pro Ser Met Tyr Cys Glu Ala Lys Leu Gly Ala His
    690                 695                 700

Thr Tyr Gln Ser Val Lys Gln Gln Leu Phe Lys Ala Phe Gln Lys Ala
705                 710                 715                 720

Gly Leu Gly Thr Trp Val Arg Lys Pro Pro Glu Gln Gln Gln Phe Leu
                725                 730                 735

Leu Thr Leu
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<210> 2713
<211> 502
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<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ADAT1; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q9BUB4; "

<220>
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<223> /note="ENSP ID: ENSP00000310015"

<400> 2713

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Met Trp Thr Ala Asp Glu Ile Ala Gln Leu Cys Tyr Glu His Tyr Gly
1               5                   10                  15

Ile Arg Leu Pro Lys Lys Gly Lys Pro Glu Pro Asn His Glu Trp Thr
            20                  25                  30

Leu Leu Ala Ala Val Val Lys Ile Gln Ser Pro Ala Asp Lys Ala Cys
        35                  40                  45
```

```
Asp Thr Pro Asp Lys Pro Val Gln Val Thr Lys Glu Val Val Ser Met
    50                  55                  60

Gly Thr Gly Thr Lys Cys Ile Gly Gln Ser Lys Met Arg Lys Asn Gly
65                  70                  75                  80

Asp Ile Leu Asn Asp Ser His Ala Glu Val Ile Ala Arg Arg Ser Phe
                85                  90                  95

Gln Arg Tyr Leu Leu His Gln Leu Gln Leu Ala Ala Thr Leu Lys Glu
            100                 105                 110

Asp Ser Ile Phe Val Pro Gly Thr Gln Lys Gly Val Trp Lys Leu Arg
        115                 120                 125

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

Ala Ser Ile Ile Pro Met Leu Glu Phe Glu Asp Gln Pro Cys Cys Pro
145                 150                 155                 160

Val Phe Arg Asn Trp Ala His Asn Ser Ser Val Glu Ala Ser Ser Asn
                165                 170                 175

Leu Glu Ala Pro Gly Asn Glu Arg Lys Cys Glu Asp Pro Asp Ser Pro
            180                 185                 190

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

Thr Asn Gly Ala Ala His His Gln Ser Phe Gly Lys Gln Lys Ser Gly
    210                 215                 220

Pro Ile Ser Pro Gly Ile His Ser Cys Asp Leu Thr Val Glu Gly Leu
225                 230                 235                 240

Ala Thr Val Thr Arg Ile Ala Pro Gly Ser Ala Lys Val Ile Asp Val
                245                 250                 255

Tyr Arg Thr Gly Ala Lys Cys Val Pro Gly Glu Ala Gly Asp Ser Gly
            260                 265                 270
```

```
Lys Pro Gly Ala Ala Phe His Gln Val Gly Leu Leu Arg Val Lys Pro
        275                 280                 285

Gly Arg Gly Asp Arg Thr Arg Ser Met Ser Cys Ser Asp Lys Met Ala
    290                 295                 300

Arg Trp Asn Val Leu Gly Cys Gln Gly Ala Leu Leu Met His Leu Leu
305                 310                 315                 320

Glu Glu Pro Ile Tyr Leu Ser Ala Val Val Ile Gly Lys Cys Pro Tyr
                325                 330                 335

Ser Gln Glu Ala Met Gln Arg Ala Leu Ile Gly Arg Cys Gln Asn Val
            340                 345                 350

Ser Ala Leu Pro Lys Gly Phe Gly Val Gln Glu Leu Lys Ile Leu Gln
        355                 360                 365

Ser Asp Leu Leu Phe Glu Gln Ser Arg Ser Ala Val Gln Ala Lys Arg
    370                 375                 380

Ala Asp Ser Pro Gly Arg Leu Val Pro Cys Gly Ala Ala Ile Ser Trp
385                 390                 395                 400

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

Gln Gly Thr Thr Lys Lys Thr Ile Gly Ser Leu Gln Ala Arg Ser Gln
            420                 425                 430

Ile Ser Lys Val Glu Leu Phe Arg Ser Phe Gln Lys Leu Leu Ser Arg
        435                 440                 445

Ile Ala Arg Asp Lys Trp Pro His Ser Leu Arg Val Gln Lys Leu Asp
    450                 455                 460

Thr Tyr Gln Glu Tyr Lys Glu Ala Ala Ser Ser Tyr Gln Glu Ala Trp
465                 470                 475                 480

Ser Thr Leu Arg Lys Gln Val Phe Gly Ser Trp Ile Arg Asn Pro Pro
                485                 490                 495
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Asp Tyr His Gln Phe Lys
500

<210> 2714
<211> 18
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 2714
Gln Lys Leu Leu Ser Arg Ile Ala Arg Asp Lys Trp Pro His Ser Leu
1 5 10 15

Ser Phe

<210> 2715
<211> 160
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000455108"

<400> 2715
Met Trp Thr Ala Asp Glu Ile Ala Gln Leu Cys Tyr Glu His Tyr Gly
1 5 10 15

Ile Arg Leu Pro Lys Lys Gly Lys Pro Glu Pro Asn His Glu Trp Thr
20 25 30

Leu Leu Ala Ala Val Val Lys Ile Gln Ser Pro Ala Asp Lys Ala Cys
35 40 45

Asp Thr Pro Asp Lys Pro Val Gln Val Thr Lys Glu Val Val Ser Met
50 55 60

Gly Thr Gly Thr Lys Cys Ile Gly Gln Ser Lys Met Arg Lys Asn Gly
65 70 75 80

Asp Ile Leu Asn Asp Ser His Ala Glu Val Ile Ala Arg Arg Ser Phe
85 90 95

Gln Arg Tyr Leu Leu His Gln Leu Gln Leu Ala Ala Thr Leu Lys Glu
100 105 110

Asp Ser Ile Phe Val Pro Gly Thr Gln Lys Gly Val Trp Lys Leu Arg
115 120 125

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

Ala Ser Ile Ile Pro Met Leu Glu Phe Glu Asp Gln Pro Cys Cys Pro
145 150 155 160

<210> 2716
<211> 120
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:

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<220>
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<223> /note="ENSP ID: ENSP00000455121"

<400> 2716
Phe Gly Val Gln Glu Leu Lys Ile Leu Gln Ser Asp Leu Leu Phe Glu
1 5 10 15

Gln Ser Arg Ser Ala Val Gln Ala Lys Arg Ala Asp Ser Pro Gly Arg
20 25 30

Leu Val Pro Cys Gly Ala Ala Ile Ser Trp Ser Ala Val Pro Glu Gln
35 40 45

Pro Leu Asp Val Thr Ala Asn Gly Phe Pro Gln Gly Thr Thr Lys Lys
50 55 60

Thr Ile Gly Ser Leu Gln Ala Arg Ser Gln Ile Ser Lys Val Glu Leu
65 70 75 80

Phe Arg Ser Phe Gln Lys Leu Leu Ser Arg Ile Ala Arg Asp Lys Trp
85 90 95

Pro His Ser Leu Arg Arg Pro Arg Trp Ala Asp His Asp Val Arg Arg
100 105 110

Ser Arg Pro Ser Trp Pro Thr Trp
115 120

<210> 2717
<211> 10
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000456751"

<400> 2717
Met Trp Thr Ala Asp Glu Ile Ala Gln Leu
1   5   10

<210> 2718
<211> 103
<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: ENSP00000456768"

<400> 2718
Met Trp Thr Ala Asp Glu Ile Ala Gln Leu Cys Tyr Glu His Tyr Gly
1   5   10   15

Ile Arg Leu Pro Lys Lys Gly Lys Pro Glu Pro Asn His Glu Trp Thr
            20   25   30

Leu Leu Ala Ala Val Val Lys Ile Gln Ser Pro Ala Asp Lys Ala Cys
        35   40   45

Asp Thr Pro Asp Lys Pro Val Gln Val Thr Lys Glu Val Val Ser Met
    50   55   60

Gly Thr Gly Thr Lys Cys Ile Gly Gln Ser Lys Met Arg Lys Asn Gly
65   70   75   80

Thr Arg Pro Ser Pro Ala Ser Ile Cys Leu His Leu Val Ser Tyr Leu
                85   90   95

Cys Arg Arg Arg His Pro Gln

100

<210> 2719
<211> 109
<212> PRT
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<220>
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<220>
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<220>
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<400> 2719
Met Trp Thr Ala Asp Glu Ile Ala Gln Leu Cys Tyr Glu His Tyr Gly
1 5 10 15

Ile Arg Leu Pro Lys Lys Gly Lys Pro Glu Pro Asn His Glu Trp Thr
20 25 30

Leu Leu Ala Ala Val Val Lys Ile Gln Ser Pro Ala Asp Lys Ala Cys
35 40 45

Asp Thr Pro Asp Lys Pro Val Gln Val Thr Lys Glu Val Val Ser Met
50 55 60

Gly Thr Gly Thr Lys Cys Ile Gly Gln Ser Lys Met Arg Lys Asn Gly
65 70 75 80

Asp Ile Leu Asn Asp Ser His Ala Glu Val Ile Ala Arg Arg Ser Phe
85 90 95

Gln Arg Tyr Leu Leu His Gln Leu Gln Leu Ala Ala Thr
100 105

<210> 2720
<211> 91
<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: ENSP00000457999"

<400> 2720
Met Trp Thr Ala Asp Glu Ile Ala Gln Leu Cys Tyr Glu His Tyr Gly
1 5 10 15

Ile Arg Leu Pro Lys Lys Gly Lys Pro Glu Pro Asn His Glu Trp Thr
20 25 30

Leu Leu Ala Ala Val Val Lys Ile Gln Ser Pro Ala Asp Lys Ala Cys
35 40 45

Asp Thr Pro Asp Lys Pro Val Gln Val Thr Lys Glu Val Val Ser Met
50 55 60

Gly Thr Gly Thr Lys Cys Ile Gly Gln Ser Lys Met Arg Lys Asn Gly
65 70 75 80

Thr Phe Ser Thr Asn Ser Ser Trp Gln Pro Pro
85 90

<210> 2721
<211> 191
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADAT2; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q7Z6V5; "

<220>
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<223> /note="ENSP ID: ENSP00000237283"

<400> 2721
Met Glu Ala Lys Ala Ala Pro Lys Pro Ala Ala Ser Gly Ala Cys Ser
1 5 10 15

Val Ser Ala Glu Glu Thr Glu Lys Trp Met Glu Glu Ala Met His Met
20 25 30

Ala Lys Glu Ala Leu Glu Asn Thr Glu Val Pro Val Gly Cys Leu Met
35 40 45

Val Tyr Asn Asn Glu Val Val Gly Lys Gly Arg Asn Glu Val Asn Gln
50 55 60

Thr Lys Asn Ala Thr Arg His Ala Glu Met Val Ala Ile Asp Gln Val
65 70 75 80

Leu Asp Trp Cys Arg Gln Ser Gly Lys Ser Pro Ser Glu Val Phe Glu
85 90 95

His Thr Val Leu Tyr Val Thr Val Glu Pro Cys Ile Met Cys Ala Ala
100 105 110

Ala Leu Arg Leu Met Lys Ile Pro Leu Val Val Tyr Gly Cys Gln Asn
115 120 125

Glu Arg Phe Gly Gly Cys Gly Ser Val Leu Asn Ile Ala Ser Ala Asp
130 135 140

Leu Pro Asn Thr Gly Arg Pro Phe Gln Cys Ile Pro Gly Tyr Arg Ala
145 150 155 160

Glu Glu Ala Val Glu Met Leu Lys Thr Phe Tyr Lys Gln Glu Asn Pro
165 170 175

Asn Ala Pro Lys Ser Lys Val Arg Lys Lys Glu Cys Gln Lys Ser
180 185 190

<210> 2722
<211> 144
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADAT2; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q7Z6V5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000475651"

<400> 2722
Met Val Tyr Asn Asn Glu Val Val Gly Lys Gly Arg Asn Glu Val Asn
1 5 10 15

Gln Thr Lys Asn Ala Thr Arg His Ala Glu Met Val Ala Ile Asp Gln
20 25 30

Val Leu Asp Trp Cys Arg Gln Ser Gly Lys Ser Pro Ser Glu Val Phe
35 40 45

Glu His Thr Val Leu Tyr Val Thr Val Glu Pro Cys Ile Met Cys Ala
50 55 60

Ala Ala Leu Arg Leu Met Lys Ile Pro Leu Val Val Tyr Gly Cys Gln
65 70 75 80

Asn Glu Arg Phe Gly Gly Cys Gly Ser Val Leu Asn Ile Ala Ser Ala
85 90 95

Asp Leu Pro Asn Thr Gly Arg Pro Phe Gln Cys Ile Pro Gly Tyr Arg

```
            100                 105                 110

Ala Glu Glu Ala Val Glu Met Leu Lys Thr Phe Tyr Lys Gln Glu Asn
        115                 120                 125

Pro Asn Ala Pro Lys Ser Lys Val Arg Lys Lys Glu Cys Gln Lys Ser
    130                 135                 140


<210> 2723
<211> 367
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 636; "

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<223> /note="Gene Symbol: ADAT3; "

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<223> /note="Gene Name:
      adenosine deaminase, tRNA-specific 3; "

<220>
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<223> /note="ENSP ID: ENSP00000332448"

<400> 2723
Met Ile Leu Cys Ser Arg Leu Cys Leu Pro Gln Ser Ala Ser Leu Arg
1               5                   10                  15

Met Glu Pro Ala Pro Gly Leu Val Glu Gln Pro Lys Cys Leu Glu Ala
            20                  25                  30

Gly Ser Pro Glu Pro Glu Pro Ala Pro Trp Gln Ala Leu Pro Val Leu
        35                  40                  45

Ser Glu Lys Gln Ser Gly Asp Val Glu Leu Val Leu Ala Tyr Ala Ala
    50                  55                  60

Pro Val Leu Asp Lys Arg Gln Thr Ser Arg Leu Leu Lys Glu Val Ser
65                  70                  75                  80

Ala Leu His Pro Leu Pro Ala Gln Pro His Leu Lys Arg Val Arg Pro
                85                  90                  95
```

```
Ser Arg Asp Ala Gly Ser Pro His Ala Leu Glu Met Leu Leu Cys Leu
            100                 105                 110

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

Pro Ala Val Asp Pro Arg Gly Leu Gly Gln Pro Phe Leu Val Pro Val
    130                 135                 140

Pro Ala Arg Pro Pro Leu Thr Arg Gly Gln Phe Glu Glu Ala Arg Ala
145                 150                 155                 160

His Trp Pro Thr Ser Phe His Glu Asp Lys Gln Val Thr Ser Ala Leu
                165                 170                 175

Ala Gly Arg Leu Phe Ser Thr Gln Glu Arg Ala Ala Met Gln Ser His
            180                 185                 190

Met Glu Arg Ala Val Trp Ala Ala Arg Arg Ala Ala Ala Arg Gly Leu
        195                 200                 205

Arg Ala Val Gly Ala Val Val Val Asp Pro Ala Ser Asp Arg Val Leu
    210                 215                 220

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

Val Met Val Cys Val Asp Leu Val Ala Arg Gly Gln Gly Arg Gly Thr
                245                 250                 255

Tyr Asp Phe Arg Pro Phe Pro Ala Cys Ser Phe Ala Pro Ala Ala Ala
            260                 265                 270

Pro Gln Ala Val Arg Ala Gly Ala Val Arg Lys Leu Asp Ala Asp Glu
        275                 280                 285

Asp Gly Leu Pro Tyr Leu Cys Thr Gly Tyr Asp Leu Tyr Val Thr Arg
    290                 295                 300

Glu Pro Cys Ala Met Cys Ala Met Ala Leu Val His Ala Arg Ile Leu
305                 310                 315                 320
```

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

Phe Arg Ile His Ala Arg Pro Asp Leu Asn His Arg Phe Gln Val Phe
            340                 345                 350

Arg Gly Val Leu Glu Glu Gln Cys Arg Trp Leu Asp Pro Asp Thr
        355                 360                 365


<210> 2724
<211> 69
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<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: ENSP00000404502"

<400> 2724
Met Ile Leu Cys Ser Arg Leu Cys Leu Pro Gln Ser Ala Ser Leu Arg
1               5                   10                  15

Met Glu Pro Ala Pro Gly Leu Val Glu Gln Pro Lys Cys Leu Glu Ala
            20                  25                  30

Gly Ser Pro Glu Pro Glu Pro Ala Pro Trp Gln Ala Leu Pro Val Leu
        35                  40                  45

Ser Glu Lys Gln Ser Gly Asp Val Glu Leu Val Leu Ala Tyr Ala Ala
    50                  55                  60

Pro Val Leu Asp Lys
65


<210> 2725
<211> 267
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<212> PRT
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<220>
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<223> /note="Payload ID: 637; "

<220>
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<220>
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<223> /note="Gene Name:
adenosine deaminase-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q6DHV7; "

<220>
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<223> /note="ENSP ID: ENSP00000374302"

<400> 2725

Met	Ile	Glu	Ala	Glu	Glu	Gln	Gln	Pro	Cys	Lys	Thr	Asp	Phe	Tyr	Ser
1				5				10					15		

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

Ser	His	Thr	Met	Lys	Lys	Leu	Ile	Ala	Gln	Lys	Pro	Asp	Leu	Lys	Ile
		35					40					45			

His	Asp	Gln	Met	Thr	Val	Ile	Asp	Lys	Gly	Lys	Lys	Arg	Thr	Leu	Glu
	50					55					60				

Glu	Cys	Phe	Gln	Met	Phe	Gln	Thr	Ile	His	Gln	Leu	Thr	Ser	Ser	Pro
65					70					75					80

Glu	Asp	Ile	Leu	Met	Val	Thr	Lys	Asp	Val	Ile	Lys	Glu	Phe	Ala	Asp
				85					90					95	

Asp	Gly	Val	Lys	Tyr	Leu	Glu	Leu	Arg	Ser	Thr	Pro	Arg	Arg	Glu	Asn
			100					105					110		

Ala	Thr	Gly	Met	Thr	Lys	Lys	Thr	Tyr	Val	Glu	Ser	Ile	Leu	Glu	Gly
		115					120					125			

```
Ile Lys Gln Ser Lys Gln Glu Asn Leu Asp Ile Asp Val Arg Tyr Leu
    130                 135                 140

Ile Ala Val Asp Arg Arg Gly Gly Pro Leu Val Ala Lys Glu Thr Val
145                 150                 155                 160

Lys Leu Ala Glu Glu Phe Phe Leu Ser Thr Glu Gly Thr Val Leu Gly
                165                 170                 175

Leu Asp Leu Ser Gly Asp Pro Thr Val Gly Gln Ala Lys Asp Phe Leu
            180                 185                 190

Glu Pro Leu Leu Glu Ala Lys Lys Ala Gly Leu Lys Leu Ala Leu His
        195                 200                 205

Leu Ser Glu Ile Pro Asn Gln Lys Lys Glu Thr Gln Ile Leu Leu Asp
    210                 215                 220

Leu Leu Pro Asp Arg Ile Gly His Gly Thr Phe Leu Asn Ser Gly Glu
225                 230                 235                 240

Gly Gly Ser Leu Asp Leu Val Asp Phe Val Arg Gln His Arg Ile Pro
                245                 250                 255

Leu Gly Lys Ala Trp Ser Phe Arg Ser Ser Arg
            260                 265


<210> 2726
<211> 328
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 637; "

<220>
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<223> /note="Gene Name:
      adenosine deaminase-like; "

<220>
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<223> /note="Uniprot ID:  Q6DHV7; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000398744"

<400> 2726
Met Ile Glu Ala Glu Glu Gln Gln Pro Cys Lys Thr Asp Phe Tyr Ser
1   5   10   15

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

Ser His Thr Met Lys Lys Leu Ile Ala Gln Lys Pro Asp Leu Lys Ile
        35   40   45

His Asp Gln Met Thr Val Ile Asp Lys Gly Lys Lys Arg Thr Leu Glu
    50   55   60

Glu Cys Phe Gln Met Phe Gln Thr Ile His Gln Leu Thr Ser Ser Pro
65   70   75   80

Glu Asp Ile Leu Met Val Thr Lys Asp Val Ile Lys Glu Phe Ala Asp
                85   90   95

Asp Gly Val Lys Tyr Leu Glu Leu Arg Ser Thr Pro Arg Arg Glu Asn
            100   105   110

Ala Thr Gly Met Thr Lys Lys Thr Tyr Val Glu Ser Ile Leu Glu Gly
        115   120   125

Ile Lys Gln Ser Lys Gln Glu Asn Leu Asp Ile Asp Val Arg Tyr Leu
    130   135   140

Ile Ala Val Asp Arg Arg Gly Gly Pro Leu Val Ala Lys Glu Thr Val
145   150   155   160

Lys Leu Ala Glu Glu Phe Phe Leu Ser Thr Glu Gly Thr Val Leu Gly
                165   170   175

Leu Asp Leu Ser Gly Asp Pro Thr Ile Pro Asn Gln Lys Lys Glu Thr
            180   185   190

Gln Ile Leu Leu Asp Leu Leu Pro Asp Arg Ile Gly His Gly Thr Phe
        195   200   205

```
Leu Asn Ser Gly Glu Gly Gly Ser Leu Asp Leu Val Asp Phe Val Arg
    210                 215                 220

Gln His Arg Ile Pro Leu Glu Leu Cys Leu Thr Ser Asn Val Lys Ser
225                 230                 235                 240

Gln Thr Val Pro Ser Tyr Asp Gln His His Phe Gly Phe Trp Tyr Ser
                245                 250                 255

Ile Ala His Pro Ser Val Ile Cys Thr Asp Asp Lys Gly Val Phe Ala
            260                 265                 270

Thr His Leu Ser Gln Glu Tyr Gln Leu Ala Ala Glu Thr Phe Asn Leu
        275                 280                 285

Thr Gln Ser Gln Val Trp Asp Leu Ser Tyr Glu Ser Ile Asn Tyr Ile
    290                 295                 300

Phe Ala Ser Asp Ser Thr Arg Ser Glu Leu Arg Lys Lys Trp Asn His
305                 310                 315                 320

Leu Lys Pro Arg Val Leu His Ile
                325
```

<210> 2727
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<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 637; "

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

<220>
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<223> /note="Gene Name:
adenosine deaminase-like; "

<220>
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<223> /note="Uniprot ID: Q6DHV7; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000413074"

<400> 2727

```
Met Ile Glu Ala Glu Glu Gln Gln Pro Cys Lys Thr Asp Phe Tyr Ser
1               5                  10                  15

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

Ser His Thr Met Lys Lys Leu Ile Ala Gln Lys Pro Asp Leu Lys Ile
        35                  40                  45

His Asp Gln Met Thr Val Ile Asp Lys Gly Lys Lys Arg Thr Leu Glu
    50                  55                  60

Glu Cys Phe Gln Met Phe Gln Thr Ile His Gln Leu Thr Ser Ser Pro
65                  70                  75                  80

Glu Asp Ile Leu Met Val Thr Lys Asp Val Ile Lys Glu Phe Ala Asp
                85                  90                  95

Asp Gly Val Lys Tyr Leu Glu Leu Arg Ser Thr Pro Arg Arg Glu Asn
            100                 105                 110

Ala Thr Gly Met Thr Lys Lys Thr Tyr Val Glu Ser Ile Leu Glu Gly
        115                 120                 125

Ile Lys Gln Ser Lys Gln Glu Asn Leu Asp Ile Asp Val Arg Tyr Leu
    130                 135                 140

Ile Ala Val Asp Arg Arg Gly Gly Pro Leu Val Ala Lys Glu Thr Val
145                 150                 155                 160

Lys Leu Ala Glu Glu Phe Phe Leu Ser Thr Glu Gly Thr Val Leu Gly
                165                 170                 175

Leu Asp Leu Ser Gly Asp Pro Thr Ile Pro Asn Gln Lys Lys Glu Thr
            180                 185                 190

Gln Ile Leu Leu Asp Leu Leu Pro Asp Arg Ile Gly His Gly Thr Phe
        195                 200                 205

Leu Asn Ser Gly Glu Gly Gly Ser Leu Asp Leu Val Asp Phe Val Arg
    210                 215                 220
```

```
Gln His Arg Ile Pro Leu Glu Leu Cys Leu Thr Ser Asn Val Lys Ser
225                 230                 235                 240

Gln Thr Val Pro Ser Tyr Asp Gln His His Phe Gly Phe Trp Tyr Ser
                245                 250                 255

Ile Ala His Pro Ser Val Ile Cys Thr Asp Asp Lys Gly Val Phe Ala
            260                 265                 270

Thr His Leu Ser Gln Glu Tyr Gln Leu Ala Ala Glu Thr Phe Asn Leu
        275                 280                 285

Thr Gln Ser Gln Val Trp Asp Leu Ser Tyr Glu Ser Ile Asn Tyr Ile
    290                 295                 300

Phe Ala Ser Asp Ser Thr Arg Ser Glu Leu Arg Lys Lys Trp Asn His
305                 310                 315                 320

Leu Lys Pro Arg Val Leu His Ile
                325
```

<210> 2728
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<220>
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<220>
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<223> /note="Gene Name:
adenosine deaminase-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455907"

<400> 2728
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Met Lys Lys Leu Ile Ala Gln Lys Pro Asp Leu Lys Ile His Asp Gln
1               5                   10                  15
```

```
Met Thr Val Ile Asp Lys Gly Lys Lys Arg Thr Leu Glu Glu Ser Gln
            20                  25                  30

Lys Met Ser
        35


<210> 2729
<211> 355
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 637; "

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

<220>
<221> source
<223> /note="Gene Name:
      adenosine deaminase-like; "

<220>
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<223> /note="Uniprot ID:  Q6DHV7; "

<220>
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<223> /note="ENSP ID: ENSP00000456242"

<400> 2729
Met Ile Glu Ala Glu Glu Gln Gln Pro Cys Lys Thr Asp Phe Tyr Ser
1               5                   10                  15

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

Ser His Thr Met Lys Lys Leu Ile Ala Gln Lys Pro Asp Leu Lys Ile
        35                  40                  45

His Asp Gln Met Thr Val Ile Asp Lys Gly Lys Lys Arg Thr Leu Glu
    50                  55                  60

Glu Cys Phe Gln Met Phe Gln Thr Ile His Gln Leu Thr Ser Ser Pro
65                  70                  75                  80

Glu Asp Ile Leu Met Val Thr Lys Asp Val Ile Lys Glu Phe Ala Asp
                85                  90                  95
```

```
Asp Gly Val Lys Tyr Leu Glu Leu Arg Ser Thr Pro Arg Arg Glu Asn
            100                 105                 110

Ala Thr Gly Met Thr Lys Lys Thr Tyr Val Glu Ser Ile Leu Glu Gly
        115                 120                 125

Ile Lys Gln Ser Lys Gln Glu Asn Leu Asp Ile Asp Val Arg Tyr Leu
    130                 135                 140

Ile Ala Val Asp Arg Arg Gly Gly Pro Leu Val Ala Lys Glu Thr Val
145                 150                 155                 160

Lys Leu Ala Glu Glu Phe Phe Leu Ser Thr Glu Gly Thr Val Leu Gly
                165                 170                 175

Leu Asp Leu Ser Gly Asp Pro Thr Val Gly Gln Ala Lys Asp Phe Leu
            180                 185                 190

Glu Pro Leu Leu Glu Ala Lys Lys Ala Gly Leu Lys Leu Ala Leu His
        195                 200                 205

Leu Ser Glu Ile Pro Asn Gln Lys Lys Glu Thr Gln Ile Leu Leu Asp
    210                 215                 220

Leu Leu Pro Asp Arg Ile Gly His Gly Thr Phe Leu Asn Ser Gly Glu
225                 230                 235                 240

Gly Gly Ser Leu Asp Leu Val Asp Phe Val Arg Gln His Arg Ile Pro
                245                 250                 255

Leu Glu Leu Cys Leu Thr Ser Asn Val Lys Ser Gln Thr Val Pro Ser
            260                 265                 270

Tyr Asp Gln His His Phe Gly Phe Trp Tyr Ser Ile Ala His Pro Ser
        275                 280                 285

Val Ile Cys Thr Asp Asp Lys Gly Val Phe Ala Thr His Leu Ser Gln
    290                 295                 300

Glu Tyr Gln Leu Ala Ala Glu Thr Phe Asn Leu Thr Gln Ser Gln Val
305                 310                 315                 320
```

```
Trp Asp Leu Ser Tyr Glu Ser Ile Asn Tyr Ile Phe Ala Ser Asp Ser
                325                 330                 335

Thr Arg Ser Glu Leu Arg Lys Lys Trp Asn His Leu Lys Pro Arg Val
            340                 345                 350

Leu His Ile
        355


<210> 2730
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 637; "

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

<220>
<221> source
<223> /note="Gene Name:
      adenosine deaminase-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457591"


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

<400> 2730
Xaa Lys Leu Ala Glu Glu Phe Phe Leu Ser Thr Glu Gly Thr Val Leu
1               5                   10                  15

Gly Leu Asp Leu Ser Gly Asp Pro Thr Ile Pro Asn Gln Lys Lys Glu
            20                  25                  30

Thr Gln Ile Leu Leu Asp Leu Leu Pro Asp Arg Ile Gly His Gly Thr
        35                  40                  45

Phe Leu Asn Ser Gly Glu Gly Gly Ser Leu Asp Leu Val Asp Phe Val
    50                  55                  60
```

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


Ser Gln Thr Val Pro Ser Tyr Asp Gln His His Phe Gly Phe Trp Tyr
                85                  90                  95


Ser Ile Ala His Pro Ser Val Ile Cys Val Arg Cys Ser Val
            100                 105                 110


<210> 2731
<211> 267
<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:
      adenosine deaminase-like; "

<220>
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<223> /note="Uniprot ID:  Q6DHV7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478575"

<400> 2731
Met Ile Glu Ala Glu Glu Gln Gln Pro Cys Lys Thr Asp Phe Tyr Ser
1               5                   10                  15


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


Ser His Thr Met Lys Lys Leu Ile Ala Gln Lys Pro Asp Leu Lys Ile
        35                  40                  45


His Asp Gln Met Thr Val Ile Asp Lys Gly Lys Lys Arg Thr Leu Glu
    50                  55                  60


Glu Cys Phe Gln Met Phe Gln Thr Ile His Gln Leu Thr Ser Ser Pro
```

65 70 75 80

Glu Asp Ile Leu Met Val Thr Lys Asp Val Ile Lys Glu Phe Ala Asp
85 90 95

Asp Gly Val Lys Tyr Leu Glu Leu Arg Ser Thr Pro Arg Arg Glu Asn
100 105 110

Ala Thr Gly Met Thr Lys Lys Thr Tyr Val Glu Ser Ile Leu Glu Gly
115 120 125

Ile Lys Gln Ser Lys Gln Glu Asn Leu Asp Ile Asp Val Arg Tyr Leu
130 135 140

Ile Ala Val Asp Arg Arg Gly Gly Pro Leu Val Ala Lys Glu Thr Val
145 150 155 160

Lys Leu Ala Glu Glu Phe Phe Leu Ser Thr Glu Gly Thr Val Leu Gly
165 170 175

Leu Asp Leu Ser Gly Asp Pro Thr Val Gly Gln Ala Lys Asp Phe Leu
180 185 190

Glu Pro Leu Leu Glu Ala Lys Lys Ala Gly Leu Lys Leu Ala Leu His
195 200 205

Leu Ser Glu Ile Pro Asn Gln Lys Lys Glu Thr Gln Ile Leu Leu Asp
210 215 220

Leu Leu Pro Asp Arg Ile Gly His Gly Thr Phe Leu Asn Ser Gly Glu
225 230 235 240

Gly Gly Ser Leu Asp Leu Val Asp Phe Val Arg Gln His Arg Ile Pro
245 250 255

Leu Gly Lys Ala Trp Ser Phe Arg Ser Ser Arg
260 265

<210> 2732
<211> 362
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 638; "

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

<220>
<221> source
<223> /note="Gene Name:
adenosine kinase; "

<220>
<221> source
<223> /note="Uniprot ID: P55263; "

<220>
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<223> /note="ENSP ID: ENSP00000286621"

<400> 2732
Met Ala Ala Ala Glu Glu Glu Pro Lys Pro Lys Lys Leu Lys Val Glu
1   5   10   15

Ala Pro Gln Ala Leu Arg Glu Asn Ile Leu Phe Gly Met Gly Asn Pro
            20   25   30

Leu Leu Asp Ile Ser Ala Val Val Asp Lys Asp Phe Leu Asp Lys Tyr
        35   40   45

Ser Leu Lys Pro Asn Asp Gln Ile Leu Ala Glu Asp Lys His Lys Glu
    50   55   60

Leu Phe Asp Glu Leu Val Lys Lys Phe Lys Val Glu Tyr His Ala Gly
65   70   75   80

Gly Ser Thr Gln Asn Ser Ile Lys Val Ala Gln Trp Met Ile Gln Gln
                85   90   95

Pro His Lys Ala Ala Thr Phe Phe Gly Cys Ile Gly Ile Asp Lys Phe
            100   105   110

Gly Glu Ile Leu Lys Arg Lys Ala Ala Glu Ala His Val Asp Ala His
        115   120   125

Tyr Tyr Glu Gln Asn Glu Gln Pro Thr Gly Thr Cys Ala Ala Cys Ile
    130   135   140

Thr Gly Asp Asn Arg Ser Leu Ile Ala Asn Leu Ala Ala Ala Asn Cys
145 150 155 160

Tyr Lys Lys Glu Lys His Leu Asp Leu Glu Lys Asn Trp Met Leu Val
165 170 175

Glu Lys Ala Arg Val Cys Tyr Ile Ala Gly Phe Phe Leu Thr Val Ser
180 185 190

Pro Glu Ser Val Leu Lys Val Ala His His Ala Ser Glu Asn Asn Arg
195 200 205

Ile Phe Thr Leu Asn Leu Ser Ala Pro Phe Ile Ser Gln Phe Tyr Lys
210 215 220

Glu Ser Leu Met Lys Val Met Pro Tyr Val Asp Ile Leu Phe Gly Asn
225 230 235 240

Glu Thr Glu Ala Ala Thr Phe Ala Arg Glu Gln Gly Phe Glu Thr Lys
245 250 255

Asp Ile Lys Glu Ile Ala Lys Lys Thr Gln Ala Leu Pro Lys Met Asn
260 265 270

Ser Lys Arg Gln Arg Ile Val Ile Phe Thr Gln Gly Arg Asp Asp Thr
275 280 285

Ile Met Ala Thr Glu Ser Glu Val Thr Ala Phe Ala Val Leu Asp Gln
290 295 300

Asp Gln Lys Glu Ile Ile Asp Thr Asn Gly Ala Gly Asp Ala Phe Val
305 310 315 320

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

Ile Arg Ala Gly His Tyr Ala Ala Ser Ile Ile Ile Arg Arg Thr Gly
340 345 350

Cys Thr Phe Pro Glu Lys Pro Asp Phe His
355 360

<210> 2733

<211> 345
<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:
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<220>
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<223> /note="Uniprot ID: P55263; "

<220>
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<223> /note="ENSP ID: ENSP00000361819"

<400> 2733

Met	Thr	Ser	Val	Arg	Glu	Asn	Ile	Leu	Phe	Gly	Met	Gly	Asn	Pro	Leu
1				5					10						15

Leu	Asp	Ile	Ser	Ala	Val	Val	Asp	Lys	Asp	Phe	Leu	Asp	Lys	Tyr	Ser
			20					25					30		

Leu	Lys	Pro	Asn	Asp	Gln	Ile	Leu	Ala	Glu	Asp	Lys	His	Lys	Glu	Leu
		35					40					45			

Phe	Asp	Glu	Leu	Val	Lys	Lys	Phe	Lys	Val	Glu	Tyr	His	Ala	Gly	Gly
	50					55					60				

Ser	Thr	Gln	Asn	Ser	Ile	Lys	Val	Ala	Gln	Trp	Met	Ile	Gln	Gln	Pro
65					70					75					80

His	Lys	Ala	Ala	Thr	Phe	Phe	Gly	Cys	Ile	Gly	Ile	Asp	Lys	Phe	Gly
				85					90					95	

Glu	Ile	Leu	Lys	Arg	Lys	Ala	Ala	Glu	Ala	His	Val	Asp	Ala	His	Tyr
			100					105					110		

Tyr	Glu	Gln	Asn	Glu	Gln	Pro	Thr	Gly	Thr	Cys	Ala	Ala	Cys	Ile	Thr
		115					120					125			

```
Gly Asp Asn Arg Ser Leu Ile Ala Asn Leu Ala Ala Ala Asn Cys Tyr
    130                 135                 140

Lys Lys Glu Lys His Leu Asp Leu Glu Lys Asn Trp Met Leu Val Glu
145                 150                 155                 160

Lys Ala Arg Val Cys Tyr Ile Ala Gly Phe Phe Leu Thr Val Ser Pro
                165                 170                 175

Glu Ser Val Leu Lys Val Ala His His Ala Ser Glu Asn Asn Arg Ile
            180                 185                 190

Phe Thr Leu Asn Leu Ser Ala Pro Phe Ile Ser Gln Phe Tyr Lys Glu
        195                 200                 205

Ser Leu Met Lys Val Met Pro Tyr Val Asp Ile Leu Phe Gly Asn Glu
    210                 215                 220

Thr Glu Ala Ala Thr Phe Ala Arg Glu Gln Gly Phe Glu Thr Lys Asp
225                 230                 235                 240

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

Lys Arg Gln Arg Ile Val Ile Phe Thr Gln Gly Arg Asp Asp Thr Ile
            260                 265                 270

Met Ala Thr Glu Ser Glu Val Thr Ala Phe Ala Val Leu Asp Gln Asp
        275                 280                 285

Gln Lys Glu Ile Ile Asp Thr Asn Gly Ala Gly Asp Ala Phe Val Gly
    290                 295                 300

Gly Phe Leu Ser Gln Leu Val Ser Asp Lys Pro Leu Thr Glu Cys Ile
305                 310                 315                 320

Arg Ala Gly His Tyr Ala Ala Ser Ile Ile Ile Arg Arg Thr Gly Cys
                325                 330                 335

Thr Phe Pro Glu Lys Pro Asp Phe His
            340                 345
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<210> 2734
<211> 327
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 638; "

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

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: P55263; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438321"

<400> 2734
Met Thr Ser Val Arg Glu Asn Ile Leu Phe Gly Met Gly Asn Pro Leu
1   5   10   15

Leu Asp Ile Ser Ala Val Val Asp Lys Asp Phe Leu Asp Lys Phe Asp
            20   25   30

Glu Leu Val Lys Lys Phe Lys Val Glu Tyr His Ala Gly Gly Ser Thr
        35   40   45

Gln Asn Ser Ile Lys Val Ala Gln Trp Met Ile Gln Gln Pro His Lys
    50   55   60

Ala Ala Thr Phe Phe Gly Cys Ile Gly Ile Asp Lys Phe Gly Glu Ile
65   70   75   80

Leu Lys Arg Lys Ala Ala Glu Ala His Val Asp Ala His Tyr Tyr Glu
                85   90   95

Gln Asn Glu Gln Pro Thr Gly Thr Cys Ala Ala Cys Ile Thr Gly Asp
            100   105   110

Asn Arg Ser Leu Ile Ala Asn Leu Ala Ala Ala Asn Cys Tyr Lys Lys
        115   120   125

```
Glu Lys His Leu Asp Leu Glu Lys Asn Trp Met Leu Val Glu Lys Ala
    130                 135                 140

Arg Val Cys Tyr Ile Ala Gly Phe Phe Leu Thr Val Ser Pro Glu Ser
145                 150                 155                 160

Val Leu Lys Val Ala His His Ala Ser Glu Asn Asn Arg Ile Phe Thr
                165                 170                 175

Leu Asn Leu Ser Ala Pro Phe Ile Ser Gln Phe Tyr Lys Glu Ser Leu
            180                 185                 190

Met Lys Val Met Pro Tyr Val Asp Ile Leu Phe Gly Asn Glu Thr Glu
        195                 200                 205

Ala Ala Thr Phe Ala Arg Glu Gln Gly Phe Glu Thr Lys Asp Ile Lys
    210                 215                 220

Glu Ile Ala Lys Lys Thr Gln Ala Leu Pro Lys Met Asn Ser Lys Arg
225                 230                 235                 240

Gln Arg Ile Val Ile Phe Thr Gln Gly Arg Asp Asp Thr Ile Met Ala
                245                 250                 255

Thr Glu Ser Glu Val Thr Ala Phe Ala Val Leu Asp Gln Asp Gln Lys
            260                 265                 270

Glu Ile Ile Asp Thr Asn Gly Ala Gly Asp Ala Phe Val Gly Gly Phe
        275                 280                 285

Leu Ser Gln Leu Val Ser Asp Lys Pro Leu Thr Glu Cys Ile Arg Ala
    290                 295                 300

Gly His Tyr Ala Ala Ser Ile Ile Ile Arg Arg Thr Gly Cys Thr Phe
305                 310                 315                 320

Pro Glu Lys Pro Asp Phe His
                325
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<210> 2735
<211> 305
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Gene Name:
adenosine kinase; "

<220>
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<223> /note="Uniprot ID: P55263; "

<220>
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<400> 2735

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Met Ala Ala Ala Glu Glu Glu Pro Lys Pro Lys Lys Leu Lys Val Glu
1               5                  10                  15

Ala Pro Gln Ala Leu Arg Glu Asn Ile Leu Phe Gly Met Gly Asn Pro
            20                  25                  30

Leu Leu Asp Ile Ser Ala Val Val Asp Lys Asp Phe Leu Asp Lys Tyr
        35                  40                  45

Ser Leu Lys Pro Asn Asp Gln Ile Leu Ala Glu Asp Lys His Lys Glu
    50                  55                  60

Leu Phe Asp Glu Leu Val Lys Lys Phe Lys Val Glu Tyr His Ala Gly
65                  70                  75                  80

Gly Ser Thr Gln Asn Ser Ile Lys Val Ala Gln Trp Met Ile Gln Gln
                85                  90                  95

Pro His Lys Ala Ala Thr Phe Phe Gly Cys Ile Gly Ile Asp Lys Phe
            100                 105                 110

Gly Glu Ile Leu Lys Arg Lys Ala Ala Glu Ala His Val Asp Ala His
        115                 120                 125

Tyr Tyr Glu Gln Asn Glu Gln Pro Thr Gly Thr Cys Ala Ala Cys Ile
```

130 135 140

Thr Gly Asp Asn Arg Ser Leu Ile Ala Asn Leu Ala Ala Ala Asn Cys
145 150 155 160

Tyr Lys Lys Glu Lys His Leu Asp Leu Glu Lys Asn Trp Met Leu Val
165 170 175

Glu Lys Ala Arg Val Cys Tyr Ile Ala Glu Ala Ala Thr Phe Ala Arg
180 185 190

Glu Gln Gly Phe Glu Thr Lys Asp Ile Lys Glu Ile Ala Lys Lys Thr
195 200 205

Gln Ala Leu Pro Lys Met Asn Ser Lys Arg Gln Arg Ile Val Ile Phe
210 215 220

Thr Gln Gly Arg Asp Asp Thr Ile Met Ala Thr Glu Ser Glu Val Thr
225 230 235 240

Ala Phe Ala Val Leu Asp Gln Asp Gln Lys Glu Ile Ile Asp Thr Asn
245 250 255

Gly Ala Gly Asp Ala Phe Val Gly Gly Phe Leu Ser Gln Leu Val Ser
260 265 270

Asp Lys Pro Leu Thr Glu Cys Ile Arg Ala Gly His Tyr Ala Ala Ser
275 280 285

Ile Ile Ile Arg Arg Thr Gly Cys Thr Phe Pro Glu Lys Pro Asp Phe
290 295 300

His
305

<210> 2736
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<223> /note="Gene Symbol: AMPD1; "

<220>
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<223> /note="Gene Name:
adenosine monophosphate deaminase 1; "

<220>
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<223> /note="Uniprot ID: P23109; "

<220>
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<400> 2736

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Met Asn Val Arg Ile Phe Tyr Ser Val Ser Gln Ser Pro His Ser Leu
1               5                  10                  15

Leu Ser Leu Leu Phe Tyr Cys Ala Ile Leu Glu Ser Arg Ile Ser Ala
            20                  25                  30

Thr Met Pro Leu Phe Lys Leu Pro Glu Ile Asp Asp Ala Met Arg Asn
        35                  40                  45

Phe Ala Glu Lys Val Phe Ala Ser Glu Val Lys Asp Glu Gly Gly Arg
    50                  55                  60

Gln Glu Ile Ser Pro Phe Asp Val Asp Glu Ile Cys Pro Ile Ser His
65                  70                  75                  80

His Glu Met Gln Ala His Ile Phe His Leu Glu Thr Leu Ser Thr Ser
                85                  90                  95

Thr Glu Ala Arg Arg Lys Lys Arg Phe Gln Gly Arg Lys Thr Val Asn
            100                 105                 110

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

Asp Glu Tyr Ile Ser Ser Ser Pro Thr Tyr Gln Thr Val Pro Asp Phe
    130                 135                 140

Gln Arg Val Gln Ile Thr Gly Asp Tyr Ala Ser Gly Val Thr Val Glu
145                 150                 155                 160
```

```
Asp Phe Glu Ile Val Cys Lys Gly Leu Tyr Arg Ala Leu Cys Ile Arg
                165                 170                 175

Glu Lys Tyr Met Gln Lys Ser Phe Gln Arg Phe Pro Lys Thr Pro Ser
            180                 185                 190

Lys Tyr Leu Arg Asn Ile Asp Gly Glu Ala Trp Val Ala Asn Glu Ser
        195                 200                 205

Phe Tyr Pro Val Phe Thr Pro Pro Val Lys Lys Gly Glu Asp Pro Phe
    210                 215                 220

Arg Thr Asp Asn Leu Pro Glu Asn Leu Gly Tyr His Leu Lys Met Lys
225                 230                 235                 240

Asp Gly Val Val Tyr Val Tyr Pro Asn Glu Ala Ala Val Ser Lys Asp
                245                 250                 255

Glu Pro Lys Pro Leu Pro Tyr Pro Asn Leu Asp Thr Phe Leu Asp Asp
            260                 265                 270

Met Asn Phe Leu Leu Ala Leu Ile Ala Gln Gly Pro Val Lys Thr Tyr
        275                 280                 285

Thr His Arg Arg Leu Lys Phe Leu Ser Ser Lys Phe Gln Val His Gln
    290                 295                 300

Met Leu Asn Glu Met Asp Glu Leu Lys Glu Leu Lys Asn Asn Pro His
305                 310                 315                 320

Arg Asp Phe Tyr Asn Cys Arg Lys Val Asp Thr His Ile His Ala Ala
                325                 330                 335

Ala Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys Lys Ser Tyr
            340                 345                 350

Gln Ile Asp Ala Asp Arg Val Val Tyr Ser Thr Lys Glu Lys Asn Leu
        355                 360                 365

Thr Leu Lys Glu Leu Phe Ala Lys Leu Lys Met His Pro Tyr Asp Leu
    370                 375                 380

Thr Val Asp Ser Leu Asp Val His Ala Gly Arg Gln Thr Phe Gln Arg
```

385 390 395 400

Phe Asp Lys Phe Asn Asp Lys Tyr Asn Pro Val Gly Ala Ser Glu Leu
405 410 415

Arg Asp Leu Tyr Leu Lys Thr Asp Asn Tyr Ile Asn Gly Glu Tyr Phe
420 425 430

Ala Thr Ile Ile Lys Glu Val Gly Ala Asp Leu Val Glu Ala Lys Tyr
435 440 445

Gln His Ala Glu Pro Arg Leu Ser Ile Tyr Gly Arg Ser Pro Asp Glu
450 455 460

Trp Ser Lys Leu Ser Ser Trp Phe Val Cys Asn Arg Ile His Cys Pro
465 470 475 480

Asn Met Thr Trp Met Ile Gln Val Pro Arg Ile Tyr Asp Val Phe Arg
485 490 495

Ser Lys Asn Phe Leu Pro His Phe Gly Lys Met Leu Glu Asn Ile Phe
500 505 510

Met Pro Val Phe Glu Ala Thr Ile Asn Pro Gln Ala Asp Pro Glu Leu
515 520 525

Ser Val Phe Leu Lys His Ile Thr Gly Phe Asp Ser Val Asp Asp Glu
530 535 540

Ser Lys His Ser Gly His Met Phe Ser Ser Lys Ser Pro Lys Pro Gln
545 550 555 560

Glu Trp Thr Leu Glu Lys Asn Pro Ser Tyr Thr Tyr Tyr Ala Tyr Tyr
565 570 575

Met Tyr Ala Asn Ile Met Val Leu Asn Ser Leu Arg Lys Glu Arg Gly
580 585 590

Met Asn Thr Phe Leu Phe Arg Pro His Cys Gly Glu Ala Gly Ala Leu
595 600 605

Thr His Leu Met Thr Ala Phe Met Ile Ala Asp Asp Ile Ser His Gly
610 615 620

```
Leu Asn Leu Lys Lys Ser Pro Val Leu Gln Tyr Leu Phe Phe Leu Ala
625                 630                 635                 640

Gln Ile Pro Ile Ala Met Ser Pro Leu Ser Asn Asn Ser Leu Phe Leu
                645                 650                 655

Glu Tyr Ala Lys Asn Pro Phe Leu Asp Phe Leu Gln Lys Gly Leu Met
            660                 665                 670

Ile Ser Leu Ser Thr Asp Asp Pro Met Gln Phe His Phe Thr Lys Glu
        675                 680                 685

Pro Leu Met Glu Glu Tyr Ala Ile Ala Ala Gln Val Phe Lys Leu Ser
    690                 695                 700

Thr Cys Asp Met Cys Glu Val Ala Arg Asn Ser Val Leu Gln Cys Gly
705                 710                 715                 720

Ile Ser His Glu Glu Lys Val Lys Phe Leu Gly Asp Asn Tyr Leu Glu
                725                 730                 735

Glu Gly Pro Ala Gly Asn Asp Ile Arg Arg Thr Asn Val Ala Gln Ile
            740                 745                 750

Arg Met Ala Tyr Arg Tyr Glu Thr Trp Cys Tyr Glu Leu Asn Leu Ile
        755                 760                 765

Ala Glu Gly Leu Lys Ser Thr Glu
    770                 775


<210> 2737
<211> 780
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AMPD1; "

<220>
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<223> /note="Gene Name:
adenosine monophosphate deaminase 1; "

<220>
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<223> /note="Uniprot ID: P23109; "

<220>
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<400> 2737
Met Asn Val Arg Ile Phe Tyr Ser Val Ser Gln Ser Pro His Ser Leu
1 5 10 15

Leu Ser Leu Leu Phe Tyr Cys Ala Ile Leu Glu Ser Arg Ile Ser Ala
20 25 30

Thr Met Pro Leu Phe Lys Leu Pro Ala Glu Glu Lys Gln Ile Asp Asp
35 40 45

Ala Met Arg Asn Phe Ala Glu Lys Val Phe Ala Ser Glu Val Lys Asp
50 55 60

Glu Gly Gly Arg Gln Glu Ile Ser Pro Phe Asp Val Asp Glu Ile Cys
65 70 75 80

Pro Ile Ser His His Glu Met Gln Ala His Ile Phe His Leu Glu Thr
85 90 95

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

Lys Thr Val Asn Leu Ser Ile Pro Leu Ser Glu Thr Ser Ser Thr Lys
115 120 125

Leu Ser His Ile Asp Glu Tyr Ile Ser Ser Ser Pro Thr Tyr Gln Thr
130 135 140

Val Pro Asp Phe Gln Arg Val Gln Ile Thr Gly Asp Tyr Ala Ser Gly
145 150 155 160

Val Thr Val Glu Asp Phe Glu Ile Val Cys Lys Gly Leu Tyr Arg Ala
165 170 175

Leu Cys Ile Arg Glu Lys Tyr Met Gln Lys Ser Phe Gln Arg Phe Pro

```
            180                 185                 190

Lys Thr Pro Ser Lys Tyr Leu Arg Asn Ile Asp Gly Glu Ala Trp Val
        195                 200                 205

Ala Asn Glu Ser Phe Tyr Pro Val Phe Thr Pro Pro Val Lys Lys Gly
    210                 215                 220

Glu Asp Pro Phe Arg Thr Asp Asn Leu Pro Glu Asn Leu Gly Tyr His
225                 230                 235                 240

Leu Lys Met Lys Asp Gly Val Val Tyr Val Tyr Pro Asn Glu Ala Ala
                245                 250                 255

Val Ser Lys Asp Glu Pro Lys Pro Leu Pro Tyr Pro Asn Leu Asp Thr
            260                 265                 270

Phe Leu Asp Asp Met Asn Phe Leu Leu Ala Leu Ile Ala Gln Gly Pro
        275                 280                 285

Val Lys Thr Tyr Thr His Arg Arg Leu Lys Phe Leu Ser Ser Lys Phe
    290                 295                 300

Gln Val His Gln Met Leu Asn Glu Met Asp Glu Leu Lys Glu Leu Lys
305                 310                 315                 320

Asn Asn Pro His Arg Asp Phe Tyr Asn Cys Arg Lys Val Asp Thr His
                325                 330                 335

Ile His Ala Ala Ala Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile
            340                 345                 350

Lys Lys Ser Tyr Gln Ile Asp Ala Asp Arg Val Val Tyr Ser Thr Lys
        355                 360                 365

Glu Lys Asn Leu Thr Leu Lys Glu Leu Phe Ala Lys Leu Lys Met His
    370                 375                 380

Pro Tyr Asp Leu Thr Val Asp Ser Leu Asp Val His Ala Gly Arg Gln
385                 390                 395                 400

Thr Phe Gln Arg Phe Asp Lys Phe Asn Asp Lys Tyr Asn Pro Val Gly
                405                 410                 415
```

```
Ala Ser Glu Leu Arg Asp Leu Tyr Leu Lys Thr Asp Asn Tyr Ile Asn
            420                 425                 430

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

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

Ser Pro Asp Glu Trp Ser Lys Leu Ser Ser Trp Phe Val Cys Asn Arg
465                 470                 475                 480

Ile His Cys Pro Asn Met Thr Trp Met Ile Gln Val Pro Arg Ile Tyr
                485                 490                 495

Asp Val Phe Arg Ser Lys Asn Phe Leu Pro His Phe Gly Lys Met Leu
            500                 505                 510

Glu Asn Ile Phe Met Pro Val Phe Glu Ala Thr Ile Asn Pro Gln Ala
        515                 520                 525

Asp Pro Glu Leu Ser Val Phe Leu Lys His Ile Thr Gly Phe Asp Ser
    530                 535                 540

Val Asp Asp Glu Ser Lys His Ser Gly His Met Phe Ser Ser Lys Ser
545                 550                 555                 560

Pro Lys Pro Gln Glu Trp Thr Leu Glu Lys Asn Pro Ser Tyr Thr Tyr
                565                 570                 575

Tyr Ala Tyr Tyr Met Tyr Ala Asn Ile Met Val Leu Asn Ser Leu Arg
            580                 585                 590

Lys Glu Arg Gly Met Asn Thr Phe Leu Phe Arg Pro His Cys Gly Glu
        595                 600                 605

Ala Gly Ala Leu Thr His Leu Met Thr Ala Phe Met Ile Ala Asp Asp
    610                 615                 620

Ile Ser His Gly Leu Asn Leu Lys Lys Ser Pro Val Leu Gln Tyr Leu
625                 630                 635                 640
```

```
Phe Phe Leu Ala Gln Ile Pro Ile Ala Met Ser Pro Leu Ser Asn Asn
                645                 650                 655

Ser Leu Phe Leu Glu Tyr Ala Lys Asn Pro Phe Leu Asp Phe Leu Gln
            660                 665                 670

Lys Gly Leu Met Ile Ser Leu Ser Thr Asp Asp Pro Met Gln Phe His
        675                 680                 685

Phe Thr Lys Glu Pro Leu Met Glu Glu Tyr Ala Ile Ala Ala Gln Val
    690                 695                 700

Phe Lys Leu Ser Thr Cys Asp Met Cys Glu Val Ala Arg Asn Ser Val
705                 710                 715                 720

Leu Gln Cys Gly Ile Ser His Glu Glu Lys Val Lys Phe Leu Gly Asp
                725                 730                 735

Asn Tyr Leu Glu Glu Gly Pro Ala Gly Asn Asp Ile Arg Arg Thr Asn
            740                 745                 750

Val Ala Gln Ile Arg Met Ala Tyr Arg Tyr Glu Thr Trp Cys Tyr Glu
        755                 760                 765

Leu Asn Leu Ile Ala Glu Gly Leu Lys Ser Thr Glu
    770                 775                 780


<210> 2738
<211> 879
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AMPD2; "

<220>
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<223> /note="Gene Name:
      adenosine monophosphate deaminase 2; "

<220>
<221> source
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<223> /note="Uniprot ID: Q01433; "

<220>
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<223> /note="ENSP ID: ENSP00000256578"

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Met Arg Asn Arg Gly Gln Gly Leu Phe Arg Leu Arg Ser Arg Cys Phe
1   5   10   15

Leu His Gln Ser Leu Pro Leu Gly Ala Gly Arg Arg Lys Gly Leu Asp
            20   25   30

Val Ala Glu Pro Gly Pro Ser Arg Cys Arg Ser Asp Ser Pro Ala Val
        35   40   45

Ala Ala Val Val Pro Ala Met Ala Ser Tyr Pro Ser Gly Ser Gly Lys
    50   55   60

Pro Lys Ala Lys Tyr Pro Phe Lys Lys Arg Ala Ser Leu Gln Ala Ser
65   70   75   80

Thr Ala Ala Pro Glu Ala Arg Gly Gly Leu Gly Ala Pro Pro Leu Gln
                85   90   95

Ser Ala Arg Ser Leu Pro Gly Pro Ala Pro Cys Leu Lys His Phe Pro
            100   105   110

Leu Asp Leu Arg Thr Ser Met Asp Gly Lys Cys Lys Glu Ile Ala Glu
        115   120   125

Glu Leu Phe Thr Arg Ser Leu Ala Glu Ser Glu Leu Arg Ser Ala Pro
    130   135   140

Tyr Glu Phe Pro Glu Glu Ser Pro Ile Glu Gln Leu Glu Glu Arg Arg
145   150   155   160

Gln Arg Leu Glu Arg Gln Ile Ser Gln Asp Val Lys Leu Glu Pro Asp
                165   170   175

Ile Leu Leu Arg Ala Lys Gln Asp Phe Leu Lys Thr Asp Ser Asp Ser
            180   185   190

Asp Leu Gln Leu Tyr Lys Glu Gln Gly Glu Gly Gln Gly Asp Arg Ser
        195   200   205

```
Leu Arg Glu Arg Asp Val Leu Glu Arg Glu Phe Gln Arg Val Thr Ile
    210                 215                 220

Ser Gly Glu Glu Lys Cys Gly Val Pro Phe Thr Asp Leu Leu Asp Ala
225                 230                 235                 240

Ala Lys Ser Val Val Arg Ala Leu Phe Ile Arg Glu Lys Tyr Met Ala
                245                 250                 255

Leu Ser Leu Gln Ser Phe Cys Pro Thr Thr Arg Arg Tyr Leu Gln Gln
            260                 265                 270

Leu Ala Glu Lys Pro Leu Glu Thr Arg Thr Tyr Glu Gln Gly Pro Asp
        275                 280                 285

Thr Pro Val Ser Ala Asp Ala Pro Val His Pro Pro Ala Leu Glu Gln
    290                 295                 300

His Pro Tyr Glu His Cys Glu Pro Ser Thr Met Pro Gly Asp Leu Gly
305                 310                 315                 320

Leu Gly Leu Arg Met Val Arg Gly Val Val His Val Tyr Thr Arg Arg
                325                 330                 335

Glu Pro Asp Glu His Cys Ser Glu Val Glu Leu Pro Tyr Pro Asp Leu
            340                 345                 350

Gln Glu Phe Val Ala Asp Val Asn Val Leu Met Ala Leu Ile Ile Asn
        355                 360                 365

Gly Pro Ile Lys Ser Phe Cys Tyr Arg Arg Leu Gln Tyr Leu Ser Ser
    370                 375                 380

Lys Phe Gln Met His Val Leu Leu Asn Glu Met Lys Glu Leu Ala Ala
385                 390                 395                 400

Gln Lys Lys Val Pro His Arg Asp Phe Tyr Asn Ile Arg Lys Val Asp
                405                 410                 415

Thr His Ile His Ala Ser Ser Cys Met Asn Gln Lys His Leu Leu Arg
            420                 425                 430
```

```
Phe Ile Lys Arg Ala Met Lys Arg His Leu Glu Glu Ile Val His Val
        435                 440                 445

Glu Gln Gly Arg Glu Gln Thr Leu Arg Glu Val Phe Glu Ser Met Asn
    450                 455                 460

Leu Thr Ala Tyr Asp Leu Ser Val Asp Thr Leu Asp Val His Ala Asp
465                 470                 475                 480

Arg Asn Thr Phe His Arg Phe Asp Lys Phe Asn Ala Lys Tyr Asn Pro
                485                 490                 495

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

Val Ser Gly Lys Tyr Phe Ala His Ile Ile Lys Glu Val Met Ser Asp
        515                 520                 525

Leu Glu Glu Ser Lys Tyr Gln Asn Ala Glu Leu Arg Leu Ser Ile Tyr
    530                 535                 540

Gly Arg Ser Arg Asp Glu Trp Asp Lys Leu Ala Arg Trp Ala Val Met
545                 550                 555                 560

His Arg Val His Ser Pro Asn Val Arg Trp Leu Val Gln Val Pro Arg
                565                 570                 575

Leu Phe Asp Val Tyr Arg Thr Lys Gly Gln Leu Ala Asn Phe Gln Glu
            580                 585                 590

Met Leu Glu Asn Ile Phe Leu Pro Leu Phe Glu Ala Thr Val His Pro
        595                 600                 605

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

Asp Ser Val Asp Asp Glu Ser Lys Pro Glu Asn His Val Phe Asn Leu
625                 630                 635                 640

Glu Ser Pro Leu Pro Glu Ala Trp Val Glu Glu Asp Asn Pro Pro Tyr
                645                 650                 655
```

Ala Tyr Tyr Leu Tyr Tyr Thr Phe Ala Asn Met Ala Met Leu Asn His
660 665 670

Leu Arg Arg Gln Arg Gly Phe His Thr Phe Val Leu Arg Pro His Cys
675 680 685

Gly Glu Ala Gly Pro Ile His His Leu Val Ser Ala Phe Met Leu Ala
690 695 700

Glu Asn Ile Ser His Gly Leu Leu Leu Arg Lys Ala Pro Val Leu Gln
705 710 715 720

Tyr Leu Tyr Tyr Leu Ala Gln Ile Gly Ile Ala Met Ser Pro Leu Ser
725 730 735

Asn Asn Ser Leu Phe Leu Ser Tyr His Arg Asn Pro Leu Pro Glu Tyr
740 745 750

Leu Ser Arg Gly Leu Met Val Ser Leu Ser Thr Asp Asp Pro Leu Gln
755 760 765

Phe His Phe Thr Lys Glu Pro Leu Met Glu Glu Tyr Ser Ile Ala Thr
770 775 780

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

Ser Val Leu Met Ser Gly Phe Ser His Lys Val Lys Ser His Trp Leu
805 810 815

Gly Pro Asn Tyr Thr Lys Glu Gly Pro Glu Gly Asn Asp Ile Arg Arg
820 825 830

Thr Asn Val Pro Asp Ile Arg Val Gly Tyr Arg Tyr Glu Thr Leu Cys
835 840 845

Gln Glu Leu Ala Leu Ile Thr Gln Ala Val Gln Ser Glu Met Leu Glu
850 855 860

Thr Ile Pro Glu Glu Ala Gly Ile Thr Met Ser Pro Gly Pro Gln
865 870 875

<210> 2739

<211> 798
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Uniprot ID: Q01433; "

<220>
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Met Ala Ser Glu Ala Arg Gly Gly Leu Gly Ala Pro Pro Leu Gln Ser
1 5 10 15

Ala Arg Ser Leu Pro Gly Pro Ala Pro Cys Leu Lys His Phe Pro Leu
20 25 30

Asp Leu Arg Thr Ser Met Asp Gly Lys Cys Lys Glu Ile Ala Glu Glu
35 40 45

Leu Phe Thr Arg Ser Leu Ala Glu Ser Glu Leu Arg Ser Ala Pro Tyr
50 55 60

Glu Phe Pro Glu Glu Ser Pro Ile Glu Gln Leu Glu Glu Arg Arg Gln
65 70 75 80

Arg Leu Glu Arg Gln Ile Ser Gln Asp Val Lys Leu Glu Pro Asp Ile
85 90 95

Leu Leu Arg Ala Lys Gln Asp Phe Leu Lys Thr Asp Ser Asp Ser Asp
100 105 110

Leu Gln Leu Tyr Lys Glu Gln Gly Glu Gly Gln Gly Asp Arg Ser Leu
115 120 125

```
Arg Glu Arg Asp Val Leu Glu Arg Glu Phe Gln Arg Val Thr Ile Ser
    130                 135                 140

Gly Glu Glu Lys Cys Gly Val Pro Phe Thr Asp Leu Leu Asp Ala Ala
145                 150                 155                 160

Lys Ser Val Val Arg Ala Leu Phe Ile Arg Glu Lys Tyr Met Ala Leu
                165                 170                 175

Ser Leu Gln Ser Phe Cys Pro Thr Thr Arg Arg Tyr Leu Gln Gln Leu
            180                 185                 190

Ala Glu Lys Pro Leu Glu Thr Arg Thr Tyr Glu Gln Gly Pro Asp Thr
        195                 200                 205

Pro Val Ser Ala Asp Ala Pro Val His Pro Pro Ala Leu Glu Gln His
    210                 215                 220

Pro Tyr Glu His Cys Glu Pro Ser Thr Met Pro Gly Asp Leu Gly Leu
225                 230                 235                 240

Gly Leu Arg Met Val Arg Gly Val Val His Val Tyr Thr Arg Arg Glu
                245                 250                 255

Pro Asp Glu His Cys Ser Glu Val Glu Leu Pro Tyr Pro Asp Leu Gln
            260                 265                 270

Glu Phe Val Ala Asp Val Asn Val Leu Met Ala Leu Ile Ile Asn Gly
        275                 280                 285

Pro Ile Lys Ser Phe Cys Tyr Arg Arg Leu Gln Tyr Leu Ser Ser Lys
    290                 295                 300

Phe Gln Met His Val Leu Leu Asn Glu Met Lys Glu Leu Ala Ala Gln
305                 310                 315                 320

Lys Lys Val Pro His Arg Asp Phe Tyr Asn Ile Arg Lys Val Asp Thr
                325                 330                 335

His Ile His Ala Ser Ser Cys Met Asn Gln Lys His Leu Leu Arg Phe
            340                 345                 350
```

```
Ile Lys Arg Ala Met Lys Arg His Leu Glu Glu Ile Val His Val Glu
        355                 360                 365

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

Thr Ala Tyr Asp Leu Ser Val Asp Thr Leu Asp Val His Ala Asp Arg
385                 390                 395                 400

Asn Thr Phe His Arg Phe Asp Lys Phe Asn Ala Lys Tyr Asn Pro Ile
                405                 410                 415

Gly Glu Ser Val Leu Arg Glu Ile Phe Ile Lys Thr Asp Asn Arg Val
            420                 425                 430

Ser Gly Lys Tyr Phe Ala His Ile Ile Lys Glu Val Met Ser Asp Leu
        435                 440                 445

Glu Glu Ser Lys Tyr Gln Asn Ala Glu Leu Arg Leu Ser Ile Tyr Gly
    450                 455                 460

Arg Ser Arg Asp Glu Trp Asp Lys Leu Ala Arg Trp Ala Val Met His
465                 470                 475                 480

Arg Val His Ser Pro Asn Val Arg Trp Leu Val Gln Val Pro Arg Leu
                485                 490                 495

Phe Asp Val Tyr Arg Thr Lys Gly Gln Leu Ala Asn Phe Gln Glu Met
            500                 505                 510

Leu Glu Asn Ile Phe Leu Pro Leu Phe Glu Ala Thr Val His Pro Ala
        515                 520                 525

Ser His Pro Glu Leu His Leu Phe Leu Glu His Val Asp Gly Phe Asp
    530                 535                 540

Ser Val Asp Asp Glu Ser Lys Pro Glu Asn His Val Phe Asn Leu Glu
545                 550                 555                 560

Ser Pro Leu Pro Glu Ala Trp Val Glu Glu Asp Asn Pro Pro Tyr Ala
                565                 570                 575

Tyr Tyr Leu Tyr Tyr Thr Phe Ala Asn Met Ala Met Leu Asn His Leu
```

580 585 590

Arg Arg Gln Arg Gly Phe His Thr Phe Val Leu Arg Pro His Cys Gly
595 600 605

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

Asn Ile Ser His Gly Leu Leu Leu Arg Lys Ala Pro Val Leu Gln Tyr
625 630 635 640

Leu Tyr Tyr Leu Ala Gln Ile Gly Ile Ala Met Ser Pro Leu Ser Asn
645 650 655

Asn Ser Leu Phe Leu Ser Tyr His Arg Asn Pro Leu Pro Glu Tyr Leu
660 665 670

Ser Arg Gly Leu Met Val Ser Leu Ser Thr Asp Asp Pro Leu Gln Phe
675 680 685

His Phe Thr Lys Glu Pro Leu Met Glu Glu Tyr Ser Ile Ala Thr Gln
690 695 700

Val Trp Lys Leu Ser Ser Cys Asp Met Cys Glu Leu Ala Arg Asn Ser
705 710 715 720

Val Leu Met Ser Gly Phe Ser His Lys Val Lys Ser His Trp Leu Gly
725 730 735

Pro Asn Tyr Thr Lys Glu Gly Pro Glu Gly Asn Asp Ile Arg Arg Thr
740 745 750

Asn Val Pro Asp Ile Arg Val Gly Tyr Arg Tyr Glu Thr Leu Cys Gln
755 760 765

Glu Leu Ala Leu Ile Thr Gln Ala Val Gln Ser Glu Met Leu Glu Thr
770 775 780

Ile Pro Glu Glu Ala Gly Ile Thr Met Ser Pro Gly Pro Gln
785 790 795

<210> 2740
<211> 804

<212> PRT
<213> Homo sapiens

<220>
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<220>
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adenosine monophosphate deaminase 2; "

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<223> /note="Uniprot ID: Q01433; "

<220>
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Met Trp Gln Ser Gln Ala Pro Ala Gly Ala Ala Gln Thr Pro Pro Leu
1   5   10   15

Ser Pro Pro Trp Ser Gln Pro Trp His Pro Ile His Leu Ala Leu Ala
            20   25   30

Ser Pro Arg Pro Asn Ile Pro Leu Arg Ser Gly Pro Ala Cys Arg Pro
        35   40   45

Pro Leu Gln Leu Gln Glu Leu Phe Thr Arg Ser Leu Ala Glu Ser Glu
    50   55   60

Leu Arg Ser Ala Pro Tyr Glu Phe Pro Glu Glu Ser Pro Ile Glu Gln
65   70   75   80

Leu Glu Glu Arg Arg Gln Arg Leu Glu Arg Gln Ile Ser Gln Asp Val
                85   90   95

Lys Leu Glu Pro Asp Ile Leu Leu Arg Ala Lys Gln Asp Phe Leu Lys
            100   105   110

Thr Asp Ser Asp Ser Asp Leu Gln Leu Tyr Lys Glu Gln Gly Glu Gly
        115   120   125

```
Gln Gly Asp Arg Ser Leu Arg Glu Arg Asp Val Leu Glu Arg Glu Phe
    130                 135                 140

Gln Arg Val Thr Ile Ser Gly Glu Glu Lys Cys Gly Val Pro Phe Thr
145                 150                 155                 160

Asp Leu Leu Asp Ala Ala Lys Ser Val Val Arg Ala Leu Phe Ile Arg
                165                 170                 175

Glu Lys Tyr Met Ala Leu Ser Leu Gln Ser Phe Cys Pro Thr Thr Arg
            180                 185                 190

Arg Tyr Leu Gln Gln Leu Ala Glu Lys Pro Leu Glu Thr Arg Thr Tyr
        195                 200                 205

Glu Gln Gly Pro Asp Thr Pro Val Ser Ala Asp Ala Pro Val His Pro
    210                 215                 220

Pro Ala Leu Glu Gln His Pro Tyr Glu His Cys Glu Pro Ser Thr Met
225                 230                 235                 240

Pro Gly Asp Leu Gly Leu Gly Leu Arg Met Val Arg Gly Val Val His
                245                 250                 255

Val Tyr Thr Arg Arg Glu Pro Asp Glu His Cys Ser Glu Val Glu Leu
            260                 265                 270

Pro Tyr Pro Asp Leu Gln Glu Phe Val Ala Asp Val Asn Val Leu Met
        275                 280                 285

Ala Leu Ile Ile Asn Gly Pro Ile Lys Ser Phe Cys Tyr Arg Arg Leu
    290                 295                 300

Gln Tyr Leu Ser Ser Lys Phe Gln Met His Val Leu Leu Asn Glu Met
305                 310                 315                 320

Lys Glu Leu Ala Ala Gln Lys Lys Val Pro His Arg Asp Phe Tyr Asn
                325                 330                 335

Ile Arg Lys Val Asp Thr His Ile His Ala Ser Ser Cys Met Asn Gln
            340                 345                 350

Lys His Leu Leu Arg Phe Ile Lys Arg Ala Met Lys Arg His Leu Glu
```

```
        355                 360                 365

Glu Ile Val His Val Glu Gln Gly Arg Glu Gln Thr Leu Arg Glu Val
    370                 375                 380

Phe Glu Ser Met Asn Leu Thr Ala Tyr Asp Leu Ser Val Asp Thr Leu
385                 390                 395                 400

Asp Val His Ala Asp Arg Asn Thr Phe His Arg Phe Asp Lys Phe Asn
                405                 410                 415

Ala Lys Tyr Asn Pro Ile Gly Glu Ser Val Leu Arg Glu Ile Phe Ile
            420                 425                 430

Lys Thr Asp Asn Arg Val Ser Gly Lys Tyr Phe Ala His Ile Ile Lys
        435                 440                 445

Glu Val Met Ser Asp Leu Glu Glu Ser Lys Tyr Gln Asn Ala Glu Leu
    450                 455                 460

Arg Leu Ser Ile Tyr Gly Arg Ser Arg Asp Glu Trp Asp Lys Leu Ala
465                 470                 475                 480

Arg Trp Ala Val Met His Arg Val His Ser Pro Asn Val Arg Trp Leu
                485                 490                 495

Val Gln Val Pro Arg Leu Phe Asp Val Tyr Arg Thr Lys Gly Gln Leu
            500                 505                 510

Ala Asn Phe Gln Glu Met Leu Glu Asn Ile Phe Leu Pro Leu Phe Glu
        515                 520                 525

Ala Thr Val His Pro Ala Ser His Pro Glu Leu His Leu Phe Leu Glu
    530                 535                 540

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

His Val Phe Asn Leu Glu Ser Pro Leu Pro Glu Ala Trp Val Glu Glu
                565                 570                 575

Asp Asn Pro Pro Tyr Ala Tyr Tyr Leu Tyr Tyr Thr Phe Ala Asn Met
            580                 585                 590
```

```
Ala Met Leu Asn His Leu Arg Arg Gln Arg Gly Phe His Thr Phe Val
        595                 600                 605

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

Ala Phe Met Leu Ala Glu Asn Ile Ser His Gly Leu Leu Leu Arg Lys
625                 630                 635                 640

Ala Pro Val Leu Gln Tyr Leu Tyr Tyr Leu Ala Gln Ile Gly Ile Ala
                645                 650                 655

Met Ser Pro Leu Ser Asn Asn Ser Leu Phe Leu Ser Tyr His Arg Asn
            660                 665                 670

Pro Leu Pro Glu Tyr Leu Ser Arg Gly Leu Met Val Ser Leu Ser Thr
        675                 680                 685

Asp Asp Pro Leu Gln Phe His Phe Thr Lys Glu Pro Leu Met Glu Glu
    690                 695                 700

Tyr Ser Ile Ala Thr Gln Val Trp Lys Leu Ser Ser Cys Asp Met Cys
705                 710                 715                 720

Glu Leu Ala Arg Asn Ser Val Leu Met Ser Gly Phe Ser His Lys Val
                725                 730                 735

Lys Ser His Trp Leu Gly Pro Asn Tyr Thr Lys Glu Gly Pro Glu Gly
            740                 745                 750

Asn Asp Ile Arg Arg Thr Asn Val Pro Asp Ile Arg Val Gly Tyr Arg
        755                 760                 765

Tyr Glu Thr Leu Cys Gln Glu Leu Ala Leu Ile Thr Gln Ala Val Gln
    770                 775                 780

Ser Glu Met Leu Glu Thr Ile Pro Glu Glu Ala Gly Ile Thr Met Ser
785                 790                 795                 800

Pro Gly Pro Gln
```

<210> 2741
<211> 861
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 640; "

<220>
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<223> /note="Gene Symbol: AMPD2; "

<220>
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<223> /note="Gene Name:
adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358855"

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

<400> 2741
Xaa Leu Asp Val Ala Glu Pro Gly Pro Ser Arg Cys Arg Ser Asp Ser
1 5 10 15

Pro Ala Val Ala Ala Val Val Pro Ala Met Ala Ser Tyr Pro Ser Gly
20 25 30

Ser Gly Lys Pro Lys Ala Lys Tyr Pro Phe Lys Lys Arg Ala Ser Leu
35 40 45

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

Pro Leu Gln Ser Ala Arg Ser Leu Pro Gly Pro Ala Pro Cys Leu Lys
65 70 75 80

His Phe Pro Leu Asp Leu Arg Thr Ser Met Asp Gly Lys Cys Lys Glu
85 90 95

Ile Ala Glu Glu Leu Phe Thr Arg Ser Leu Ala Glu Ser Glu Leu Arg
100 105 110

```
Ser Ala Pro Tyr Glu Phe Pro Glu Glu Ser Pro Ile Glu Gln Leu Glu
        115                 120                 125

Glu Arg Arg Gln Arg Leu Glu Arg Gln Ile Ser Gln Asp Val Lys Leu
    130                 135                 140

Glu Pro Asp Ile Leu Leu Arg Ala Lys Gln Asp Phe Leu Lys Thr Asp
145                 150                 155                 160

Ser Asp Ser Asp Leu Gln Leu Tyr Lys Glu Gln Gly Glu Gly Gln Gly
                165                 170                 175

Asp Arg Ser Leu Arg Glu Arg Asp Val Leu Glu Arg Glu Phe Gln Arg
            180                 185                 190

Val Thr Ile Ser Gly Glu Glu Lys Cys Gly Val Pro Phe Thr Asp Leu
        195                 200                 205

Leu Asp Ala Ala Lys Ser Val Val Arg Ala Leu Phe Ile Arg Glu Lys
    210                 215                 220

Tyr Met Ala Leu Ser Leu Gln Ser Phe Cys Pro Thr Thr Arg Arg Tyr
225                 230                 235                 240

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

Gly Pro Asp Thr Pro Val Ser Ala Asp Ala Pro Val His Pro Pro Ala
            260                 265                 270

Leu Glu Gln His Pro Tyr Glu His Cys Glu Pro Ser Thr Met Pro Gly
        275                 280                 285

Asp Leu Gly Leu Gly Leu Arg Met Val Arg Gly Val Val His Val Tyr
    290                 295                 300

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

Pro Asp Leu Gln Glu Phe Val Ala Asp Val Asn Val Leu Met Ala Leu
                325                 330                 335
```

```
Ile Ile Asn Gly Pro Ile Lys Ser Phe Cys Tyr Arg Arg Leu Gln Tyr
            340                 345                 350

Leu Ser Ser Lys Phe Gln Met His Val Leu Leu Asn Glu Met Lys Glu
        355                 360                 365

Leu Ala Ala Gln Lys Lys Val Pro His Arg Asp Phe Tyr Asn Ile Arg
    370                 375                 380

Lys Val Asp Thr His Ile His Ala Ser Ser Cys Met Asn Gln Lys His
385                 390                 395                 400

Leu Leu Arg Phe Ile Lys Arg Ala Met Lys Arg His Leu Glu Glu Ile
                405                 410                 415

Val His Val Glu Gln Gly Arg Glu Gln Thr Leu Arg Glu Val Phe Glu
            420                 425                 430

Ser Met Asn Leu Thr Ala Tyr Asp Leu Ser Val Asp Thr Leu Asp Val
        435                 440                 445

His Ala Asp Arg Asn Thr Phe His Arg Phe Asp Lys Phe Asn Ala Lys
    450                 455                 460

Tyr Asn Pro Ile Gly Glu Ser Val Leu Arg Glu Ile Phe Ile Lys Thr
465                 470                 475                 480

Asp Asn Arg Val Ser Gly Lys Tyr Phe Ala His Ile Ile Lys Glu Val
                485                 490                 495

Met Ser Asp Leu Glu Glu Ser Lys Tyr Gln Asn Ala Glu Leu Arg Leu
            500                 505                 510

Ser Ile Tyr Gly Arg Ser Arg Asp Glu Trp Asp Lys Leu Ala Arg Trp
        515                 520                 525

Ala Val Met His Arg Val His Ser Pro Asn Val Arg Trp Leu Val Gln
    530                 535                 540

Val Pro Arg Leu Phe Asp Val Tyr Arg Thr Lys Gly Gln Leu Ala Asn
545                 550                 555                 560

Phe Gln Glu Met Leu Glu Asn Ile Phe Leu Pro Leu Phe Glu Ala Thr
```

565 570 575

Val His Pro Ala Ser His Pro Glu Leu His Leu Phe Leu Glu His Val
580 585 590

Asp Gly Phe Asp Ser Val Asp Asp Glu Ser Lys Pro Glu Asn His Val
595 600 605

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

Pro Pro Tyr Ala Tyr Tyr Leu Tyr Tyr Thr Phe Ala Asn Met Ala Met
625 630 635 640

Leu Asn His Leu Arg Arg Gln Arg Gly Phe His Thr Phe Val Leu Arg
645 650 655

Pro His Cys Gly Glu Ala Gly Pro Ile His His Leu Val Ser Ala Phe
660 665 670

Met Leu Ala Glu Asn Ile Ser His Gly Leu Leu Leu Arg Lys Ala Pro
675 680 685

Val Leu Gln Tyr Leu Tyr Tyr Leu Ala Gln Ile Gly Ile Ala Met Ser
690 695 700

Pro Leu Ser Asn Asn Ser Leu Phe Leu Ser Tyr His Arg Asn Pro Leu
705 710 715 720

Pro Glu Tyr Leu Ser Arg Gly Leu Met Val Ser Leu Ser Thr Asp Asp
725 730 735

Pro Leu Gln Phe His Phe Thr Lys Val Arg Ala Gln Gln Ala Ala Arg
740 745 750

Arg Ala Gly Glu Pro Leu Met Glu Glu Tyr Ser Ile Ala Thr Gln Val
755 760 765

Trp Lys Leu Ser Ser Cys Asp Met Cys Glu Leu Ala Arg Asn Ser Val
770 775 780

Leu Met Ser Gly Phe Ser His Lys Val Lys Ser His Trp Leu Gly Pro
785 790 795 800

```
Asn Tyr Thr Lys Glu Gly Pro Glu Gly Asn Asp Ile Arg Arg Thr Asn
                805                 810                 815

Val Pro Asp Ile Arg Val Gly Tyr Arg Tyr Glu Thr Leu Cys Gln Glu
            820                 825                 830

Leu Ala Leu Ile Thr Gln Ala Val Gln Ser Glu Met Leu Glu Thr Ile
        835                 840                 845

Pro Glu Glu Ala Gly Ile Thr Met Ser Pro Gly Pro Gln
    850                 855                 860


<210> 2742
<211> 760
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 640; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD2; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q01433; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377292"

<400> 2742
Met Leu Thr Phe Leu Pro Ser Pro Gln Glu Leu Phe Thr Arg Ser Leu
1               5                   10                  15

Ala Glu Ser Glu Leu Arg Ser Ala Pro Tyr Glu Phe Pro Glu Glu Ser
            20                  25                  30

Pro Ile Glu Gln Leu Glu Glu Arg Arg Gln Arg Leu Glu Arg Gln Ile
        35                  40                  45
```

```
Ser Gln Asp Val Lys Leu Glu Pro Asp Ile Leu Leu Arg Ala Lys Gln
    50                  55                  60

Asp Phe Leu Lys Thr Asp Ser Asp Ser Asp Leu Gln Leu Tyr Lys Glu
65                  70                  75                  80

Gln Gly Glu Gly Gln Gly Asp Arg Ser Leu Arg Glu Arg Asp Val Leu
                85                  90                  95

Glu Arg Glu Phe Gln Arg Val Thr Ile Ser Gly Glu Glu Lys Cys Gly
            100                 105                 110

Val Pro Phe Thr Asp Leu Leu Asp Ala Ala Lys Ser Val Val Arg Ala
        115                 120                 125

Leu Phe Ile Arg Glu Lys Tyr Met Ala Leu Ser Leu Gln Ser Phe Cys
    130                 135                 140

Pro Thr Thr Arg Arg Tyr Leu Gln Gln Leu Ala Glu Lys Pro Leu Glu
145                 150                 155                 160

Thr Arg Thr Tyr Glu Gln Gly Pro Asp Thr Pro Val Ser Ala Asp Ala
                165                 170                 175

Pro Val His Pro Pro Ala Leu Glu Gln His Pro Tyr Glu His Cys Glu
            180                 185                 190

Pro Ser Thr Met Pro Gly Asp Leu Gly Leu Gly Leu Arg Met Val Arg
        195                 200                 205

Gly Val Val His Val Tyr Thr Arg Arg Glu Pro Asp Glu His Cys Ser
    210                 215                 220

Glu Val Glu Leu Pro Tyr Pro Asp Leu Gln Glu Phe Val Ala Asp Val
225                 230                 235                 240

Asn Val Leu Met Ala Leu Ile Ile Asn Gly Pro Ile Lys Ser Phe Cys
                245                 250                 255

Tyr Arg Arg Leu Gln Tyr Leu Ser Ser Lys Phe Gln Met His Val Leu
            260                 265                 270

Leu Asn Glu Met Lys Glu Leu Ala Ala Gln Lys Lys Val Pro His Arg
```

```
        275                 280                 285

Asp Phe Tyr Asn Ile Arg Lys Val Asp Thr His Ile His Ala Ser Ser
    290                 295                 300

Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys Arg Ala Met Lys
305                 310                 315                 320

Arg His Leu Glu Glu Ile Val His Val Glu Gln Gly Arg Glu Gln Thr
                325                 330                 335

Leu Arg Glu Val Phe Glu Ser Met Asn Leu Thr Ala Tyr Asp Leu Ser
            340                 345                 350

Val Asp Thr Leu Asp Val His Ala Asp Arg Asn Thr Phe His Arg Phe
        355                 360                 365

Asp Lys Phe Asn Ala Lys Tyr Asn Pro Ile Gly Glu Ser Val Leu Arg
    370                 375                 380

Glu Ile Phe Ile Lys Thr Asp Asn Arg Val Ser Gly Lys Tyr Phe Ala
385                 390                 395                 400

His Ile Ile Lys Glu Val Met Ser Asp Leu Glu Glu Ser Lys Tyr Gln
                405                 410                 415

Asn Ala Glu Leu Arg Leu Ser Ile Tyr Gly Arg Ser Arg Asp Glu Trp
            420                 425                 430

Asp Lys Leu Ala Arg Trp Ala Val Met His Arg Val His Ser Pro Asn
        435                 440                 445

Val Arg Trp Leu Val Gln Val Pro Arg Leu Phe Asp Val Tyr Arg Thr
    450                 455                 460

Lys Gly Gln Leu Ala Asn Phe Gln Glu Met Leu Glu Asn Ile Phe Leu
465                 470                 475                 480

Pro Leu Phe Glu Ala Thr Val His Pro Ala Ser His Pro Glu Leu His
                485                 490                 495

Leu Phe Leu Glu His Val Asp Gly Phe Asp Ser Val Asp Asp Glu Ser
            500                 505                 510
```

```
Lys Pro Glu Asn His Val Phe Asn Leu Glu Ser Pro Leu Pro Glu Ala
        515                 520                 525

Trp Val Glu Glu Asp Asn Pro Pro Tyr Ala Tyr Tyr Leu Tyr Tyr Thr
    530                 535                 540

Phe Ala Asn Met Ala Met Leu Asn His Leu Arg Arg Gln Arg Gly Phe
545                 550                 555                 560

His Thr Phe Val Leu Arg Pro His Cys Gly Glu Ala Gly Pro Ile His
                565                 570                 575

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

Leu Leu Arg Lys Ala Pro Val Leu Gln Tyr Leu Tyr Tyr Leu Ala Gln
        595                 600                 605

Ile Gly Ile Ala Met Ser Pro Leu Ser Asn Asn Ser Leu Phe Leu Ser
    610                 615                 620

Tyr His Arg Asn Pro Leu Pro Glu Tyr Leu Ser Arg Gly Leu Met Val
625                 630                 635                 640

Ser Leu Ser Thr Asp Asp Pro Leu Gln Phe His Phe Thr Lys Glu Pro
                645                 650                 655

Leu Met Glu Glu Tyr Ser Ile Ala Thr Gln Val Trp Lys Leu Ser Ser
            660                 665                 670

Cys Asp Met Cys Glu Leu Ala Arg Asn Ser Val Leu Met Ser Gly Phe
        675                 680                 685

Ser His Lys Val Lys Ser His Trp Leu Gly Pro Asn Tyr Thr Lys Glu
    690                 695                 700

Gly Pro Glu Gly Asn Asp Ile Arg Arg Thr Asn Val Pro Asp Ile Arg
705                 710                 715                 720

Val Gly Tyr Arg Tyr Glu Thr Leu Cys Gln Glu Leu Ala Leu Ile Thr
                725                 730                 735
```

```
Gln Ala Val Gln Ser Glu Met Leu Glu Thr Ile Pro Glu Glu Ala Gly
            740                 745                 750

Ile Thr Met Ser Pro Gly Pro Gln
        755                 760


<210> 2743
<211> 195
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 640; "

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<221> source
<223> /note="Gene Symbol: AMPD2; "

<220>
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<223> /note="Gene Name:
      adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431904"

<400> 2743
Glu Cys Val Leu Pro Gly Leu Arg Ile Asp Ala Gly Leu Cys Leu Ala
1               5                   10                  15

Thr Ser Arg Pro Arg Cys Trp Ser Pro Gln Arg Gly Pro Pro Pro Pro
            20                  25                  30

Ala Ser Ser Leu Trp Trp Cys Pro Ser Thr Ser Val Pro Gly Thr Ala
        35                  40                  45

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

Ala Arg Ser Leu Pro Gly Pro Ala Pro Cys Leu Lys His Phe Pro Leu
65                  70                  75                  80

Asp Leu Arg Thr Ser Met Asp Gly Lys Cys Lys Glu Ile Ala Glu Glu
                85                  90                  95

Leu Phe Thr Arg Ser Leu Ala Glu Ser Glu Leu Arg Ser Ala Pro Tyr
```

```
            100                 105                 110

Glu Phe Pro Glu Glu Ser Pro Ile Glu Gln Leu Glu Glu Arg Arg Gln
        115                 120                 125

Arg Leu Glu Arg Gln Ile Ser Gln Asp Val Lys Leu Glu Pro Asp Ile
    130                 135                 140

Leu Leu Arg Ala Lys Gln Asp Phe Leu Lys Thr Asp Ser Asp Ser Asp
145                 150                 155                 160

Leu Gln Leu Tyr Lys Glu Gln Gly Glu Gly Gln Gly Asp Arg Ser Leu
                165                 170                 175

Arg Glu Arg Asp Val Leu Glu Arg Glu Phe Gln Arg Val Thr Ile Ser
            180                 185                 190

Gly Glu Glu
        195


<210> 2744
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 640; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD2; "

<220>
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<223> /note="Gene Name:
      adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431975"

<400> 2744
Met Asp Gly Lys Cys Lys Glu Ile Ala Glu Glu Leu Phe Thr Arg Ser
1               5                   10                  15

Leu Ala Glu Ser Glu Leu Arg Ser Ala Pro Tyr Glu Phe Pro Glu Glu
            20                  25                  30
```

```
Ser Pro Ile Glu Gln Leu Glu Glu Arg Arg Gln Arg Leu Glu Arg Gln
        35                  40                  45

Ile Ser Gln Asp Val Lys Leu Glu Pro Asp Ile Leu Leu Arg Ala Lys
    50                  55                  60

Gln Asp Phe Leu Lys Thr Asp Ser Asp Ser Asp Leu Gln Leu Tyr Lys
65                  70                  75                  80

Glu Gln Gly Glu Gly Gln Gly
                85
```

<210> 2745
<211> 1
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 640; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD2; "

<220>
<221> source
<223> /note="Gene Name:
adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432344"

<400> 2745
Met
1

<210> 2746
<211> 103
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433739"

<400> 2746
Met Ala Ser Glu Ala Arg Gly Gly Leu Gly Ala Pro Pro Leu Gln Ser
1 5 10 15

Ala Arg Ser Leu Pro Gly Pro Ala Pro Cys Leu Lys His Phe Pro Leu
20 25 30

Asp Leu Arg Thr Ser Met Asp Gly Lys Cys Lys Glu Ile Ala Glu Glu
35 40 45

Leu Phe Thr Arg Ser Leu Ala Glu Ser Glu Leu Arg Ser Ala Pro Tyr
50 55 60

Glu Phe Pro Glu Glu Ser Pro Ile Glu Gln Leu Glu Glu Arg Arg Gln
65 70 75 80

Arg Leu Glu Arg Gln Ile Ser Gln Asp Val Lys Leu Glu Pro Asp Ile
85 90 95

Leu Leu Arg Ala Lys Gln Asp
100

<210> 2747
<211> 83
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 640; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD2; "

<220>
<221> source
<223> /note="Gene Name:
adenosine monophosphate deaminase 2; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000434891"

<400> 2747
Ala Val Ala Ala Val Val Pro Ala Met Ala Ser Tyr Pro Ser Gly Ser
1   5   10   15

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

Ala Ser Thr Ala Ala Pro Asp Asp Trp Cys Lys Val Ser Thr Val Leu
        35   40   45

Arg Val Phe Ser Val Pro Arg Ser Val Pro Ser Arg Lys Gly Val Pro
    50   55   60

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

Ile Arg Ile

<210> 2748
<211> 1
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 640; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD2; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436303"

<400> 2748
Met
1

<210> 2749
<211> 879

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 640; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD2; "

<220>
<221> source
<223> /note="Gene Name:
adenosine monophosphate deaminase 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q01433; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436541"

<400> 2749

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

```
Glu Leu Phe Thr Arg Ser Leu Ala Glu Ser Glu Leu Arg Ser Ala Pro
    130                 135                 140

Tyr Glu Phe Pro Glu Glu Ser Pro Ile Glu Gln Leu Glu Glu Arg Arg
145                 150                 155                 160

Gln Arg Leu Glu Arg Gln Ile Ser Gln Asp Val Lys Leu Glu Pro Asp
                165                 170                 175

Ile Leu Leu Arg Ala Lys Gln Asp Phe Leu Lys Thr Asp Ser Asp Ser
            180                 185                 190

Asp Leu Gln Leu Tyr Lys Glu Gln Gly Glu Gly Gln Gly Asp Arg Ser
        195                 200                 205

Leu Arg Glu Arg Asp Val Leu Glu Arg Glu Phe Gln Arg Val Thr Ile
    210                 215                 220

Ser Gly Glu Glu Lys Cys Gly Val Pro Phe Thr Asp Leu Leu Asp Ala
225                 230                 235                 240

Ala Lys Ser Val Val Arg Ala Leu Phe Ile Arg Glu Lys Tyr Met Ala
                245                 250                 255

Leu Ser Leu Gln Ser Phe Cys Pro Thr Thr Arg Arg Tyr Leu Gln Gln
            260                 265                 270

Leu Ala Glu Lys Pro Leu Glu Thr Arg Thr Tyr Glu Gln Gly Pro Asp
        275                 280                 285

Thr Pro Val Ser Ala Asp Ala Pro Val His Pro Pro Ala Leu Glu Gln
    290                 295                 300

His Pro Tyr Glu His Cys Glu Pro Ser Thr Met Pro Gly Asp Leu Gly
305                 310                 315                 320

Leu Gly Leu Arg Met Val Arg Gly Val Val His Val Tyr Thr Arg Arg
                325                 330                 335

Glu Pro Asp Glu His Cys Ser Glu Val Glu Leu Pro Tyr Pro Asp Leu
            340                 345                 350

Gln Glu Phe Val Ala Asp Val Asn Val Leu Met Ala Leu Ile Ile Asn
```

```
        355                 360                 365

Gly Pro Ile Lys Ser Phe Cys Tyr Arg Arg Leu Gln Tyr Leu Ser Ser
    370                 375                 380

Lys Phe Gln Met His Val Leu Leu Asn Glu Met Lys Glu Leu Ala Ala
385                 390                 395                 400

Gln Lys Lys Val Pro His Arg Asp Phe Tyr Asn Ile Arg Lys Val Asp
                405                 410                 415

Thr His Ile His Ala Ser Ser Cys Met Asn Gln Lys His Leu Leu Arg
            420                 425                 430

Phe Ile Lys Arg Ala Met Lys Arg His Leu Glu Glu Ile Val His Val
        435                 440                 445

Glu Gln Gly Arg Glu Gln Thr Leu Arg Glu Val Phe Glu Ser Met Asn
    450                 455                 460

Leu Thr Ala Tyr Asp Leu Ser Val Asp Thr Leu Asp Val His Ala Asp
465                 470                 475                 480

Arg Asn Thr Phe His Arg Phe Asp Lys Phe Asn Ala Lys Tyr Asn Pro
                485                 490                 495

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

Val Ser Gly Lys Tyr Phe Ala His Ile Ile Lys Glu Val Met Ser Asp
        515                 520                 525

Leu Glu Glu Ser Lys Tyr Gln Asn Ala Glu Leu Arg Leu Ser Ile Tyr
    530                 535                 540

Gly Arg Ser Arg Asp Glu Trp Asp Lys Leu Ala Arg Trp Ala Val Met
545                 550                 555                 560

His Arg Val His Ser Pro Asn Val Arg Trp Leu Val Gln Val Pro Arg
                565                 570                 575

Leu Phe Asp Val Tyr Arg Thr Lys Gly Gln Leu Ala Asn Phe Gln Glu
            580                 585                 590
```

Met Leu Glu Asn Ile Phe Leu Pro Leu Phe Glu Ala Thr Val His Pro
595 600 605

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

Asp Ser Val Asp Asp Glu Ser Lys Pro Glu Asn His Val Phe Asn Leu
625 630 635 640

Glu Ser Pro Leu Pro Glu Ala Trp Val Glu Glu Asp Asn Pro Pro Tyr
645 650 655

Ala Tyr Tyr Leu Tyr Tyr Thr Phe Ala Asn Met Ala Met Leu Asn His
660 665 670

Leu Arg Arg Gln Arg Gly Phe His Thr Phe Val Leu Arg Pro His Cys
675 680 685

Gly Glu Ala Gly Pro Ile His His Leu Val Ser Ala Phe Met Leu Ala
690 695 700

Glu Asn Ile Ser His Gly Leu Leu Leu Arg Lys Ala Pro Val Leu Gln
705 710 715 720

Tyr Leu Tyr Tyr Leu Ala Gln Ile Gly Ile Ala Met Ser Pro Leu Ser
725 730 735

Asn Asn Ser Leu Phe Leu Ser Tyr His Arg Asn Pro Leu Pro Glu Tyr
740 745 750

Leu Ser Arg Gly Leu Met Val Ser Leu Ser Thr Asp Asp Pro Leu Gln
755 760 765

Phe His Phe Thr Lys Glu Pro Leu Met Glu Glu Tyr Ser Ile Ala Thr
770 775 780

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

Ser Val Leu Met Ser Gly Phe Ser His Lys Val Lys Ser His Trp Leu
805 810 815

Gly Pro Asn Tyr Thr Lys Glu Gly Pro Glu Gly Asn Asp Ile Arg Arg
820 825 830

Thr Asn Val Pro Asp Ile Arg Val Gly Tyr Arg Tyr Glu Thr Leu Cys
835 840 845

Gln Glu Leu Ala Leu Ile Thr Gln Ala Val Gln Ser Glu Met Leu Glu
850 855 860

Thr Ile Pro Glu Glu Ala Gly Ile Thr Met Ser Pro Gly Pro Gln
865 870 875

<210> 2750
<211> 231
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<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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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 2750
Xaa Glu Leu His Leu Phe Leu Glu His Val Asp Gly Phe Asp Ser Val
1 5 10 15

Asp Asp Glu Ser Lys Pro Glu Asn His Val Phe Asn Leu Glu Ser Pro
20 25 30

Leu Pro Glu Ala Trp Val Glu Glu Asp Asn Pro Pro Tyr Ala Tyr Tyr
35 40 45

```
Leu Tyr Tyr Thr Phe Ala Asn Met Ala Met Leu Asn His Leu Arg Arg
    50                  55                  60

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

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

Ser His Gly Leu Leu Leu Arg Lys Ala Pro Val Leu Gln Tyr Leu Tyr
            100                 105                 110

Tyr Leu Ala Gln Ile Gly Ile Ala Met Ser Pro Leu Ser Asn Asn Ser
        115                 120                 125

Leu Phe Leu Ser Tyr His Arg Asn Pro Leu Pro Glu Tyr Leu Ser Arg
    130                 135                 140

Gly Leu Met Val Ser Leu Ser Thr Asp Asp Pro Leu Gln Phe His Phe
145                 150                 155                 160

Thr Lys Val Lys Ser His Trp Leu Gly Pro Asn Tyr Thr Lys Glu Gly
                165                 170                 175

Pro Glu Gly Asn Asp Ile Arg Arg Thr Asn Val Pro Asp Ile Arg Val
            180                 185                 190

Gly Tyr Arg Tyr Glu Thr Leu Cys Gln Glu Leu Ala Leu Ile Thr Gln
        195                 200                 205

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

Thr Met Ser Pro Gly Pro Gln
225                 230


<210> 2751
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<220>
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Met Asp Gly Lys Cys Lys Glu Ile Ala Glu Glu Leu Phe Thr Arg Ser
1   5   10   15

Leu Ala Glu Ser Glu Leu Arg Ser Ala Pro Tyr Glu Phe Pro Glu Glu
            20   25   30

Ser Pro Ile Glu Gln Leu Glu Glu Arg Arg Gln Arg Leu Glu Arg Gln
        35   40   45

Ile Ser Gln Asp Val Lys Leu Glu Pro Asp Ile Leu Leu Arg Ala Lys
    50   55   60

Gln Asp Phe Leu Lys Thr Asp Ser Asp Ser Asp Leu Gln Leu Tyr Lys
65   70   75   80

Glu Gln Gly Glu Gly Gln Gly Asp Arg Ser Leu Arg Glu Arg Asp Val
                85   90   95

Leu Glu Arg Glu Phe Gln Arg Val Thr Ile Ser Gly Glu Glu Lys Cys
            100   105   110

Gly Val Pro Phe Thr Asp Leu Leu Asp Ala Ala Lys Ser Val Val Arg
        115   120   125

Ala Leu Phe Ile Arg Glu Lys Tyr Met Ala Leu Ser Leu Gln Ser Phe
    130   135   140

Cys Pro Thr Thr Arg Arg Tyr Leu Gln Gln Leu Ala Glu Lys Pro Leu
145   150   155   160

```
Glu Thr Arg Thr Tyr Glu Gln Gly Pro Asp Thr Pro Val Ser Ala Asp
                165                 170                 175

Ala Pro Val His Pro Pro Ala Leu Glu Gln His Pro Tyr Glu His Cys
            180                 185                 190

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

Arg Gly Val Val His Val Tyr Thr Arg Arg Glu Pro Asp Glu His Cys
    210                 215                 220

Ser Glu Val Glu Leu Pro Tyr Pro Asp Leu Gln Glu Phe Val Ala Asp
225                 230                 235                 240

Val Asn Val Leu Met Ala Leu Ile Ile Asn Gly Pro Ile Lys Ser Phe
                245                 250                 255

Cys Tyr Arg Arg Leu Gln Tyr Leu Ser Ser Lys Phe Gln Met His Val
            260                 265                 270

Leu Leu Asn Glu Met Lys Glu Leu Ala Ala Gln Lys Lys Val Pro His
        275                 280                 285

Arg Asp Phe Tyr Asn Ile Arg Lys Val Asp Thr His Ile His Ala Ser
    290                 295                 300

Ser Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys Arg Ala Met
305                 310                 315                 320

Lys Arg His Leu Glu Glu Ile Val His Val Glu Gln Gly Arg Glu Gln
                325                 330                 335

Thr Leu Arg Glu Val Phe Glu Ser Met Asn Leu Thr Ala Tyr Asp Leu
            340                 345                 350

Ser Val Asp Thr Leu Asp Val His Ala Asp Arg Asn Thr Phe His Arg
        355                 360                 365

Phe Asp Lys Phe Asn Ala Lys Tyr Asn Pro Ile Gly Glu Ser Val Leu
    370                 375                 380
```

```
Arg Glu Ile Phe Ile Lys Thr Asp Asn Arg Val Ser Gly Lys Tyr Phe
385                 390                 395                 400

Ala His Ile Ile Lys Glu Val Met Ser Asp Leu Glu Glu Ser Lys Tyr
                405                 410                 415

Gln Asn Ala Glu Leu Arg Leu Ser Ile Tyr Gly Arg Ser Arg Asp Glu
            420                 425                 430

Trp Asp Lys Leu Ala Arg Trp Ala Val Met His Arg Val His Ser Pro
        435                 440                 445

Asn Val Arg Trp Leu Val Gln Val Pro Arg Leu Phe Asp Val Tyr Arg
    450                 455                 460

Thr Lys Gly Gln Leu Ala Asn Phe Gln Glu Met Leu Glu Asn Ile Phe
465                 470                 475                 480

Leu Pro Leu Phe Glu Ala Thr Val His Pro Ala Ser His Pro Glu Leu
                485                 490                 495

His Leu Phe Leu Glu His Val Asp Gly Phe Asp Ser Val Asp Asp Glu
            500                 505                 510

Ser Lys Pro Glu Asn His Val Phe Asn Leu Glu Ser Pro Leu Pro Glu
        515                 520                 525

Ala Trp Val Glu Glu Asp Asn Pro Pro Tyr Ala Tyr Tyr Leu Tyr Tyr
    530                 535                 540

Thr Phe Ala Asn Met Ala Met Leu Asn His Leu Arg Arg Gln Arg Gly
545                 550                 555                 560

Phe His Thr Phe Val Leu Arg Pro His Cys Gly Glu Ala Gly Pro Ile
                565                 570                 575

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

Leu Leu Leu Arg Lys Ala Pro Val Leu Gln Tyr Leu Tyr Tyr Leu Ala
        595                 600                 605
```

```
Gln Ile Gly Ile Ala Met Ser Pro Leu Ser Asn Asn Ser Leu Phe Leu
    610                 615                 620

Ser Tyr His Arg Asn Pro Leu Pro Glu Tyr Leu Ser Arg Gly Leu Met
625                 630                 635                 640

Val Ser Leu Ser Thr Asp Asp Pro Leu Gln Phe His Phe Thr Lys Glu
                645                 650                 655

Pro Leu Met Glu Glu Tyr Ser Ile Ala Thr Gln Val Trp Lys Leu Ser
            660                 665                 670

Ser Cys Asp Met Cys Glu Leu Ala Arg Asn Ser Val Leu Met Ser Gly
        675                 680                 685

Phe Ser His Lys Val Lys Ser His Trp Leu Gly Pro Asn Tyr Thr Lys
    690                 695                 700

Glu Gly Pro Glu Gly Asn Asp Ile Arg Arg Thr Asn Val Pro Asp Ile
705                 710                 715                 720

Arg Val Gly Tyr Arg Tyr Glu Thr Leu Cys Gln Glu Leu Ala Leu Ile
                725                 730                 735

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

Gly Ile Thr Met Ser Pro Gly Pro Gln
        755                 760
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<210> 2752
<211> 767
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q01432; "

<220>
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<223> /note="ENSP ID: ENSP00000379801"

<400> 2752
Met Pro Arg Gln Phe Pro Lys Leu Asn Ile Ser Glu Val Asp Glu Gln
1   5   10   15

Val Arg Leu Leu Ala Glu Lys Val Phe Ala Lys Val Leu Arg Glu Glu
            20   25   30

Asp Ser Lys Asp Ala Leu Ser Leu Phe Thr Val Pro Glu Asp Cys Pro
        35   40   45

Ile Gly Gln Lys Glu Ala Lys Glu Arg Glu Leu Gln Lys Glu Leu Ala
    50   55   60

Glu Gln Lys Ser Val Glu Thr Ala Lys Arg Lys Lys Ser Phe Lys Met
65   70   75   80

Ile Arg Ser Gln Ser Leu Ser Leu Gln Met Pro Pro Gln Gln Asp Trp
                85   90   95

Lys Gly Pro Pro Ala Ala Ser Pro Ala Met Ser Pro Thr Thr Pro Val
            100   105   110

Val Thr Gly Ala Thr Ser Leu Pro Thr Pro Ala Pro Tyr Ala Met Pro
        115   120   125

Glu Phe Gln Arg Val Thr Ile Ser Gly Asp Tyr Cys Ala Gly Ile Thr
    130   135   140

Leu Glu Asp Tyr Glu Gln Ala Ala Lys Ser Leu Ala Lys Ala Leu Met
145   150   155   160

Ile Arg Glu Lys Tyr Ala Arg Leu Ala Tyr His Arg Phe Pro Arg Ile
                165   170   175

Thr Ser Gln Tyr Leu Gly His Pro Arg Ala Asp Thr Ala Pro Pro Glu
            180   185   190

```
Glu Gly Leu Pro Asp Phe His Pro Pro Pro Leu Pro Gln Glu Asp Pro
        195                 200                 205

Tyr Cys Leu Asp Asp Ala Pro Pro Asn Leu Asp Tyr Leu Val His Met
    210                 215                 220

Gln Gly Gly Ile Leu Phe Val Tyr Asp Asn Lys Lys Met Leu Glu His
225                 230                 235                 240

Gln Glu Pro His Ser Leu Pro Tyr Pro Asp Leu Glu Thr Tyr Thr Val
                245                 250                 255

Asp Met Ser His Ile Leu Ala Leu Ile Thr Asp Gly Pro Thr Lys Thr
            260                 265                 270

Tyr Cys His Arg Arg Leu Asn Phe Leu Glu Ser Lys Phe Ser Leu His
        275                 280                 285

Glu Met Leu Asn Glu Met Ser Glu Phe Lys Glu Leu Lys Ser Asn Pro
    290                 295                 300

His Arg Asp Phe Tyr Asn Val Arg Lys Val Asp Thr His Ile His Ala
305                 310                 315                 320

Ala Ala Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys His Thr
                325                 330                 335

Tyr Gln Thr Glu Pro Asp Arg Thr Val Ala Glu Lys Arg Gly Arg Lys
            340                 345                 350

Ile Thr Leu Arg Gln Val Phe Asp Gly Leu His Met Asp Pro Tyr Asp
        355                 360                 365

Leu Thr Val Asp Ser Leu Asp Val His Ala Gly Arg Gln Thr Phe His
    370                 375                 380

Arg Phe Asp Lys Phe Asn Ser Lys Tyr Asn Pro Val Gly Ala Ser Glu
385                 390                 395                 400

Leu Arg Asp Leu Tyr Leu Lys Thr Glu Asn Tyr Leu Gly Gly Glu Tyr
                405                 410                 415
```

```
Phe Ala Arg Met Val Lys Glu Val Ala Arg Glu Leu Glu Glu Ser Lys
            420                 425                 430

Tyr Gln Tyr Ser Glu Pro Arg Leu Ser Ile Tyr Gly Arg Ser Pro Glu
        435                 440                 445

Glu Trp Pro Asn Leu Ala Tyr Trp Phe Ile Gln His Lys Val Tyr Ser
    450                 455                 460

Pro Asn Met Arg Trp Ile Ile Gln Val Pro Arg Ile Tyr Asp Ile Phe
465                 470                 475                 480

Arg Ser Lys Lys Leu Leu Pro Asn Phe Gly Lys Met Leu Glu Asn Ile
                485                 490                 495

Phe Leu Pro Leu Phe Lys Ala Thr Ile Asn Pro Gln Asp His Arg Glu
            500                 505                 510

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

Glu Ser Lys His Ser Asp His Met Phe Ser Asp Lys Ser Pro Asn Pro
    530                 535                 540

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

Tyr Met Tyr Ala Asn Ile Met Val Leu Asn Asn Leu Arg Arg Glu Arg
                565                 570                 575

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

Ile Thr His Leu Val Ser Ala Phe Leu Thr Ala Asp Asn Ile Ser His
        595                 600                 605

Gly Leu Leu Leu Lys Lys Ser Pro Val Leu Gln Tyr Leu Tyr Tyr Leu
    610                 615                 620

Ala Gln Ile Pro Ile Ala Met Ser Pro Leu Ser Asn Asn Ser Leu Phe
625                 630                 635                 640

Leu Glu Tyr Ser Lys Asn Pro Leu Arg Glu Phe Leu His Lys Gly Leu
```

645 650 655

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

Glu Ala Leu Met Glu Glu Tyr Ala Ile Ala Ala Gln Val Trp Lys Leu
675 680 685

Ser Thr Cys Asp Leu Cys Glu Ile Ala Arg Asn Ser Val Leu Gln Ser
690 695 700

Gly Leu Ser His Gln Glu Lys Gln Lys Phe Leu Gly Gln Asn Tyr Tyr
705 710 715 720

Lys Glu Gly Pro Glu Gly Asn Asp Ile Arg Lys Thr Asn Val Ala Gln
725 730 735

Ile Arg Met Ala Phe Arg Tyr Glu Thr Leu Cys Asn Glu Leu Ser Phe
740 745 750

Leu Ser Asp Ala Met Lys Ser Glu Glu Ile Thr Ala Leu Thr Asn
755 760 765

<210> 2753
<211> 776
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<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q01432; "

<220>
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Met Ala Leu Ser Ser Glu Pro Ala Glu Met Pro Arg Gln Phe Pro Lys
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Leu Asn Ile Ser Glu Val Asp Glu Gln Val Arg Leu Leu Ala Glu Lys
20 25 30

Val Phe Ala Lys Val Leu Arg Glu Glu Asp Ser Lys Asp Ala Leu Ser
35 40 45

Leu Phe Thr Val Pro Glu Asp Cys Pro Ile Gly Gln Lys Glu Ala Lys
50 55 60

Glu Arg Glu Leu Gln Lys Glu Leu Ala Glu Gln Lys Ser Val Glu Thr
65 70 75 80

Ala Lys Arg Lys Lys Ser Phe Lys Met Ile Arg Ser Gln Ser Leu Ser
85 90 95

Leu Gln Met Pro Pro Gln Gln Asp Trp Lys Gly Pro Pro Ala Ala Ser
100 105 110

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

Pro Thr Pro Ala Pro Tyr Ala Met Pro Glu Phe Gln Arg Val Thr Ile
130 135 140

Ser Gly Asp Tyr Cys Ala Gly Ile Thr Leu Glu Asp Tyr Glu Gln Ala
145 150 155 160

Ala Lys Ser Leu Ala Lys Ala Leu Met Ile Arg Glu Lys Tyr Ala Arg
165 170 175

Leu Ala Tyr His Arg Phe Pro Arg Ile Thr Ser Gln Tyr Leu Gly His
180 185 190

Pro Arg Ala Asp Thr Ala Pro Pro Glu Glu Gly Leu Pro Asp Phe His
195 200 205

Pro Pro Pro Leu Pro Gln Glu Asp Pro Tyr Cys Leu Asp Asp Ala Pro
210 215 220

```
Pro Asn Leu Asp Tyr Leu Val His Met Gln Gly Gly Ile Leu Phe Val
225                 230                 235                 240

Tyr Asp Asn Lys Lys Met Leu Glu His Gln Glu Pro His Ser Leu Pro
                245                 250                 255

Tyr Pro Asp Leu Glu Thr Tyr Thr Val Asp Met Ser His Ile Leu Ala
            260                 265                 270

Leu Ile Thr Asp Gly Pro Thr Lys Thr Tyr Cys His Arg Arg Leu Asn
        275                 280                 285

Phe Leu Glu Ser Lys Phe Ser Leu His Glu Met Leu Asn Glu Met Ser
    290                 295                 300

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

Arg Lys Val Asp Thr His Ile His Ala Ala Ala Cys Met Asn Gln Lys
                325                 330                 335

His Leu Leu Arg Phe Ile Lys His Thr Tyr Gln Thr Glu Pro Asp Arg
            340                 345                 350

Thr Val Ala Glu Lys Arg Gly Arg Lys Ile Thr Leu Arg Gln Val Phe
        355                 360                 365

Asp Gly Leu His Met Asp Pro Tyr Asp Leu Thr Val Asp Ser Leu Asp
    370                 375                 380

Val His Ala Gly Arg Gln Thr Phe His Arg Phe Asp Lys Phe Asn Ser
385                 390                 395                 400

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

Thr Glu Asn Tyr Leu Gly Gly Glu Tyr Phe Ala Arg Met Val Lys Glu
            420                 425                 430

Val Ala Arg Glu Leu Glu Glu Ser Lys Tyr Gln Tyr Ser Glu Pro Arg
        435                 440                 445

Leu Ser Ile Tyr Gly Arg Ser Pro Glu Glu Trp Pro Asn Leu Ala Tyr
```

```
    450                 455                 460

Trp Phe Ile Gln His Lys Val Tyr Ser Pro Asn Met Arg Trp Ile Ile
465                 470                 475                 480

Gln Val Pro Arg Ile Tyr Asp Ile Phe Arg Ser Lys Lys Leu Leu Pro
                485                 490                 495

Asn Phe Gly Lys Met Leu Glu Asn Ile Phe Leu Pro Leu Phe Lys Ala
            500                 505                 510

Thr Ile Asn Pro Gln Asp His Arg Glu Leu His Leu Phe Leu Lys Tyr
        515                 520                 525

Val Thr Gly Phe Asp Ser Val Asp Asp Glu Ser Lys His Ser Asp His
    530                 535                 540

Met Phe Ser Asp Lys Ser Pro Asn Pro Asp Val Trp Thr Ser Glu Gln
545                 550                 555                 560

Asn Pro Pro Tyr Ser Tyr Tyr Leu Tyr Tyr Met Tyr Ala Asn Ile Met
                565                 570                 575

Val Leu Asn Asn Leu Arg Arg Glu Arg Gly Leu Ser Thr Phe Leu Phe
            580                 585                 590

Arg Pro His Cys Gly Glu Ala Gly Ser Ile Thr His Leu Val Ser Ala
        595                 600                 605

Phe Leu Thr Ala Asp Asn Ile Ser His Gly Leu Leu Leu Lys Lys Ser
    610                 615                 620

Pro Val Leu Gln Tyr Leu Tyr Tyr Leu Ala Gln Ile Pro Ile Ala Met
625                 630                 635                 640

Ser Pro Leu Ser Asn Asn Ser Leu Phe Leu Glu Tyr Ser Lys Asn Pro
                645                 650                 655

Leu Arg Glu Phe Leu His Lys Gly Leu His Val Ser Leu Ser Thr Asp
            660                 665                 670

Asp Pro Met Gln Phe His Tyr Thr Lys Glu Ala Leu Met Glu Glu Tyr
        675                 680                 685
```

```
Ala Ile Ala Ala Gln Val Trp Lys Leu Ser Thr Cys Asp Leu Cys Glu
    690                 695                 700

Ile Ala Arg Asn Ser Val Leu Gln Ser Gly Leu Ser His Gln Glu Lys
705                 710                 715                 720

Gln Lys Phe Leu Gly Gln Asn Tyr Tyr Lys Glu Gly Pro Glu Gly Asn
                725                 730                 735

Asp Ile Arg Lys Thr Asn Val Ala Gln Ile Arg Met Ala Phe Arg Tyr
            740                 745                 750

Glu Thr Leu Cys Asn Glu Leu Ser Phe Leu Ser Asp Ala Met Lys Ser
        755                 760                 765

Glu Glu Ile Thr Ala Leu Thr Asn
    770                 775


<210> 2754
<211> 608
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Uniprot ID:  Q01432; "

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Met Ile Arg Glu Lys Tyr Ala Arg Leu Ala Tyr His Arg Phe Pro Arg
1               5                   10                  15
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Ile Thr Ser Gln Tyr Leu Gly His Pro Arg Ala Asp Thr Ala Pro Pro
            20                  25                  30

Glu Glu Gly Leu Pro Asp Phe His Pro Pro Pro Leu Pro Gln Glu Asp
        35                  40                  45

Pro Tyr Cys Leu Asp Asp Ala Pro Pro Asn Leu Asp Tyr Leu Val His
    50                  55                  60

Met Gln Gly Gly Ile Leu Phe Val Tyr Asp Asn Lys Lys Met Leu Glu
65                  70                  75                  80

His Gln Glu Pro His Ser Leu Pro Tyr Pro Asp Leu Glu Thr Tyr Thr
                85                  90                  95

Val Asp Met Ser His Ile Leu Ala Leu Ile Thr Asp Gly Pro Thr Lys
            100                 105                 110

Thr Tyr Cys His Arg Arg Leu Asn Phe Leu Glu Ser Lys Phe Ser Leu
        115                 120                 125

His Glu Met Leu Asn Glu Met Ser Glu Phe Lys Glu Leu Lys Ser Asn
    130                 135                 140

Pro His Arg Asp Phe Tyr Asn Val Arg Lys Val Asp Thr His Ile His
145                 150                 155                 160

Ala Ala Ala Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys His
                165                 170                 175

Thr Tyr Gln Thr Glu Pro Asp Arg Thr Val Ala Glu Lys Arg Gly Arg
            180                 185                 190

Lys Ile Thr Leu Arg Gln Val Phe Asp Gly Leu His Met Asp Pro Tyr
        195                 200                 205

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

His Arg Phe Asp Lys Phe Asn Ser Lys Tyr Asn Pro Val Gly Ala Ser
225                 230                 235                 240

Glu Leu Arg Asp Leu Tyr Leu Lys Thr Glu Asn Tyr Leu Gly Gly Glu
```

```
                245                 250                 255

Tyr Phe Ala Arg Met Val Lys Glu Val Ala Arg Glu Leu Glu Glu Ser
            260                 265                 270

Lys Tyr Gln Tyr Ser Glu Pro Arg Leu Ser Ile Tyr Gly Arg Ser Pro
        275                 280                 285

Glu Glu Trp Pro Asn Leu Ala Tyr Trp Phe Ile Gln His Lys Val Tyr
    290                 295                 300

Ser Pro Asn Met Arg Trp Ile Ile Gln Val Pro Arg Ile Tyr Asp Ile
305                 310                 315                 320

Phe Arg Ser Lys Lys Leu Leu Pro Asn Phe Gly Lys Met Leu Glu Asn
                325                 330                 335

Ile Phe Leu Pro Leu Phe Lys Ala Thr Ile Asn Pro Gln Asp His Arg
            340                 345                 350

Glu Leu His Leu Phe Leu Lys Tyr Val Thr Gly Phe Asp Ser Val Asp
        355                 360                 365

Asp Glu Ser Lys His Ser Asp His Met Phe Ser Asp Lys Ser Pro Asn
    370                 375                 380

Pro Asp Val Trp Thr Ser Glu Gln Asn Pro Pro Tyr Ser Tyr Tyr Leu
385                 390                 395                 400

Tyr Tyr Met Tyr Ala Asn Ile Met Val Leu Asn Asn Leu Arg Arg Glu
                405                 410                 415

Arg Gly Leu Ser Thr Phe Leu Phe Arg Pro His Cys Gly Glu Ala Gly
            420                 425                 430

Ser Ile Thr His Leu Val Ser Ala Phe Leu Thr Ala Asp Asn Ile Ser
        435                 440                 445

His Gly Leu Leu Leu Lys Lys Ser Pro Val Leu Gln Tyr Leu Tyr Tyr
    450                 455                 460

Leu Ala Gln Ile Pro Ile Ala Met Ser Pro Leu Ser Asn Asn Ser Leu
465                 470                 475                 480
```

```
Phe Leu Glu Tyr Ser Lys Asn Pro Leu Arg Glu Phe Leu His Lys Gly
                485                 490                 495

Leu His Val Ser Leu Ser Thr Asp Asp Pro Met Gln Phe His Tyr Thr
            500                 505                 510

Lys Glu Ala Leu Met Glu Glu Tyr Ala Ile Ala Ala Gln Val Trp Lys
        515                 520                 525

Leu Ser Thr Cys Asp Leu Cys Glu Ile Ala Arg Asn Ser Val Leu Gln
    530                 535                 540

Ser Gly Leu Ser His Gln Glu Lys Gln Lys Phe Leu Gly Gln Asn Tyr
545                 550                 555                 560

Tyr Lys Glu Gly Pro Glu Gly Asn Asp Ile Arg Lys Thr Asn Val Ala
                565                 570                 575

Gln Ile Arg Met Ala Phe Arg Tyr Glu Thr Leu Cys Asn Glu Leu Ser
            580                 585                 590

Phe Leu Ser Asp Ala Met Lys Ser Glu Glu Ile Thr Ala Leu Thr Asn
        595                 600                 605


<210> 2755
<211> 767
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Uniprot ID:  Q01432; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000431648"

<400> 2755
Met Pro Arg Gln Phe Pro Lys Leu Asn Ile Ser Glu Val Asp Glu Gln
1 5 10 15

Val Arg Leu Leu Ala Glu Lys Val Phe Ala Lys Val Leu Arg Glu Glu
20 25 30

Asp Ser Lys Asp Ala Leu Ser Leu Phe Thr Val Pro Glu Asp Cys Pro
35 40 45

Ile Gly Gln Lys Glu Ala Lys Glu Arg Glu Leu Gln Lys Glu Leu Ala
50 55 60

Glu Gln Lys Ser Val Glu Thr Ala Lys Arg Lys Lys Ser Phe Lys Met
65 70 75 80

Ile Arg Ser Gln Ser Leu Ser Leu Gln Met Pro Pro Gln Gln Asp Trp
85 90 95

Lys Gly Pro Pro Ala Ala Ser Pro Ala Met Ser Pro Thr Thr Pro Val
100 105 110

Val Thr Gly Ala Thr Ser Leu Pro Thr Pro Ala Pro Tyr Ala Met Pro
115 120 125

Glu Phe Gln Arg Val Thr Ile Ser Gly Asp Tyr Cys Ala Gly Ile Thr
130 135 140

Leu Glu Asp Tyr Glu Gln Ala Ala Lys Ser Leu Ala Lys Ala Leu Met
145 150 155 160

Ile Arg Glu Lys Tyr Ala Arg Leu Ala Tyr His Arg Phe Pro Arg Ile
165 170 175

Thr Ser Gln Tyr Leu Gly His Pro Arg Ala Asp Thr Ala Pro Pro Glu
180 185 190

Glu Gly Leu Pro Asp Phe His Pro Pro Pro Leu Pro Gln Glu Asp Pro
195 200 205

Tyr Cys Leu Asp Asp Ala Pro Pro Asn Leu Asp Tyr Leu Val His Met

```
    210                 215                 220

Gln Gly Gly Ile Leu Phe Val Tyr Asp Asn Lys Lys Met Leu Glu His
225                 230                 235                 240

Gln Glu Pro His Ser Leu Pro Tyr Pro Asp Leu Glu Thr Tyr Thr Val
                245                 250                 255

Asp Met Ser His Ile Leu Ala Leu Ile Thr Asp Gly Pro Thr Lys Thr
            260                 265                 270

Tyr Cys His Arg Arg Leu Asn Phe Leu Glu Ser Lys Phe Ser Leu His
        275                 280                 285

Glu Met Leu Asn Glu Met Ser Glu Phe Lys Glu Leu Lys Ser Asn Pro
    290                 295                 300

His Arg Asp Phe Tyr Asn Val Arg Lys Val Asp Thr His Ile His Ala
305                 310                 315                 320

Ala Ala Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys His Thr
                325                 330                 335

Tyr Gln Thr Glu Pro Asp Arg Thr Val Ala Glu Lys Arg Gly Arg Lys
            340                 345                 350

Ile Thr Leu Arg Gln Val Phe Asp Gly Leu His Met Asp Pro Tyr Asp
        355                 360                 365

Leu Thr Val Asp Ser Leu Asp Val His Ala Gly Arg Gln Thr Phe His
    370                 375                 380

Arg Phe Asp Lys Phe Asn Ser Lys Tyr Asn Pro Val Gly Ala Ser Glu
385                 390                 395                 400

Leu Arg Asp Leu Tyr Leu Lys Thr Glu Asn Tyr Leu Gly Gly Glu Tyr
                405                 410                 415

Phe Ala Arg Met Val Lys Glu Val Ala Arg Glu Leu Glu Glu Ser Lys
            420                 425                 430

Tyr Gln Tyr Ser Glu Pro Arg Leu Ser Ile Tyr Gly Arg Ser Pro Glu
        435                 440                 445
```

```
Glu Trp Pro Asn Leu Ala Tyr Trp Phe Ile Gln His Lys Val Tyr Ser
    450                 455                 460

Pro Asn Met Arg Trp Ile Ile Gln Val Pro Arg Ile Tyr Asp Ile Phe
465                 470                 475                 480

Arg Ser Lys Lys Leu Leu Pro Asn Phe Gly Lys Met Leu Glu Asn Ile
                485                 490                 495

Phe Leu Pro Leu Phe Lys Ala Thr Ile Asn Pro Gln Asp His Arg Glu
            500                 505                 510

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

Glu Ser Lys His Ser Asp His Met Phe Ser Asp Lys Ser Pro Asn Pro
    530                 535                 540

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

Tyr Met Tyr Ala Asn Ile Met Val Leu Asn Asn Leu Arg Arg Glu Arg
                565                 570                 575

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

Ile Thr His Leu Val Ser Ala Phe Leu Thr Ala Asp Asn Ile Ser His
        595                 600                 605

Gly Leu Leu Leu Lys Lys Ser Pro Val Leu Gln Tyr Leu Tyr Tyr Leu
    610                 615                 620

Ala Gln Ile Pro Ile Ala Met Ser Pro Leu Ser Asn Asn Ser Leu Phe
625                 630                 635                 640

Leu Glu Tyr Ser Lys Asn Pro Leu Arg Glu Phe Leu His Lys Gly Leu
                645                 650                 655

His Val Ser Leu Ser Thr Asp Asp Pro Met Gln Phe His Tyr Thr Lys
            660                 665                 670
```

```
Glu Ala Leu Met Glu Glu Tyr Ala Ile Ala Ala Gln Val Trp Lys Leu
        675                 680                 685

Ser Thr Cys Asp Leu Cys Glu Ile Ala Arg Asn Ser Val Leu Gln Ser
    690                 695                 700

Gly Leu Ser His Gln Glu Lys Gln Lys Phe Leu Gly Gln Asn Tyr Tyr
705                 710                 715                 720

Lys Glu Gly Pro Glu Gly Asn Asp Ile Arg Lys Thr Asn Val Ala Gln
                725                 730                 735

Ile Arg Met Ala Phe Arg Tyr Glu Thr Leu Cys Asn Glu Leu Ser Phe
            740                 745                 750

Leu Ser Asp Ala Met Lys Ser Glu Glu Ile Thr Ala Leu Thr Asn
        755                 760                 765


<210> 2756
<211> 111
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 641; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD3; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432707"

<400> 2756
Met Pro Arg Gln Phe Pro Lys Leu Asn Ile Ser Glu Val Asp Glu Gln
1               5                   10                  15

Val Arg Leu Leu Ala Glu Lys Val Phe Ala Lys Val Leu Arg Glu Glu
            20                  25                  30

Asp Ser Lys Asp Ala Leu Ser Leu Phe Thr Val Pro Glu Asp Cys Pro
```

```
        35                  40                  45

Ile Gly Gln Lys Glu Ala Lys Glu Arg Glu Leu Gln Lys Glu Leu Ala
    50                  55                  60

Glu Gln Lys Ser Val Glu Thr Ala Lys Arg Lys Lys Ser Phe Lys Met
65                  70                  75                  80

Ile Arg Ser Gln Ser Leu Ser Leu Gln Met Pro Pro Gln Gln Asp Trp
                85                  90                  95

Lys Gly Pro Pro Ala Ala Ser Pro Ala Met Ser Pro Thr Thr Pro
            100                 105                 110


<210> 2757
<211> 267
<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:
      adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433284"

<400> 2757
Met Pro Arg Gln Phe Pro Lys Leu Asn Ile Ser Glu Val Asp Glu Gln
1               5                   10                  15

Val Arg Leu Leu Ala Glu Lys Val Phe Ala Lys Val Leu Arg Glu Glu
            20                  25                  30

Asp Ser Lys Asp Ala Leu Ser Leu Phe Thr Val Pro Glu Asp Cys Pro
        35                  40                  45

Ile Gly Gln Lys Glu Ala Lys Glu Arg Glu Leu Gln Lys Glu Leu Ala
    50                  55                  60
```

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

Ile Arg Ser Gln Ser Leu Ser Leu Gln Met Pro Pro Gln Gln Asp Trp
                85                  90                  95

Lys Gly Pro Pro Ala Ala Ser Pro Ala Met Ser Pro Thr Thr Pro Val
            100                 105                 110

Val Thr Gly Ala Thr Ser Leu Pro Thr Pro Ala Pro Tyr Ala Met Pro
        115                 120                 125

Glu Phe Gln Arg Val Thr Ile Ser Gly Asp Tyr Cys Ala Gly Ile Thr
    130                 135                 140

Leu Glu Asp Tyr Glu Gln Ala Ala Lys Ser Leu Ala Lys Ala Leu Met
145                 150                 155                 160

Ile Arg Glu Lys Tyr Ala Arg Leu Ala Tyr His Arg Phe Pro Arg Ile
                165                 170                 175

Thr Ser Gln Tyr Leu Gly His Pro Arg Ala Asp Thr Ala Pro Pro Glu
            180                 185                 190

Glu Gly Leu Pro Asp Phe His Pro Pro Pro Leu Pro Gln Glu Asp Pro
        195                 200                 205

Tyr Cys Leu Asp Asp Ala Pro Pro Asn Leu Asp Tyr Leu Val His Met
    210                 215                 220

Gln Gly Gly Ile Leu Phe Val Tyr Asp Asn Lys Lys Met Leu Glu His
225                 230                 235                 240

Gln Glu Pro His Ser Leu Pro Tyr Pro Asp Leu Glu Thr Tyr Thr Val
                245                 250                 255

Asp Met Ser His Ile Leu Ala Leu Ile Thr Asp
            260                 265
```

<210> 2758
<211> 110
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AMPD3; "

<220>
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<223> /note="Gene Name:
adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433351"

<400> 2758
Ala Ala Ala Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys His
1 5 10 15

Thr Tyr Gln Thr Glu Pro Asp Arg Thr Val Ala Glu Lys Arg Gly Arg
20 25 30

Lys Ile Thr Leu Arg Gln Val Phe Asp Gly Leu His Met Asp Pro Tyr
35 40 45

Asp Leu Thr Val Asp Ser Leu Asp Val His Ala Val Ser Glu Leu Leu
50 55 60

Leu Gln Cys Arg Gln Gln Thr Ala Ala Leu Ala Gly Asp Ser Ala Pro
65 70 75 80

Trp Lys Ala Thr Met Ile Val Leu Ala Gly Arg Cys Tyr Gly Ser Ser
85 90 95

Phe Leu Phe Tyr Leu Thr Glu Arg Ser Cys Gly Leu Arg Glu
100 105 110

<210> 2759
<211> 212
<212> PRT
<213> Homo sapiens

<220>
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<220>

<221> source
<223> /note="Gene Symbol: AMPD3; "

<220>
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<223> /note="Gene Name:
adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433937"

<400> 2759

```
Met Ala Leu Ser Ser Glu Pro Ala Glu Met Pro Arg Gln Phe Pro Lys
1               5                  10                  15

Leu Asn Ile Ser Glu Val Asp Glu Gln Val Arg Leu Leu Ala Glu Lys
            20                  25                  30

Val Phe Ala Lys Val Leu Arg Glu Glu Asp Ser Lys Asp Ala Leu Ser
        35                  40                  45

Leu Phe Thr Val Pro Glu Asp Cys Pro Ile Gly Gln Lys Glu Ala Lys
    50                  55                  60

Glu Arg Glu Leu Gln Lys Glu Leu Ala Glu Gln Lys Ser Val Glu Thr
65                  70                  75                  80

Ala Lys Arg Lys Lys Ser Phe Lys Met Ile Arg Ser Gln Ser Leu Ser
                85                  90                  95

Leu Gln Met Pro Pro Gln Gln Asp Trp Lys Gly Pro Pro Ala Ala Ser
            100                 105                 110

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

Pro Thr Pro Ala Pro Tyr Ala Met Pro Glu Phe Gln Arg Val Thr Ile
    130                 135                 140

Ser Gly Asp Tyr Cys Ala Gly Ile Thr Leu Glu Asp Tyr Glu Gln Ala
145                 150                 155                 160

Ala Lys Ser Leu Ala Lys Ala Leu Met Ile Arg Glu Lys Tyr Ala Arg
                165                 170                 175
```

```
Leu Ala Tyr His Arg Phe Pro Arg Ile Thr Ser Gln Tyr Leu Gly His
            180                 185                 190

Pro Arg Ala Asp Thr Ala Pro Pro Glu Glu Gly Leu Pro Gly Gly His
        195                 200                 205

Pro Leu Cys Val
    210


<210> 2760
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 641; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD3; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434608"

<400> 2760
Pro Pro Tyr Ser Tyr Tyr Leu Tyr Tyr Met Tyr Ala Asn Ile Met Val
1               5                   10                  15

Leu Asn Asn Leu Arg Arg Glu Arg Gly Leu Ser Thr Phe Leu Phe Arg
            20                  25                  30

Pro His Cys Gly Glu Ala Gly Ser Ile Thr His Leu Val Ser Ala Phe
        35                  40                  45

Leu Thr Ala Asp Asn Ile Ser His Gly Leu Leu Leu Lys Lys Gln Gln
    50                  55                  60

Gln Phe Val Pro Arg Ile Phe Gln Glu Pro Ser Glu Gly Ile Pro Thr
65                  70                  75                  80

Gln Gly Thr Ala Cys Phe Ser Phe His Arg
                85                  90
```

<210> 2761
<211> 677
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 641; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD3; "

<220>
<221> source
<223> /note="Gene Name:
adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435382"

<400> 2761
Met Pro Arg Gln Phe Pro Lys Leu Asn Ile Ser Glu Val Asp Glu Gln
1 5 10 15

Val Arg Leu Leu Ala Glu Lys Val Phe Ala Lys Val Leu Arg Glu Glu
20 25 30

Asp Ser Lys Asp Ala Leu Ser Leu Phe Thr Val Pro Glu Asp Cys Pro
35 40 45

Ile Gly Gln Lys Glu Ala Lys Glu Arg Glu Leu Gln Lys Glu Leu Ala
50 55 60

Glu Gln Lys Ser Val Glu Thr Ala Lys Arg Lys Lys Ser Phe Lys Met
65 70 75 80

Ile Arg Ser Gln Ser Leu Ser Leu Gln Met Pro Pro Gln Gln Asp Trp
85 90 95

Lys Gly Pro Pro Ala Ala Ser Pro Ala Met Ser Pro Thr Thr Pro Val
100 105 110

Val Thr Gly Ala Thr Ser Leu Pro Thr Pro Ala Pro Tyr Ala Met Pro
115 120 125

```
Glu Phe Gln Arg Val Thr Ile Ser Gly Asp Tyr Cys Ala Gly Ile Thr
    130                 135                 140

Leu Glu Asp Tyr Glu Gln Ala Ala Lys Ser Leu Ala Lys Ala Leu Met
145                 150                 155                 160

Ile Arg Glu Lys Tyr Ala Arg Leu Ala Tyr His Arg Phe Pro Arg Ile
                165                 170                 175

Thr Ser Gln Tyr Leu Gly His Pro Arg Ala Asp Thr Ala Pro Pro Glu
            180                 185                 190

Glu Gly Leu Pro Asp Phe His Pro Pro Pro Leu Pro Gln Glu Asp Pro
        195                 200                 205

Tyr Cys Leu Asp Asp Ala Pro Pro Asn Leu Asp Tyr Leu Val His Met
    210                 215                 220

Gln Gly Gly Ile Leu Phe Val Tyr Asp Asn Lys Lys Met Leu Glu His
225                 230                 235                 240

Gln Glu Pro His Ser Leu Pro Tyr Pro Asp Leu Glu Thr Tyr Thr Val
                245                 250                 255

Asp Met Ser His Ile Leu Ala Leu Ile Thr Asp Gly Pro Thr Lys Thr
            260                 265                 270

Tyr Cys His Arg Arg Leu Asn Phe Leu Glu Ser Lys Phe Ser Leu His
        275                 280                 285

Glu Met Leu Asn Glu Met Ser Glu Phe Lys Glu Leu Lys Ser Asn Pro
    290                 295                 300

His Arg Asp Phe Tyr Asn Val Arg Lys Val Asp Thr His Ile His Ala
305                 310                 315                 320

Ala Ala Cys Met Asn Gln Lys His Leu Leu Arg Phe Ile Lys His Thr
                325                 330                 335

Tyr Gln Thr Glu Pro Asp Arg Thr Val Ala Glu Lys Arg Gly Arg Lys
            340                 345                 350

Ile Thr Leu Arg Gln Val Phe Asp Gly Leu His Met Asp Pro Tyr Asp
```

```
        355                 360                 365

Leu Thr Val Asp Ser Leu Asp Val His Ala Gly Arg Gln Thr Phe His
    370                 375                 380

Arg Phe Asp Lys Phe Asn Ser Lys Tyr Asn Pro Val Gly Ala Ser Glu
385                 390                 395                 400

Leu Arg Asp Leu Tyr Leu Lys Thr Glu Asn Tyr Leu Gly Gly Glu Tyr
                405                 410                 415

Phe Ala Arg Met Val Lys Glu Val Ala Arg Glu Leu Glu Glu Ser Lys
            420                 425                 430

Tyr Gln Tyr Ser Glu Pro Arg Leu Ser Ile Tyr Gly Arg Ser Pro Glu
        435                 440                 445

Glu Trp Pro Asn Leu Ala Tyr Trp Phe Ile Gln His Lys Val Tyr Ser
    450                 455                 460

Pro Asn Met Arg Trp Ile Ile Gln Val Pro Arg Ile Tyr Asp Ile Phe
465                 470                 475                 480

Arg Ser Lys Lys Leu Leu Pro Asn Phe Gly Lys Met Leu Glu Asn Ile
                485                 490                 495

Phe Leu Pro Leu Phe Lys Ala Thr Ile Asn Pro Gln Asp His Arg Glu
            500                 505                 510

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

Glu Ser Lys His Ser Asp His Met Phe Ser Asp Lys Ser Pro Asn Pro
    530                 535                 540

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

Tyr Met Tyr Ala Asn Ile Met Val Leu Asn Asn Leu Arg Arg Glu Arg
                565                 570                 575

Gly Leu Ser Thr Phe Leu Phe Arg Pro His Cys Gly Glu Ala Gly Ser
            580                 585                 590
```

```
Ile Thr His Leu Val Ser Ala Phe Leu Thr Ala Asp Asn Ile Ser His
        595                 600                 605

Gly Leu Leu Leu Lys Lys Ser Pro Val Leu Gln Tyr Leu Tyr Tyr Leu
    610                 615                 620

Ala Gln Ile Pro Ile Ala Met Ser Pro Leu Ser Asn Asn Ser Leu Phe
625                 630                 635                 640

Leu Glu Tyr Ser Lys Asn Pro Leu Arg Glu Phe Leu His Lys Gly Leu
                645                 650                 655

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

Leu Lys Cys Gly Ser
        675


<210> 2762
<211> 774
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 641; "

<220>
<221> source
<223> /note="Gene Symbol: AMPD3; "

<220>
<221> source
<223> /note="Gene Name:
      adenosine monophosphate deaminase 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q01432; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436987"

<400> 2762
Met Glu Pro Gly Ser Ala Glu Met Pro Arg Gln Phe Pro Lys Leu Asn
1               5                   10                  15
```

```
Ile Ser Glu Val Asp Glu Gln Val Arg Leu Leu Ala Glu Lys Val Phe
            20                  25                  30

Ala Lys Val Leu Arg Glu Glu Asp Ser Lys Asp Ala Leu Ser Leu Phe
        35                  40                  45

Thr Val Pro Glu Asp Cys Pro Ile Gly Gln Lys Glu Ala Lys Glu Arg
    50                  55                  60

Glu Leu Gln Lys Glu Leu Ala Glu Gln Lys Ser Val Glu Thr Ala Lys
65                  70                  75                  80

Arg Lys Lys Ser Phe Lys Met Ile Arg Ser Gln Ser Leu Ser Leu Gln
                85                  90                  95

Met Pro Pro Gln Gln Asp Trp Lys Gly Pro Pro Ala Ala Ser Pro Ala
            100                 105                 110

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

Pro Ala Pro Tyr Ala Met Pro Glu Phe Gln Arg Val Thr Ile Ser Gly
    130                 135                 140

Asp Tyr Cys Ala Gly Ile Thr Leu Glu Asp Tyr Glu Gln Ala Ala Lys
145                 150                 155                 160

Ser Leu Ala Lys Ala Leu Met Ile Arg Glu Lys Tyr Ala Arg Leu Ala
                165                 170                 175

Tyr His Arg Phe Pro Arg Ile Thr Ser Gln Tyr Leu Gly His Pro Arg
            180                 185                 190

Ala Asp Thr Ala Pro Pro Glu Glu Gly Leu Pro Asp Phe His Pro Pro
        195                 200                 205

Pro Leu Pro Gln Glu Asp Pro Tyr Cys Leu Asp Asp Ala Pro Pro Asn
    210                 215                 220

Leu Asp Tyr Leu Val His Met Gln Gly Gly Ile Leu Phe Val Tyr Asp
225                 230                 235                 240

Asn Lys Lys Met Leu Glu His Gln Glu Pro His Ser Leu Pro Tyr Pro
```

```
                245                 250                 255

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

Thr Asp Gly Pro Thr Lys Thr Tyr Cys His Arg Arg Leu Asn Phe Leu
        275                 280                 285

Glu Ser Lys Phe Ser Leu His Glu Met Leu Asn Glu Met Ser Glu Phe
    290                 295                 300

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

Val Asp Thr His Ile His Ala Ala Ala Cys Met Asn Gln Lys His Leu
                325                 330                 335

Leu Arg Phe Ile Lys His Thr Tyr Gln Thr Glu Pro Asp Arg Thr Val
            340                 345                 350

Ala Glu Lys Arg Gly Arg Lys Ile Thr Leu Arg Gln Val Phe Asp Gly
        355                 360                 365

Leu His Met Asp Pro Tyr Asp Leu Thr Val Asp Ser Leu Asp Val His
    370                 375                 380

Ala Gly Arg Gln Thr Phe His Arg Phe Asp Lys Phe Asn Ser Lys Tyr
385                 390                 395                 400

Asn Pro Val Gly Ala Ser Glu Leu Arg Asp Leu Tyr Leu Lys Thr Glu
                405                 410                 415

Asn Tyr Leu Gly Gly Glu Tyr Phe Ala Arg Met Val Lys Glu Val Ala
            420                 425                 430

Arg Glu Leu Glu Glu Ser Lys Tyr Gln Tyr Ser Glu Pro Arg Leu Ser
        435                 440                 445

Ile Tyr Gly Arg Ser Pro Glu Glu Trp Pro Asn Leu Ala Tyr Trp Phe
    450                 455                 460

Ile Gln His Lys Val Tyr Ser Pro Asn Met Arg Trp Ile Ile Gln Val
465                 470                 475                 480
```

```
Pro Arg Ile Tyr Asp Ile Phe Arg Ser Lys Lys Leu Leu Pro Asn Phe
                485                 490                 495

Gly Lys Met Leu Glu Asn Ile Phe Leu Pro Leu Phe Lys Ala Thr Ile
            500                 505                 510

Asn Pro Gln Asp His Arg Glu Leu His Leu Phe Leu Lys Tyr Val Thr
        515                 520                 525

Gly Phe Asp Ser Val Asp Asp Glu Ser Lys His Ser Asp His Met Phe
    530                 535                 540

Ser Asp Lys Ser Pro Asn Pro Asp Val Trp Thr Ser Glu Gln Asn Pro
545                 550                 555                 560

Pro Tyr Ser Tyr Tyr Leu Tyr Tyr Met Tyr Ala Asn Ile Met Val Leu
                565                 570                 575

Asn Asn Leu Arg Arg Glu Arg Gly Leu Ser Thr Phe Leu Phe Arg Pro
            580                 585                 590

His Cys Gly Glu Ala Gly Ser Ile Thr His Leu Val Ser Ala Phe Leu
        595                 600                 605

Thr Ala Asp Asn Ile Ser His Gly Leu Leu Leu Lys Lys Ser Pro Val
    610                 615                 620

Leu Gln Tyr Leu Tyr Tyr Leu Ala Gln Ile Pro Ile Ala Met Ser Pro
625                 630                 635                 640

Leu Ser Asn Asn Ser Leu Phe Leu Glu Tyr Ser Lys Asn Pro Leu Arg
                645                 650                 655

Glu Phe Leu His Lys Gly Leu His Val Ser Leu Ser Thr Asp Asp Pro
            660                 665                 670

Met Gln Phe His Tyr Thr Lys Glu Ala Leu Met Glu Glu Tyr Ala Ile
        675                 680                 685

Ala Ala Gln Val Trp Lys Leu Ser Thr Cys Asp Leu Cys Glu Ile Ala
    690                 695                 700
```

```
Arg Asn Ser Val Leu Gln Ser Gly Leu Ser His Gln Glu Lys Gln Lys
705                 710                 715                 720

Phe Leu Gly Gln Asn Tyr Tyr Lys Glu Gly Pro Glu Gly Asn Asp Ile
                725                 730                 735

Arg Lys Thr Asn Val Ala Gln Ile Arg Met Ala Phe Arg Tyr Glu Thr
            740                 745                 750

Leu Cys Asn Glu Leu Ser Phe Leu Ser Asp Ala Met Lys Ser Glu Glu
        755                 760                 765

Ile Thr Ala Leu Thr Asn
    770
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<210> 2763
<211> 432
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 642; "

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

<220>
<221> source
<223> /note="Gene Name:
adenosylhomocysteinase; "

<220>
<221> source
<223> /note="Uniprot ID: P23526; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000217426"

<400> 2763

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Met Ser Asp Lys Leu Pro Tyr Lys Val Ala Asp Ile Gly Leu Ala Ala
1               5                   10                  15

Trp Gly Arg Lys Ala Leu Asp Ile Ala Glu Asn Glu Met Pro Gly Leu
            20                  25                  30

Met Arg Met Arg Glu Arg Tyr Ser Ala Ser Lys Pro Leu Lys Gly Ala
```

```
        35                  40                  45

Arg Ile Ala Gly Cys Leu His Met Thr Val Glu Thr Ala Val Leu Ile
    50                  55                  60

Glu Thr Leu Val Thr Leu Gly Ala Glu Val Gln Trp Ser Ser Cys Asn
65                  70                  75                  80

Ile Phe Ser Thr Gln Asp His Ala Ala Ala Ala Ile Ala Lys Ala Gly
                85                  90                  95

Ile Pro Val Tyr Ala Trp Lys Gly Glu Thr Asp Glu Glu Tyr Leu Trp
            100                 105                 110

Cys Ile Glu Gln Thr Leu Tyr Phe Lys Asp Gly Pro Leu Asn Met Ile
        115                 120                 125

Leu Asp Asp Gly Gly Asp Leu Thr Asn Leu Ile His Thr Lys Tyr Pro
    130                 135                 140

Gln Leu Leu Pro Gly Ile Arg Gly Ile Ser Glu Glu Thr Thr Thr Gly
145                 150                 155                 160

Val His Asn Leu Tyr Lys Met Met Ala Asn Gly Ile Leu Lys Val Pro
                165                 170                 175

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

Tyr Gly Cys Arg Glu Ser Leu Ile Asp Gly Ile Lys Arg Ala Thr Asp
        195                 200                 205

Val Met Ile Ala Gly Lys Val Ala Val Val Ala Gly Tyr Gly Asp Val
    210                 215                 220

Gly Lys Gly Cys Ala Gln Ala Leu Arg Gly Phe Gly Ala Arg Val Ile
225                 230                 235                 240

Ile Thr Glu Ile Asp Pro Ile Asn Ala Leu Gln Ala Ala Met Glu Gly
                245                 250                 255

Tyr Glu Val Thr Thr Met Asp Glu Ala Cys Gln Glu Gly Asn Ile Phe
            260                 265                 270
```

```
Val Thr Thr Thr Gly Cys Ile Asp Ile Ile Leu Gly Arg His Phe Glu
        275                 280                 285

Gln Met Lys Asp Asp Ala Ile Val Cys Asn Ile Gly His Phe Asp Val
    290                 295                 300

Glu Ile Asp Val Lys Trp Leu Asn Glu Asn Ala Val Glu Lys Val Asn
305                 310                 315                 320

Ile Lys Pro Gln Val Asp Arg Tyr Arg Leu Lys Asn Gly Arg Arg Ile
                325                 330                 335

Ile Leu Leu Ala Glu Gly Arg Leu Val Asn Leu Gly Cys Ala Met Gly
            340                 345                 350

His Pro Ser Phe Val Met Ser Asn Ser Phe Thr Asn Gln Val Met Ala
        355                 360                 365

Gln Ile Glu Leu Trp Thr His Pro Asp Lys Tyr Pro Val Gly Val His
    370                 375                 380

Phe Leu Pro Lys Lys Leu Asp Glu Ala Val Ala Glu Ala His Leu Gly
385                 390                 395                 400

Lys Leu Asn Val Lys Leu Thr Lys Leu Thr Glu Lys Gln Ala Gln Tyr
                405                 410                 415

Leu Gly Met Ser Cys Asp Gly Pro Phe Lys Pro Asp His Tyr Arg Tyr
            420                 425                 430


<210> 2764
<211> 404
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 642; "

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

<220>
<221> source
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<223> /note="Gene Name:
adenosylhomocysteinase; "

<220>
<221> source
<223> /note="Uniprot ID: P23526; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442820"

<400> 2764

```
Met Pro Gly Leu Met Arg Met Arg Glu Arg Tyr Ser Ala Ser Lys Pro
1               5                  10                  15

Leu Lys Gly Ala Arg Ile Ala Gly Cys Leu His Met Thr Val Glu Thr
            20                  25                  30

Ala Val Leu Ile Glu Thr Leu Val Thr Leu Gly Ala Glu Val Gln Trp
        35                  40                  45

Ser Ser Cys Asn Ile Phe Ser Thr Gln Asp His Ala Ala Ala Ala Ile
    50                  55                  60

Ala Lys Ala Gly Ile Pro Val Tyr Ala Trp Lys Gly Glu Thr Asp Glu
65                  70                  75                  80

Glu Tyr Leu Trp Cys Ile Glu Gln Thr Leu Tyr Phe Lys Asp Gly Pro
                85                  90                  95

Leu Asn Met Ile Leu Asp Asp Gly Gly Asp Leu Thr Asn Leu Ile His
            100                 105                 110

Thr Lys Tyr Pro Gln Leu Leu Pro Gly Ile Arg Gly Ile Ser Glu Glu
        115                 120                 125

Thr Thr Thr Gly Val His Asn Leu Tyr Lys Met Met Ala Asn Gly Ile
    130                 135                 140

Leu Lys Val Pro Ala Ile Asn Val Asn Asp Ser Val Thr Lys Ser Lys
145                 150                 155                 160

Phe Asp Asn Leu Tyr Gly Cys Arg Glu Ser Leu Ile Asp Gly Ile Lys
                165                 170                 175

Arg Ala Thr Asp Val Met Ile Ala Gly Lys Val Ala Val Val Ala Gly
```

```
            180                 185                 190

Tyr Gly Asp Val Gly Lys Gly Cys Ala Gln Ala Leu Arg Gly Phe Gly
        195                 200                 205

Ala Arg Val Ile Ile Thr Glu Ile Asp Pro Ile Asn Ala Leu Gln Ala
    210                 215                 220

Ala Met Glu Gly Tyr Glu Val Thr Thr Met Asp Glu Ala Cys Gln Glu
225                 230                 235                 240

Gly Asn Ile Phe Val Thr Thr Thr Gly Cys Ile Asp Ile Ile Leu Gly
                245                 250                 255

Arg His Phe Glu Gln Met Lys Asp Asp Ala Ile Val Cys Asn Ile Gly
            260                 265                 270

His Phe Asp Val Glu Ile Asp Val Lys Trp Leu Asn Glu Asn Ala Val
        275                 280                 285

Glu Lys Val Asn Ile Lys Pro Gln Val Asp Arg Tyr Arg Leu Lys Asn
    290                 295                 300

Gly Arg Arg Ile Ile Leu Leu Ala Glu Gly Arg Leu Val Asn Leu Gly
305                 310                 315                 320

Cys Ala Met Gly His Pro Ser Phe Val Met Ser Asn Ser Phe Thr Asn
                325                 330                 335

Gln Val Met Ala Gln Ile Glu Leu Trp Thr His Pro Asp Lys Tyr Pro
            340                 345                 350

Val Gly Val His Phe Leu Pro Lys Lys Leu Asp Glu Ala Val Ala Glu
        355                 360                 365

Ala His Leu Gly Lys Leu Asn Val Lys Leu Thr Lys Leu Thr Glu Lys
    370                 375                 380

Gln Ala Gln Tyr Leu Gly Met Ser Cys Asp Gly Pro Phe Lys Pro Asp
385                 390                 395                 400

His Tyr Arg Tyr
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<210> 2765
<211> 483
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 643; "

<220>
<221> source
<223> /note="Gene Symbol: AHCYL1; "

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<223> /note="Gene Name:
adenosylhomocysteinase-like 1; "

<220>
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<223> /note="Uniprot ID: O43865; "

<220>
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<400> 2765
Met Gln Glu Phe Thr Lys Phe Pro Thr Lys Thr Gly Arg Arg Ser Leu
1   5   10   15

Ser Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr Ser Ser Ala Ala
            20   25   30

Ser Tyr Thr Asp Ser Ser Asp Asp Glu Val Ser Pro Arg Glu Lys Gln
        35   40   45

Gln Thr Asn Ser Lys Gly Ser Ser Asn Phe Cys Val Lys Asn Ile Lys
    50   55   60

Gln Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala Glu Gln Asp Met
65   70   75   80

Ser Ala Leu Ile Ser Leu Arg Lys Arg Ala Gln Gly Glu Lys Pro Leu
                85   90   95

Ala Gly Ala Lys Ile Val Gly Cys Thr His Ile Thr Ala Gln Thr Ala
            100   105   110

```
Val Leu Ile Glu Thr Leu Cys Ala Leu Gly Ala Gln Cys Arg Trp Ser
        115                 120                 125

Ala Cys Asn Ile Tyr Ser Thr Gln Asn Glu Val Ala Ala Ala Leu Ala
    130                 135                 140

Glu Ala Gly Val Ala Val Phe Ala Trp Lys Gly Glu Ser Glu Asp Asp
145                 150                 155                 160

Phe Trp Trp Cys Ile Asp Arg Cys Val Asn Met Asp Gly Trp Gln Ala
                165                 170                 175

Asn Met Ile Leu Asp Asp Gly Gly Asp Leu Thr His Trp Val Tyr Lys
            180                 185                 190

Lys Tyr Pro Asn Val Phe Lys Lys Ile Arg Gly Ile Val Glu Glu Ser
        195                 200                 205

Val Thr Gly Val His Arg Leu Tyr Gln Leu Ser Lys Ala Gly Lys Leu
    210                 215                 220

Cys Val Pro Ala Met Asn Val Asn Asp Ser Val Thr Lys Gln Lys Phe
225                 230                 235                 240

Asp Asn Leu Tyr Cys Cys Arg Glu Ser Ile Leu Asp Gly Leu Lys Arg
                245                 250                 255

Thr Thr Asp Val Met Phe Gly Gly Lys Gln Val Val Val Cys Gly Tyr
            260                 265                 270

Gly Glu Val Gly Lys Gly Cys Cys Ala Ala Leu Lys Ala Leu Gly Ala
        275                 280                 285

Ile Val Tyr Ile Thr Glu Ile Asp Pro Ile Cys Ala Leu Gln Ala Cys
    290                 295                 300

Met Asp Gly Phe Arg Val Val Lys Leu Asn Glu Val Ile Arg Gln Val
305                 310                 315                 320

Asp Val Val Ile Thr Cys Thr Gly Asn Lys Asn Val Val Thr Arg Glu
                325                 330                 335

His Leu Asp Arg Met Lys Asn Ser Cys Ile Val Cys Asn Met Gly His
```

```
            340                 345                 350

Ser Asn Thr Glu Ile Asp Val Thr Ser Leu Arg Thr Pro Glu Leu Thr
        355                 360                 365

Trp Glu Arg Val Arg Ser Gln Val Asp His Val Ile Trp Pro Asp Gly
    370                 375                 380

Lys Arg Val Val Leu Leu Ala Glu Gly Arg Leu Leu Asn Leu Ser Cys
385                 390                 395                 400

Ser Thr Val Pro Thr Phe Val Leu Ser Ile Thr Ala Thr Thr Gln Ala
                405                 410                 415

Leu Ala Leu Ile Glu Leu Tyr Asn Ala Pro Glu Gly Arg Tyr Lys Gln
            420                 425                 430

Asp Val Tyr Leu Leu Pro Lys Lys Met Asp Glu Tyr Val Ala Ser Leu
        435                 440                 445

His Leu Pro Ser Phe Asp Ala His Leu Thr Glu Leu Thr Asp Asp Gln
    450                 455                 460

Ala Lys Tyr Leu Gly Leu Asn Lys Asn Gly Pro Phe Lys Pro Asn Tyr
465                 470                 475                 480

Tyr Arg Tyr
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<210> 2766
<211> 530
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<400> 2766
Met Ser Met Pro Asp Ala Met Pro Leu Pro Gly Val Gly Glu Glu Leu
1   5   10   15

Lys Gln Ala Lys Glu Ile Glu Asp Ala Glu Lys Tyr Ser Phe Met Ala
            20   25   30

Thr Val Thr Lys Ala Pro Lys Lys Gln Ile Gln Phe Ala Asp Asp Met
        35   40   45

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

Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr Ser Ser Ala Ala Ser
65   70   75   80

Tyr Thr Asp Ser Ser Asp Asp Glu Val Ser Pro Arg Glu Lys Gln Gln
                85   90   95

Thr Asn Ser Lys Gly Ser Ser Asn Phe Cys Val Lys Asn Ile Lys Gln
            100   105   110

Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala Glu Gln Asp Met Ser
        115   120   125

Ala Leu Ile Ser Leu Arg Lys Arg Ala Gln Gly Glu Lys Pro Leu Ala
    130   135   140

Gly Ala Lys Ile Val Gly Cys Thr His Ile Thr Ala Gln Thr Ala Val
145   150   155   160

Leu Ile Glu Thr Leu Cys Ala Leu Gly Ala Gln Cys Arg Trp Ser Ala
                165   170   175

Cys Asn Ile Tyr Ser Thr Gln Asn Glu Val Ala Ala Ala Leu Ala Glu
            180   185   190

```
Ala Gly Val Ala Val Phe Ala Trp Lys Gly Glu Ser Glu Asp Asp Phe
        195                 200                 205

Trp Trp Cys Ile Asp Arg Cys Val Asn Met Asp Gly Trp Gln Ala Asn
    210                 215                 220

Met Ile Leu Asp Asp Gly Gly Asp Leu Thr His Trp Val Tyr Lys Lys
225                 230                 235                 240

Tyr Pro Asn Val Phe Lys Lys Ile Arg Gly Ile Val Glu Glu Ser Val
                245                 250                 255

Thr Gly Val His Arg Leu Tyr Gln Leu Ser Lys Ala Gly Lys Leu Cys
            260                 265                 270

Val Pro Ala Met Asn Val Asn Asp Ser Val Thr Lys Gln Lys Phe Asp
        275                 280                 285

Asn Leu Tyr Cys Cys Arg Glu Ser Ile Leu Asp Gly Leu Lys Arg Thr
    290                 295                 300

Thr Asp Val Met Phe Gly Gly Lys Gln Val Val Val Cys Gly Tyr Gly
305                 310                 315                 320

Glu Val Gly Lys Gly Cys Cys Ala Ala Leu Lys Ala Leu Gly Ala Ile
                325                 330                 335

Val Tyr Ile Thr Glu Ile Asp Pro Ile Cys Ala Leu Gln Ala Cys Met
            340                 345                 350

Asp Gly Phe Arg Val Val Lys Leu Asn Glu Val Ile Arg Gln Val Asp
        355                 360                 365

Val Val Ile Thr Cys Thr Gly Asn Lys Asn Val Val Thr Arg Glu His
    370                 375                 380

Leu Asp Arg Met Lys Asn Ser Cys Ile Val Cys Asn Met Gly His Ser
385                 390                 395                 400

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

Glu Arg Val Arg Ser Gln Val Asp His Val Ile Trp Pro Asp Gly Lys
```

```
            420                 425                 430

Arg Val Val Leu Leu Ala Glu Gly Arg Leu Leu Asn Leu Ser Cys Ser
        435                 440                 445

Thr Val Pro Thr Phe Val Leu Ser Ile Thr Ala Thr Thr Gln Ala Leu
    450                 455                 460

Ala Leu Ile Glu Leu Tyr Asn Ala Pro Glu Gly Arg Tyr Lys Gln Asp
465                 470                 475                 480

Val Tyr Leu Leu Pro Lys Lys Met Asp Glu Tyr Val Ala Ser Leu His
                485                 490                 495

Leu Pro Ser Phe Asp Ala His Leu Thr Glu Leu Thr Asp Asp Gln Ala
            500                 505                 510

Lys Tyr Leu Gly Leu Asn Lys Asn Gly Pro Phe Lys Pro Asn Tyr Tyr
        515                 520                 525

Arg Tyr
    530
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<210> 2767
<211> 483
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: O43865; "

<220>
<221> source
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<400> 2767
Met Gln Glu Phe Thr Lys Phe Pro Thr Lys Thr Gly Arg Arg Ser Leu
1 5 10 15

Ser Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr Ser Ser Ala Ala
20 25 30

Ser Tyr Thr Asp Ser Ser Asp Asp Glu Val Ser Pro Arg Glu Lys Gln
35 40 45

Gln Thr Asn Ser Lys Gly Ser Ser Asn Phe Cys Val Lys Asn Ile Lys
50 55 60

Gln Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala Glu Gln Asp Met
65 70 75 80

Ser Ala Leu Ile Ser Leu Arg Lys Arg Ala Gln Gly Glu Lys Pro Leu
85 90 95

Ala Gly Ala Lys Ile Val Gly Cys Thr His Ile Thr Ala Gln Thr Ala
100 105 110

Val Leu Ile Glu Thr Leu Cys Ala Leu Gly Ala Gln Cys Arg Trp Ser
115 120 125

Ala Cys Asn Ile Tyr Ser Thr Gln Asn Glu Val Ala Ala Ala Leu Ala
130 135 140

Glu Ala Gly Val Ala Val Phe Ala Trp Lys Gly Glu Ser Glu Asp Asp
145 150 155 160

Phe Trp Trp Cys Ile Asp Arg Cys Val Asn Met Asp Gly Trp Gln Ala
165 170 175

Asn Met Ile Leu Asp Asp Gly Gly Asp Leu Thr His Trp Val Tyr Lys
180 185 190

Lys Tyr Pro Asn Val Phe Lys Lys Ile Arg Gly Ile Val Glu Glu Ser
195 200 205

Val Thr Gly Val His Arg Leu Tyr Gln Leu Ser Lys Ala Gly Lys Leu
210 215 220

```
Cys Val Pro Ala Met Asn Val Asn Asp Ser Val Thr Lys Gln Lys Phe
225                 230                 235                 240

Asp Asn Leu Tyr Cys Cys Arg Glu Ser Ile Leu Asp Gly Leu Lys Arg
                245                 250                 255

Thr Thr Asp Val Met Phe Gly Gly Lys Gln Val Val Val Cys Gly Tyr
            260                 265                 270

Gly Glu Val Gly Lys Gly Cys Cys Ala Ala Leu Lys Ala Leu Gly Ala
        275                 280                 285

Ile Val Tyr Ile Thr Glu Ile Asp Pro Ile Cys Ala Leu Gln Ala Cys
    290                 295                 300

Met Asp Gly Phe Arg Val Val Lys Leu Asn Glu Val Ile Arg Gln Val
305                 310                 315                 320

Asp Val Val Ile Thr Cys Thr Gly Asn Lys Asn Val Val Thr Arg Glu
                325                 330                 335

His Leu Asp Arg Met Lys Asn Ser Cys Ile Val Cys Asn Met Gly His
            340                 345                 350

Ser Asn Thr Glu Ile Asp Val Thr Ser Leu Arg Thr Pro Glu Leu Thr
        355                 360                 365

Trp Glu Arg Val Arg Ser Gln Val Asp His Val Ile Trp Pro Asp Gly
    370                 375                 380

Lys Arg Val Val Leu Leu Ala Glu Gly Arg Leu Leu Asn Leu Ser Cys
385                 390                 395                 400

Ser Thr Val Pro Thr Phe Val Leu Ser Ile Thr Ala Thr Thr Gln Ala
                405                 410                 415

Leu Ala Leu Ile Glu Leu Tyr Asn Ala Pro Glu Gly Arg Tyr Lys Gln
            420                 425                 430

Asp Val Tyr Leu Leu Pro Lys Lys Met Asp Glu Tyr Val Ala Ser Leu
        435                 440                 445

His Leu Pro Ser Phe Asp Ala His Leu Thr Glu Leu Thr Asp Asp Gln
```

```
    450                 455                 460

Ala Lys Tyr Leu Gly Leu Asn Lys Asn Gly Pro Phe Lys Pro Asn Tyr
465                 470                 475                 480

Tyr Arg Tyr
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<210> 2768
<211> 611
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q96HN2; "

<220>
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<223> /note="ENSP ID: ENSP00000315931"

<400> 2768

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Met Ser Val Gln Val Val Ser Ala Ala Ala Ala Ala Lys Val Pro Glu
1               5                  10                  15

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

Leu Ser Thr Ala Ala Val Gly Ala Met Ala Pro Pro Ala Gly Gly Gly
        35                  40                  45

Asp Pro Glu Ala Pro Ala Pro Ala Ala Glu Arg Pro Pro Val Pro Gly
    50                  55                  60

Pro Gly Ser Gly Pro Ala Ala Ala Leu Ser Pro Ala Ala Gly Lys Val
65                  70                  75                  80
```

```
Pro Gln Ala Ser Ala Met Lys Arg Ser Asp Pro His His Gln His Gln
                85                  90                  95

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

Thr Glu Ala Pro Arg Thr Val Lys Lys Gln Ile Gln Phe Ala Asp Gln
        115                 120                 125

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

Ser Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr Ser Ser Ala Ala
145                 150                 155                 160

Ser Tyr Thr Asp Ser Ser Asp Asp Glu Thr Ser Pro Arg Asp Lys Gln
                165                 170                 175

Gln Lys Asn Ser Lys Gly Ser Ser Asp Phe Cys Val Lys Asn Ile Lys
            180                 185                 190

Gln Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala Glu Gln Glu Met
        195                 200                 205

Pro Ala Leu Met Ala Leu Arg Lys Arg Ala Gln Gly Glu Lys Pro Leu
    210                 215                 220

Ala Gly Ala Lys Ile Val Gly Cys Thr His Ile Thr Ala Gln Thr Ala
225                 230                 235                 240

Val Leu Met Glu Thr Leu Gly Ala Leu Gly Ala Gln Cys Arg Trp Ala
                245                 250                 255

Ala Cys Asn Ile Tyr Ser Thr Leu Asn Glu Val Ala Ala Ala Leu Ala
            260                 265                 270

Glu Ser Gly Phe Pro Val Phe Ala Trp Lys Gly Glu Ser Glu Asp Asp
        275                 280                 285

Phe Trp Trp Cys Ile Asp Arg Cys Val Asn Val Glu Gly Trp Gln Pro
    290                 295                 300
```

```
Asn Met Ile Leu Asp Asp Gly Gly Asp Leu Thr His Trp Ile Tyr Lys
305                 310                 315                 320

Lys Tyr Pro Asn Met Phe Lys Lys Ile Lys Gly Ile Val Glu Glu Ser
                325                 330                 335

Val Thr Gly Val His Arg Leu Tyr Gln Leu Ser Lys Ala Gly Lys Leu
            340                 345                 350

Cys Val Pro Ala Met Asn Val Asn Asp Ser Val Thr Lys Gln Lys Phe
        355                 360                 365

Asp Asn Leu Tyr Cys Cys Arg Glu Ser Ile Leu Asp Gly Leu Lys Arg
    370                 375                 380

Thr Thr Asp Met Met Phe Gly Gly Lys Gln Val Val Val Cys Gly Tyr
385                 390                 395                 400

Gly Glu Val Gly Lys Gly Cys Cys Ala Ala Leu Lys Ala Met Gly Ser
                405                 410                 415

Ile Val Tyr Val Thr Glu Ile Asp Pro Ile Cys Ala Leu Gln Ala Cys
            420                 425                 430

Met Asp Gly Phe Arg Leu Val Lys Leu Asn Glu Val Ile Arg Gln Val
        435                 440                 445

Asp Ile Val Ile Thr Cys Thr Gly Asn Lys Asn Val Val Thr Arg Glu
    450                 455                 460

His Leu Asp Arg Met Lys Asn Ser Cys Ile Val Cys Asn Met Gly His
465                 470                 475                 480

Ser Asn Thr Glu Ile Asp Val Ala Ser Leu Arg Thr Pro Glu Leu Thr
                485                 490                 495

Trp Glu Arg Val Arg Ser Gln Val Asp His Val Ile Trp Pro Asp Gly
            500                 505                 510

Lys Arg Ile Val Leu Leu Ala Glu Gly Arg Leu Leu Asn Leu Ser Cys
        515                 520                 525

Ser Thr Val Pro Thr Phe Val Leu Ser Ile Thr Ala Thr Thr Gln Ala
```

```
    530                 535                 540

Leu Ala Leu Ile Glu Leu Tyr Asn Ala Pro Glu Gly Arg Tyr Lys Gln
545                 550                 555                 560

Asp Val Tyr Leu Leu Pro Lys Lys Met Asp Glu Tyr Val Ala Ser Leu
                565                 570                 575

His Leu Pro Thr Phe Asp Ala His Leu Thr Glu Leu Thr Asp Glu Gln
            580                 585                 590

Ala Lys Tyr Leu Gly Leu Asn Lys Asn Gly Pro Phe Lys Pro Asn Tyr
        595                 600                 605

Tyr Arg Tyr
    610
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<210> 2769
<211> 610
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000413639"

<400> 2769

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Met Ser Val Gln Val Val Ser Ala Ala Ala Ala Ala Lys Val Pro Glu
1               5                   10                  15

Val Glu Leu Lys Asp Leu Ser Pro Ser Glu Ala Glu Ser Gln Leu Gly
            20                  25                  30
```

```
Leu Ser Thr Ala Ala Val Gly Ala Met Ala Pro Pro Ala Gly Gly Gly
        35                  40                  45

Asp Pro Glu Ala Pro Ala Pro Ala Ala Glu Arg Pro Pro Val Pro Gly
    50                  55                  60

Pro Gly Ser Gly Pro Ala Ala Ala Leu Ser Pro Ala Ala Gly Lys Val
65                  70                  75                  80

Pro Gln Ala Ser Ala Met Lys Arg Ser Asp Pro His His Gln His Gln
                85                  90                  95

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

Thr Glu Ala Pro Arg Thr Val Lys Lys Ile Gln Phe Ala Asp Gln Lys
        115                 120                 125

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

Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr Ser Ser Ala Ala Ser
145                 150                 155                 160

Tyr Thr Asp Ser Ser Asp Asp Glu Thr Ser Pro Arg Asp Lys Gln Gln
                165                 170                 175

Lys Asn Ser Lys Gly Ser Ser Asp Phe Cys Val Lys Asn Ile Lys Gln
            180                 185                 190

Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala Glu Gln Glu Met Pro
        195                 200                 205

Ala Leu Met Ala Leu Arg Lys Arg Ala Gln Gly Glu Lys Pro Leu Ala
    210                 215                 220

Gly Ala Lys Ile Val Gly Cys Thr His Ile Thr Ala Gln Thr Ala Val
225                 230                 235                 240

Leu Met Glu Thr Leu Gly Ala Leu Gly Ala Gln Cys Arg Trp Ala Ala
                245                 250                 255
```

```
Cys Asn Ile Tyr Ser Thr Leu Asn Glu Val Ala Ala Ala Leu Ala Glu
            260                 265                 270

Ser Gly Phe Pro Val Phe Ala Trp Lys Gly Glu Ser Glu Asp Asp Phe
        275                 280                 285

Trp Trp Cys Ile Asp Arg Cys Val Asn Val Glu Gly Trp Gln Pro Asn
    290                 295                 300

Met Ile Leu Asp Asp Gly Gly Asp Leu Thr His Trp Ile Tyr Lys Lys
305                 310                 315                 320

Tyr Pro Asn Met Phe Lys Lys Ile Lys Gly Ile Val Glu Glu Ser Val
                325                 330                 335

Thr Gly Val His Arg Leu Tyr Gln Leu Ser Lys Ala Gly Lys Leu Cys
            340                 345                 350

Val Pro Ala Met Asn Val Asn Asp Ser Val Thr Lys Gln Lys Phe Asp
        355                 360                 365

Asn Leu Tyr Cys Cys Arg Glu Ser Ile Leu Asp Gly Leu Lys Arg Thr
    370                 375                 380

Thr Asp Met Met Phe Gly Gly Lys Gln Val Val Val Cys Gly Tyr Gly
385                 390                 395                 400

Glu Val Gly Lys Gly Cys Cys Ala Ala Leu Lys Ala Met Gly Ser Ile
                405                 410                 415

Val Tyr Val Thr Glu Ile Asp Pro Ile Cys Ala Leu Gln Ala Cys Met
            420                 425                 430

Asp Gly Phe Arg Leu Val Lys Leu Asn Glu Val Ile Arg Gln Val Asp
        435                 440                 445

Ile Val Ile Thr Cys Thr Gly Asn Lys Asn Val Val Thr Arg Glu His
    450                 455                 460

Leu Asp Arg Met Lys Asn Ser Cys Ile Val Cys Asn Met Gly His Ser
465                 470                 475                 480

Asn Thr Glu Ile Asp Val Ala Ser Leu Arg Thr Pro Glu Leu Thr Trp
```

```
                485                 490                 495

Glu Arg Val Arg Ser Gln Val Asp His Val Ile Trp Pro Asp Gly Lys
            500                 505                 510

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

Thr Val Pro Thr Phe Val Leu Ser Ile Thr Ala Thr Thr Gln Ala Leu
    530                 535                 540

Ala Leu Ile Glu Leu Tyr Asn Ala Pro Glu Gly Arg Tyr Lys Gln Asp
545                 550                 555                 560

Val Tyr Leu Leu Pro Lys Lys Met Asp Glu Tyr Val Ala Ser Leu His
                565                 570                 575

Leu Pro Thr Phe Asp Ala His Leu Thr Glu Leu Thr Asp Glu Gln Ala
            580                 585                 590

Lys Tyr Leu Gly Leu Asn Lys Asn Gly Pro Phe Lys Pro Asn Tyr Tyr
        595                 600                 605

Arg Tyr
    610


<210> 2770
<211> 518
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<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> 2770
Xaa Arg Lys Trp Ser Arg Gln Phe Leu Leu Ser Phe Trp Cys Thr Val
1 5 10 15

Cys Ser Ala His Gln Gly Thr Ile Phe Leu Ser Leu Lys Ile Gln Phe
20 25 30

Ala Asp Gln Lys Gln Glu Phe Asn Lys Arg Pro Thr Lys Ile Gly Arg
35 40 45

Arg Ser Leu Ser Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr Ser
50 55 60

Ser Ala Ala Ser Tyr Thr Asp Ser Ser Asp Asp Glu Thr Ser Pro Arg
65 70 75 80

Asp Lys Gln Gln Lys Asn Ser Lys Gly Ser Ser Asp Phe Cys Val Lys
85 90 95

Asn Ile Lys Gln Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala Glu
100 105 110

Gln Glu Met Pro Ala Leu Met Ala Leu Arg Lys Arg Ala Gln Gly Glu
115 120 125

Lys Pro Leu Ala Gly Ala Lys Ile Val Gly Cys Thr His Ile Thr Ala
130 135 140

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

Arg Trp Ala Ala Cys Asn Ile Tyr Ser Thr Leu Asn Glu Val Ala Ala
165 170 175

Ala Leu Ala Glu Ser Gly Phe Pro Val Phe Ala Trp Lys Gly Glu Ser
180 185 190

Glu Asp Asp Phe Trp Trp Cys Ile Asp Arg Cys Val Asn Val Glu Gly
195 200 205

```
Trp Gln Pro Asn Met Ile Leu Asp Asp Gly Gly Asp Leu Thr His Trp
    210                 215                 220

Ile Tyr Lys Lys Tyr Pro Asn Met Phe Lys Lys Ile Lys Gly Ile Val
225                 230                 235                 240

Glu Glu Ser Val Thr Gly Val His Arg Leu Tyr Gln Leu Ser Lys Ala
                245                 250                 255

Gly Lys Leu Cys Val Pro Ala Met Asn Val Asn Asp Ser Val Thr Lys
            260                 265                 270

Gln Lys Phe Asp Asn Leu Tyr Cys Cys Arg Glu Ser Ile Leu Asp Gly
        275                 280                 285

Leu Lys Arg Thr Thr Asp Met Met Phe Gly Gly Lys Gln Val Val Val
    290                 295                 300

Cys Gly Tyr Gly Glu Val Gly Lys Gly Cys Cys Ala Ala Leu Lys Ala
305                 310                 315                 320

Met Gly Ser Ile Val Tyr Val Thr Glu Ile Asp Pro Ile Cys Ala Leu
                325                 330                 335

Gln Ala Cys Met Asp Gly Phe Arg Leu Val Lys Leu Asn Glu Val Ile
            340                 345                 350

Arg Gln Val Asp Ile Val Ile Thr Cys Thr Gly Asn Lys Asn Val Val
        355                 360                 365

Thr Arg Glu His Leu Asp Arg Met Lys Asn Ser Cys Ile Val Cys Asn
    370                 375                 380

Met Gly His Ser Asn Thr Glu Ile Asp Val Ala Ser Leu Arg Thr Pro
385                 390                 395                 400

Glu Leu Thr Trp Glu Arg Val Arg Ser Gln Val Asp His Val Ile Trp
                405                 410                 415

Pro Asp Gly Lys Arg Ile Val Leu Leu Ala Glu Gly Arg Leu Leu Asn
            420                 425                 430
```

```
Leu Ser Cys Ser Thr Val Pro Thr Phe Val Leu Ser Ile Thr Ala Thr
        435                 440                 445

Thr Gln Ala Leu Ala Leu Ile Glu Leu Tyr Asn Ala Pro Glu Gly Arg
    450                 455                 460

Tyr Lys Gln Asp Val Tyr Leu Leu Pro Lys Lys Met Asp Glu Tyr Val
465                 470                 475                 480

Ala Ser Leu His Leu Pro Thr Phe Asp Ala His Leu Thr Glu Leu Thr
                485                 490                 495

Asp Glu Gln Ala Lys Tyr Leu Gly Leu Asn Lys Asn Gly Pro Phe Lys
            500                 505                 510

Pro Asn Tyr Tyr Arg Tyr
        515


<210> 2771
<211> 182
<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: ENSP00000419608"

<400> 2771
Met Leu Gly Ser Lys Lys Lys Tyr Ile Val Asn Gly Asn Ser Gly Ile
1               5                   10                  15

Lys Ala Gln Gln Ile Gln Phe Ala Asp Gln Lys Gln Glu Phe Asn Lys
            20                  25                  30

Arg Pro Thr Lys Ile Gly Arg Arg Ser Leu Ser Arg Ser Ile Ser Gln
```

```
        35                  40                  45

Ser Ser Thr Asp Ser Tyr Ser Ser Ala Ala Ser Tyr Thr Asp Ser Ser
    50                  55                  60

Asp Asp Glu Thr Ser Pro Arg Asp Lys Gln Gln Lys Asn Ser Lys Gly
65                  70                  75                  80

Ser Ser Asp Phe Cys Val Lys Asn Ile Lys Gln Ala Glu Phe Gly Arg
                85                  90                  95

Arg Glu Ile Glu Ile Ala Glu Gln Glu Met Pro Ala Leu Met Ala Leu
            100                 105                 110

Arg Lys Arg Ala Gln Gly Glu Lys Pro Leu Ala Gly Ala Lys Ile Val
        115                 120                 125

Gly Cys Thr His Ile Thr Ala Gln Thr Ala Val Leu Met Glu Thr Leu
    130                 135                 140

Gly Ala Leu Gly Ala Gln Cys Arg Trp Ala Ala Cys Asn Ile Tyr Ser
145                 150                 155                 160

Thr Leu Asn Glu Val Ala Ala Ala Leu Ala Glu Ser Gly Phe Pro Val
                165                 170                 175

Phe Ala Trp Lys Gly Glu
            180


<210> 2772
<211> 75
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 644; "

<220>
<221> source
<223> /note="Gene Symbol: AHCYL2; "

<220>
<221> source
<223> /note="Gene Name:
      adenosylhomocysteinase-like 2; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000419717"

<400> 2772
Met Glu Lys Trp Asp Gly Asn Glu Gly Thr Ser Ala Phe His Met Pro
1   5   10   15

Glu Trp Met Gln Ile Gln Phe Ala Asp Gln Lys Gln Glu Phe Asn Lys
            20   25   30

Arg Pro Thr Lys Ile Gly Arg Arg Ser Leu Ser Arg Ser Ile Ser Gln
        35   40   45

Ser Ser Thr Asp Ser Tyr Ser Ser Ala Ala Ser Tyr Thr Asp Ser Ser
    50   55   60

Asp Asp Glu Thr Ser Pro Arg Asp Lys Gln Gln
65   70   75

<210> 2773
<211> 508
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AHCYL2; "

<220>
<221> source
<223> /note="Gene Name:
      adenosylhomocysteinase-like 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q96HN2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420459"

<400> 2773
Met Glu Lys Trp Asp Gly Asn Glu Gly Thr Ser Ala Phe His Met Pro
1   5   10   15

Glu Trp Met Ile Gln Phe Ala Asp Gln Lys Gln Glu Phe Asn Lys Arg

```
            20                  25                  30

Pro Thr Lys Ile Gly Arg Arg Ser Leu Ser Arg Ser Ile Ser Gln Ser
        35                  40                  45

Ser Thr Asp Ser Tyr Ser Ser Ala Ala Ser Tyr Thr Asp Ser Ser Asp
    50                  55                  60

Asp Glu Thr Ser Pro Arg Asp Lys Gln Gln Lys Asn Ser Lys Gly Ser
65                  70                  75                  80

Ser Asp Phe Cys Val Lys Asn Ile Lys Gln Ala Glu Phe Gly Arg Arg
                85                  90                  95

Glu Ile Glu Ile Ala Glu Gln Glu Met Pro Ala Leu Met Ala Leu Arg
            100                 105                 110

Lys Arg Ala Gln Gly Glu Lys Pro Leu Ala Gly Ala Lys Ile Val Gly
        115                 120                 125

Cys Thr His Ile Thr Ala Gln Thr Ala Val Leu Met Glu Thr Leu Gly
    130                 135                 140

Ala Leu Gly Ala Gln Cys Arg Trp Ala Ala Cys Asn Ile Tyr Ser Thr
145                 150                 155                 160

Leu Asn Glu Val Ala Ala Ala Leu Ala Glu Ser Gly Phe Pro Val Phe
                165                 170                 175

Ala Trp Lys Gly Glu Ser Glu Asp Asp Phe Trp Trp Cys Ile Asp Arg
            180                 185                 190

Cys Val Asn Val Glu Gly Trp Gln Pro Asn Met Ile Leu Asp Asp Gly
        195                 200                 205

Gly Asp Leu Thr His Trp Ile Tyr Lys Lys Tyr Pro Asn Met Phe Lys
    210                 215                 220

Lys Ile Lys Gly Ile Val Glu Glu Ser Val Thr Gly Val His Arg Leu
225                 230                 235                 240

Tyr Gln Leu Ser Lys Ala Gly Lys Leu Cys Val Pro Ala Met Asn Val
                245                 250                 255
```

```
Asn Asp Ser Val Thr Lys Gln Lys Phe Asp Asn Leu Tyr Cys Cys Arg
            260                 265                 270

Glu Ser Ile Leu Asp Gly Leu Lys Arg Thr Thr Asp Met Met Phe Gly
        275                 280                 285

Gly Lys Gln Val Val Val Cys Gly Tyr Gly Glu Val Gly Lys Gly Cys
    290                 295                 300

Cys Ala Ala Leu Lys Ala Met Gly Ser Ile Val Tyr Val Thr Glu Ile
305                 310                 315                 320

Asp Pro Ile Cys Ala Leu Gln Ala Cys Met Asp Gly Phe Arg Leu Val
                325                 330                 335

Lys Leu Asn Glu Val Ile Arg Gln Val Asp Ile Val Ile Thr Cys Thr
            340                 345                 350

Gly Asn Lys Asn Val Val Thr Arg Glu His Leu Asp Arg Met Lys Asn
        355                 360                 365

Ser Cys Ile Val Cys Asn Met Gly His Ser Asn Thr Glu Ile Asp Val
    370                 375                 380

Ala Ser Leu Arg Thr Pro Glu Leu Thr Trp Glu Arg Val Arg Ser Gln
385                 390                 395                 400

Val Asp His Val Ile Trp Pro Asp Gly Lys Arg Ile Val Leu Leu Ala
                405                 410                 415

Glu Gly Arg Leu Leu Asn Leu Ser Cys Ser Thr Val Pro Thr Phe Val
            420                 425                 430

Leu Ser Ile Thr Ala Thr Thr Gln Ala Leu Ala Leu Ile Glu Leu Tyr
        435                 440                 445

Asn Ala Pro Glu Gly Arg Tyr Lys Gln Asp Val Tyr Leu Leu Pro Lys
    450                 455                 460

Lys Met Asp Glu Tyr Val Ala Ser Leu His Leu Pro Thr Phe Asp Ala
465                 470                 475                 480
```

```
His Leu Thr Glu Leu Thr Asp Glu Gln Ala Lys Tyr Leu Gly Leu Asn
                485                 490                 495

Lys Asn Gly Pro Phe Lys Pro Asn Tyr Tyr Arg Tyr
            500                 505
```

<210> 2774
<211> 508
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 644; "

<220>
<221> source
<223> /note="Gene Symbol: AHCYL2; "

<220>
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<223> /note="Gene Name:
adenosylhomocysteinase-like 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q96HN2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420801"

<400> 2774

```
Met Leu Gly Ser Lys Lys Lys Tyr Ile Val Asn Gly Asn Ser Gly Ile
1               5                   10                  15

Lys Ala Gln Ile Gln Phe Ala Asp Gln Lys Gln Glu Phe Asn Lys Arg
            20                  25                  30

Pro Thr Lys Ile Gly Arg Arg Ser Leu Ser Arg Ser Ile Ser Gln Ser
        35                  40                  45

Ser Thr Asp Ser Tyr Ser Ser Ala Ala Ser Tyr Thr Asp Ser Ser Asp
    50                  55                  60

Asp Glu Thr Ser Pro Arg Asp Lys Gln Gln Lys Asn Ser Lys Gly Ser
65                  70                  75                  80

Ser Asp Phe Cys Val Lys Asn Ile Lys Gln Ala Glu Phe Gly Arg Arg
```

```
                85                  90                  95

Glu Ile Glu Ile Ala Glu Gln Glu Met Pro Ala Leu Met Ala Leu Arg
            100                 105                 110

Lys Arg Ala Gln Gly Glu Lys Pro Leu Ala Gly Ala Lys Ile Val Gly
        115                 120                 125

Cys Thr His Ile Thr Ala Gln Thr Ala Val Leu Met Glu Thr Leu Gly
    130                 135                 140

Ala Leu Gly Ala Gln Cys Arg Trp Ala Ala Cys Asn Ile Tyr Ser Thr
145                 150                 155                 160

Leu Asn Glu Val Ala Ala Ala Leu Ala Glu Ser Gly Phe Pro Val Phe
                165                 170                 175

Ala Trp Lys Gly Glu Ser Glu Asp Asp Phe Trp Trp Cys Ile Asp Arg
            180                 185                 190

Cys Val Asn Val Glu Gly Trp Gln Pro Asn Met Ile Leu Asp Asp Gly
        195                 200                 205

Gly Asp Leu Thr His Trp Ile Tyr Lys Lys Tyr Pro Asn Met Phe Lys
    210                 215                 220

Lys Ile Lys Gly Ile Val Glu Glu Ser Val Thr Gly Val His Arg Leu
225                 230                 235                 240

Tyr Gln Leu Ser Lys Ala Gly Lys Leu Cys Val Pro Ala Met Asn Val
                245                 250                 255

Asn Asp Ser Val Thr Lys Gln Lys Phe Asp Asn Leu Tyr Cys Cys Arg
            260                 265                 270

Glu Ser Ile Leu Asp Gly Leu Lys Arg Thr Thr Asp Met Met Phe Gly
        275                 280                 285

Gly Lys Gln Val Val Val Cys Gly Tyr Gly Glu Val Gly Lys Gly Cys
    290                 295                 300

Cys Ala Ala Leu Lys Ala Met Gly Ser Ile Val Tyr Val Thr Glu Ile
305                 310                 315                 320
```

```
Asp Pro Ile Cys Ala Leu Gln Ala Cys Met Asp Gly Phe Arg Leu Val
                325                 330                 335

Lys Leu Asn Glu Val Ile Arg Gln Val Asp Ile Val Ile Thr Cys Thr
            340                 345                 350

Gly Asn Lys Asn Val Val Thr Arg Glu His Leu Asp Arg Met Lys Asn
        355                 360                 365

Ser Cys Ile Val Cys Asn Met Gly His Ser Asn Thr Glu Ile Asp Val
    370                 375                 380

Ala Ser Leu Arg Thr Pro Glu Leu Thr Trp Glu Arg Val Arg Ser Gln
385                 390                 395                 400

Val Asp His Val Ile Trp Pro Asp Gly Lys Arg Ile Val Leu Leu Ala
                405                 410                 415

Glu Gly Arg Leu Leu Asn Leu Ser Cys Ser Thr Val Pro Thr Phe Val
            420                 425                 430

Leu Ser Ile Thr Ala Thr Thr Gln Ala Leu Ala Leu Ile Glu Leu Tyr
        435                 440                 445

Asn Ala Pro Glu Gly Arg Tyr Lys Gln Asp Val Tyr Leu Leu Pro Lys
    450                 455                 460

Lys Met Asp Glu Tyr Val Ala Ser Leu His Leu Pro Thr Phe Asp Ala
465                 470                 475                 480

His Leu Thr Glu Leu Thr Asp Glu Gln Ala Lys Tyr Leu Gly Leu Asn
                485                 490                 495

Lys Asn Gly Pro Phe Lys Pro Asn Tyr Tyr Arg Tyr
            500                 505
```

<210> 2775
<211> 265
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 645; "

<220>
<221> source
<223> /note="Gene Symbol: AMD1; "

<220>
<221> source
<223> /note="Gene Name:
adenosylmethionine decarboxylase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357870"

<400> 2775

```
Met Phe Val Ser Lys Arg Arg Phe Ile Leu Lys Thr Cys Gly Thr Thr
1               5                  10                  15


Leu Leu Leu Lys Ala Leu Val Pro Leu Leu Lys Leu Ala Arg Asp Tyr
            20                  25                  30


Ser Gly Phe Asp Ser Ile Gln Ser Phe Phe Tyr Ser Arg Lys Asn Phe
        35                  40                  45


Met Lys Pro Ser His Gln Gly Tyr Pro His Arg Asn Phe Gln Glu Glu
    50                  55                  60


Ile Glu Phe Leu Asn Ala Ile Phe Pro Asn Gly Ala Ala Tyr Cys Met
65                  70                  75                  80


Gly Arg Met Asn Ser Asp Cys Trp Tyr Leu Tyr Thr Leu Asp Phe Pro
                85                  90                  95


Glu Ser Arg Val Ile Ser Gln Pro Asp Gln Thr Leu Glu Ile Leu Met
            100                 105                 110


Ser Glu Leu Asp Pro Ala Val Met Asp Gln Phe Tyr Met Lys Asp Gly
        115                 120                 125


Val Thr Ala Lys Asp Val Thr Arg Glu Ser Gly Ile Arg Asp Leu Ile
    130                 135                 140


Pro Gly Ser Val Ile Asp Ala Thr Met Phe Asn Pro Cys Gly Tyr Ser
145                 150                 155                 160


Met Asn Gly Met Lys Ser Asp Gly Thr Tyr Trp Thr Ile His Ile Thr
```

```
                165                 170                 175

Pro Glu Pro Glu Phe Ser Tyr Val Ser Phe Glu Thr Asn Leu Ser Gln
            180                 185                 190

Thr Ser Tyr Asp Asp Leu Ile Arg Lys Val Val Glu Val Phe Lys Pro
        195                 200                 205

Gly Lys Phe Val Thr Thr Leu Phe Val Asn Gln Ser Ser Lys Cys Arg
    210                 215                 220

Thr Val Leu Ala Ser Pro Gln Lys Ile Glu Gly Phe Lys Arg Leu Asp
225                 230                 235                 240

Cys Gln Ser Ala Met Phe Asn Asp Tyr Asn Phe Val Phe Thr Ser Phe
                245                 250                 255

Ala Lys Lys Gln Gln Gln Gln Ser
            260                 265


<210> 2776
<211> 265
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 645; "

<220>
<221> source
<223> /note="Gene Symbol: AMD1; "

<220>
<221> source
<223> /note="Gene Name:
      adenosylmethionine decarboxylase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357871"

<400> 2776
Met Phe Val Ser Lys Arg Arg Phe Ile Leu Lys Thr Cys Gly Thr Thr
1               5                   10                  15

Leu Leu Leu Lys Ala Leu Val Pro Leu Leu Lys Leu Ala Arg Asp Tyr
            20                  25                  30
```

```
Ser Gly Phe Asp Ser Ile Gln Ser Phe Phe Tyr Ser Arg Lys Asn Phe
        35                  40                  45

Met Lys Pro Ser His Gln Gly Tyr Pro His Arg Asn Phe Gln Glu Glu
    50                  55                  60

Ile Glu Phe Leu Asn Ala Ile Phe Pro Asn Gly Ala Ala Tyr Cys Met
65                  70                  75                  80

Gly Arg Met Asn Ser Asp Cys Trp Tyr Leu Tyr Thr Leu Asp Phe Pro
                85                  90                  95

Glu Ser Arg Val Ile Ser Gln Pro Asp Gln Thr Leu Glu Ile Leu Met
            100                 105                 110

Ser Glu Leu Asp Pro Ala Val Met Asp Gln Phe Tyr Met Lys Asp Gly
        115                 120                 125

Val Thr Ala Lys Asp Val Thr Arg Glu Ser Gly Ile Arg Asp Leu Ile
    130                 135                 140

Pro Gly Ser Val Ile Asp Ala Thr Met Phe Asn Pro Cys Gly Tyr Ser
145                 150                 155                 160

Met Asn Gly Met Lys Ser Asp Gly Thr Tyr Trp Thr Ile His Ile Thr
                165                 170                 175

Pro Glu Pro Glu Phe Ser Tyr Val Ser Phe Glu Thr Asn Leu Ser Gln
            180                 185                 190

Thr Ser Tyr Asp Asp Leu Ile Arg Lys Val Val Glu Val Phe Lys Pro
        195                 200                 205

Gly Lys Phe Val Thr Thr Leu Phe Val Asn Gln Ser Ser Lys Cys Arg
    210                 215                 220

Thr Val Leu Ala Ser Pro Gln Lys Ile Glu Gly Phe Lys Arg Leu Asp
225                 230                 235                 240

Cys Gln Ser Ala Met Phe Asn Asp Tyr Asn Phe Val Phe Thr Ser Phe
                245                 250                 255
```

```
Ala Lys Lys Gln Gln Gln Gln Gln Ser
            260                 265


<210> 2777
<211> 214
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 645; "

<220>
<221> source
<223> /note="Gene Symbol: AMD1; "

<220>
<221> source
<223> /note="Gene Name:
      adenosylmethionine decarboxylase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357877"

<400> 2777
Met Glu Ala Ala His Phe Phe Glu Gly Thr Glu Lys Leu Leu Glu Val
1               5                  10                  15


Trp Phe Ser Arg Gln Gln Pro Asp Ala Asn Gln Gly Ser Gly Asp Leu
            20                  25                  30


Arg Thr Ile Pro Arg Tyr Leu Tyr Thr Leu Asp Phe Pro Glu Ser Arg
        35                  40                  45


Val Ile Ser Gln Pro Asp Gln Thr Leu Glu Ile Leu Met Ser Glu Leu
    50                  55                  60


Asp Pro Ala Val Met Asp Gln Phe Tyr Met Lys Asp Gly Val Thr Ala
65                  70                  75                  80


Lys Asp Val Thr Arg Glu Ser Gly Ile Arg Asp Leu Ile Pro Gly Ser
                85                  90                  95


Val Ile Asp Ala Thr Met Phe Asn Pro Cys Gly Tyr Ser Met Asn Gly
            100                 105                 110


Met Lys Ser Asp Gly Thr Tyr Trp Thr Ile His Ile Thr Pro Glu Pro
        115                 120                 125
```

```
Glu Phe Ser Tyr Val Ser Phe Glu Thr Asn Leu Ser Gln Thr Ser Tyr
    130                 135                 140

Asp Asp Leu Ile Arg Lys Val Val Glu Val Phe Lys Pro Gly Lys Phe
145                 150                 155                 160

Val Thr Thr Leu Phe Val Asn Gln Ser Ser Lys Cys Arg Thr Val Leu
                165                 170                 175

Ala Ser Pro Gln Lys Ile Glu Gly Phe Lys Arg Leu Asp Cys Gln Ser
            180                 185                 190

Ala Met Phe Asn Asp Tyr Asn Phe Val Phe Thr Ser Phe Ala Lys Lys
        195                 200                 205

Gln Gln Gln Gln Gln Ser
    210


<210> 2778
<211> 334
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 645; "

<220>
<221> source
<223> /note="Gene Symbol: AMD1; "

<220>
<221> source
<223> /note="Gene Name:
      adenosylmethionine decarboxylase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  P17707; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357880"

<400> 2778
Met Glu Ala Ala His Phe Phe Glu Gly Thr Glu Lys Leu Leu Glu Val
1               5                   10                  15
```

```
Trp Phe Ser Arg Gln Gln Pro Asp Ala Asn Gln Gly Ser Gly Asp Leu
            20                  25                  30

Arg Thr Ile Pro Arg Ser Glu Trp Asp Ile Leu Leu Lys Asp Val Gln
        35                  40                  45

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

Leu Ser Glu Ser Ser Met Phe Val Ser Lys Arg Arg Phe Ile Leu Lys
65                  70                  75                  80

Thr Cys Gly Thr Thr Leu Leu Leu Lys Ala Leu Val Pro Leu Leu Lys
                85                  90                  95

Leu Ala Arg Asp Tyr Ser Gly Phe Asp Ser Ile Gln Ser Phe Phe Tyr
            100                 105                 110

Ser Arg Lys Asn Phe Met Lys Pro Ser His Gln Gly Tyr Pro His Arg
        115                 120                 125

Asn Phe Gln Glu Glu Ile Glu Phe Leu Asn Ala Ile Phe Pro Asn Gly
    130                 135                 140

Ala Ala Tyr Cys Met Gly Arg Met Asn Ser Asp Cys Trp Tyr Leu Tyr
145                 150                 155                 160

Thr Leu Asp Phe Pro Glu Ser Arg Val Ile Ser Gln Pro Asp Gln Thr
                165                 170                 175

Leu Glu Ile Leu Met Ser Glu Leu Asp Pro Ala Val Met Asp Gln Phe
            180                 185                 190

Tyr Met Lys Asp Gly Val Thr Ala Lys Asp Val Thr Arg Glu Ser Gly
        195                 200                 205

Ile Arg Asp Leu Ile Pro Gly Ser Val Ile Asp Ala Thr Met Phe Asn
    210                 215                 220

Pro Cys Gly Tyr Ser Met Asn Gly Met Lys Ser Asp Gly Thr Tyr Trp
225                 230                 235                 240

Thr Ile His Ile Thr Pro Glu Pro Glu Phe Ser Tyr Val Ser Phe Glu
```

```
                245                 250                 255

Thr Asn Leu Ser Gln Thr Ser Tyr Asp Asp Leu Ile Arg Lys Val Val
            260                 265                 270

Glu Val Phe Lys Pro Gly Lys Phe Val Thr Thr Leu Phe Val Asn Gln
        275                 280                 285

Ser Ser Lys Cys Arg Thr Val Leu Ala Ser Pro Gln Lys Ile Glu Gly
    290                 295                 300

Phe Lys Arg Leu Asp Cys Gln Ser Ala Met Phe Asn Asp Tyr Asn Phe
305                 310                 315                 320

Val Phe Thr Ser Phe Ala Lys Lys Gln Gln Gln Gln Ser
                325                 330


<210> 2779
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 645; "

<220>
<221> source
<223> /note="Gene Symbol: AMD1; "

<220>
<221> source
<223> /note="Gene Name:
      adenosylmethionine decarboxylase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000389988"

<400> 2779
Met Glu Ala Ala His Phe Phe Glu Gly Thr Glu Lys Leu Leu Glu Val
1               5                   10                  15

Trp Phe Ser Arg Gln Gln Pro Asp Ala Asn Gln Gly Ser Gly Asp Leu
            20                  25                  30

Arg Thr Ile Pro Arg Trp Ser Ser Ile Leu Tyr Gly Thr Tyr Glu Phe
        35                  40                  45
```

<210> 2780
<211> 5
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 645; "

<220>
<221> source
<223> /note="Gene Symbol: AMD1; "

<220>
<221> source
<223> /note="Gene Name:
adenosylmethionine decarboxylase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433396"

<400> 2780
Asp Ser Phe His Ser
1 5

<210> 2781
<211> 265
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 645; "

<220>
<221> source
<223> /note="Gene Symbol: AMD1; "

<220>
<221> source
<223> /note="Gene Name:
adenosylmethionine decarboxylase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483984"

<400> 2781
Met Phe Val Ser Lys Arg Arg Phe Ile Leu Lys Thr Cys Gly Thr Thr
1 5 10 15

Leu Leu Leu Lys Ala Leu Val Pro Leu Leu Lys Leu Ala Arg Asp Tyr
20 25 30

```
Ser Gly Phe Asp Ser Ile Gln Ser Phe Phe Tyr Ser Arg Lys Asn Phe
        35                  40                  45

Met Lys Pro Ser His Gln Gly Tyr Pro His Arg Asn Phe Gln Glu Glu
    50                  55                  60

Ile Glu Phe Leu Asn Ala Ile Phe Pro Asn Gly Ala Ala Tyr Cys Met
65                  70                  75                  80

Gly Arg Met Asn Ser Asp Cys Trp Tyr Leu Tyr Thr Leu Asp Phe Pro
                85                  90                  95

Glu Ser Arg Val Ile Ser Gln Pro Asp Gln Thr Leu Glu Ile Leu Met
            100                 105                 110

Ser Glu Leu Asp Pro Ala Val Met Asp Gln Phe Tyr Met Lys Asp Gly
        115                 120                 125

Val Thr Ala Lys Asp Val Thr Arg Glu Ser Gly Ile Arg Asp Leu Ile
    130                 135                 140

Pro Gly Ser Val Ile Asp Ala Thr Met Phe Asn Pro Cys Gly Tyr Ser
145                 150                 155                 160

Met Asn Gly Met Lys Ser Asp Gly Thr Tyr Trp Thr Ile His Ile Thr
                165                 170                 175

Pro Glu Pro Glu Phe Ser Tyr Val Ser Phe Glu Thr Asn Leu Ser Gln
            180                 185                 190

Thr Ser Tyr Asp Asp Leu Ile Arg Lys Val Val Glu Val Phe Lys Pro
        195                 200                 205

Gly Lys Phe Val Thr Thr Leu Phe Val Asn Gln Ser Ser Lys Cys Arg
    210                 215                 220

Thr Val Leu Ala Ser Pro Gln Lys Ile Glu Gly Phe Lys Arg Leu Asp
225                 230                 235                 240

Cys Gln Ser Ala Met Phe Asn Asp Tyr Asn Phe Val Phe Thr Ser Phe
                245                 250                 255
```

Ala Lys Lys Gln Gln Gln Gln Gln Ser
260 265

<210> 2782
<211> 1119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 646; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 1 (brain); "

<220>
<221> source
<223> /note="Uniprot ID: Q08828; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000297323"

<400> 2782
Met Ala Gly Ala Pro Arg Gly Gly Gly Gly Gly Gly Gly Gly Ala Gly
1 5 10 15

Glu Pro Gly Gly Ala Glu Arg Ala Ala Gly Thr Ser Arg Arg Arg Gly
20 25 30

Leu Arg Ala Cys Asp Glu Glu Phe Ala Cys Pro Glu Leu Glu Ala Leu
35 40 45

Phe Arg Gly Tyr Thr Leu Arg Leu Glu Gln Ala Ala Thr Leu Lys Ala
50 55 60

Leu Ala Val Leu Ser Leu Leu Ala Gly Ala Leu Ala Leu Ala Glu Leu
65 70 75 80

Leu Gly Ala Pro Gly Pro Ala Pro Gly Leu Ala Lys Gly Ser His Pro
85 90 95

Val His Cys Val Leu Phe Leu Ala Leu Leu Val Val Thr Asn Val Arg

```
            100                 105                 110

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

Phe Ser Leu Thr Phe Ala Leu Leu Cys Cys Pro Phe Ala Leu Gly Gly
    130                 135                 140

Pro Ala Arg Gly Ser Ala Gly Ala Ala Gly Gly Pro Ala Thr Ala Glu
145                 150                 155                 160

Gln Gly Val Trp Gln Leu Leu Leu Val Thr Phe Val Ser Tyr Ala Leu
                165                 170                 175

Leu Pro Val Arg Ser Leu Leu Ala Ile Gly Phe Gly Leu Val Val Ala
            180                 185                 190

Ala Ser His Leu Leu Val Thr Ala Thr Leu Val Pro Ala Lys Arg Pro
        195                 200                 205

Arg Leu Trp Arg Thr Leu Gly Ala Asn Ala Leu Leu Phe Val Gly Val
    210                 215                 220

Asn Met Tyr Gly Val Phe Val Arg Ile Leu Thr Glu Arg Ser Gln Arg
225                 230                 235                 240

Lys Ala Phe Leu Gln Ala Arg Ser Cys Ile Glu Asp Arg Leu Arg Leu
                245                 250                 255

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

Arg Asn Val Ala Met Glu Met Lys Glu Asp Phe Leu Lys Pro Pro Glu
        275                 280                 285

Arg Ile Phe His Lys Ile Tyr Ile Gln Arg His Asp Asn Val Ser Ile
    290                 295                 300

Leu Phe Ala Asp Ile Val Gly Phe Thr Gly Leu Ala Ser Gln Cys Thr
305                 310                 315                 320

Ala Gln Glu Leu Val Lys Leu Leu Asn Glu Leu Phe Gly Lys Phe Asp
                325                 330                 335
```

```
Glu Leu Ala Thr Glu Asn His Cys Arg Arg Ile Lys Ile Leu Gly Asp
            340                 345                 350

Cys Tyr Tyr Cys Val Ser Gly Leu Thr Gln Pro Lys Thr Asp His Ala
        355                 360                 365

His Cys Cys Val Glu Met Gly Leu Asp Met Ile Asp Thr Ile Thr Ser
    370                 375                 380

Val Ala Glu Ala Thr Glu Val Asp Leu Asn Met Arg Val Gly Leu His
385                 390                 395                 400

Thr Gly Arg Val Leu Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Tyr
                405                 410                 415

Asp Val Trp Ser Asn Asp Val Thr Leu Ala Asn Val Met Glu Ala Ala
            420                 425                 430

Gly Leu Pro Gly Lys Val His Ile Thr Lys Thr Thr Leu Ala Cys Leu
        435                 440                 445

Asn Gly Asp Tyr Glu Val Glu Pro Gly Tyr Gly His Glu Arg Asn Ser
    450                 455                 460

Phe Leu Lys Thr His Asn Ile Glu Thr Phe Phe Ile Val Pro Ser His
465                 470                 475                 480

Arg Arg Lys Ile Phe Pro Gly Leu Ile Leu Ser Asp Ile Lys Pro Ala
                485                 490                 495

Lys Arg Met Lys Phe Lys Thr Val Cys Tyr Leu Leu Val Gln Leu Met
            500                 505                 510

His Cys Arg Lys Met Phe Lys Ala Glu Ile Pro Phe Ser Asn Val Met
        515                 520                 525

Thr Cys Glu Asp Asp Asp Lys Arg Arg Ala Leu Arg Thr Ala Ser Glu
    530                 535                 540

Lys Leu Arg Asn Arg Ser Ser Phe Ser Thr Asn Val Val Tyr Thr Thr
545                 550                 555                 560
```

```
Pro Gly Thr Arg Val Asn Arg Tyr Ile Ser Arg Leu Leu Glu Ala Arg
                565                 570                 575

Gln Thr Glu Leu Glu Met Ala Asp Leu Asn Phe Phe Thr Leu Lys Tyr
            580                 585                 590

Lys His Val Glu Arg Glu Gln Lys Tyr His Gln Leu Gln Asp Glu Tyr
        595                 600                 605

Phe Thr Ser Ala Val Val Leu Thr Leu Ile Leu Ala Ala Leu Phe Gly
    610                 615                 620

Leu Val Tyr Leu Leu Ile Phe Pro Gln Ser Val Val Val Leu Leu Leu
625                 630                 635                 640

Leu Val Phe Cys Ile Cys Phe Leu Val Ala Cys Val Leu Tyr Leu His
                645                 650                 655

Ile Thr Arg Val Gln Cys Phe Pro Gly Cys Leu Thr Ile Gln Ile Arg
            660                 665                 670

Thr Val Leu Cys Ile Phe Ile Val Val Leu Ile Tyr Ser Val Ala Gln
        675                 680                 685

Gly Cys Val Val Gly Cys Leu Pro Trp Ala Trp Ser Ser Lys Pro Asn
    690                 695                 700

Ser Ser Leu Val Val Leu Ser Ser Gly Gly Gln Arg Thr Ala Leu Pro
705                 710                 715                 720

Thr Leu Pro Cys Glu Ser Thr His His Ala Leu Leu Cys Cys Leu Val
                725                 730                 735

Gly Thr Leu Pro Leu Ala Ile Phe Phe Arg Val Ser Ser Leu Pro Lys
            740                 745                 750

Met Ile Leu Leu Ser Gly Leu Thr Thr Ser Tyr Ile Leu Val Leu Glu
        755                 760                 765

Leu Ser Gly Tyr Thr Arg Thr Gly Gly Gly Ala Val Ser Gly Arg Ser
    770                 775                 780
```

```
Tyr Glu Pro Ile Val Ala Ile Leu Leu Phe Ser Cys Ala Leu Ala Leu
785                 790                 795                 800

His Ala Arg Gln Val Asp Ile Arg Leu Arg Leu Asp Tyr Leu Trp Ala
                805                 810                 815

Ala Gln Ala Glu Glu Glu Arg Glu Asp Met Glu Lys Val Lys Leu Asp
            820                 825                 830

Asn Arg Arg Ile Leu Phe Asn Leu Leu Pro Ala His Val Ala Gln His
        835                 840                 845

Phe Leu Met Ser Asn Pro Arg Asn Met Asp Leu Tyr Tyr Gln Ser Tyr
    850                 855                 860

Ser Gln Val Gly Val Met Phe Ala Ser Ile Pro Asn Phe Asn Asp Phe
865                 870                 875                 880

Tyr Ile Glu Leu Asp Gly Asn Asn Met Gly Val Glu Cys Leu Arg Leu
                885                 890                 895

Leu Asn Glu Ile Ile Ala Asp Phe Asp Glu Leu Met Glu Lys Asp Phe
            900                 905                 910

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

Ala Val Gly Leu Ala Pro Thr Ser Gly Thr Lys Ala Lys Lys Ser Ile
    930                 935                 940

Ser Ser His Leu Ser Thr Leu Ala Asp Phe Ala Ile Glu Met Phe Asp
945                 950                 955                 960

Val Leu Asp Glu Ile Asn Tyr Gln Ser Tyr Asn Asp Phe Val Leu Arg
                965                 970                 975

Val Gly Ile Asn Val Gly Pro Val Val Ala Gly Val Ile Gly Ala Arg
            980                 985                 990

Arg Pro Gln Tyr Asp Ile Trp Gly  Asn Thr Val Asn Val  Ala Ser
Arg
        995                 1000                1005
```

```
Met Asp  Ser Thr Gly Val Gln  Gly Arg Ile Gln Val  Thr Glu Glu
    1010                1015                1020

Val His  Arg Leu Leu Arg Arg  Cys Pro Tyr His Phe  Val Cys Arg
    1025                1030                1035

Gly Lys  Val Ser Val Lys Gly  Lys Gly Glu Met Leu  Thr Tyr Phe
    1040                1045                1050

Leu Glu  Gly Arg Thr Asp Gly  Asn Gly Ser Gln Ile  Arg Ser Leu
    1055                1060                1065

Gly Leu  Asp Arg Lys Met Cys  Pro Phe Gly Arg Ala  Gly Leu Gln
    1070                1075                1080

Gly Arg  Arg Pro Pro Val Cys  Pro Met Pro Gly Val  Ser Val Arg
    1085                1090                1095

Ala Gly  Leu Pro Pro His Ser  Pro Gly Gln Tyr Leu  Pro Ser Ala
    1100                1105                1110

Ala Ala  Gly Lys Glu Ala
    1115
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<210> 2783
<211> 338
<212> PRT
<213> Homo sapiens

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<220>
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adenylate cyclase 1 (brain); "

<220>
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<400> 2783
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Met Tyr Gly Val Phe Val Arg Ile Leu Thr Glu Arg Ser Gln Arg Lys
1               5                  10                  15
```

```
Ala Phe Leu Gln Ala Arg Ser Cys Ile Glu Asp Arg Leu Arg Leu Glu
            20                  25                  30

Asp Glu Asn Glu Lys Gln Glu Arg Leu Leu Met Ser Leu Leu Pro Arg
        35                  40                  45

Asn Val Ala Met Glu Met Lys Glu Asp Phe Leu Lys Pro Pro Glu Arg
    50                  55                  60

Ile Phe His Lys Ile Tyr Ile Gln Arg His Asp Asn Val Ser Ile Leu
65                  70                  75                  80

Phe Ala Asp Ile Val Gly Phe Thr Gly Leu Ala Ser Gln Cys Thr Ala
                85                  90                  95

Gln Glu Leu Val Lys Leu Leu Asn Glu Leu Phe Gly Lys Phe Asp Glu
            100                 105                 110

Leu Ala Thr Glu Asn His Cys Arg Arg Ile Lys Ile Leu Gly Asp Cys
        115                 120                 125

Tyr Tyr Cys Val Ser Gly Leu Thr Gln Pro Lys Thr Asp His Ala His
    130                 135                 140

Cys Cys Val Glu Met Gly Leu Asp Met Ile Asp Thr Ile Thr Ser Val
145                 150                 155                 160

Ala Glu Ala Thr Glu Val Asp Leu Asn Met Arg Val Gly Leu His Thr
                165                 170                 175

Gly Arg Val Leu Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Tyr Asp
            180                 185                 190

Val Trp Ser Asn Asp Val Thr Leu Ala Asn Val Met Glu Ala Ala Gly
        195                 200                 205

Leu Pro Gly Lys Val His Ile Thr Lys Thr Thr Leu Ala Cys Leu Asn
    210                 215                 220

Gly Asp Tyr Glu Val Glu Pro Gly Tyr Gly His Glu Arg Asn Ser Phe
225                 230                 235                 240
```

```
Leu Lys Thr His Asn Ile Glu Thr Phe Phe Ile Val Pro Ser His Arg
                245                 250                 255

Arg Lys Ile Phe Pro Gly Leu Ile Leu Ser Asp Ile Lys Pro Ala Lys
            260                 265                 270

Arg Met Lys Phe Lys Thr Val Cys Tyr Leu Leu Val Gln Leu Met His
        275                 280                 285

Cys Arg Lys Met Phe Lys Ala Glu Ile Pro Phe Ser Asn Val Met Thr
    290                 295                 300

Cys Glu Asp Asp Asp Lys Val Gln Ile His Pro Ser Leu Ser Gly Leu
305                 310                 315                 320

Asp Val Leu Leu Gly Phe Trp Ser Pro Thr Leu Gln Arg Gly Arg Leu
                325                 330                 335

Cys Thr
```

<210> 2784
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<220>
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<400> 2784

```
Met Tyr Gly Val Phe Val Arg Ile Leu Thr Glu Arg Ser Gln Arg Lys
1               5                   10                  15

Ala Phe Leu Gln Ala Arg Ser Cys Ile Glu Asp Arg Leu Arg Leu Glu
```

```
            20                  25                  30

Asp Glu Asn Glu Lys Gln Glu Arg Leu Leu Met Ser Leu Leu Pro Arg
        35                  40                  45

Asn Val Ala Met Glu Met Lys Glu Asp Phe Leu Lys Pro Pro Glu Arg
    50                  55                  60

Ile Phe His Lys Ile Tyr Ile Gln Arg His Asp Asn Val Ser Ile Leu
65                  70                  75                  80

Phe Ala Asp Ile Val Gly Phe Thr Gly Leu Ala Ser Gln Cys Thr Ala
                85                  90                  95

Gln Glu Leu Val Lys Leu Leu Asn Glu Leu Phe Gly Lys Phe Asp Glu
            100                 105                 110

Leu Ala Thr Glu Asn His Cys Arg Arg Ile Lys Ile Leu Gly Asp Cys
        115                 120                 125

Tyr Tyr Cys Val Ser Gly Leu Thr Gln Pro Lys Thr Asp His Ala His
    130                 135                 140

Cys Cys Val Glu Met Gly Leu Asp Met Ile Asp Thr Ile Thr Ser Val
145                 150                 155                 160

Ala Glu Ala Thr Glu Val Asp Leu Asn Met Arg Val Gly Leu His Thr
                165                 170                 175

Gly Arg Val Leu Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Tyr Asp
            180                 185                 190

Val Trp Ser Asn Asp Val Thr Leu Ala Asn Val Met Glu Ala Ala Gly
        195                 200                 205

Leu Pro Gly Lys Val His Ile Thr Lys Thr Thr Leu Ala Cys Leu Asn
    210                 215                 220

Gly Asp Tyr Glu Val Glu Pro Gly Tyr Gly His Glu Arg Asn Ser Phe
225                 230                 235                 240

Leu Lys Thr His Asn Ile Glu Thr Phe Phe Ile Val Pro Ser His Arg
                245                 250                 255
```

```
Arg Lys Ile Phe Pro Gly Leu Ile Leu Ser Asp Ile Lys Pro Ala Lys
            260                 265                 270

Arg Met Lys Phe Lys Thr Val Cys Tyr Leu Leu Val Gln Leu Met His
        275                 280                 285

Cys Arg Lys Met Phe Lys Ala Glu Ile Pro Phe Ser Asn Val Met Thr
    290                 295                 300

Cys Glu Asp Asp Asp Lys Val Gln Ile His Pro Ser Leu Ser Gly Leu
305                 310                 315                 320

Asp Val Leu Leu Gly Phe Trp Ser Pro Thr Leu Gln Arg Gly Arg Leu
                325                 330                 335

Cys Thr
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<210> 2785
<211> 1518
<212> PRT
<213> Homo sapiens

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<220>
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<400> 2785

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Met Ser Leu Ser Glu Gly Asp Ala Leu Leu Ala Leu Trp Arg Val Glu
1               5                   10                  15
```

```
Arg Lys Gln Leu Lys Asn Ile Ile Thr Val Val Ile Lys Cys Ser Leu
            20                  25                  30

Glu Ile His Gly Leu Phe Glu Thr Gln Glu Trp Glu Glu Gly Leu Asp
        35                  40                  45

Ile Arg Val Lys Ile Gly Leu Ala Ala Gly His Ile Ser Met Leu Val
    50                  55                  60

Phe Gly Asp Glu Thr His Ser His Phe Leu Val Ile Gly Gln Ala Val
65                  70                  75                  80

Asp Asp Val Arg Leu Ala Gln Asn Met Ala Gln Met Asn Asp Val Ile
                85                  90                  95

Leu Ser Pro Asn Cys Trp Gln Leu Cys Asp Arg Ser Met Ile Glu Ile
            100                 105                 110

Glu Ser Val Pro Asp Gln Arg Ala Val Lys Val Asn Phe Leu Lys Pro
        115                 120                 125

Pro Pro Asn Phe Asn Phe Asp Glu Phe Phe Thr Lys Cys Thr Thr Phe
    130                 135                 140

Met His Tyr Tyr Pro Ser Gly Glu His Lys Asn Leu Leu Arg Leu Ala
145                 150                 155                 160

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

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

Tyr Leu Ser Glu Leu Arg Pro Val Thr Ile Val Phe Val Asn Leu Met
        195                 200                 205

Phe Glu Asp Gln Asp Lys Ala Glu Glu Ile Gly Pro Ala Ile Gln Asp
    210                 215                 220

Ala Tyr Met His Ile Thr Ser Val Leu Lys Ile Phe Gln Gly Gln Ile
225                 230                 235                 240

Asn Lys Val Phe Met Phe Asp Lys Gly Cys Ser Phe Leu Cys Val Phe
```

```
                245                 250                 255

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

Cys Ala Met Asp Ile Phe Asp Phe Cys Ser Gln Val His Lys Ile Gln
        275                 280                 285

Thr Val Ser Ile Gly Val Ala Ser Gly Ile Val Phe Cys Gly Ile Val
    290                 295                 300

Gly His Thr Val Arg His Glu Tyr Thr Val Ile Gly Gln Lys Val Asn
305                 310                 315                 320

Leu Ala Ala Arg Met Met Met Tyr Tyr Pro Gly Ile Val Thr Cys Asp
                325                 330                 335

Ser Val Thr Tyr Asn Gly Ser Asn Leu Pro Ala Tyr Phe Phe Lys Glu
            340                 345                 350

Leu Pro Lys Lys Val Met Lys Gly Val Ala Asp Ser Gly Pro Leu Tyr
        355                 360                 365

Gln Tyr Trp Gly Arg Thr Glu Lys Val Met Phe Gly Met Ala Cys Leu
    370                 375                 380

Ile Cys Asn Arg Lys Glu Asp Tyr Pro Leu Leu Gly Arg Asn Lys Glu
385                 390                 395                 400

Ile Asn Tyr Phe Met Tyr Thr Met Lys Lys Phe Leu Ile Ser Asn Ser
                405                 410                 415

Ser Gln Val Leu Met Tyr Glu Gly Leu Pro Gly Tyr Gly Lys Ser Gln
            420                 425                 430

Ile Leu Met Lys Ile Glu Tyr Leu Ala Gln Gly Lys Asn His Arg Ile
        435                 440                 445

Ile Ala Ile Ser Leu Asn Lys Ile Ser Phe His Gln Thr Phe Tyr Thr
    450                 455                 460

Ile Gln Met Phe Met Ala Asn Val Leu Gly Leu Asp Thr Cys Lys His
465                 470                 475                 480
```

Tyr Lys Glu Arg Gln Thr Asn Leu Arg Asn Lys Val Met Thr Leu Leu
485 490 495

Asp Glu Lys Phe Tyr Cys Leu Leu Asn Asp Ile Phe His Val Gln Phe
500 505 510

Pro Ile Ser Arg Glu Ile Ser Arg Met Ser Thr Leu Lys Lys Gln Lys
515 520 525

Gln Leu Glu Ile Leu Phe Met Lys Ile Leu Lys Leu Ile Val Lys Glu
530 535 540

Glu Arg Ile Ile Phe Ile Ile Asp Glu Ala Gln Phe Val Asp Ser Thr
545 550 555 560

Ser Trp Arg Phe Met Glu Lys Leu Ile Arg Thr Leu Pro Ile Phe Ile
565 570 575

Ile Met Ser Leu Cys Pro Phe Val Asn Ile Pro Cys Ala Ala Ala Arg
580 585 590

Ala Val Ile Lys Asn Arg Asn Thr Thr Tyr Ile Val Ile Gly Ala Val
595 600 605

Gln Pro Asn Asp Ile Ser Asn Lys Ile Cys Leu Asp Leu Asn Val Ser
610 615 620

Cys Ile Ser Lys Glu Leu Asp Ser Tyr Leu Gly Glu Gly Ser Cys Gly
625 630 635 640

Ile Pro Phe Tyr Cys Glu Glu Leu Leu Lys Asn Leu Glu His His Glu
645 650 655

Val Leu Val Phe Gln Gln Thr Glu Ser Glu Glu Lys Thr Asn Arg Thr
660 665 670

Trp Asn Asn Leu Phe Lys Tyr Ser Ile Lys Leu Thr Glu Lys Leu Asn
675 680 685

Met Val Thr Leu His Ser Asp Lys Glu Ser Glu Glu Val Cys His Leu
690 695 700

Thr Ser Gly Val Arg Leu Lys Asn Leu Ser Pro Pro Thr Ser Leu Lys
705 710 715 720

Glu Ile Ser Leu Ile Gln Leu Asp Ser Met Arg Leu Ser His Gln Met
725 730 735

Leu Val Arg Cys Ala Ala Ile Ile Gly Leu Thr Phe Thr Thr Glu Leu
740 745 750

Leu Phe Glu Ile Leu Pro Cys Trp Asn Met Lys Met Met Ile Lys Thr
755 760 765

Leu Ala Thr Leu Val Glu Ser Asn Ile Phe Tyr Cys Phe Arg Asn Gly
770 775 780

Lys Glu Leu Gln Lys Ala Leu Lys Gln Asn Asp Pro Ser Phe Glu Val
785 790 795 800

His Tyr Arg Ser Leu Ser Leu Lys Pro Ser Glu Gly Met Asp His Gly
805 810 815

Glu Glu Glu Gln Leu Arg Glu Leu Glu Asn Glu Val Ile Glu Cys His
820 825 830

Arg Ile Arg Phe Cys Asn Pro Met Met Gln Lys Thr Ala Tyr Glu Leu
835 840 845

Trp Leu Lys Asp Gln Arg Lys Ala Met His Leu Lys Cys Ala Arg Phe
850 855 860

Leu Glu Glu Asp Ala His Arg Cys Asp His Cys Arg Gly Arg Asp Phe
865 870 875 880

Ile Pro Tyr His His Phe Thr Val Asn Ile Arg Leu Asn Ala Leu Asp
885 890 895

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

Glu Lys Leu Ile Leu Ser Asn Ser Glu Ile Pro Glu Thr Ser Ala Phe
915 920 925

```
Phe Pro Glu Asn Arg Ser Pro Glu Glu Ile Arg Glu Lys Ile Leu Asn
    930                 935                 940

Phe Phe Asp His Val Leu Thr Lys Met Lys Thr Ser Asp Glu Asp Ile
945                 950                 955                 960

Ile Pro Leu Glu Ser Cys Gln Cys Glu Glu Ile Leu Glu Ile Val Ile
                965                 970                 975

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

Leu Tyr Tyr Phe Leu Glu Ile Ala  Ser Ala Tyr Leu Ile  Phe Cys
Asp
        995                 1000                1005

Asn Tyr  Met Ala Tyr Met Tyr  Leu Asn Glu Gly Gln  Lys Leu Leu
    1010                1015                1020

Lys Thr  Leu Lys Lys Asp Lys  Ser Trp Ser Gln Thr  Phe Glu Ser
    1025                1030                1035

Ala Thr  Phe Tyr Ser Leu Lys  Gly Glu Val Cys Phe  Asn Met Gly
    1040                1045                1050

Gln Ile  Val Leu Ala Lys Lys  Met Leu Arg Lys Ala  Leu Lys Leu
    1055                1060                1065

Leu Asn  Arg Ile Phe Pro Tyr  Asn Leu Ile Ser Leu  Phe Leu His
    1070                1075                1080

Ile His  Val Glu Lys Asn Arg  His Phe His Tyr Val  Asn Arg Gln
    1085                1090                1095

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

Tyr Arg  Gln Thr Val Cys Leu  Ser Leu Leu Trp Arg  Ile Tyr Ser
    1115                1120                1125

Tyr Ser  Tyr Leu Phe His Cys  Lys Tyr Tyr Ala His  Leu Ala Val
    1130                1135                1140
```

```
Met Met  Gln Met Asn Thr Ala  Leu Glu Thr Gln Asn  Cys Phe Gln
    1145                1150                1155

Ile Ile  Lys Ala Tyr Leu Asp  Tyr Ser Leu Tyr His  His Leu Ala
    1160                1165                1170

Gly Tyr  Lys Gly Val Trp Phe  Lys Tyr Glu Val Met  Ala Met Glu
    1175                1180                1185

His Ile  Phe Asn Leu Pro Leu  Lys Gly Glu Gly Ile  Glu Ile Val
    1190                1195                1200

Ala Tyr  Val Ala Glu Thr Leu  Val Phe Asn Lys Leu  Ile Met Gly
    1205                1210                1215

His Leu  Asp Leu Ala Ile Glu  Leu Gly Ser Arg Ala  Leu Gln Met
    1220                1225                1230

Trp Ala  Leu Leu Gln Asn Pro  Asn Arg His Tyr Gln  Ser Leu Cys
    1235                1240                1245

Arg Leu  Ser Arg Cys Leu Leu  Leu Asn Ser Arg Tyr  Pro Gln Leu
    1250                1255                1260

Ile Gln  Val Leu Gly Arg Leu  Trp Glu Leu Ser Val  Thr Gln Glu
    1265                1270                1275

His Ile  Phe Ser Lys Ala Phe  Phe Tyr Phe Val Cys  Leu Asp Ile
    1280                1285                1290

Leu Leu  Tyr Ser Gly Phe Val  Tyr Arg Thr Phe Glu  Glu Cys Leu
    1295                1300                1305

Glu Phe  Ile His Gln Tyr Glu  Asn Asn Arg Ile Leu  Lys Phe His
    1310                1315                1320

Ser Gly  Leu Leu Leu Gly Leu  Tyr Ser Ser Val Ala  Ile Trp Tyr
    1325                1330                1335

Ala Arg  Leu Gln Glu Trp Asp  Asn Phe Tyr Lys Phe  Ser Asn Arg
    1340                1345                1350

Ala Lys  Asn Leu Leu Pro Arg  Arg Thr Met Thr Leu  Thr Tyr Tyr
```

```
    1355                1360                1365

Asp Gly  Ile Ser Arg Tyr Met  Glu Gly Gln Val Leu  His Leu Gln
    1370                1375                1380

Lys Gln  Ile Lys Glu Gln Ser  Glu Asn Ala Gln Ala  Ser Gly Glu
    1385                1390                1395

Glu Leu  Leu Lys Asn Leu Glu  Asn Leu Val Ala Gln  Asn Thr Thr
    1400                1405                1410

Gly Pro  Val Phe Cys Pro Arg  Leu Tyr His Leu Met  Ala Tyr Val
    1415                1420                1425

Cys Ile  Leu Met Gly Asp Gly  Gln Lys Cys Gly Leu  Phe Leu Asn
    1430                1435                1440

Thr Ala  Leu Arg Leu Ser Glu  Thr Gln Gly Asn Ile  Leu Glu Lys
    1445                1450                1455

Cys Trp  Leu Asn Met Asn Lys  Glu Ser Trp Tyr Ser  Thr Ser Glu
    1460                1465                1470

Leu Lys  Glu Asp Gln Trp Leu  Gln Thr Ile Leu Ser  Leu Pro Ser
    1475                1480                1485

Trp Glu  Lys Ile Val Ala Gly  Arg Val Asn Ile Gln  Asp Leu Gln
    1490                1495                1500

Lys Asn  Lys Phe Leu Met Arg  Ala Asn Thr Val Asp  Asn His Phe
    1505                1510                1515


<210> 2786
<211> 1610
<212> PRT
<213> Homo sapiens

<220>
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<400> 2786

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Met Asn Thr Pro Lys Glu Glu Phe Gln Asp Trp Pro Ile Val Arg Ile
1               5                  10                  15

Ala Ala His Leu Pro Asp Leu Ile Val Tyr Gly His Phe Ser Pro Glu
            20                  25                  30

Arg Pro Phe Met Asp Tyr Phe Asp Gly Val Leu Met Phe Val Asp Ile
        35                  40                  45

Ser Gly Phe Thr Ala Met Thr Glu Lys Phe Ser Ser Ala Met Tyr Met
    50                  55                  60

Asp Arg Gly Ala Glu Gln Leu Val Glu Ile Leu Asn Tyr His Ile Ser
65                  70                  75                  80

Ala Ile Val Glu Lys Val Leu Ile Phe Gly Gly Asp Ile Leu Lys Phe
                85                  90                  95

Ala Gly Asp Ala Leu Leu Ala Leu Trp Arg Val Glu Arg Lys Gln Leu
            100                 105                 110

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

Leu Phe Glu Thr Gln Glu Trp Glu Glu Gly Leu Asp Ile Arg Val Lys
    130                 135                 140

Ile Gly Leu Ala Ala Gly His Ile Ser Met Leu Val Phe Gly Asp Glu
145                 150                 155                 160

Thr His Ser His Phe Leu Val Ile Gly Gln Ala Val Asp Asp Val Arg
                165                 170                 175
```

```
Leu Ala Gln Asn Met Ala Gln Met Asn Asp Val Ile Leu Ser Pro Asn
            180                 185                 190

Cys Trp Gln Leu Cys Asp Arg Ser Met Ile Glu Ile Glu Ser Val Pro
        195                 200                 205

Asp Gln Arg Ala Val Lys Val Asn Phe Leu Lys Pro Pro Pro Asn Phe
    210                 215                 220

Asn Phe Asp Glu Phe Phe Thr Lys Cys Thr Thr Phe Met His Tyr Tyr
225                 230                 235                 240

Pro Ser Gly Glu His Lys Asn Leu Leu Arg Leu Ala Cys Thr Leu Lys
                245                 250                 255

Pro Asp Pro Glu Leu Glu Met Ser Leu Gln Lys Tyr Val Met Glu Ser
            260                 265                 270

Ile Leu Lys Gln Ile Asp Asn Lys Gln Leu Gln Gly Tyr Leu Ser Glu
        275                 280                 285

Leu Arg Pro Val Thr Ile Val Phe Val Asn Leu Met Phe Glu Asp Gln
    290                 295                 300

Asp Lys Ala Glu Glu Ile Gly Pro Ala Ile Gln Asp Ala Tyr Met His
305                 310                 315                 320

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

Met Phe Asp Lys Gly Cys Ser Phe Leu Cys Val Phe Gly Phe Pro Gly
            340                 345                 350

Glu Lys Val Pro Asp Glu Leu Thr His Ala Leu Glu Cys Ala Met Asp
        355                 360                 365

Ile Phe Asp Phe Cys Ser Gln Val His Lys Ile Gln Thr Val Ser Ile
    370                 375                 380

Gly Val Ala Ser Gly Ile Val Phe Cys Gly Ile Val Gly His Thr Val
385                 390                 395                 400

Arg His Glu Tyr Thr Val Ile Gly Gln Lys Val Asn Leu Ala Ala Arg
```

405 410 415

Met Met Met Tyr Tyr Pro Gly Ile Val Thr Cys Asp Ser Val Thr Tyr
420 425 430

Asn Gly Ser Asn Leu Pro Ala Tyr Phe Phe Lys Glu Leu Pro Lys Lys
435 440 445

Val Met Lys Gly Val Ala Asp Ser Gly Pro Leu Tyr Gln Tyr Trp Gly
450 455 460

Arg Thr Glu Lys Val Met Phe Gly Met Ala Cys Leu Ile Cys Asn Arg
465 470 475 480

Lys Glu Asp Tyr Pro Leu Leu Gly Arg Asn Lys Glu Ile Asn Tyr Phe
485 490 495

Met Tyr Thr Met Lys Lys Phe Leu Ile Ser Asn Ser Ser Gln Val Leu
500 505 510

Met Tyr Glu Gly Leu Pro Gly Tyr Gly Lys Ser Gln Ile Leu Met Lys
515 520 525

Ile Glu Tyr Leu Ala Gln Gly Lys Asn His Arg Ile Ile Ala Ile Ser
530 535 540

Leu Asn Lys Ile Ser Phe His Gln Thr Phe Tyr Thr Ile Gln Met Phe
545 550 555 560

Met Ala Asn Val Leu Gly Leu Asp Thr Cys Lys His Tyr Lys Glu Arg
565 570 575

Gln Thr Asn Leu Arg Asn Lys Val Met Thr Leu Leu Asp Glu Lys Phe
580 585 590

Tyr Cys Leu Leu Asn Asp Ile Phe His Val Gln Phe Pro Ile Ser Arg
595 600 605

Glu Ile Ser Arg Met Ser Thr Leu Lys Lys Gln Lys Gln Leu Glu Ile
610 615 620

Leu Phe Met Lys Ile Leu Lys Leu Ile Val Lys Glu Glu Arg Ile Ile
625 630 635 640

Phe Ile Ile Asp Glu Ala Gln Phe Val Asp Ser Thr Ser Trp Arg Phe
645 650 655

Met Glu Lys Leu Ile Arg Thr Leu Pro Ile Phe Ile Ile Met Ser Leu
660 665 670

Cys Pro Phe Val Asn Ile Pro Cys Ala Ala Ala Arg Ala Val Ile Lys
675 680 685

Asn Arg Asn Thr Thr Tyr Ile Val Ile Gly Ala Val Gln Pro Asn Asp
690 695 700

Ile Ser Asn Lys Ile Cys Leu Asp Leu Asn Val Ser Cys Ile Ser Lys
705 710 715 720

Glu Leu Asp Ser Tyr Leu Gly Glu Gly Ser Cys Gly Ile Pro Phe Tyr
725 730 735

Cys Glu Glu Leu Leu Lys Asn Leu Glu His His Glu Val Leu Val Phe
740 745 750

Gln Gln Thr Glu Ser Glu Glu Lys Thr Asn Arg Thr Trp Asn Asn Leu
755 760 765

Phe Lys Tyr Ser Ile Lys Leu Thr Glu Lys Leu Asn Met Val Thr Leu
770 775 780

His Ser Asp Lys Glu Ser Glu Glu Val Cys His Leu Thr Ser Gly Val
785 790 795 800

Arg Leu Lys Asn Leu Ser Pro Pro Thr Ser Leu Lys Glu Ile Ser Leu
805 810 815

Ile Gln Leu Asp Ser Met Arg Leu Ser His Gln Met Leu Val Arg Cys
820 825 830

Ala Ala Ile Ile Gly Leu Thr Phe Thr Thr Glu Leu Leu Phe Glu Ile
835 840 845

Leu Pro Cys Trp Asn Met Lys Met Met Ile Lys Thr Leu Ala Thr Leu
850 855 860

```
Val Glu Ser Asn Ile Phe Tyr Cys Phe Arg Asn Gly Lys Glu Leu Gln
865                 870                 875                 880

Lys Ala Leu Lys Gln Asn Asp Pro Ser Phe Glu Val His Tyr Arg Ser
                885                 890                 895

Leu Ser Leu Lys Pro Ser Glu Gly Met Asp His Gly Glu Glu Glu Gln
            900                 905                 910

Leu Arg Glu Leu Glu Asn Glu Val Ile Glu Cys His Arg Ile Arg Phe
        915                 920                 925

Cys Asn Pro Met Met Gln Lys Thr Ala Tyr Glu Leu Trp Leu Lys Asp
    930                 935                 940

Gln Arg Lys Ala Met His Leu Lys Cys Ala Arg Phe Leu Glu Glu Asp
945                 950                 955                 960

Ala His Arg Cys Asp His Cys Arg Gly Arg Asp Phe Ile Pro Tyr His
                965                 970                 975

His Phe Thr Val Asn Ile Arg Leu Asn Ala Leu Asp Met Asp Ala Ile
            980                 985                 990

Lys Lys Met Ala Met Ser His Gly  Phe Lys Thr Glu Glu  Lys Leu
Ile
        995                 1000                1005

Leu Ser  Asn Ser Glu Ile Pro  Glu Thr Ser Ala Phe  Phe Pro Glu
    1010                1015                1020

Asn Arg  Ser Pro Glu Glu Ile  Arg Glu Lys Ile Leu  Asn Phe Phe
    1025                1030                1035

Asp His  Val Leu Thr Lys Met  Lys Thr Ser Asp Glu  Asp Ile Ile
    1040                1045                1050

Pro Leu  Glu Ser Cys Gln Cys  Glu Glu Ile Leu Glu  Ile Val Ile
    1055                1060                1065

Leu Pro  Leu Ala His His Phe  Leu Ala Leu Gly Glu  Asn Asp Lys
    1070                1075                1080
```

```
Ala Leu  Tyr Tyr Phe Leu Glu  Ile Ala Ser Ala Tyr  Leu Ile Phe
    1085                1090                1095

Cys Asp  Asn Tyr Met Ala Tyr  Met Tyr Leu Asn Glu  Gly Gln Lys
    1100                1105                1110

Leu Leu  Lys Thr Leu Lys Lys  Asp Lys Ser Trp Ser  Gln Thr Phe
    1115                1120                1125

Glu Ser  Ala Thr Phe Tyr Ser  Leu Lys Gly Glu Val  Cys Phe Asn
    1130                1135                1140

Met Gly  Gln Ile Val Leu Ala  Lys Lys Met Leu Arg  Lys Ala Leu
    1145                1150                1155

Lys Leu  Leu Asn Arg Ile Phe  Pro Tyr Asn Leu Ile  Ser Leu Phe
    1160                1165                1170

Leu His  Ile His Val Glu Lys  Asn Arg His Phe His  Tyr Val Asn
    1175                1180                1185

Arg Gln  Ala Gln Glu Ser Pro  Pro Pro Gly Lys Lys  Arg Leu Ala
    1190                1195                1200

Gln Leu  Tyr Arg Gln Thr Val  Cys Leu Ser Leu Leu  Trp Arg Ile
    1205                1210                1215

Tyr Ser  Tyr Ser Tyr Leu Phe  His Cys Lys Tyr Tyr  Ala His Leu
    1220                1225                1230

Ala Val  Met Met Gln Met Asn  Thr Ala Leu Glu Thr  Gln Asn Cys
    1235                1240                1245

Phe Gln  Ile Ile Lys Ala Tyr  Leu Asp Tyr Ser Leu  Tyr His His
    1250                1255                1260

Leu Ala  Gly Tyr Lys Gly Val  Trp Phe Lys Tyr Glu  Val Met Ala
    1265                1270                1275

Met Glu  His Ile Phe Asn Leu  Pro Leu Lys Gly Glu  Gly Ile Glu
    1280                1285                1290
```

Ile Val Ala Tyr Val Ala Glu Thr Leu Val Phe Asn Lys Leu Ile
1295 1300 1305

Met Gly His Leu Asp Leu Ala Ile Glu Leu Gly Ser Arg Ala Leu
1310 1315 1320

Gln Met Trp Ala Leu Leu Gln Asn Pro Asn Arg His Tyr Gln Ser
1325 1330 1335

Leu Cys Arg Leu Ser Arg Cys Leu Leu Leu Asn Ser Arg Tyr Pro
1340 1345 1350

Gln Leu Ile Gln Val Leu Gly Arg Leu Trp Glu Leu Ser Val Thr
1355 1360 1365

Gln Glu His Ile Phe Ser Lys Ala Phe Phe Tyr Phe Val Cys Leu
1370 1375 1380

Asp Ile Leu Leu Tyr Ser Gly Phe Val Tyr Arg Thr Phe Glu Glu
1385 1390 1395

Cys Leu Glu Phe Ile His Gln Tyr Glu Asn Asn Arg Ile Leu Lys
1400 1405 1410

Phe His Ser Gly Leu Leu Leu Gly Leu Tyr Ser Ser Val Ala Ile
1415 1420 1425

Trp Tyr Ala Arg Leu Gln Glu Trp Asp Asn Phe Tyr Lys Phe Ser
1430 1435 1440

Asn Arg Ala Lys Asn Leu Leu Pro Arg Arg Thr Met Thr Leu Thr
1445 1450 1455

Tyr Tyr Asp Gly Ile Ser Arg Tyr Met Glu Gly Gln Val Leu His
1460 1465 1470

Leu Gln Lys Gln Ile Lys Glu Gln Ser Glu Asn Ala Gln Ala Ser
1475 1480 1485

Gly Glu Glu Leu Leu Lys Asn Leu Glu Asn Leu Val Ala Gln Asn
1490 1495 1500

Thr Thr Gly Pro Val Phe Cys Pro Arg Leu Tyr His Leu Met Ala

```
    1505                1510                1515

Tyr Val  Cys Ile Leu Met Gly  Asp Gly Gln Lys Cys  Gly Leu Phe
    1520                1525                1530

Leu Asn  Thr Ala Leu Arg Leu  Ser Glu Thr Gln Gly  Asn Ile Leu
    1535                1540                1545

Glu Lys  Cys Trp Leu Asn Met  Asn Lys Glu Ser Trp  Tyr Ser Thr
    1550                1555                1560

Ser Glu  Leu Lys Glu Asp Gln  Trp Leu Gln Thr Ile  Leu Ser Leu
    1565                1570                1575

Pro Ser  Trp Glu Lys Ile Val  Ala Gly Arg Val Asn  Ile Gln Asp
    1580                1585                1590

Leu Gln  Lys Asn Lys Phe Leu  Met Arg Ala Asn Thr  Val Asp Asn
    1595                1600                1605

His Phe
    1610


<210> 2787
<211> 1457
<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:
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<220>
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<223> /note="Uniprot ID:  Q96PN6; "

<220>
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<400> 2787
Met Leu Val Phe Gly Asp Glu Thr His Ser His Phe Leu Val Ile Gly
1 5 10 15

Gln Ala Val Asp Asp Val Arg Leu Ala Gln Asn Met Ala Gln Met Asn
20 25 30

Asp Val Ile Leu Ser Pro Asn Cys Trp Gln Leu Cys Asp Arg Ser Met
35 40 45

Ile Glu Ile Glu Ser Val Pro Asp Gln Arg Ala Val Lys Val Asn Phe
50 55 60

Leu Lys Pro Pro Pro Asn Phe Asn Phe Asp Glu Phe Phe Thr Lys Cys
65 70 75 80

Thr Thr Phe Met His Tyr Tyr Pro Ser Gly Glu His Lys Asn Leu Leu
85 90 95

Arg Leu Ala Cys Thr Leu Lys Pro Asp Pro Glu Leu Glu Met Ser Leu
100 105 110

Gln Lys Tyr Val Met Glu Ser Ile Leu Lys Gln Ile Asp Asn Lys Gln
115 120 125

Leu Gln Gly Tyr Leu Ser Glu Leu Arg Pro Val Thr Ile Val Phe Val
130 135 140

Asn Leu Met Phe Glu Asp Gln Asp Lys Ala Glu Glu Ile Gly Pro Ala
145 150 155 160

Ile Gln Asp Ala Tyr Met His Ile Thr Ser Val Leu Lys Ile Phe Gln
165 170 175

Gly Gln Ile Asn Lys Val Phe Met Phe Asp Lys Gly Cys Ser Phe Leu
180 185 190

Cys Val Phe Gly Phe Pro Gly Glu Lys Val Pro Asp Glu Leu Thr His
195 200 205

Ala Leu Glu Cys Ala Met Asp Ile Phe Asp Phe Cys Ser Gln Val His
210 215 220

```
Lys Ile Gln Thr Val Ser Ile Gly Val Ala Ser Gly Ile Val Phe Cys
225                 230                 235                 240

Gly Ile Val Gly His Thr Val Arg His Glu Tyr Thr Val Ile Gly Gln
                245                 250                 255

Lys Val Asn Leu Ala Ala Arg Met Met Met Tyr Tyr Pro Gly Ile Val
            260                 265                 270

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

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

Pro Leu Tyr Gln Tyr Trp Gly Arg Thr Glu Lys Val Met Phe Gly Met
305                 310                 315                 320

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

Asn Lys Glu Ile Asn Tyr Phe Met Tyr Thr Met Lys Lys Phe Leu Ile
            340                 345                 350

Ser Asn Ser Ser Gln Val Leu Met Tyr Glu Gly Leu Pro Gly Tyr Gly
        355                 360                 365

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

His Arg Ile Ile Ala Ile Ser Leu Asn Lys Ile Ser Phe His Gln Thr
385                 390                 395                 400

Phe Tyr Thr Ile Gln Met Phe Met Ala Asn Val Leu Gly Leu Asp Thr
                405                 410                 415

Cys Lys His Tyr Lys Glu Arg Gln Thr Asn Leu Arg Asn Lys Val Met
            420                 425                 430

Thr Leu Leu Asp Glu Lys Phe Tyr Cys Leu Leu Asn Asp Ile Phe His
        435                 440                 445

Val Gln Phe Pro Ile Ser Arg Glu Ile Ser Arg Met Ser Thr Leu Lys
```

```
    450                 455                 460

Lys Gln Lys Gln Leu Glu Ile Leu Phe Met Lys Ile Leu Lys Leu Ile
465                 470                 475                 480

Val Lys Glu Glu Arg Ile Ile Phe Ile Ile Asp Glu Ala Gln Phe Val
                485                 490                 495

Asp Ser Thr Ser Trp Arg Phe Met Glu Lys Leu Ile Arg Thr Leu Pro
            500                 505                 510

Ile Phe Ile Ile Met Ser Leu Cys Pro Phe Val Asn Ile Pro Cys Ala
        515                 520                 525

Ala Ala Arg Ala Val Ile Lys Asn Arg Asn Thr Thr Tyr Ile Val Ile
    530                 535                 540

Gly Ala Val Gln Pro Asn Asp Ile Ser Asn Lys Ile Cys Leu Asp Leu
545                 550                 555                 560

Asn Val Ser Cys Ile Ser Lys Glu Leu Asp Ser Tyr Leu Gly Glu Gly
                565                 570                 575

Ser Cys Gly Ile Pro Phe Tyr Cys Glu Glu Leu Leu Lys Asn Leu Glu
            580                 585                 590

His His Glu Val Leu Val Phe Gln Gln Thr Glu Ser Glu Glu Lys Thr
        595                 600                 605

Asn Arg Thr Trp Asn Asn Leu Phe Lys Tyr Ser Ile Lys Leu Thr Glu
    610                 615                 620

Lys Leu Asn Met Val Thr Leu His Ser Asp Lys Glu Ser Glu Glu Val
625                 630                 635                 640

Cys His Leu Thr Ser Gly Val Arg Leu Lys Asn Leu Ser Pro Pro Thr
                645                 650                 655

Ser Leu Lys Glu Ile Ser Leu Ile Gln Leu Asp Ser Met Arg Leu Ser
            660                 665                 670

His Gln Met Leu Val Arg Cys Ala Ala Ile Ile Gly Leu Thr Phe Thr
        675                 680                 685
```

```
Thr Glu Leu Leu Phe Glu Ile Leu Pro Cys Trp Asn Met Lys Met Met
    690                 695                 700

Ile Lys Thr Leu Ala Thr Leu Val Glu Ser Asn Ile Phe Tyr Cys Phe
705                 710                 715                 720

Arg Asn Gly Lys Glu Leu Gln Lys Ala Leu Lys Gln Asn Asp Pro Ser
                725                 730                 735

Phe Glu Val His Tyr Arg Ser Leu Ser Leu Lys Pro Ser Glu Gly Met
            740                 745                 750

Asp His Gly Glu Glu Glu Gln Leu Arg Glu Leu Glu Asn Glu Val Ile
        755                 760                 765

Glu Cys His Arg Ile Arg Phe Cys Asn Pro Met Met Gln Lys Thr Ala
    770                 775                 780

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

Ala Arg Phe Leu Glu Glu Asp Ala His Arg Cys Asp His Cys Arg Gly
                805                 810                 815

Arg Asp Phe Ile Pro Tyr His His Phe Thr Val Asn Ile Arg Leu Asn
            820                 825                 830

Ala Leu Asp Met Asp Ala Ile Lys Lys Met Ala Met Ser His Gly Phe
        835                 840                 845

Lys Thr Glu Glu Lys Leu Ile Leu Ser Asn Ser Glu Ile Pro Glu Thr
    850                 855                 860

Ser Ala Phe Phe Pro Glu Asn Arg Ser Pro Glu Glu Ile Arg Glu Lys
865                 870                 875                 880

Ile Leu Asn Phe Phe Asp His Val Leu Thr Lys Met Lys Thr Ser Asp
                885                 890                 895

Glu Asp Ile Ile Pro Leu Glu Ser Cys Gln Cys Glu Glu Ile Leu Glu
            900                 905                 910
```

Ile Val Ile Leu Pro Leu Ala His His Phe Leu Ala Leu Gly Glu Asn
915 920 925

Asp Lys Ala Leu Tyr Tyr Phe Leu Glu Ile Ala Ser Ala Tyr Leu Ile
930 935 940

Phe Cys Asp Asn Tyr Met Ala Tyr Met Tyr Leu Asn Glu Gly Gln Lys
945 950 955 960

Leu Leu Lys Thr Leu Lys Lys Asp Lys Ser Trp Ser Gln Thr Phe Glu
965 970 975

Ser Ala Thr Phe Tyr Ser Leu Lys Gly Glu Val Cys Phe Asn Met Gly
980 985 990

Gln Ile Val Leu Ala Lys Lys Met Leu Arg Lys Ala Leu Lys Leu
Leu
995 1000 1005

Asn Arg Ile Phe Pro Tyr Asn Leu Ile Ser Leu Phe Leu His Ile
1010 1015 1020

His Val Glu Lys Asn Arg His Phe His Tyr Val Asn Arg Gln Ala
1025 1030 1035

Gln Glu Ser Pro Pro Pro Gly Lys Lys Arg Leu Ala Gln Leu Tyr
1040 1045 1050

Arg Gln Thr Val Cys Leu Ser Leu Leu Trp Arg Ile Tyr Ser Tyr
1055 1060 1065

Ser Tyr Leu Phe His Cys Lys Tyr Tyr Ala His Leu Ala Val Met
1070 1075 1080

Met Gln Met Asn Thr Ala Leu Glu Thr Gln Asn Cys Phe Gln Ile
1085 1090 1095

Ile Lys Ala Tyr Leu Asp Tyr Ser Leu Tyr His His Leu Ala Gly
1100 1105 1110

Tyr Lys Gly Val Trp Phe Lys Tyr Glu Val Met Ala Met Glu His
1115 1120 1125

```
Ile Phe  Asn Leu Pro Leu Lys  Gly Glu Gly Ile Glu  Ile Val Ala
    1130                1135                1140

Tyr Val  Ala Glu Thr Leu Val  Phe Asn Lys Leu Ile  Met Gly His
    1145                1150                1155

Leu Asp  Leu Ala Ile Glu Leu  Gly Ser Arg Ala Leu  Gln Met Trp
    1160                1165                1170

Ala Leu  Leu Gln Asn Pro Asn  Arg His Tyr Gln Ser  Leu Cys Arg
    1175                1180                1185

Leu Ser  Arg Cys Leu Leu Leu  Asn Ser Arg Tyr Pro  Gln Leu Ile
    1190                1195                1200

Gln Val  Leu Gly Arg Leu Trp  Glu Leu Ser Val Thr  Gln Glu His
    1205                1210                1215

Ile Phe  Ser Lys Ala Phe Phe  Tyr Phe Val Cys Leu  Asp Ile Leu
    1220                1225                1230

Leu Tyr  Ser Gly Phe Val Tyr  Arg Thr Phe Glu Glu  Cys Leu Glu
    1235                1240                1245

Phe Ile  His Gln Tyr Glu Asn  Asn Arg Ile Leu Lys  Phe His Ser
    1250                1255                1260

Gly Leu  Leu Leu Gly Leu Tyr  Ser Ser Val Ala Ile  Trp Tyr Ala
    1265                1270                1275

Arg Leu  Gln Glu Trp Asp Asn  Phe Tyr Lys Phe Ser  Asn Arg Ala
    1280                1285                1290

Lys Asn  Leu Leu Pro Arg Arg  Thr Met Thr Leu Thr  Tyr Tyr Asp
    1295                1300                1305

Gly Ile  Ser Arg Tyr Met Glu  Gly Gln Val Leu His  Leu Gln Lys
    1310                1315                1320

Gln Ile  Lys Glu Gln Ser Glu  Asn Ala Gln Ala Ser  Gly Glu Glu
    1325                1330                1335
```

```
Leu Leu  Lys Asn Leu Glu Asn  Leu Val Ala Gln Asn  Thr Thr Gly
    1340                1345                1350

Pro Val  Phe Cys Pro Arg Leu  Tyr His Leu Met Ala  Tyr Val Cys
    1355                1360                1365

Ile Leu  Met Gly Asp Gly Gln  Lys Cys Gly Leu Phe  Leu Asn Thr
    1370                1375                1380

Ala Leu  Arg Leu Ser Glu Thr  Gln Gly Asn Ile Leu  Glu Lys Cys
    1385                1390                1395

Trp Leu  Asn Met Asn Lys Glu  Ser Trp Tyr Ser Thr  Ser Glu Leu
    1400                1405                1410

Lys Glu  Asp Gln Trp Leu Gln  Thr Ile Leu Ser Leu  Pro Ser Trp
    1415                1420                1425

Glu Lys  Ile Val Ala Gly Arg  Val Asn Ile Gln Asp  Leu Gln Lys
    1430                1435                1440

Asn Lys  Phe Leu Met Arg Ala  Asn Thr Val Asp Asn  His Phe
    1445                1450                1455
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<210> 2788
<211> 73
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 647; "

<220>
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<223> /note="Gene Symbol: ADCY10; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000475192"

<400> 2788

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Met Asn Thr Pro Lys Glu Glu Phe Gln Asp Trp Pro Ile Val Arg Ile
1               5                  10                  15
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Ala Ala His Leu Pro Asp Leu Ile Val Tyr Gly His Phe Ser Pro Glu
            20   25   30

Arg Pro Phe Met Asp Tyr Phe Asp Gly Val Leu Met Phe Val Asp Ile
        35   40   45

Ser Gly Lys Cys Lys Arg Asp Val Cys Leu Met Trp Met Ser Asn Arg
    50   55   60

Leu Ala Trp Glu Phe Thr Cys Arg Ala
65   70

<210> 2789
<211> 250
<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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<222> (1)..(1)
<223> Any amino acid

<400> 2789
Xaa Tyr Ser Ile Lys Leu Thr Glu Lys Leu Asn Met Val Thr Leu His
1   5   10   15

Ser Asp Lys Glu Ser Glu Glu Val Cys His Leu Thr Ser Gly Val Arg
            20   25   30

Leu Lys Asn Leu Ser Pro Pro Thr Ser Leu Lys Glu Ile Ser Leu Ile
        35   40   45

```
Gln Leu Asp Ser Met Arg Leu Ser His Gln Met Leu Val Arg Cys Ala
    50                  55                  60

Ala Ile Ile Gly Leu Thr Phe Thr Thr Glu Leu Leu Phe Glu Ile Leu
65                  70                  75                  80

Pro Cys Trp Asn Met Lys Met Met Ile Lys Thr Leu Ala Thr Leu Val
                85                  90                  95

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

Ala Leu Lys Gln Asn Asp Pro Ser Phe Glu Val His Tyr Arg Ser Leu
        115                 120                 125

Ser Leu Lys Pro Ser Glu Gly Met Asp His Gly Glu Glu Glu Gln Leu
    130                 135                 140

Arg Glu Leu Glu Asn Glu Val Ile Glu Cys His Arg Ile Arg Phe Cys
145                 150                 155                 160

Asn Pro Met Met Gln Lys Thr Ala Tyr Glu Leu Trp Leu Lys Asp Gln
                165                 170                 175

Arg Lys Ala Met His Leu Lys Cys Ala Arg Phe Leu Glu Glu Asp Ala
            180                 185                 190

His Arg Cys Asp His Cys Arg Gly Arg Asp Phe Ile Pro Tyr His His
        195                 200                 205

Phe Thr Val Asn Ile Arg Leu Asn Ala Leu Asp Met Asp Ala Ile Lys
    210                 215                 220

Lys Met Ala Met Ser His Gly Phe Lys Arg Cys Met Arg Leu Gly Asp
225                 230                 235                 240

Thr Ala Ser Pro Tyr Tyr Ile Leu Gln Val
                245                 250
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<210> 2790
<211> 1091
<212> PRT

<213> Homo sapiens

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<220>
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<220>
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<223> /note="Uniprot ID: Q08462; "

<220>
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<400> 2790
Met Trp Gln Glu Ala Met Arg Arg Arg Arg Tyr Leu Arg Asp Arg Ser
1   5   10   15

Glu Glu Ala Ala Gly Gly Gly Asp Gly Leu Pro Arg Ser Arg Asp Trp
            20   25   30

Leu Tyr Glu Ser Tyr Tyr Cys Met Ser Gln Gln His Pro Leu Ile Val
        35   40   45

Phe Leu Leu Leu Ile Val Met Gly Ser Cys Leu Ala Leu Leu Ala Val
    50   55   60

Phe Phe Ala Leu Gly Leu Glu Val Glu Asp His Val Ala Phe Leu Ile
65   70   75   80

Thr Val Pro Thr Ala Leu Ala Ile Phe Phe Ala Ile Phe Ile Leu Val
                85   90   95

Cys Ile Glu Ser Val Phe Lys Lys Leu Leu Arg Leu Phe Ser Leu Val
            100   105   110

Ile Trp Ile Cys Leu Val Ala Met Gly Tyr Leu Phe Met Cys Phe Gly
        115   120   125

Gly Thr Val Ser Pro Trp Asp Gln Val Ser Phe Phe Leu Phe Ile Ile

```
    130                 135                 140

Phe Val Val Tyr Thr Met Leu Pro Phe Asn Met Arg Asp Ala Ile Ile
145                 150                 155                 160

Ala Ser Val Leu Thr Ser Ser Ser His Thr Ile Val Leu Ser Val Cys
                165                 170                 175

Leu Ser Ala Thr Pro Gly Gly Lys Glu His Leu Val Trp Gln Ile Leu
            180                 185                 190

Ala Asn Val Ile Ile Phe Ile Cys Gly Asn Leu Ala Gly Ala Tyr His
        195                 200                 205

Lys His Leu Met Glu Leu Ala Leu Gln Gln Thr Tyr Gln Asp Thr Cys
    210                 215                 220

Asn Cys Ile Lys Ser Arg Ile Lys Leu Glu Phe Glu Lys Arg Gln Gln
225                 230                 235                 240

Glu Arg Leu Leu Leu Ser Leu Leu Pro Ala His Ile Ala Met Glu Met
                245                 250                 255

Lys Ala Glu Ile Ile Gln Arg Leu Gln Gly Pro Lys Ala Gly Gln Met
            260                 265                 270

Glu Asn Thr Asn Asn Phe His Asn Leu Tyr Val Lys Arg His Thr Asn
        275                 280                 285

Val Ser Ile Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser
    290                 295                 300

Asp Cys Ser Pro Gly Glu Leu Val His Met Leu Asn Glu Leu Phe Gly
305                 310                 315                 320

Lys Phe Asp Gln Ile Ala Lys Glu Asn Glu Cys Met Arg Ile Lys Ile
                325                 330                 335

Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro Ile Ser Leu Pro
            340                 345                 350

Asn His Ala Lys Asn Cys Val Lys Met Gly Leu Asp Met Cys Glu Ala
        355                 360                 365
```

```
Ile Lys Lys Val Arg Asp Ala Thr Gly Val Asp Ile Asn Met Arg Val
    370                 375                 380

Gly Val His Ser Gly Asn Val Leu Cys Gly Val Ile Gly Leu Gln Lys
385                 390                 395                 400

Trp Gln Tyr Asp Val Trp Ser His Asp Val Thr Leu Ala Asn His Met
                405                 410                 415

Glu Ala Gly Gly Val Pro Gly Arg Val His Ile Ser Ser Val Thr Leu
            420                 425                 430

Glu His Leu Asn Gly Ala Tyr Lys Val Glu Glu Gly Asp Gly Asp Ile
        435                 440                 445

Arg Asp Pro Tyr Leu Lys Gln His Leu Val Lys Thr Tyr Phe Val Ile
    450                 455                 460

Asn Pro Lys Gly Glu Arg Arg Ser Pro Gln His Leu Phe Arg Pro Arg
465                 470                 475                 480

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

Tyr Leu Glu Ser Trp Gly Ala Ala Lys Pro Phe Ala His Leu His His
            500                 505                 510

Arg Asp Ser Met Thr Thr Glu Asn Gly Lys Ile Ser Thr Thr Asp Val
        515                 520                 525

Pro Met Gly Gln His Asn Phe Gln Asn Arg Thr Leu Arg Thr Lys Ser
    530                 535                 540

Gln Lys Lys Arg Phe Glu Glu Glu Leu Asn Glu Arg Met Ile Gln Ala
545                 550                 555                 560

Ile Asp Gly Ile Asn Ala Gln Lys Gln Trp Leu Lys Ser Glu Asp Ile
                565                 570                 575

Gln Arg Ile Ser Leu Leu Phe Tyr Asn Lys Val Leu Glu Lys Glu Tyr
            580                 585                 590
```

```
Arg Ala Thr Ala Leu Pro Ala Phe Lys Tyr Tyr Val Thr Cys Ala Cys
        595                 600                 605

Leu Ile Phe Phe Cys Ile Phe Ile Val Gln Ile Leu Val Leu Pro Lys
    610                 615                 620

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

Phe Ile Leu Phe Val Cys Phe Ala Gly Gln Leu Leu Gln Cys Ser Lys
                645                 650                 655

Lys Ala Ser Pro Leu Leu Met Trp Leu Leu Lys Ser Ser Gly Ile Ile
            660                 665                 670

Ala Asn Arg Pro Trp Pro Arg Ile Ser Leu Thr Ile Ile Thr Thr Ala
        675                 680                 685

Ile Ile Leu Met Met Ala Val Phe Asn Met Phe Phe Leu Ser Asp Ser
    690                 695                 700

Glu Glu Thr Ile Pro Pro Thr Ala Asn Thr Thr Asn Thr Ser Phe Ser
705                 710                 715                 720

Ala Ser Asn Asn Gln Val Ala Ile Leu Arg Ala Gln Asn Leu Phe Phe
                725                 730                 735

Leu Pro Tyr Phe Ile Tyr Ser Cys Ile Leu Gly Leu Ile Ser Cys Ser
            740                 745                 750

Val Phe Leu Arg Val Asn Tyr Glu Leu Lys Met Leu Ile Met Met Val
        755                 760                 765

Ala Leu Val Gly Tyr Asn Thr Ile Leu Leu His Thr His Ala His Val
    770                 775                 780

Leu Gly Asp Tyr Ser Gln Val Leu Phe Glu Arg Pro Gly Ile Trp Lys
785                 790                 795                 800

Asp Leu Lys Thr Met Gly Ser Val Ser Leu Ser Ile Phe Phe Ile Thr
                805                 810                 815
```

```
Leu Leu Val Leu Gly Arg Gln Asn Glu Tyr Tyr Cys Arg Leu Asp Phe
            820                 825                 830

Leu Trp Lys Asn Lys Phe Lys Lys Glu Arg Glu Glu Ile Glu Thr Met
        835                 840                 845

Glu Asn Leu Asn Arg Val Leu Leu Glu Asn Val Leu Pro Ala His Val
    850                 855                 860

Ala Glu His Phe Leu Ala Arg Ser Leu Lys Asn Glu Glu Leu Tyr His
865                 870                 875                 880

Gln Ser Tyr Asp Cys Val Cys Val Met Phe Ala Ser Ile Pro Asp Phe
                885                 890                 895

Lys Glu Phe Tyr Thr Glu Ser Asp Val Asn Lys Glu Gly Leu Glu Cys
            900                 905                 910

Leu Arg Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Asp Leu Leu Ser
        915                 920                 925

Lys Pro Lys Phe Ser Gly Val Glu Lys Ile Lys Thr Ile Gly Ser Thr
    930                 935                 940

Tyr Met Ala Ala Thr Gly Leu Ser Ala Val Pro Ser Gln Glu His Ser
945                 950                 955                 960

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

Ala Phe Ala Leu Val Gly Lys Leu Asp Ala Ile Asn Lys His Ser Phe
            980                 985                 990

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

Gly Val  Ile Gly Ala Gln Lys  Pro Gln Tyr Asp Ile  Trp Gly Asn
    1010                1015                1020

Thr Val  Asn Val Ala Ser Arg  Met Asp Ser Thr Gly  Val Leu Asp
    1025                1030                1035
```

```
Lys Ile  Gln Val Thr Glu Glu  Thr Ser Leu Val Leu  Gln Thr Leu
    1040                1045                1050

Gly Tyr  Thr Cys Thr Cys Arg  Gly Ile Ile Asn Val  Lys Gly Lys
    1055                1060                1065

Gly Asp  Leu Lys Thr Tyr Phe  Val Asn Thr Glu Met  Ser Arg Ser
    1070                1075                1080

Leu Ser  Gln Ser Asn Val Ala  Ser
    1085                1090
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<210> 2791
<211> 100
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 648; "

<220>
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<220>
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adenylate cyclase 2 (brain); "

<220>
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<400> 2791

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Met Glu Leu Ala Leu Gln Gln Thr Tyr Gln Asp Thr Cys Asn Cys Ile
1               5                  10                  15

Lys Ser Arg Ile Lys Leu Glu Phe Glu Lys Arg Gln Gln Glu Arg Leu
            20                  25                  30

Leu Leu Ser Leu Leu Pro Ala His Ile Ala Met Glu Met Lys Ala Glu
        35                  40                  45

Ile Ile Gln Arg Leu Gln Gly Pro Lys Ala Gly Gln Met Glu Asn Thr
    50                  55                  60

Asn Asn Phe His Asn Leu Tyr Val Lys Arg His Thr Asn Val Ser Ile
65                  70                  75                  80
```

```
Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Asp Cys Ser
                85                  90                  95


Pro Gly Glu Leu
            100


<210> 2792
<211> 76
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<222> (1)..(1)
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<400> 2792
Xaa Leu Gly Asp Tyr Ser Gln Val Leu Phe Glu Arg Pro Gly Ile Trp
1               5                  10                  15


Lys Asp Leu Lys Thr Met Gly Ser Val Ser Leu Ser Ile Phe Phe Ile
            20                  25                  30


Thr Leu Leu Val Leu Gly Arg Gln Val Arg Leu Leu Met Glu Glu Gln
        35                  40                  45


Ile Gln Lys Arg Ala Gly Gly Asp Arg Asp His Gly Glu Pro Glu Pro
    50                  55                  60


Arg Ala Ala Gly Glu Arg Ala Ser Arg Ala Arg Gly
65                  70                  75
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<210> 2793
<211> 1089
<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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<400> 2793
Met Trp Gln Glu Ala Met Arg Arg Arg Arg Tyr Leu Arg Asp Arg Ser
1 5 10 15

Glu Glu Ala Ala Gly Gly Gly Asp Gly Leu Pro Arg Ser Arg Asp Trp
20 25 30

Leu Tyr Glu Ser Tyr Tyr Cys Met Ser Gln Gln His Pro Leu Ile Val
35 40 45

Phe Leu Leu Leu Ile Val Met Gly Ser Cys Leu Ala Leu Leu Ala Val
50 55 60

Phe Phe Ala Leu Gly Leu Glu Val Glu Asp His Val Ala Phe Leu Ile
65 70 75 80

Thr Val Pro Thr Ala Leu Ala Ile Phe Phe Ala Ile Phe Ile Leu Val
85 90 95

Cys Ile Glu Ser Val Phe Lys Lys Leu Leu Arg Leu Phe Ser Leu Val
100 105 110

Ile Trp Ile Cys Leu Val Ala Met Gly Tyr Leu Phe Met Cys Phe Gly
115 120 125

```
Gly Thr Val Ser Pro Trp Asp Gln Val Ser Phe Phe Leu Phe Ile Ile
    130                 135                 140

Phe Val Val Tyr Thr Met Leu Pro Phe Asn Met Arg Asp Ala Ile Ile
145                 150                 155                 160

Ala Ser Val Leu Thr Ser Ser Ser His Thr Ile Val Leu Ser Val Cys
                165                 170                 175

Leu Ser Ala Thr Pro Gly Gly Lys Glu His Leu Ala Asp Pro Gly Gln
            180                 185                 190

Cys Asp His Phe His Leu Trp Glu Pro Gly Gly Ala Tyr His Lys His
        195                 200                 205

Leu Met Glu Leu Ala Leu Gln Gln Thr Tyr Gln Asp Thr Cys Asn Cys
    210                 215                 220

Ile Lys Ser Arg Ile Lys Leu Glu Phe Glu Lys Arg Gln Gln Glu Arg
225                 230                 235                 240

Leu Leu Leu Ser Leu Leu Pro Ala His Ile Ala Met Glu Met Lys Ala
                245                 250                 255

Glu Ile Ile Gln Arg Leu Gln Gly Pro Lys Ala Gly Gln Met Glu Asn
            260                 265                 270

Thr Asn Asn Phe His Asn Leu Tyr Val Lys Arg His Thr Asn Val Ser
        275                 280                 285

Ile Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Asp Cys
    290                 295                 300

Ser Pro Gly Glu Leu Val His Met Leu Asn Glu Leu Phe Gly Lys Phe
305                 310                 315                 320

Asp Gln Ile Ala Lys Glu Asn Glu Cys Met Arg Ile Lys Ile Leu Gly
                325                 330                 335

Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro Ile Ser Leu Pro Asn His
            340                 345                 350

Ala Lys Asn Cys Val Lys Met Gly Leu Asp Met Cys Glu Ala Ile Lys
```

```
        355                 360                 365

Lys Val Arg Asp Ala Thr Gly Val Asp Ile Asn Met Arg Val Gly Val
    370                 375                 380

His Ser Gly Asn Val Leu Cys Gly Val Ile Gly Leu Gln Lys Trp Gln
385                 390                 395                 400

Tyr Asp Val Trp Ser His Asp Val Thr Leu Ala Asn His Met Glu Ala
                405                 410                 415

Gly Gly Val Pro Gly Arg Val His Ile Ser Ser Val Thr Leu Glu His
            420                 425                 430

Leu Asn Gly Ala Tyr Lys Val Glu Glu Gly Asp Gly Asp Ile Arg Asp
        435                 440                 445

Pro Tyr Leu Lys Gln His Leu Val Lys Thr Tyr Phe Val Ile Asn Pro
    450                 455                 460

Lys Gly Glu Arg Arg Ser Pro Gln His Leu Phe Arg Pro Arg His Thr
465                 470                 475                 480

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

Glu Ser Trp Gly Ala Ala Lys Pro Phe Ala His Leu His His Arg Asp
            500                 505                 510

Ser Met Thr Thr Glu Asn Gly Lys Ile Ser Thr Thr Asp Val Pro Met
        515                 520                 525

Gly Gln His Asn Phe Gln Asn Arg Thr Leu Arg Thr Lys Ser Gln Lys
    530                 535                 540

Lys Arg Phe Glu Glu Glu Leu Asn Glu Arg Met Ile Gln Ala Ile Asp
545                 550                 555                 560

Gly Ile Asn Ala Gln Lys Gln Trp Leu Lys Ser Glu Asp Ile Gln Arg
                565                 570                 575

Ile Ser Leu Leu Phe Tyr Asn Lys Val Leu Glu Lys Glu Tyr Arg Ala
            580                 585                 590
```

```
Thr Ala Leu Pro Ala Phe Lys Tyr Tyr Val Thr Cys Ala Cys Leu Ile
        595                 600                 605

Phe Phe Cys Ile Phe Ile Val Gln Ile Leu Val Leu Pro Lys Thr Ser
    610                 615                 620

Val Leu Gly Ile Ser Phe Gly Ala Ala Phe Leu Leu Leu Ala Phe Ile
625                 630                 635                 640

Leu Phe Val Cys Phe Ala Gly Gln Leu Leu Gln Cys Ser Lys Lys Ala
                645                 650                 655

Ser Pro Leu Leu Met Trp Leu Leu Lys Ser Ser Gly Ile Ile Ala Asn
            660                 665                 670

Arg Pro Trp Pro Arg Ile Ser Leu Thr Ile Ile Thr Thr Ala Ile Ile
        675                 680                 685

Leu Met Met Ala Val Phe Asn Met Phe Phe Leu Ser Asp Ser Glu Glu
    690                 695                 700

Thr Ile Pro Pro Thr Ala Asn Thr Thr Asn Thr Ser Phe Ser Ala Ser
705                 710                 715                 720

Asn Asn Gln Val Ala Ile Leu Arg Ala Gln Asn Leu Phe Phe Leu Pro
                725                 730                 735

Tyr Phe Ile Tyr Ser Cys Ile Leu Gly Leu Ile Ser Cys Ser Val Phe
            740                 745                 750

Leu Arg Val Asn Tyr Glu Leu Lys Met Leu Ile Met Met Val Ala Leu
        755                 760                 765

Val Gly Tyr Asn Thr Ile Leu Leu His Thr His Ala His Val Leu Gly
    770                 775                 780

Asp Tyr Ser Gln Val Leu Phe Glu Arg Pro Gly Ile Trp Lys Asp Leu
785                 790                 795                 800

Lys Thr Met Gly Ser Val Ser Leu Ser Ile Phe Phe Ile Thr Leu Leu
                805                 810                 815
```

```
Val Leu Gly Arg Gln Asn Glu Tyr Tyr Cys Arg Leu Asp Phe Leu Trp
            820                 825                 830

Lys Asn Lys Phe Lys Lys Glu Arg Glu Glu Ile Glu Thr Met Glu Asn
        835                 840                 845

Leu Asn Arg Val Leu Leu Glu Asn Val Leu Pro Ala His Val Ala Glu
    850                 855                 860

His Phe Leu Ala Arg Ser Leu Lys Asn Glu Glu Leu Tyr His Gln Ser
865                 870                 875                 880

Tyr Asp Cys Val Cys Val Met Phe Ala Ser Ile Pro Asp Phe Lys Glu
                885                 890                 895

Phe Tyr Thr Glu Ser Asp Val Asn Lys Glu Gly Leu Glu Cys Leu Arg
            900                 905                 910

Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Asp Leu Leu Ser Lys Pro
        915                 920                 925

Lys Phe Ser Gly Val Glu Lys Ile Lys Thr Ile Gly Ser Thr Tyr Met
    930                 935                 940

Ala Ala Thr Gly Leu Ser Ala Val Pro Ser Gln Glu His Ser Gln Glu
945                 950                 955                 960

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

Ala Leu Val Gly Lys Leu Asp Ala Ile Asn Lys His Ser Phe Asn Asp
            980                 985                 990

Phe Lys Leu Arg Val Gly Ile Asn  His Gly Pro Val Ile  Ala Gly
Val
        995                 1000                1005

Ile Gly  Ala Gln Lys Pro Gln  Tyr Asp Ile Trp Gly  Asn Thr Val
    1010                1015                1020

Asn Val  Ala Ser Arg Met Asp  Ser Thr Gly Val Leu  Asp Lys Ile
    1025                1030                1035
```

```
Gln Val  Thr Glu Glu Thr Ser  Leu Val Leu Gln Thr  Leu Gly Tyr
    1040                1045                1050

Thr Cys  Thr Cys Arg Gly Ile  Ile Asn Val Lys Gly  Lys Gly Asp
    1055                1060                1065

Leu Lys  Thr Tyr Phe Val Asn  Thr Glu Met Ser Arg  Ser Leu Ser
    1070                1075                1080

Gln Ser  Asn Val Ala Ser
    1085


<210> 2794
<211> 1144
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 649; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY3; "

<220>
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<223> /note="Gene Name:
      adenylate cyclase 3; "

<220>
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<220>
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<400> 2794
Met Pro Arg Asn Gln Gly Phe Ser Glu Pro Glu Tyr Ser Ala Glu Tyr
1               5                  10                  15

Ser Ala Glu Tyr Ser Val Ser Leu Pro Ser Asp Pro Asp Arg Gly Val
            20                  25                  30

Gly Arg Thr His Glu Ile Ser Val Arg Asn Ser Gly Ser Cys Leu Cys
        35                  40                  45

Leu Pro Arg Phe Met Arg Leu Thr Phe Val Pro Glu Ser Leu Glu Asn
```

50 55 60

Leu Tyr Gln Thr Tyr Phe Lys Arg Gln Arg His Glu Thr Leu Leu Val
65 70 75 80

Leu Val Val Phe Ala Ala Leu Phe Asp Cys Tyr Val Val Val Met Cys
85 90 95

Ala Val Val Phe Ser Ser Asp Lys Leu Ala Ser Leu Ala Val Ala Gly
100 105 110

Ile Gly Leu Val Leu Asp Ile Ile Leu Phe Val Leu Cys Lys Lys Gly
115 120 125

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

Leu Leu Ile Thr Ala Gln Ile Phe Ser Tyr Leu Gly Leu Asn Phe Ala
145 150 155 160

Arg Ala His Ala Ala Ser Asp Thr Val Gly Trp Gln Val Phe Phe Val
165 170 175

Phe Ser Phe Phe Ile Thr Leu Pro Leu Ser Leu Ser Pro Ile Val Ile
180 185 190

Ile Ser Val Val Ser Cys Val Val His Thr Leu Val Leu Gly Val Thr
195 200 205

Val Ala Gln Gln Gln Gln Glu Glu Leu Lys Gly Met Gln Leu Leu Arg
210 215 220

Glu Ile Leu Ala Asn Val Phe Leu Tyr Leu Cys Ala Ile Ala Val Gly
225 230 235 240

Ile Met Ser Tyr Tyr Met Ala Asp Arg Lys His Arg Lys Ala Phe Leu
245 250 255

Glu Ala Arg Gln Ser Leu Glu Val Lys Met Asn Leu Glu Glu Gln Ser
260 265 270

Gln Gln Gln Glu Asn Leu Met Leu Ser Ile Leu Pro Lys His Val Ala
275 280 285

```
Asp Glu Met Leu Lys Asp Met Lys Lys Asp Glu Ser Gln Lys Asp Gln
    290                 295                 300

Gln Gln Phe Asn Thr Met Tyr Met Tyr Arg His Glu Asn Val Ser Ile
305                 310                 315                 320

Leu Phe Ala Asp Ile Val Gly Phe Thr Gln Leu Ser Ser Ala Cys Ser
                325                 330                 335

Ala Gln Glu Leu Val Lys Leu Leu Asn Glu Leu Phe Ala Arg Phe Asp
            340                 345                 350

Lys Leu Ala Ala Lys Tyr His Gln Leu Arg Ile Lys Ile Leu Gly Asp
        355                 360                 365

Cys Tyr Tyr Cys Ile Cys Gly Leu Pro Asp Tyr Arg Glu Asp His Ala
    370                 375                 380

Val Cys Ser Ile Leu Met Gly Leu Ala Met Val Glu Ala Ile Ser Tyr
385                 390                 395                 400

Val Arg Glu Lys Thr Lys Thr Gly Val Asp Met Arg Val Gly Val His
                405                 410                 415

Thr Gly Thr Val Leu Gly Gly Val Leu Gly Gln Lys Arg Trp Gln Tyr
            420                 425                 430

Asp Val Trp Ser Thr Asp Val Thr Val Ala Asn Lys Met Glu Ala Gly
        435                 440                 445

Gly Ile Pro Gly Arg Val His Ile Ser Gln Ser Thr Met Asp Cys Leu
    450                 455                 460

Lys Gly Glu Phe Asp Val Glu Pro Gly Asp Gly Gly Ser Arg Cys Asp
465                 470                 475                 480

Tyr Leu Glu Glu Lys Gly Ile Glu Thr Tyr Leu Ile Ile Ala Ser Lys
                485                 490                 495

Pro Glu Val Lys Lys Thr Ala Thr Gln Asn Gly Leu Asn Gly Ser Ala
            500                 505                 510
```

Leu Pro Asn Gly Ala Pro Ala Ser Ser Lys Ser Ser Ser Pro Ala Leu
515 520 525

Ile Glu Thr Lys Glu Pro Asn Gly Ser Ala His Ser Ser Gly Ser Thr
530 535 540

Ser Glu Lys Pro Glu Glu Gln Asp Ala Gln Ala Asp Asn Pro Ser Phe
545 550 555 560

Pro Asn Pro Arg Arg Arg Leu Arg Leu Gln Asp Leu Ala Asp Arg Val
565 570 575

Val Asp Ala Ser Glu Asp Glu His Glu Leu Asn Gln Leu Leu Asn Glu
580 585 590

Ala Leu Leu Glu Arg Glu Ser Ala Gln Val Val Lys Lys Arg Asn Thr
595 600 605

Phe Leu Leu Ser Met Arg Phe Met Asp Pro Glu Met Glu Thr Arg Tyr
610 615 620

Ser Val Glu Lys Glu Lys Gln Ser Gly Ala Ala Phe Ser Cys Ser Cys
625 630 635 640

Val Val Leu Leu Cys Thr Ala Leu Val Glu Ile Leu Ile Asp Pro Trp
645 650 655

Leu Met Thr Asn Tyr Val Thr Phe Met Val Gly Glu Ile Leu Leu Leu
660 665 670

Ile Leu Thr Ile Cys Ser Leu Ala Ala Ile Phe Pro Arg Ala Phe Pro
675 680 685

Lys Lys Leu Val Ala Phe Ser Thr Trp Ile Asp Arg Thr Arg Trp Ala
690 695 700

Arg Asn Thr Trp Ala Met Leu Ala Ile Phe Ile Leu Val Met Ala Asn
705 710 715 720

Val Val Asp Met Leu Ser Cys Leu Gln Tyr Tyr Thr Gly Pro Ser Asn
725 730 735

```
Ala Thr Ala Gly Met Glu Thr Glu Gly Ser Cys Leu Glu Asn Pro Lys
            740                 745                 750

Tyr Tyr Asn Tyr Val Ala Val Leu Ser Leu Ile Ala Thr Ile Met Leu
        755                 760                 765

Val Gln Val Ser His Met Val Lys Leu Thr Leu Met Leu Leu Val Ala
    770                 775                 780

Gly Ala Val Ala Thr Ile Asn Leu Tyr Ala Trp Arg Pro Val Phe Asp
785                 790                 795                 800

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

Leu Glu Gln Met Gln Gly Phe Asn Pro Gly Leu Asn Gly Thr Asp Arg
            820                 825                 830

Leu Pro Leu Val Pro Ser Lys Tyr Ser Met Thr Val Met Val Phe Leu
        835                 840                 845

Met Met Leu Ser Phe Tyr Tyr Phe Ser Arg His Val Glu Lys Leu Ala
    850                 855                 860

Arg Thr Leu Phe Leu Trp Lys Ile Glu Val His Asp Gln Lys Glu Arg
865                 870                 875                 880

Val Tyr Glu Met Arg Arg Trp Asn Glu Ala Leu Val Thr Asn Met Leu
                885                 890                 895

Pro Glu His Val Ala Arg His Phe Leu Gly Ser Lys Lys Arg Asp Glu
            900                 905                 910

Glu Leu Tyr Ser Gln Thr Tyr Asp Glu Ile Gly Val Met Phe Ala Ser
        915                 920                 925

Leu Pro Asn Phe Ala Asp Phe Tyr Thr Glu Glu Ser Ile Asn Asn Gly
    930                 935                 940

Gly Ile Glu Cys Leu Arg Phe Leu Asn Glu Ile Ile Ser Asp Phe Asp
945                 950                 955                 960

Ser Leu Leu Asp Asn Pro Lys Phe Arg Val Ile Thr Lys Ile Lys Thr
```

965 970 975

Ile Gly Ser Thr Tyr Met Ala Ala Ser Gly Val Thr Pro Asp Val Asn
980 985 990

Thr Asn Gly Phe Ala Ser Ser Asn Lys Glu Asp Lys Ser Glu Arg
Glu
995 1000 1005

Arg Trp Gln His Leu Ala Asp Leu Ala Asp Phe Ala Leu Ala Met
1010 1015 1020

Lys Asp Thr Leu Thr Asn Ile Asn Asn Gln Ser Phe Asn Asn Phe
1025 1030 1035

Met Leu Arg Ile Gly Met Asn Lys Gly Gly Val Leu Ala Gly Val
1040 1045 1050

Ile Gly Ala Arg Lys Pro His Tyr Asp Ile Trp Gly Asn Thr Val
1055 1060 1065

Asn Val Ala Ser Arg Met Glu Ser Thr Gly Val Met Gly Asn Ile
1070 1075 1080

Gln Val Val Glu Glu Thr Gln Val Ile Leu Arg Glu Tyr Gly Phe
1085 1090 1095

Arg Phe Val Arg Arg Gly Pro Ile Phe Val Lys Gly Lys Gly Glu
1100 1105 1110

Leu Leu Thr Phe Phe Leu Lys Gly Arg Asp Lys Leu Ala Thr Phe
1115 1120 1125

Pro Asn Gly Pro Ser Val Thr Leu Pro His Gln Val Val Asp Asn
1130 1135 1140

Ser

<210> 2795
<211> 1145
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 649; "

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<223> /note="Gene Symbol: ADCY3; "

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adenylate cyclase 3; "

<220>
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<400> 2795
Met Pro Arg Asn Gln Gly Phe Ser Glu Pro Glu Tyr Ser Ala Glu Tyr
1 5 10 15

Ser Ala Glu Tyr Ser Val Ser Leu Pro Ser Asp Pro Asp Arg Gly Val
20 25 30

Gly Arg Thr His Glu Ile Ser Val Arg Asn Ser Gly Ser Cys Leu Cys
35 40 45

Leu Pro Arg Phe Met Arg Leu Thr Phe Val Pro Glu Ser Leu Glu Asn
50 55 60

Leu Tyr Gln Thr Tyr Phe Lys Arg Gln Arg His Glu Thr Leu Leu Val
65 70 75 80

Leu Val Val Phe Ala Ala Leu Phe Asp Cys Tyr Val Val Val Met Cys
85 90 95

Ala Val Val Phe Ser Ser Asp Lys Leu Ala Ser Leu Ala Val Ala Gly
100 105 110

Ile Gly Leu Val Leu Asp Ile Ile Leu Phe Val Leu Cys Lys Lys Gly
115 120 125

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

Leu Leu Ile Thr Ala Gln Ile Phe Ser Tyr Leu Gly Leu Asn Phe Ala
145 150 155 160

```
Arg Ala His Ala Ala Ser Asp Thr Val Gly Trp Gln Val Phe Phe Val
                165                 170                 175

Phe Ser Phe Phe Ile Thr Leu Pro Leu Ser Leu Ser Pro Ile Val Ile
            180                 185                 190

Ile Ser Val Val Ser Cys Val Val His Thr Leu Val Leu Gly Val Thr
        195                 200                 205

Val Ala Gln Gln Gln Gln Glu Glu Leu Lys Gly Met Gln Leu Leu Arg
    210                 215                 220

Glu Ile Leu Ala Asn Val Phe Leu Tyr Leu Cys Ala Ile Ala Val Gly
225                 230                 235                 240

Ile Met Ser Tyr Tyr Met Ala Asp Arg Lys His Arg Lys Ala Phe Leu
                245                 250                 255

Glu Ala Arg Gln Ser Leu Glu Val Lys Met Asn Leu Glu Glu Gln Ser
            260                 265                 270

Gln Gln Gln Glu Asn Leu Met Leu Ser Ile Leu Pro Lys His Val Ala
        275                 280                 285

Asp Glu Met Leu Lys Asp Met Lys Lys Asp Glu Ser Gln Lys Asp Gln
    290                 295                 300

Gln Gln Phe Asn Thr Met Tyr Met Tyr Arg His Glu Asn Val Ser Ile
305                 310                 315                 320

Leu Phe Ala Asp Ile Val Gly Phe Thr Gln Leu Ser Ser Ala Cys Ser
                325                 330                 335

Ala Gln Glu Leu Val Lys Leu Leu Asn Glu Leu Phe Ala Arg Phe Asp
            340                 345                 350

Lys Leu Ala Ala Lys Tyr His Gln Leu Arg Ile Lys Ile Leu Gly Asp
        355                 360                 365

Cys Tyr Tyr Cys Ile Cys Gly Leu Pro Asp Tyr Arg Glu Asp His Ala
    370                 375                 380
```

```
Val Cys Ser Ile Leu Met Gly Leu Ala Met Val Glu Ala Ile Ser Tyr
385                 390                 395                 400

Val Arg Glu Lys Thr Lys Thr Gly Val Asp Met Arg Val Gly Val His
                405                 410                 415

Thr Gly Thr Val Leu Gly Gly Val Leu Gly Gln Lys Arg Trp Gln Tyr
            420                 425                 430

Asp Val Trp Ser Thr Asp Val Thr Val Ala Asn Lys Met Glu Ala Gly
        435                 440                 445

Gly Ile Pro Gly Arg Val His Ile Ser Gln Ser Thr Met Asp Cys Leu
    450                 455                 460

Lys Gly Glu Phe Asp Val Glu Pro Gly Asp Gly Gly Ser Arg Cys Asp
465                 470                 475                 480

Tyr Leu Glu Glu Lys Gly Ile Glu Thr Tyr Leu Ile Ile Ala Ser Lys
                485                 490                 495

Pro Glu Val Lys Lys Thr Ala Thr Gln Asn Gly Leu Asn Gly Ser Ala
            500                 505                 510

Leu Pro Asn Gly Ala Pro Ala Ser Ser Lys Ser Ser Ser Pro Ala Leu
        515                 520                 525

Ile Glu Thr Lys Glu Pro Asn Gly Ser Ala His Ser Ser Gly Ser Thr
    530                 535                 540

Ser Glu Lys Pro Glu Glu Gln Asp Ala Gln Ala Asp Asn Pro Ser Phe
545                 550                 555                 560

Pro Asn Pro Arg Arg Arg Leu Arg Leu Gln Asp Leu Ala Asp Arg Val
                565                 570                 575

Val Asp Ala Ser Glu Asp Glu His Glu Leu Asn Gln Leu Leu Asn Glu
            580                 585                 590

Ala Leu Leu Glu Arg Glu Ser Ala Gln Val Val Lys Lys Arg Asn Thr
        595                 600                 605

Phe Leu Leu Ser Met Arg Phe Met Asp Pro Glu Met Glu Thr Arg Tyr
```

610 615 620

Ser Val Glu Lys Glu Lys Gln Ser Gly Ala Ala Phe Ser Cys Ser Cys
625 630 635 640

Val Val Leu Leu Cys Thr Ala Leu Val Glu Ile Leu Ile Asp Pro Trp
645 650 655

Leu Met Thr Asn Tyr Val Thr Phe Met Val Gly Glu Ile Leu Leu Leu
660 665 670

Ile Leu Thr Ile Cys Ser Leu Ala Ala Ile Phe Pro Arg Ala Phe Pro
675 680 685

Lys Lys Leu Val Ala Phe Ser Thr Trp Ile Asp Arg Thr Arg Trp Ala
690 695 700

Arg Asn Thr Trp Ala Met Leu Ala Ile Phe Ile Leu Val Met Ala Asn
705 710 715 720

Val Val Asp Met Leu Ser Cys Leu Gln Tyr Tyr Thr Gly Pro Ser Asn
725 730 735

Ala Thr Ala Gly Met Glu Thr Glu Gly Ser Cys Leu Glu Asn Pro Lys
740 745 750

Tyr Tyr Asn Tyr Val Ala Val Leu Ser Leu Ile Ala Thr Ile Met Leu
755 760 765

Val Gln Val Ser His Met Val Lys Leu Thr Leu Met Leu Leu Val Ala
770 775 780

Gly Ala Val Ala Thr Ile Asn Leu Tyr Ala Trp Arg Pro Val Phe Asp
785 790 795 800

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

Leu Glu Gln Met Gln Gly Phe Asn Pro Gly Leu Asn Gly Thr Asp Ser
820 825 830

Arg Leu Pro Leu Val Pro Ser Lys Tyr Ser Met Thr Val Met Val Phe
835 840 845

```
Leu Met Met Leu Ser Phe Tyr Tyr Phe Ser Arg His Val Glu Lys Leu
    850                 855                 860

Ala Arg Thr Leu Phe Leu Trp Lys Ile Glu Val His Asp Gln Lys Glu
865                 870                 875                 880

Arg Val Tyr Glu Met Arg Arg Trp Asn Glu Ala Leu Val Thr Asn Met
                885                 890                 895

Leu Pro Glu His Val Ala Arg His Phe Leu Gly Ser Lys Lys Arg Asp
            900                 905                 910

Glu Glu Leu Tyr Ser Gln Thr Tyr Asp Glu Ile Gly Val Met Phe Ala
        915                 920                 925

Ser Leu Pro Asn Phe Ala Asp Phe Tyr Thr Glu Glu Ser Ile Asn Asn
    930                 935                 940

Gly Gly Ile Glu Cys Leu Arg Phe Leu Asn Glu Ile Ile Ser Asp Phe
945                 950                 955                 960

Asp Ser Leu Leu Asp Asn Pro Lys Phe Arg Val Ile Thr Lys Ile Lys
                965                 970                 975

Thr Ile Gly Ser Thr Tyr Met Ala Ala Ser Gly Val Thr Pro Asp Val
            980                 985                 990

Asn Thr Asn Gly Phe Ala Ser Ser  Asn Lys Glu Asp Lys  Ser Glu
Arg
        995                 1000                1005

Glu Arg  Trp Gln His Leu Ala  Asp Leu Ala Asp Phe  Ala Leu Ala
    1010                1015                1020

Met Lys  Asp Thr Leu Thr Asn  Ile Asn Asn Gln Ser  Phe Asn Asn
    1025                1030                1035

Phe Met  Leu Arg Ile Gly Met  Asn Lys Gly Gly Val  Leu Ala Gly
    1040                1045                1050

Val Ile  Gly Ala Arg Lys Pro  His Tyr Asp Ile Trp  Gly Asn Thr
    1055                1060                1065
```

```
Val Asn  Val Ala Ser Arg Met  Glu Ser Thr Gly Val  Met Gly Asn
    1070                1075                1080


Ile Gln  Val Val Glu Glu Thr  Gln Val Ile Leu Arg  Glu Tyr Gly
    1085                1090                1095


Phe Arg  Phe Val Arg Arg Gly  Pro Ile Phe Val Lys  Gly Lys Gly
    1100                1105                1110


Glu Leu  Leu Thr Phe Phe Leu  Lys Gly Arg Asp Lys  Leu Ala Thr
    1115                1120                1125


Phe Pro  Asn Gly Pro Ser Val  Thr Leu Pro His Gln  Val Val Asp
    1130                1135                1140


Asn Ser
    1145


<210> 2796
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
      adenylate cyclase 3; "

<220>
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<400> 2796
Met Pro Arg Asn Gln Gly Phe Ser Glu Pro Glu Tyr Ser Ala Glu Tyr
1               5                  10                  15


Ser Ala Glu Tyr Ser Val Ser Leu Pro Ser Asp Pro Asp Arg Gly Val
            20                  25                  30
```

```
Gly Arg Thr His Glu Ile Ser Val Arg Asn Ser Gly Ser Cys Leu Cys
        35                  40                  45

Leu Pro Arg Phe Met Arg Leu Thr Phe Val Pro Glu Ser Leu Glu Asn
    50                  55                  60

Leu Tyr Gln Thr Tyr Phe Lys Arg Gln Arg His Glu Thr Leu Leu Val
65                  70                  75                  80

Leu Val Val Phe Ala Ala Leu Phe Asp Cys Tyr Val Val Val Met Cys
                85                  90                  95

Ala Val Val Phe Ser Ser Asp Lys Leu Ala Ser Leu Ala Val Ala Gly
            100                 105                 110

Ile Gly Leu Val Leu Asp Ile Ile Leu Phe Val Leu Cys Lys Lys Gly
        115                 120                 125

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

Leu Leu Ile Thr Ala Gln Ile Phe Ser Tyr Leu Gly Leu Asn Phe Ala
145                 150                 155                 160

Arg Ala His Ala Ala Ser Asp Thr Val Gly Trp Gln Val Phe Phe Val
                165                 170                 175

Phe Ser Phe Phe Ile Thr Leu Pro Leu Ser Leu Ser Pro Ile Val Ile
            180                 185                 190

Ile Ser Val Val Ser Cys Val Val His Thr Leu Val Leu Gly Val Thr
        195                 200                 205

Val Ala Gln Gln Gln Gln Glu Glu Leu Lys Gly Met Gln Leu Leu Arg
    210                 215                 220

Glu Glu Asn Leu Met Leu Ser Ile Leu Pro Lys His Val Ala Asp Glu
225                 230                 235                 240

Met Leu Lys Asp Met Lys Lys Asp Glu Ser Gln Lys Asp Gln Gln Gln
                245                 250                 255

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

260 265 270

Ala Asp Ile Val Gly Phe Thr Gln Leu Ser Ser Ala Cys Ser Ala Gln
275 280 285

Glu Leu Val Lys Leu Leu Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu
290 295 300

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

Tyr Cys Ile Cys Gly Leu Pro Asp Tyr Arg Glu Asp His Ala Val Cys
325 330 335

Ser Ile Leu Met Gly Leu Ala Met Val Glu Ala Ile Ser Tyr Val Arg
340 345 350

Glu Lys Thr Lys Thr Gly Val Asp Met Arg Val Gly Val His Thr Gly
355 360 365

Thr Val Leu Gly Gly Val Leu Gly Gln Lys Arg Trp Gln Tyr Asp Val
370 375 380

Trp Ser Thr Asp Val Thr Val Ala Asn Lys Met Glu Ala Gly Gly Ile
385 390 395 400

Pro Gly Arg Val His Ile Ser Gln Ser Thr Met Asp Cys Leu Lys Gly
405 410 415

Glu Phe Asp Val Glu Pro Gly Asp Gly Gly Ser Arg Cys Asp Tyr Leu
420 425 430

Glu Glu Lys Gly Ile Glu Thr Tyr Leu Ile Ile Ala Ser Lys Pro Glu
435 440 445

Val Lys Lys Thr Ala Thr Gln Asn Gly Leu Asn Gly Ser Ala Leu Pro
450 455 460

Asn Gly Ala Pro Ala Ser Ser Lys Ser Ser Ser Pro Ala Leu Ile Glu
465 470 475 480

Thr Lys

<210> 2797
<211> 298
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adenylate cyclase 3; "

<220>
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<223> /note="ENSP ID: ENSP00000399275"

<400> 2797

```
Cys Ala Ile Ala Val Gly Ile Met Ser Tyr Tyr Met Ala Asp Arg Lys
1               5                  10                  15

His Arg Lys Ala Phe Leu Glu Ala Arg Gln Ser Leu Glu Val Lys Met
            20                  25                  30

Asn Leu Glu Glu Gln Ser Gln Gln Gln His Val Ala Asp Glu Met Leu
        35                  40                  45

Lys Asp Met Lys Lys Asp Glu Ser Gln Lys Asp Gln Gln Gln Phe Asn
    50                  55                  60

Thr Met Tyr Met Tyr Arg His Glu Asn Val Ser Ile Leu Phe Ala Asp
65                  70                  75                  80

Ile Val Gly Phe Thr Gln Leu Ser Ser Ala Cys Ser Ala Gln Glu Leu
                85                  90                  95

Val Lys Leu Leu Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala
            100                 105                 110

Lys Tyr His Gln Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys
        115                 120                 125
```

```
Ile Cys Gly Leu Pro Asp Tyr Arg Glu Asp His Ala Val Cys Ser Ile
    130                 135                 140

Leu Met Gly Leu Ala Met Val Glu Ala Ile Ser Tyr Val Arg Glu Lys
145                 150                 155                 160

Thr Lys Thr Gly Val Asp Met Arg Val Gly Val His Thr Gly Thr Val
                165                 170                 175

Leu Gly Gly Val Leu Gly Gln Lys Arg Trp Gln Tyr Asp Val Trp Ser
            180                 185                 190

Thr Asp Val Thr Val Ala Asn Lys Met Glu Ala Gly Gly Ile Pro Gly
        195                 200                 205

Arg Val His Ile Ser Gln Ser Thr Met Asp Cys Leu Lys Gly Glu Phe
    210                 215                 220

Asp Val Glu Pro Gly Asp Gly Gly Ser Arg Cys Asp Tyr Leu Glu Glu
225                 230                 235                 240

Lys Gly Ile Glu Thr Tyr Leu Ile Ile Ala Ser Lys Pro Glu Val Lys
                245                 250                 255

Lys Thr Ala Thr Gln Asn Gly Leu Asn Gly Ser Ala Leu Pro Asn Gly
            260                 265                 270

Ala Pro Ala Ser Ser Lys Ser Ser Ser Pro Ala Leu Ile Glu Thr Lys
        275                 280                 285

Glu Pro Asn Gly Ser Ala His Ser Ser Gly
    290                 295


<210> 2798
<211> 154
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 3; "

<220>
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<223> /note="ENSP ID: ENSP00000401455"

<400> 2798
Met Gly Leu Ile Leu Ala Asn Val Phe Leu Tyr Leu Cys Ala Ile Ala
1 5 10 15

Val Gly Ile Met Ser Tyr Tyr Met Ala Asp Arg Lys His Arg Lys Ala
20 25 30

Phe Leu Glu Ala Arg Gln Ser Leu Glu Val Lys Met Asn Leu Glu Glu
35 40 45

Gln Ser Gln Gln Gln Glu Asn Leu Met Leu Ser Ile Leu Pro Lys His
50 55 60

Val Ala Asp Glu Met Leu Lys Asp Met Lys Lys Asp Glu Ser Gln Lys
65 70 75 80

Asp Gln Gln Gln Phe Asn Thr Met Tyr Met Tyr Arg His Glu Asn Val
85 90 95

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

Cys Ser Ala Gln Glu Leu Val Lys Leu Leu Asn Glu Leu Phe Ala Arg
115 120 125

Phe Asp Lys Leu Ala Ala Lys Tyr His Gln Leu Arg Ile Lys Ile Leu
130 135 140

Gly Asp Cys Tyr Tyr Cys Ile Cys Gly Leu
145 150

<210> 2799
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 649; "

<220>
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<223> /note="Gene Symbol: ADCY3; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402008"

<400> 2799

```
Val Thr Phe Met Val Gly Glu Ile Leu Leu Leu Ile Leu Thr Ile Cys
1               5                  10                  15

Ser Leu Ala Ala Ile Phe Pro Arg Ala Phe Pro Lys Lys Leu Val Ala
            20                  25                  30

Phe Ser Thr Trp Ile Asp Arg Thr Arg Trp Ala Arg Asn Thr Trp Ala
        35                  40                  45

Met Leu Ala Ile Phe Ile Leu Val Met Ala Asn Val Val Asp Met Leu
    50                  55                  60

Ser Cys Leu Gln Tyr Tyr Thr Gly Pro Ser Asn Ala Thr Ala Gly Met
65                  70                  75                  80

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

Ala Val Leu Ser Leu Ile Ala Thr Ile Met Leu Val Gln Val Ser His
            100                 105                 110

Met Val Lys Leu Thr Leu Met Leu Leu Val Ala Gly Ala Val Ala Thr
        115                 120                 125

Ile Asn Leu Tyr Ala Trp Arg Pro Val Phe Asp Glu Tyr Asp His Lys
    130                 135                 140

Arg Phe Arg Glu His Asp Leu Pro Met Val Ala Leu Glu Gln Met Gln
145                 150                 155                 160

Gly Phe Asn Pro Gly Leu Asn Gly Thr Asp Ser Arg Leu Pro Leu Val
```

```
                165                 170                 175

Pro Ser Lys Tyr Ser Met Thr Val Met Val Phe Leu Met Met Leu Ser
            180                 185                 190

Phe Tyr Tyr Phe Ser Arg
        195


<210> 2800
<211> 112
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000406153"

<400> 2800
Met Pro Arg Asn Gln Gly Phe Ser Glu Pro Glu Tyr Ser Ala Glu Tyr
1               5                   10                  15

Ser Ala Glu Tyr Ser Val Ser Leu Pro Ser Asp Pro Asp Arg Gly Val
            20                  25                  30

Gly Arg Thr His Glu Ile Ser Val Arg Asn Ser Gly Ser Cys Leu Cys
        35                  40                  45

Leu Pro Arg Phe Met Arg Leu Thr Phe Val Pro Glu Ser Leu Glu Asn
    50                  55                  60

Leu Tyr Gln Thr Tyr Phe Lys Arg Gln Arg His Glu Thr Leu Leu Val
65                  70                  75                  80

Leu Val Val Phe Ala Ala Leu Phe Asp Cys Tyr Val Val Val Met Cys
                85                  90                  95
```

Ala Val Val Phe Ser Ser Asp Lys Leu Ala Ser Leu Ala Val Ala Gly
100 105 110

<210> 2801
<211> 791
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000475652"

<400> 2801
Gln Leu Ser Ser Ala Cys Ser Ala Gln Glu Leu Val Lys Leu Leu Asn
1 5 10 15

Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala Lys Tyr His Gln Leu
20 25 30

Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Ile Cys Gly Leu Pro
35 40 45

Asp Tyr Arg Glu Asp His Ala Val Cys Ser Ile Leu Met Gly Leu Ala
50 55 60

Met Val Glu Ala Ile Ser Tyr Val Arg Glu Lys Thr Lys Thr Gly Val
65 70 75 80

Asp Met Arg Val Gly Val His Thr Gly Thr Val Leu Gly Gly Val Leu
85 90 95

Gly Gln Lys Arg Trp Gln Tyr Asp Val Trp Ser Thr Asp Val Thr Val
100 105 110

Ala Asn Lys Met Glu Ala Gly Gly Ile Pro Gly Gly Ser Lys Ile Glu

```
        115                 120                 125

Glu Arg Leu Tyr Ser Cys Val Val Ala Pro Thr Leu Arg Leu Arg Trp
    130                 135                 140

Glu Arg Val His Ile Ser Gln Ser Thr Met Asp Cys Leu Lys Gly Glu
145                 150                 155                 160

Phe Asp Val Glu Pro Gly Asp Gly Gly Ser Arg Cys Asp Tyr Leu Glu
                165                 170                 175

Glu Lys Gly Ile Glu Thr Tyr Leu Ile Ile Ala Ser Lys Pro Glu Val
            180                 185                 190

Lys Lys Thr Ala Thr Gln Asn Gly Leu Asn Gly Ser Ala Leu Pro Asn
        195                 200                 205

Gly Ala Pro Ala Ser Ser Lys Ser Ser Ser Pro Ala Leu Ile Glu Thr
    210                 215                 220

Lys Glu Pro Asn Gly Ser Ala His Ser Ser Gly Ser Thr Ser Glu Lys
225                 230                 235                 240

Pro Glu Glu Gln Asp Ala Gln Ala Asp Asn Pro Ser Phe Pro Asn Pro
                245                 250                 255

Arg Arg Arg Leu Arg Leu Gln Asp Leu Ala Asp Arg Val Val Asp Ala
            260                 265                 270

Ser Glu Asp Glu His Glu Leu Asn Gln Leu Leu Asn Glu Ala Leu Leu
        275                 280                 285

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

Ser Met Arg Phe Met Asp Pro Glu Met Glu Thr Arg Tyr Ser Val Glu
305                 310                 315                 320

Lys Glu Lys Gln Ser Gly Ala Ala Phe Ser Cys Ser Cys Val Val Leu
                325                 330                 335

Leu Cys Thr Ala Leu Val Glu Ile Leu Ile Asp Pro Trp Leu Met Thr
            340                 345                 350
```

```
Asn Tyr Val Thr Phe Met Val Gly Glu Ile Leu Leu Leu Ile Leu Thr
        355                 360                 365

Ile Cys Ser Leu Ala Ala Ile Phe Pro Arg Ala Phe Pro Lys Lys Leu
    370                 375                 380

Val Ala Phe Ser Thr Trp Ile Asp Arg Thr Arg Trp Ala Arg Asn Thr
385                 390                 395                 400

Trp Ala Met Leu Ala Ile Phe Ile Leu Val Met Ala Asn Val Val Asp
                405                 410                 415

Met Val Ser His Met Val Lys Leu Thr Leu Met Leu Leu Val Ala Gly
            420                 425                 430

Ala Val Ala Thr Ile Asn Leu Tyr Ala Trp Arg Pro Val Phe Asp Glu
        435                 440                 445

Tyr Asp His Lys Arg Phe Arg Glu His Asp Leu Pro Met Val Ala Leu
    450                 455                 460

Glu Gln Met Gln Gly Phe Asn Pro Gly Leu Asn Gly Thr Asp Arg Leu
465                 470                 475                 480

Pro Leu Val Pro Ser Lys Tyr Ser Met Thr Val Met Val Phe Leu Met
                485                 490                 495

Met Leu Ser Phe Tyr Tyr Phe Ser Arg His Val Glu Lys Leu Ala Arg
            500                 505                 510

Thr Leu Phe Leu Trp Lys Ile Glu Val His Asp Gln Lys Glu Arg Val
        515                 520                 525

Tyr Glu Met Arg Arg Trp Asn Glu Ala Leu Val Thr Asn Met Leu Pro
    530                 535                 540

Glu His Val Ala Arg His Phe Leu Gly Ser Lys Lys Arg Asp Glu Glu
545                 550                 555                 560

Leu Tyr Ser Gln Thr Tyr Asp Glu Ile Gly Val Met Phe Ala Ser Leu
                565                 570                 575
```

```
Pro Asn Phe Ala Asp Phe Tyr Thr Glu Glu Ser Ile Asn Asn Gly Gly
            580                 585                 590

Ile Glu Cys Leu Arg Phe Leu Asn Glu Ile Ile Ser Asp Phe Asp Ser
        595                 600                 605

Leu Leu Asp Asn Pro Lys Phe Arg Val Ile Thr Lys Ile Lys Thr Ile
    610                 615                 620

Gly Ser Thr Tyr Met Ala Ala Ser Gly Val Thr Pro Asp Val Asn Thr
625                 630                 635                 640

Asn Gly Phe Ala Ser Ser Asn Lys Glu Asp Lys Ser Glu Arg Glu Arg
                645                 650                 655

Trp Gln His Leu Ala Asp Leu Ala Asp Phe Ala Leu Ala Met Lys Asp
            660                 665                 670

Thr Leu Thr Asn Ile Asn Asn Gln Ser Phe Asn Asn Phe Met Leu Arg
        675                 680                 685

Ile Gly Met Asn Lys Gly Gly Val Leu Ala Gly Val Ile Gly Ala Arg
    690                 695                 700

Lys Pro His Tyr Asp Ile Trp Gly Asn Thr Val Asn Val Ala Ser Arg
705                 710                 715                 720

Met Glu Ser Thr Gly Val Met Gly Asn Ile Gln Val Val Glu Glu Thr
                725                 730                 735

Gln Val Ile Leu Arg Glu Tyr Gly Phe Arg Phe Val Arg Arg Gly Pro
            740                 745                 750

Ile Phe Val Lys Gly Lys Gly Glu Leu Leu Thr Phe Phe Leu Lys Gly
        755                 760                 765

Arg Asp Lys Leu Ala Thr Phe Pro Asn Gly Pro Ser Val Thr Leu Pro
    770                 775                 780

His Gln Val Val Asp Asn Ser
785                 790
```

<210> 2802
<211> 49
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 649; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY3; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476143"

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

<400> 2802
Xaa Tyr Asp Ile Trp Gly Asn Thr Val Asn Val Ala Ser Arg Met Glu
1 5 10 15

Ser Thr Gly Val Met Gly Asn Ile Gln Trp Arg Leu Ala Glu Lys Leu
20 25 30

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

Trp

<210> 2803
<211> 1077
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>
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<223> /note="Gene Name:
adenylate cyclase 4; "

<220>
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<223> /note="Uniprot ID: Q8NFM4; "

<220>
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<223> /note="ENSP ID: ENSP00000312126"

<400> 2803

```
Met Ala Arg Leu Phe Ser Pro Arg Pro Pro Pro Ser Glu Asp Leu Phe
1               5                  10                  15

Tyr Glu Thr Tyr Tyr Ser Leu Ser Gln Gln Tyr Pro Leu Leu Leu Leu
            20                  25                  30

Leu Leu Gly Ile Val Leu Cys Ala Leu Ala Ala Leu Leu Ala Val Ala
        35                  40                  45

Trp Ala Ser Gly Arg Glu Leu Thr Ser Asp Pro Ser Phe Leu Thr Thr
    50                  55                  60

Val Leu Cys Ala Leu Gly Gly Phe Ser Leu Leu Leu Gly Leu Ala Ser
65                  70                  75                  80

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

Trp Val Ala Leu Leu Ala Leu Gly His Ala Phe Leu Phe Thr Gly Gly
            100                 105                 110

Val Val Ser Ala Trp Asp Gln Val Ser Tyr Phe Leu Phe Val Ile Phe
        115                 120                 125

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

Gly Leu Ala Ser Ser Leu Ser His Leu Leu Val Leu Gly Leu Tyr Leu
145                 150                 155                 160

Gly Pro Gln Pro Asp Ser Arg Pro Ala Leu Leu Pro Gln Leu Ala Ala
                165                 170                 175
```

```
Asn Ala Val Leu Phe Leu Cys Gly Asn Val Ala Gly Val Tyr His Lys
            180                 185                 190

Ala Leu Met Glu Arg Ala Leu Arg Ala Thr Phe Arg Glu Ala Leu Ser
        195                 200                 205

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

His Leu Leu Leu Ser Ile Leu Pro Ala Tyr Leu Ala Arg Glu Met Lys
225                 230                 235                 240

Ala Glu Ile Met Ala Arg Leu Gln Ala Gly Gln Gly Ser Arg Pro Glu
                245                 250                 255

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

Ser Val Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Glu
        275                 280                 285

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

Phe Asp Gln Ile Ala Lys Glu His Glu Cys Met Arg Ile Lys Ile Leu
305                 310                 315                 320

Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro Leu Ser Leu Pro Asp
                325                 330                 335

His Ala Ile Asn Cys Val Arg Met Gly Leu Asp Met Cys Arg Ala Ile
            340                 345                 350

Arg Lys Leu Arg Ala Ala Thr Gly Val Asp Ile Asn Met Arg Val Gly
        355                 360                 365

Val His Ser Gly Ser Val Leu Cys Gly Val Ile Gly Leu Gln Lys Trp
    370                 375                 380

Gln Tyr Asp Val Trp Ser His Asp Val Thr Leu Ala Asn His Met Glu
385                 390                 395                 400
```

Ala Gly Gly Val Pro Gly Arg Val His Ile Thr Gly Ala Thr Leu Ala
405 410 415

Leu Leu Ala Gly Ala Tyr Ala Val Glu Asp Ala Gly Met Glu His Arg
420 425 430

Asp Pro Tyr Leu Arg Glu Leu Gly Glu Pro Thr Tyr Leu Val Ile Asp
435 440 445

Pro Arg Ala Glu Glu Glu Asp Glu Lys Gly Thr Ala Gly Gly Leu Leu
450 455 460

Ser Ser Leu Glu Gly Leu Lys Met Arg Pro Ser Leu Leu Met Thr Arg
465 470 475 480

Tyr Leu Glu Ser Trp Gly Ala Ala Lys Pro Phe Ala His Leu Ser His
485 490 495

Gly Asp Ser Pro Val Ser Thr Ser Thr Pro Leu Pro Glu Lys Thr Leu
500 505 510

Ala Ser Phe Ser Thr Gln Trp Ser Leu Asp Arg Ser Arg Thr Pro Arg
515 520 525

Gly Leu Asp Asp Glu Leu Asp Thr Gly Asp Ala Lys Phe Phe Gln Val
530 535 540

Ile Glu Gln Leu Asn Ser Gln Lys Gln Trp Lys Gln Ser Lys Asp Phe
545 550 555 560

Asn Pro Leu Thr Leu Tyr Phe Arg Glu Lys Glu Met Glu Lys Glu Tyr
565 570 575

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

Leu Val Phe Leu Ser Asn Phe Ile Ile Gln Met Leu Val Thr Asn Arg
595 600 605

Pro Pro Ala Leu Ala Ile Thr Tyr Ser Ile Thr Phe Leu Leu Phe Leu
610 615 620

```
Leu Ile Leu Phe Val Cys Phe Ser Glu Asp Leu Met Arg Cys Val Leu
625                 630                 635                 640

Lys Gly Pro Lys Met Leu His Trp Leu Pro Ala Leu Ser Gly Leu Val
                645                 650                 655

Ala Thr Arg Pro Gly Leu Arg Ile Ala Leu Gly Thr Ala Thr Ile Leu
            660                 665                 670

Leu Val Phe Ala Met Ala Ile Thr Ser Leu Phe Phe Phe Pro Thr Ser
        675                 680                 685

Ser Asp Cys Pro Phe Gln Ala Pro Asn Val Ser Ser Met Ile Ser Asn
    690                 695                 700

Leu Ser Trp Glu Leu Pro Gly Ser Leu Pro Leu Ile Ser Val Pro Tyr
705                 710                 715                 720

Ser Met His Cys Cys Thr Leu Gly Phe Leu Ser Cys Ser Leu Phe Leu
                725                 730                 735

His Met Ser Phe Glu Leu Lys Leu Leu Leu Leu Leu Leu Trp Leu Ala
            740                 745                 750

Ala Ser Cys Ser Leu Phe Leu His Ser His Ala Trp Leu Ser Glu Cys
        755                 760                 765

Leu Ile Val Arg Leu Tyr Leu Gly Pro Leu Asp Ser Arg Pro Gly Val
    770                 775                 780

Leu Lys Glu Pro Lys Leu Met Gly Ala Ile Ser Phe Phe Ile Phe Phe
785                 790                 795                 800

Phe Thr Leu Leu Val Leu Ala Arg Gln Asn Glu Tyr Tyr Cys Arg Leu
                805                 810                 815

Asp Phe Leu Trp Lys Lys Lys Leu Arg Gln Glu Arg Glu Glu Thr Glu
            820                 825                 830

Thr Met Glu Asn Leu Thr Arg Leu Leu Leu Glu Asn Val Leu Pro Ala
        835                 840                 845

His Val Ala Pro Gln Phe Ile Gly Gln Asn Arg Arg Asn Glu Asp Leu
```

```
    850                 855                 860

Tyr His Gln Ser Tyr Glu Cys Val Cys Val Leu Phe Ala Ser Val Pro
865                 870                 875                 880

Asp Phe Lys Glu Phe Tyr Ser Glu Ser Asn Ile Asn His Glu Gly Leu
                885                 890                 895

Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Glu Leu
            900                 905                 910

Leu Ser Lys Pro Lys Phe Ser Gly Val Glu Lys Ile Lys Thr Ile Gly
        915                 920                 925

Ser Thr Tyr Met Ala Ala Thr Gly Leu Asn Ala Thr Ser Gly Gln Asp
    930                 935                 940

Ala Gln Gln Asp Ala Glu Arg Ser Cys Ser His Leu Gly Thr Met Val
945                 950                 955                 960

Glu Phe Ala Val Ala Leu Gly Ser Lys Leu Asp Val Ile Asn Lys His
                965                 970                 975

Ser Phe Asn Asn Phe Arg Leu Arg Val Gly Leu Asn His Gly Pro Val
            980                 985                 990

Val Ala Gly Val Ile Gly Ala Gln  Lys Pro Gln Tyr Asp  Ile Trp
Gly
        995                 1000                1005

Asn Thr  Val Asn Val Ala Ser  Arg Met Glu Ser Thr  Gly Val Leu
    1010                1015                1020

Gly Lys  Ile Gln Val Thr Glu  Glu Thr Ala Trp Ala  Leu Gln Ser
    1025                1030                1035

Leu Gly  Tyr Thr Cys Tyr Ser  Arg Gly Val Ile Lys  Val Lys Gly
    1040                1045                1050

Lys Gly  Gln Leu Cys Thr Tyr  Phe Leu Asn Thr Asp  Leu Thr Arg
    1055                1060                1065

Thr Gly  Pro Pro Ser Ala Thr  Leu Gly
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1070 1075

<210> 2804
<211> 1077
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>
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<223> /note="Gene Name:
adenylate cyclase 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NFM4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393177"

<400> 2804
Met Ala Arg Leu Phe Ser Pro Arg Pro Pro Pro Ser Glu Asp Leu Phe
1 5 10 15

Tyr Glu Thr Tyr Tyr Ser Leu Ser Gln Gln Tyr Pro Leu Leu Leu Leu
20 25 30

Leu Leu Gly Ile Val Leu Cys Ala Leu Ala Ala Leu Leu Ala Val Ala
35 40 45

Trp Ala Ser Gly Arg Glu Leu Thr Ser Asp Pro Ser Phe Leu Thr Thr
50 55 60

Val Leu Cys Ala Leu Gly Gly Phe Ser Leu Leu Leu Gly Leu Ala Ser
65 70 75 80

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

Trp Val Ala Leu Leu Ala Leu Gly His Ala Phe Leu Phe Thr Gly Gly
100 105 110

```
Val Val Ser Ala Trp Asp Gln Val Ser Tyr Phe Leu Phe Val Ile Phe
        115                 120                 125

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

Gly Leu Ala Ser Ser Leu Ser His Leu Leu Val Leu Gly Leu Tyr Leu
145                 150                 155                 160

Gly Pro Gln Pro Asp Ser Arg Pro Ala Leu Leu Pro Gln Leu Ala Ala
                165                 170                 175

Asn Ala Val Leu Phe Leu Cys Gly Asn Val Ala Gly Val Tyr His Lys
            180                 185                 190

Ala Leu Met Glu Arg Ala Leu Arg Ala Thr Phe Arg Glu Ala Leu Ser
        195                 200                 205

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

His Leu Leu Leu Ser Ile Leu Pro Ala Tyr Leu Ala Arg Glu Met Lys
225                 230                 235                 240

Ala Glu Ile Met Ala Arg Leu Gln Ala Gly Gln Gly Ser Arg Pro Glu
                245                 250                 255

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

Ser Val Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Glu
        275                 280                 285

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

Phe Asp Gln Ile Ala Lys Glu His Glu Cys Met Arg Ile Lys Ile Leu
305                 310                 315                 320

Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro Leu Ser Leu Pro Asp
                325                 330                 335
```

```
His Ala Ile Asn Cys Val Arg Met Gly Leu Asp Met Cys Arg Ala Ile
            340                 345                 350

Arg Lys Leu Arg Ala Ala Thr Gly Val Asp Ile Asn Met Arg Val Gly
        355                 360                 365

Val His Ser Gly Ser Val Leu Cys Gly Val Ile Gly Leu Gln Lys Trp
    370                 375                 380

Gln Tyr Asp Val Trp Ser His Asp Val Thr Leu Ala Asn His Met Glu
385                 390                 395                 400

Ala Gly Gly Val Pro Gly Arg Val His Ile Thr Gly Ala Thr Leu Ala
                405                 410                 415

Leu Leu Ala Gly Ala Tyr Ala Val Glu Asp Ala Gly Met Glu His Arg
            420                 425                 430

Asp Pro Tyr Leu Arg Glu Leu Gly Glu Pro Thr Tyr Leu Val Ile Asp
        435                 440                 445

Pro Arg Ala Glu Glu Glu Asp Glu Lys Gly Thr Ala Gly Gly Leu Leu
    450                 455                 460

Ser Ser Leu Glu Gly Leu Lys Met Arg Pro Ser Leu Leu Met Thr Arg
465                 470                 475                 480

Tyr Leu Glu Ser Trp Gly Ala Ala Lys Pro Phe Ala His Leu Ser His
                485                 490                 495

Gly Asp Ser Pro Val Ser Thr Ser Thr Pro Leu Pro Glu Lys Thr Leu
            500                 505                 510

Ala Ser Phe Ser Thr Gln Trp Ser Leu Asp Arg Ser Arg Thr Pro Arg
        515                 520                 525

Gly Leu Asp Asp Glu Leu Asp Thr Gly Asp Ala Lys Phe Phe Gln Val
    530                 535                 540

Ile Glu Gln Leu Asn Ser Gln Lys Gln Trp Lys Gln Ser Lys Asp Phe
545                 550                 555                 560

Asn Pro Leu Thr Leu Tyr Phe Arg Glu Lys Glu Met Glu Lys Glu Tyr
```

565 570 575

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

Leu Val Phe Leu Ser Asn Phe Ile Ile Gln Met Leu Val Thr Asn Arg
595 600 605

Pro Pro Ala Leu Ala Ile Thr Tyr Ser Ile Thr Phe Leu Leu Phe Leu
610 615 620

Leu Ile Leu Phe Val Cys Phe Ser Glu Asp Leu Met Arg Cys Val Leu
625 630 635 640

Lys Gly Pro Lys Met Leu His Trp Leu Pro Ala Leu Ser Gly Leu Val
645 650 655

Ala Thr Arg Pro Gly Leu Arg Ile Ala Leu Gly Thr Ala Thr Ile Leu
660 665 670

Leu Val Phe Ala Met Ala Ile Thr Ser Leu Phe Phe Phe Pro Thr Ser
675 680 685

Ser Asp Cys Pro Phe Gln Ala Pro Asn Val Ser Ser Met Ile Ser Asn
690 695 700

Leu Ser Trp Glu Leu Pro Gly Ser Leu Pro Leu Ile Ser Val Pro Tyr
705 710 715 720

Ser Met His Cys Cys Thr Leu Gly Phe Leu Ser Cys Ser Leu Phe Leu
725 730 735

His Met Ser Phe Glu Leu Lys Leu Leu Leu Leu Leu Leu Trp Leu Ala
740 745 750

Ala Ser Cys Ser Leu Phe Leu His Ser His Ala Trp Leu Ser Glu Cys
755 760 765

Leu Ile Val Arg Leu Tyr Leu Gly Pro Leu Asp Ser Arg Pro Gly Val
770 775 780

Leu Lys Glu Pro Lys Leu Met Gly Ala Ile Ser Phe Phe Ile Phe Phe
785 790 795 800

```
Phe Thr Leu Leu Val Leu Ala Arg Gln Asn Glu Tyr Tyr Cys Arg Leu
                805                 810                 815

Asp Phe Leu Trp Lys Lys Lys Leu Arg Gln Glu Arg Glu Glu Thr Glu
            820                 825                 830

Thr Met Glu Asn Leu Thr Arg Leu Leu Leu Glu Asn Val Leu Pro Ala
        835                 840                 845

His Val Ala Pro Gln Phe Ile Gly Gln Asn Arg Arg Asn Glu Asp Leu
    850                 855                 860

Tyr His Gln Ser Tyr Glu Cys Val Cys Val Leu Phe Ala Ser Val Pro
865                 870                 875                 880

Asp Phe Lys Glu Phe Tyr Ser Glu Ser Asn Ile Asn His Glu Gly Leu
                885                 890                 895

Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Glu Leu
            900                 905                 910

Leu Ser Lys Pro Lys Phe Ser Gly Val Glu Lys Ile Lys Thr Ile Gly
        915                 920                 925

Ser Thr Tyr Met Ala Ala Thr Gly Leu Asn Ala Thr Ser Gly Gln Asp
    930                 935                 940

Ala Gln Gln Asp Ala Glu Arg Ser Cys Ser His Leu Gly Thr Met Val
945                 950                 955                 960

Glu Phe Ala Val Ala Leu Gly Ser Lys Leu Asp Val Ile Asn Lys His
                965                 970                 975

Ser Phe Asn Asn Phe Arg Leu Arg Val Gly Leu Asn His Gly Pro Val
            980                 985                 990

Val Ala Gly Val Ile Gly Ala Gln  Lys Pro Gln Tyr Asp  Ile Trp
Gly
        995                 1000                1005

Asn Thr  Val Asn Val Ala Ser  Arg Met Glu Ser Thr  Gly Val Leu
    1010                1015                1020
```

```
Gly Lys  Ile Gln Val Thr Glu  Glu Thr Ala Trp Ala  Leu Gln Ser
    1025                1030                1035


Leu Gly  Tyr Thr Cys Tyr Ser  Arg Gly Val Ile Lys  Val Lys Gly
    1040                1045                1050


Lys Gly  Gln Leu Cys Thr Tyr  Phe Leu Asn Thr Asp  Leu Thr Arg
    1055                1060                1065


Thr Gly  Pro Pro Ser Ala Thr  Leu Gly
    1070                1075


<210> 2805
<211> 449
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450477"

<400> 2805
Met Ala Arg Leu Phe Ser Pro Arg Pro Pro Pro Ser Glu Asp Leu Phe
1               5                  10                  15


Tyr Glu Thr Tyr Tyr Ser Leu Ser Gln Gln Tyr Pro Leu Leu Leu Leu
            20                  25                  30


Leu Leu Gly Ile Val Leu Cys Ala Leu Ala Ala Leu Leu Ala Val Ala
        35                  40                  45


Trp Ala Ser Gly Arg Glu Leu Thr Ser Asp Pro Ser Phe Leu Thr Thr
    50                  55                  60
```

```
Val Leu Cys Ala Leu Gly Gly Phe Ser Leu Leu Leu Gly Leu Ala Ser
65                  70                  75                  80

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

Trp Val Ala Leu Leu Ala Leu Gly His Ala Phe Leu Phe Thr Gly Gly
            100                 105                 110

Val Val Ser Ala Trp Asp Gln Val Ser Tyr Phe Leu Phe Val Ile Phe
        115                 120                 125

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

Gly Leu Ala Ser Ser Leu Ser His Leu Leu Val Leu Gly Leu Tyr Leu
145                 150                 155                 160

Gly Pro Gln Pro Asp Ser Arg Pro Ala Leu Leu Pro Gln Leu Ala Ala
                165                 170                 175

Asn Ala Val Leu Phe Leu Cys Gly Asn Val Ala Gly Val Tyr His Lys
            180                 185                 190

Ala Leu Met Glu Arg Ala Leu Arg Ala Thr Phe Arg Glu Ala Leu Ser
        195                 200                 205

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

His Leu Leu Leu Ser Ile Leu Pro Ala Tyr Leu Ala Arg Glu Met Lys
225                 230                 235                 240

Ala Glu Ile Met Ala Arg Leu Gln Ala Gly Gln Gly Ser Arg Pro Glu
                245                 250                 255

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

Ser Val Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Glu
        275                 280                 285

Cys Ser Pro Lys Glu Leu Val Leu Met Leu Asn Glu Leu Phe Gly Lys
```

290 295 300

Phe Asp Gln Ile Ala Lys Val Pro Leu His Thr His Ile His Thr Pro
305 310 315 320

Arg Ser Met Asn Ala Cys Gly Ser Arg Ser Trp Gly Thr Val Thr Thr
325 330 335

Val Ser Leu Gly Cys His Ser His Cys Gln Thr Met Pro Ser Thr Ala
340 345 350

Cys Ala Trp Ala Trp Thr Cys Ala Gly Pro Ser Gly Asn Cys Gly Gln
355 360 365

Pro Leu Ala Trp Thr Ser Thr Cys Val Trp Ala Cys Thr Gln Ala Ala
370 375 380

Tyr Cys Val Glu Ser Ser Gly Cys Arg Ser Gly Ser Thr Thr Phe Gly
385 390 395 400

His Met Met Ser His Trp Leu Thr Thr Trp Arg Gln Ala Val Tyr Gln
405 410 415

Gly Glu Cys Thr Ser Gln Gly Leu Pro Trp Pro Cys Trp Gln Gly Leu
420 425 430

Met Leu Trp Arg Thr Gln Ala Trp Ser Ile Gly Thr Pro Thr Phe Gly
435 440 445

Ser

<210> 2806
<211> 216
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>

<221> source
<223> /note="Gene Name:
adenylate cyclase 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450481"

<400> 2806

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

Ser Leu Ser His Leu Leu Val Leu Gly Leu Tyr Leu Gly Pro Gln Pro
            20                  25                  30

Asp Ser Arg Pro Ala Leu Leu Pro Gln Leu Ala Ala Asn Ala Val Leu
        35                  40                  45

Phe Leu Cys Gly Asn Val Ala Gly Val Tyr His Lys Ala Leu Met Glu
    50                  55                  60

Arg Ala Leu Arg Ala Thr Phe Arg Glu Ala Leu Ser Ser Leu His Ser
65                  70                  75                  80

Arg Arg Arg Leu Asp Thr Glu Lys Lys His Gln Glu His Leu Leu Leu
                85                  90                  95

Ser Ile Leu Pro Ala Tyr Leu Ala Arg Glu Met Lys Ala Glu Ile Met
            100                 105                 110

Ala Arg Leu Gln Ala Gly Gln Gly Ser Arg Pro Glu Ser Thr Asn Asn
        115                 120                 125

Phe His Ser Leu Tyr Val Lys Arg His Gln Gly Val Ser Val Leu Tyr
    130                 135                 140

Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Glu Cys Ser Pro Lys
145                 150                 155                 160

Glu Leu Val Leu Met Leu Asn Glu Leu Phe Gly Lys Phe Asp Gln Ile
                165                 170                 175

Ala Lys Glu Thr Ala Gly Ser His Trp Arg Gly His Gln His Ala Cys
            180                 185                 190
```

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


Val Ala Val Arg Arg Leu Val Thr
    210                 215


<210> 2807
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450843"


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

<400> 2807
Xaa Met Glu His Arg Asp Pro Tyr Leu Arg Glu Leu Gly Glu Pro Thr
1               5                   10                  15


Tyr Leu Val Ile Asp Pro Arg Ala Glu Glu Glu Asp Glu Lys Gly Thr
            20                  25                  30


Ala Gly Gly Leu Leu Ser Ser Leu Glu Gly Leu Lys Met Arg Pro Ser
        35                  40                  45


Leu Leu Met Thr Arg Tyr Leu Glu Ser Trp Gly Ala Ala Lys Pro Phe
    50                  55                  60


Ala His Leu Ser His Gly Asp Ser Pro Val Ser Thr Ser Thr Pro Leu
65                  70                  75                  80
```

```
Pro Glu Lys Thr Leu Ala Ser Phe Ser Thr Gln Trp Ser Leu Asp Arg
                85                  90                  95

Ser Arg Thr Pro Arg Gly Leu Asp Asp Glu Leu Asp Thr Gly Asp Ala
            100                 105                 110

Lys Phe Phe Gln Thr Val Glu Ala Val Glu Gly Leu Gln Pro Thr Asp
        115                 120                 125

Thr Val Leu Gln Arg Glu Gly Asp Gly
    130                 135
```

<210> 2808
<211> 1077
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NFM4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452250"

<400> 2808

```
Met Ala Arg Leu Phe Ser Pro Arg Pro Pro Pro Ser Glu Asp Leu Phe
1               5                  10                  15

Tyr Glu Thr Tyr Tyr Ser Leu Ser Gln Gln Tyr Pro Leu Leu Leu Leu
            20                  25                  30

Leu Leu Gly Ile Val Leu Cys Ala Leu Ala Ala Leu Leu Ala Val Ala
        35                  40                  45

Trp Ala Ser Gly Arg Glu Leu Thr Ser Asp Pro Ser Phe Leu Thr Thr
    50                  55                  60
```

```
Val Leu Cys Ala Leu Gly Gly Phe Ser Leu Leu Leu Gly Leu Ala Ser
65                  70                  75                  80

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

Trp Val Ala Leu Leu Ala Leu Gly His Ala Phe Leu Phe Thr Gly Gly
            100                 105                 110

Val Val Ser Ala Trp Asp Gln Val Ser Tyr Phe Leu Phe Val Ile Phe
        115                 120                 125

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

Gly Leu Ala Ser Ser Leu Ser His Leu Leu Val Leu Gly Leu Tyr Leu
145                 150                 155                 160

Gly Pro Gln Pro Asp Ser Arg Pro Ala Leu Leu Pro Gln Leu Ala Ala
                165                 170                 175

Asn Ala Val Leu Phe Leu Cys Gly Asn Val Ala Gly Val Tyr His Lys
            180                 185                 190

Ala Leu Met Glu Arg Ala Leu Arg Ala Thr Phe Arg Glu Ala Leu Ser
        195                 200                 205

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

His Leu Leu Leu Ser Ile Leu Pro Ala Tyr Leu Ala Arg Glu Met Lys
225                 230                 235                 240

Ala Glu Ile Met Ala Arg Leu Gln Ala Gly Gln Gly Ser Arg Pro Glu
                245                 250                 255

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

Ser Val Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Glu
        275                 280                 285
```

```
Cys Ser Pro Lys Glu Leu Val Leu Met Leu Asn Glu Leu Phe Gly Lys
    290                 295                 300

Phe Asp Gln Ile Ala Lys Glu His Glu Cys Met Arg Ile Lys Ile Leu
305                 310                 315                 320

Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro Leu Ser Leu Pro Asp
                325                 330                 335

His Ala Ile Asn Cys Val Arg Met Gly Leu Asp Met Cys Arg Ala Ile
            340                 345                 350

Arg Lys Leu Arg Ala Ala Thr Gly Val Asp Ile Asn Met Arg Val Gly
        355                 360                 365

Val His Ser Gly Ser Val Leu Cys Gly Val Ile Gly Leu Gln Lys Trp
    370                 375                 380

Gln Tyr Asp Val Trp Ser His Asp Val Thr Leu Ala Asn His Met Glu
385                 390                 395                 400

Ala Gly Gly Val Pro Gly Arg Val His Ile Thr Gly Ala Thr Leu Ala
                405                 410                 415

Leu Leu Ala Gly Ala Tyr Ala Val Glu Asp Ala Gly Met Glu His Arg
            420                 425                 430

Asp Pro Tyr Leu Arg Glu Leu Gly Glu Pro Thr Tyr Leu Val Ile Asp
        435                 440                 445

Pro Arg Ala Glu Glu Glu Asp Glu Lys Gly Thr Ala Gly Gly Leu Leu
    450                 455                 460

Ser Ser Leu Glu Gly Leu Lys Met Arg Pro Ser Leu Leu Met Thr Arg
465                 470                 475                 480

Tyr Leu Glu Ser Trp Gly Ala Ala Lys Pro Phe Ala His Leu Ser His
                485                 490                 495

Gly Asp Ser Pro Val Ser Thr Ser Thr Pro Leu Pro Glu Lys Thr Leu
            500                 505                 510
```

```
Ala Ser Phe Ser Thr Gln Trp Ser Leu Asp Arg Ser Arg Thr Pro Arg
        515                 520                 525

Gly Leu Asp Asp Glu Leu Asp Thr Gly Asp Ala Lys Phe Phe Gln Val
    530                 535                 540

Ile Glu Gln Leu Asn Ser Gln Lys Gln Trp Lys Gln Ser Lys Asp Phe
545                 550                 555                 560

Asn Pro Leu Thr Leu Tyr Phe Arg Glu Lys Glu Met Glu Lys Glu Tyr
                565                 570                 575

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

Leu Val Phe Leu Ser Asn Phe Ile Ile Gln Met Leu Val Thr Asn Arg
        595                 600                 605

Pro Pro Ala Leu Ala Ile Thr Tyr Ser Ile Thr Phe Leu Leu Phe Leu
    610                 615                 620

Leu Ile Leu Phe Val Cys Phe Ser Glu Asp Leu Met Arg Cys Val Leu
625                 630                 635                 640

Lys Gly Pro Lys Met Leu His Trp Leu Pro Ala Leu Ser Gly Leu Val
                645                 650                 655

Ala Thr Arg Pro Gly Leu Arg Ile Ala Leu Gly Thr Ala Thr Ile Leu
            660                 665                 670

Leu Val Phe Ala Met Ala Ile Thr Ser Leu Phe Phe Phe Pro Thr Ser
        675                 680                 685

Ser Asp Cys Pro Phe Gln Ala Pro Asn Val Ser Ser Met Ile Ser Asn
    690                 695                 700

Leu Ser Trp Glu Leu Pro Gly Ser Leu Pro Leu Ile Ser Val Pro Tyr
705                 710                 715                 720

Ser Met His Cys Cys Thr Leu Gly Phe Leu Ser Cys Ser Leu Phe Leu
                725                 730                 735

His Met Ser Phe Glu Leu Lys Leu Leu Leu Leu Leu Leu Trp Leu Ala
```

740 745 750

Ala Ser Cys Ser Leu Phe Leu His Ser His Ala Trp Leu Ser Glu Cys
755 760 765

Leu Ile Val Arg Leu Tyr Leu Gly Pro Leu Asp Ser Arg Pro Gly Val
770 775 780

Leu Lys Glu Pro Lys Leu Met Gly Ala Ile Ser Phe Phe Ile Phe Phe
785 790 795 800

Phe Thr Leu Leu Val Leu Ala Arg Gln Asn Glu Tyr Tyr Cys Arg Leu
805 810 815

Asp Phe Leu Trp Lys Lys Lys Leu Arg Gln Glu Arg Glu Glu Thr Glu
820 825 830

Thr Met Glu Asn Leu Thr Arg Leu Leu Leu Glu Asn Val Leu Pro Ala
835 840 845

His Val Ala Pro Gln Phe Ile Gly Gln Asn Arg Arg Asn Glu Asp Leu
850 855 860

Tyr His Gln Ser Tyr Glu Cys Val Cys Val Leu Phe Ala Ser Val Pro
865 870 875 880

Asp Phe Lys Glu Phe Tyr Ser Glu Ser Asn Ile Asn His Glu Gly Leu
885 890 895

Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Glu Leu
900 905 910

Leu Ser Lys Pro Lys Phe Ser Gly Val Glu Lys Ile Lys Thr Ile Gly
915 920 925

Ser Thr Tyr Met Ala Ala Thr Gly Leu Asn Ala Thr Ser Gly Gln Asp
930 935 940

Ala Gln Gln Asp Ala Glu Arg Ser Cys Ser His Leu Gly Thr Met Val
945 950 955 960

Glu Phe Ala Val Ala Leu Gly Ser Lys Leu Asp Val Ile Asn Lys His
965 970 975

```
Ser Phe Asn Asn Phe Arg Leu Arg Val Gly Leu Asn His Gly Pro Val
            980                 985                 990

Val Ala Gly Val Ile Gly Ala Gln  Lys Pro Gln Tyr Asp  Ile Trp
Gly
        995                 1000                1005

Asn Thr  Val Asn Val Ala Ser  Arg Met Glu Ser Thr  Gly Val Leu
    1010                1015                1020

Gly Lys  Ile Gln Val Thr Glu  Glu Thr Ala Trp Ala  Leu Gln Ser
    1025                1030                1035

Leu Gly  Tyr Thr Cys Tyr Ser  Arg Gly Val Ile Lys  Val Lys Gly
    1040                1045                1050

Lys Gly  Gln Leu Cys Thr Tyr  Phe Leu Asn Thr Asp  Leu Thr Arg
    1055                1060                1065

Thr Gly  Pro Pro Ser Ala Thr  Leu Gly
    1070                1075


<210> 2809
<211> 36
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453259"

<400> 2809
Met Leu Pro Leu Gly Met Arg Asp Ala Ala Val Ala Gly Leu Ala Ser
1               5                  10                  15
```

Ser Leu Ser His Leu Leu Val Leu Gly Leu Tyr Leu Gly Pro Gln Pro
20 25 30

Asp Ser Arg Pro
35

<210> 2810
<211> 115
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 650; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY4; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453893"

<400> 2810
Met Ala Arg Leu Phe Ser Pro Arg Pro Pro Pro Ser Glu Asp Leu Phe
1 5 10 15

Tyr Glu Thr Tyr Tyr Ser Leu Ser Gln Gln Tyr Pro Leu Leu Leu Leu
20 25 30

Leu Leu Gly Ile Val Leu Cys Ala Leu Ala Ala Leu Leu Ala Val Ala
35 40 45

Trp Ala Ser Gly Arg Glu Leu Thr Ser Asp Pro Ser Phe Leu Thr Thr
50 55 60

Val Leu Cys Ala Leu Gly Gly Phe Ser Leu Leu Leu Gly Leu Ala Ser
65 70 75 80

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

Trp Val Ala Leu Leu Ala Leu Gly His Ala Phe Leu Phe Thr Gly Gly

100 105 110

Val Val Ser
115

<210> 2811
<211> 911
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 651; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY5; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 5; "

<220>
<221> source
<223> /note="Uniprot ID: O95622; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000308685"

<400> 2811
Met Lys Ser Gln Lys Glu Gly Cys Cys Ser Arg Gly Asp Leu Ser Ile
1 5 10 15

Gln Thr Gly Pro Gly Gly Glu Trp Ala Pro Arg Arg Leu Val Ser Asn
20 25 30

Val Leu Ile Phe Ser Cys Thr Asn Ile Val Gly Val Cys Thr His Tyr
35 40 45

Pro Ala Glu Val Ser Gln Arg Gln Ala Phe Gln Glu Thr Arg Glu Cys
50 55 60

Ile Gln Ala Arg Leu His Ser Gln Arg Glu Asn Gln Gln Gln Glu Arg
65 70 75 80

Leu Leu Leu Ser Val Leu Pro Arg His Val Ala Met Glu Met Lys Ala
85 90 95

```
Asp Ile Asn Ala Lys Gln Glu Asp Met Met Phe His Lys Ile Tyr Ile
            100                 105                 110

Gln Lys His Asp Asn Val Ser Ile Leu Phe Ala Asp Ile Glu Gly Phe
        115                 120                 125

Thr Ser Leu Ala Ser Gln Cys Thr Ala Gln Glu Leu Val Met Thr Leu
    130                 135                 140

Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala Glu Asn His Cys
145                 150                 155                 160

Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu
                165                 170                 175

Pro Glu Ala Arg Ala Asp His Ala His Cys Cys Val Glu Met Gly Met
            180                 185                 190

Asp Met Ile Glu Ala Ile Ser Leu Val Arg Glu Val Thr Gly Val Asn
        195                 200                 205

Val Asn Met Arg Val Gly Ile His Ser Gly Arg Val His Cys Gly Val
    210                 215                 220

Leu Gly Leu Arg Lys Trp Gln Phe Asp Val Trp Ser Asn Asp Val Thr
225                 230                 235                 240

Leu Ala Asn His Met Glu Ala Gly Gly Lys Ala Gly Arg Ile His Ile
                245                 250                 255

Thr Lys Ala Thr Leu Asn Tyr Leu Asn Gly Asp Tyr Glu Val Glu Pro
            260                 265                 270

Gly Cys Gly Gly Glu Arg Asn Ala Tyr Leu Lys Glu His Ser Ile Glu
        275                 280                 285

Thr Phe Leu Ile Leu Arg Cys Thr Gln Lys Arg Lys Glu Glu Lys Ala
    290                 295                 300

Met Ile Ala Lys Met Asn Arg Gln Arg Thr Asn Ser Ile Gly His Asn
305                 310                 315                 320
```

```
Pro Pro His Trp Gly Ala Glu Arg Pro Phe Tyr Asn His Leu Gly Gly
                325                 330                 335

Asn Gln Val Ser Lys Glu Met Lys Arg Met Gly Phe Glu Asp Pro Lys
            340                 345                 350

Asp Lys Asn Ala Gln Glu Ser Ala Asn Pro Glu Asp Glu Val Asp Glu
        355                 360                 365

Phe Leu Gly Arg Ala Ile Asp Ala Arg Ser Ile Asp Arg Leu Arg Ser
    370                 375                 380

Glu His Val Arg Lys Phe Leu Leu Thr Phe Arg Glu Pro Asp Leu Glu
385                 390                 395                 400

Lys Lys Tyr Ser Lys Gln Val Asp Asp Arg Phe Gly Ala Tyr Val Ala
                405                 410                 415

Cys Ala Ser Leu Val Phe Leu Phe Ile Cys Phe Val Gln Ile Thr Ile
            420                 425                 430

Val Pro His Ser Ile Phe Met Leu Ser Phe Tyr Leu Thr Cys Ser Leu
        435                 440                 445

Leu Leu Thr Leu Val Val Phe Val Ser Val Ile Tyr Ser Cys Val Lys
    450                 455                 460

Leu Phe Pro Ser Pro Leu Gln Thr Leu Ser Arg Lys Ile Val Arg Ser
465                 470                 475                 480

Lys Met Asn Ser Thr Leu Val Gly Val Phe Thr Ile Thr Leu Val Phe
                485                 490                 495

Leu Ala Ala Phe Val Asn Met Phe Thr Cys Asn Ser Arg Asp Leu Leu
            500                 505                 510

Gly Cys Leu Ala Gln Glu His Asn Ile Ser Ala Ser Gln Val Asn Ala
        515                 520                 525

Cys His Val Ala Glu Ser Ala Val Asn Tyr Ser Leu Gly Asp Glu Gln
    530                 535                 540

Gly Phe Cys Gly Ser Pro Trp Pro Asn Cys Asn Phe Pro Glu Tyr Phe
```

545 550 555 560

Thr Tyr Ser Val Leu Leu Ser Leu Leu Ala Cys Ser Val Phe Leu Gln
565 570 575

Ile Ser Cys Ile Gly Lys Leu Val Leu Met Leu Ala Ile Glu Leu Ile
580 585 590

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

Asp Leu Leu Val Thr Ala Asn Ala Ile Asp Phe Phe Asn Asn Gly Thr
610 615 620

Ser Gln Cys Pro Glu His Ala Thr Lys Val Ala Leu Lys Val Val Thr
625 630 635 640

Pro Ile Ile Ile Ser Val Phe Val Leu Ala Leu Tyr Leu His Ala Gln
645 650 655

Gln Val Glu Ser Thr Ala Arg Leu Asp Phe Leu Trp Lys Leu Gln Ala
660 665 670

Thr Glu Glu Lys Glu Glu Met Glu Glu Leu Gln Ala Tyr Asn Arg Arg
675 680 685

Leu Leu His Asn Ile Leu Pro Lys Asp Val Ala Ala His Phe Leu Ala
690 695 700

Arg Glu Arg Arg Asn Asp Glu Leu Tyr Tyr Gln Ser Cys Glu Cys Val
705 710 715 720

Ala Val Met Phe Ala Ser Ile Ala Asn Phe Ser Glu Phe Tyr Val Glu
725 730 735

Leu Glu Ala Asn Asn Glu Gly Val Glu Cys Leu Arg Leu Leu Asn Glu
740 745 750

Ile Ile Ala Asp Phe Asp Glu Ile Ile Ser Glu Asp Arg Phe Arg Gln
755 760 765

Leu Glu Lys Ile Lys Thr Ile Gly Ser Thr Tyr Met Ala Ala Ser Gly
770 775 780

```
Leu Asn Asp Ser Thr Tyr Asp Lys Val Gly Lys Thr His Ile Lys Ala
785                 790                 795                 800

Leu Ala Asp Phe Ala Met Lys Leu Met Asp Gln Met Lys Tyr Ile Asn
                805                 810                 815

Glu His Ser Phe Asn Asn Phe Gln Met Lys Ile Gly Leu Asn Ile Gly
            820                 825                 830

Pro Val Val Ala Gly Val Ile Gly Ala Arg Lys Pro Gln Tyr Asp Ile
        835                 840                 845

Trp Gly Asn Thr Val Asn Val Ala Ser Arg Met Asp Ser Thr Gly Val
    850                 855                 860

Pro Asp Arg Ile Gln Val Thr Thr Asp Met Tyr Gln Val Leu Ala Ala
865                 870                 875                 880

Asn Thr Tyr Gln Leu Glu Cys Arg Gly Val Val Lys Val Lys Gly Lys
                885                 890                 895

Gly Glu Met Met Thr Tyr Phe Leu Asn Gly Gly Pro Pro Leu Ser
            900                 905                 910


<210> 2812
<211> 78
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
      adenylate cyclase 5; "

<220>
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<400> 2812
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Met Ala Pro Ser Arg Phe Arg Thr Gln Leu Glu Val Ser Leu Ser Pro
1               5                   10                  15

Met Phe Ser Phe Ser Pro Ala Pro Thr Ser Trp Val Ser Ala Pro Thr
            20                  25                  30

Ile Arg Leu Arg Ser Pro Arg Asp Arg Leu Ser Arg Arg Pro Glu Ser
        35                  40                  45

Ala Ser Arg Arg Gly Ser Thr Arg Ser Gly Arg Thr Ser Ser Arg Asn
    50                  55                  60

Gly Ser Cys Cys Leu Ser Phe Pro Val Met Leu Pro Trp Arg
65                  70                  75


<210> 2813
<211> 919
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 2813
Met Ala Pro Ser Arg Phe Arg Thr Gln Leu Glu Leu Val Ser Asn Val
1               5                   10                  15

Leu Ile Phe Ser Cys Thr Asn Ile Val Gly Val Cys Thr His Tyr Pro
            20                  25                  30

Ala Glu Val Ser Gln Arg Gln Ala Phe Gln Glu Thr Arg Glu Cys Ile
        35                  40                  45

Gln Ala Arg Leu His Ser Gln Arg Glu Asn Gln Gln Gln Glu Arg Leu
    50                  55                  60
```

```
Leu Leu Ser Val Leu Pro Arg His Val Ala Met Glu Met Lys Ala Asp
65                  70                  75                  80

Ile Asn Ala Lys Gln Glu Asp Met Met Phe His Lys Ile Tyr Ile Gln
                85                  90                  95

Lys His Asp Asn Val Ser Ile Leu Phe Ala Asp Ile Glu Gly Phe Thr
            100                 105                 110

Ser Leu Ala Ser Gln Cys Thr Ala Gln Glu Leu Val Met Thr Leu Asn
        115                 120                 125

Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala Glu Asn His Cys Leu
    130                 135                 140

Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro
145                 150                 155                 160

Glu Ala Arg Ala Asp His Ala His Cys Cys Val Glu Met Gly Met Asp
                165                 170                 175

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

Asn Met Arg Val Gly Ile His Ser Gly Arg Val His Cys Gly Val Leu
        195                 200                 205

Gly Leu Arg Lys Trp Gln Phe Asp Val Trp Ser Asn Asp Val Thr Leu
    210                 215                 220

Ala Asn His Met Glu Ala Gly Gly Lys Ala Gly Arg Ile His Ile Thr
225                 230                 235                 240

Lys Ala Thr Leu Asn Tyr Leu Asn Gly Asp Tyr Glu Val Glu Pro Gly
                245                 250                 255

Cys Gly Gly Glu Arg Asn Ala Tyr Leu Lys Glu His Ser Ile Glu Thr
            260                 265                 270

Phe Leu Ile Leu Arg Cys Thr Gln Lys Arg Lys Glu Glu Lys Ala Met
        275                 280                 285
```

```
Ile Ala Lys Met Asn Arg Gln Arg Thr Asn Ser Ile Gly His Asn Pro
    290                 295                 300

Pro His Trp Gly Ala Glu Arg Pro Phe Tyr Asn His Leu Gly Gly Asn
305                 310                 315                 320

Gln Val Ser Lys Glu Met Lys Arg Met Gly Phe Glu Asp Pro Lys Asp
                325                 330                 335

Lys Asn Ala Gln Glu Ser Ala Asn Pro Glu Asp Glu Val Asp Glu Phe
            340                 345                 350

Leu Gly Arg Ala Ile Asp Ala Arg Ser Ile Asp Arg Leu Arg Ser Glu
        355                 360                 365

His Val Arg Lys Phe Leu Leu Thr Phe Arg Glu Pro Asp Leu Glu Lys
    370                 375                 380

Lys Tyr Ser Lys Gln Val Asp Asp Arg Phe Gly Ala Tyr Val Ala Cys
385                 390                 395                 400

Ala Ser Leu Val Phe Leu Phe Ile Cys Phe Val Gln Ile Thr Ile Val
                405                 410                 415

Pro His Ser Ile Phe Met Leu Ser Phe Tyr Leu Thr Cys Ser Leu Leu
            420                 425                 430

Leu Thr Leu Val Val Phe Val Ser Val Ile Tyr Ser Cys Val Lys Leu
        435                 440                 445

Phe Pro Ser Pro Leu Gln Thr Leu Ser Arg Lys Ile Val Arg Ser Lys
    450                 455                 460

Met Asn Ser Thr Leu Val Gly Val Phe Thr Ile Thr Leu Val Phe Leu
465                 470                 475                 480

Ala Ala Phe Val Asn Met Phe Thr Cys Asn Ser Arg Asp Leu Leu Gly
                485                 490                 495

Cys Leu Ala Gln Glu His Asn Ile Ser Ala Ser Gln Val Asn Ala Cys
            500                 505                 510
```

```
His Val Ala Glu Ser Ala Val Asn Tyr Ser Leu Gly Asp Glu Gln Gly
        515                 520                 525

Phe Cys Gly Ser Pro Trp Pro Asn Cys Asn Phe Pro Glu Tyr Phe Thr
    530                 535                 540

Tyr Ser Val Leu Leu Ser Leu Leu Ala Cys Ser Val Phe Leu Gln Ile
545                 550                 555                 560

Ser Cys Ile Gly Lys Leu Val Leu Met Leu Ala Ile Glu Leu Ile Tyr
                565                 570                 575

Val Leu Ile Val Glu Val Pro Gly Val Thr Leu Phe Asp Asn Ala Asp
            580                 585                 590

Leu Leu Val Thr Ala Asn Ala Ile Asp Phe Phe Asn Asn Gly Thr Ser
        595                 600                 605

Gln Trp Ser Leu Cys Glu Asn Leu Arg His Arg Arg Met Glu Ala Gly
    610                 615                 620

Thr Tyr Phe Pro Ser Gly Val Lys Glu Gln Ser Pro Glu His Ala Thr
625                 630                 635                 640

Lys Val Ala Leu Lys Val Val Thr Pro Ile Ile Ile Ser Val Phe Val
                645                 650                 655

Leu Ala Leu Tyr Leu His Ala Gln Gln Val Glu Ser Thr Ala Arg Leu
            660                 665                 670

Asp Phe Leu Trp Lys Leu Gln Ala Thr Glu Glu Lys Glu Glu Met Glu
        675                 680                 685

Glu Leu Gln Ala Tyr Asn Arg Arg Leu Leu His Asn Ile Leu Pro Lys
    690                 695                 700

Asp Val Ala Ala His Phe Leu Ala Arg Glu Arg Arg Asn Asp Glu Leu
705                 710                 715                 720

Tyr Tyr Gln Ser Cys Glu Cys Val Ala Val Met Phe Ala Ser Ile Ala
                725                 730                 735

Asn Phe Ser Glu Phe Tyr Val Glu Leu Glu Ala Asn Asn Glu Gly Val
```

740 745 750

Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Glu Ile
755 760 765

Ile Ser Glu Asp Arg Phe Arg Gln Leu Glu Lys Ile Lys Thr Ile Gly
770 775 780

Ser Thr Tyr Met Ala Ala Ser Gly Leu Asn Asp Ser Thr Tyr Asp Lys
785 790 795 800

Val Gly Lys Thr His Ile Lys Ala Leu Ala Asp Phe Ala Met Lys Leu
805 810 815

Met Asp Gln Met Lys Tyr Ile Asn Glu His Ser Phe Asn Asn Phe Gln
820 825 830

Met Lys Ile Gly Leu Asn Ile Gly Pro Val Val Ala Gly Val Ile Gly
835 840 845

Ala Arg Lys Pro Gln Tyr Asp Ile Trp Gly Asn Thr Val Asn Val Ala
850 855 860

Ser Arg Met Asp Ser Thr Gly Val Pro Asp Arg Ile Gln Val Thr Thr
865 870 875 880

Asp Met Tyr Gln Val Leu Ala Ala Asn Thr Tyr Gln Leu Glu Cys Arg
885 890 895

Gly Val Val Lys Val Lys Gly Lys Gly Glu Met Met Thr Tyr Phe Leu
900 905 910

Asn Gly Gly Pro Pro Leu Ser
915

<210> 2814
<211> 1261
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
adenylate cyclase 5; "

<220>
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<223> /note="Uniprot ID: O95622; "

<220>
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<400> 2814

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Met Ser Gly Ser Lys Ser Val Ser Pro Pro Gly Tyr Ala Ala Gln Lys
1               5                  10                  15


Thr Ala Ala Pro Ala Pro Arg Gly Gly Pro Glu His Arg Ser Ala Trp
            20                  25                  30


Gly Glu Ala Asp Ser Arg Ala Asn Gly Tyr Pro His Ala Pro Gly Gly
        35                  40                  45


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


Gln Gln Gln Arg Leu Ala Ser Arg Trp Arg Ser Asp Asp Asp Asp Asp
65                  70                  75                  80


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


Phe Arg Ser Lys Ser Ala Trp Gln Glu Arg Gly Gly Asp Asp Cys Gly
            100                 105                 110


Arg Gly Ser Arg Arg Gln Arg Arg Gly Ala Ala Ser Gly Gly Ser Thr
        115                 120                 125


Arg Ala Pro Pro Ala Gly Gly Gly Gly Gly Ser Ala Ala Ala Ala Ala
    130                 135                 140


Ser Ala Gly Gly Thr Glu Val Arg Pro Arg Ser Val Glu Val Gly Leu
145                 150                 155                 160
```

```
Glu Glu Arg Arg Gly Lys Gly Arg Ala Ala Asp Glu Leu Glu Ala Gly
                165                 170                 175

Ala Val Glu Gly Gly Glu Gly Ser Gly Asp Gly Gly Ser Ser Ala Asp
            180                 185                 190

Ser Gly Ser Gly Ala Gly Pro Gly Ala Val Leu Ser Leu Gly Ala Cys
        195                 200                 205

Cys Leu Ala Leu Leu Gln Ile Phe Arg Ser Lys Lys Phe Pro Ser Asp
    210                 215                 220

Lys Leu Glu Arg Leu Tyr Gln Arg Tyr Phe Phe Arg Leu Asn Gln Ser
225                 230                 235                 240

Ser Leu Thr Met Leu Met Ala Val Leu Val Leu Val Cys Leu Val Met
                245                 250                 255

Leu Ala Phe His Ala Ala Arg Pro Pro Leu Gln Leu Pro Tyr Leu Ala
            260                 265                 270

Val Leu Ala Ala Ala Val Gly Val Ile Leu Ile Met Ala Val Leu Cys
        275                 280                 285

Asn Arg Ala Ala Phe His Gln Asp His Met Gly Leu Ala Cys Tyr Ala
    290                 295                 300

Leu Ile Ala Val Val Leu Ala Val Gln Val Val Gly Leu Leu Leu Pro
305                 310                 315                 320

Gln Pro Arg Ser Ala Ser Glu Gly Ile Trp Trp Thr Val Phe Phe Ile
                325                 330                 335

Tyr Thr Ile Tyr Thr Leu Leu Pro Val Arg Met Arg Ala Ala Val Leu
            340                 345                 350

Ser Gly Val Leu Leu Ser Ala Leu His Leu Ala Ile Ala Leu Arg Thr
        355                 360                 365

Asn Ala Gln Asp Gln Phe Leu Leu Lys Gln Leu Val Ser Asn Val Leu
    370                 375                 380

Ile Phe Ser Cys Thr Asn Ile Val Gly Val Cys Thr His Tyr Pro Ala
```

385 390 395 400

Glu Val Ser Gln Arg Gln Ala Phe Gln Glu Thr Arg Glu Cys Ile Gln
405 410 415

Ala Arg Leu His Ser Gln Arg Glu Asn Gln Gln Gln Glu Arg Leu Leu
420 425 430

Leu Ser Val Leu Pro Arg His Val Ala Met Glu Met Lys Ala Asp Ile
435 440 445

Asn Ala Lys Gln Glu Asp Met Met Phe His Lys Ile Tyr Ile Gln Lys
450 455 460

His Asp Asn Val Ser Ile Leu Phe Ala Asp Ile Glu Gly Phe Thr Ser
465 470 475 480

Leu Ala Ser Gln Cys Thr Ala Gln Glu Leu Val Met Thr Leu Asn Glu
485 490 495

Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala Glu Asn His Cys Leu Arg
500 505 510

Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro Glu
515 520 525

Ala Arg Ala Asp His Ala His Cys Cys Val Glu Met Gly Met Asp Met
530 535 540

Ile Glu Ala Ile Ser Leu Val Arg Glu Val Thr Gly Val Asn Val Asn
545 550 555 560

Met Arg Val Gly Ile His Ser Gly Arg Val His Cys Gly Val Leu Gly
565 570 575

Leu Arg Lys Trp Gln Phe Asp Val Trp Ser Asn Asp Val Thr Leu Ala
580 585 590

Asn His Met Glu Ala Gly Gly Lys Ala Gly Arg Ile His Ile Thr Lys
595 600 605

Ala Thr Leu Asn Tyr Leu Asn Gly Asp Tyr Glu Val Glu Pro Gly Cys
610 615 620

Gly Gly Glu Arg Asn Ala Tyr Leu Lys Glu His Ser Ile Glu Thr Phe
625 630 635 640

Leu Ile Leu Arg Cys Thr Gln Lys Arg Lys Glu Glu Lys Ala Met Ile
645 650 655

Ala Lys Met Asn Arg Gln Arg Thr Asn Ser Ile Gly His Asn Pro Pro
660 665 670

His Trp Gly Ala Glu Arg Pro Phe Tyr Asn His Leu Gly Gly Asn Gln
675 680 685

Val Ser Lys Glu Met Lys Arg Met Gly Phe Glu Asp Pro Lys Asp Lys
690 695 700

Asn Ala Gln Glu Ser Ala Asn Pro Glu Asp Glu Val Asp Glu Phe Leu
705 710 715 720

Gly Arg Ala Ile Asp Ala Arg Ser Ile Asp Arg Leu Arg Ser Glu His
725 730 735

Val Arg Lys Phe Leu Leu Thr Phe Arg Glu Pro Asp Leu Glu Lys Lys
740 745 750

Tyr Ser Lys Gln Val Asp Asp Arg Phe Gly Ala Tyr Val Ala Cys Ala
755 760 765

Ser Leu Val Phe Leu Phe Ile Cys Phe Val Gln Ile Thr Ile Val Pro
770 775 780

His Ser Ile Phe Met Leu Ser Phe Tyr Leu Thr Cys Ser Leu Leu Leu
785 790 795 800

Thr Leu Val Val Phe Val Ser Val Ile Tyr Ser Cys Val Lys Leu Phe
805 810 815

Pro Ser Pro Leu Gln Thr Leu Ser Arg Lys Ile Val Arg Ser Lys Met
820 825 830

Asn Ser Thr Leu Val Gly Val Phe Thr Ile Thr Leu Val Phe Leu Ala
835 840 845

```
Ala Phe Val Asn Met Phe Thr Cys Asn Ser Arg Asp Leu Leu Gly Cys
    850                 855                 860

Leu Ala Gln Glu His Asn Ile Ser Ala Ser Gln Val Asn Ala Cys His
865                 870                 875                 880

Val Ala Glu Ser Ala Val Asn Tyr Ser Leu Gly Asp Glu Gln Gly Phe
                885                 890                 895

Cys Gly Ser Pro Trp Pro Asn Cys Asn Phe Pro Glu Tyr Phe Thr Tyr
            900                 905                 910

Ser Val Leu Leu Ser Leu Leu Ala Cys Ser Val Phe Leu Gln Ile Ser
        915                 920                 925

Cys Ile Gly Lys Leu Val Leu Met Leu Ala Ile Glu Leu Ile Tyr Val
    930                 935                 940

Leu Ile Val Glu Val Pro Gly Val Thr Leu Phe Asp Asn Ala Asp Leu
945                 950                 955                 960

Leu Val Thr Ala Asn Ala Ile Asp Phe Phe Asn Asn Gly Thr Ser Gln
                965                 970                 975

Cys Pro Glu His Ala Thr Lys Val Ala Leu Lys Val Val Thr Pro Ile
            980                 985                 990

Ile Ile Ser Val Phe Val Leu Ala  Leu Tyr Leu His Ala  Gln Gln
Val
        995                 1000                1005

Glu Ser  Thr Ala Arg Leu Asp  Phe Leu Trp Lys Leu  Gln Ala Thr
    1010                1015                1020

Glu Glu  Lys Glu Glu Met Glu  Glu Leu Gln Ala Tyr  Asn Arg Arg
    1025                1030                1035

Leu Leu  His Asn Ile Leu Pro  Lys Asp Val Ala Ala  His Phe Leu
    1040                1045                1050

Ala Arg  Glu Arg Arg Asn Asp  Glu Leu Tyr Tyr Gln  Ser Cys Glu
    1055                1060                1065
```

```
Cys Val  Ala Val Met Phe Ala  Ser Ile Ala Asn Phe  Ser Glu Phe
    1070                1075                1080

Tyr Val  Glu Leu Glu Ala Asn  Asn Glu Gly Val Glu  Cys Leu Arg
    1085                1090                1095

Leu Leu  Asn Glu Ile Ile Ala  Asp Phe Asp Glu Ile  Ile Ser Glu
    1100                1105                1110

Asp Arg  Phe Arg Gln Leu Glu  Lys Ile Lys Thr Ile  Gly Ser Thr
    1115                1120                1125

Tyr Met  Ala Ala Ser Gly Leu  Asn Asp Ser Thr Tyr  Asp Lys Val
    1130                1135                1140

Gly Lys  Thr His Ile Lys Ala  Leu Ala Asp Phe Ala  Met Lys Leu
    1145                1150                1155

Met Asp  Gln Met Lys Tyr Ile  Asn Glu His Ser Phe  Asn Asn Phe
    1160                1165                1170

Gln Met  Lys Ile Gly Leu Asn  Ile Gly Pro Val Val  Ala Gly Val
    1175                1180                1185

Ile Gly  Ala Arg Lys Pro Gln  Tyr Asp Ile Trp Gly  Asn Thr Val
    1190                1195                1200

Asn Val  Ala Ser Arg Met Asp  Ser Thr Gly Val Pro  Asp Arg Ile
    1205                1210                1215

Gln Val  Thr Thr Asp Met Tyr  Gln Val Leu Ala Ala  Asn Thr Tyr
    1220                1225                1230

Gln Leu  Glu Cys Arg Gly Val  Val Lys Val Lys Gly  Lys Gly Glu
    1235                1240                1245

Met Met  Thr Tyr Phe Leu Asn  Gly Gly Pro Pro Leu  Ser
    1250                1255                1260
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<210> 2815
<211> 492
<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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<400> 2815
Met Glu Met Lys Ala Asp Ile Asn Ala Lys Gln Glu Asp Met Met Phe
1 5 10 15

His Lys Ile Tyr Ile Gln Lys His Asp Asn Val Ser Ile Leu Phe Ala
20 25 30

Asp Ile Glu Gly Phe Thr Ser Leu Ala Ser Gln Cys Thr Ala Gln Glu
35 40 45

Leu Val Met Thr Leu Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala
50 55 60

Ala Glu Asn His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr
65 70 75 80

Cys Val Ser Gly Leu Pro Glu Ala Arg Ala Asp His Ala His Cys Cys
85 90 95

Val Glu Met Gly Met Asp Met Ile Glu Ala Ile Ser Leu Val Arg Glu
100 105 110

Val Thr Gly Val Asn Val Asn Met Arg Val Gly Ile His Ser Gly Arg
115 120 125

Val His Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Phe Asp Val Trp
130 135 140

Ser Asn Asp Val Thr Leu Ala Asn His Met Glu Ala Gly Gly Lys Ala
145 150 155 160

```
Gly Arg Ile His Ile Thr Lys Ala Thr Leu Asn Tyr Leu Asn Gly Asp
                165                 170                 175

Tyr Glu Val Glu Pro Gly Cys Gly Gly Glu Arg Asn Ala Tyr Leu Lys
            180                 185                 190

Glu His Ser Ile Glu Thr Phe Leu Ile Leu Arg Cys Thr Gln Lys Arg
        195                 200                 205

Lys Glu Glu Lys Ala Met Ile Ala Lys Met Asn Arg Gln Arg Thr Asn
    210                 215                 220

Ser Ile Gly His Asn Pro Pro His Trp Gly Ala Glu Arg Pro Phe Tyr
225                 230                 235                 240

Asn His Leu Gly Gly Asn Gln Val Ser Lys Glu Met Lys Arg Met Gly
                245                 250                 255

Phe Glu Asp Pro Lys Asp Lys Asn Ala Gln Glu Ser Ala Asn Pro Glu
            260                 265                 270

Asp Glu Val Asp Glu Phe Leu Gly Arg Ala Ile Asp Ala Arg Ser Ile
        275                 280                 285

Asp Arg Leu Arg Ser Glu His Val Arg Lys Phe Leu Leu Thr Phe Arg
    290                 295                 300

Glu Pro Asp Leu Glu Lys Lys Tyr Ser Lys Gln Val Asp Asp Arg Phe
305                 310                 315                 320

Gly Ala Tyr Val Ala Cys Ala Ser Leu Val Phe Leu Phe Ile Cys Phe
                325                 330                 335

Val Gln Ile Thr Ile Val Pro His Ser Ile Phe Met Leu Ser Phe Tyr
            340                 345                 350

Leu Thr Cys Ser Leu Leu Leu Thr Leu Val Val Phe Val Ser Val Ile
        355                 360                 365

Tyr Ser Cys Val Lys Leu Phe Pro Ser Pro Leu Gln Thr Leu Ser Arg
    370                 375                 380
```

```
Lys Ile Val Arg Ser Lys Met Asn Ser Thr Leu Val Gly Val Phe Thr
385                 390                 395                 400


Ile Thr Leu Val Phe Leu Ala Ala Phe Val Asn Met Phe Thr Cys Asn
                405                 410                 415


Ser Arg Asp Leu Leu Gly Cys Leu Ala Gln Glu His Asn Ile Ser Ala
            420                 425                 430


Ser Gln Val Asn Ala Cys His Val Ala Glu Ser Ala Val Asn Tyr Ser
        435                 440                 445


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


Phe Pro Glu Tyr Phe Thr Tyr Ser Val Leu Leu Ser Leu Leu Ala Cys
465                 470                 475                 480


Ser Val Phe Leu Gln Ile Ser Cys Ile Gly Lys Leu
                485                 490


<210> 2816
<211> 90
<212> PRT
<213> Homo sapiens

<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="ENSP ID: ENSP00000420252"

<400> 2816
Met Glu Met Lys Ala Asp Ile Asn Ala Lys Gln Glu Asp Met Met Phe
1               5                   10                  15


His Lys Ile Tyr Ile Gln Lys His Asp Asn Val Ser Ile Leu Phe Ala
```

```
            20                  25                  30

Asp Ile Glu Gly Phe Thr Ser Leu Ala Ser Gln Cys Thr Ala Gln Glu
        35                  40                  45

Leu Val Met Thr Leu Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala
    50                  55                  60

Ala Glu Asn His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr
65                  70                  75                  80

Cys Val Ser Gly Leu Pro Glu Ala Arg Ala
                85                  90


<210> 2817
<211> 1168
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 6; "

<220>
<221> source
<223> /note="Uniprot ID:  O43306; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000311405"

<400> 2817
Met Ser Trp Phe Ser Gly Leu Leu Val Pro Lys Val Asp Glu Arg Lys
1               5                   10                  15

Thr Ala Trp Gly Glu Arg Asn Gly Gln Lys Arg Ser Arg Arg Arg Gly
            20                  25                  30

Thr Arg Ala Gly Gly Phe Cys Thr Pro Arg Tyr Met Ser Cys Leu Arg
        35                  40                  45
```

```
Asp Ala Glu Pro Pro Ser Pro Thr Pro Ala Gly Pro Pro Arg Cys Pro
    50                  55                  60

Trp Gln Asp Asp Ala Phe Ile Arg Arg Gly Gly Pro Gly Lys Gly Lys
65                  70                  75                  80

Glu Leu Gly Leu Arg Ala Val Ala Leu Gly Phe Glu Asp Thr Glu Val
                85                  90                  95

Thr Thr Thr Ala Gly Gly Thr Ala Glu Val Ala Pro Asp Ala Val Pro
            100                 105                 110

Arg Ser Gly Arg Ser Cys Trp Arg Arg Leu Val Gln Val Phe Gln Ser
        115                 120                 125

Lys Gln Phe Arg Ser Ala Lys Leu Glu Arg Leu Tyr Gln Arg Tyr Phe
    130                 135                 140

Phe Gln Met Asn Gln Ser Ser Leu Thr Leu Leu Met Ala Val Leu Val
145                 150                 155                 160

Leu Leu Thr Ala Val Leu Leu Ala Phe His Ala Ala Pro Ala Arg Pro
                165                 170                 175

Gln Pro Ala Tyr Val Ala Leu Leu Ala Cys Ala Ala Ala Leu Phe Val
            180                 185                 190

Gly Leu Met Val Val Cys Asn Arg His Ser Phe Arg Gln Asp Ser Met
        195                 200                 205

Trp Val Val Ser Tyr Val Val Leu Gly Ile Leu Ala Ala Val Gln Val
    210                 215                 220

Gly Gly Ala Leu Ala Ala Asp Pro Arg Ser Pro Ser Ala Gly Leu Trp
225                 230                 235                 240

Cys Pro Val Phe Phe Val Tyr Ile Ala Tyr Thr Leu Leu Pro Ile Arg
                245                 250                 255

Met Arg Ala Ala Val Leu Ser Gly Leu Gly Leu Ser Thr Leu His Leu
            260                 265                 270
```

```
Ile Leu Ala Trp Gln Leu Asn Arg Gly Asp Ala Phe Leu Trp Lys Gln
        275                 280                 285

Leu Gly Ala Asn Val Leu Leu Phe Leu Cys Thr Asn Val Ile Gly Ile
    290                 295                 300

Cys Thr His Tyr Pro Ala Glu Val Ser Gln Arg Gln Ala Phe Gln Glu
305                 310                 315                 320

Thr Arg Gly Tyr Ile Gln Ala Arg Leu His Leu Gln His Glu Asn Arg
                325                 330                 335

Gln Gln Glu Arg Leu Leu Leu Ser Val Leu Pro Gln His Val Ala Met
            340                 345                 350

Glu Met Lys Glu Asp Ile Asn Thr Lys Lys Glu Asp Met Met Phe His
        355                 360                 365

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

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

Val Met Thr Leu Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala
                405                 410                 415

Glu Asn His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys
            420                 425                 430

Val Ser Gly Leu Pro Glu Ala Arg Ala Asp His Ala His Cys Cys Val
        435                 440                 445

Glu Met Gly Val Asp Met Ile Glu Ala Ile Ser Leu Val Arg Glu Val
    450                 455                 460

Thr Gly Val Asn Val Asn Met Arg Val Gly Ile His Ser Gly Arg Val
465                 470                 475                 480

His Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Phe Asp Val Trp Ser
                485                 490                 495

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

```
            500                 505                 510

Arg Ile His Ile Thr Arg Ala Thr Leu Gln Tyr Leu Asn Gly Asp Tyr
        515                 520                 525

Glu Val Glu Pro Gly Arg Gly Gly Glu Arg Asn Ala Tyr Leu Lys Glu
    530                 535                 540

Gln His Ile Glu Thr Phe Leu Ile Leu Gly Ala Ser Gln Lys Arg Lys
545                 550                 555                 560

Glu Glu Lys Ala Met Leu Ala Lys Leu Gln Arg Thr Arg Ala Asn Ser
                565                 570                 575

Met Glu Gly Leu Met Pro Arg Trp Val Pro Asp Arg Ala Phe Ser Arg
            580                 585                 590

Thr Lys Asp Ser Lys Ala Phe Arg Gln Met Gly Ile Asp Asp Ser Ser
        595                 600                 605

Lys Asp Asn Arg Gly Thr Gln Asp Ala Leu Asn Pro Glu Asp Glu Val
    610                 615                 620

Asp Glu Phe Leu Ser Arg Ala Ile Asp Ala Arg Ser Ile Asp Gln Leu
625                 630                 635                 640

Arg Lys Asp His Val Arg Arg Phe Leu Leu Thr Phe Gln Arg Glu Asp
                645                 650                 655

Leu Glu Lys Lys Tyr Ser Arg Lys Val Asp Pro Arg Phe Gly Ala Tyr
            660                 665                 670

Val Ala Cys Ala Leu Leu Val Phe Cys Phe Ile Cys Phe Ile Gln Leu
        675                 680                 685

Leu Ile Phe Pro His Ser Thr Leu Met Leu Gly Ile Tyr Ala Ser Ile
    690                 695                 700

Phe Leu Leu Leu Leu Ile Thr Val Leu Ile Cys Ala Val Tyr Ser Cys
705                 710                 715                 720

Gly Ser Leu Phe Pro Lys Ala Leu Gln Arg Leu Ser Arg Ser Ile Val
                725                 730                 735
```

```
Arg Ser Arg Ala His Ser Thr Ala Val Gly Ile Phe Ser Val Leu Leu
            740                 745                 750

Val Phe Thr Ser Ala Ile Ala Asn Met Phe Thr Cys Asn His Thr Pro
        755                 760                 765

Ile Arg Ser Cys Ala Ala Arg Met Leu Asn Leu Thr Pro Ala Asp Ile
    770                 775                 780

Thr Ala Cys His Leu Gln Gln Leu Asn Tyr Ser Leu Gly Leu Asp Ala
785                 790                 795                 800

Pro Leu Cys Glu Gly Thr Met Pro Thr Cys Ser Phe Pro Glu Tyr Phe
                805                 810                 815

Ile Gly Asn Met Leu Leu Ser Leu Leu Ala Ser Ser Val Phe Leu His
            820                 825                 830

Ile Ser Ser Ile Gly Lys Leu Ala Met Ile Phe Val Leu Gly Leu Ile
        835                 840                 845

Tyr Leu Val Leu Leu Leu Leu Gly Pro Pro Ala Thr Ile Phe Asp Asn
    850                 855                 860

Tyr Asp Leu Leu Leu Gly Val His Gly Leu Ala Ser Ser Asn Glu Thr
865                 870                 875                 880

Phe Asp Gly Leu Asp Cys Pro Ala Ala Gly Arg Val Ala Leu Lys Tyr
                885                 890                 895

Met Thr Pro Val Ile Leu Leu Val Phe Ala Leu Ala Leu Tyr Leu His
            900                 905                 910

Ala Gln Gln Val Glu Ser Thr Ala Arg Leu Asp Phe Leu Trp Lys Leu
        915                 920                 925

Gln Ala Thr Gly Glu Lys Glu Glu Met Glu Glu Leu Gln Ala Tyr Asn
    930                 935                 940

Arg Arg Leu Leu His Asn Ile Leu Pro Lys Asp Val Ala Ala His Phe
945                 950                 955                 960
```

```
Leu Ala Arg Glu Arg Arg Asn Asp Glu Leu Tyr Tyr Gln Ser Cys Glu
                965                 970                 975

Cys Val Ala Val Met Phe Ala Ser Ile Ala Asn Phe Ser Glu Phe Tyr
            980                 985                 990

Val Glu Leu Glu Ala Asn Asn Glu  Gly Val Glu Cys Leu  Arg Leu
Leu
        995                 1000                1005

Asn Glu  Ile Ile Ala Asp Phe  Asp Glu Ile Ile Ser  Glu Glu Arg
    1010                1015                1020

Phe Arg  Gln Leu Glu Lys Ile  Lys Thr Ile Gly Ser  Thr Tyr Met
    1025                1030                1035

Ala Ala  Ser Gly Leu Asn Ala  Ser Thr Tyr Asp Gln  Val Gly Arg
    1040                1045                1050

Ser His  Ile Thr Ala Leu Ala  Asp Tyr Ala Met Arg  Leu Met Glu
    1055                1060                1065

Gln Met  Lys His Ile Asn Glu  His Ser Phe Asn Asn  Phe Gln Met
    1070                1075                1080

Lys Ile  Gly Leu Asn Met Gly  Pro Val Val Ala Gly  Val Ile Gly
    1085                1090                1095

Ala Arg  Lys Pro Gln Tyr Asp  Ile Trp Gly Asn Thr  Val Asn Val
    1100                1105                1110

Ser Ser  Arg Met Asp Ser Thr  Gly Val Pro Asp Arg  Ile Gln Val
    1115                1120                1125

Thr Thr  Asp Leu Tyr Gln Val  Leu Ala Ala Lys Gly  Tyr Gln Leu
    1130                1135                1140

Glu Cys  Arg Gly Val Val Lys  Val Lys Gly Lys Gly  Glu Met Thr
    1145                1150                1155

Thr Tyr  Phe Leu Asn Gly Gly  Pro Ser Ser
    1160                1165
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<210> 2818
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<220>
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<223> /note="Uniprot ID: O43306; "

<220>
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Met Ser Trp Phe Ser Gly Leu Leu Val Pro Lys Val Asp Glu Arg Lys
1   5   10   15

Thr Ala Trp Gly Glu Arg Asn Gly Gln Lys Arg Ser Arg Arg Arg Gly
            20   25   30

Thr Arg Ala Gly Gly Phe Cys Thr Pro Arg Tyr Met Ser Cys Leu Arg
        35   40   45

Asp Ala Glu Pro Pro Ser Pro Thr Pro Ala Gly Pro Pro Arg Cys Pro
    50   55   60

Trp Gln Asp Asp Ala Phe Ile Arg Arg Gly Gly Pro Gly Lys Gly Lys
65   70   75   80

Glu Leu Gly Leu Arg Ala Val Ala Leu Gly Phe Glu Asp Thr Glu Val
                85   90   95

Thr Thr Thr Ala Gly Gly Thr Ala Glu Val Ala Pro Asp Ala Val Pro
            100   105   110

Arg Ser Gly Arg Ser Cys Trp Arg Arg Leu Val Gln Val Phe Gln Ser

```
        115                 120                 125

Lys Gln Phe Arg Ser Ala Lys Leu Glu Arg Leu Tyr Gln Arg Tyr Phe
    130                 135                 140

Phe Gln Met Asn Gln Ser Ser Leu Thr Leu Leu Met Ala Val Leu Val
145                 150                 155                 160

Leu Leu Thr Ala Val Leu Leu Ala Phe His Ala Ala Pro Ala Arg Pro
                165                 170                 175

Gln Pro Ala Tyr Val Ala Leu Leu Ala Cys Ala Ala Ala Leu Phe Val
            180                 185                 190

Gly Leu Met Val Val Cys Asn Arg His Ser Phe Arg Gln Asp Ser Met
        195                 200                 205

Trp Val Val Ser Tyr Val Val Leu Gly Ile Leu Ala Ala Val Gln Val
    210                 215                 220

Gly Gly Ala Leu Ala Ala Asp Pro Arg Ser Pro Ser Ala Gly Leu Trp
225                 230                 235                 240

Cys Pro Val Phe Phe Val Tyr Ile Ala Tyr Thr Leu Leu Pro Ile Arg
                245                 250                 255

Met Arg Ala Ala Val Leu Ser Gly Leu Gly Leu Ser Thr Leu His Leu
            260                 265                 270

Ile Leu Ala Trp Gln Leu Asn Arg Gly Asp Ala Phe Leu Trp Lys Gln
        275                 280                 285

Leu Gly Ala Asn Val Leu Leu Phe Leu Cys Thr Asn Val Ile Gly Ile
    290                 295                 300

Cys Thr His Tyr Pro Ala Glu Val Ser Gln Arg Gln Ala Phe Gln Glu
305                 310                 315                 320

Thr Arg Gly Tyr Ile Gln Ala Arg Leu His Leu Gln His Glu Asn Arg
                325                 330                 335

Gln Gln Glu Arg Leu Leu Leu Ser Val Leu Pro Gln His Val Ala Met
            340                 345                 350
```

```
Glu Met Lys Glu Asp Ile Asn Thr Lys Lys Glu Asp Met Met Phe His
        355                 360                 365

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

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

Val Met Thr Leu Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala
                405                 410                 415

Glu Asn His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys
            420                 425                 430

Val Ser Gly Leu Pro Glu Ala Arg Ala Asp His Ala His Cys Cys Val
        435                 440                 445

Glu Met Gly Val Asp Met Ile Glu Ala Ile Ser Leu Val Arg Glu Val
    450                 455                 460

Thr Gly Val Asn Val Asn Met Arg Val Gly Ile His Ser Gly Arg Val
465                 470                 475                 480

His Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Phe Asp Val Trp Ser
                485                 490                 495

Asn Asp Val Thr Leu Ala Asn His Met Glu Ala Gly Gly Arg Ala Gly
            500                 505                 510

Arg Ile His Ile Thr Arg Ala Thr Leu Gln Tyr Leu Asn Gly Asp Tyr
        515                 520                 525

Glu Val Glu Pro Gly Arg Gly Gly Glu Arg Asn Ala Tyr Leu Lys Glu
    530                 535                 540

Gln His Ile Glu Thr Phe Leu Ile Leu Gly Ala Ser Gln Lys Arg Lys
545                 550                 555                 560

Glu Glu Lys Ala Met Leu Ala Lys Leu Gln Arg Thr Arg Ala Asn Ser
                565                 570                 575
```

```
Met Glu Gly Leu Met Pro Arg Trp Val Pro Asp Arg Ala Phe Ser Arg
            580                 585                 590

Thr Lys Asp Ser Lys Ala Phe Arg Gln Met Gly Ile Asp Asp Ser Ser
        595                 600                 605

Lys Asp Asn Arg Gly Thr Gln Asp Ala Leu Asn Pro Glu Asp Glu Val
    610                 615                 620

Asp Glu Phe Leu Ser Arg Ala Ile Asp Ala Arg Ser Ile Asp Gln Leu
625                 630                 635                 640

Arg Lys Asp His Val Arg Arg Phe Leu Leu Thr Phe Gln Arg Glu Asp
                645                 650                 655

Leu Glu Lys Lys Tyr Ser Arg Lys Val Asp Pro Arg Phe Gly Ala Tyr
            660                 665                 670

Val Ala Cys Ala Leu Leu Val Phe Cys Phe Ile Cys Phe Ile Gln Leu
        675                 680                 685

Leu Ile Phe Pro His Ser Thr Leu Met Leu Gly Ile Tyr Ala Ser Ile
    690                 695                 700

Phe Leu Leu Leu Leu Ile Thr Val Leu Ile Cys Ala Val Tyr Ser Cys
705                 710                 715                 720

Gly Ser Leu Phe Pro Lys Ala Leu Gln Arg Leu Ser Arg Ser Ile Val
                725                 730                 735

Arg Ser Arg Ala His Ser Thr Ala Val Gly Ile Phe Ser Val Leu Leu
            740                 745                 750

Val Phe Thr Ser Ala Ile Ala Asn Met Tyr Phe Ile Gly Asn Met Leu
        755                 760                 765

Leu Ser Leu Leu Ala Ser Ser Val Phe Leu His Ile Ser Ser Ile Gly
    770                 775                 780

Lys Leu Ala Met Ile Phe Val Leu Gly Leu Ile Tyr Leu Val Leu Leu
785                 790                 795                 800
```

```
Leu Leu Gly Pro Pro Ala Thr Ile Phe Asp Asn Tyr Asp Leu Leu Leu
                805                 810                 815

Gly Val His Gly Leu Ala Ser Ser Asn Glu Thr Phe Asp Gly Leu Asp
            820                 825                 830

Cys Pro Ala Ala Gly Arg Val Ala Leu Lys Tyr Met Thr Pro Val Ile
        835                 840                 845

Leu Leu Val Phe Ala Leu Ala Leu Tyr Leu His Ala Gln Gln Val Glu
    850                 855                 860

Ser Thr Ala Arg Leu Asp Phe Leu Trp Lys Leu Gln Ala Thr Gly Glu
865                 870                 875                 880

Lys Glu Glu Met Glu Glu Leu Gln Ala Tyr Asn Arg Arg Leu Leu His
                885                 890                 895

Asn Ile Leu Pro Lys Asp Val Ala Ala His Phe Leu Ala Arg Glu Arg
            900                 905                 910

Arg Asn Asp Glu Leu Tyr Tyr Gln Ser Cys Glu Cys Val Ala Val Met
        915                 920                 925

Phe Ala Ser Ile Ala Asn Phe Ser Glu Phe Tyr Val Glu Leu Glu Ala
    930                 935                 940

Asn Asn Glu Gly Val Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile Ala
945                 950                 955                 960

Asp Phe Asp Glu Ile Ile Ser Glu Glu Arg Phe Arg Gln Leu Glu Lys
                965                 970                 975

Ile Lys Thr Ile Gly Ser Thr Tyr Met Ala Ala Ser Gly Leu Asn Ala
            980                 985                 990

Ser Thr Tyr Asp Gln Val Gly Arg  Ser His Ile Thr Ala  Leu Ala
Asp
        995                 1000                1005

Tyr Ala  Met Arg Leu Met Glu  Gln Met Lys His Ile  Asn Glu His
    1010                1015                1020
```

```
Ser Phe  Asn Asn Phe Gln Met  Lys Ile Gly Leu Asn  Met Gly Pro
    1025                1030                1035

Val Val  Ala Gly Val Ile Gly  Ala Arg Lys Pro Gln  Tyr Asp Ile
    1040                1045                1050

Trp Gly  Asn Thr Val Asn Val  Ser Ser Arg Met Asp  Ser Thr Gly
    1055                1060                1065

Val Pro  Asp Arg Ile Gln Val  Thr Thr Asp Leu Tyr  Gln Val Leu
    1070                1075                1080

Ala Ala  Lys Gly Tyr Gln Leu  Glu Cys Arg Gly Val  Val Lys Val
    1085                1090                1095

Lys Gly  Lys Gly Glu Met Thr  Thr Tyr Phe Leu Asn  Gly Gly Pro
    1100                1105                1110

Ser Ser
    1115


<210> 2819
<211> 1115
<212> PRT
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<220>
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<400> 2819
Met Ser Trp Phe Ser Gly Leu Leu Val Pro Lys Val Asp Glu Arg Lys
1               5                  10                  15
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Thr Ala Trp Gly Glu Arg Asn Gly Gln Lys Arg Ser Arg Arg Arg Gly
            20                  25                  30

Thr Arg Ala Gly Gly Phe Cys Thr Pro Arg Tyr Met Ser Cys Leu Arg
        35                  40                  45

Asp Ala Glu Pro Pro Ser Pro Thr Pro Ala Gly Pro Pro Arg Cys Pro
    50                  55                  60

Trp Gln Asp Asp Ala Phe Ile Arg Arg Gly Gly Pro Gly Lys Gly Lys
65                  70                  75                  80

Glu Leu Gly Leu Arg Ala Val Ala Leu Gly Phe Glu Asp Thr Glu Val
                85                  90                  95

Thr Thr Thr Ala Gly Gly Thr Ala Glu Val Ala Pro Asp Ala Val Pro
            100                 105                 110

Arg Ser Gly Arg Ser Cys Trp Arg Arg Leu Val Gln Val Phe Gln Ser
        115                 120                 125

Lys Gln Phe Arg Ser Ala Lys Leu Glu Arg Leu Tyr Gln Arg Tyr Phe
    130                 135                 140

Phe Gln Met Asn Gln Ser Ser Leu Thr Leu Leu Met Ala Val Leu Val
145                 150                 155                 160

Leu Leu Thr Ala Val Leu Leu Ala Phe His Ala Ala Pro Ala Arg Pro
                165                 170                 175

Gln Pro Ala Tyr Val Ala Leu Leu Ala Cys Ala Ala Ala Leu Phe Val
            180                 185                 190

Gly Leu Met Val Val Cys Asn Arg His Ser Phe Arg Gln Asp Ser Met
        195                 200                 205

Trp Val Val Ser Tyr Val Val Leu Gly Ile Leu Ala Ala Val Gln Val
    210                 215                 220

Gly Gly Ala Leu Ala Ala Asp Pro Arg Ser Pro Ser Ala Gly Leu Trp
225                 230                 235                 240
```

```
Cys Pro Val Phe Phe Val Tyr Ile Ala Tyr Thr Leu Leu Pro Ile Arg
                245                 250                 255

Met Arg Ala Ala Val Leu Ser Gly Leu Gly Leu Ser Thr Leu His Leu
            260                 265                 270

Ile Leu Ala Trp Gln Leu Asn Arg Gly Asp Ala Phe Leu Trp Lys Gln
        275                 280                 285

Leu Gly Ala Asn Val Leu Leu Phe Leu Cys Thr Asn Val Ile Gly Ile
    290                 295                 300

Cys Thr His Tyr Pro Ala Glu Val Ser Gln Arg Gln Ala Phe Gln Glu
305                 310                 315                 320

Thr Arg Gly Tyr Ile Gln Ala Arg Leu His Leu Gln His Glu Asn Arg
                325                 330                 335

Gln Gln Glu Arg Leu Leu Leu Ser Val Leu Pro Gln His Val Ala Met
            340                 345                 350

Glu Met Lys Glu Asp Ile Asn Thr Lys Lys Glu Asp Met Met Phe His
        355                 360                 365

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

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

Val Met Thr Leu Asn Glu Leu Phe Ala Arg Phe Asp Lys Leu Ala Ala
                405                 410                 415

Glu Asn His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys
            420                 425                 430

Val Ser Gly Leu Pro Glu Ala Arg Ala Asp His Ala His Cys Cys Val
        435                 440                 445

Glu Met Gly Val Asp Met Ile Glu Ala Ile Ser Leu Val Arg Glu Val
    450                 455                 460
```

Thr Gly Val Asn Val Asn Met Arg Val Gly Ile His Ser Gly Arg Val
465 470 475 480

His Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Phe Asp Val Trp Ser
485 490 495

Asn Asp Val Thr Leu Ala Asn His Met Glu Ala Gly Gly Arg Ala Gly
500 505 510

Arg Ile His Ile Thr Arg Ala Thr Leu Gln Tyr Leu Asn Gly Asp Tyr
515 520 525

Glu Val Glu Pro Gly Arg Gly Gly Glu Arg Asn Ala Tyr Leu Lys Glu
530 535 540

Gln His Ile Glu Thr Phe Leu Ile Leu Gly Ala Ser Gln Lys Arg Lys
545 550 555 560

Glu Glu Lys Ala Met Leu Ala Lys Leu Gln Arg Thr Arg Ala Asn Ser
565 570 575

Met Glu Gly Leu Met Pro Arg Trp Val Pro Asp Arg Ala Phe Ser Arg
580 585 590

Thr Lys Asp Ser Lys Ala Phe Arg Gln Met Gly Ile Asp Asp Ser Ser
595 600 605

Lys Asp Asn Arg Gly Thr Gln Asp Ala Leu Asn Pro Glu Asp Glu Val
610 615 620

Asp Glu Phe Leu Ser Arg Ala Ile Asp Ala Arg Ser Ile Asp Gln Leu
625 630 635 640

Arg Lys Asp His Val Arg Arg Phe Leu Leu Thr Phe Gln Arg Glu Asp
645 650 655

Leu Glu Lys Lys Tyr Ser Arg Lys Val Asp Pro Arg Phe Gly Ala Tyr
660 665 670

Val Ala Cys Ala Leu Leu Val Phe Cys Phe Ile Cys Phe Ile Gln Leu
675 680 685

Leu Ile Phe Pro His Ser Thr Leu Met Leu Gly Ile Tyr Ala Ser Ile

690 695 700

Phe Leu Leu Leu Leu Ile Thr Val Leu Ile Cys Ala Val Tyr Ser Cys
705 710 715 720

Gly Ser Leu Phe Pro Lys Ala Leu Gln Arg Leu Ser Arg Ser Ile Val
725 730 735

Arg Ser Arg Ala His Ser Thr Ala Val Gly Ile Phe Ser Val Leu Leu
740 745 750

Val Phe Thr Ser Ala Ile Ala Asn Met Tyr Phe Ile Gly Asn Met Leu
755 760 765

Leu Ser Leu Leu Ala Ser Ser Val Phe Leu His Ile Ser Ser Ile Gly
770 775 780

Lys Leu Ala Met Ile Phe Val Leu Gly Leu Ile Tyr Leu Val Leu Leu
785 790 795 800

Leu Leu Gly Pro Pro Ala Thr Ile Phe Asp Asn Tyr Asp Leu Leu Leu
805 810 815

Gly Val His Gly Leu Ala Ser Ser Asn Glu Thr Phe Asp Gly Leu Asp
820 825 830

Cys Pro Ala Ala Gly Arg Val Ala Leu Lys Tyr Met Thr Pro Val Ile
835 840 845

Leu Leu Val Phe Ala Leu Ala Leu Tyr Leu His Ala Gln Gln Val Glu
850 855 860

Ser Thr Ala Arg Leu Asp Phe Leu Trp Lys Leu Gln Ala Thr Gly Glu
865 870 875 880

Lys Glu Glu Met Glu Glu Leu Gln Ala Tyr Asn Arg Arg Leu Leu His
885 890 895

Asn Ile Leu Pro Lys Asp Val Ala Ala His Phe Leu Ala Arg Glu Arg
900 905 910

Arg Asn Asp Glu Leu Tyr Tyr Gln Ser Cys Glu Cys Val Ala Val Met
915 920 925

Phe Ala Ser Ile Ala Asn Phe Ser Glu Phe Tyr Val Glu Leu Glu Ala
930 935 940

Asn Asn Glu Gly Val Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile Ala
945 950 955 960

Asp Phe Asp Glu Ile Ile Ser Glu Glu Arg Phe Arg Gln Leu Glu Lys
965 970 975

Ile Lys Thr Ile Gly Ser Thr Tyr Met Ala Ala Ser Gly Leu Asn Ala
980 985 990

Ser Thr Tyr Asp Gln Val Gly Arg Ser His Ile Thr Ala Leu Ala Asp
995 1000 1005

Tyr Ala Met Arg Leu Met Glu Gln Met Lys His Ile Asn Glu His
1010 1015 1020

Ser Phe Asn Asn Phe Gln Met Lys Ile Gly Leu Asn Met Gly Pro
1025 1030 1035

Val Val Ala Gly Val Ile Gly Ala Arg Lys Pro Gln Tyr Asp Ile
1040 1045 1050

Trp Gly Asn Thr Val Asn Val Ser Ser Arg Met Asp Ser Thr Gly
1055 1060 1065

Val Pro Asp Arg Ile Gln Val Thr Thr Asp Leu Tyr Gln Val Leu
1070 1075 1080

Ala Ala Lys Gly Tyr Gln Leu Glu Cys Arg Gly Val Val Lys Val
1085 1090 1095

Lys Gly Lys Gly Glu Met Thr Thr Tyr Phe Leu Asn Gly Gly Pro
1100 1105 1110

Ser Ser
1115

<210> 2820
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<212> PRT
<213> Homo sapiens

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<220>
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Met Val Thr Val Cys Leu Cys His Leu Leu Gln Leu Gly Ala Asn Val
1 5 10 15

Leu Leu Phe Leu Cys Thr Asn Val Ile Gly Ile Cys Thr His Tyr Pro
20 25 30

Ala Glu Val Ser Gln Arg Gln Ala Phe Gln Glu Thr Arg Gly Tyr Ile
35 40 45

Gln Ala Arg Leu His Leu Gln His Glu Asn Arg Gln Gln Glu Arg Leu
50 55 60

Leu Leu Ser Val Leu Pro Gln His Val Ala Met Glu Met Lys Glu Asp
65 70 75 80

Ile Asn

<210> 2821
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Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro
1   5   10   15

Asp Gln Asp Ala Leu Tyr Glu Lys Tyr Gln Leu Thr Ser Gln His Gly
            20   25   30

Pro Leu Leu Leu Thr Leu Leu Leu Val Ala Ala Thr Ala Cys Val Ala
        35   40   45

Leu Ile Ile Ile Ala Phe Ser Gln Gly Asp Pro Ser Arg His Gln Ala
    50   55   60

Ile Leu Gly Met Ala Phe Leu Val Leu Ala Val Phe Ala Ala Leu Ser
65   70   75   80

Val Leu Met Tyr Val Glu Cys Leu Leu Arg Arg Trp Leu Arg Ala Leu
                85   90   95

Ala Leu Leu Thr Trp Ala Cys Leu Val Ala Leu Gly Tyr Val Leu Val
            100   105   110

Phe Asp Ala Trp Thr Lys Ala Ala Cys Ala Trp Glu Gln Val Pro Phe
        115   120   125

Phe Leu Phe Ile Val Phe Val Val Tyr Thr Leu Leu Pro Phe Ser Met
    130   135   140

Arg Gly Ala Val Ala Val Gly Ala Val Ser Thr Ala Ser His Leu Leu
145   150   155   160

Val Leu Gly Ser Leu Met Gly Gly Phe Thr Thr Pro Ser Val Arg Val
                165   170   175

```
Gly Leu Gln Leu Leu Ala Asn Ala Val Ile Phe Leu Cys Gly Asn Leu
            180                 185                 190

Thr Gly Ala Phe His Lys His Gln Met Gln Asp Ala Ser Arg Asp Leu
        195                 200                 205

Phe Thr Tyr Thr Val Lys Cys Ile Gln Ile Arg Arg Lys Leu Arg Ile
    210                 215                 220

Glu Lys Arg Gln Gln Glu Asn Leu Leu Leu Ser Val Leu Pro Ala His
225                 230                 235                 240

Ile Ser Met Gly Met Lys Leu Ala Ile Ile Glu Arg Leu Lys Glu His
                245                 250                 255

Gly Asp Arg Arg Cys Met Pro Asp Asn Asn Phe His Ser Leu Tyr Val
            260                 265                 270

Lys Arg His Gln Asn Val Ser Ile Leu Tyr Ala Asp Ile Val Gly Phe
        275                 280                 285

Thr Gln Leu Ala Ser Asp Cys Ser Pro Lys Glu Leu Val Val Val Leu
    290                 295                 300

Asn Glu Leu Phe Gly Lys Phe Asp Gln Ile Ala Lys Ala Asn Glu Cys
305                 310                 315                 320

Met Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu
                325                 330                 335

Pro Val Ser Leu Pro Thr His Ala Arg Asn Cys Val Lys Met Gly Leu
            340                 345                 350

Asp Met Cys Gln Ala Ile Lys Gln Val Arg Glu Ala Thr Gly Val Asp
        355                 360                 365

Ile Asn Met Arg Val Gly Ile His Ser Gly Asn Val Leu Cys Gly Val
    370                 375                 380

Ile Gly Leu Arg Lys Trp Gln Tyr Asp Val Trp Ser His Asp Val Ser
385                 390                 395                 400
```

```
Leu Ala Asn Arg Met Glu Ala Ala Gly Val Pro Gly Arg Val His Ile
                405                 410                 415

Thr Glu Ala Thr Leu Lys His Leu Asp Lys Ala Tyr Glu Val Glu Asp
            420                 425                 430

Gly His Gly Gln Gln Arg Asp Pro Tyr Leu Lys Glu Met Asn Ile Arg
        435                 440                 445

Thr Tyr Leu Val Ile Asp Pro Arg Ser Gln Gln Pro Pro Pro Pro Ser
    450                 455                 460

Gln His Leu Pro Arg Pro Lys Gly Asp Ala Ala Leu Lys Met Arg Ala
465                 470                 475                 480

Ser Val Arg Met Thr Arg Tyr Leu Glu Ser Trp Gly Ala Ala Arg Pro
                485                 490                 495

Phe Ala His Leu Asn His Arg Glu Ser Val Ser Ser Gly Glu Thr His
            500                 505                 510

Val Pro Asn Gly Arg Arg Pro Lys Ser Val Pro Gln Arg His Arg Arg
        515                 520                 525

Thr Pro Asp Arg Ser Met Ser Pro Lys Gly Arg Ser Glu Asp Asp Ser
    530                 535                 540

Tyr Asp Asp Glu Met Leu Ser Ala Ile Glu Gly Leu Ser Ser Thr Arg
545                 550                 555                 560

Pro Cys Cys Ser Lys Ser Asp Asp Phe Tyr Thr Phe Gly Ser Ile Phe
                565                 570                 575

Leu Glu Lys Gly Phe Glu Arg Glu Tyr Arg Leu Ala Pro Ile Pro Arg
            580                 585                 590

Ala Arg His Asp Phe Ala Cys Ala Ser Leu Ile Phe Val Cys Ile Leu
        595                 600                 605

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

```
Phe Gly Leu Val Ala Cys Val Leu Gly Leu Val Leu Gly Leu Cys Phe
625                 630                 635                 640

Ala Thr Lys Phe Ser Arg Cys Cys Pro Ala Arg Gly Thr Leu Cys Thr
                645                 650                 655

Ile Ser Glu Arg Val Glu Thr Gln Pro Leu Leu Arg Leu Thr Leu Ala
            660                 665                 670

Val Leu Thr Ile Gly Ser Leu Leu Thr Val Ala Ile Ile Asn Leu Pro
        675                 680                 685

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

Leu Leu Ala Ala Ser Ser Lys Thr Arg Ala Leu Cys Glu Pro Leu Pro
705                 710                 715                 720

Tyr Tyr Thr Cys Ser Cys Val Leu Gly Phe Ile Ala Cys Ser Val Phe
                725                 730                 735

Leu Arg Met Ser Leu Glu Pro Lys Val Val Leu Leu Thr Val Ala Leu
            740                 745                 750

Val Ala Tyr Leu Val Leu Phe Asn Leu Ser Pro Cys Trp Gln Trp Asp
        755                 760                 765

Cys Cys Gly Gln Gly Leu Gly Asn Leu Thr Lys Pro Asn Gly Thr Thr
    770                 775                 780

Ser Gly Thr Pro Ser Cys Ser Trp Lys Asp Leu Lys Thr Met Thr Asn
785                 790                 795                 800

Phe Tyr Leu Val Leu Phe Tyr Ile Thr Leu Leu Thr Leu Ser Arg Gln
                805                 810                 815

Ile Asp Tyr Tyr Cys Arg Leu Asp Cys Leu Trp Lys Lys Lys Phe Lys
            820                 825                 830

Lys Glu His Glu Glu Phe Glu Thr Met Glu Asn Val Asn Arg Leu Leu
        835                 840                 845

Leu Glu Asn Val Leu Pro Ala His Val Ala Ala His Phe Ile Gly Asp
```

```
    850                 855                 860

Lys Leu Asn Glu Asp Trp Tyr His Gln Ser Tyr Asp Cys Val Cys Val
865                 870                 875                 880

Met Phe Ala Ser Val Pro Asp Phe Lys Val Phe Tyr Thr Glu Cys Asp
                885                 890                 895

Val Asn Lys Glu Gly Leu Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile
            900                 905                 910

Ala Asp Phe Asp Glu Leu Leu Leu Lys Pro Lys Phe Ser Gly Val Glu
        915                 920                 925

Lys Ile Lys Thr Ile Gly Ser Thr Tyr Met Ala Ala Ala Gly Leu Ser
    930                 935                 940

Val Ala Ser Gly His Glu Asn Gln Glu Leu Glu Arg Gln His Ala His
945                 950                 955                 960

Ile Gly Val Met Val Glu Phe Ser Ile Ala Leu Met Ser Lys Leu Asp
                965                 970                 975

Gly Ile Asn Arg His Ser Phe Asn Ser Phe Arg Leu Arg Val Gly Ile
            980                 985                 990

Asn His Gly Pro Val Ile Ala Gly  Val Ile Gly Ala Arg  Lys Pro
Gln
        995                 1000                1005

Tyr Asp  Ile Trp Gly Asn Thr  Val Asn Val Ala Ser  Arg Met Glu
    1010                1015                1020

Ser Thr  Gly Glu Leu Gly Lys  Ile Gln Val Thr Glu  Glu Thr Cys
    1025                1030                1035

Thr Ile  Leu Gln Gly Leu Gly  Tyr Ser Cys Glu Cys  Arg Gly Leu
    1040                1045                1050

Ile Asn  Val Lys Gly Lys Gly  Glu Leu Arg Thr Tyr  Phe Val Cys
    1055                1060                1065

Thr Asp  Thr Ala Lys Phe Gln  Gly Leu Gly Leu Asn
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1070 1075 1080

<210> 2822
<211> 1080
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 653; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY7; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 7; "

<220>
<221> source
<223> /note="Uniprot ID: P51828; "

<220>
<221> source
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<400> 2822
Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro
1 5 10 15

Asp Gln Asp Ala Leu Tyr Glu Lys Tyr Gln Leu Thr Ser Gln His Gly
20 25 30

Pro Leu Leu Leu Thr Leu Leu Leu Val Ala Ala Thr Ala Cys Val Ala
35 40 45

Leu Ile Ile Ile Ala Phe Ser Gln Gly Asp Pro Ser Arg His Gln Ala
50 55 60

Ile Leu Gly Met Ala Phe Leu Val Leu Ala Val Phe Ala Ala Leu Ser
65 70 75 80

Val Leu Met Tyr Val Glu Cys Leu Leu Arg Arg Trp Leu Arg Ala Leu
85 90 95

Ala Leu Leu Thr Trp Ala Cys Leu Val Ala Leu Gly Tyr Val Leu Val
100 105 110

```
Phe Asp Ala Trp Thr Lys Ala Ala Cys Ala Trp Glu Gln Val Pro Phe
        115                 120                 125

Phe Leu Phe Ile Val Phe Val Val Tyr Thr Leu Leu Pro Phe Ser Met
    130                 135                 140

Arg Gly Ala Val Ala Val Gly Ala Val Ser Thr Ala Ser His Leu Leu
145                 150                 155                 160

Val Leu Gly Ser Leu Met Gly Gly Phe Thr Thr Pro Ser Val Arg Val
                165                 170                 175

Gly Leu Gln Leu Leu Ala Asn Ala Val Ile Phe Leu Cys Gly Asn Leu
            180                 185                 190

Thr Gly Ala Phe His Lys His Gln Met Gln Asp Ala Ser Arg Asp Leu
        195                 200                 205

Phe Thr Tyr Thr Val Lys Cys Ile Gln Ile Arg Arg Lys Leu Arg Ile
    210                 215                 220

Glu Lys Arg Gln Gln Glu Asn Leu Leu Leu Ser Val Leu Pro Ala His
225                 230                 235                 240

Ile Ser Met Gly Met Lys Leu Ala Ile Ile Glu Arg Leu Lys Glu His
                245                 250                 255

Gly Asp Arg Arg Cys Met Pro Asp Asn Asn Phe His Ser Leu Tyr Val
            260                 265                 270

Lys Arg His Gln Asn Val Ser Ile Leu Tyr Ala Asp Ile Val Gly Phe
        275                 280                 285

Thr Gln Leu Ala Ser Asp Cys Ser Pro Lys Glu Leu Val Val Val Leu
    290                 295                 300

Asn Glu Leu Phe Gly Lys Phe Asp Gln Ile Ala Lys Ala Asn Glu Cys
305                 310                 315                 320

Met Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu
                325                 330                 335
```

```
Pro Val Ser Leu Pro Thr His Ala Arg Asn Cys Val Lys Met Gly Leu
            340                 345                 350

Asp Met Cys Gln Ala Ile Lys Gln Val Arg Glu Ala Thr Gly Val Asp
        355                 360                 365

Ile Asn Met Arg Val Gly Ile His Ser Gly Asn Val Leu Cys Gly Val
    370                 375                 380

Ile Gly Leu Arg Lys Trp Gln Tyr Asp Val Trp Ser His Asp Val Ser
385                 390                 395                 400

Leu Ala Asn Arg Met Glu Ala Ala Gly Val Pro Gly Arg Val His Ile
                405                 410                 415

Thr Glu Ala Thr Leu Lys His Leu Asp Lys Ala Tyr Glu Val Glu Asp
            420                 425                 430

Gly His Gly Gln Gln Arg Asp Pro Tyr Leu Lys Glu Met Asn Ile Arg
        435                 440                 445

Thr Tyr Leu Val Ile Asp Pro Arg Ser Gln Gln Pro Pro Pro Pro Ser
    450                 455                 460

Gln His Leu Pro Arg Pro Lys Gly Asp Ala Ala Leu Lys Met Arg Ala
465                 470                 475                 480

Ser Val Arg Met Thr Arg Tyr Leu Glu Ser Trp Gly Ala Ala Arg Pro
                485                 490                 495

Phe Ala His Leu Asn His Arg Glu Ser Val Ser Ser Gly Glu Thr His
            500                 505                 510

Val Pro Asn Gly Arg Arg Pro Lys Ser Val Pro Gln Arg His Arg Arg
        515                 520                 525

Thr Pro Asp Arg Ser Met Ser Pro Lys Gly Arg Ser Glu Asp Asp Ser
    530                 535                 540

Tyr Asp Asp Glu Met Leu Ser Ala Ile Glu Gly Leu Ser Ser Thr Arg
545                 550                 555                 560

Pro Cys Cys Ser Lys Ser Asp Asp Phe Tyr Thr Phe Gly Ser Ile Phe
```

565 570 575

Leu Glu Lys Gly Phe Glu Arg Glu Tyr Arg Leu Ala Pro Ile Pro Arg
580 585 590

Ala Arg His Asp Phe Ala Cys Ala Ser Leu Ile Phe Val Cys Ile Leu
595 600 605

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

Phe Gly Leu Val Ala Cys Val Leu Gly Leu Val Leu Gly Leu Cys Phe
625 630 635 640

Ala Thr Lys Phe Ser Arg Cys Cys Pro Ala Arg Gly Thr Leu Cys Thr
645 650 655

Ile Ser Glu Arg Val Glu Thr Gln Pro Leu Leu Arg Leu Thr Leu Ala
660 665 670

Val Leu Thr Ile Gly Ser Leu Leu Thr Val Ala Ile Ile Asn Leu Pro
675 680 685

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

Leu Leu Ala Ala Ser Ser Lys Thr Arg Ala Leu Cys Glu Pro Leu Pro
705 710 715 720

Tyr Tyr Thr Cys Ser Cys Val Leu Gly Phe Ile Ala Cys Ser Val Phe
725 730 735

Leu Arg Met Ser Leu Glu Pro Lys Val Val Leu Leu Thr Val Ala Leu
740 745 750

Val Ala Tyr Leu Val Leu Phe Asn Leu Ser Pro Cys Trp Gln Trp Asp
755 760 765

Cys Cys Gly Gln Gly Leu Gly Asn Leu Thr Lys Pro Asn Gly Thr Thr
770 775 780

Ser Gly Thr Pro Ser Cys Ser Trp Lys Asp Leu Lys Thr Met Thr Asn
785 790 795 800

```
Phe Tyr Leu Val Leu Phe Tyr Ile Thr Leu Leu Thr Leu Ser Arg Gln
                805                 810                 815

Ile Asp Tyr Tyr Cys Arg Leu Asp Cys Leu Trp Lys Lys Lys Phe Lys
            820                 825                 830

Lys Glu His Glu Glu Phe Glu Thr Met Glu Asn Val Asn Arg Leu Leu
        835                 840                 845

Leu Glu Asn Val Leu Pro Ala His Val Ala Ala His Phe Ile Gly Asp
    850                 855                 860

Lys Leu Asn Glu Asp Trp Tyr His Gln Ser Tyr Asp Cys Val Cys Val
865                 870                 875                 880

Met Phe Ala Ser Val Pro Asp Phe Lys Val Phe Tyr Thr Glu Cys Asp
                885                 890                 895

Val Asn Lys Glu Gly Leu Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile
            900                 905                 910

Ala Asp Phe Asp Glu Leu Leu Leu Lys Pro Lys Phe Ser Gly Val Glu
        915                 920                 925

Lys Ile Lys Thr Ile Gly Ser Thr Tyr Met Ala Ala Ala Gly Leu Ser
    930                 935                 940

Val Ala Ser Gly His Glu Asn Gln Glu Leu Glu Arg Gln His Ala His
945                 950                 955                 960

Ile Gly Val Met Val Glu Phe Ser Ile Ala Leu Met Ser Lys Leu Asp
                965                 970                 975

Gly Ile Asn Arg His Ser Phe Asn Ser Phe Arg Leu Arg Val Gly Ile
            980                 985                 990

Asn His Gly Pro Val Ile Ala Gly  Val Ile Gly Ala Arg  Lys Pro
Gln
        995                 1000                1005

Tyr Asp  Ile Trp Gly Asn Thr  Val Asn Val Ala Ser  Arg Met Glu
    1010                1015                1020
```

```
Ser Thr  Gly Glu Leu Gly Lys  Ile Gln Val Thr Glu  Glu Thr Cys
    1025                 1030                 1035


Thr Ile  Leu Gln Gly Leu Gly  Tyr Ser Cys Glu Cys  Arg Gly Leu
    1040                 1045                 1050


Ile Asn  Val Lys Gly Lys Gly  Glu Leu Arg Thr Tyr  Phe Val Cys
    1055                 1060                 1065


Thr Asp  Thr Ala Lys Phe Gln  Gly Leu Gly Leu Asn
    1070                 1075                 1080


<210> 2823
<211> 433
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 653; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY7; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437788"

<400> 2823
Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro
1               5                  10                  15


Asp Gln Asp Ala Leu Tyr Glu Lys Tyr Gln Leu Thr Ser Gln His Gly
            20                  25                  30


Pro Leu Leu Leu Thr Leu Leu Leu Val Ala Ala Thr Ala Cys Val Ala
        35                  40                  45


Leu Ile Ile Ile Ala Phe Ser Gln Gly Asp Pro Ser Arg His Gln Ala
    50                  55                  60
```

```
Ile Leu Gly Met Ala Phe Leu Val Leu Ala Val Phe Ala Ala Leu Ser
65                  70                  75                  80

Val Leu Met Tyr Val Glu Cys Leu Leu Arg Arg Trp Leu Arg Ala Leu
                85                  90                  95

Ala Leu Leu Thr Trp Ala Cys Leu Val Ala Leu Gly Tyr Val Leu Val
            100                 105                 110

Phe Asp Ala Trp Thr Lys Ala Ala Cys Ala Trp Glu Gln Val Pro Phe
        115                 120                 125

Phe Leu Phe Ile Val Phe Val Val Tyr Thr Leu Leu Pro Phe Ser Met
    130                 135                 140

Arg Gly Ala Val Ala Val Gly Ala Val Ser Thr Ala Ser His Leu Leu
145                 150                 155                 160

Val Leu Gly Ser Leu Met Gly Gly Phe Thr Thr Pro Ser Val Arg Val
                165                 170                 175

Gly Leu Gln Leu Leu Ala Asn Ala Val Ile Phe Leu Cys Gly Asn Leu
            180                 185                 190

Thr Gly Ala Phe His Lys His Gln Met Gln Asp Ala Ser Arg Asp Leu
        195                 200                 205

Phe Thr Tyr Thr Val Lys Cys Ile Gln Ile Arg Arg Lys Leu Arg Ile
    210                 215                 220

Glu Lys Arg Gln Gln Glu Asn Leu Leu Leu Ser Val Leu Pro Ala His
225                 230                 235                 240

Ile Ser Met Gly Met Lys Leu Ala Ile Ile Glu Arg Leu Lys Glu His
                245                 250                 255

Gly Asp Arg Arg Cys Met Pro Asp Asn Asn Phe His Ser Leu Tyr Val
            260                 265                 270

Lys Arg His Gln Asn Val Ser Ile Leu Tyr Ala Asp Ile Val Gly Phe
        275                 280                 285

Thr Gln Leu Ala Ser Asp Cys Ser Pro Lys Glu Leu Val Val Val Leu
```

```
    290                 295                 300

Asn Glu Leu Phe Gly Lys Phe Asp Gln Ile Ala Lys Ala Asn Glu Cys
305                 310                 315                 320

Met Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu
                325                 330                 335

Pro Val Ser Leu Pro Thr His Ala Arg Asn Cys Val Lys Met Gly Leu
            340                 345                 350

Asp Met Cys Gln Ala Ile Lys Gln Val Arg Glu Ala Thr Gly Val Asp
        355                 360                 365

Ile Asn Met Arg Val Gly Ile His Ser Gly Asn Val Leu Cys Gly Val
    370                 375                 380

Ile Gly Leu Arg Lys Trp Gln Tyr Asp Val Trp Ser His Asp Val Ser
385                 390                 395                 400

Leu Ala Asn Arg Met Glu Ala Ala Gly Val Pro Gly Arg Val His Ile
                405                 410                 415

Thr Glu Ala Thr Leu Lys His Leu Asp Lys Ala Leu Leu Leu Gln Val
            420                 425                 430

Arg
```

<210> 2824
<211> 108
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 653; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY7; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454301"

<400> 2824
Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro
1   5   10   15

Asp Gln Asp Ala Leu Tyr Glu Lys Tyr Gln Leu Thr Ser Gln His Gly
            20   25   30

Pro Leu Leu Leu Thr Leu Leu Leu Val Ala Ala Thr Ala Cys Val Ala
        35   40   45

Leu Ile Ile Ile Ala Phe Ser Gln Gly Arg His Gly Leu Ala Met Leu
    50   55   60

Pro Arg Leu Val Leu Asn Ser Trp Pro Gln Val Ile Leu Leu Pro Trp
65   70   75   80

Pro Pro Lys Val Leu Gly Leu Gln Asp Pro Ser Arg His Gln Ala Ile
                85   90   95

Leu Gly Met Ala Phe Leu Val Leu Ala Val Phe Ala
            100   105

<210> 2825
<211> 530
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 653; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY7; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455670"

<400> 2825
Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro

```
1               5                   10                  15

Asp Gln Asp Ala Leu Tyr Glu Lys Tyr Gln Leu Thr Ser Gln His Gly
            20                  25                  30

Pro Leu Leu Leu Thr Leu Leu Leu Val Ala Ala Thr Ala Cys Val Ala
        35                  40                  45

Leu Ile Ile Ile Ala Phe Ser Gln Gly Asp Pro Ser Arg His Gln Ala
    50                  55                  60

Ile Leu Gly Met Ala Phe Leu Val Leu Ala Val Phe Ala Ala Leu Ser
65                  70                  75                  80

Val Leu Met Tyr Val Glu Cys Leu Leu Arg Arg Trp Leu Arg Ala Leu
                85                  90                  95

Ala Leu Leu Thr Trp Ala Cys Leu Val Ala Leu Gly Tyr Val Leu Val
            100                 105                 110

Phe Asp Ala Trp Thr Lys Ala Ala Cys Ala Trp Glu Gln Val Pro Phe
        115                 120                 125

Phe Leu Phe Ile Val Phe Val Val Tyr Thr Leu Leu Pro Phe Ser Met
    130                 135                 140

Arg Gly Ala Val Ala Val Gly Ala Val Ser Thr Ala Ser His Leu Leu
145                 150                 155                 160

Val Leu Gly Ser Leu Met Gly Gly Phe Thr Thr Pro Ser Val Arg Val
                165                 170                 175

Gly Leu Gln Leu Leu Ala Asn Ala Val Ile Phe Leu Cys Gly Asn Leu
            180                 185                 190

Thr Gly Ala Phe His Lys His Gln Met Gln Asp Ala Ser Arg Asp Leu
        195                 200                 205

Phe Thr Tyr Thr Val Lys Cys Ile Gln Ile Arg Arg Lys Leu Arg Ile
    210                 215                 220

Glu Lys Arg Gln Gln Glu Asn Leu Leu Leu Ser Val Leu Pro Ala His
225                 230                 235                 240
```

```
Ile Ser Met Gly Met Lys Leu Ala Ile Ile Glu Arg Leu Lys Glu His
                245                 250                 255

Gly Asp Arg Arg Cys Met Pro Asp Asn Asn Phe His Ser Leu Tyr Val
            260                 265                 270

Lys Arg His Gln Asn Val Ser Ile Leu Tyr Ala Asp Ile Val Gly Phe
        275                 280                 285

Thr Gln Leu Ala Ser Asp Cys Ser Pro Lys Glu Leu Val Val Val Leu
    290                 295                 300

Asn Glu Leu Phe Gly Lys Phe Asp Gln Ile Ala Lys Ala Asn Glu Cys
305                 310                 315                 320

Met Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu
                325                 330                 335

Pro Val Ser Leu Pro Thr His Ala Arg Asn Cys Val Lys Met Gly Leu
            340                 345                 350

Asp Met Cys Gln Ala Ile Lys Gln Val Arg Glu Ala Thr Gly Val Asp
        355                 360                 365

Ile Asn Met Arg Val Gly Ile His Ser Gly Asn Val Leu Cys Gly Val
    370                 375                 380

Ile Gly Leu Arg Lys Trp Gln Tyr Asp Val Trp Ser His Asp Val Ser
385                 390                 395                 400

Leu Ala Asn Arg Met Glu Ala Ala Gly Val Pro Gly Arg Val His Ile
                405                 410                 415

Thr Glu Ala Thr Leu Lys His Leu Asp Lys Ala Tyr Glu Val Glu Asp
            420                 425                 430

Gly His Gly Gln Gln Arg Asp Pro Tyr Leu Lys Glu Met Asn Ile Arg
        435                 440                 445

Thr Tyr Leu Val Ile Asp Pro Arg Ser Gln Gln Pro Pro Pro Pro Ser
    450                 455                 460
```

```
Gln His Leu Pro Arg Pro Lys Gly Asp Ala Ala Leu Lys Met Arg Ala
465                 470                 475                 480


Ser Val Arg Met Thr Arg Tyr Leu Glu Ser Trp Gly Ala Ala Arg Pro
                485                 490                 495


Phe Ala His Leu Asn His Arg Glu Ser Val Ser Ser Glu Arg Ser Pro
            500                 505                 510


Ala Pro Pro Pro Asp Pro Arg Gln Lys His Val Pro Gln Gly Ala Val
        515                 520                 525


Gly Gly
    530


<210> 2826
<211> 734
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 653; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY7; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457409"

<400> 2826
Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro
1               5                   10                  15


Asp Gln Asp Ala Leu Tyr Glu Lys Tyr Gln Leu Thr Ser Gln His Gly
            20                  25                  30


Pro Leu Leu Leu Thr Leu Leu Leu Val Ala Ala Thr Ala Cys Val Ala
        35                  40                  45


Leu Ile Ile Ile Ala Phe Ser Gln Gly Asp Pro Ser Arg His Gln Ala
```

```
    50                  55                  60

Ile Leu Gly Met Ala Phe Leu Val Leu Ala Val Phe Ala Ala Leu Ser
65                  70                  75                  80

Val Leu Met Tyr Val Glu Cys Leu Leu Arg Arg Trp Leu Arg Ala Leu
                85                  90                  95

Ala Leu Leu Thr Trp Ala Cys Leu Val Ala Leu Gly Tyr Val Leu Val
            100                 105                 110

Phe Asp Ala Trp Thr Lys Ala Ala Cys Ala Trp Glu Gln Val Pro Phe
        115                 120                 125

Phe Leu Phe Ile Val Phe Val Val Tyr Thr Leu Leu Pro Phe Ser Met
    130                 135                 140

Arg Gly Ala Val Ala Val Gly Ala Val Ser Thr Ala Ser His Leu Leu
145                 150                 155                 160

Val Leu Gly Ser Leu Met Gly Gly Phe Thr Thr Pro Ser Val Arg Val
                165                 170                 175

Gly Leu Gln Leu Leu Ala Asn Ala Val Ile Phe Leu Cys Gly Asn Leu
            180                 185                 190

Thr Gly Ala Phe His Lys His Gln Met Gln Asp Ala Ser Arg Asp Leu
        195                 200                 205

Phe Thr Tyr Thr Val Lys Cys Ile Gln Ile Arg Arg Lys Leu Arg Ile
    210                 215                 220

Glu Lys Arg Gln Gln Glu Asn Leu Leu Leu Ser Val Leu Pro Ala His
225                 230                 235                 240

Ile Ser Met Gly Met Lys Leu Ala Ile Ile Glu Arg Leu Lys Glu His
                245                 250                 255

Gly Asp Arg Arg Cys Met Pro Asp Asn Asn Phe His Ser Leu Tyr Val
            260                 265                 270

Lys Arg His Gln Asn Val Ser Ile Leu Tyr Ala Asp Ile Val Gly Phe
        275                 280                 285
```

```
Thr Gln Leu Ala Ser Asp Cys Ser Pro Lys Glu Leu Val Val Val Leu
    290                 295                 300

Asn Glu Leu Phe Gly Lys Phe Asp Gln Ile Ala Lys Ala Asn Glu Cys
305                 310                 315                 320

Met Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu
                325                 330                 335

Pro Val Ser Leu Pro Thr His Ala Arg Asn Cys Val Lys Met Gly Leu
            340                 345                 350

Asp Met Cys Gln Ala Ile Lys Gln Val Arg Glu Ala Thr Gly Val Asp
        355                 360                 365

Ile Asn Met Arg Val Gly Ile His Ser Gly Asn Val Leu Cys Gly Val
    370                 375                 380

Ile Gly Leu Arg Lys Trp Gln Tyr Asp Val Trp Ser His Asp Val Ser
385                 390                 395                 400

Leu Ala Asn Arg Met Glu Ala Ala Gly Val Pro Gly Arg Val His Ile
                405                 410                 415

Thr Glu Ala Thr Leu Lys His Leu Asp Lys Ala Tyr Glu Val Glu Asp
            420                 425                 430

Gly His Gly Gln Gln Arg Asp Pro Tyr Leu Lys Glu Met Asn Ile Arg
        435                 440                 445

Thr Tyr Leu Val Ile Asp Pro Arg Ser Gln Gln Pro Pro Pro Pro Ser
    450                 455                 460

Gln His Leu Pro Arg Pro Lys Gly Asp Ala Ala Leu Lys Met Arg Ala
465                 470                 475                 480

Ser Val Arg Met Thr Arg Tyr Leu Glu Ser Trp Gly Ala Ala Arg Pro
                485                 490                 495

Phe Ala His Leu Asn His Arg Glu Ser Val Ser Ser Gly Glu Thr His
            500                 505                 510
```

Val Pro Asn Gly Arg Arg Pro Lys Ser Val Pro Gln Arg His Arg Arg
515 520 525

Thr Pro Asp Arg Ser Met Ser Pro Lys Gly Arg Ser Glu Asp Asp Ser
530 535 540

Tyr Asp Asp Glu Met Leu Ser Ala Ile Glu Gly Leu Ser Ser Thr Arg
545 550 555 560

Pro Cys Cys Ser Lys Ser Asp Asp Phe Tyr Thr Phe Gly Ser Ile Phe
565 570 575

Leu Glu Lys Gly Phe Glu Arg Glu Tyr Arg Leu Ala Pro Ile Pro Arg
580 585 590

Ala Arg His Asp Phe Ala Cys Ala Ser Leu Ile Phe Val Cys Ile Leu
595 600 605

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

Phe Gly Leu Val Ala Cys Val Leu Gly Leu Val Leu Gly Leu Cys Phe
625 630 635 640

Ala Thr Lys Phe Ser Arg Cys Cys Pro Ala Arg Gly Thr Leu Cys Thr
645 650 655

Ile Ser Glu Arg Val Glu Thr Gln Pro Leu Leu Arg Leu Thr Leu Ala
660 665 670

Val Leu Thr Ile Gly Ser Leu Leu Thr Val Ala Ile Ile Asn Leu Pro
675 680 685

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

Leu Leu Ala Ala Ser Ser Lys Thr Arg Ala Leu Cys Glu Pro Leu Pro
705 710 715 720

His Leu His Thr Val Phe Ser Arg Leu Asn Glu Leu Thr Ser
725 730

<210> 2827
<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 653; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY7; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460018"

<400> 2827
Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro
1 5 10 15

Asp

<210> 2828
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 653; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY7; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460636"

<400> 2828
Met Pro Ala Lys Gly Arg Tyr Phe Leu Asn Glu Gly Glu Glu Gly Pro
1 5 10 15

```
Asp Gln Asp Ala Leu Tyr Glu Lys Tyr Gln Leu Thr Ser Gln His Gly
            20                  25                  30

Pro Leu Leu Leu Thr Leu Leu Leu Val Ala Ala Thr Ala Cys Val Ala
        35                  40                  45

Leu Ile Ile Ile Ala Phe Ser Gln Gly Asp Pro Ser Arg His Gln Ala
    50                  55                  60

Ile Leu Gly Met Ala Phe Leu Val Leu Ala Val Phe Ala Ala Leu Ser
65                  70                  75                  80

Val
```

<210> 2829
<211> 1251
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 654; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY8; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 8 (brain); "

<220>
<221> source
<223> /note="Uniprot ID: P40145; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000286355"

<400> 2829

```
Met Glu Leu Ser Asp Val Arg Cys Leu Thr Gly Ser Glu Glu Leu Tyr
1               5                   10                  15

Thr Ile His Pro Thr Pro Pro Ala Gly Asp Gly Arg Ser Ala Ser Arg
            20                  25                  30

Pro Gln Arg Leu Leu Trp Gln Thr Ala Val Arg His Ile Thr Glu Gln
```

```
        35                  40                  45

Arg Phe Ile His Gly His Arg Gly Gly Ser Gly Ser Gly Ser Gly Gly
    50                  55                  60

Ser Gly Lys Ala Ser Asp Pro Ala Gly Gly Gly Pro Asn His His Ala
65                  70                  75                  80

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

Gly Glu Arg Ala His Ser Thr Cys Gly Thr Lys Val Phe Pro Glu Arg
            100                 105                 110

Ser Gly Ser Gly Ser Ala Ser Gly Ser Gly Gly Gly Gly Asp Leu Gly
        115                 120                 125

Phe Leu His Leu Asp Cys Ala Pro Ser Asn Ser Asp Phe Phe Leu Asn
    130                 135                 140

Gly Gly Tyr Ser Tyr Arg Gly Val Ile Phe Pro Thr Leu Arg Asn Ser
145                 150                 155                 160

Phe Lys Ser Arg Asp Leu Glu Arg Leu Tyr Gln Arg Tyr Phe Leu Gly
                165                 170                 175

Gln Arg Arg Lys Ser Glu Val Val Met Asn Val Leu Asp Val Leu Thr
            180                 185                 190

Lys Leu Thr Leu Leu Val Leu His Leu Ser Leu Ala Ser Ala Pro Met
        195                 200                 205

Asp Pro Leu Lys Gly Ile Leu Leu Gly Phe Phe Thr Gly Ile Glu Val
    210                 215                 220

Val Ile Cys Ala Leu Val Val Val Arg Lys Asp Thr Thr Ser His Thr
225                 230                 235                 240

Tyr Leu Gln Tyr Ser Gly Val Val Thr Trp Val Ala Met Thr Thr Gln
                245                 250                 255

Ile Leu Ala Ala Gly Leu Gly Tyr Gly Leu Leu Gly Asp Gly Ile Gly
            260                 265                 270
```

```
Tyr Val Leu Phe Thr Leu Phe Ala Thr Tyr Ser Met Leu Pro Leu Pro
        275                 280                 285

Leu Thr Trp Ala Ile Leu Ala Gly Leu Gly Thr Ser Leu Leu Gln Val
    290                 295                 300

Ile Leu Gln Val Val Ile Pro Arg Leu Ala Val Ile Ser Ile Asn Gln
305                 310                 315                 320

Val Val Ala Gln Ala Val Leu Phe Met Cys Met Asn Thr Ala Gly Ile
                325                 330                 335

Phe Ile Ser Tyr Leu Ser Asp Arg Ala Gln Arg Gln Ala Phe Leu Glu
            340                 345                 350

Thr Arg Arg Cys Val Glu Ala Arg Leu Arg Leu Glu Thr Glu Asn Gln
        355                 360                 365

Arg Gln Glu Arg Leu Val Leu Ser Val Leu Pro Arg Phe Val Val Leu
    370                 375                 380

Glu Met Ile Asn Asp Met Thr Asn Val Glu Asp Glu His Leu Gln His
385                 390                 395                 400

Gln Phe His Arg Ile Tyr Ile His Arg Tyr Glu Asn Val Ser Ile Leu
                405                 410                 415

Phe Ala Asp Val Lys Gly Phe Thr Asn Leu Ser Thr Thr Leu Ser Ala
            420                 425                 430

Gln Glu Leu Val Arg Met Leu Asn Glu Leu Phe Ala Arg Phe Asp Arg
        435                 440                 445

Leu Ala His Glu His His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys
    450                 455                 460

Tyr Tyr Cys Val Ser Gly Leu Pro Glu Pro Arg Gln Asp His Ala His
465                 470                 475                 480

Cys Cys Val Glu Met Gly Leu Ser Met Ile Lys Thr Ile Arg Tyr Val
                485                 490                 495
```

Arg Ser Arg Thr Lys His Asp Val Asp Met Arg Ile Gly Ile His Ser
500 505 510

Gly Ser Val Leu Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Phe Asp
515 520 525

Val Trp Ser Trp Asp Val Asp Ile Ala Asn Lys Leu Glu Ser Gly Gly
530 535 540

Ile Pro Gly Arg Ile His Ile Ser Lys Ala Thr Leu Asp Cys Leu Asn
545 550 555 560

Gly Asp Tyr Asn Val Glu Glu Gly His Gly Lys Glu Arg Asn Glu Phe
565 570 575

Leu Arg Lys His Asn Ile Glu Thr Tyr Leu Ile Lys Gln Pro Glu Asp
580 585 590

Ser Leu Leu Ser Leu Pro Glu Asp Ile Val Lys Glu Ser Val Ser Ser
595 600 605

Ser Asp Arg Arg Asn Ser Gly Ala Thr Phe Thr Glu Gly Ser Trp Ser
610 615 620

Pro Glu Leu Pro Phe Asp Asn Ile Val Gly Lys Gln Asn Thr Leu Ala
625 630 635 640

Ala Leu Thr Arg Asn Ser Ile Asn Leu Leu Pro Asn His Leu Ala Gln
645 650 655

Ala Leu His Val Gln Ser Gly Pro Glu Glu Ile Asn Lys Arg Ile Glu
660 665 670

His Thr Ile Asp Leu Arg Ser Gly Asp Lys Leu Arg Arg Glu His Ile
675 680 685

Lys Pro Phe Ser Leu Met Phe Lys Asp Ser Ser Leu Glu His Lys Tyr
690 695 700

Ser Gln Met Arg Asp Glu Val Phe Lys Ser Asn Leu Val Cys Ala Phe
705 710 715 720

```
Ile Val Leu Leu Phe Ile Thr Ala Ile Gln Ser Leu Leu Pro Ser Ser
                725                 730                 735

Arg Val Met Pro Met Thr Ile Gln Phe Ser Ile Leu Ile Met Leu His
            740                 745                 750

Ser Ala Leu Val Leu Ile Thr Thr Ala Glu Asp Tyr Lys Cys Leu Pro
        755                 760                 765

Leu Ile Leu Arg Lys Thr Cys Cys Trp Ile Asn Glu Thr Tyr Leu Ala
    770                 775                 780

Arg Asn Val Ile Ile Phe Ala Ser Ile Leu Ile Asn Phe Leu Gly Ala
785                 790                 795                 800

Ile Leu Asn Ile Leu Trp Cys Asp Phe Asp Lys Ser Ile Pro Leu Lys
                805                 810                 815

Asn Leu Thr Phe Asn Ser Ser Ala Val Phe Thr Asp Ile Cys Ser Tyr
            820                 825                 830

Pro Glu Tyr Phe Val Phe Thr Gly Val Leu Ala Met Val Thr Cys Ala
        835                 840                 845

Val Phe Leu Arg Leu Asn Ser Val Leu Lys Leu Ala Val Leu Leu Ile
    850                 855                 860

Met Ile Ala Ile Tyr Ala Leu Leu Thr Glu Thr Val Tyr Ala Gly Leu
865                 870                 875                 880

Phe Leu Arg Tyr Asp Asn Leu Asn His Ser Gly Glu Asp Phe Leu Gly
                885                 890                 895

Thr Lys Glu Val Ser Leu Leu Leu Met Ala Met Phe Leu Leu Ala Val
            900                 905                 910

Phe Tyr His Gly Gln Gln Leu Glu Tyr Thr Ala Arg Leu Asp Phe Leu
        915                 920                 925

Trp Arg Val Gln Ala Lys Glu Glu Ile Asn Glu Met Lys Glu Leu Arg
    930                 935                 940

Glu His Asn Glu Asn Met Leu Arg Asn Ile Leu Pro Ser His Val Ala
```

945 950 955 960

Arg His Phe Leu Glu Lys Asp Arg Asp Asn Glu Glu Leu Tyr Ser Gln
965 970 975

Ser Tyr Asp Ala Val Gly Val Met Phe Ala Ser Ile Pro Gly Phe Ala
980 985 990

Asp Phe Tyr Ser Gln Thr Glu Met Asn Asn Gln Gly Val Glu Cys
Leu
995 1000 1005

Arg Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Glu Leu Leu Gly
1010 1015 1020

Glu Asp Arg Phe Gln Asp Ile Glu Lys Ile Lys Thr Ile Gly Ser
1025 1030 1035

Thr Tyr Met Ala Val Ser Gly Leu Ser Pro Glu Lys Gln Gln Cys
1040 1045 1050

Glu Asp Lys Trp Gly His Leu Cys Ala Leu Ala Asp Phe Ser Leu
1055 1060 1065

Ala Leu Thr Glu Ser Ile Gln Glu Ile Asn Lys His Ser Phe Asn
1070 1075 1080

Asn Phe Glu Leu Arg Ile Gly Ile Ser His Gly Ser Val Val Ala
1085 1090 1095

Gly Val Ile Gly Ala Lys Lys Pro Gln Tyr Asp Ile Trp Gly Lys
1100 1105 1110

Thr Val Asn Leu Ala Ser Arg Met Asp Ser Thr Gly Val Ser Gly
1115 1120 1125

Arg Ile Gln Val Pro Glu Glu Thr Tyr Leu Ile Leu Lys Asp Gln
1130 1135 1140

Gly Phe Ala Phe Asp Tyr Arg Gly Glu Ile Tyr Val Lys Gly Ile
1145 1150 1155

Ser Glu Gln Glu Gly Lys Ile Lys Thr Tyr Phe Leu Leu Gly Arg

```
    1160                1165                1170

Val Gln  Pro Asn Pro Phe Ile  Leu Pro Pro Arg Arg  Leu Pro Gly
    1175                1180                1185

Gln Tyr  Ser Leu Ala Ala Val  Val Leu Gly Leu Val  Gln Ser Leu
    1190                1195                1200

Asn Arg  Gln Arg Gln Lys Gln  Leu Leu Asn Glu Asn  Asn Asn Thr
    1205                1210                1215

Gly Ile  Ile Lys Gly His Tyr  Asn Arg Arg Thr Leu  Leu Ser Pro
    1220                1225                1230

Ser Gly  Thr Glu Pro Gly Ala  Gln Ala Glu Gly Thr  Asp Lys Ser
    1235                1240                1245

Asp Leu  Pro
    1250


<210> 2830
<211> 1120
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: ADCY8; "

<220>
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<223> /note="Gene Name:
      adenylate cyclase 8 (brain); "

<220>
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Met Glu Leu Ser Asp Val Arg Cys Leu Thr Gly Ser Glu Glu Leu Tyr
1               5                  10                  15

Thr Ile His Pro Thr Pro Pro Ala Gly Asp Gly Arg Ser Ala Ser Arg
            20                  25                  30
```

```
Pro Gln Arg Leu Leu Trp Gln Thr Ala Val Arg His Ile Thr Glu Gln
        35                  40                  45

Arg Phe Ile His Gly His Arg Gly Gly Ser Gly Ser Gly Ser Gly Gly
    50                  55                  60

Ser Gly Lys Ala Ser Asp Pro Ala Gly Gly Gly Pro Asn His His Ala
65                  70                  75                  80

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

Gly Glu Arg Ala His Ser Thr Cys Gly Thr Lys Val Phe Pro Glu Arg
            100                 105                 110

Ser Gly Ser Gly Ser Ala Ser Gly Ser Gly Gly Gly Gly Asp Leu Gly
        115                 120                 125

Phe Leu His Leu Asp Cys Ala Pro Ser Asn Ser Asp Phe Phe Leu Asn
    130                 135                 140

Gly Gly Tyr Ser Tyr Arg Gly Val Ile Phe Pro Thr Leu Arg Asn Ser
145                 150                 155                 160

Phe Lys Ser Arg Asp Leu Glu Arg Leu Tyr Gln Arg Tyr Phe Leu Gly
                165                 170                 175

Gln Arg Arg Lys Ser Glu Val Val Met Asn Val Leu Asp Val Leu Thr
            180                 185                 190

Lys Leu Thr Leu Leu Val Leu His Leu Ser Leu Ala Ser Ala Pro Met
        195                 200                 205

Asp Pro Leu Lys Gly Ile Leu Leu Gly Phe Phe Thr Gly Ile Glu Val
    210                 215                 220

Val Ile Cys Ala Leu Val Val Val Arg Lys Asp Thr Thr Ser His Thr
225                 230                 235                 240

Tyr Leu Gln Tyr Ser Gly Val Val Thr Trp Val Ala Met Thr Thr Gln
                245                 250                 255
```

```
Ile Leu Ala Ala Gly Leu Gly Tyr Gly Leu Leu Gly Asp Gly Ile Gly
            260                 265                 270

Tyr Val Leu Phe Thr Leu Phe Ala Thr Tyr Ser Met Leu Pro Leu Pro
        275                 280                 285

Leu Thr Trp Ala Ile Leu Ala Gly Leu Gly Thr Ser Leu Leu Gln Val
    290                 295                 300

Ile Leu Gln Val Val Ile Pro Arg Leu Ala Val Ile Ser Ile Asn Gln
305                 310                 315                 320

Val Val Ala Gln Ala Val Leu Phe Met Cys Met Asn Thr Ala Gly Ile
                325                 330                 335

Phe Ile Ser Tyr Leu Ser Asp Arg Ala Gln Arg Gln Ala Phe Leu Glu
            340                 345                 350

Thr Arg Arg Cys Val Glu Ala Arg Leu Arg Leu Glu Thr Glu Asn Gln
        355                 360                 365

Arg Gln Glu Arg Leu Val Leu Ser Val Leu Pro Arg Phe Val Val Leu
    370                 375                 380

Glu Met Ile Asn Asp Met Thr Asn Val Glu Asp Glu His Leu Gln His
385                 390                 395                 400

Gln Phe His Arg Ile Tyr Ile His Arg Tyr Glu Asn Val Ser Ile Leu
                405                 410                 415

Phe Ala Asp Val Lys Gly Phe Thr Asn Leu Ser Thr Thr Leu Ser Ala
            420                 425                 430

Gln Glu Leu Val Arg Met Leu Asn Glu Leu Phe Ala Arg Phe Asp Arg
        435                 440                 445

Leu Ala His Glu His His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys
    450                 455                 460

Tyr Tyr Cys Val Ser Gly Leu Pro Glu Pro Arg Gln Asp His Ala His
465                 470                 475                 480

Cys Cys Val Glu Met Gly Leu Ser Met Ile Lys Thr Ile Arg Tyr Val
```

485 490 495

Arg Ser Arg Thr Lys His Asp Val Asp Met Arg Ile Gly Ile His Ser
500 505 510

Gly Ser Val Leu Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Phe Asp
515 520 525

Val Trp Ser Trp Asp Val Asp Ile Ala Asn Lys Leu Glu Ser Gly Gly
530 535 540

Ile Pro Gly Arg Ile His Ile Ser Lys Ala Thr Leu Asp Cys Leu Asn
545 550 555 560

Gly Asp Tyr Asn Val Glu Glu Gly His Gly Lys Glu Arg Asn Glu Phe
565 570 575

Leu Arg Lys His Asn Ile Glu Thr Tyr Leu Ile Lys Gln Pro Glu Asp
580 585 590

Ser Leu Leu Ser Leu Pro Glu Asp Ile Val Lys Glu Ser Val Ser Ser
595 600 605

Ser Asp Arg Arg Asn Ser Gly Ala Thr Phe Thr Glu Gly Ser Trp Ser
610 615 620

Pro Glu Leu Pro Phe Asp Asn Ile Val Gly Lys Gln Asn Thr Leu Ala
625 630 635 640

Ala Leu Thr Arg Asn Ser Ile Asn Leu Leu Pro Asn His Leu Ala Gln
645 650 655

Ala Leu His Val Gln Ser Gly Pro Glu Glu Ile Asn Lys Arg Ile Glu
660 665 670

His Thr Ile Asp Leu Arg Ser Gly Asp Lys Leu Arg Arg Glu His Ile
675 680 685

Lys Pro Phe Ser Leu Met Phe Lys Asp Ser Ser Leu Glu His Lys Tyr
690 695 700

Phe Val Phe Thr Gly Val Leu Ala Met Val Thr Cys Ala Val Phe Leu
705 710 715 720

```
Arg Leu Asn Ser Val Leu Lys Leu Ala Val Leu Leu Ile Met Ile Ala
                725                 730                 735

Ile Tyr Ala Leu Leu Thr Glu Thr Val Tyr Ala Gly Leu Phe Leu Arg
            740                 745                 750

Tyr Asp Asn Leu Asn His Ser Gly Glu Asp Phe Leu Gly Thr Lys Glu
        755                 760                 765

Val Ser Leu Leu Leu Met Ala Met Phe Leu Leu Ala Val Phe Tyr His
    770                 775                 780

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

Gln Ala Lys Glu Glu Ile Asn Glu Met Lys Glu Leu Arg Glu His Asn
                805                 810                 815

Glu Asn Met Leu Arg Asn Ile Leu Pro Ser His Val Ala Arg His Phe
            820                 825                 830

Leu Glu Lys Asp Arg Asp Asn Glu Glu Leu Tyr Ser Gln Ser Tyr Asp
        835                 840                 845

Ala Val Gly Val Met Phe Ala Ser Ile Pro Gly Phe Ala Asp Phe Tyr
    850                 855                 860

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

Asn Glu Ile Ile Ala Asp Phe Asp Glu Leu Leu Gly Glu Asp Arg Phe
                885                 890                 895

Gln Asp Ile Glu Lys Ile Lys Thr Ile Gly Ser Thr Tyr Met Ala Val
            900                 905                 910

Ser Gly Leu Ser Pro Glu Lys Gln Gln Cys Glu Asp Lys Trp Gly His
        915                 920                 925

Leu Cys Ala Leu Ala Asp Phe Ser Leu Ala Leu Thr Glu Ser Ile Gln
    930                 935                 940
```

Glu Ile Asn Lys His Ser Phe Asn Asn Phe Glu Leu Arg Ile Gly Ile
945 950 955 960

Ser His Gly Ser Val Val Ala Gly Val Ile Gly Ala Lys Lys Pro Gln
965 970 975

Tyr Asp Ile Trp Gly Lys Thr Val Asn Leu Ala Ser Arg Met Asp Ser
980 985 990

Thr Gly Val Ser Gly Arg Ile Gln Val Pro Glu Glu Thr Tyr Leu
Ile
995 1000 1005

Leu Lys Asp Gln Gly Phe Ala Phe Asp Tyr Arg Gly Glu Ile Tyr
1010 1015 1020

Val Lys Gly Ile Ser Glu Gln Glu Gly Lys Ile Lys Thr Tyr Phe
1025 1030 1035

Leu Leu Gly Arg Val Gln Pro Asn Pro Phe Ile Leu Pro Pro Arg
1040 1045 1050

Arg Leu Pro Gly Gln Tyr Ser Leu Ala Ala Val Val Leu Gly Leu
1055 1060 1065

Val Gln Ser Leu Asn Arg Gln Arg Gln Lys Gln Leu Leu Asn Glu
1070 1075 1080

Asn Asn Asn Thr Gly Ile Ile Lys Gly His Tyr Asn Arg Arg Thr
1085 1090 1095

Leu Leu Ser Pro Ser Gly Thr Glu Pro Gly Ala Gln Ala Glu Gly
1100 1105 1110

Thr Asp Lys Ser Asp Leu Pro
1115 1120

<210> 2831
<211> 252
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 654; "

<220>
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<223> /note="Gene Symbol: ADCY8; "

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<223> /note="Gene Name:
adenylate cyclase 8 (brain); "

<220>
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<400> 2831

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Met Ile Asn Asp Met Thr Asn Val Glu Asp Glu His Leu Gln His Gln
1               5                  10                  15

Phe His Arg Ile Tyr Ile His Arg Tyr Glu Asn Val Ser Ile Leu Phe
            20                  25                  30

Ala Asp Val Lys Gly Phe Thr Asn Leu Ser Thr Thr Leu Ser Ala Gln
        35                  40                  45

Glu Leu Val Arg Met Leu Asn Glu Leu Phe Ala Arg Phe Asp Arg Leu
    50                  55                  60

Ala His Glu His His Cys Leu Arg Ile Lys Ile Leu Gly Asp Cys Tyr
65                  70                  75                  80

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

Cys Val Glu Met Gly Leu Ser Met Ile Lys Thr Ile Arg Tyr Val Arg
            100                 105                 110

Ser Arg Thr Lys His Asp Val Asp Met Arg Ile Gly Ile His Ser Gly
        115                 120                 125

Ser Val Leu Cys Gly Val Leu Gly Leu Arg Lys Trp Gln Phe Asp Val
    130                 135                 140

Trp Ser Trp Asp Val Asp Ile Ala Asn Lys Leu Glu Ser Gly Gly Ile
145                 150                 155                 160

Pro Gly Arg Ile His Ile Ser Lys Ala Thr Leu Asp Cys Leu Asn Gly
```

```
                165                 170                 175

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

Arg Lys His Asn Ile Glu Thr Tyr Leu Ile Lys Gln Pro Glu Asp Ser
        195                 200                 205

Leu Leu Ser Leu Pro Glu Asp Ile Val Lys Glu Ser Val Ser Ser Ser
    210                 215                 220

Asp Arg Arg Asn Ser Gly Ala Thr Phe Thr Glu Gly Ser Trp Ser Pro
225                 230                 235                 240

Glu Leu Pro Phe Asp Asn Ile Val Gly Lys Gln Asn
                245                 250


<210> 2832
<211> 1353
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
      adenylate cyclase 9; "

<220>
<221> source
<223> /note="Uniprot ID:  O60503; "

<220>
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<223> /note="ENSP ID: ENSP00000294016"

<400> 2832
Met Ala Ser Pro Pro His Gln Gln Leu Leu His His His Ser Thr Glu
1               5                   10                  15

Val Ser Cys Asp Ser Ser Gly Asp Ser Asn Ser Val Arg Val Lys Ile
            20                  25                  30
```

```
Asn Pro Lys Gln Leu Ser Ser Asn Ser His Pro Lys His Cys Lys Tyr
        35                  40                  45

Ser Ile Ser Ser Ser Cys Ser Ser Ser Gly Asp Ser Gly Gly Val Pro
    50                  55                  60

Arg Arg Val Gly Gly Gly Gly Arg Leu Arg Arg Gln Lys Lys Leu Pro
65                  70                  75                  80

Gln Leu Phe Glu Arg Ala Ser Ser Arg Trp Trp Asp Pro Lys Phe Asp
                85                  90                  95

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

Gln Arg Arg Phe Arg Tyr Ala Leu Phe Tyr Ile Gly Phe Ala Cys Leu
        115                 120                 125

Leu Trp Ser Ile Tyr Phe Ala Val His Met Arg Ser Arg Leu Ile Val
    130                 135                 140

Met Val Ala Pro Ala Leu Cys Phe Leu Leu Val Cys Val Gly Phe Phe
145                 150                 155                 160

Leu Phe Thr Phe Thr Lys Leu Tyr Ala Arg His Tyr Ala Trp Thr Ser
                165                 170                 175

Leu Ala Leu Thr Leu Leu Val Phe Ala Leu Thr Leu Ala Ala Gln Phe
            180                 185                 190

Gln Val Leu Thr Pro Val Ser Gly Arg Gly Asp Ser Ser Asn Leu Thr
        195                 200                 205

Ala Thr Ala Arg Pro Thr Asp Thr Cys Leu Ser Gln Val Gly Ser Phe
    210                 215                 220

Ser Met Cys Ile Glu Val Leu Phe Leu Leu Tyr Thr Val Met His Leu
225                 230                 235                 240

Pro Leu Tyr Leu Ser Leu Cys Leu Gly Val Ala Tyr Ser Val Leu Phe
                245                 250                 255
```

```
Glu Thr Phe Gly Tyr His Phe Arg Asp Glu Ala Cys Phe Pro Ser Pro
            260                 265                 270

Gly Ala Gly Ala Leu His Trp Glu Leu Leu Ser Arg Gly Leu Leu His
        275                 280                 285

Gly Cys Ile His Ala Ile Gly Val His Leu Phe Val Met Ser Gln Val
    290                 295                 300

Arg Ser Arg Ser Thr Phe Leu Lys Val Gly Gln Ser Ile Met His Gly
305                 310                 315                 320

Lys Asp Leu Glu Val Glu Lys Ala Leu Lys Glu Arg Met Ile His Ser
                325                 330                 335

Val Met Pro Arg Ile Ile Ala Asp Asp Leu Met Lys Gln Gly Asp Glu
            340                 345                 350

Glu Ser Glu Asn Ser Val Lys Arg His Ala Thr Ser Ser Pro Lys Asn
        355                 360                 365

Arg Lys Lys Lys Ser Ser Ile Gln Lys Ala Pro Ile Ala Phe Arg Pro
    370                 375                 380

Phe Lys Met Gln Gln Ile Glu Glu Val Ser Ile Leu Phe Ala Asp Ile
385                 390                 395                 400

Val Gly Phe Thr Lys Met Ser Ala Asn Lys Ser Ala His Ala Leu Val
                405                 410                 415

Gly Leu Leu Asn Asp Leu Phe Gly Arg Phe Asp Arg Leu Cys Glu Glu
            420                 425                 430

Thr Lys Cys Glu Lys Ile Ser Thr Leu Gly Asp Cys Tyr Tyr Cys Val
        435                 440                 445

Ala Gly Cys Pro Glu Pro Arg Ala Asp His Ala Tyr Cys Cys Ile Glu
    450                 455                 460

Met Gly Leu Gly Met Ile Lys Ala Ile Glu Gln Phe Cys Gln Glu Lys
465                 470                 475                 480

Lys Glu Met Val Asn Met Arg Val Gly Val His Thr Gly Thr Val Leu
```

485 490 495

Cys Gly Ile Leu Gly Met Arg Arg Phe Lys Phe Asp Val Trp Ser Asn
500 505 510

Asp Val Asn Leu Ala Asn Leu Met Glu Gln Leu Gly Val Ala Gly Lys
515 520 525

Val His Ile Ser Glu Ala Thr Ala Lys Tyr Leu Asp Asp Arg Tyr Glu
530 535 540

Met Glu Asp Gly Lys Val Ile Glu Arg Leu Gly Gln Ser Val Val Ala
545 550 555 560

Asp Gln Leu Lys Gly Leu Lys Thr Tyr Leu Ile Ser Gly Gln Arg Ala
565 570 575

Lys Glu Ser Arg Cys Ser Cys Ala Glu Ala Leu Leu Ser Gly Phe Glu
580 585 590

Val Ile Asp Gly Ser Gln Val Ser Ser Gly Pro Arg Gly Gln Gly Thr
595 600 605

Ala Ser Ser Gly Asn Val Ser Asp Leu Ala Gln Thr Val Lys Thr Phe
610 615 620

Asp Asn Leu Lys Thr Cys Pro Ser Cys Gly Ile Thr Phe Ala Pro Lys
625 630 635 640

Ser Glu Ala Gly Ala Glu Gly Gly Ala Pro Gln Asn Gly Cys Gln Asp
645 650 655

Glu His Lys Asn Ser Thr Lys Ala Ser Gly Gly Pro Asn Pro Lys Thr
660 665 670

Gln Asn Gly Leu Leu Ser Pro Pro Gln Glu Glu Lys Leu Thr Asn Ser
675 680 685

Gln Thr Ser Leu Cys Glu Ile Leu Gln Glu Lys Gly Arg Trp Ala Gly
690 695 700

Val Ser Leu Asp Gln Ser Ala Leu Leu Pro Leu Arg Phe Lys Asn Ile
705 710 715 720

Arg Glu Lys Thr Asp Ala His Phe Val Asp Val Ile Lys Glu Asp Ser
725 730 735

Leu Met Lys Asp Tyr Phe Phe Lys Pro Pro Ile Asn Gln Phe Ser Leu
740 745 750

Asn Phe Leu Asp Gln Glu Leu Glu Arg Ser Tyr Arg Thr Ser Tyr Gln
755 760 765

Glu Glu Val Ile Lys Asn Ser Pro Val Lys Thr Phe Ala Ser Pro Thr
770 775 780

Phe Ser Ser Leu Leu Asp Val Phe Leu Ser Thr Thr Val Phe Leu Thr
785 790 795 800

Leu Ser Thr Thr Cys Phe Leu Lys Tyr Glu Ala Ala Thr Val Pro Pro
805 810 815

Pro Pro Ala Ala Leu Ala Val Phe Ser Ala Ala Leu Leu Leu Glu Val
820 825 830

Leu Ser Leu Ala Val Ser Ile Arg Met Val Phe Phe Leu Glu Asp Val
835 840 845

Met Ala Cys Thr Lys Arg Leu Leu Glu Trp Ile Ala Gly Trp Leu Pro
850 855 860

Arg His Cys Ile Gly Ala Ile Leu Val Ser Leu Pro Ala Leu Ala Val
865 870 875 880

Tyr Ser His Val Thr Ser Glu Tyr Glu Thr Asn Ile His Phe Pro Val
885 890 895

Phe Thr Gly Ser Ala Ala Leu Ile Ala Val Val His Tyr Cys Asn Phe
900 905 910

Cys Gln Leu Ser Ser Trp Met Arg Ser Ser Leu Ala Thr Val Val Gly
915 920 925

Ala Gly Pro Leu Leu Leu Leu Tyr Val Ser Leu Cys Pro Asp Ser Ser
930 935 940

```
Val Leu Thr Ser Pro Leu Asp Ala Val Gln Asn Phe Ser Ser Glu Arg
945                 950                 955                 960

Asn Pro Cys Asn Ser Ser Val Pro Arg Asp Leu Arg Arg Pro Ala Ser
                965                 970                 975

Leu Ile Gly Gln Glu Val Val Leu Val Phe Phe Leu Leu Leu Leu Leu
            980                 985                 990

Val Trp Phe Leu Asn Arg Glu Phe  Glu Val Ser Tyr Arg  Leu His
Tyr
        995                 1000                1005

His Gly  Asp Val Glu Ala Asp  Leu His Arg Thr Lys  Ile Gln Ser
    1010                1015                1020

Met Arg  Asp Gln Ala Asp Trp  Leu Leu Arg Asn Ile  Ile Pro Tyr
    1025                1030                1035

His Val  Ala Glu Gln Leu Lys  Val Ser Gln Thr Tyr  Ser Lys Asn
    1040                1045                1050

His Asp  Ser Gly Gly Val Ile  Phe Ala Ser Ile Val  Asn Phe Ser
    1055                1060                1065

Glu Phe  Tyr Glu Glu Asn Tyr  Glu Gly Gly Lys Glu  Cys Tyr Arg
    1070                1075                1080

Val Leu  Asn Glu Leu Ile Gly  Asp Phe Asp Glu Leu  Leu Ser Lys
    1085                1090                1095

Pro Asp  Tyr Ser Ser Ile Glu  Lys Ile Lys Thr Ile  Gly Ala Thr
    1100                1105                1110

Tyr Met  Ala Ala Ser Gly Leu  Asn Thr Ala Gln Ala  Gln Asp Gly
    1115                1120                1125

Ser His  Pro Gln Glu His Leu  Gln Ile Leu Phe Glu  Phe Ala Lys
    1130                1135                1140

Glu Met  Met Arg Val Val Asp  Asp Phe Asn Asn Asn  Met Leu Trp
    1145                1150                1155
```

```
Phe Asn  Phe Lys Leu Arg Val  Gly Phe Asn His Gly  Pro Leu Thr
    1160                1165                1170

Ala Gly  Val Ile Gly Thr Thr  Lys Leu Leu Tyr Asp  Ile Trp Gly
    1175                1180                1185

Asp Thr  Val Asn Ile Ala Ser  Arg Met Asp Thr Thr  Gly Val Glu
    1190                1195                1200

Cys Arg  Ile Gln Val Ser Glu  Glu Ser Tyr Arg Val  Leu Ser Lys
    1205                1210                1215

Met Gly  Tyr Asp Phe Asp Tyr  Arg Gly Thr Val Asn  Val Lys Gly
    1220                1225                1230

Lys Gly  Gln Met Lys Thr Tyr  Leu Tyr Pro Lys Cys  Thr Asp His
    1235                1240                1245

Arg Val  Ile Pro Gln His Gln  Leu Ser Ile Ser Pro  Asp Ile Arg
    1250                1255                1260

Val Gln  Val Asp Gly Ser Ile  Gly Arg Ser Pro Thr  Asp Glu Ile
    1265                1270                1275

Ala Asn  Leu Val Pro Ser Val  Gln Tyr Val Asp Lys  Thr Ser Leu
    1280                1285                1290

Gly Ser  Asp Ser Ser Thr Gln  Ala Lys Asp Ala His  Leu Ser Pro
    1295                1300                1305

Lys Arg  Pro Trp Lys Glu Pro  Val Lys Ala Glu Glu  Arg Gly Arg
    1310                1315                1320

Phe Gly  Lys Ala Ile Glu Lys  Asp Asp Cys Asp Glu  Thr Gly Ile
    1325                1330                1335

Glu Glu  Ala Asn Glu Leu Thr  Lys Leu Asn Val Ser  Lys Ser Val
    1340                1345                1350
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<210> 2833
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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:
adenylate cyclase 9; "

<220>
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<223> /note="ENSP ID: ENSP00000460066"

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

<400> 2833
Xaa Glu Glu Val Ile Lys Asn Ser Pro Val Lys Thr Phe Ala Ser Pro
1 5 10 15

Thr Phe Ser Ser Leu Leu Asp Val Phe Leu Ser Thr Thr Val Phe Leu
20 25 30

Thr Leu Ser Thr Thr Cys Phe Leu Lys Tyr Glu Ala Ala Thr Val Pro
35 40 45

Pro Pro Pro Ala Ala Leu Ala Val Phe Ser Ala Ala Leu Leu Leu Glu
50 55 60

Val Leu Ser Leu Ala Val Ser Ile Arg Met Val Phe Phe Leu Glu Asp
65 70 75 80

Val Met Ala Cys Thr Lys Arg Leu Leu Glu Trp Ile Ala Gly Trp Leu
85 90 95

Pro Arg His Cys Ile Gly Ala Ile Leu Val Ser Leu Pro Ala Leu Ala
100 105 110

Val Tyr Ser His Val Thr Ser Glu Tyr Glu Thr Asn Ile His Phe Pro
115 120 125

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

Phe Cys Gln Leu Ser Ser Trp Met Arg Ser Ser Leu Ala Thr Val Val
145                 150                 155                 160

Gly Ala Gly Pro Leu Leu Leu Leu Tyr Val Ser Leu Cys Pro Asp Ser
                165                 170                 175

Ser Val Leu Thr Ser Pro Leu Asp Ala Val Gln Asn Phe Arg Arg Arg
            180                 185                 190

Glu Pro Cys Gly Glu Gly Asp Ser Lys Phe Pro Phe Ser Ser Gln Glu
        195                 200                 205

Glu Ser Cys Arg Ala Gly Ala
    210                 215


<210> 2834
<211> 72
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 655; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY9; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460160"


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

<400> 2834
Xaa Phe Asp Val Trp Ser Asn Asp Val Asn Leu Ala Asn Leu Met Glu
1               5                   10                  15
```

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

Tyr Leu Asp Asp Arg Tyr Glu Met Glu Asp Gly Lys Val Ile Glu Arg
        35                  40                  45

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

Arg Asn His Ile Cys Ser Gln Ile
65                  70
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<210> 2835
<211> 257
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 655; "

<220>
<221> source
<223> /note="Gene Symbol: ADCY9; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461825"

<400> 2835

```
Ile Glu Gln Phe Cys Gln Glu Lys Lys Glu Met Val Asn Met Arg Val
1               5                   10                  15

Gly Val His Thr Gly Thr Val Leu Cys Gly Ile Leu Gly Met Arg Arg
            20                  25                  30

Phe Lys Phe Asp Val Trp Ser Asn Asp Val Asn Leu Ala Asn Leu Met
        35                  40                  45

Glu Gln Leu Gly Val Ala Gly Lys Val His Ile Ser Glu Ala Thr Ala
    50                  55                  60

Lys Tyr Leu Asp Asp Arg Tyr Glu Met Glu Asp Gly Lys Val Ile Glu
65                  70                  75                  80
```

```
Arg Leu Gly Gln Ser Val Val Ala Asp Gln Leu Lys Gly Leu Lys Thr
                85                  90                  95

Tyr Leu Ile Ser Gly Gln Arg Ala Lys Glu Ser Arg Cys Ser Cys Ala
            100                 105                 110

Glu Ala Leu Leu Ser Gly Phe Glu Val Ile Asp Gly Ser Gln Val Ser
        115                 120                 125

Ser Gly Pro Arg Gly Gln Gly Thr Ala Ser Ser Gly Asn Val Ser Asp
    130                 135                 140

Leu Ala Gln Thr Val Lys Thr Phe Asp Asn Leu Lys Thr Cys Pro Ser
145                 150                 155                 160

Cys Gly Ile Thr Phe Ala Pro Lys Ser Glu Ala Gly Ala Glu Gly Gly
                165                 170                 175

Ala Pro Gln Asn Gly Cys Gln Asp Glu His Lys Asn Ser Thr Lys Val
            180                 185                 190

Thr Ser Ser Trp Leu Leu Phe Leu Ser Val Pro Leu Leu Ala His Pro
        195                 200                 205

Pro Lys Ala Ser Gly Gly Pro Asn Pro Lys Thr Gln Asn Gly Leu Leu
    210                 215                 220

Ser Pro Pro Gln Glu Glu Lys Leu Thr Asn Ser Gln Thr Ser Leu Cys
225                 230                 235                 240

Glu Ile Leu Gln Glu Lys Gly Arg Trp Ala Gly Val Ser Leu Asp Gln
                245                 250                 255

Ser
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<210> 2836
<211> 176
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 656; "

<220>
<221> source
<223> /note="Gene Symbol: ADCYAP1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase activating polypeptide 1 (pituitary); "

<220>
<221> source
<223> /note="Uniprot ID: P18509; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000411658"

<400> 2836
Met Thr Met Cys Ser Gly Ala Arg Leu Ala Leu Leu Val Tyr Gly Ile
1 5 10 15

Ile Met His Ser Ser Val Tyr Ser Ser Pro Ala Ala Ala Gly Leu Arg
20 25 30

Phe Pro Gly Ile Arg Pro Glu Glu Glu Ala Tyr Gly Glu Asp Gly Asn
35 40 45

Pro Leu Pro Asp Phe Asp Gly Ser Glu Pro Pro Gly Ala Gly Ser Pro
50 55 60

Ala Ser Ala Pro Arg Ala Ala Ala Ala Trp Tyr Arg Pro Ala Gly Arg
65 70 75 80

Arg Asp Val Ala His Gly Ile Leu Asn Glu Ala Tyr Arg Lys Val Leu
85 90 95

Asp Gln Leu Ser Ala Gly Lys His Leu Gln Ser Leu Val Ala Arg Gly
100 105 110

Val Gly Gly Ser Leu Gly Gly Gly Ala Gly Asp Asp Ala Glu Pro Leu
115 120 125

Ser Lys Arg His Ser Asp Gly Ile Phe Thr Asp Ser Tyr Ser Arg Tyr
130 135 140

Arg Lys Gln Met Ala Val Lys Lys Tyr Leu Ala Ala Val Leu Gly Lys

145 150 155 160

Arg Tyr Lys Gln Arg Val Lys Asn Lys Gly Arg Arg Ile Ala Tyr Leu
165 170 175

<210> 2837
<211> 176
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 656; "

<220>
<221> source
<223> /note="Gene Symbol: ADCYAP1; "

<220>
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<223> /note="Gene Name:
adenylate cyclase activating polypeptide 1 (pituitary); "

<220>
<221> source
<223> /note="Uniprot ID: P18509; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462647"

<400> 2837
Met Thr Met Cys Ser Gly Ala Arg Leu Ala Leu Leu Val Tyr Gly Ile
1 5 10 15

Ile Met His Ser Ser Val Tyr Ser Ser Pro Ala Ala Ala Gly Leu Arg
20 25 30

Phe Pro Gly Ile Arg Pro Glu Glu Glu Ala Tyr Gly Glu Asp Gly Asn
35 40 45

Pro Leu Pro Asp Phe Asp Gly Ser Glu Pro Pro Gly Ala Gly Ser Pro
50 55 60

Ala Ser Ala Pro Arg Ala Ala Ala Ala Trp Tyr Arg Pro Ala Gly Arg
65 70 75 80

Arg Asp Val Ala His Gly Ile Leu Asn Glu Ala Tyr Arg Lys Val Leu
85 90 95

```
Asp Gln Leu Ser Ala Gly Lys His Leu Gln Ser Leu Val Ala Arg Gly
            100                 105                 110

Val Gly Gly Ser Leu Gly Gly Gly Ala Gly Asp Asp Ala Glu Pro Leu
        115                 120                 125

Ser Lys Arg His Ser Asp Gly Ile Phe Thr Asp Ser Tyr Ser Arg Tyr
    130                 135                 140

Arg Lys Gln Met Ala Val Lys Lys Tyr Leu Ala Ala Val Leu Gly Lys
145                 150                 155                 160

Arg Tyr Lys Gln Arg Val Lys Asn Lys Gly Arg Arg Ile Ala Tyr Leu
                165                 170                 175


<210> 2838
<211> 468
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 657; "

<220>
<221> source
<223> /note="Gene Symbol: ADCYAP1R1; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase activating polypeptide 1 (pituitary)
      receptor type I; "

<220>
<221> source
<223> /note="Uniprot ID:  P41586; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000306620"

<400> 2838
Met Ala Gly Val Val His Val Ser Leu Ala Ala Leu Leu Leu Leu Pro
1               5                   10                  15

Met Ala Pro Ala Met His Ser Asp Cys Ile Phe Lys Lys Glu Gln Ala
            20                  25                  30
```

```
Met Cys Leu Glu Lys Ile Gln Arg Ala Asn Glu Leu Met Gly Phe Asn
        35                  40                  45

Asp Ser Ser Pro Gly Cys Pro Gly Met Trp Asp Asn Ile Thr Cys Trp
    50                  55                  60

Lys Pro Ala His Val Gly Glu Met Val Leu Val Ser Cys Pro Glu Leu
65                  70                  75                  80

Phe Arg Ile Phe Asn Pro Asp Gln Val Trp Glu Thr Glu Thr Ile Gly
                85                  90                  95

Glu Ser Asp Phe Gly Asp Ser Asn Ser Leu Asp Leu Ser Asp Met Gly
            100                 105                 110

Val Val Ser Arg Asn Cys Thr Glu Asp Gly Trp Ser Glu Pro Phe Pro
        115                 120                 125

His Tyr Phe Asp Ala Cys Gly Phe Asp Glu Tyr Glu Ser Glu Thr Gly
    130                 135                 140

Asp Gln Asp Tyr Tyr Tyr Leu Ser Val Lys Ala Leu Tyr Thr Val Gly
145                 150                 155                 160

Tyr Ser Thr Ser Leu Val Thr Leu Thr Thr Ala Met Val Ile Leu Cys
                165                 170                 175

Arg Phe Arg Lys Leu His Cys Thr Arg Asn Phe Ile His Met Asn Leu
            180                 185                 190

Phe Val Ser Phe Met Leu Arg Ala Ile Ser Val Phe Ile Lys Asp Trp
        195                 200                 205

Ile Leu Tyr Ala Glu Gln Asp Ser Asn His Cys Phe Ile Ser Thr Val
    210                 215                 220

Glu Cys Lys Ala Val Met Val Phe Phe His Tyr Cys Val Val Ser Asn
225                 230                 235                 240

Tyr Phe Trp Leu Phe Ile Glu Gly Leu Tyr Leu Phe Thr Leu Leu Val
                245                 250                 255

Glu Thr Phe Phe Pro Glu Arg Arg Tyr Phe Tyr Trp Tyr Thr Ile Ile
```

260 265 270

Gly Trp Gly Thr Pro Thr Val Cys Val Thr Val Trp Ala Thr Leu Arg
275 280 285

Leu Tyr Phe Asp Asp Thr Gly Cys Trp Asp Met Asn Asp Ser Thr Ala
290 295 300

Leu Trp Trp Val Ile Lys Gly Pro Val Val Gly Ser Ile Met Val Asn
305 310 315 320

Phe Val Leu Phe Ile Gly Ile Ile Val Ile Leu Val Gln Lys Leu Gln
325 330 335

Ser Pro Asp Met Gly Gly Asn Glu Ser Ser Ile Tyr Leu Arg Leu Ala
340 345 350

Arg Ser Thr Leu Leu Leu Ile Pro Leu Phe Gly Ile His Tyr Thr Val
355 360 365

Phe Ala Phe Ser Pro Glu Asn Val Ser Lys Arg Glu Arg Leu Val Phe
370 375 380

Glu Leu Gly Leu Gly Ser Phe Gln Gly Phe Val Val Ala Val Leu Tyr
385 390 395 400

Cys Phe Leu Asn Gly Glu Val Gln Ala Glu Ile Lys Arg Lys Trp Arg
405 410 415

Ser Trp Lys Val Asn Arg Tyr Phe Ala Val Asp Phe Lys His Arg His
420 425 430

Pro Ser Leu Ala Ser Ser Gly Val Asn Gly Gly Thr Gln Leu Ser Ile
435 440 445

Leu Ser Lys Ser Ser Ser Gln Ile Arg Met Ser Gly Leu Pro Ala Asp
450 455 460

Asn Leu Ala Thr
465

<210> 2839
<211> 496

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 657; "

<220>
<221> source
<223> /note="Gene Symbol: ADCYAP1R1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase activating polypeptide 1 (pituitary)
receptor type I; "

<220>
<221> source
<223> /note="Uniprot ID: P41586; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379514"

<400> 2839

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Met Ala Gly Val Val His Val Ser Leu Ala Ala Leu Leu Leu Leu Pro
1               5                  10                  15


Met Ala Pro Ala Met His Ser Asp Cys Ile Phe Lys Lys Glu Gln Ala
            20                  25                  30


Met Cys Leu Glu Lys Ile Gln Arg Ala Asn Glu Leu Met Gly Phe Asn
        35                  40                  45


Asp Ser Ser Pro Gly Cys Pro Gly Met Trp Asp Asn Ile Thr Cys Trp
    50                  55                  60


Lys Pro Ala His Val Gly Glu Met Val Leu Val Ser Cys Pro Glu Leu
65                  70                  75                  80


Phe Arg Ile Phe Asn Pro Asp Gln Val Trp Glu Thr Glu Thr Ile Gly
                85                  90                  95


Glu Ser Asp Phe Gly Asp Ser Asn Ser Leu Asp Leu Ser Asp Met Gly
            100                 105                 110


Val Val Ser Arg Asn Cys Thr Glu Asp Gly Trp Ser Glu Pro Phe Pro
        115                 120                 125
```

```
His Tyr Phe Asp Ala Cys Gly Phe Asp Glu Tyr Glu Ser Glu Thr Gly
    130                 135                 140

Asp Gln Asp Tyr Tyr Tyr Leu Ser Val Lys Ala Leu Tyr Thr Val Gly
145                 150                 155                 160

Tyr Ser Thr Ser Leu Val Thr Leu Thr Thr Ala Met Val Ile Leu Cys
                165                 170                 175

Arg Phe Arg Lys Leu His Cys Thr Arg Asn Phe Ile His Met Asn Leu
            180                 185                 190

Phe Val Ser Phe Met Leu Arg Ala Ile Ser Val Phe Ile Lys Asp Trp
        195                 200                 205

Ile Leu Tyr Ala Glu Gln Asp Ser Asn His Cys Phe Ile Ser Thr Val
    210                 215                 220

Glu Cys Lys Ala Val Met Val Phe Phe His Tyr Cys Val Val Ser Asn
225                 230                 235                 240

Tyr Phe Trp Leu Phe Ile Glu Gly Leu Tyr Leu Phe Thr Leu Leu Val
                245                 250                 255

Glu Thr Phe Phe Pro Glu Arg Arg Tyr Phe Tyr Trp Tyr Thr Ile Ile
            260                 265                 270

Gly Trp Gly Thr Pro Thr Val Cys Val Thr Val Trp Ala Thr Leu Arg
        275                 280                 285

Leu Tyr Phe Asp Asp Thr Gly Cys Trp Asp Met Asn Asp Ser Thr Ala
    290                 295                 300

Leu Trp Trp Val Ile Lys Gly Pro Val Val Gly Ser Ile Met Val Asn
305                 310                 315                 320

Phe Val Leu Phe Ile Gly Ile Ile Val Ile Leu Val Gln Lys Leu Gln
                325                 330                 335

Ser Pro Asp Met Gly Gly Asn Glu Ser Ser Ile Tyr Phe Ser Cys Val
            340                 345                 350
```

```
Gln Lys Cys Tyr Cys Lys Pro Gln Arg Ala Gln Gln His Ser Cys Lys
        355                 360                 365

Met Ser Glu Leu Ser Thr Ile Thr Leu Arg Leu Ala Arg Ser Thr Leu
    370                 375                 380

Leu Leu Ile Pro Leu Phe Gly Ile His Tyr Thr Val Phe Ala Phe Ser
385                 390                 395                 400

Pro Glu Asn Val Ser Lys Arg Glu Arg Leu Val Phe Glu Leu Gly Leu
                405                 410                 415

Gly Ser Phe Gln Gly Phe Val Val Ala Val Leu Tyr Cys Phe Leu Asn
            420                 425                 430

Gly Glu Val Gln Ala Glu Ile Lys Arg Lys Trp Arg Ser Trp Lys Val
        435                 440                 445

Asn Arg Tyr Phe Ala Val Asp Phe Lys His Arg His Pro Ser Leu Ala
    450                 455                 460

Ser Ser Gly Val Asn Gly Gly Thr Gln Leu Ser Ile Leu Ser Lys Ser
465                 470                 475                 480

Ser Ser Gln Ile Arg Met Ser Gly Leu Pro Ala Asp Asn Leu Ala Thr
                485                 490                 495


<210> 2840
<211> 524
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 657; "

<220>
<221> source
<223> /note="Gene Symbol: ADCYAP1R1; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase activating polypeptide 1 (pituitary)
      receptor type I; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000386395"

<400> 2840

```
Met Ala Gly Val Val His Val Ser Leu Ala Ala Leu Leu Leu Leu Pro
1               5                  10                  15

Met Ala Pro Ala Met His Ser Asp Cys Ile Phe Lys Lys Glu Gln Ala
            20                  25                  30

Met Cys Leu Glu Lys Ile Gln Arg Ala Asn Glu Leu Met Gly Phe Asn
        35                  40                  45

Asp Ser Ser Pro Gly Cys Pro Gly Met Trp Asp Asn Ile Thr Cys Trp
    50                  55                  60

Lys Pro Ala His Val Gly Glu Met Val Leu Val Ser Cys Pro Glu Leu
65                  70                  75                  80

Phe Arg Ile Phe Asn Pro Asp Gln Val Trp Glu Thr Glu Thr Ile Gly
                85                  90                  95

Glu Ser Asp Phe Gly Asp Ser Asn Ser Leu Asp Leu Ser Asp Met Gly
            100                 105                 110

Val Val Ser Arg Asn Cys Thr Glu Asp Gly Trp Ser Glu Pro Phe Pro
        115                 120                 125

His Tyr Phe Asp Ala Cys Gly Phe Asp Glu Tyr Glu Ser Glu Thr Gly
    130                 135                 140

Asp Gln Asp Tyr Tyr Tyr Leu Ser Val Lys Ala Leu Tyr Thr Val Gly
145                 150                 155                 160

Tyr Ser Thr Ser Leu Val Thr Leu Thr Thr Ala Met Val Ile Leu Cys
                165                 170                 175

Arg Phe Arg Lys Leu His Cys Thr Arg Asn Phe Ile His Met Asn Leu
            180                 185                 190

Phe Val Ser Phe Met Leu Arg Ala Ile Ser Val Phe Ile Lys Asp Trp
        195                 200                 205

Ile Leu Tyr Ala Glu Gln Asp Ser Asn His Cys Phe Ile Ser Thr Val
    210                 215                 220
```

```
Glu Cys Lys Ala Val Met Val Phe Phe His Tyr Cys Val Val Ser Asn
225                 230                 235                 240

Tyr Phe Trp Leu Phe Ile Glu Gly Leu Tyr Leu Phe Thr Leu Leu Val
                245                 250                 255

Glu Thr Phe Phe Pro Glu Arg Arg Tyr Phe Tyr Trp Tyr Thr Ile Ile
            260                 265                 270

Gly Trp Gly Thr Pro Thr Val Cys Val Thr Val Trp Ala Thr Leu Arg
        275                 280                 285

Leu Tyr Phe Asp Asp Thr Gly Cys Trp Asp Met Asn Asp Ser Thr Ala
    290                 295                 300

Leu Trp Trp Val Ile Lys Gly Pro Val Val Gly Ser Ile Met Val Asn
305                 310                 315                 320

Phe Val Leu Phe Ile Gly Ile Ile Val Ile Leu Val Gln Lys Leu Gln
                325                 330                 335

Ser Pro Asp Met Gly Gly Asn Glu Ser Ser Ile Tyr Leu Thr Asn Leu
            340                 345                 350

Ser Pro Arg Val Pro Lys Lys Ala Arg Glu Asp Pro Leu Pro Val Pro
        355                 360                 365

Ser Asp Gln His Ser Leu Pro Phe Leu Ser Cys Val Gln Lys Cys Tyr
    370                 375                 380

Cys Lys Pro Gln Arg Ala Gln Gln His Ser Cys Lys Met Ser Glu Leu
385                 390                 395                 400

Ser Thr Ile Thr Leu Arg Leu Ala Arg Ser Thr Leu Leu Leu Ile Pro
                405                 410                 415

Leu Phe Gly Ile His Tyr Thr Val Phe Ala Phe Ser Pro Glu Asn Val
            420                 425                 430

Ser Lys Arg Glu Arg Leu Val Phe Glu Leu Gly Leu Gly Ser Phe Gln
        435                 440                 445
```

```
Gly Phe Val Val Ala Val Leu Tyr Cys Phe Leu Asn Gly Glu Val Gln
    450                 455                 460

Ala Glu Ile Lys Arg Lys Trp Arg Ser Trp Lys Val Asn Arg Tyr Phe
465                 470                 475                 480

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

Asn Gly Gly Thr Gln Leu Ser Ile Leu Ser Lys Ser Ser Ser Gln Ile
            500                 505                 510

Arg Met Ser Gly Leu Pro Ala Asp Asn Leu Ala Thr
        515                 520


<210> 2841
<211> 447
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 657; "

<220>
<221> source
<223> /note="Gene Symbol: ADCYAP1R1; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate cyclase activating polypeptide 1 (pituitary)
      receptor type I; "

<220>
<221> source
<223> /note="Uniprot ID:  P41586; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000387335"

<400> 2841
Met Ala Gly Val Val His Val Ser Leu Ala Ala Leu Leu Leu Leu Pro
1               5                   10                  15

Met Ala Pro Ala Met His Ser Asp Cys Ile Phe Lys Lys Glu Gln Ala
            20                  25                  30
```

```
Met Cys Leu Glu Lys Ile Gln Arg Ala Asn Glu Leu Met Gly Phe Asn
        35                  40                  45

Asp Ser Ser Pro Gly Cys Pro Gly Met Trp Asp Asn Ile Thr Cys Trp
    50                  55                  60

Lys Pro Ala His Val Gly Glu Met Val Leu Val Ser Cys Pro Glu Leu
65                  70                  75                  80

Phe Arg Ile Phe Asn Pro Asp Gln Asp Met Gly Val Val Ser Arg Asn
                85                  90                  95

Cys Thr Glu Asp Gly Trp Ser Glu Pro Phe Pro His Tyr Phe Asp Ala
            100                 105                 110

Cys Gly Phe Asp Glu Tyr Glu Ser Glu Thr Gly Asp Gln Asp Tyr Tyr
        115                 120                 125

Tyr Leu Ser Val Lys Ala Leu Tyr Thr Val Gly Tyr Ser Thr Ser Leu
    130                 135                 140

Val Thr Leu Thr Thr Ala Met Val Ile Leu Cys Arg Phe Arg Lys Leu
145                 150                 155                 160

His Cys Thr Arg Asn Phe Ile His Met Asn Leu Phe Val Ser Phe Met
                165                 170                 175

Leu Arg Ala Ile Ser Val Phe Ile Lys Asp Trp Ile Leu Tyr Ala Glu
            180                 185                 190

Gln Asp Ser Asn His Cys Phe Ile Ser Thr Val Glu Cys Lys Ala Val
        195                 200                 205

Met Val Phe Phe His Tyr Cys Val Val Ser Asn Tyr Phe Trp Leu Phe
    210                 215                 220

Ile Glu Gly Leu Tyr Leu Phe Thr Leu Leu Val Glu Thr Phe Phe Pro
225                 230                 235                 240

Glu Arg Arg Tyr Phe Tyr Trp Tyr Thr Ile Ile Gly Trp Gly Thr Pro
                245                 250                 255

Thr Val Cys Val Thr Val Trp Ala Thr Leu Arg Leu Tyr Phe Asp Asp
```

```
            260                 265                 270

Thr Gly Cys Trp Asp Met Asn Asp Ser Thr Ala Leu Trp Trp Val Ile
        275                 280                 285

Lys Gly Pro Val Val Gly Ser Ile Met Val Asn Phe Val Leu Phe Ile
    290                 295                 300

Gly Ile Ile Val Ile Leu Val Gln Lys Leu Gln Ser Pro Asp Met Gly
305                 310                 315                 320

Gly Asn Glu Ser Ser Ile Tyr Leu Arg Leu Ala Arg Ser Thr Leu Leu
                325                 330                 335

Leu Ile Pro Leu Phe Gly Ile His Tyr Thr Val Phe Ala Phe Ser Pro
            340                 345                 350

Glu Asn Val Ser Lys Arg Glu Arg Leu Val Phe Glu Leu Gly Leu Gly
        355                 360                 365

Ser Phe Gln Gly Phe Val Val Ala Val Leu Tyr Cys Phe Leu Asn Gly
    370                 375                 380

Glu Val Gln Ala Glu Ile Lys Arg Lys Trp Arg Ser Trp Lys Val Asn
385                 390                 395                 400

Arg Tyr Phe Ala Val Asp Phe Lys His Arg His Pro Ser Leu Ala Ser
                405                 410                 415

Ser Gly Val Asn Gly Gly Thr Gln Leu Ser Ile Leu Ser Lys Ser Ser
            420                 425                 430

Ser Gln Ile Arg Met Ser Gly Leu Pro Ala Asp Asn Leu Ala Thr
        435                 440                 445
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<210> 2842
<211> 74
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 657; "

<220>

<221> source
<223> /note="Gene Symbol: ADCYAP1R1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase activating polypeptide 1 (pituitary)
receptor type I; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400893"

<400> 2842
Met Ala Gly Val Val His Val Ser Leu Ala Ala Leu Leu Leu Leu Pro
1 5 10 15

Met Ala Pro Ala Met His Ser Asp Cys Ile Phe Lys Lys Glu Gln Ala
20 25 30

Met Cys Leu Glu Lys Ile Gln Arg Ala Asn Glu Leu Met Gly Phe Asn
35 40 45

Asp Ser Ser Pro Gly Cys Pro Gly Met Trp Asp Asn Ile Thr Cys Trp
50 55 60

Lys Pro Ala His Val Gly Glu Met Val Leu
65 70

<210> 2843
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 657; "

<220>
<221> source
<223> /note="Gene Symbol: ADCYAP1R1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase activating polypeptide 1 (pituitary)
receptor type I; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416622"

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

<400> 2843
Xaa Ala Thr Leu Arg Leu Tyr Phe Asp Asp Thr Gly Cys Trp Asp Met
1 5 10 15

Asn Asp Ser Thr Ala Leu Trp Trp Val Ile Lys Gly Pro Val Val Gly
20 25 30

Ser Ile Met Val Asn Phe Val Leu Phe Ile Gly Ile Ile Val Ile Leu
35 40 45

Val Gln Lys Leu Gln Ser Pro Asp Met Gly Gly Asn Glu Ser Ser Ile
50 55 60

Tyr Leu Thr Asn Leu Ser Pro Arg Val Pro Lys Lys Ala Arg Glu Asp
65 70 75 80

Pro Leu Pro Val Pro Ser Asp Gln His Ser Leu Pro Phe Leu Arg Leu
85 90 95

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

Val Phe Ala Phe Ser Pro Glu Asn Val Ser Lys Arg Glu Arg Leu Val
115 120 125

Phe Glu Leu Gly Leu Gly Ser Phe Gln Gly Phe Val Val Ala Val Leu
130 135 140

Tyr Cys Phe
145

<210> 2844
<211> 496
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 657; "

<220>

<221> source
<223> /note="Gene Symbol: ADCYAP1R1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate cyclase activating polypeptide 1 (pituitary)
receptor type I; "

<220>
<221> source
<223> /note="Uniprot ID: P41586; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483721"

<400> 2844

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Met Ala Gly Val Val His Val Ser Leu Ala Ala Leu Leu Leu Leu Pro
1               5                   10                  15


Met Ala Pro Ala Met His Ser Asp Cys Ile Phe Lys Lys Glu Gln Ala
            20                  25                  30


Met Cys Leu Glu Lys Ile Gln Arg Ala Asn Glu Leu Met Gly Phe Asn
        35                  40                  45


Asp Ser Ser Pro Gly Cys Pro Gly Met Trp Asp Asn Ile Thr Cys Trp
    50                  55                  60


Lys Pro Ala His Val Gly Glu Met Val Leu Val Ser Cys Pro Glu Leu
65                  70                  75                  80


Phe Arg Ile Phe Asn Pro Asp Gln Val Trp Glu Thr Glu Thr Ile Gly
                85                  90                  95


Glu Ser Asp Phe Gly Asp Ser Asn Ser Leu Asp Leu Ser Asp Met Gly
            100                 105                 110


Val Val Ser Arg Asn Cys Thr Glu Asp Gly Trp Ser Glu Pro Phe Pro
        115                 120                 125


His Tyr Phe Asp Ala Cys Gly Phe Asp Glu Tyr Glu Ser Glu Thr Gly
    130                 135                 140


Asp Gln Asp Tyr Tyr Tyr Leu Ser Val Lys Ala Leu Tyr Thr Val Gly
145                 150                 155                 160
```

```
Tyr Ser Thr Ser Leu Val Thr Leu Thr Thr Ala Met Val Ile Leu Cys
                165                 170                 175

Arg Phe Arg Lys Leu His Cys Thr Arg Asn Phe Ile His Met Asn Leu
            180                 185                 190

Phe Val Ser Phe Met Leu Arg Ala Ile Ser Val Phe Ile Lys Asp Trp
        195                 200                 205

Ile Leu Tyr Ala Glu Gln Asp Ser Asn His Cys Phe Ile Ser Thr Val
    210                 215                 220

Glu Cys Lys Ala Val Met Val Phe Phe His Tyr Cys Val Val Ser Asn
225                 230                 235                 240

Tyr Phe Trp Leu Phe Ile Glu Gly Leu Tyr Leu Phe Thr Leu Leu Val
                245                 250                 255

Glu Thr Phe Phe Pro Glu Arg Arg Tyr Phe Tyr Trp Tyr Thr Ile Ile
            260                 265                 270

Gly Trp Gly Thr Pro Thr Val Cys Val Thr Val Trp Ala Thr Leu Arg
        275                 280                 285

Leu Tyr Phe Asp Asp Thr Gly Cys Trp Asp Met Asn Asp Ser Thr Ala
    290                 295                 300

Leu Trp Trp Val Ile Lys Gly Pro Val Val Gly Ser Ile Met Val Asn
305                 310                 315                 320

Phe Val Leu Phe Ile Gly Ile Ile Val Ile Leu Val Gln Lys Leu Gln
                325                 330                 335

Ser Pro Asp Met Gly Gly Asn Glu Ser Ser Ile Tyr Phe Ser Cys Val
            340                 345                 350

Gln Lys Cys Tyr Cys Lys Pro Gln Arg Ala Gln Gln His Ser Cys Lys
        355                 360                 365

Met Ser Glu Leu Ser Thr Ile Thr Leu Arg Leu Ala Arg Ser Thr Leu
    370                 375                 380
```

```
Leu Leu Ile Pro Leu Phe Gly Ile His Tyr Thr Val Phe Ala Phe Ser
385                 390                 395                 400

Pro Glu Asn Val Ser Lys Arg Glu Arg Leu Val Phe Glu Leu Gly Leu
                405                 410                 415

Gly Ser Phe Gln Gly Phe Val Val Ala Val Leu Tyr Cys Phe Leu Asn
            420                 425                 430

Gly Glu Val Gln Ala Glu Ile Lys Arg Lys Trp Arg Ser Trp Lys Val
        435                 440                 445

Asn Arg Tyr Phe Ala Val Asp Phe Lys His Arg His Pro Ser Leu Ala
    450                 455                 460

Ser Ser Gly Val Asn Gly Gly Thr Gln Leu Ser Ile Leu Ser Lys Ser
465                 470                 475                 480

Ser Ser Gln Ile Arg Met Ser Gly Leu Pro Ala Asp Asn Leu Ala Thr
                485                 490                 495


<210> 2845
<211> 210
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<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 1; "

<220>
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<400> 2845
Met Gly Cys Cys Ser Ser Ser Asp Pro Arg Arg Glu Asp Asp Leu Arg
1               5                   10                  15

Ala Arg Glu Lys Leu Lys Lys Thr Lys Ile Ile Phe Val Val Gly Gly
            20                  25                  30
```

```
Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Ile Val Gln Lys Tyr
        35                  40                  45

Gly Tyr Thr His Leu Ser Thr Gly Asp Leu Leu Arg Ser Glu Val Ser
    50                  55                  60

Ser Gly Ser Ala Arg Gly Lys Lys Leu Ser Glu Ile Met Glu Lys Gly
65                  70                  75                  80

Gln Leu Val Pro Leu Glu Thr Val Leu Asp Met Leu Arg Asp Ala Met
                85                  90                  95

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

Arg Glu Val Gln Gln Gly Glu Glu Phe Glu Arg Arg Ile Gly Gln Pro
        115                 120                 125

Thr Leu Leu Leu Tyr Val Asp Ala Gly Pro Glu Thr Met Thr Gln Arg
    130                 135                 140

Leu Leu Lys Arg Gly Glu Thr Ser Gly Arg Val Asp Asp Asn Glu Glu
145                 150                 155                 160

Thr Ile Lys Lys Arg Leu Glu Thr Tyr Tyr Lys Ala Thr Glu Pro Val
                165                 170                 175

Ile Ala Phe Tyr Glu Lys Arg Gly Ile Val Arg Lys Val Asn Ala Glu
            180                 185                 190

Gly Ser Val Asp Ser Val Phe Ser Gln Val Cys Thr His Leu Asp Ala
        195                 200                 205

Leu Lys
    210
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<210> 2846
<211> 194
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 658; "

<220>
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<220>
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<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000362249"

<400> 2846

```
Met Glu Glu Lys Leu Lys Lys Thr Lys Ile Ile Phe Val Val Gly Gly
1               5                  10                  15

Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Ile Val Gln Lys Tyr
            20                  25                  30

Gly Tyr Thr His Leu Ser Thr Gly Asp Leu Leu Arg Ser Glu Val Ser
        35                  40                  45

Ser Gly Ser Ala Arg Gly Lys Lys Leu Ser Glu Ile Met Glu Lys Gly
    50                  55                  60

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

Val Ala Lys Val Asn Thr Ser Lys Gly Phe Leu Ile Asp Gly Tyr Pro
                85                  90                  95

Arg Glu Val Gln Gln Gly Glu Glu Phe Glu Arg Arg Ile Gly Gln Pro
            100                 105                 110

Thr Leu Leu Leu Tyr Val Asp Ala Gly Pro Glu Thr Met Thr Gln Arg
        115                 120                 125

Leu Leu Lys Arg Gly Glu Thr Ser Gly Arg Val Asp Asp Asn Glu Glu
    130                 135                 140

Thr Ile Lys Lys Arg Leu Glu Thr Tyr Tyr Lys Ala Thr Glu Pro Val
```

145 150 155 160

Ile Ala Phe Tyr Glu Lys Arg Gly Ile Val Arg Lys Val Asn Ala Glu
165 170 175

Gly Ser Val Asp Ser Val Phe Ser Gln Val Cys Thr His Leu Asp Ala
180 185 190

Leu Lys

<210> 2847
<211> 194
<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="Uniprot ID: P00568; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362271"

<400> 2847
Met Glu Glu Lys Leu Lys Lys Thr Lys Ile Ile Phe Val Val Gly Gly
1 5 10 15

Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Ile Val Gln Lys Tyr
20 25 30

Gly Tyr Thr His Leu Ser Thr Gly Asp Leu Leu Arg Ser Glu Val Ser
35 40 45

Ser Gly Ser Ala Arg Gly Lys Lys Leu Ser Glu Ile Met Glu Lys Gly
50 55 60

```
Gln Leu Val Pro Leu Glu Thr Val Leu Asp Met Leu Arg Asp Ala Met
65                  70                  75                  80

Val Ala Lys Val Asn Thr Ser Lys Gly Phe Leu Ile Asp Gly Tyr Pro
                85                  90                  95

Arg Glu Val Gln Gln Gly Glu Glu Phe Glu Arg Arg Ile Gly Gln Pro
            100                 105                 110

Thr Leu Leu Leu Tyr Val Asp Ala Gly Pro Glu Thr Met Thr Gln Arg
        115                 120                 125

Leu Leu Lys Arg Gly Glu Thr Ser Gly Arg Val Asp Asp Asn Glu Glu
    130                 135                 140

Thr Ile Lys Lys Arg Leu Glu Thr Tyr Tyr Lys Ala Thr Glu Pro Val
145                 150                 155                 160

Ile Ala Phe Tyr Glu Lys Arg Gly Ile Val Arg Lys Val Asn Ala Glu
                165                 170                 175

Gly Ser Val Asp Ser Val Phe Ser Gln Val Cys Thr His Leu Asp Ala
            180                 185                 190

Leu Lys
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<210> 2848
<211> 135
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 658; "

<220>
<221> source
<223> /note="Gene Symbol: AK1; "

<220>
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<223> /note="Gene Name:
adenylate kinase 1; "

<220>
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<223> /note="ENSP ID: ENSP00000392314"

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

<400> 2848
Xaa Arg Lys Pro Arg Ser Ser Leu Trp Trp Glu Thr Val Leu Asp Met
1 5 10 15

Leu Arg Asp Ala Met Val Ala Lys Val Asn Thr Ser Lys Gly Phe Leu
20 25 30

Ile Asp Gly Tyr Pro Arg Glu Val Gln Gln Gly Glu Glu Phe Glu Arg
35 40 45

Arg Ile Gly Gln Pro Thr Leu Leu Leu Tyr Val Asp Ala Gly Pro Glu
50 55 60

Thr Met Thr Gln Arg Leu Leu Lys Arg Gly Glu Thr Ser Gly Arg Val
65 70 75 80

Asp Asp Asn Glu Glu Thr Ile Lys Lys Arg Leu Glu Thr Tyr Tyr Lys
85 90 95

Ala Thr Glu Pro Val Ile Ala Phe Tyr Glu Lys Arg Gly Ile Val Arg
100 105 110

Lys Val Asn Ala Glu Gly Ser Val Asp Ser Val Phe Ser Gln Val Cys
115 120 125

Thr His Leu Asp Ala Leu Lys
130 135

<210> 2849
<211> 32
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 658; "

<220>
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<223> /note="Gene Symbol: AK1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 1; "

<220>
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<223> /note="ENSP ID: ENSP00000448741"

<400> 2849
Met Glu Gly Ala Pro Ala Val Ser Val Pro Pro Pro Gly Ala Gln His
1 5 10 15

Arg Pro Gly Thr Pro Glu Val Pro Leu Ala Val Gly Pro Ala Ser Asp
20 25 30

<210> 2850
<211> 51
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 658; "

<220>
<221> source
<223> /note="Gene Symbol: AK1; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 1; "

<220>
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<223> /note="ENSP ID: ENSP00000449130"

<400> 2850
Glu Lys Gly Gln Leu Val Pro Leu Glu Thr Val Leu Asp Met Leu Arg
1 5 10 15

Asp Ala Met Val Ala Lys Val Asn Thr Ser Lys Gly Phe Leu Ile Asp
20 25 30

Gly Tyr Pro Arg Glu Val Gln Gln Gly Glu Glu Phe Glu Arg Arg Ala
35 40 45

Leu Arg Pro
50

<210> 2851
<211> 239
<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:
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<220>
<221> source
<223> /note="Uniprot ID: P54819; "

<220>
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<223> /note="ENSP ID: ENSP00000346921"

<400> 2851
Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1   5   10   15

Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Ala
            20   25   30

Pro Arg Leu Ala Glu Asn Phe Cys Val Cys His Leu Ala Thr Gly Asp
        35   40   45

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

Lys Ala Thr Met Asp Ala Gly Lys Leu Val Ser Asp Glu Met Val Val
65   70   75   80

Glu Leu Ile Glu Lys Asn Leu Glu Thr Pro Leu Cys Lys Asn Gly Phe
                85   90   95

Leu Leu Asp Gly Phe Pro Arg Thr Val Arg Gln Ala Glu Met Leu Asp
            100   105   110

Asp Leu Met Glu Lys Arg Lys Glu Lys Leu Asp Ser Val Ile Glu Phe

```
        115                 120                 125

Ser Ile Pro Asp Ser Leu Leu Ile Arg Arg Ile Thr Gly Arg Leu Ile
    130                 135                 140

His Pro Lys Ser Gly Arg Ser Tyr His Glu Glu Phe Asn Pro Pro Lys
145                 150                 155                 160

Glu Pro Met Lys Asp Asp Ile Thr Gly Glu Pro Leu Ile Arg Arg Ser
                165                 170                 175

Asp Asp Asn Glu Lys Ala Leu Lys Ile Arg Leu Gln Ala Tyr His Thr
            180                 185                 190

Gln Thr Thr Pro Leu Ile Glu Tyr Tyr Arg Lys Arg Gly Ile His Ser
        195                 200                 205

Ala Ile Asp Ala Ser Gln Thr Pro Asp Val Val Phe Ala Ser Ile Leu
    210                 215                 220

Ala Ala Phe Ser Lys Ala Thr Cys Lys Asp Leu Val Met Phe Ile
225                 230                 235


<210> 2852
<211> 232
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 659; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  P54819; "

<220>
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<223> /note="ENSP ID: ENSP00000362548"
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<400> 2852
Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1 5 10 15

Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Ala
20 25 30

Pro Arg Leu Ala Glu Asn Phe Cys Val Cys His Leu Ala Thr Gly Asp
35 40 45

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

Lys Ala Thr Met Asp Ala Gly Lys Leu Val Ser Asp Glu Met Val Val
65 70 75 80

Glu Leu Ile Glu Lys Asn Leu Glu Thr Pro Leu Cys Lys Asn Gly Phe
85 90 95

Leu Leu Asp Gly Phe Pro Arg Thr Val Arg Gln Ala Glu Met Leu Asp
100 105 110

Asp Leu Met Glu Lys Arg Lys Glu Lys Leu Asp Ser Val Ile Glu Phe
115 120 125

Ser Ile Pro Asp Ser Leu Leu Ile Arg Arg Ile Thr Gly Arg Leu Ile
130 135 140

His Pro Lys Ser Gly Arg Ser Tyr His Glu Glu Phe Asn Pro Pro Lys
145 150 155 160

Glu Pro Met Lys Asp Asp Ile Thr Gly Glu Pro Leu Ile Arg Arg Ser
165 170 175

Asp Asp Asn Glu Lys Ala Leu Lys Ile Arg Leu Gln Ala Tyr His Thr
180 185 190

Gln Thr Thr Pro Leu Ile Glu Tyr Tyr Arg Lys Arg Gly Ile His Ser
195 200 205

Ala Ile Asp Ala Ser Gln Thr Pro Asp Val Val Phe Ala Ser Ile Leu
210 215 220

```
Ala Ala Phe Ser Lys Ala Thr Ser
225                 230


<210> 2853
<211> 162
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 659; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000446849"

<400> 2853
Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1               5                  10                  15


Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Ala
            20                  25                  30


Pro Arg Leu Ala Glu Asn Phe Cys Val Cys His Leu Ala Thr Gly Asp
        35                  40                  45


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


Lys Ala Thr Met Asp Ala Gly Lys Leu Val Ser Asp Glu Met Val Val
65                  70                  75                  80


Glu Leu Ile Glu Lys Asn Leu Glu Thr Pro Leu Cys Lys Asn Gly Phe
                85                  90                  95


Leu Leu Asp Gly Phe Pro Arg Thr Val Arg Gln Ala Glu Met Leu Asp
            100                 105                 110


Asp Leu Met Glu Lys Arg Lys Glu Lys Leu Asp Ser Val Ile Glu Phe
        115                 120                 125
```

Ser Ile Pro Asp Ser Leu Leu Ile Arg Arg Ile Thr Gly Ser Ile Glu
130 135 140

His Arg Asn Ala Ser Ala Ser Gly His Val Cys Ser Asp Arg Pro Thr
145 150 155 160

Leu Leu

<210> 2854
<211> 232
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 659; "

<220>
<221> source
<223> /note="Gene Symbol: AK2; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447082"

<400> 2854
Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1 5 10 15

Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Ala
20 25 30

Pro Arg Leu Ala Glu Asn Phe Cys Val Cys His Leu Ala Thr Gly Asp
35 40 45

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

Lys Ala Thr Met Asp Ala Gly Lys Leu Val Ser Asp Glu Met Val Val
65 70 75 80

```
Glu Leu Ile Glu Lys Asn Leu Glu Thr Pro Leu Cys Lys Asn Gly Phe
                85                  90                  95

Leu Leu Asp Gly Phe Pro Arg Thr Val Arg Gln Ala Glu Met Leu Asp
            100                 105                 110

Asp Leu Met Glu Lys Arg Lys Glu Lys Leu Asp Ser Val Ile Glu Phe
        115                 120                 125

Ser Ile Pro Asp Ser Leu Leu Ile Arg Arg Ile Thr Gly Arg Leu Ile
    130                 135                 140

His Pro Lys Ser Gly Arg Ser Tyr His Glu Glu Phe Asn Pro Pro Lys
145                 150                 155                 160

Glu Pro Met Lys Asp Asp Ile Thr Gly Glu Pro Leu Ile Arg Arg Ser
                165                 170                 175

Asp Asp Asn Glu Lys Ala Leu Lys Ile Arg Leu Gln Ala Tyr His Thr
            180                 185                 190

Gln Thr Thr Pro Leu Ile Glu Tyr Tyr Arg Lys Arg Gly Ile His Ser
        195                 200                 205

Ala Ile Asp Ala Ser Gln Thr Pro Asp Val Val Phe Ala Ser Ile Leu
    210                 215                 220

Ala Ala Phe Ser Lys Ala Thr Cys
225                 230


<210> 2855
<211> 190
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 659; "

<220>
<221> source
<223> /note="Gene Symbol: AK2; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 2; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000449003"

<400> 2855
Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1   5   10   15

Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Val
            20   25   30

Ser Asp Glu Met Val Val Glu Leu Ile Glu Lys Asn Leu Glu Thr Pro
        35   40   45

Leu Cys Lys Asn Gly Phe Leu Leu Asp Gly Phe Pro Arg Thr Val Arg
    50   55   60

Gln Ala Glu Met Leu Asp Asp Leu Met Glu Lys Arg Lys Glu Lys Leu
65   70   75   80

Asp Ser Val Ile Glu Phe Ser Ile Pro Asp Ser Leu Leu Ile Arg Arg
                85   90   95

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

Glu Phe Asn Pro Pro Lys Glu Pro Met Lys Asp Asp Ile Thr Gly Glu
        115   120   125

Pro Leu Ile Arg Arg Ser Asp Asp Asn Glu Lys Ala Leu Lys Ile Arg
    130   135   140

Leu Gln Ala Tyr His Thr Gln Thr Thr Pro Leu Ile Glu Tyr Tyr Arg
145   150   155   160

Lys Arg Gly Ile His Ser Ala Ile Asp Ala Ser Gln Thr Pro Asp Val
                165   170   175

Val Phe Ala Ser Ile Leu Ala Ala Phe Ser Lys Ala Thr Ser
            180   185   190

<210> 2856
<211> 42
<212> PRT

<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000450008"

<400> 2856
Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1 5 10 15

Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Leu
20 25 30

Glu Lys Leu Lys Phe Glu Trp Leu Val Leu
35 40

<210> 2857
<211> 133
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AK2; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000450109"

<400> 2857
Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1 5 10 15

```
Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Ala
            20                  25                  30

Pro Arg Leu Ala Glu Asn Phe Cys Val Cys His Leu Ala Thr Gly Asp
        35                  40                  45

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

Lys Ala Thr Met Asp Ala Gly Lys Leu Val Ser Asp Glu Met Val Val
65                  70                  75                  80

Glu Leu Ile Glu Lys Asn Leu Glu Thr Pro Leu Cys Lys Asn Gly Phe
                85                  90                  95

Leu Leu Asp Gly Phe Pro Arg Thr Val Arg Gln Ala Glu Met Ala Asp
            100                 105                 110

Ser Pro Gln Glu Trp Pro Phe Leu Pro Arg Gly Val Gln Pro Ser Lys
        115                 120                 125

Arg Ala His Glu Arg
    130


<210> 2858
<211> 42
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 659; "

<220>
<221> source
<223> /note="Gene Symbol: AK2; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486342"

<400> 2858
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Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1               5                  10                  15

Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Leu
            20                  25                  30

Glu Lys Leu Lys Phe Glu Trp Leu Val Leu
        35                  40
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<210> 2859
<211> 133
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 659; "

<220>
<221> source
<223> /note="Gene Symbol: AK2; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000486507"

<400> 2859

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Met Ala Pro Ser Val Pro Ala Ala Glu Pro Glu Tyr Pro Lys Gly Ile
1               5                  10                  15

Arg Ala Val Leu Leu Gly Pro Pro Gly Ala Gly Lys Gly Thr Gln Ala
            20                  25                  30

Pro Arg Leu Ala Glu Asn Phe Cys Val Cys His Leu Ala Thr Gly Asp
        35                  40                  45

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

Lys Ala Thr Met Asp Ala Gly Lys Leu Val Ser Asp Glu Met Val Val
65                  70                  75                  80

Glu Leu Ile Glu Lys Asn Leu Glu Thr Pro Leu Cys Lys Asn Gly Phe
                85                  90                  95
```

```
Leu Leu Asp Gly Phe Pro Arg Thr Val Arg Gln Ala Glu Met Ala Asp
            100                 105                 110

Ser Pro Gln Glu Trp Pro Phe Leu Pro Arg Gly Val Gln Pro Ser Lys
        115                 120                 125

Arg Ala His Glu Arg
    130


<210> 2860
<211> 157
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 660; "

<220>
<221> source
<223> /note="Gene Symbol: AK3; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UIJ7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000352948"

<400> 2860
Met Thr Arg Leu Ala Leu His Glu Leu Lys Asn Leu Thr Gln Tyr Ser
1               5                  10                  15

Trp Leu Leu Asp Gly Phe Pro Arg Thr Leu Pro Gln Ala Glu Ala Leu
            20                  25                  30

Asp Arg Ala Tyr Gln Ile Asp Thr Val Ile Asn Leu Asn Val Pro Phe
        35                  40                  45

Glu Val Ile Lys Gln Arg Leu Thr Ala Arg Trp Ile His Pro Ala Ser
    50                  55                  60
```

```
Gly Arg Val Tyr Asn Ile Glu Phe Asn Pro Pro Lys Thr Val Gly Ile
65                  70                  75                  80


Asp Asp Leu Thr Gly Glu Pro Leu Ile Gln Arg Glu Asp Asp Lys Pro
                85                  90                  95


Glu Thr Val Ile Lys Arg Leu Lys Ala Tyr Glu Asp Gln Thr Lys Pro
            100                 105                 110


Val Leu Glu Tyr Tyr Gln Lys Lys Gly Val Leu Glu Thr Phe Ser Gly
        115                 120                 125


Thr Glu Thr Asn Lys Ile Trp Pro Tyr Val Tyr Ala Phe Leu Gln Thr
    130                 135                 140


Lys Val Pro Gln Arg Ser Gln Lys Ala Ser Val Thr Pro
145                 150                 155


<210> 2861
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 660; "

<220>
<221> source
<223> /note="Gene Symbol: AK3; "

<220>
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<223> /note="Gene Name:
      adenylate kinase 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UIJ7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371230"

<400> 2861
Met Gly Ala Ser Ala Arg Leu Leu Arg Ala Val Ile Met Gly Ala Pro
1               5                   10                  15


Gly Ser Gly Lys Gly Thr Val Ser Ser Arg Ile Thr Thr His Phe Glu
            20                  25                  30
```

```
Leu Lys His Leu Ser Ser Gly Asp Leu Leu Arg Asp Asn Met Leu Arg
        35                  40                  45

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

Leu Ile Pro Asp Asp Val Met Thr Arg Leu Ala Leu His Glu Leu Lys
65                  70                  75                  80

Asn Leu Thr Gln Tyr Ser Trp Leu Leu Asp Gly Phe Pro Arg Thr Leu
                85                  90                  95

Pro Gln Ala Glu Ala Leu Asp Arg Ala Tyr Gln Ile Asp Thr Val Ile
            100                 105                 110

Asn Leu Asn Val Pro Phe Glu Val Ile Lys Gln Arg Leu Thr Ala Arg
        115                 120                 125

Trp Ile His Pro Ala Ser Gly Arg Val Tyr Asn Ile Glu Phe Asn Pro
    130                 135                 140

Pro Lys Thr Val Gly Ile Asp Asp Leu Thr Gly Glu Pro Leu Ile Gln
145                 150                 155                 160

Arg Glu Asp Asp Lys Pro Glu Thr Val Ile Lys Arg Leu Lys Ala Tyr
                165                 170                 175

Glu Asp Gln Thr Lys Pro Val Leu Glu Tyr Tyr Gln Lys Lys Gly Val
            180                 185                 190

Leu Glu Thr Phe Ser Gly Thr Glu Thr Asn Lys Ile Trp Pro Tyr Val
        195                 200                 205

Tyr Ala Phe Leu Gln Thr Lys Val Pro Gln Arg Ser Gln Lys Ala Ser
    210                 215                 220

Val Thr Pro
225
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<210> 2862
<211> 187
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<213> Homo sapiens

<220>
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<223> /note="Payload ID: 660; "

<220>
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<223> /note="Gene Symbol: AK3; "

<220>
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<223> /note="Gene Name:
adenylate kinase 3; "

<220>
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<223> /note="Uniprot ID: Q9UIJ7; "

<220>
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<223> /note="ENSP ID: ENSP00000413933"

<400> 2862

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

```
    130                 135                 140

Glu Tyr Tyr Gln Lys Lys Gly Val Leu Glu Thr Phe Ser Gly Thr Glu
145                 150                 155                 160

Thr Asn Lys Ile Trp Pro Tyr Val Tyr Ala Phe Leu Gln Thr Lys Val
                165                 170                 175

Pro Gln Arg Ser Gln Lys Ala Ser Val Thr Pro
            180                 185


<210> 2863
<211> 157
<212> PRT
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<220>
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<220>
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<220>
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<220>
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<223> /note="Uniprot ID:  Q9UIJ7; "

<220>
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<223> /note="ENSP ID: ENSP00000482308"

<400> 2863
Met Thr Arg Leu Ala Leu His Glu Leu Lys Asn Leu Thr Gln Tyr Ser
1               5                   10                  15

Trp Leu Leu Asp Gly Phe Pro Arg Thr Leu Pro Gln Ala Glu Ala Leu
            20                  25                  30

Asp Arg Ala Tyr Gln Ile Asp Thr Val Ile Asn Leu Asn Val Pro Phe
        35                  40                  45

Glu Val Ile Lys Gln Arg Leu Thr Ala Arg Trp Ile His Pro Ala Ser
    50                  55                  60
```

```
Gly Arg Val Tyr Asn Ile Glu Phe Asn Pro Pro Lys Thr Val Gly Ile
65                  70                  75                  80


Asp Asp Leu Thr Gly Glu Pro Leu Ile Gln Arg Glu Asp Asp Lys Pro
                85                  90                  95


Glu Thr Val Ile Lys Arg Leu Lys Ala Tyr Glu Asp Gln Thr Lys Pro
            100                 105                 110


Val Leu Glu Tyr Tyr Gln Lys Lys Gly Val Leu Glu Thr Phe Ser Gly
        115                 120                 125


Thr Glu Thr Asn Lys Ile Trp Pro Tyr Val Tyr Ala Phe Leu Gln Thr
    130                 135                 140


Lys Val Pro Gln Arg Ser Gln Lys Ala Ser Val Thr Pro
145                 150                 155


<210> 2864
<211> 223
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AK4; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID:  P27144; "

<220>
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<223> /note="ENSP ID: ENSP00000322175"

<400> 2864
Met Ala Ser Lys Leu Leu Arg Ala Val Ile Leu Gly Pro Pro Gly Ser
1               5                   10                  15


Gly Lys Gly Thr Val Cys Gln Arg Ile Ala Gln Asn Phe Gly Leu Gln
```

```
            20                  25                  30

His Leu Ser Ser Gly His Phe Leu Arg Glu Asn Ile Lys Ala Ser Thr
        35                  40                  45

Glu Val Gly Glu Met Ala Lys Gln Tyr Ile Glu Lys Ser Leu Leu Val
    50                  55                  60

Pro Asp His Val Ile Thr Arg Leu Met Met Ser Glu Leu Glu Asn Arg
65                  70                  75                  80

Arg Gly Gln His Trp Leu Leu Asp Gly Phe Pro Arg Thr Leu Gly Gln
                85                  90                  95

Ala Glu Ala Leu Asp Lys Ile Cys Glu Val Asp Leu Val Ile Ser Leu
            100                 105                 110

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

His Pro Pro Ser Gly Arg Val Tyr Asn Leu Asp Phe Asn Pro Pro His
    130                 135                 140

Val His Gly Ile Asp Asp Val Thr Gly Glu Pro Leu Val Gln Gln Glu
145                 150                 155                 160

Asp Asp Lys Pro Glu Ala Val Ala Ala Arg Leu Arg Gln Tyr Lys Asp
                165                 170                 175

Val Ala Lys Pro Val Ile Glu Leu Tyr Lys Ser Arg Gly Val Leu His
            180                 185                 190

Gln Phe Ser Gly Thr Glu Thr Asn Lys Ile Trp Pro Tyr Val Tyr Thr
        195                 200                 205

Leu Phe Ser Asn Lys Ile Thr Pro Ile Gln Ser Lys Glu Ala Tyr
    210                 215                 220
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<210> 2865
<211> 223
<212> PRT
<213> Homo sapiens

<220>

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<223> /note="Payload ID: 661; "

<220>
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<220>
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adenylate kinase 4; "

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<220>
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<400> 2865

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

Gly Lys Gly Thr Val Cys Gln Arg Ile Ala Gln Asn Phe Gly Leu Gln
            20                  25                  30

His Leu Ser Ser Gly His Phe Leu Arg Glu Asn Ile Lys Ala Ser Thr
        35                  40                  45

Glu Val Gly Glu Met Ala Lys Gln Tyr Ile Glu Lys Ser Leu Leu Val
    50                  55                  60

Pro Asp His Val Ile Thr Arg Leu Met Met Ser Glu Leu Glu Asn Arg
65                  70                  75                  80

Arg Gly Gln His Trp Leu Leu Asp Gly Phe Pro Arg Thr Leu Gly Gln
                85                  90                  95

Ala Glu Ala Leu Asp Lys Ile Cys Glu Val Asp Leu Val Ile Ser Leu
            100                 105                 110

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

His Pro Pro Ser Gly Arg Val Tyr Asn Leu Asp Phe Asn Pro Pro His
    130                 135                 140
```

```
Val His Gly Ile Asp Asp Val Thr Gly Glu Pro Leu Val Gln Gln Glu
145                 150                 155                 160


Asp Asp Lys Pro Glu Ala Val Ala Ala Arg Leu Arg Gln Tyr Lys Asp
                165                 170                 175


Val Ala Lys Pro Val Ile Glu Leu Tyr Lys Ser Arg Gly Val Leu His
            180                 185                 190


Gln Phe Ser Gly Thr Glu Thr Asn Lys Ile Trp Pro Tyr Val Tyr Thr
        195                 200                 205


Leu Phe Ser Asn Lys Ile Thr Pro Ile Gln Ser Lys Glu Ala Tyr
    210                 215                 220


<210> 2866
<211> 223
<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: ENSP00000445912"

<400> 2866
Met Ala Ser Lys Leu Leu Arg Ala Val Ile Leu Gly Pro Pro Gly Ser
1               5                   10                  15


Gly Lys Gly Thr Val Cys Gln Arg Ile Ala Gln Asn Phe Gly Leu Gln
            20                  25                  30


His Leu Ser Ser Gly His Phe Leu Arg Glu Asn Ile Lys Ala Ser Thr
        35                  40                  45
```

```
Glu Val Gly Glu Met Ala Lys Gln Tyr Ile Glu Lys Ser Leu Leu Val
    50                  55                  60

Pro Asp His Val Ile Thr Arg Leu Met Met Ser Glu Leu Glu Asn Arg
65                  70                  75                  80

Arg Gly Gln His Trp Leu Leu Asp Gly Phe Pro Arg Thr Leu Gly Gln
                85                  90                  95

Ala Glu Ala Leu Asp Lys Ile Cys Glu Val Asp Leu Val Ile Ser Leu
            100                 105                 110

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

His Pro Pro Ser Gly Arg Val Tyr Asn Leu Asp Phe Asn Pro Pro His
    130                 135                 140

Val His Gly Ile Asp Asp Val Thr Gly Glu Pro Leu Val Gln Gln Glu
145                 150                 155                 160

Asp Asp Lys Pro Glu Ala Val Ala Ala Arg Leu Arg Gln Tyr Lys Asp
                165                 170                 175

Val Ala Lys Pro Val Ile Glu Leu Tyr Lys Ser Arg Gly Val Leu His
            180                 185                 190

Gln Phe Ser Gly Thr Glu Thr Asn Lys Ile Trp Pro Tyr Val Tyr Thr
        195                 200                 205

Leu Phe Ser Asn Lys Ile Thr Pro Ile Gln Ser Lys Glu Ala Tyr
    210                 215                 220


<210> 2867
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<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AK4; "

<220>
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adenylate kinase 4; "

<220>
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<400> 2867

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Met Ala Lys Gln Tyr Ile Glu Lys Ser Leu Leu Val Pro Asp His Val
1               5                  10                  15

Ile Thr Arg Leu Met Met Ser Glu Leu Glu Asn Arg Arg Gly Gln His
            20                  25                  30

Trp Leu Leu Asp Gly Phe Pro Arg Thr Leu Gly Gln Ala Glu Ala Leu
        35                  40                  45

Asp Lys Ile Cys Glu Val Asp Leu Val Ile Ser Leu Asn Ile Pro Phe
    50                  55                  60

Glu Thr Leu Lys Asp Arg Leu Ser Arg Arg Trp Ile His Pro Pro Ser
65                  70                  75                  80

Gly Arg Val Tyr Asn Leu Asp Phe Asn Pro Pro His Val His Gly Ile
                85                  90                  95

Asp Asp Val Thr Gly Glu Pro Leu Val Gln Gln Glu Asp Asp Lys Pro
            100                 105                 110

Glu Ala Val Ala Ala Arg Leu Arg Gln Tyr Lys Asp Val Ala Lys Pro
        115                 120                 125

Val Ile Glu Leu Tyr Lys Ser Arg Gly Val Leu His Gln Phe Ser Gly
    130                 135                 140

Thr Glu Thr Asn Lys Ile Trp Pro Tyr Val Tyr Thr Leu Phe Ser Asn
145                 150                 155                 160

Lys Ile Thr Pro Ile Gln Ser Lys Glu Ala Tyr
                165                 170
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<210> 2868

<211> 536
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<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
adenylate kinase 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y6K8; "

<220>
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<223> /note="ENSP ID: ENSP00000341430"

<400> 2868

Met	Cys	Ser	Lys	Pro	Glu	Asp	Pro	Val	Glu	Tyr	Leu	Glu	Ser	Cys	Leu
1				5					10						15

Gln	Lys	Val	Lys	Glu	Leu	Gly	Gly	Cys	Asp	Lys	Val	Lys	Trp	Asp	Thr
			20					25					30		

Phe	Val	Ser	Gln	Glu	Lys	Lys	Thr	Leu	Pro	Pro	Leu	Asn	Gly	Gly	Gln
		35					40					45			

Ser	Arg	Arg	Ser	Phe	Leu	Arg	Asn	Val	Met	Pro	Glu	Asn	Ser	Asn	Phe
	50					55					60				

Pro	Tyr	Arg	Arg	Tyr	Asp	Arg	Leu	Pro	Pro	Ile	His	Gln	Phe	Ser	Ile
65				70					75						80

Glu	Ser	Asp	Thr	Asp	Leu	Ser	Glu	Thr	Ala	Glu	Leu	Ile	Glu	Glu	Tyr
				85					90					95	

Glu	Val	Phe	Asp	Pro	Thr	Arg	Pro	Arg	Pro	Lys	Ile	Ile	Leu	Val	Ile
			100					105					110		

Gly	Gly	Pro	Gly	Ser	Gly	Lys	Gly	Thr	Gln	Ser	Leu	Lys	Ile	Ala	Glu
		115					120					125			

```
Arg Tyr Gly Phe Gln Tyr Ile Ser Val Gly Glu Leu Leu Arg Lys Lys
    130                 135                 140

Ile His Ser Thr Ser Ser Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile
145                 150                 155                 160

Ile Thr Thr Gly Glu Leu Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile
                165                 170                 175

Lys Gln Lys Leu Met Gln Ile Pro Asp Glu Glu Gly Ile Val Ile Asp
            180                 185                 190

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

Cys Thr Pro Asp Leu Val Val Phe Leu Ala Cys Ala Asn Gln Arg Leu
    210                 215                 220

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

Asn Val Lys Ala Thr Gln Arg Arg Leu Met Asn Phe Lys Gln Asn Ala
                245                 250                 255

Ala Pro Leu Val Lys Tyr Phe Gln Glu Lys Gly Leu Ile Met Thr Phe
            260                 265                 270

Asp Ala Asp Arg Asp Glu Asp Glu Val Phe Tyr Asp Ile Ser Met Ala
        275                 280                 285

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

Asp Leu Asp Pro Ser Met Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr
305                 310                 315                 320

Gly Ser Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu Asn Val Phe Gly
                325                 330                 335

Glu Asp Thr Met Gly Gly Phe Met Glu Asp Leu Arg Lys Cys Lys Ile
            340                 345                 350
```

```
Ile Phe Ile Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu
        355                 360                 365

Lys Leu Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu Leu
    370                 375                 380

Leu Arg Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg
385                 390                 395                 400

Asp Ile Met Glu Arg Gly Asp Leu Val Pro Ser Gly Ile Val Leu Glu
                405                 410                 415

Leu Leu Lys Glu Ala Met Val Ala Ser Leu Gly Asp Thr Arg Gly Phe
            420                 425                 430

Leu Ile Asp Gly Tyr Pro Arg Glu Val Lys Gln Gly Glu Glu Phe Gly
        435                 440                 445

Arg Arg Ile Gly Asp Pro Gln Leu Val Ile Cys Met Asp Cys Ser Ala
    450                 455                 460

Asp Thr Met Thr Asn Arg Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro
465                 470                 475                 480

Val Asp Asp Thr Thr Lys Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr
                485                 490                 495

Arg Ala Ser Ile Pro Val Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu
            500                 505                 510

His Lys Ile Asn Ala Glu Gly Thr Pro Glu Asp Val Phe Leu Gln Leu
        515                 520                 525

Cys Thr Ala Ile Asp Ser Ile Phe
    530                 535


<210> 2869
<211> 562
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 662; "
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<220>
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<223> /note="Gene Symbol: AK5; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q9Y6K8; "

<220>
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<223> /note="ENSP ID: ENSP00000346577"

<400> 2869
Met Asn Thr Asn Asp Ala Lys Glu Tyr Leu Ala Arg Arg Glu Ile Pro
1   5   10   15

Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met Cys Ser Lys Pro Glu
            20   25   30

Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys Val Lys Glu Leu
        35   40   45

Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val Ser Gln Glu Lys
    50   55   60

Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser Arg Arg Ser Phe Leu
65   70   75   80

Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr Arg Arg Tyr Asp
                85   90   95

Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser Asp Thr Asp Leu
            100   105   110

Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr
        115   120   125

Arg Pro Arg Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly
    130   135   140

Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr
145   150   155   160

```
Ile Ser Val Gly Glu Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser
                165                 170                 175

Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu
            180                 185                 190

Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln
        195                 200                 205

Ile Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val
    210                 215                 220

Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Leu Val
225                 230                 235                 240

Val Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys
                245                 250                 255

Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln
            260                 265                 270

Arg Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr
        275                 280                 285

Phe Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu
    290                 295                 300

Asp Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe
305                 310                 315                 320

Pro Asn Lys Glu Ala Ala Ala Gly Ser Ser Asp Leu Asp Pro Ser Met
                325                 330                 335

Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp
            340                 345                 350

Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp Thr Met Gly Gly
        355                 360                 365

Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe Ile Ile Gly Gly
    370                 375                 380
```

```
Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr
385                 390                 395                 400

Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala
                405                 410                 415

Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile Met Glu Arg Gly
            420                 425                 430

Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu Leu Lys Glu Ala Met
        435                 440                 445

Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro
    450                 455                 460

Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro
465                 470                 475                 480

Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg
                485                 490                 495

Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys
            500                 505                 510

Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val
        515                 520                 525

Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu
    530                 535                 540

Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser
545                 550                 555                 560

Ile Phe
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<210> 2870
<211> 77
<212> PRT
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<220>
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<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000433915"

<400> 2870
Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg Leu Leu Gln Arg Ser
1 5 10 15

Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys Thr Ile Ala Lys Arg
20 25 30

Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val Ile Ala Tyr Tyr Glu
35 40 45

Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu Gly Thr Pro Glu Asp
50 55 60

Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser Ile Phe
65 70 75

<210> 2871
<211> 176
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 662; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000434409"

<400> 2871

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Met Cys Ser Lys Pro Glu Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu
1               5                  10                  15

Gln Lys Val Lys Glu Leu Gly Gly Cys Asp Lys Val Lys Trp Asp Thr
            20                  25                  30

Phe Val Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln
        35                  40                  45

Ser Arg Arg Ser Phe Leu Arg Asn Val Met Pro Glu Asn Ser Asn Phe
    50                  55                  60

Pro Tyr Arg Arg Tyr Asp Arg Leu Pro Pro Ile His Gln Phe Ser Ile
65                  70                  75                  80

Glu Ser Asp Thr Asp Leu Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr
                85                  90                  95

Glu Val Phe Asp Pro Thr Arg Pro Arg Pro Lys Ile Ile Leu Val Ile
            100                 105                 110

Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu
        115                 120                 125

Arg Tyr Gly Phe Gln Tyr Ile Ser Val Gly Glu Leu Leu Arg Lys Lys
    130                 135                 140

Ile His Ser Thr Ser Ser Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile
145                 150                 155                 160

Ile Thr Thr Gly Glu Leu Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile
                165                 170                 175


<210> 2872
<211> 62
<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: ENSP00000436859"

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

<400> 2872
Xaa Gly Ser Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu Asn Val Phe
1 5 10 15

Gly Glu Asp Thr Met Gly Gly Phe Met Glu Asp Leu Arg Lys Cys Lys
20 25 30

Ile Ile Phe Ile Ile Gly Gly Pro Gly Ser Gly Lys Gly Ala Gly Ala
35 40 45

Ala Cys Leu Trp Thr Thr Pro Pro Arg Pro Ser Pro Ser Ala
50 55 60

<210> 2873
<211> 169
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 6; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y3D8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000370197"

<400> 2873
Met Cys His Arg Lys Pro Gly Thr Pro Gly Val Gly Lys Thr Thr Leu
1 5 10 15

Gly Lys Glu Leu Ala Ser Lys Ser Gly Leu Lys Tyr Ile Asn Val Gly
20 25 30

Asp Leu Ala Arg Glu Glu Gln Leu Tyr Asp Gly Tyr Asp Glu Glu Tyr
35 40 45

Asp Cys Pro Ile Leu Asp Glu Asp Arg Val Val Asp Glu Leu Asp Asn
50 55 60

Gln Met Arg Glu Gly Gly Val Ile Val Asp Tyr His Gly Cys Asp Phe
65 70 75 80

Phe Pro Glu Arg Trp Phe His Ile Val Phe Val Leu Arg Thr Asp Thr
85 90 95

Asn Val Leu Tyr Glu Arg Leu Glu Thr Arg Gly Tyr Asn Glu Lys Lys
100 105 110

Leu Thr Asp Asn Ile Gln Cys Glu Ile Phe Gln Val Leu Tyr Glu Glu
115 120 125

Ala Thr Ala Ser Tyr Lys Glu Glu Ile Val His Gln Leu Pro Ser Asn
130 135 140

Lys Pro Glu Glu Leu Glu Asn Asn Val Asp Gln Ile Leu Lys Trp Ile
145 150 155 160

Glu Gln Trp Ile Lys Asp His Asn Ser
165

<210> 2874
<211> 172
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source

<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q9Y3D8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000370201"

<400> 2874

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Met Leu Leu Pro Asn Ile Leu Leu Thr Gly Thr Pro Gly Val Gly Lys
1               5                  10                  15

Thr Thr Leu Gly Lys Glu Leu Ala Ser Lys Ser Gly Leu Lys Tyr Ile
            20                  25                  30

Asn Val Gly Asp Leu Ala Arg Glu Glu Gln Leu Tyr Asp Gly Tyr Asp
        35                  40                  45

Glu Glu Tyr Asp Cys Pro Ile Leu Asp Glu Asp Arg Val Val Asp Glu
    50                  55                  60

Leu Asp Asn Gln Met Arg Glu Gly Gly Val Ile Val Asp Tyr His Gly
65                  70                  75                  80

Cys Asp Phe Phe Pro Glu Arg Trp Phe His Ile Val Phe Val Leu Arg
                85                  90                  95

Thr Asp Thr Asn Val Leu Tyr Glu Arg Leu Glu Thr Arg Gly Tyr Asn
            100                 105                 110

Glu Lys Lys Leu Thr Asp Asn Ile Gln Cys Glu Ile Phe Gln Val Leu
        115                 120                 125

Tyr Glu Glu Ala Thr Ala Ser Tyr Lys Glu Glu Ile Val His Gln Leu
    130                 135                 140

Pro Ser Asn Lys Pro Glu Glu Leu Glu Asn Asn Val Asp Gln Ile Leu
145                 150                 155                 160

Lys Trp Ile Glu Gln Trp Ile Lys Asp His Asn Ser
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165 170

<210> 2875
<211> 141
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 663; "

<220>
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<223> /note="Gene Symbol: AK6; "

<220>
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<223> /note="Gene Name:
adenylate kinase 6; "

<220>
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<223> /note="ENSP ID: ENSP00000420947"

<400> 2875
Met Leu Leu Pro Asn Ile Leu Leu Thr Glu Gln Leu Tyr Asp Gly Tyr
1 5 10 15

Asp Glu Glu Tyr Asp Cys Pro Ile Leu Asp Glu Asp Arg Val Val Asp
20 25 30

Glu Leu Asp Asn Gln Met Arg Glu Gly Gly Val Ile Val Asp Tyr His
35 40 45

Gly Cys Asp Phe Phe Pro Glu Arg Trp Phe His Ile Val Phe Val Leu
50 55 60

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

Asn Glu Lys Lys Leu Thr Asp Asn Ile Gln Cys Glu Ile Phe Gln Val
85 90 95

Leu Tyr Glu Glu Ala Thr Ala Ser Tyr Lys Glu Glu Ile Val His Gln
100 105 110

Leu Pro Ser Asn Lys Pro Glu Glu Leu Glu Asn Asn Val Asp Gln Ile
115 120 125

Leu Lys Trp Ile Glu Gln Trp Ile Lys Asp His Asn Ser
130 135 140

<210> 2876
<211> 264
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adenylate kinase 6; "

<220>
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<223> /note="ENSP ID: ENSP00000477611"

<400> 2876
Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1 5 10 15

Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
20 25 30

Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
35 40 45

Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
50 55 60

Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65 70 75 80

Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
85 90 95

Arg Gln Arg Asn Gln Thr Pro Leu Pro Leu Ile Lys Pro Tyr Ser Gly
100 105 110

Pro Arg Leu Pro Pro Asp Arg Tyr Cys Leu Thr Ala Pro Asn Tyr Arg

```
        115                 120                 125

Leu Lys Ser Leu Gln Lys Lys Ala Ser Thr Ser Ala Gly Arg Ile Thr
    130                 135                 140

Val Pro Arg Leu Ser Val Gly Ser Val Thr Ser Arg Pro Ser Thr Pro
145                 150                 155                 160

Thr Leu Gly Thr Pro Thr Pro Gln Thr Met Ser Val Ser Thr Lys Val
                165                 170                 175

Gly Thr Pro Met Ser Leu Thr Gly Gln Arg Phe Thr Val Gln Met Pro
            180                 185                 190

Thr Ser Gln Ser Pro Ala Val Lys Ala Ser Ile Pro Ala Thr Ser Ala
        195                 200                 205

Val Gln Asn Val Leu Ile Asn Pro Ser Leu Ile Gly Ser Lys Asn Ile
    210                 215                 220

Leu Ile Thr Thr Asn Met Met Ser Ser Gln Asn Thr Ala Asn Glu Ser
225                 230                 235                 240

Ser Asn Ala Leu Lys Arg Lys Arg Glu Asp Asp Asp Asp Asp Asp Asp
                245                 250                 255

Asp Asp Asp Asp Tyr Asp Asn Leu
            260
```

<210> 2877
<211> 264
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477750"

<400> 2877
Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1   5   10   15

Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
            20   25   30

Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
        35   40   45

Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
    50   55   60

Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65   70   75   80

Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
                85   90   95

Arg Gln Arg Asn Gln Thr Pro Leu Pro Leu Ile Lys Pro Tyr Ser Gly
            100   105   110

Pro Arg Leu Pro Pro Asp Arg Tyr Cys Leu Thr Ala Pro Asn Tyr Arg
        115   120   125

Leu Lys Ser Leu Gln Lys Lys Ala Ser Thr Ser Ala Gly Arg Ile Thr
    130   135   140

Val Pro Arg Leu Ser Val Gly Ser Val Thr Ser Arg Pro Ser Thr Pro
145   150   155   160

Thr Leu Gly Thr Pro Thr Pro Gln Thr Met Ser Val Ser Thr Lys Val
                165   170   175

Gly Thr Pro Met Ser Leu Thr Gly Gln Arg Phe Thr Val Gln Met Pro
            180   185   190

Thr Ser Gln Ser Pro Ala Val Lys Ala Ser Ile Pro Ala Thr Ser Ala
        195   200   205

```
Val Gln Asn Val Leu Ile Asn Pro Ser Leu Ile Gly Ser Lys Asn Ile
    210                 215                 220

Leu Ile Thr Thr Asn Met Met Ser Ser Gln Asn Thr Ala Asn Glu Ser
225                 230                 235                 240

Ser Asn Ala Leu Lys Arg Lys Arg Glu Asp Asp Asp Asp Asp Asp Asp
                245                 250                 255

Asp Asp Asp Asp Tyr Asp Asn Leu
            260
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<210> 2878
<211> 102
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 663; "

<220>
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<223> /note="Gene Symbol: AK6; "

<220>
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<223> /note="Gene Name:
adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478838"

<400> 2878

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Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1               5                   10                  15

Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
            20                  25                  30

Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
        35                  40                  45

Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
    50                  55                  60

Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65                  70                  75                  80
```

```
Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
                85                  90                  95


Arg Gln Arg Asn Gln Thr
            100


<210> 2879
<211> 264
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478935"

<400> 2879
Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1               5                  10                  15


Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
            20                  25                  30


Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
        35                  40                  45


Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
    50                  55                  60


Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65                  70                  75                  80


Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
                85                  90                  95
```

```
Arg Gln Arg Asn Gln Thr Pro Leu Pro Leu Ile Lys Pro Tyr Ser Gly
            100                 105                 110

Pro Arg Leu Pro Pro Asp Arg Tyr Cys Leu Thr Ala Pro Asn Tyr Arg
        115                 120                 125

Leu Lys Ser Leu Gln Lys Lys Ala Ser Thr Ser Ala Gly Arg Ile Thr
    130                 135                 140

Val Pro Arg Leu Ser Val Gly Ser Val Thr Ser Arg Pro Ser Thr Pro
145                 150                 155                 160

Thr Leu Gly Thr Pro Thr Pro Gln Thr Met Ser Val Ser Thr Lys Val
                165                 170                 175

Gly Thr Pro Met Ser Leu Thr Gly Gln Arg Phe Thr Val Gln Met Pro
            180                 185                 190

Thr Ser Gln Ser Pro Ala Val Lys Ala Ser Ile Pro Ala Thr Ser Ala
        195                 200                 205

Val Gln Asn Val Leu Ile Asn Pro Ser Leu Ile Gly Ser Lys Asn Ile
    210                 215                 220

Leu Ile Thr Thr Asn Met Met Ser Ser Gln Asn Thr Ala Asn Glu Ser
225                 230                 235                 240

Ser Asn Ala Leu Lys Arg Lys Arg Glu Asp Asp Asp Asp Asp Asp Asp
                245                 250                 255

Asp Asp Asp Asp Tyr Asp Asn Leu
            260
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<210> 2880
<211> 109
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479366"

<400> 2880
Met Leu Leu Pro Asn Ile Leu Leu Thr Gly Thr Pro Gly Val Gly Lys
1 5 10 15

Thr Thr Leu Gly Lys Glu Leu Ala Ser Lys Ser Gly Leu Lys Tyr Ile
20 25 30

Asn Val Gly Asp Leu Ala Arg Glu Glu Gln Leu Tyr Asp Gly Tyr Asp
35 40 45

Glu Glu Tyr Asp Cys Pro Ile Leu Asp Glu Asp Arg Val Val Asp Glu
50 55 60

Leu Asp Asn Gln Met Arg Glu Gly Gly Val Ile Val Asp Tyr His Gly
65 70 75 80

Cys Asp Phe Phe Pro Glu Arg Trp Phe His Ile Val Phe Val Leu Arg
85 90 95

Thr Asp Thr Asn Val Leu Tyr Glu Arg Leu Glu Thr Arg
100 105

<210> 2881
<211> 127
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 6; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000480119"

<400> 2881
Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1   5   10   15

Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
            20   25   30

Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
        35   40   45

Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
    50   55   60

Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65   70   75   80

Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
                85   90   95

Arg Gln Arg Asn Gln Thr Pro Leu Pro Leu Ile Lys Pro Tyr Ser Gly
            100   105   110

Pro Arg Leu Pro Pro Asp Arg Tyr Cys Leu Thr Ala Pro Asn Tyr
        115   120   125

<210> 2882
<211> 197
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481041"

<400> 2882
Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1 5 10 15

Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
20 25 30

Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
35 40 45

Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
50 55 60

Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65 70 75 80

Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
85 90 95

Arg Gln Arg Asn Gln Thr Pro Leu Pro Leu Ile Lys Pro Tyr Ser Gly
100 105 110

Pro Arg Leu Pro Pro Asp Arg Tyr Cys Leu Thr Ala Pro Asn Tyr Arg
115 120 125

Leu Lys Ser Leu Gln Lys Lys Ala Ser Thr Ser Ala Gly Arg Ile Thr
130 135 140

Val Pro Arg Leu Ser Val Gly Ser Val Thr Ser Arg Pro Ser Thr Pro
145 150 155 160

Thr Leu Gly Thr Pro Thr Pro Gln Thr Met Ser Val Ser Thr Lys Val
165 170 175

Gly Thr Pro Met Ser Leu Thr Gly Gln Arg Phe Thr Val Gln Met Pro
180 185 190

Thr Ser Gln Ser Pro
195

<210> 2883
<211> 47
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481620"

<400> 2883
Met Leu Leu Pro Asn Ile Leu Leu Thr Gly Thr Pro Gly Val Gly Lys
1 5 10 15

Thr Thr Leu Gly Lys Glu Leu Ala Ser Lys Ser Gly Leu Lys Tyr Ile
20 25 30

Asn Val Gly Asp Leu Ala Arg Glu Gly Val Ile Met Arg Arg Asn
35 40 45

<210> 2884
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482215"

<400> 2884
Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1 5 10 15

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Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
            20                  25                  30

Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
        35                  40                  45

Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
    50                  55                  60

Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65                  70                  75                  80

Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
                85                  90                  95

Arg Gln Arg Asn Gln Thr Pro Leu Pro Leu Ile Lys Pro Tyr Ser Gly
            100                 105                 110

Pro Arg Leu Pro Pro Asp Arg Tyr Cys Leu Thr Ala Pro Asn Tyr Arg
        115                 120                 125

Leu Lys Ser Leu Gln Lys Lys
    130                 135


<210> 2885
<211> 166
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 663; "

<220>
<221> source
<223> /note="Gene Symbol: AK6; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483457"

<400> 2885
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```
Met Glu Ser Gly Lys Thr Ala Ser Pro Lys Ser Met Pro Lys Asp Ala
1               5                   10                  15

Gln Met Met Ala Gln Ile Leu Lys Asp Met Gly Ile Thr Glu Tyr Glu
            20                  25                  30

Pro Arg Val Ile Asn Gln Met Leu Glu Phe Ala Phe Arg Tyr Val Thr
        35                  40                  45

Thr Ile Leu Asp Asp Ala Lys Ile Tyr Ser Ser His Ala Lys Lys Ala
    50                  55                  60

Thr Val Asp Ala Asp Asp Val Arg Leu Ala Ile Gln Cys Arg Ala Asp
65                  70                  75                  80

Gln Ser Phe Thr Ser Pro Pro Pro Arg Asp Phe Leu Leu Asp Ile Ala
                85                  90                  95

Arg Gln Arg Asn Gln Thr Pro Leu Pro Leu Ile Lys Pro Tyr Ser Gly
            100                 105                 110

Pro Arg Leu Pro Pro Asp Arg Tyr Cys Leu Thr Ala Pro Asn Tyr Arg
        115                 120                 125

Leu Lys Ser Leu Gln Lys Lys Ala Ser Thr Ser Ala Gly Arg Ile Thr
    130                 135                 140

Val Pro Arg Leu Ser Val Gly Ser Val Thr Ser Arg Pro Ser Thr Pro
145                 150                 155                 160

Thr Leu Gly Thr Pro Thr
                165
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<210> 2886
<211> 723
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 664; "

<220>
<221> source
<223> /note="Gene Symbol: AK7; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q96M32; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000267584"

<400> 2886
Met Ala Glu Glu Glu Glu Thr Ala Ala Leu Thr Glu Lys Val Ile Arg
1   5   10   15

Thr Gln Arg Val Phe Ile Asn Leu Leu Asp Ser Tyr Ser Ser Gly Asn
            20   25   30

Ile Gly Lys Phe Leu Ser Asn Cys Val Val Gly Ala Ser Leu Glu Glu
        35   40   45

Ile Thr Glu Glu Glu Glu Glu Glu Asp Glu Asn Lys Ser Ala Met Leu
    50   55   60

Glu Ala Ser Ser Thr Lys Val Lys Glu Gly Thr Phe Gln Ile Val Gly
65   70   75   80

Thr Leu Ser Lys Pro Asp Ser Pro Arg Pro Asp Phe Ala Val Glu Thr
                85   90   95

Tyr Ser Ala Ile Ser Arg Glu Asp Leu Leu Met Arg Leu Leu Glu Cys
            100   105   110

Asp Val Ile Ile Tyr Asn Ile Thr Glu Ser Ser Gln Gln Met Glu Glu
        115   120   125

Ala Ile Trp Ala Val Ser Ala Leu Ser Glu Glu Val Ser His Phe Glu
    130   135   140

Lys Arg Lys Leu Phe Ile Leu Leu Ser Thr Val Met Thr Trp Ala Arg
145   150   155   160

Ser Lys Ala Leu Asp Pro Glu Asp Ser Glu Val Pro Phe Thr Glu Glu
                165   170   175

```
Asp Tyr Arg Arg Arg Lys Ser His Pro Asn Phe Leu Asp His Ile Asn
            180                 185                 190

Ala Glu Lys Met Val Leu Lys Phe Gly Lys Lys Ala Arg Lys Phe Ala
        195                 200                 205

Ala Tyr Val Val Ala Ala Gly Leu Gln Tyr Gly Ala Glu Gly Gly Met
    210                 215                 220

Leu His Thr Phe Phe Lys Met Ala Trp Leu Gly Glu Ile Pro Ala Leu
225                 230                 235                 240

Pro Val Phe Gly Asp Gly Thr Asn Val Ile Pro Thr Ile His Val Leu
                245                 250                 255

Asp Leu Ala Gly Val Ile Gln Asn Val Ile Asp His Val Pro Lys Pro
            260                 265                 270

His Tyr Leu Val Ala Val Asp Glu Ser Val His Thr Leu Glu Asp Ile
        275                 280                 285

Val Lys Cys Ile Ser Lys Asn Thr Gly Pro Gly Lys Ile Gln Lys Ile
    290                 295                 300

Pro Arg Glu Asn Ala Tyr Leu Thr Lys Asp Leu Thr Gln Asp Cys Leu
305                 310                 315                 320

Asp His Leu Leu Val Asn Leu Arg Met Glu Ala Leu Phe Val Lys Glu
                325                 330                 335

Asn Phe Asn Ile Arg Trp Ala Ala Gln Thr Gly Phe Val Glu Asn Ile
            340                 345                 350

Asn Thr Ile Leu Lys Glu Tyr Lys Gln Ser Arg Gly Leu Met Pro Ile
        355                 360                 365

Lys Ile Cys Ile Leu Gly Pro Pro Ala Val Gly Lys Ser Ser Ile Ala
    370                 375                 380

Lys Glu Leu Ala Asn Tyr Tyr Lys Leu His His Ile Gln Leu Lys Asp
385                 390                 395                 400
```

```
Val Ile Ser Glu Ala Ile Ala Lys Leu Glu Ala Ile Val Ala Pro Asn
                405                 410                 415

Asp Val Gly Glu Gly Glu Glu Glu Val Glu Glu Glu Glu Glu Glu Glu
            420                 425                 430

Asn Val Glu Asp Ala Gln Glu Leu Leu Asp Gly Ile Lys Glu Ser Met
        435                 440                 445

Glu Gln Asn Ala Gly Gln Leu Asp Asp Gln Tyr Ile Ile Arg Phe Met
    450                 455                 460

Lys Glu Lys Leu Lys Ser Met Pro Cys Arg Asn Gln Gly Tyr Ile Leu
465                 470                 475                 480

Asp Gly Phe Pro Lys Thr Tyr Asp Gln Ala Lys Asp Leu Phe Asn Gln
                485                 490                 495

Glu Asp Glu Glu Glu Glu Asp Asp Val Arg Gly Arg Met Phe Pro Phe
            500                 505                 510

Asp Lys Leu Ile Ile Pro Glu Phe Val Cys Ala Leu Asp Ala Ser Asp
        515                 520                 525

Glu Phe Leu Lys Glu Arg Val Ile Asn Leu Pro Glu Ser Ile Val Ala
    530                 535                 540

Gly Thr His Tyr Ser Gln Asp Arg Phe Leu Arg Ala Leu Ser Asn Tyr
545                 550                 555                 560

Arg Asp Ile Asn Ile Asp Asp Glu Thr Val Phe Asn Tyr Phe Asp Glu
                565                 570                 575

Leu Glu Ile His Pro Ile His Ile Asp Val Gly Lys Leu Glu Asp Ala
            580                 585                 590

Gln Asn Arg Leu Ala Ile Lys Gln Leu Ile Lys Glu Ile Gly Glu Pro
        595                 600                 605

Arg Asn Tyr Gly Leu Thr Asp Glu Glu Lys Ala Glu Glu Glu Arg Lys
    610                 615                 620

Ala Ala Glu Glu Arg Leu Ala Arg Glu Ala Ala Glu Glu Ala Glu Arg
```

625 630 635 640

Glu His Gln Glu Ala Val Glu Met Ala Glu Lys Ile Ala Arg Trp Glu
645 650 655

Glu Trp Asn Lys Arg Leu Glu Glu Val Lys Arg Glu Glu Arg Glu Leu
660 665 670

Leu Glu Ala Gln Ser Ile Pro Leu Arg Asn Tyr Leu Met Thr Tyr Val
675 680 685

Met Pro Thr Leu Ile Gln Gly Leu Asn Glu Cys Cys Asn Val Arg Pro
690 695 700

Glu Asp Pro Val Asp Phe Leu Ala Glu Tyr Leu Phe Lys Asn Asn Pro
705 710 715 720

Glu Ala Gln

<210> 2887
<211> 152
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 664; "

<220>
<221> source
<223> /note="Gene Symbol: AK7; "

<220>
<221> source
<223> /note="Gene Name:
adenylate kinase 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450453"

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

<400> 2887
Xaa Leu Leu Val Phe Lys Asp Val Gly Lys Leu Glu Asp Ala Gln Asn

```
1               5                   10                  15

Arg Leu Ala Ile Lys Gln Leu Ile Lys Glu Ile Gly Glu Pro Arg Asn
            20                  25                  30

Tyr Gly Leu Thr Asp Glu Glu Lys Ala Glu Glu Glu Arg Lys Ala Ala
        35                  40                  45

Glu Glu Arg Leu Ala Arg Glu Ala Ala Glu Glu Ala Glu Arg Glu His
    50                  55                  60

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

Asn Lys Arg Leu Glu Glu Val Lys Arg Glu Glu Arg Glu Leu Leu Glu
                85                  90                  95

Ala Gln Ser Ile Pro Leu Arg Asn Tyr Leu Met Thr Tyr Val Met Pro
            100                 105                 110

Thr Leu Ile Gln Gly Leu Asn Glu Cys Cys Asn Val Arg Pro Glu Asp
        115                 120                 125

Pro Val Asp Phe Leu Val Gly Met Gln Trp His Asn Leu Gly Leu Leu
    130                 135                 140

Gln Pro Pro Pro Pro Gly Phe Lys
145                 150


<210> 2888
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 664; "

<220>
<221> source
<223> /note="Gene Symbol: AK7; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 7; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000451068"

<400> 2888
Met Ala Glu Glu Glu Glu Thr Ala Ala Leu Thr Glu Lys Val Ile Arg
1   5   10   15

Thr Gln Arg Val Phe Ile Asn Leu Leu Asp Ser Tyr Ser Ser Gly Asn
            20   25   30

Ile Gly Lys Phe Leu Ser Asn Cys Val Val Gly Ala Ser Leu Glu Glu
        35   40   45

Ile Thr Glu Glu Glu Glu Glu Glu Asp Glu Asn Lys Ser Ala Met Leu
    50   55   60

Glu Ala Ser Ser Thr Lys Val Lys Glu Gly Thr Phe Gln Ile Val Gly
65   70   75   80

Thr Leu Ser Lys Pro Asp Ser Pro Arg Pro Asp Phe Ala Val Glu Thr
                85   90   95

Tyr Ser Val Ser Pro Gly Gly Ser Gly Gln Glu
            100   105

<210> 2889
<211> 479
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 665; "

<220>
<221> source
<223> /note="Gene Symbol: AK8; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q96MA6; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000298545"

<400> 2889

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Met Asp Ala Thr Ile Ala Pro His Arg Ile Pro Pro Glu Met Pro Gln
1               5                  10                  15

Tyr Gly Glu Glu Asn His Ile Phe Glu Leu Met Gln Asn Met Leu Glu
            20                  25                  30

Gln Leu Leu Ile His Gln Pro Glu Asp Pro Ile Pro Phe Met Ile Gln
        35                  40                  45

His Leu His Arg Asp Asn Asp Asn Val Pro Arg Ile Val Ile Leu Gly
    50                  55                  60

Pro Pro Ala Ser Gly Lys Thr Thr Ile Ala Met Trp Leu Cys Lys His
65                  70                  75                  80

Leu Asn Ser Ser Leu Leu Thr Leu Glu Asn Leu Ile Leu Asn Glu Phe
                85                  90                  95

Ser Tyr Thr Ala Thr Glu Ala Arg Arg Leu Tyr Leu Gln Arg Lys Thr
            100                 105                 110

Val Pro Ser Ala Leu Leu Val Gln Leu Ile Gln Glu Arg Leu Ala Glu
        115                 120                 125

Glu Asp Cys Ile Lys Gln Gly Trp Ile Leu Asp Gly Ile Pro Glu Thr
    130                 135                 140

Arg Glu Gln Ala Leu Arg Ile Gln Thr Leu Gly Ile Thr Pro Arg His
145                 150                 155                 160

Val Ile Val Leu Ser Ala Pro Asp Thr Val Leu Ile Glu Arg Asn Leu
                165                 170                 175

Gly Lys Arg Ile Asp Pro Gln Thr Gly Glu Ile Tyr His Thr Thr Phe
            180                 185                 190

Asp Trp Pro Pro Glu Ser Glu Ile Gln Asn Arg Leu Met Val Pro Glu
        195                 200                 205

Asp Ile Ser Glu Leu Glu Thr Ala Gln Lys Leu Leu Glu Tyr His Arg
    210                 215                 220
```

```
Asn Ile Val Arg Val Ile Pro Ser Tyr Pro Lys Ile Leu Lys Val Ile
225                 230                 235                 240

Ser Ala Asp Gln Pro Cys Val Asp Val Phe Tyr Gln Ala Leu Thr Tyr
                245                 250                 255

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

Leu Leu Gly Pro Val Gly Ser Gly Lys Ser Leu Gln Ala Ala Leu Leu
        275                 280                 285

Ala Gln Lys Tyr Arg Leu Val Asn Val Cys Cys Gly Gln Leu Leu Lys
    290                 295                 300

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

Phe Glu Lys Glu Met Ala Val Pro Asp Ser Leu Leu Met Lys Val Leu
                325                 330                 335

Ser Gln Arg Leu Asp Gln Gln Asp Cys Ile Gln Lys Gly Trp Val Leu
            340                 345                 350

His Gly Val Pro Arg Asp Leu Asp Gln Ala His Leu Leu Asn Arg Leu
        355                 360                 365

Gly Tyr Asn Pro Asn Arg Val Phe Phe Leu Asn Val Pro Phe Asp Ser
    370                 375                 380

Ile Met Glu Arg Leu Thr Leu Arg Arg Ile Asp Pro Val Thr Gly Glu
385                 390                 395                 400

Arg Tyr His Leu Met Tyr Lys Pro Pro Pro Thr Met Glu Ile Gln Ala
                405                 410                 415

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

Met Asp Leu Phe Tyr Arg Asn Ser Ala Asp Leu Glu Gln Leu Tyr Gly
        435                 440                 445
```

Ser Ala Ile Thr Leu Asn Gly Asp Gln Asp Pro Tyr Thr Val Phe Glu
    450   455   460

Tyr Ile Glu Ser Gly Ile Ile Asn Pro Leu Pro Lys Lys Ile Pro
465   470   475

<210> 2890
<211> 421
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 666; "

<220>
<221> source
<223> /note="Gene Symbol: AK9; "

<220>
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<223> /note="Gene Name:
      adenylate kinase 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q5TCS8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000285397"

<400> 2890
Met Thr Ser Gln Glu Lys Thr Glu Glu Tyr Pro Phe Ala Asp Ile Phe
1   5   10   15

Asp Glu Asp Glu Thr Glu Arg Asn Phe Leu Leu Ser Lys Pro Val Cys
            20   25   30

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

Tyr Ile Thr Gln Ala Trp Lys Cys Ile Arg Val Glu Ala Leu Pro Ile
    50   55   60

Leu Glu Glu Gln Ile Ala Ala Glu Thr Glu Ser Gly Val Met Leu Gln
65   70   75   80

Ser Met Leu Ile Ser Gly Gln Ser Ile Pro Asp Glu Leu Val Ile Lys

```
                85                  90                  95

Leu Met Leu Glu Lys Leu Asn Ser Pro Glu Val Cys His Phe Gly Tyr
            100                 105                 110

Ile Ile Thr Glu Ile Pro Ser Leu Ser Gln Asp Ala Met Thr Thr Leu
        115                 120                 125

Gln Gln Ile Glu Leu Ile Lys Asn Leu Asn Leu Lys Pro Asp Val Ile
    130                 135                 140

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

Gln Arg Gln His Asn Asn Thr Gly Tyr Ile Tyr Ser Arg Asp Gln Trp
                165                 170                 175

Asp Pro Glu Val Ile Glu Asn His Arg Lys Lys Lys Lys Glu Ala Gln
            180                 185                 190

Lys Asp Gly Lys Gly Glu Glu Glu Glu Glu Glu Glu Glu Gln Glu Glu
        195                 200                 205

Glu Glu Ala Phe Ile Ala Glu Met Gln Met Val Ala Glu Ile Leu His
    210                 215                 220

His Leu Val Gln Arg Pro Glu Asp Tyr Leu Glu Asn Val Glu Asn Ile
225                 230                 235                 240

Val Lys Leu Tyr Lys Glu Thr Ile Leu Gln Thr Leu Glu Glu Val Met
                245                 250                 255

Ala Glu His Asn Pro Gln Tyr Leu Ile Glu Leu Asn Gly Asn Lys Pro
            260                 265                 270

Ala Glu Glu Leu Phe Met Ile Val Met Asp Arg Leu Lys Tyr Leu Asn
        275                 280                 285

Leu Lys Arg Ala Ala Ile Leu Thr Lys Leu Gln Gly Ala Glu Glu Glu
    290                 295                 300

Ile Asn Asp Thr Met Glu Asn Asp Glu Leu Phe Arg Thr Leu Ala Ser
305                 310                 315                 320
```

```
Tyr Lys Leu Ile Ala Pro Arg Tyr Arg Trp Gln Arg Ser Lys Trp Gly
                325                 330                 335

Arg Thr Cys Pro Val Asn Leu Lys Asp Gly Asn Ile Tyr Ser Gly Leu
            340                 345                 350

Pro Asp Tyr Ser Val Ser Phe Leu Gly Lys Ile Tyr Cys Leu Ser Ser
        355                 360                 365

Glu Glu Ala Leu Lys Pro Phe Leu Leu Asn Pro Arg Pro Tyr Leu Leu
    370                 375                 380

Pro Pro Met Pro Gly Pro Pro Cys Lys Val Phe Ile Leu Gly Pro Gln
385                 390                 395                 400

Tyr Ser Gly Lys Thr Thr Leu Cys Asn Met Leu Ala Glu Asn Tyr Lys
                405                 410                 415

Gly Lys Val Thr Asn
            420


<210> 2891
<211> 336
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 666; "

<220>
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<223> /note="Gene Symbol: AK9; "

<220>
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<223> /note="Gene Name:
      adenylate kinase 9; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5TCS8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000347431"

<400> 2891
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Met Lys Glu Arg Lys Arg His Leu Gly Asp Thr Lys His Phe Cys Pro
1               5                  10                  15

Val Val Leu Lys Glu Asn Phe Ile Leu Gln Pro Gly Asn Thr Glu Glu
            20                  25                  30

Ala Ala Lys Tyr Arg Glu Lys Ile Tyr Tyr Phe Ser Ser Ala Glu Ala
        35                  40                  45

Lys Glu Lys Phe Leu Glu His Pro Glu Asp Tyr Val Ala His Glu Glu
    50                  55                  60

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

Ser Gly Lys Thr Met Cys Gly Arg Gln Leu Ala Glu Lys Leu Asn Ile
                85                  90                  95

Phe His Ile Gln Phe Glu Glu Val Leu Gln Glu Lys Leu Leu Leu Lys
            100                 105                 110

Thr Glu Lys Lys Val Gly Pro Glu Phe Glu Glu Asp Ser Glu Asn Glu
        115                 120                 125

Gln Ala Ala Lys Gln Glu Leu Glu Glu Leu Ala Ile Gln Ala Asn Val
    130                 135                 140

Lys Val Glu Glu Glu Asn Thr Lys Lys Gln Leu Pro Glu Val Gln Leu
145                 150                 155                 160

Thr Glu Glu Glu Glu Val Ile Lys Ser Ser Leu Met Glu Asn Glu Pro
                165                 170                 175

Leu Pro Pro Glu Ile Leu Glu Val Ile Leu Ser Glu Trp Trp Leu Lys
            180                 185                 190

Glu Pro Ile Arg Ser Thr Gly Phe Ile Leu Asp Gly Phe Pro Arg Tyr
        195                 200                 205

Pro Glu Glu Ala Gln Phe Leu Gly Asp Arg Gly Phe Phe Pro Asp Ala
    210                 215                 220

Ala Val Phe Ile Gln Val Asp Asp Gln Asp Ile Phe Asp Arg Leu Leu
```

```
225                 230                 235                 240

Pro Ala Gln Ile Glu Lys Trp Lys Leu Lys Gln Lys Lys Lys Leu Glu
                245                 250                 255

Arg Lys Lys Leu Ile Lys Asp Met Lys Ala Lys Ile Arg Val Asp Thr
            260                 265                 270

Ile Ala Lys Arg Arg Ala Glu Leu Ile Leu Glu Arg Asp Lys Lys Arg
        275                 280                 285

Arg Glu Val Ser Ser Phe Val Phe Phe Phe Lys Thr Gly Ser His Ser
    290                 295                 300

Val Ala Gln Gly Arg Val Gln Trp His Asn His Ser Ser Leu Gln Pro
305                 310                 315                 320

Arg Thr Pro Gly Leu Lys Gly Ser Ser His Leu Ser Leu Ser Lys Cys
                325                 330                 335


<210> 2892
<211> 736
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 666; "

<220>
<221> source
<223> /note="Gene Symbol: AK9; "

<220>
<221> source
<223> /note="Gene Name:
      adenylate kinase 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357944"

<400> 2892
Met Thr Ser Gln Glu Lys Thr Glu Glu Tyr Pro Phe Ala Asp Ile Phe
1               5                   10                  15

Asp Glu Asp Glu Thr Glu Arg Asn Phe Leu Leu Ser Lys Pro Val Cys
            20                  25                  30
```

```
Phe Val Val Phe Gly Lys Pro Gly Val Gly Lys Thr Thr Leu Ala Arg
        35                  40                  45

Tyr Ile Thr Gln Ala Trp Lys Cys Ile Arg Val Glu Ala Leu Pro Ile
    50                  55                  60

Leu Glu Glu Gln Ile Ala Ala Glu Thr Glu Ser Gly Val Met Leu Gln
65                  70                  75                  80

Ser Met Leu Ile Ser Gly Gln Ser Ile Pro Asp Glu Leu Val Ile Lys
                85                  90                  95

Leu Met Leu Glu Lys Leu Asn Ser Pro Glu Val Cys His Phe Gly Tyr
            100                 105                 110

Ile Ile Thr Glu Ile Pro Ser Leu Ser Gln Asp Ala Met Thr Thr Leu
        115                 120                 125

Gln Gln Ile Glu Leu Ile Lys Asn Leu Asn Leu Lys Pro Asp Val Ile
    130                 135                 140

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

Gln Arg Gln His Asn Asn Thr Gly Tyr Ile Tyr Ser Arg Asp Gln Trp
                165                 170                 175

Asp Pro Glu Val Ile Glu Asn His Arg Lys Lys Lys Lys Glu Ala Gln
            180                 185                 190

Lys Asp Gly Lys Gly Glu Glu Glu Glu Glu Glu Glu Glu Gln Glu Glu
        195                 200                 205

Glu Glu Ala Phe Ile Ala Glu Met Gln Met Val Ala Glu Ile Leu His
    210                 215                 220

His Leu Val Gln Arg Pro Glu Asp Tyr Leu Glu Asn Val Glu Asn Ile
225                 230                 235                 240

Val Lys Leu Tyr Lys Glu Thr Ile Leu Gln Thr Leu Glu Glu Val Met
                245                 250                 255
```

```
Ala Glu His Asn Pro Gln Tyr Leu Ile Glu Leu Asn Gly Asn Lys Pro
            260                 265                 270

Ala Glu Glu Leu Phe Met Ile Val Met Asp Arg Leu Lys Tyr Leu Asn
        275                 280                 285

Leu Lys Arg Ala Ala Ile Leu Thr Lys Leu Gln Gly Ala Glu Glu Glu
    290                 295                 300

Ile Asn Asp Thr Met Glu Asn Asp Glu Leu Phe Arg Thr Leu Ala Ser
305                 310                 315                 320

Tyr Lys Leu Ile Ala Pro Arg Tyr Arg Trp Gln Arg Ser Lys Trp Gly
                325                 330                 335

Arg Thr Cys Pro Val Asn Leu Lys Asp Gly Asn Ile Tyr Ser Gly Leu
            340                 345                 350

Pro Asp Tyr Ser Val Ser Phe Leu Gly Lys Ile Tyr Cys Leu Ser Ser
        355                 360                 365

Glu Glu Ala Leu Lys Pro Phe Leu Leu Asn Pro Arg Pro Tyr Leu Leu
    370                 375                 380

Pro Pro Met Pro Gly Pro Pro Cys Lys Val Phe Ile Leu Gly Pro Gln
385                 390                 395                 400

Tyr Ser Gly Lys Thr Thr Leu Cys Asn Met Leu Ala Glu Asn Tyr Lys
                405                 410                 415

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

Ala Arg Glu Thr Leu Val Glu Asn Thr Ile Ala Glu Ala Thr Ala Ala
        435                 440                 445

Ala Ile Lys Val Val Lys Glu Lys Leu Leu Arg Glu Leu Gln Ala Arg
    450                 455                 460

Lys Gln Ala Glu Thr Ala Leu Arg Glu Phe Gln Arg Gln Tyr Glu Lys
465                 470                 475                 480

Met Glu Phe Gly Val Phe Pro Met Glu Ala Thr His Ser Ser Ile Asp
```

485 490 495

Glu Glu Gly Tyr Ile Gln Gly Ser Gln Arg Asp Arg Gly Ser Ser Leu
500 505 510

Val Asp Thr Glu Glu Ala Lys Thr Lys Ser Glu Asn Val Leu His Asp
515 520 525

Gln Ala Ala Lys Val Asp Lys Asp Asp Gly Lys Glu Thr Gly Glu Thr
530 535 540

Phe Thr Phe Lys Arg His Ser Gln Asp Ala Ser Gln Asp Val Lys Leu
545 550 555 560

Tyr Ser Asp Thr Ala Pro Thr Glu Asp Leu Ile Glu Glu Val Thr Ala
565 570 575

Asp His Pro Glu Val Val Thr Met Ile Glu Glu Thr Ile Lys Met Ser
580 585 590

Gln Asp Ile Asn Phe Glu Gln Pro Tyr Glu Lys His Ala Glu Ile Leu
595 600 605

Gln Glu Val Leu Gly Glu Val Met Glu Glu Asn Lys Asp Arg Phe Pro
610 615 620

Gly Ala Pro Lys Tyr Gly Gly Trp Ile Val Asp Asn Cys Pro Ile Val
625 630 635 640

Lys Glu Leu Trp Met Ala Leu Ile Lys Lys Gly Ile Ile Pro Asp Leu
645 650 655

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

Arg Ile Tyr Leu Gln Lys Lys Ser Glu Ile Asp Ser Lys Ile Leu Glu
675 680 685

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

Arg Lys Ala Thr Glu Glu Glu Leu Arg Leu Glu Glu Glu Asn Arg Arg
705 710 715 720

```
Leu Leu Glu Leu Met Lys Val Lys Ala Lys Gly Lys His Arg Leu Leu
                725                 730                 735


<210> 2893
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 666; "

<220>
<221> source
<223> /note="Gene Symbol: AK9; "

<220>
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<223> /note="Gene Name:
      adenylate kinase 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407510"

<400> 2893
Met Leu Gln Ser Met Leu Ile Ser Gly Gln Ser Ile Pro Asp Glu Leu
1               5                   10                  15


Val Ile Lys Leu Met Leu Glu Lys Leu Asn Ser Pro Glu Val Cys His
            20                  25                  30


Phe Gly Tyr Ile Ile Thr Glu Ile Pro Ser Leu Ser Gln Asp Ala Met
        35                  40                  45


Thr Thr Leu Gln Gln Ile Glu Leu Ile Lys Asn Leu Asn Leu Lys Pro
    50                  55                  60


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


Ile Ser Gly Gln Arg Gln His Asn Asn Thr Gly Tyr Ile Tyr Ser Arg
                85                  90                  95


Asp Gln Trp Asp Pro Glu Val Ile Glu Asn His Arg Lys Lys Lys Lys
            100                 105                 110
```

```
Glu Ala Gln Lys Asp Gly Lys Gly Glu Glu Glu Glu Glu Glu Glu Glu
        115                 120                 125

Gln Glu Glu Glu Glu Ala Phe Ile Ala Glu Met Gln Met Val Ala Glu
    130                 135                 140

Ile Leu His His Leu Val Gln Arg Pro Glu Asp Tyr Leu Glu Asn Val
145                 150                 155                 160

Glu Asn Ile Val Lys Leu Tyr Lys Glu Thr Ile Leu Gln Thr Leu Glu
                165                 170                 175

Glu Val Met Ala Glu His Asn Pro Gln Tyr Leu Ile Glu Leu Asn Gly
            180                 185                 190

Asn Lys Pro Ala Glu Glu Leu Phe Met Ile Val Met Asp Arg Leu Lys
        195                 200                 205

Tyr Leu Asn Leu Lys Arg Ala Ala Ile Leu Thr Lys Leu Gln Gly Ala
    210                 215                 220

Glu Glu Glu
225
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<210> 2894
<211> 1911
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 666; "

<220>
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<223> /note="Gene Symbol: AK9; "

<220>
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<223> /note="Gene Name:
adenylate kinase 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q5TCS8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410186"

<400> 2894
Met Thr Ser Gln Glu Lys Thr Glu Glu Tyr Pro Phe Ala Asp Ile Phe
1 5 10 15

Asp Glu Asp Glu Thr Glu Arg Asn Phe Leu Leu Ser Lys Pro Val Cys
20 25 30

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

Tyr Ile Thr Gln Ala Trp Lys Cys Ile Arg Val Glu Ala Leu Pro Ile
50 55 60

Leu Glu Glu Gln Ile Ala Ala Glu Thr Glu Ser Gly Val Met Leu Gln
65 70 75 80

Ser Met Leu Ile Ser Gly Gln Ser Ile Pro Asp Glu Leu Val Ile Lys
85 90 95

Leu Met Leu Glu Lys Leu Asn Ser Pro Glu Val Cys His Phe Gly Tyr
100 105 110

Ile Ile Thr Glu Ile Pro Ser Leu Ser Gln Asp Ala Met Thr Thr Leu
115 120 125

Gln Gln Ile Glu Leu Ile Lys Asn Leu Asn Leu Lys Pro Asp Val Ile
130 135 140

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

Gln Arg Gln His Asn Asn Thr Gly Tyr Ile Tyr Ser Arg Asp Gln Trp
165 170 175

Asp Pro Glu Val Ile Glu Asn His Arg Lys Lys Lys Lys Glu Ala Gln
180 185 190

Lys Asp Gly Lys Gly Glu Glu Glu Glu Glu Glu Glu Glu Gln Glu Glu
195 200 205

Glu Glu Ala Phe Ile Ala Glu Met Gln Met Val Ala Glu Ile Leu His
210 215 220

```
His Leu Val Gln Arg Pro Glu Asp Tyr Leu Glu Asn Val Glu Asn Ile
225                 230                 235                 240

Val Lys Leu Tyr Lys Glu Thr Ile Leu Gln Thr Leu Glu Glu Val Met
                245                 250                 255

Ala Glu His Asn Pro Gln Tyr Leu Ile Glu Leu Asn Gly Asn Lys Pro
            260                 265                 270

Ala Glu Glu Leu Phe Met Ile Val Met Asp Arg Leu Lys Tyr Leu Asn
        275                 280                 285

Leu Lys Arg Ala Ala Ile Leu Thr Lys Leu Gln Gly Ala Glu Glu Glu
    290                 295                 300

Ile Asn Asp Thr Met Glu Asn Asp Glu Leu Phe Arg Thr Leu Ala Ser
305                 310                 315                 320

Tyr Lys Leu Ile Ala Pro Arg Tyr Arg Trp Gln Arg Ser Lys Trp Gly
                325                 330                 335

Arg Thr Cys Pro Val Asn Leu Lys Asp Gly Asn Ile Tyr Ser Gly Leu
            340                 345                 350

Pro Asp Tyr Ser Val Ser Phe Leu Gly Lys Ile Tyr Cys Leu Ser Ser
        355                 360                 365

Glu Glu Ala Leu Lys Pro Phe Leu Leu Asn Pro Arg Pro Tyr Leu Leu
    370                 375                 380

Pro Pro Met Pro Gly Pro Pro Cys Lys Val Phe Ile Leu Gly Pro Gln
385                 390                 395                 400

Tyr Ser Gly Lys Thr Thr Leu Cys Asn Met Leu Ala Glu Asn Tyr Lys
                405                 410                 415

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

Ala Arg Glu Thr Leu Val Glu Asn Thr Ile Ala Glu Ala Thr Ala Ala
        435                 440                 445
```

```
Ala Ile Lys Val Val Lys Glu Lys Leu Leu Arg Glu Leu Gln Ala Arg
    450                 455                 460

Lys Gln Ala Glu Thr Ala Leu Arg Glu Phe Gln Arg Gln Tyr Glu Lys
465                 470                 475                 480

Met Glu Phe Gly Val Phe Pro Met Glu Ala Thr His Ser Ser Ile Asp
                485                 490                 495

Glu Glu Gly Tyr Ile Gln Gly Ser Gln Arg Asp Arg Gly Ser Ser Leu
            500                 505                 510

Val Asp Thr Glu Glu Ala Lys Thr Lys Ser Glu Asn Val Leu His Asp
        515                 520                 525

Gln Ala Ala Lys Val Asp Lys Asp Asp Gly Lys Glu Thr Gly Glu Thr
    530                 535                 540

Phe Thr Phe Lys Arg His Ser Gln Asp Ala Ser Gln Asp Val Lys Leu
545                 550                 555                 560

Tyr Ser Asp Thr Ala Pro Thr Glu Asp Leu Ile Glu Glu Val Thr Ala
                565                 570                 575

Asp His Pro Glu Val Val Thr Met Ile Glu Glu Thr Ile Lys Met Ser
            580                 585                 590

Gln Asp Ile Asn Phe Glu Gln Pro Tyr Glu Lys His Ala Glu Ile Leu
        595                 600                 605

Gln Glu Val Leu Gly Glu Val Met Glu Glu Asn Lys Asp Arg Phe Pro
    610                 615                 620

Gly Ala Pro Lys Tyr Gly Gly Trp Ile Val Asp Asn Cys Pro Ile Val
625                 630                 635                 640

Lys Glu Leu Trp Met Ala Leu Ile Lys Lys Gly Ile Ile Pro Asp Leu
                645                 650                 655

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

Arg Ile Tyr Leu Gln Lys Lys Ser Glu Ile Asp Ser Lys Ile Leu Glu
```

675 680 685

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

Arg Lys Ala Thr Glu Glu Glu Leu Arg Leu Glu Glu Glu Asn Arg Arg
705 710 715 720

Leu Leu Glu Leu Met Lys Val Lys Ala Lys Glu Ala Glu Glu Thr Asp
725 730 735

Asn Glu Asp Glu Glu Glu Ile Glu Gly Asp Glu Leu Glu Val His Glu
740 745 750

Glu Pro Glu Ala Ser His Asp Thr Arg Gly Ser Trp Leu Pro Glu Glu
755 760 765

Phe Glu Ala Ser Glu Val Pro Glu Thr Glu Pro Glu Ala Val Ser Glu
770 775 780

Pro Ile Glu Glu Thr Thr Val Glu Thr Glu Ile Pro Lys Gly Ser Lys
785 790 795 800

Glu Gly Leu Glu Ile Glu Lys Leu Ser Glu Thr Val Val Leu Pro Glu
805 810 815

Phe Pro Glu Asp Ser Tyr Pro Asp Val Pro Glu Met Glu Pro Phe Lys
820 825 830

Glu Lys Ile Gly Ser Phe Ile Ile Leu Trp Lys Gln Leu Glu Ala Thr
835 840 845

Ile Ser Glu Ala Tyr Ile Lys Ile Leu Asn Leu Glu Ile Ala Asp Arg
850 855 860

Thr Pro Gln Glu Leu Leu Gln Lys Val Val Glu Thr Met Glu Lys Pro
865 870 875 880

Phe Gln Tyr Thr Ala Trp Glu Leu Thr Gly Glu Asp Tyr Glu Glu Glu
885 890 895

Thr Glu Asp Tyr Gln Thr Glu Ala Glu Val Asp Glu Glu Leu Glu Glu
900 905 910

Glu Glu Glu Glu Glu Gly Glu Asp Lys Met Lys Glu Arg Lys Arg His
915 920 925

Leu Gly Asp Thr Lys His Phe Cys Pro Val Val Leu Lys Glu Asn Phe
930 935 940

Ile Leu Gln Pro Gly Asn Thr Glu Glu Ala Ala Lys Tyr Arg Glu Lys
945 950 955 960

Ile Tyr Tyr Phe Ser Ser Ala Glu Ala Lys Glu Lys Phe Leu Glu His
965 970 975

Pro Glu Asp Tyr Val Ala His Glu Glu Pro Leu Lys Ala Pro Pro Leu
980 985 990

Arg Ile Cys Leu Val Gly Pro Gln Gly Ser Gly Lys Thr Met Cys
Gly
995 1000 1005

Arg Gln Leu Ala Glu Lys Leu Asn Ile Phe His Ile Gln Phe Glu
1010 1015 1020

Glu Val Leu Gln Glu Lys Leu Leu Leu Lys Thr Glu Lys Lys Val
1025 1030 1035

Gly Pro Glu Phe Glu Glu Asp Ser Glu Asn Glu Gln Ala Ala Lys
1040 1045 1050

Gln Glu Leu Glu Glu Leu Ala Ile Gln Ala Asn Val Lys Val Glu
1055 1060 1065

Glu Glu Asn Thr Lys Lys Gln Leu Pro Glu Val Gln Leu Thr Glu
1070 1075 1080

Glu Glu Glu Val Ile Lys Ser Ser Leu Met Glu Asn Glu Pro Leu
1085 1090 1095

Pro Pro Glu Ile Leu Glu Val Ile Leu Ser Glu Trp Trp Leu Lys
1100 1105 1110

Glu Pro Ile Arg Ser Thr Gly Phe Ile Leu Asp Gly Phe Pro Arg
1115 1120 1125

```
Tyr Pro  Glu Glu Ala Gln Phe  Leu Gly Asp Arg Gly  Phe Phe Pro
    1130                1135                1140

Asp Ala  Ala Val Phe Ile Gln  Val Asp Asp Gln Asp  Ile Phe Asp
    1145                1150                1155

Arg Leu  Leu Pro Ala Gln Ile  Glu Lys Trp Lys Leu  Lys Gln Lys
    1160                1165                1170

Lys Lys  Leu Glu Arg Lys Lys  Leu Ile Lys Asp Met  Lys Ala Lys
    1175                1180                1185

Ile Arg  Val Asp Thr Ile Ala  Lys Arg Arg Ala Glu  Leu Ile Leu
    1190                1195                1200

Glu Arg  Asp Lys Lys Arg Arg  Glu Asn Val Val Arg  Asp Asp Glu
    1205                1210                1215

Glu Ile  Ser Glu Glu Glu Leu  Glu Glu Asp Asn Asp  Asp Ile Glu
    1220                1225                1230

Asn Ile  Leu Glu Asp Glu Phe  Pro Lys Asp Glu Glu  Glu Met Ser
    1235                1240                1245

Gly Glu  Glu Asp Glu Glu Gln  Glu Thr Asp Ala Ile  Glu Arg Leu
    1250                1255                1260

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

Gln Ile  Ile Gln Asp Glu Leu  Glu Arg Tyr Leu Ile  Pro Ile Ile
    1280                1285                1290

Ser Ile  Asn Gly Ala Arg Arg  Asn His Ile Val Gln  Tyr Thr Leu
    1295                1300                1305

Asn Met  Lys Leu Lys Pro Leu  Val Glu Asn Arg Ala  Ser Ile Phe
    1310                1315                1320

Glu Lys  Cys His Pro Ile Pro  Ala Pro Leu Ala Gln  Lys Met Leu
    1325                1330                1335
```

```
Thr Phe  Thr Tyr Lys Tyr Ile  Ser Ser Phe Gly Tyr  Trp Asp Pro
    1340                1345                1350

Val Lys  Leu Ser Glu Gly Glu  Thr Ile Lys Pro Val  Glu Asn Ala
    1355                1360                1365

Glu Asn  Pro Ile Tyr Pro Val  Ile His Arg Gln Tyr  Ile Tyr Phe
    1370                1375                1380

Leu Ser  Ser Lys Glu Thr Lys  Glu Lys Phe Met Lys  Asn Pro Ile
    1385                1390                1395

Lys Tyr  Ile Arg Gln Pro Lys  Pro Lys Pro Thr Val  Pro Ile Arg
    1400                1405                1410

Ile Ile  Ile Val Gly Pro Pro  Lys Ser Gly Lys Thr  Thr Val Ala
    1415                1420                1425

Lys Lys  Ile Thr Ser Glu Tyr  Gly Leu Lys His Leu  Ser Ile Gly
    1430                1435                1440

Gly Ala  Leu Arg Tyr Val Leu  Asn Asn His Pro Glu  Thr Glu Leu
    1445                1450                1455

Ala Leu  Met Leu Asn Trp His  Leu His Lys Gly Met  Thr Ala Pro
    1460                1465                1470

Asp Glu  Leu Ala Ile Gln Ala  Leu Glu Leu Ser Leu  Met Glu Ser
    1475                1480                1485

Val Cys  Asn Thr Ala Gly Val  Val Ile Asp Gly Tyr  Pro Val Thr
    1490                1495                1500

Lys His  Gln Met Asn Leu Leu  Glu Ala Arg Ser Ile  Ile Pro Met
    1505                1510                1515

Val Ile  Phe Glu Leu Ser Val  Pro Ser Lys Glu Ile  Phe Lys Arg
    1520                1525                1530

Leu Leu  Leu Glu Lys Glu Asn  Glu Gln Arg Leu Pro  Tyr Pro Leu
    1535                1540                1545
```

```
His Asn  Ser Ala Gln Ile Val  Ala Val Asn Asn Val  Lys Tyr Arg
    1550                1555                1560

Lys Asn  Ile Gly Glu Ile Arg  Gln Tyr Tyr Gln Glu  Gln His Gln
    1565                1570                1575

Asn Trp  Tyr Val Ile Asp Gly  Phe His Ser Lys Trp  Trp Val Trp
    1580                1585                1590

Asn Glu  Val Ile Lys Asn Val  Gln Met Val Asn Lys  Tyr Met Gln
    1595                1600                1605

Thr Tyr  Leu Glu Arg Ile Lys  Ala Gly Lys Ala Ala  Cys Ile Asp
    1610                1615                1620

Lys Leu  Cys Ile Thr Pro Gln  Glu Leu Leu Ser Arg  Leu Gly Glu
    1625                1630                1635

Phe Glu  Gln Phe Cys Pro Val  Ser Leu Ala Glu Ser  Gln Glu Leu
    1640                1645                1650

Phe Asp  Cys Ser Ala Thr Asp  Ser Leu Glu Phe Ala  Ala Glu Phe
    1655                1660                1665

Arg Gly  His Tyr Tyr Lys Met  Ser Ser Gln Glu Lys  Leu Asn Lys
    1670                1675                1680

Phe Leu  Glu Asn Pro Glu Leu  Tyr Val Pro Pro Leu  Ala Pro His
    1685                1690                1695

Pro Leu  Pro Ser Ala Asp Met  Ile Pro Lys Arg Leu  Thr Leu Ser
    1700                1705                1710

Glu Leu  Lys Ser Arg Phe Pro  Lys Cys Ala Glu Leu  Gln Gly Tyr
    1715                1720                1725

Cys Pro  Val Thr Tyr Lys Asp  Gly Asn Gln Arg Tyr  Glu Ala Leu
    1730                1735                1740

Val Pro  Gly Ser Ile Asn Tyr  Ala Leu Glu Tyr His  Asn Arg Ile
    1745                1750                1755

Tyr Ile  Cys Glu Asn Lys Glu  Lys Leu Gln Lys Phe  Leu Arg Ser
```

```
    1760                1765                1770

Pro Leu  Lys Tyr Trp Glu Gln  Lys Leu Pro His Lys  Leu Pro Pro
    1775                1780                1785

Leu Arg  Glu Pro Ile Leu Leu  Thr Ser Leu Pro Leu  Pro Gly Tyr
    1790                1795                1800

Leu Glu  Gln Gly Ile Ala Thr  Ser Leu Ile Lys Ala  Met Asn Ala
    1805                1810                1815

Ala Gly  Cys Leu Lys Pro Lys  Phe Pro Phe Leu Ser  Ile Arg Arg
    1820                1825                1830

Ser Ala  Leu Leu Tyr Ile Ala  Leu His Leu Lys Ala  Phe Asn Pro
    1835                1840                1845

Lys Gly  Ser Glu Tyr Thr Arg  Lys Lys Tyr Lys Lys  Lys Met Glu
    1850                1855                1860

Gln Phe  Met Glu Ser Cys Glu  Leu Ile Thr Tyr Leu  Gly Ala Lys
    1865                1870                1875

Met Thr  Arg Lys Tyr Lys Glu  Pro Gln Phe Arg Ala  Ile Asp Phe
    1880                1885                1890

Asp His  Lys Leu Lys Thr Phe  Leu Ser Leu Arg Asn  Ile Asp Pro
    1895                1900                1905

Ile Asn  Gly
    1910


<210> 2895
<211> 218
<212> PRT
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<220>
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<221> source
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<221> source
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<220>
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<220>
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<223> Any amino acid

<400> 2895

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Xaa Val Glu Glu Glu Asn Thr Lys Lys Gln Leu Pro Glu Val Gln Leu
1               5                  10                  15

Thr Glu Glu Glu Glu Val Ile Lys Ser Ser Leu Met Glu Asn Glu Pro
            20                  25                  30

Leu Pro Pro Glu Ile Leu Glu Val Ile Leu Ser Glu Trp Trp Leu Lys
        35                  40                  45

Glu Pro Ile Arg Ser Thr Gly Phe Ile Leu Asp Gly Phe Pro Arg Tyr
    50                  55                  60

Pro Glu Glu Ala Gln Phe Leu Gly Asp Arg Gly Phe Phe Pro Asp Ala
65                  70                  75                  80

Ala Val Phe Ile Gln Val Asp Asp Gln Asp Ile Phe Asp Arg Leu Leu
                85                  90                  95

Pro Ala Gln Ile Glu Lys Trp Lys Leu Lys Gln Lys Lys Lys Leu Glu
            100                 105                 110

Arg Lys Lys Leu Ile Lys Asp Met Lys Ala Lys Ile Arg Val Asp Thr
        115                 120                 125

Ile Ala Lys Arg Arg Ala Glu Leu Ile Leu Glu Arg Asp Lys Lys Arg
    130                 135                 140

Arg Glu Pro Asn Lys Glu Lys Arg Lys Arg Gly Ile Ser Glu Asn Thr
145                 150                 155                 160

Thr Cys Tyr Lys Cys Asn His Met Ser Pro Trp Cys Glu Tyr Ala Gly
                165                 170                 175
```

```
Leu Pro Tyr Arg Gly Leu Leu Ile Leu Tyr Ser Ala Thr Ala Thr Ala
            180                 185                 190

Thr Ala Gly Thr Lys His Cys Arg Ser Gly Ala Lys Val Ile Val Ala
        195                 200                 205

Leu Ser Lys Gln Asn Ile His Asn Gln Lys
    210                 215


<210> 2896
<211> 749
<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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<222> (1)..(1)
<223> Any amino acid

<400> 2896
Xaa Gln Ile Glu Lys Trp Lys Leu Lys Gln Lys Lys Lys Leu Glu Arg
1               5                   10                  15

Lys Lys Leu Ile Lys Asp Met Lys Ala Lys Ile Arg Val Asp Thr Ile
            20                  25                  30

Ala Lys Arg Arg Ala Glu Leu Ile Leu Glu Arg Asp Lys Lys Arg Arg
        35                  40                  45

Glu Asn Val Val Arg Asp Asp Glu Glu Ile Ser Glu Glu Glu Leu Glu
    50                  55                  60
```

```
Glu Asp Asn Asp Asp Ile Glu Asn Ile Leu Glu Asp Glu Phe Pro Lys
65                  70                  75                  80

Asp Glu Glu Glu Met Ser Gly Glu Glu Asp Glu Glu Gln Glu Thr Asp
                85                  90                  95

Ala Ile Glu Arg Leu Arg Gly Glu Leu Gly Glu Lys Phe Glu Ala Asp
            100                 105                 110

Thr His Asn Leu Gln Ile Ile Gln Asp Glu Leu Glu Arg Tyr Leu Ile
        115                 120                 125

Pro Ile Ile Ser Ile Asn Gly Ala Arg Arg Asn His Ile Val Gln Tyr
    130                 135                 140

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

Phe Glu Lys Cys His Pro Ile Pro Ala Pro Leu Ala Gln Lys Met Leu
                165                 170                 175

Thr Phe Thr Tyr Lys Tyr Ile Ser Ser Phe Gly Tyr Trp Asp Pro Val
            180                 185                 190

Lys Leu Ser Glu Gly Glu Thr Ile Lys Pro Val Glu Asn Ala Glu Asn
        195                 200                 205

Pro Ile Tyr Pro Val Ile His Arg Gln Tyr Ile Tyr Phe Leu Ser Ser
    210                 215                 220

Lys Glu Thr Lys Glu Lys Phe Met Lys Asn Pro Ile Lys Tyr Ile Arg
225                 230                 235                 240

Gln Pro Lys Pro Lys Pro Thr Val Pro Ile Arg Ile Ile Ile Val Gly
                245                 250                 255

Pro Pro Lys Ser Gly Lys Thr Thr Val Ala Lys Lys Ile Thr Ser Glu
            260                 265                 270

Tyr Gly Leu Lys His Leu Ser Ile Gly Gly Ala Leu Arg Tyr Val Leu
        275                 280                 285
```

```
Asn Asn His Pro Glu Thr Glu Leu Ala Leu Met Leu Asn Trp His Leu
    290                 295                 300

His Lys Gly Met Thr Ala Pro Asp Glu Leu Ala Ile Gln Ala Leu Glu
305                 310                 315                 320

Leu Ser Leu Met Glu Ser Val Cys Asn Thr Ala Gly Val Val Ile Asp
                325                 330                 335

Gly Tyr Pro Val Thr Lys His Gln Met Asn Leu Leu Glu Ala Arg Ser
            340                 345                 350

Ile Ile Pro Met Val Ile Phe Glu Leu Ser Val Pro Ser Lys Glu Ile
        355                 360                 365

Phe Lys Arg Leu Leu Leu Glu Lys Glu Asn Glu Gln Arg Leu Pro Tyr
    370                 375                 380

Pro Leu His Asn Ser Ala Gln Ile Val Ala Val Asn Asn Val Lys Tyr
385                 390                 395                 400

Arg Lys Asn Ile Gly Glu Ile Arg Gln Tyr Tyr Gln Glu Gln His Gln
                405                 410                 415

Asn Trp Tyr Val Ile Asp Gly Phe His Ser Lys Trp Trp Val Trp Asn
            420                 425                 430

Glu Val Ile Lys Asn Val Gln Met Val Asn Lys Tyr Met Gln Thr Tyr
        435                 440                 445

Leu Glu Arg Ile Lys Ala Gly Lys Ala Ala Cys Ile Asp Lys Leu Cys
    450                 455                 460

Ile Thr Pro Gln Glu Leu Leu Ser Arg Leu Gly Glu Phe Glu Gln Phe
465                 470                 475                 480

Cys Pro Val Ser Leu Ala Glu Ser Gln Glu Leu Phe Asp Cys Ser Ala
                485                 490                 495

Thr Asp Ser Leu Glu Phe Ala Ala Glu Phe Arg Gly His Tyr Tyr Lys
            500                 505                 510
```

```
Met Ser Ser Gln Glu Lys Leu Asn Lys Phe Leu Glu Asn Pro Glu Leu
        515                 520                 525

Tyr Val Pro Pro Leu Ala Pro His Pro Leu Pro Ser Ala Asp Met Ile
    530                 535                 540

Pro Lys Arg Leu Thr Leu Ser Glu Leu Lys Ser Arg Phe Pro Lys Cys
545                 550                 555                 560

Ala Glu Leu Gln Gly Tyr Cys Pro Val Thr Tyr Lys Asp Gly Asn Gln
                565                 570                 575

Arg Tyr Glu Ala Leu Val Pro Gly Ser Ile Asn Tyr Ala Leu Glu Tyr
            580                 585                 590

His Asn Arg Ile Tyr Ile Cys Glu Asn Lys Glu Lys Leu Gln Lys Phe
        595                 600                 605

Leu Arg Ser Pro Leu Lys Tyr Trp Glu Gln Lys Leu Pro His Lys Leu
    610                 615                 620

Pro Pro Leu Arg Glu Pro Ile Leu Leu Thr Ser Leu Pro Leu Pro Gly
625                 630                 635                 640

Tyr Leu Glu Gln Gly Ile Ala Thr Ser Leu Ile Lys Ala Met Asn Ala
                645                 650                 655

Ala Gly Cys Leu Lys Pro Lys Phe Pro Phe Leu Ser Ile Arg Arg Ser
            660                 665                 670

Ala Leu Leu Tyr Ile Ala Leu His Leu Lys Ala Phe Asn Pro Lys Gly
        675                 680                 685

Ser Glu Tyr Thr Arg Lys Lys Tyr Lys Lys Lys Met Glu Gln Phe Met
    690                 695                 700

Glu Ser Cys Glu Leu Ile Thr Tyr Leu Gly Ala Lys Met Thr Arg Lys
705                 710                 715                 720

Tyr Lys Glu Pro Gln Phe Arg Ala Ile Asp Phe Asp His Lys Leu Lys
                725                 730                 735

Thr Phe Leu Ser Leu Arg Asn Ile Asp Pro Ile Asn Gly
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740 745

<210> 2897
<211> 312
<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: ENSP00000419758"

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

<400> 2897
Xaa His Ser Lys Trp Trp Val Trp Asn Glu Val Ile Lys Asn Val Gln
1 5 10 15

Met Val Asn Lys Tyr Met Gln Thr Tyr Leu Glu Arg Ile Lys Ala Glu
20 25 30

Leu Leu Ser Arg Leu Gly Glu Phe Glu Gln Phe Cys Pro Val Ser Leu
35 40 45

Ala Glu Ser Gln Glu Leu Phe Asp Cys Ser Ala Thr Asp Ser Leu Glu
50 55 60

Phe Ala Ala Glu Phe Arg Gly His Tyr Tyr Lys Met Ser Ser Gln Glu
65 70 75 80

Lys Leu Asn Lys Phe Leu Glu Asn Pro Glu Leu Tyr Val Pro Pro Leu
85 90 95

Ala Pro His Pro Leu Pro Ser Ala Asp Met Ile Pro Lys Arg Leu Thr

100 105 110

Leu Ser Glu Leu Lys Ser Arg Phe Pro Lys Cys Ala Glu Leu Gln Gly
115 120 125

Tyr Cys Pro Val Thr Tyr Lys Asp Gly Asn Gln Arg Tyr Glu Ala Leu
130 135 140

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

Ile Cys Glu Asn Lys Glu Lys Leu Gln Lys Phe Leu Arg Ser Pro Leu
165 170 175

Lys Tyr Trp Glu Gln Lys Leu Pro His Lys Leu Pro Pro Leu Arg Glu
180 185 190

Pro Ile Leu Leu Thr Ser Leu Pro Leu Pro Gly Tyr Leu Glu Gln Gly
195 200 205

Ile Ala Thr Ser Leu Ile Lys Ala Met Asn Ala Ala Gly Cys Leu Lys
210 215 220

Pro Lys Phe Pro Phe Leu Ser Ile Arg Arg Ser Ala Leu Leu Tyr Ile
225 230 235 240

Ala Leu His Leu Lys Ala Phe Asn Pro Lys Gly Ser Glu Tyr Thr Arg
245 250 255

Lys Lys Tyr Lys Lys Lys Met Glu Gln Phe Met Glu Ser Cys Glu Leu
260 265 270

Ile Thr Tyr Leu Gly Ala Lys Met Thr Arg Lys Tyr Lys Glu Pro Gln
275 280 285

Phe Arg Ala Ile Asp Phe Asp His Lys Leu Lys Thr Phe Leu Ser Leu
290 295 300

Arg Asn Ile Asp Pro Ile Asn Gly
305 310

<210> 2898
<211> 192

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AK9; "

<220>
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<223> /note="Gene Name:
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<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 2898
Xaa Ile Thr Glu Ile Pro Ser Leu Ser Gln Asp Ala Met Thr Thr Leu
1 5 10 15

Gln Gln Ile Glu Leu Ile Lys Asn Leu Asn Leu Lys Pro Asp Val Ile
20 25 30

Ile Asn Ile Lys Cys Pro Asp Tyr Asp Leu Cys Gln Arg Ile Ser Gly
35 40 45

Gln Arg Gln His Asn Asn Thr Gly Tyr Ile Tyr Ser Arg Asp Gln Trp
50 55 60

Asp Pro Glu Val Ile Glu Asn His Arg Lys Lys Lys Lys Glu Ala Gln
65 70 75 80

Lys Asp Gly Lys Gly Glu Glu Glu Glu Glu Glu Glu Glu Gln Glu Glu
85 90 95

Glu Glu Ala Phe Ile Ala Glu Met Gln Met Val Ala Glu Ile Leu His
100 105 110

His Leu Val Gln Arg Pro Glu Asp Tyr Leu Glu Asn Val Glu Asn Ile
115 120 125

```
Val Lys Leu Tyr Lys Glu Thr Ile Leu Gln Thr Leu Glu Glu Val Met
    130                 135                 140

Ala Glu His Asn Pro Gln Tyr Leu Ile Glu Leu Asn Gly Asn Lys Pro
145                 150                 155                 160

Ala Glu Glu Leu Phe Met Asp Glu Leu Phe Arg Thr Leu Ala Ser Tyr
                165                 170                 175

Lys Leu Ile Ala Pro Arg Tyr Arg Trp Gln Arg Ser Lys Trp Gly Arg
            180                 185                 190


<210> 2899
<211> 259
<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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<400> 2899
Met Thr Ser Gln Glu Lys Thr Glu Glu Tyr Pro Phe Ala Asp Ile Phe
1               5                   10                  15

Asp Glu Asp Glu Thr Glu Arg Asn Phe Leu Leu Ser Lys Pro Val Cys
            20                  25                  30

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

Tyr Ile Thr Gln Ala Trp Lys Cys Ile Arg Val Glu Ala Leu Pro Ile
    50                  55                  60
```

```
Leu Glu Glu Gln Ile Ala Ala Glu Thr Glu Ser Gly Val Met Leu Gln
65                  70                  75                  80

Ser Met Leu Ile Ser Gly Gln Ser Ile Pro Asp Glu Leu Val Ile Lys
                85                  90                  95

Leu Met Leu Glu Lys Leu Asn Ser Pro Glu Val Cys His Phe Gly Tyr
            100                 105                 110

Ile Ile Thr Glu Ile Pro Ser Leu Ser Gln Asp Ala Met Thr Thr Leu
        115                 120                 125

Gln Gln Ile Glu Leu Ile Lys Asn Leu Asn Leu Lys Pro Asp Val Ile
    130                 135                 140

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

Gln Arg Gln His Asn Asn Thr Gly Tyr Ile Tyr Ser Arg Asp Gln Trp
                165                 170                 175

Asp Pro Glu Val Ile Glu Asn His Arg Lys Lys Lys Lys Glu Ala Gln
            180                 185                 190

Lys Asp Gly Lys Gly Glu Glu Glu Glu Glu Glu Glu Glu Gln Glu Glu
        195                 200                 205

Glu Glu Ala Phe Ile Ala Glu Met Gln Met Val Ala Glu Ile Leu His
    210                 215                 220

His Leu Val Gln Arg Pro Glu Asp Tyr Leu Glu Asn Val Glu Asn Ile
225                 230                 235                 240

Val Lys Leu Tyr Lys Glu Thr Ile Leu Gln Thr Leu Glu Glu Val Met
                245                 250                 255

Ala Glu His
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<210> 2900
<211> 137
<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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<222> (1)..(1)
<223> Any amino acid

<400> 2900
Xaa Glu Val Ile Glu Asn His Arg Lys Lys Lys Lys Glu Ala Gln Lys
1 5 10 15

Asp Gly Lys Gly Glu Glu Glu Glu Glu Glu Glu Glu Gln Glu Glu Glu
20 25 30

Glu Ala Phe Ile Ala Glu Met Gln Met Val Ala Glu Ile Leu His His
35 40 45

Leu Val Gln Arg Pro Glu Asp Tyr Leu Glu Asn Val Glu Asn Ile Val
50 55 60

Lys Leu Tyr Lys Glu Thr Ile Leu Gln Thr Leu Glu Glu Val Met Ala
65 70 75 80

Glu His Asn Pro Gln Tyr Leu Ile Glu Leu Asn Gly Asn Lys Pro Ala
85 90 95

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

His Gly Lys Phe Lys Ser Ile Asp Ser Ile Val Leu Leu Leu Ile Asn
115 120 125

Arg Ser Ile Phe Ile Phe Glu His His

130 135

<210> 2901
<211> 498
<212> PRT
<213> Homo sapiens

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

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<223> /note="Gene Name:
adenylosuccinate lyase; "

<220>
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<400> 2901
Met Ala Ala Gly Gly Asp His Gly Ser Pro Asp Ser Tyr Arg Ser Pro
1 5 10 15

Leu Ala Ser Arg Tyr Ala Ser Pro Glu Met Cys Phe Val Phe Ser Asp
20 25 30

Arg Tyr Lys Phe Arg Thr Trp Arg Gln Leu Trp Leu Trp Leu Ala Glu
35 40 45

Ala Glu Gln Thr Leu Gly Leu Pro Ile Thr Asp Glu Gln Ile Gln Glu
50 55 60

Met Lys Ser Asn Leu Glu Asn Ile Asp Phe Lys Met Ala Ala Glu Glu
65 70 75 80

Glu Lys Arg Leu Arg His Asp Val Met Ala His Val His Thr Phe Gly
85 90 95

His Cys Cys Pro Lys Ala Ala Gly Ile Ile His Leu Gly Ala Thr Ser
100 105 110

Cys Tyr Val Gly Asp Asn Thr Ser Leu Ile Leu Ser Arg Gly Val Ile
115 120 125

```
Lys Ala Tyr Cys Asn Leu Arg Leu Pro Gly Ser Asp Ser Ser Pro Val
    130                 135                 140

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

Lys Glu Arg Ala Ser Leu Pro Thr Leu Gly Phe Thr His Phe Gln Pro
                165                 170                 175

Ala Gln Leu Thr Thr Val Gly Lys Arg Cys Cys Leu Trp Ile Gln Asp
            180                 185                 190

Leu Cys Met Asp Leu Gln Asn Leu Lys Arg Val Arg Asp Asp Leu Arg
        195                 200                 205

Phe Arg Gly Val Lys Gly Thr Thr Gly Thr Gln Ala Ser Phe Leu Gln
    210                 215                 220

Leu Phe Glu Gly Asp Asp His Lys Val Glu Gln Leu Asp Lys Met Val
225                 230                 235                 240

Thr Glu Lys Ala Gly Phe Lys Arg Ala Phe Ile Ile Thr Gly Gln Thr
                245                 250                 255

Tyr Thr Arg Lys Val Asp Ile Glu Val Leu Ser Val Leu Ala Ser Leu
            260                 265                 270

Gly Ala Ser Val His Lys Ile Cys Thr Asp Ile Arg Leu Leu Ala Asn
        275                 280                 285

Leu Lys Glu Met Glu Glu Pro Phe Glu Lys Gln Gln Ile Gly Ser Ser
    290                 295                 300

Ala Met Pro Tyr Lys Arg Asn Pro Met Arg Ser Glu Arg Cys Cys Ser
305                 310                 315                 320

Leu Ala Arg His Leu Met Thr Leu Val Met Asp Pro Leu Gln Thr Ala
                325                 330                 335

Ser Val Gln Trp Phe Glu Arg Thr Leu Asp Asp Ser Ala Asn Arg Arg
            340                 345                 350
```

```
Ile Cys Leu Ala Glu Ala Phe Leu Thr Ala Asp Thr Ile Leu Asn Thr
        355                 360                 365

Leu Gln Asn Ile Ser Glu Gly Leu Val Val Tyr Pro Lys Val Ile Glu
    370                 375                 380

Arg Arg Ile Arg Gln Glu Leu Pro Phe Met Ala Thr Glu Asn Ile Ile
385                 390                 395                 400

Met Ala Met Val Lys Ala Gly Gly Ser Arg Gln Asp Cys His Glu Lys
                405                 410                 415

Ile Arg Val Leu Ser Gln Gln Ala Ala Ser Val Val Lys Gln Glu Gly
            420                 425                 430

Gly Asp Asn Asp Leu Ile Glu Arg Ile Gln Val Asp Ala Tyr Phe Ser
        435                 440                 445

Pro Ile His Ser Gln Leu Asp His Leu Leu Asp Pro Ser Ser Phe Thr
    450                 455                 460

Gly Arg Ala Ser Gln Gln Val Gln Arg Phe Leu Glu Glu Glu Val Tyr
465                 470                 475                 480

Pro Leu Leu Lys Pro Tyr Glu Ser Val Met Lys Val Lys Ala Glu Leu
                485                 490                 495

Cys Leu
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<210> 2902
<211> 425
<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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<400> 2902
Met Ala Ala Gly Gly Asp His Gly Ser Pro Asp Ser Tyr Arg Ser Pro
1   5   10   15

Leu Ala Ser Arg Tyr Ala Ser Pro Glu Met Cys Phe Val Phe Ser Asp
            20   25   30

Arg Tyr Lys Phe Arg Thr Trp Arg Gln Leu Trp Leu Trp Leu Ala Glu
        35   40   45

Ala Glu Gln Thr Leu Gly Leu Pro Ile Thr Asp Glu Gln Ile Gln Glu
    50   55   60

Met Lys Ser Asn Leu Glu Asn Ile Asp Phe Lys Met Ala Ala Glu Glu
65   70   75   80

Glu Lys Arg Leu Arg His Asp Val Met Ala His Val His Thr Phe Gly
                85   90   95

His Cys Cys Pro Lys Ala Ala Gly Ile Ile His Leu Gly Ala Thr Ser
            100   105   110

Cys Tyr Val Gly Asp Asn Thr Asp Leu Ile Ile Leu Arg Asn Ala Leu
        115   120   125

Asp Leu Leu Leu Pro Lys Leu Ala Arg Val Ile Ser Arg Leu Ala Asp
    130   135   140

Phe Ala Lys Glu Arg Ala Ser Leu Pro Thr Leu Gly Phe Thr His Phe
145   150   155   160

Gln Pro Ala Gln Leu Thr Thr Val Gly Lys Arg Cys Cys Leu Trp Ile
                165   170   175

Gln Asp Leu Cys Met Asp Leu Gln Asn Leu Lys Arg Val Arg Asp Asp
            180   185   190

```
Leu Arg Phe Arg Gly Val Lys Gly Thr Thr Gly Thr Gln Ala Ser Phe
        195                 200                 205

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

Met Val Thr Glu Lys Ala Gly Phe Lys Arg Ala Phe Ile Ile Thr Gly
225                 230                 235                 240

Gln Thr Tyr Thr Arg Lys Val Asp Ile Glu Val Leu Ser Val Leu Ala
                245                 250                 255

Ser Leu Gly Ala Ser Val His Lys Ile Cys Thr Asp Ile Arg Leu Leu
            260                 265                 270

Ala Asn Leu Lys Glu Met Glu Glu Pro Phe Glu Lys Gln Gln Ile Gly
        275                 280                 285

Ser Ser Ala Met Pro Tyr Lys Arg Asn Pro Met Arg Ser Glu Arg Cys
    290                 295                 300

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

Thr Ala Ser Val Gln Trp Phe Glu Arg Thr Leu Asp Asp Ser Ala Asn
                325                 330                 335

Arg Arg Ile Cys Leu Ala Glu Ala Phe Leu Thr Ala Asp Thr Ile Leu
            340                 345                 350

Asn Thr Leu Gln Asn Ile Ser Glu Gly Leu Val Val Tyr Pro Lys Val
        355                 360                 365

Ile Glu Arg Arg Ile Arg Gln Glu Leu Pro Phe Met Ala Thr Glu Asn
    370                 375                 380

Ile Ile Met Ala Met Val Lys Ala Gly Gly Ser Arg Gln Val Gln Arg
385                 390                 395                 400

Phe Leu Glu Glu Glu Val Tyr Pro Leu Leu Lys Pro Tyr Glu Ser Val
                405                 410                 415
```

```
Met Lys Val Lys Ala Glu Leu Cys Leu
            420                 425


<210> 2903
<211> 127
<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:
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<220>
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<223> /note="ENSP ID: ENSP00000485073"

<400> 2903
Met Ala Ala Gly Gly Asp His Gly Ser Pro Asp Ser Tyr Arg Ser Pro
1               5                  10                  15


Leu Ala Ser Arg Tyr Ala Ser Pro Glu Met Cys Phe Val Phe Ser Asp
            20                  25                  30


Arg Tyr Lys Phe Arg Thr Trp Arg Gln Leu Trp Leu Trp Leu Ala Glu
        35                  40                  45


Ala Glu Gln Thr Leu Gly Leu Pro Ile Thr Asp Glu Gln Ile Gln Glu
    50                  55                  60


Met Lys Ser Asn Leu Glu Asn Ile Asp Phe Lys Met Ala Ala Glu Glu
65                  70                  75                  80


Glu Lys Arg Leu Arg His Asp Val Met Ala His Val His Thr Phe Gly
                85                  90                  95


His Cys Cys Pro Lys Ala Ala Gly Ile Ile His Leu Gly Ala Thr Ser
            100                 105                 110


Cys Tyr Val Gly Asp Asn Thr Val Gly Ala Cys Val Val Tyr Thr
        115                 120                 125
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<210> 2904
<211> 81
<212> PRT
<213> Homo sapiens

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

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<223> /note="Gene Name:
adenylosuccinate lyase; "

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<223> /note="ENSP ID: ENSP00000485202"

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

<400> 2904
Xaa Arg Ile Gln Val Asp Ala Tyr Phe Ser Pro Ile His Ser Gln Leu
1 5 10 15

Asp His Leu Leu Asp Pro Ser Ser Phe Thr Gly Arg Ala Ser Gln Gln
20 25 30

Cys Lys Gln Val Pro Leu Asp Lys Asn Val Val Cys Val Ile Pro Cys
35 40 45

Cys Ile Ser Asn Ser Lys Ser Thr Ser Asp Thr Trp Gln Leu Gly Ser
50 55 60

Leu Pro Ala Ser Ala Thr Ala Pro Asp Phe Leu Val Ala Trp Ile Tyr
65 70 75 80

Ser

<210> 2905
<211> 164

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
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<400> 2905

Met	Ala	Ala	Gly	Gly	Asp	His	Gly	Ser	Pro	Asp	Ser	Tyr	Arg	Ser	Pro
1				5					10						15

Leu	Ala	Ser	Arg	Tyr	Ala	Ser	Pro	Glu	Met	Cys	Phe	Val	Phe	Ser	Asp
			20					25					30		

Arg	Tyr	Lys	Phe	Arg	Thr	Trp	Arg	Gln	Leu	Trp	Leu	Trp	Leu	Ala	Glu
		35					40					45			

Ala	Glu	Gln	Thr	Leu	Gly	Leu	Pro	Ile	Thr	Asp	Glu	Gln	Ile	Gln	Glu
	50					55					60				

Met	Lys	Ser	Asn	Leu	Glu	Asn	Ile	Asp	Phe	Lys	Met	Ala	Ala	Glu	Glu
65					70					75					80

Glu	Lys	Arg	Leu	Arg	His	Asp	Val	Met	Ala	His	Val	His	Thr	Phe	Gly
				85					90					95	

His	Cys	Cys	Pro	Lys	Ala	Ala	Gly	Ile	Ile	His	Leu	Gly	Ala	Thr	Ser
			100					105					110		

Cys	Tyr	Val	Gly	Asp	Asn	Thr	Asp	Leu	Ile	Ile	Leu	Arg	Asn	Ala	Leu
		115					120					125			

Asp	Leu	Leu	Leu	Pro	Lys	Ala	Cys	Thr	Ala	Asp	His	Ser	Trp	Glu	Thr
	130					135					140				

Leu Leu Ser Leu Asp Ser Gly Ser Leu His Gly Ser Pro Glu Leu Glu
145 150 155 160

Ala Cys Pro Arg

<210> 2906
<211> 262
<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: ENSP00000485288"

<400> 2906
Met Ala Ala Gly Gly Asp His Gly Ser Pro Asp Ser Tyr Arg Ser Pro
1 5 10 15

Leu Ala Ser Arg Tyr Ala Ser Pro Glu Met Cys Phe Val Phe Ser Asp
20 25 30

Arg Tyr Lys Phe Arg Thr Trp Arg Gln Leu Trp Leu Trp Leu Ala Glu
35 40 45

Ala Glu Gln Thr Leu Gly Leu Pro Ile Thr Asp Glu Gln Ile Gln Glu
50 55 60

Met Lys Ser Asn Leu Glu Asn Ile Asp Phe Lys Met Ala Ala Glu Glu
65 70 75 80

Glu Lys Arg Leu Arg His Asp Val Met Ala His Val His Thr Phe Gly
85 90 95

His Cys Cys Pro Lys Ala Ala Gly Ile Ile His Leu Gly Ala Thr Ser
100 105 110

```
Cys Tyr Val Gly Asp Asn Thr Leu Ala Arg Val Ile Ser Arg Leu Ala
        115                 120                 125

Asp Phe Ala Lys Glu Arg Ala Ser Leu Pro Thr Leu Gly Phe Thr His
    130                 135                 140

Phe Gln Pro Ala Gln Leu Thr Thr Val Gly Lys Arg Cys Cys Leu Trp
145                 150                 155                 160

Ile Gln Asp Leu Cys Met Asp Leu Gln Asn Leu Lys Arg Val Arg Asp
                165                 170                 175

Asp Leu Arg Phe Arg Gly Val Lys Gly Thr Thr Gly Thr Gln Ala Ser
            180                 185                 190

Phe Leu Gln Leu Phe Glu Gly Asp Asp His Lys Val Glu Gln Leu Asp
        195                 200                 205

Lys Met Val Thr Glu Lys Ala Gly Phe Lys Arg Ala Phe Ile Ile Thr
    210                 215                 220

Gly Gln Thr Tyr Thr Arg Lys Val Asp Ile Glu Val Leu Ser Val Leu
225                 230                 235                 240

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

Leu Ala Asn Leu Lys Glu
            260


<210> 2907
<211> 360
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 667; "

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

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<221> source
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<223> /note="Gene Name:
adenylosuccinate lyase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485289"

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

<400> 2907

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Xaa Ile Ser Arg Leu Ala Asp Phe Ala Lys Glu Arg Ala Ser Leu Pro
1               5                  10                  15

Thr Leu Gly Phe Thr His Phe Gln Pro Ala Gln Leu Thr Thr Val Gly
            20                  25                  30

Lys Arg Cys Cys Leu Trp Ile Gln Asp Leu Cys Met Asp Leu Gln Asn
        35                  40                  45

Leu Lys Arg Val Arg Asp Asp Leu Arg Phe Arg Gly Val Lys Gly Thr
    50                  55                  60

Thr Gly Thr Gln Ala Ser Phe Leu Gln Leu Phe Glu Gly Asp Asp His
65                  70                  75                  80

Lys Val Glu Gln Leu Asp Lys Met Val Thr Glu Lys Ala Gly Phe Lys
                85                  90                  95

Arg Ala Phe Ile Ile Thr Gly Gln Thr Tyr Thr Arg Lys Val Asp Ile
            100                 105                 110

Glu Val Leu Ser Val Leu Ala Ser Leu Gly Ala Ser Val His Lys Ile
        115                 120                 125

Cys Thr Asp Ile Arg Leu Leu Ala Asn Leu Lys Glu Met Glu Glu Pro
    130                 135                 140

Phe Glu Lys Gln Gln Ile Gly Ser Ser Ala Met Pro Tyr Lys Arg Asn
145                 150                 155                 160

Pro Met Arg Ser Glu Arg Cys Cys Ser Leu Ala Arg His Leu Met Thr
                165                 170                 175
```

```
Leu Val Met Asp Pro Leu Gln Thr Ala Ser Val Gln Trp Phe Glu Arg
            180                 185                 190

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

His Gln Val Glu Trp Arg Arg Ile Cys Leu Ala Glu Ala Phe Leu Thr
    210                 215                 220

Ala Asp Thr Ile Leu Asn Thr Leu Gln Asn Ile Ser Glu Gly Leu Val
225                 230                 235                 240

Val Tyr Pro Lys Val Ile Glu Arg Arg Ile Arg Gln Glu Leu Pro Phe
                245                 250                 255

Met Ala Thr Glu Asn Ile Ile Met Ala Met Val Lys Ala Gly Gly Ser
            260                 265                 270

Arg Gln Asp Cys His Glu Lys Ile Arg Val Leu Ser Gln Gln Ala Ala
        275                 280                 285

Ser Val Val Lys Gln Glu Gly Gly Asp Asn Asp Leu Ile Glu Arg Ile
    290                 295                 300

Gln Val Asp Ala Tyr Phe Ser Pro Ile His Ser Gln Leu Asp His Leu
305                 310                 315                 320

Leu Asp Pro Ser Ser Phe Thr Gly Arg Ala Ser Gln Gln Val Gln Arg
                325                 330                 335

Phe Leu Glu Glu Glu Val Tyr Pro Leu Leu Lys Pro Tyr Glu Ser Val
            340                 345                 350

Met Lys Val Lys Ala Glu Leu Cys
        355                 360


<210> 2908
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 667; "
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<220>
<221> source
<223> /note="Gene Symbol: ADSL; "

<220>
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<223> /note="Gene Name:
adenylosuccinate lyase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485437"

<400> 2908
Met Ala Ala Gly Gly Asp His Gly Ser Pro Asp Ser Tyr Arg Ser Pro
1 5 10 15

Leu Ala Ser Arg Tyr Ala Ser Pro Glu Met Cys Phe Val Phe Ser Asp
20 25 30

Arg Tyr Lys Phe Arg Thr Trp Arg Gln Leu Trp Leu Trp Leu Ala Glu
35 40 45

Ala Glu Gln Thr Leu Gly Leu Pro Ile Thr Asp Glu Gln Ile Gln Glu
50 55 60

Met Lys Ser Asn Leu Glu Asn Ile Asp Phe Lys Met Ala Ala Glu Glu
65 70 75 80

Glu Lys Arg Leu Arg His Asp Val Met Ala His Val His Thr Phe Gly
85 90 95

His Cys Cys Pro Lys Ala Ala Gly Ile Ile His Leu Gly Ala Thr Ser
100 105 110

Cys Tyr Val Gly Asp Asn Thr Ala Cys Thr Ala Asp His Ser Trp Glu
115 120 125

Thr Leu Leu Ser Leu Asp Ser Gly Ser Leu His Gly Ser Pro Glu Leu
130 135 140

Glu Ala Cys Pro Arg
145

<210> 2909
<211> 102

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 667; "

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

<220>
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<223> /note="Gene Name:
adenylosuccinate lyase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485443"

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

<400> 2909
Xaa Arg Ile Gln Val Asp Ala Tyr Phe Ser Pro Ile His Ser Gln Leu
1 5 10 15

Asp His Leu Leu Asp Pro Ser Ser Phe Thr Gly Arg Ala Ser Gln Gln
20 25 30

Val Gln Arg Phe Leu Glu Glu Glu Val Tyr Pro Leu Leu Lys Pro Tyr
35 40 45

Glu Ser Val Met Lys Cys Lys Gln Val Pro Leu Asp Lys Asn Val Val
50 55 60

Cys Val Ile Pro Cys Cys Ile Ser Asn Ser Lys Ser Thr Ser Asp Thr
65 70 75 80

Trp Gln Leu Gly Ser Leu Pro Ala Ser Ala Thr Ala Pro Asp Phe Leu
85 90 95

Val Ala Trp Ile Tyr Ser
100

<210> 2910
<211> 78

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 667; "

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

<220>
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<223> /note="Gene Name:
adenylosuccinate lyase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485462"

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

<400> 2910
Xaa Gly Val Lys Gly Thr Thr Gly Thr Gln Ala Ser Phe Leu Gln Leu
1 5 10 15

Phe Glu Gly Asp Asp His Lys Val Glu Gln Leu Asp Lys Met Val Thr
20 25 30

Glu Lys Ala Gly Phe Lys Arg Ala Phe Ile Ile Thr Gly Gln Thr Tyr
35 40 45

Thr Arg Lys Val Asp Ile Glu Val Leu Ser Val Leu Ala Ser Leu Gly
50 55 60

Ala Ser Val His Lys Ser Phe Gly Asn Arg Glu Glu Ser Glu
65 70 75

<210> 2911
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 667; "

<220>

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

<220>
<221> source
<223> /note="Gene Name:
adenylosuccinate lyase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485477"

<400> 2911
Met Asp Leu Gln Asn Leu Lys Arg Val Arg Asp Asp Leu Arg Phe Arg
1 5 10 15

Gly Val Lys Gly Thr Thr Gly Thr Gln Ala Ser Phe Leu Gln Leu Phe
20 25 30

Glu Gly Asp Asp His Lys Val Glu Gln Leu Asp Lys Met Val Thr Glu
35 40 45

Lys Ala Gly Phe Lys Arg Ala Phe Ile Ile Thr Gly Gln Thr Tyr Thr
50 55 60

Arg Lys Val Asp Ile Glu Val Leu Ser Val Leu Ala Ser Leu Gly Ala
65 70 75 80

Ser Val His Lys Ile Cys Thr Asp Ile Arg Leu Leu Ala Asn Leu Lys
85 90 95

Glu Met Glu Glu Pro Phe Glu Lys Gln Gln Ile Gly Ser Ser Ala Met
100 105 110

Pro Tyr Lys Arg Asn Pro Met Arg Ser Glu Arg Cys Cys Ser Leu Ala
115 120 125

Arg His Leu Met Thr
130

<210> 2912
<211> 484
<212> PRT
<213> Homo sapiens

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

<220>
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<223> /note="Gene Name:
adenylosuccinate lyase; "

<220>
<221> source
<223> /note="Uniprot ID: P30566; "

<220>
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<223> /note="ENSP ID: ENSP00000485525"

<400> 2912
Met Ala Ala Gly Gly Asp His Gly Ser Pro Asp Ser Tyr Arg Ser Pro
1 5 10 15

Leu Ala Ser Arg Tyr Ala Ser Pro Glu Met Cys Phe Val Phe Ser Asp
            20 25 30

Arg Tyr Lys Phe Arg Thr Trp Arg Gln Leu Trp Leu Trp Leu Ala Glu
        35 40 45

Ala Glu Gln Thr Leu Gly Leu Pro Ile Thr Asp Glu Gln Ile Gln Glu
    50 55 60

Met Lys Ser Asn Leu Glu Asn Ile Asp Phe Lys Met Ala Ala Glu Glu
65 70 75 80

Glu Lys Arg Leu Arg His Asp Val Met Ala His Val His Thr Phe Gly
                85 90 95

His Cys Cys Pro Lys Ala Ala Gly Ile Ile His Leu Gly Ala Thr Ser
            100 105 110

Cys Tyr Val Gly Asp Asn Thr Asp Leu Ile Ile Leu Arg Asn Ala Leu
        115 120 125

Asp Leu Leu Leu Pro Lys Leu Ala Arg Val Ile Ser Arg Leu Ala Asp
    130 135 140

Phe Ala Lys Glu Arg Ala Ser Leu Pro Thr Leu Gly Phe Thr His Phe
145 150 155 160

```
Gln Pro Ala Gln Leu Thr Thr Val Gly Lys Arg Cys Cys Leu Trp Ile
                165                 170                 175

Gln Asp Leu Cys Met Asp Leu Gln Asn Leu Lys Arg Val Arg Asp Asp
            180                 185                 190

Leu Arg Phe Arg Gly Val Lys Gly Thr Thr Gly Thr Gln Ala Ser Phe
        195                 200                 205

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

Met Val Thr Glu Lys Ala Gly Phe Lys Arg Ala Phe Ile Ile Thr Gly
225                 230                 235                 240

Gln Thr Tyr Thr Arg Lys Val Asp Ile Glu Val Leu Ser Val Leu Ala
                245                 250                 255

Ser Leu Gly Ala Ser Val His Lys Ile Cys Thr Asp Ile Arg Leu Leu
            260                 265                 270

Ala Asn Leu Lys Glu Met Glu Glu Pro Phe Glu Lys Gln Gln Ile Gly
        275                 280                 285

Ser Ser Ala Met Pro Tyr Lys Arg Asn Pro Met Arg Ser Glu Arg Cys
    290                 295                 300

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

Thr Ala Ser Val Gln Trp Phe Glu Arg Thr Leu Asp Asp Ser Ala Asn
                325                 330                 335

Arg Arg Ile Cys Leu Ala Glu Ala Phe Leu Thr Ala Asp Thr Ile Leu
            340                 345                 350

Asn Thr Leu Gln Asn Ile Ser Glu Gly Leu Val Val Tyr Pro Lys Val
        355                 360                 365

Ile Glu Arg Arg Ile Arg Gln Glu Leu Pro Phe Met Ala Thr Glu Asn
    370                 375                 380
```

```
Ile Ile Met Ala Met Val Lys Ala Gly Gly Ser Arg Gln Asp Cys His
385                 390                 395                 400

Glu Lys Ile Arg Val Leu Ser Gln Gln Ala Ala Ser Val Val Lys Gln
                405                 410                 415

Glu Gly Gly Asp Asn Asp Leu Ile Glu Arg Ile Gln Val Asp Ala Tyr
            420                 425                 430

Phe Ser Pro Ile His Ser Gln Leu Asp His Leu Leu Asp Pro Ser Ser
        435                 440                 445

Phe Thr Gly Arg Ala Ser Gln Gln Val Gln Arg Phe Leu Glu Glu Glu
    450                 455                 460

Val Tyr Pro Leu Leu Lys Pro Tyr Glu Ser Val Met Lys Val Lys Ala
465                 470                 475                 480

Glu Leu Cys Leu
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<210> 2913
<211> 456
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 668; "

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

<220>
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<223> /note="Gene Name:
adenylosuccinate synthase; "

<220>
<221> source
<223> /note="Uniprot ID: P30520; "

<220>
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<223> /note="ENSP ID: ENSP00000355493"

<400> 2913
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Met Ala Phe Ala Glu Thr Tyr Pro Ala Ala Ser Ser Leu Pro Asn Gly
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```
1               5                   10                  15

Asp Cys Gly Arg Pro Arg Ala Arg Pro Gly Gly Asn Arg Val Thr Val
            20                  25                  30

Val Leu Gly Ala Gln Trp Gly Asp Glu Gly Lys Gly Lys Val Val Asp
        35                  40                  45

Leu Leu Ala Gln Asp Ala Asp Ile Val Cys Arg Cys Gln Gly Gly Asn
    50                  55                  60

Asn Ala Gly His Thr Val Val Val Asp Ser Val Glu Tyr Asp Phe His
65                  70                  75                  80

Leu Leu Pro Ser Gly Ile Ile Asn Pro Asn Val Thr Ala Phe Ile Gly
                85                  90                  95

Asn Gly Val Val Ile His Leu Pro Gly Leu Phe Glu Glu Ala Glu Lys
            100                 105                 110

Asn Val Gln Lys Gly Lys Gly Leu Glu Gly Trp Glu Lys Arg Leu Ile
        115                 120                 125

Ile Ser Asp Arg Ala His Ile Val Phe Asp Phe His Gln Ala Ala Asp
    130                 135                 140

Gly Ile Gln Glu Gln Gln Arg Gln Glu Gln Ala Gly Lys Asn Leu Gly
145                 150                 155                 160

Thr Thr Lys Lys Gly Ile Gly Pro Val Tyr Ser Ser Lys Ala Ala Arg
                165                 170                 175

Ser Gly Leu Arg Met Cys Asp Leu Val Ser Asp Phe Asp Gly Phe Ser
            180                 185                 190

Glu Arg Phe Lys Val Leu Ala Asn Gln Tyr Lys Ser Ile Tyr Pro Thr
        195                 200                 205

Leu Glu Ile Asp Ile Glu Gly Glu Leu Gln Lys Leu Lys Gly Tyr Met
    210                 215                 220

Glu Lys Ile Lys Pro Met Val Arg Asp Gly Val Tyr Phe Leu Tyr Glu
225                 230                 235                 240
```

```
Ala Leu His Gly Pro Pro Lys Lys Ile Leu Val Glu Gly Ala Asn Ala
                245                 250                 255

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

Asn Cys Thr Val Gly Gly Val Cys Thr Gly Leu Gly Met Pro Pro Gln
        275                 280                 285

Asn Val Gly Glu Val Tyr Gly Val Val Lys Ala Tyr Thr Thr Arg Val
    290                 295                 300

Gly Ile Gly Ala Phe Pro Thr Glu Gln Asp Asn Glu Ile Gly Glu Leu
305                 310                 315                 320

Leu Gln Thr Arg Gly Arg Glu Phe Gly Val Thr Thr Gly Arg Lys Arg
                325                 330                 335

Arg Cys Gly Trp Leu Asp Leu Val Leu Leu Lys Tyr Ala His Met Ile
            340                 345                 350

Asn Gly Phe Thr Ala Leu Ala Leu Thr Lys Leu Asp Ile Leu Asp Met
        355                 360                 365

Phe Thr Glu Ile Lys Val Gly Val Ala Tyr Lys Leu Asp Gly Glu Ile
    370                 375                 380

Ile Pro His Ile Pro Ala Asn Gln Glu Val Leu Asn Lys Val Glu Val
385                 390                 395                 400

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

Ala Phe Lys Glu Leu Pro Val Asn Ala Gln Asn Tyr Val Arg Phe Ile
            420                 425                 430

Glu Asp Glu Leu Gln Ile Pro Val Lys Trp Ile Gly Val Gly Lys Ser
        435                 440                 445

Arg Glu Ser Met Ile Gln Leu Phe
    450                 455
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<210> 2914
<211> 457
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 669; "

<220>
<221> source
<223> /note="Gene Symbol: ADSSL1; "

<220>
<221> source
<223> /note="Gene Name:
adenylosuccinate synthase like 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N142; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000331260"

<400> 2914
Met Ser Gly Thr Arg Ala Ser Asn Asp Arg Pro Pro Gly Ala Gly Gly
1 5 10 15

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

Val Thr Val Val Leu Gly Ala Gln Trp Gly Asp Glu Gly Lys Gly Lys
35 40 45

Val Val Asp Leu Leu Ala Thr Asp Ala Asp Ile Ile Ser Arg Cys Gln
50 55 60

Gly Gly Asn Asn Ala Gly His Thr Val Val Val Asp Gly Lys Glu Tyr
65 70 75 80

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

Phe Ile Gly Asn Gly Val Val Ile His Leu Pro Gly Leu Phe Glu Glu
100 105 110

Ala Glu Lys Asn Glu Lys Lys Gly Leu Lys Asp Trp Glu Lys Arg Leu

```
        115                 120                 125

Ile Ile Ser Asp Arg Ala His Leu Val Phe Asp Phe His Gln Ala Val
    130                 135                 140

Asp Gly Leu Gln Glu Val Gln Arg Gln Ala Gln Glu Gly Lys Asn Ile
145                 150                 155                 160

Gly Thr Thr Lys Lys Gly Ile Gly Pro Thr Tyr Ser Ser Lys Ala Ala
                165                 170                 175

Arg Thr Gly Leu Arg Ile Cys Asp Leu Leu Ser Asp Phe Asp Glu Phe
            180                 185                 190

Ser Ser Arg Phe Lys Asn Leu Ala His Gln His Gln Ser Met Phe Pro
        195                 200                 205

Thr Leu Glu Ile Asp Ile Glu Gly Gln Leu Lys Arg Leu Lys Gly Phe
    210                 215                 220

Ala Glu Arg Ile Arg Pro Met Val Arg Asp Gly Val Tyr Phe Met Tyr
225                 230                 235                 240

Glu Ala Leu His Gly Pro Pro Lys Lys Ile Leu Val Glu Gly Ala Asn
                245                 250                 255

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

Ser Asn Cys Thr Val Gly Gly Val Cys Thr Gly Leu Gly Ile Pro Pro
        275                 280                 285

Gln Asn Ile Gly Asp Val Tyr Gly Val Val Lys Ala Tyr Thr Thr Arg
    290                 295                 300

Val Gly Ile Gly Ala Phe Pro Thr Glu Gln Ile Asn Glu Ile Gly Gly
305                 310                 315                 320

Leu Leu Gln Thr Arg Gly His Glu Trp Gly Val Thr Thr Gly Arg Lys
                325                 330                 335

Arg Arg Cys Gly Trp Leu Asp Leu Met Ile Leu Arg Tyr Ala His Met
            340                 345                 350
```

```
Val Asn Gly Phe Thr Ala Leu Ala Leu Thr Lys Leu Asp Ile Leu Asp
        355                 360                 365

Val Leu Gly Glu Val Lys Val Gly Val Ser Tyr Lys Leu Asn Gly Lys
    370                 375                 380

Arg Ile Pro Tyr Phe Pro Ala Asn Gln Glu Met Leu Gln Lys Val Glu
385                 390                 395                 400

Val Glu Tyr Glu Thr Leu Pro Gly Trp Lys Ala Asp Thr Thr Gly Ala
                405                 410                 415

Arg Arg Trp Glu Asp Leu Pro Pro Gln Ala Gln Asn Tyr Ile Arg Phe
            420                 425                 430

Val Glu Asn His Val Gly Val Ala Val Lys Trp Val Gly Val Gly Lys
        435                 440                 445

Ser Arg Glu Ser Met Ile Gln Leu Phe
    450                 455
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<210> 2915
<211> 500
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 669; "

<220>
<221> source
<223> /note="Gene Symbol: ADSSL1; "

<220>
<221> source
<223> /note="Gene Name:
adenylosuccinate synthase like 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N142; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000333019"

<400> 2915

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Met Val Gly Arg Ser Cys Gly Val Ala Thr Gln Arg Gln Gly Gly Gly
1               5                  10                  15

Gln Arg Pro Thr Asn Leu Ala Leu Thr Leu Ser Ser Ser Pro Ala His
            20                  25                  30

Ser Thr Ala Leu Pro Trp Leu Pro Pro Arg Ser Leu Gln Leu Leu Ser
        35                  40                  45

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

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

His Gly Ser Asn Ala Gly Gly His Thr Cys Leu Pro Arg Arg Thr Ala
                85                  90                  95

Gly Ala Gly Ser Leu Thr Pro Gly Gly Glu Arg Gly Gly Asn Asn Ala
            100                 105                 110

Gly His Thr Val Val Val Asp Gly Lys Glu Tyr Asp Phe His Leu Leu
        115                 120                 125

Pro Ser Gly Ile Ile Asn Thr Lys Ala Val Ser Phe Ile Gly Asn Gly
    130                 135                 140

Val Val Ile His Leu Pro Gly Leu Phe Glu Glu Ala Glu Lys Asn Glu
145                 150                 155                 160

Lys Lys Gly Leu Lys Asp Trp Glu Lys Arg Leu Ile Ile Ser Asp Arg
                165                 170                 175

Ala His Leu Val Phe Asp Phe His Gln Ala Val Asp Gly Leu Gln Glu
            180                 185                 190

Val Gln Arg Gln Ala Gln Glu Gly Lys Asn Ile Gly Thr Thr Lys Lys
        195                 200                 205

Gly Ile Gly Pro Thr Tyr Ser Ser Lys Ala Ala Arg Thr Gly Leu Arg
    210                 215                 220

Ile Cys Asp Leu Leu Ser Asp Phe Asp Glu Phe Ser Ser Arg Phe Lys
```

225 230 235 240

Asn Leu Ala His Gln His Gln Ser Met Phe Pro Thr Leu Glu Ile Asp
245 250 255

Ile Glu Gly Gln Leu Lys Arg Leu Lys Gly Phe Ala Glu Arg Ile Arg
260 265 270

Pro Met Val Arg Asp Gly Val Tyr Phe Met Tyr Glu Ala Leu His Gly
275 280 285

Pro Pro Lys Lys Ile Leu Val Glu Gly Ala Asn Ala Ala Leu Leu Asp
290 295 300

Ile Asp Phe Gly Thr Tyr Pro Phe Val Thr Ser Ser Asn Cys Thr Val
305 310 315 320

Gly Gly Val Cys Thr Gly Leu Gly Ile Pro Pro Gln Asn Ile Gly Asp
325 330 335

Val Tyr Gly Val Val Lys Ala Tyr Thr Thr Arg Val Gly Ile Gly Ala
340 345 350

Phe Pro Thr Glu Gln Ile Asn Glu Ile Gly Gly Leu Leu Gln Thr Arg
355 360 365

Gly His Glu Trp Gly Val Thr Thr Gly Arg Lys Arg Arg Cys Gly Trp
370 375 380

Leu Asp Leu Met Ile Leu Arg Tyr Ala His Met Val Asn Gly Phe Thr
385 390 395 400

Ala Leu Ala Leu Thr Lys Leu Asp Ile Leu Asp Val Leu Gly Glu Val
405 410 415

Lys Val Gly Val Ser Tyr Lys Leu Asn Gly Lys Arg Ile Pro Tyr Phe
420 425 430

Pro Ala Asn Gln Glu Met Leu Gln Lys Val Glu Val Glu Tyr Glu Thr
435 440 445

Leu Pro Gly Trp Lys Ala Asp Thr Thr Gly Ala Arg Arg Trp Glu Asp
450 455 460

```
Leu Pro Pro Gln Ala Gln Asn Tyr Ile Arg Phe Val Glu Asn His Val
465                 470                 475                 480


Gly Val Ala Val Lys Trp Val Gly Val Gly Lys Ser Arg Glu Ser Met
                485                 490                 495


Ile Gln Leu Phe
            500


<210> 2916
<211> 74
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 669; "

<220>
<221> source
<223> /note="Gene Symbol: ADSSL1; "

<220>
<221> source
<223> /note="Gene Name:
      adenylosuccinate synthase like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450433"

<400> 2916
Met Leu Gln Lys Val Glu Val Glu Tyr Glu Thr Leu Pro Gly Trp Lys
1               5                   10                  15


Ala Asp Thr Thr Gly Ala Arg Arg Trp Glu Asp Leu Pro Pro Gln Ala
            20                  25                  30


Gln Asn Tyr Ile Arg Phe Val Glu Asn His Val Gly Val Ala Val Cys
        35                  40                  45


Ile Ile Thr Val Phe Ser Ala Leu Ser Val Lys Trp Val Gly Val Gly
    50                  55                  60


Lys Ser Arg Glu Ser Met Ile Gln Leu Phe
65                  70
```

<210> 2917
<211> 226
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 669; "

<220>
<221> source
<223> /note="Gene Symbol: ADSSL1; "

<220>
<221> source
<223> /note="Gene Name:
adenylosuccinate synthase like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450759"

<400> 2917

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

```
Val Val Ile His Leu Pro Gly Leu Phe Glu Glu Ala Glu Lys Asn Glu
145                 150                 155                 160


Lys Lys Gly Leu Lys Asp Trp Glu Lys Arg Leu Ile Ile Ser Asp Arg
                165                 170                 175


Ala His Leu Gly Cys Arg Arg Thr Ser Gly Ser Ala Ala Pro Gly Thr
            180                 185                 190


Arg Gly Glu Glu Tyr Arg His His Gln Glu Gly Asn Arg Thr Asn Leu
        195                 200                 205


Leu Phe Gln Ser Cys Pro Asp Arg Pro Pro His Leu Arg Pro Pro Val
    210                 215                 220


Arg Phe
225


<210> 2918
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 669; "

<220>
<221> source
<223> /note="Gene Symbol: ADSSL1; "

<220>
<221> source
<223> /note="Gene Name:
      adenylosuccinate synthase like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452303"

<400> 2918
Met Leu Gln Lys Val Glu Val Glu Tyr Glu Thr Leu Pro Gly Trp Lys
1               5                   10                  15


Ala Asp Thr Thr Gly Ala Arg Arg Trp Glu Asp Leu Pro Pro Gln Ala
            20                  25                  30
```

```
Gln Asn Tyr Ile Arg Phe Val Glu Asn His Val Gly Val Ala Val Lys
        35                  40                  45

Trp Val Gly Val Gly Lys Ser Arg Glu Ser Met Ile Gln Leu Phe
    50                  55                  60
```

<210> 2919
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 669; "

<220>
<221> source
<223> /note="Gene Symbol: ADSSL1; "

<220>
<221> source
<223> /note="Gene Name:
adenylosuccinate synthase like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473778"

<400> 2919

```
Gly Val Val Gly Arg Ser Val Ala Ser Ala Ser Trp Gly Gly Ala Trp
1               5                   10                  15

Arg Arg Arg Arg Gly Glu Glu Arg Gly Val Gly Val Val Gly Arg Ser
            20                  25                  30

Val Ala Ser Ala Ser Trp Gly Gly Ala Trp Arg Arg Arg Arg Gly Glu
        35                  40                  45

Glu Arg Gly Val Gly Met Gly Gly Asn Asn Ala Gly His Thr Val Val
    50                  55                  60

Val Asp Gly Lys Glu Tyr Asp Phe His Leu Leu Pro Ser Gly Ile Ile
65                  70                  75                  80

Asn Thr Lys Ala Val Ser Phe Ile Gly Asn Gly Val Val Ile His Leu
                85                  90                  95

Pro Gly Leu Phe Glu Glu Ala Glu Lys Asn Glu Lys Lys Gly Leu Lys
            100                 105                 110
```

```
Asp Trp Glu Lys Arg Leu Ile Ile Ser Asp Arg Ala His Leu Gly Asp
        115                 120                 125

Ser Gly Gln Gln Glu Val Arg Ser Met Tyr Thr His Leu Ser Ser Ala
    130                 135                 140

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

Ile Phe Thr Arg Leu Ser Thr Asp Phe Arg Lys Cys Ser Ala Arg His
                165                 170                 175

Lys Arg Gly Arg Ile
            180


<210> 2920
<211> 411
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 670; "

<220>
<221> source
<223> /note="Gene Symbol: AJAP1; "

<220>
<221> source
<223> /note="Gene Name:
      adherens junctions associated prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UKB5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367432"

<400> 2920
Met Trp Ile Gln Gln Leu Leu Gly Leu Ser Ser Met Ser Ile Arg Trp
1               5                   10                  15

Pro Gly Arg Pro Leu Gly Ser His Ala Trp Ile Leu Ile Ala Met Phe
            20                  25                  30
```

```
Gln Leu Ala Val Asp Leu Pro Ala Cys Glu Ala Leu Gly Pro Gly Pro
        35                  40                  45

Glu Phe Trp Leu Leu Pro Arg Ser Pro Pro Arg Pro Pro Arg Leu Trp
    50                  55                  60

Ser Phe Arg Ser Gly Gln Pro Ala Arg Val Pro Ala Pro Val Trp Ser
65                  70                  75                  80

Pro Arg Pro Pro Arg Val Glu Arg Ile His Gly Gln Met Gln Met Pro
                85                  90                  95

Arg Ala Arg Arg Ala His Arg Pro Arg Asp Gln Ala Ala Ala Leu Val
            100                 105                 110

Pro Lys Ala Gly Leu Ala Lys Pro Pro Ala Ala Ala Lys Ser Ser Pro
        115                 120                 125

Ser Leu Ala Ser Ser Ser Ser Ser Ser Ser Ser Ala Val Ala Gly Gly
    130                 135                 140

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

Gly Asp Gly Leu Ser Ser Phe Asp Ser Arg Gly Ser Arg Pro Thr Thr
                165                 170                 175

Glu Thr Glu Phe Ile Ala Trp Gly Pro Thr Gly Asp Glu Glu Ala Leu
            180                 185                 190

Glu Ser Asn Thr Phe Pro Gly Val Tyr Gly Pro Thr Thr Val Ser Ile
        195                 200                 205

Leu Gln Thr Arg Lys Thr Thr Val Ala Ala Thr Thr Thr Thr Thr Thr
    210                 215                 220

Thr Ala Thr Pro Met Thr Leu Gln Thr Lys Gly Phe Thr Glu Ser Leu
225                 230                 235                 240

Asp Pro Arg Arg Arg Ile Pro Gly Gly Val Ser Thr Thr Glu Pro Ser
                245                 250                 255

Thr Ser Pro Ser Asn Asn Gly Glu Val Thr Gln Pro Pro Arg Ile Leu
```

```
            260                 265                 270

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

Ser Leu Ile Met Val Ile Ala Ala Leu Ile Thr Thr Leu Val Leu Lys
    290                 295                 300

Asn Cys Cys Ala Gln Ser Gly Asn Thr Arg Arg Asn Ser His Gln Arg
305                 310                 315                 320

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

Ser Ala Arg Val Pro Ser Ser Leu Asp Ile Phe Thr Ala Tyr Asn Glu
            340                 345                 350

Thr Leu Gln Cys Ser His Glu Cys Val Arg Ala Ser Val Pro Val Tyr
        355                 360                 365

Thr Asp Glu Thr Leu His Ser Thr Thr Gly Glu Tyr Lys Ser Thr Phe
    370                 375                 380

Asn Gly Asn Arg Pro Ser Ser Ser Asp Arg His Leu Ile Pro Val Ala
385                 390                 395                 400

Phe Val Ser Glu Lys Trp Phe Glu Ile Ser Cys
                405                 410


<210> 2921
<211> 411
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 670; "

<220>
<221> source
<223> /note="Gene Symbol: AJAP1; "

<220>
<221> source
<223> /note="Gene Name:
      adherens junctions associated prt 1; "
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<220>
<221> source
<223> /note="Uniprot ID: Q9UKB5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367433"

<400> 2921
Met Trp Ile Gln Gln Leu Leu Gly Leu Ser Ser Met Ser Ile Arg Trp
1   5   10   15

Pro Gly Arg Pro Leu Gly Ser His Ala Trp Ile Leu Ile Ala Met Phe
            20   25   30

Gln Leu Ala Val Asp Leu Pro Ala Cys Glu Ala Leu Gly Pro Gly Pro
        35   40   45

Glu Phe Trp Leu Leu Pro Arg Ser Pro Pro Arg Pro Pro Arg Leu Trp
    50   55   60

Ser Phe Arg Ser Gly Gln Pro Ala Arg Val Pro Ala Pro Val Trp Ser
65   70   75   80

Pro Arg Pro Pro Arg Val Glu Arg Ile His Gly Gln Met Gln Met Pro
                85   90   95

Arg Ala Arg Arg Ala His Arg Pro Arg Asp Gln Ala Ala Ala Leu Val
            100   105   110

Pro Lys Ala Gly Leu Ala Lys Pro Pro Ala Ala Ala Lys Ser Ser Pro
        115   120   125

Ser Leu Ala Ser Ser Ser Ser Ser Ser Ser Ser Ala Val Ala Gly Gly
    130   135   140

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

Gly Asp Gly Leu Ser Ser Phe Asp Ser Arg Gly Ser Arg Pro Thr Thr
                165   170   175

Glu Thr Glu Phe Ile Ala Trp Gly Pro Thr Gly Asp Glu Glu Ala Leu
            180   185   190

```
Glu Ser Asn Thr Phe Pro Gly Val Tyr Gly Pro Thr Thr Val Ser Ile
        195                 200                 205

Leu Gln Thr Arg Lys Thr Thr Val Ala Ala Thr Thr Thr Thr Thr Thr
    210                 215                 220

Thr Ala Thr Pro Met Thr Leu Gln Thr Lys Gly Phe Thr Glu Ser Leu
225                 230                 235                 240

Asp Pro Arg Arg Arg Ile Pro Gly Gly Val Ser Thr Thr Glu Pro Ser
                245                 250                 255

Thr Ser Pro Ser Asn Asn Gly Glu Val Thr Gln Pro Pro Arg Ile Leu
            260                 265                 270

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

Ser Leu Ile Met Val Ile Ala Ala Leu Ile Thr Thr Leu Val Leu Lys
    290                 295                 300

Asn Cys Cys Ala Gln Ser Gly Asn Thr Arg Arg Asn Ser His Gln Arg
305                 310                 315                 320

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

Ser Ala Arg Val Pro Ser Ser Leu Asp Ile Phe Thr Ala Tyr Asn Glu
            340                 345                 350

Thr Leu Gln Cys Ser His Glu Cys Val Arg Ala Ser Val Pro Val Tyr
        355                 360                 365

Thr Asp Glu Thr Leu His Ser Thr Thr Gly Glu Tyr Lys Ser Thr Phe
    370                 375                 380

Asn Gly Asn Arg Pro Ser Ser Ser Asp Arg His Leu Ile Pro Val Ala
385                 390                 395                 400

Phe Val Ser Glu Lys Trp Phe Glu Ile Ser Cys
                405                 410
```

<210> 2922

<211> 463
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 671; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q86SQ6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376383"

<400> 2922

```
Met Leu Trp Ile Gly Val Thr Ala Arg Asn Ile Tyr Lys Gln Val Thr
1               5                  10                  15

Lys Lys Ala Pro Leu Cys Leu Asp Thr Asp Gln Pro Pro Tyr Pro Arg
            20                  25                  30

Gln Pro Leu Leu Arg Phe Tyr Leu Val Ser Gly Gly Val Pro Phe Ile
        35                  40                  45

Ile Cys Gly Val Thr Ala Ala Thr Asn Ile Arg Asn Tyr Gly Thr Glu
    50                  55                  60

Asp Glu Asp Thr Ala Tyr Cys Trp Met Ala Trp Glu Pro Ser Leu Gly
65                  70                  75                  80

Ala Phe Tyr Gly Pro Ala Ala Ile Ile Thr Leu Val Thr Cys Val Tyr
                85                  90                  95

Phe Leu Gly Thr Tyr Val Gln Leu Arg Arg His Pro Gly Arg Arg Tyr
            100                 105                 110

Glu Leu Arg Thr Gln Pro Glu Glu Gln Arg Arg Leu Ala Thr Pro Glu
        115                 120                 125
```

```
Gly Gly Arg Gly Ile Arg Pro Gly Thr Pro Pro Ala His Asp Ala Pro
    130                 135                 140

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

Ala Ala Ala Phe Thr Leu Phe Leu Phe Thr Ala Thr Trp Ala Phe Gly
                165                 170                 175

Ala Leu Ala Val Ser Gln Gly His Phe Leu Asp Met Val Phe Ser Cys
            180                 185                 190

Leu Tyr Gly Ala Phe Cys Val Thr Leu Gly Leu Phe Val Leu Ile His
        195                 200                 205

His Cys Ala Lys Arg Glu Asp Val Trp Gln Cys Trp Trp Ala Cys Cys
    210                 215                 220

Pro Pro Arg Lys Asp Ala His Pro Ala Leu Asp Ala Asn Gly Ala Ala
225                 230                 235                 240

Leu Gly Arg Ala Ala Cys Leu His Ser Pro Gly Leu Gly Gln Pro Arg
                245                 250                 255

Gly Phe Ala His Pro Pro Gly Pro Cys Lys Met Thr Asn Leu Gln Ala
            260                 265                 270

Ala Gln Gly His Ala Ser Cys Leu Ser Pro Ala Thr Pro Cys Cys Ala
        275                 280                 285

Lys Met His Cys Glu Pro Leu Thr Ala Asp Glu Ala His Val His Leu
    290                 295                 300

Gln Glu Glu Gly Ala Phe Gly His Asp Pro His Leu His Gly Cys Leu
305                 310                 315                 320

Gln Gly Arg Thr Lys Pro Pro Tyr Phe Ser Arg His Pro Ala Glu Glu
                325                 330                 335

Pro Glu Tyr Ala Tyr His Ile Pro Ser Ser Leu Asp Gly Ser Pro Arg
            340                 345                 350
```

```
Ser Ser Arg Thr Asp Ser Pro Pro Ser Ser Leu Asp Gly Pro Ala Gly
        355                 360                 365

Thr His Thr Leu Ala Cys Cys Thr Gln Gly Asp Pro Phe Pro Met Val
    370                 375                 380

Thr Gln Pro Glu Gly Ser Asp Gly Ser Pro Ala Leu Tyr Ser Cys Pro
385                 390                 395                 400

Thr Gln Pro Gly Arg Glu Ala Ala Leu Gly Pro Gly His Leu Glu Met
                405                 410                 415

Leu Arg Arg Thr Gln Ser Leu Pro Phe Gly Gly Pro Ser Gln Asn Gly
            420                 425                 430

Leu Pro Lys Gly Lys Leu Leu Glu Gly Leu Pro Phe Gly Thr Asp Gly
        435                 440                 445

Thr Gly Asn Ile Arg Thr Gly Pro Trp Lys Asn Glu Thr Thr Val
    450                 455                 460


<210> 2923
<211> 560
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 671; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRA1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor A1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q86SQ6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376384"

<400> 2923
Met Asp Leu Lys Thr Val Leu Ser Leu Pro Arg Tyr Pro Gly Glu Phe
1               5                   10                  15
```

```
Leu His Pro Val Val Tyr Ala Cys Thr Ala Val Met Leu Leu Cys Leu
            20                  25                  30

Leu Ala Ser Phe Val Thr Tyr Ile Val His Gln Ser Ala Ile Arg Ile
        35                  40                  45

Ser Arg Lys Gly Arg His Thr Leu Leu Asn Phe Cys Phe His Ala Ala
    50                  55                  60

Leu Thr Phe Thr Val Phe Ala Gly Gly Ile Asn Arg Thr Lys Tyr Pro
65                  70                  75                  80

Ile Leu Cys Gln Ala Val Gly Ile Val Leu His Tyr Ser Thr Leu Ser
                85                  90                  95

Thr Met Leu Trp Ile Gly Val Thr Ala Arg Asn Ile Tyr Lys Gln Val
            100                 105                 110

Thr Lys Lys Ala Pro Leu Cys Leu Asp Thr Asp Gln Pro Pro Tyr Pro
        115                 120                 125

Arg Gln Pro Leu Leu Arg Phe Tyr Leu Val Ser Gly Gly Val Pro Phe
    130                 135                 140

Ile Ile Cys Gly Val Thr Ala Ala Thr Asn Ile Arg Asn Tyr Gly Thr
145                 150                 155                 160

Glu Asp Glu Asp Thr Ala Tyr Cys Trp Met Ala Trp Glu Pro Ser Leu
                165                 170                 175

Gly Ala Phe Tyr Gly Pro Ala Ala Ile Ile Thr Leu Val Thr Cys Val
            180                 185                 190

Tyr Phe Leu Gly Thr Tyr Val Gln Leu Arg Arg His Pro Gly Arg Arg
        195                 200                 205

Tyr Glu Leu Arg Thr Gln Pro Glu Glu Gln Arg Arg Leu Ala Thr Pro
    210                 215                 220

Glu Gly Gly Arg Gly Ile Arg Pro Gly Thr Pro Pro Ala His Asp Ala
225                 230                 235                 240
```

```
Pro Gly Ala Ser Val Leu Gln Asn Glu His Ser Phe Gln Ala Gln Leu
                245                 250                 255

Arg Ala Ala Ala Phe Thr Leu Phe Leu Phe Thr Ala Thr Trp Ala Phe
            260                 265                 270

Gly Ala Leu Ala Val Ser Gln Gly His Phe Leu Asp Met Val Phe Ser
        275                 280                 285

Cys Leu Tyr Gly Ala Phe Cys Val Thr Leu Gly Leu Phe Val Leu Ile
    290                 295                 300

His His Cys Ala Lys Arg Glu Asp Val Trp Gln Cys Trp Trp Ala Cys
305                 310                 315                 320

Cys Pro Pro Arg Lys Asp Ala His Pro Ala Leu Asp Ala Asn Gly Ala
                325                 330                 335

Ala Leu Gly Arg Ala Ala Cys Leu His Ser Pro Gly Leu Gly Gln Pro
            340                 345                 350

Arg Gly Phe Ala His Pro Pro Gly Pro Cys Lys Met Thr Asn Leu Gln
        355                 360                 365

Ala Ala Gln Gly His Ala Ser Cys Leu Ser Pro Ala Thr Pro Cys Cys
    370                 375                 380

Ala Lys Met His Cys Glu Pro Leu Thr Ala Asp Glu Ala His Val His
385                 390                 395                 400

Leu Gln Glu Glu Gly Ala Phe Gly His Asp Pro His Leu His Gly Cys
                405                 410                 415

Leu Gln Gly Arg Thr Lys Pro Pro Tyr Phe Ser Arg His Pro Ala Glu
            420                 425                 430

Glu Pro Glu Tyr Ala Tyr His Ile Pro Ser Ser Leu Asp Gly Ser Pro
        435                 440                 445

Arg Ser Ser Arg Thr Asp Ser Pro Pro Ser Ser Leu Asp Gly Pro Ala
    450                 455                 460
```

```
Gly Thr His Thr Leu Ala Cys Cys Thr Gln Gly Asp Pro Phe Pro Met
465                 470                 475                 480

Val Thr Gln Pro Glu Gly Ser Asp Gly Ser Pro Ala Leu Tyr Ser Cys
                485                 490                 495

Pro Thr Gln Pro Gly Arg Glu Ala Ala Leu Gly Pro Gly His Leu Glu
            500                 505                 510

Met Leu Arg Arg Thr Gln Ser Leu Pro Phe Gly Gly Pro Ser Gln Asn
        515                 520                 525

Gly Leu Pro Lys Gly Lys Leu Leu Glu Gly Leu Pro Phe Gly Thr Asp
    530                 535                 540

Gly Thr Gly Asn Ile Arg Thr Gly Pro Trp Lys Asn Glu Thr Thr Val
545                 550                 555                 560
```

<210> 2924
<211> 1279
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 671; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q86SQ6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000475778"

<400> 2924

```
Met Arg Gly His Gly Asn His Ser Arg Leu Lys Ser Arg Cys Ala Ser
1               5                   10                  15

Leu Gly Asn Val His His His Gln Ala Gln Met Ala His Gly Ala His
            20                  25                  30
```

```
Cys Arg Gly Gly Arg Thr Pro Gln Ser Pro Asp Ser Arg Gly Pro Thr
        35                  40                  45

Ala Gly Gly His Thr Arg Gly Arg Trp Thr Tyr Arg Pro Ile Glu Ala
    50                  55                  60

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

Gly Glu Pro Ser Trp Ala Trp Val Phe Arg Ser Gly Tyr Leu Gln Arg
                85                  90                  95

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

Trp Gln His His Pro Gly Arg Asp Ser Gly Phe Leu Gly Pro Gly Phe
        115                 120                 125

Ile Asp Leu Leu Arg Glu Glu Pro Ser Gly Arg Ala Asp Gly Lys Ala
    130                 135                 140

Ala Ala Gln Lys Thr Gly Arg Leu Tyr Leu Phe Pro Thr Phe Leu Gly
145                 150                 155                 160

Asn Lys Leu Pro Glu Ala Ala Asp Ser Phe Gly Glu Ile Ala Ser Gly
                165                 170                 175

Asn Ser Val Ile Phe Thr Ser Val Leu Gln Ser Ser His Pro Pro Gly
            180                 185                 190

Thr Pro Pro Pro Ser Ala Arg Lys Pro Ser Pro Gly Ala Ala Met Leu
        195                 200                 205

Val Cys Glu Glu Thr Leu Glu Leu Gly Ala Gln Gly Cys Trp Gly Ser
    210                 215                 220

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

Gly Gly Ser Arg Leu Gly Gly Ala Gly Cys Thr Met Gly Leu Leu Met
                245                 250                 255
```

```
Ala Leu Gln Ala Arg Arg Pro Arg Asp Gly Thr Trp Ala Asp Pro Arg
            260                 265                 270

Arg Cys Ser Arg Ala Val Glu Gly Ser Gly Leu Thr Arg Ala Ala Leu
        275                 280                 285

Val Ser Pro Gly Pro Ser Gly Val Glu Glu Asp Thr Arg Arg Glu Gly
    290                 295                 300

Cys Val Leu Val Gly Ser Trp Arg Ser Ser Thr His Arg Ser Arg Val
305                 310                 315                 320

Leu Ile Ile Asn Thr Pro Ser Gly Arg Thr Pro Trp Ser Gln Gly Ser
                325                 330                 335

Leu Gly Ser Thr Gly Arg Tyr Asn Gln Thr Arg Ala Pro Gly Ser Gln
            340                 345                 350

Gln Gln Gly Leu Cys Ser Asp Ala Ala Leu His Glu Asp Phe Val Pro
        355                 360                 365

Glu Pro Thr Pro Ala Phe Phe Gln Tyr Pro Pro Gln Ala Phe Ser Lys
    370                 375                 380

Thr Lys Val Arg Asp Leu Gly Arg Gly Gly Leu Tyr Ala Phe Ser Lys
385                 390                 395                 400

Glu Glu Lys Val Ser Glu Ala Gln Arg Val Glu Ala Tyr Glu Thr His
                405                 410                 415

Gly Leu Gly Leu Ser Thr Gly Arg Gln Asn Pro Val Pro Ser Pro Cys
            420                 425                 430

Lys Pro Gly Cys Val Cys Gln Gly Leu Ala Leu Asp Ala Glu Ala Trp
        435                 440                 445

Pro Arg His Pro Gly Arg Arg Pro Cys Ala Ala Lys Glu Ala Cys Leu
    450                 455                 460

Gly Pro Pro Gly Cys Ser Gly Glu Leu Ser Leu Pro Glu Glu Glu Gly
465                 470                 475                 480
```

```
Ile Ala Pro Gly Ala Ala Thr Ala Ala Pro Ala Trp Val Pro His Gly
                485                 490                 495

Arg Val Ser Arg Phe Leu Thr Val Lys Leu Phe Thr Tyr Val Thr Met
            500                 505                 510

Tyr Gln Cys Lys Gln Glu Arg Ile Leu Arg Leu Cys Ile Ser Gly Glu
        515                 520                 525

Ser Gly Arg Tyr Val Arg Arg Ser Arg Phe Arg Asn Phe Ala Ala Leu
    530                 535                 540

Met Val Ser Thr Gly Val Pro Gly Val Leu Gln Leu Gly Ala Arg Pro
545                 550                 555                 560

Leu Arg Gly Gly Gly His Pro Tyr Gly Asp Ser Gln Ala Gly Lys Val
                565                 570                 575

Val Glu Trp Arg Ala Gly Asp Arg Ala Ser Gly Leu Ser Ala Gly Glu
            580                 585                 590

Arg Arg Phe Leu Ser Gln Ser Glu Leu Gln Thr Trp Pro Arg Thr Pro
        595                 600                 605

His Cys Val Gly Lys Lys Val Pro Gln Pro Val Gly Ala Ala Asp Leu
    610                 615                 620

Ala Pro Asp Thr Ser Leu Cys Arg Lys Glu Gly Ser Ser Ala Ser Arg
625                 630                 635                 640

Ser Cys Arg Pro Gly Pro Gly His Leu Thr Arg Arg Glu Glu Asp Ser
                645                 650                 655

Phe Arg Gln Leu Ala Phe Pro Arg Phe Glu Glu Val Thr Phe Pro Pro
            660                 665                 670

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

Ala Ser Gln Gly Leu Val Leu Ala Gly Arg Thr Arg Ser Val Ala Ser
    690                 695                 700

Gly Gly Lys Gln Glu Leu Ser Gly Pro Leu Ala Ala Cys Ile Pro Thr
```

705 710 715 720

Gln Asp Leu Lys Thr Val Leu Ser Leu Pro Arg Tyr Pro Gly Glu Phe
725 730 735

Leu His Pro Val Val Tyr Ala Cys Thr Ala Val Met Leu Leu Cys Leu
740 745 750

Leu Ala Ser Phe Val Thr Tyr Ile Val His Gln Ser Ala Ile Arg Ile
755 760 765

Ser Arg Lys Gly Arg His Thr Leu Leu Asn Phe Cys Phe His Ala Ala
770 775 780

Leu Thr Phe Thr Val Phe Ala Gly Gly Ile Asn Arg Thr Lys Tyr Pro
785 790 795 800

Ile Leu Cys Gln Ala Val Gly Ile Val Leu His Tyr Ser Thr Leu Ser
805 810 815

Thr Met Leu Trp Ile Gly Val Thr Ala Arg Asn Ile Tyr Lys Gln Val
820 825 830

Thr Lys Lys Ala Pro Leu Cys Leu Asp Thr Asp Gln Pro Pro Tyr Pro
835 840 845

Arg Gln Pro Leu Leu Arg Phe Tyr Leu Val Ser Gly Gly Val Pro Phe
850 855 860

Ile Ile Cys Gly Val Thr Ala Ala Thr Asn Ile Arg Asn Tyr Gly Thr
865 870 875 880

Glu Asp Glu Asp Thr Ala Cys Trp Met Ala Trp Glu Pro Ser Leu Gly
885 890 895

Ala Phe Tyr Gly Pro Ala Ala Ile Ile Thr Leu Val Thr Cys Val Tyr
900 905 910

Phe Leu Gly Thr Tyr Val Gln Leu Arg Arg His Pro Gly Arg Arg Tyr
915 920 925

Glu Leu Arg Thr Gln Pro Glu Glu Gln Arg Arg Leu Ala Thr Pro Glu
930 935 940

```
Gly Gly Arg Gly Ile Arg Pro Gly Thr Pro Pro Ala His Asp Ala Pro
945                 950                 955                 960

Gly Ala Ser Val Leu Gln Asn Glu His Ser Phe Gln Ala Gln Leu Arg
                965                 970                 975

Ala Ala Ala Phe Thr Leu Phe Leu Phe Thr Ala Thr Trp Ala Phe Gly
            980                 985                 990

Ala Leu Ala Val Ser Gln Gly His  Phe Leu Asp Met Val  Phe Ser
Cys
        995                 1000                1005

Leu Tyr  Gly Ala Phe Cys Val  Thr Leu Gly Leu Phe  Val Leu Ile
    1010                1015                1020

His His  Cys Ala Lys Arg Glu  Asp Val Trp Gln Cys  Trp Trp Ala
    1025                1030                1035

Cys Cys  Pro Pro Arg Lys Asp  Ala His Pro Ala Leu  Asp Ala Asn
    1040                1045                1050

Gly Ala  Ala Leu Gly Arg Ala  Ala Cys Leu His Ser  Pro Gly Leu
    1055                1060                1065

Gly Gln  Pro Arg Gly Phe Ala  His Pro Pro Gly Pro  Cys Lys Met
    1070                1075                1080

Thr Asn  Leu Gln Ala Ala Gln  Gly His Ala Ser Cys  Leu Ser Pro
    1085                1090                1095

Ala Thr  Pro Cys Cys Ala Lys  Met His Cys Glu Pro  Leu Thr Ala
    1100                1105                1110

Asp Glu  Ala His Val His Leu  Gln Glu Glu Gly Ala  Phe Gly His
    1115                1120                1125

Asp Pro  His Leu His Gly Cys  Leu Gln Gly Arg Thr  Lys Pro Pro
    1130                1135                1140

Tyr Phe  Ser Arg His Pro Ala  Glu Glu Pro Glu Tyr  Ala Tyr His
    1145                1150                1155
```

```
Ile Pro  Ser Ser Leu Asp Gly  Ser Pro Arg Ser Ser  Arg Thr Asp
    1160                1165                1170

Ser Pro  Pro Ser Ser Leu Asp  Gly Pro Ala Gly Thr  His Thr Leu
    1175                1180                1185

Ala Cys  Cys Thr Gln Gly Asp  Pro Phe Pro Met Val  Thr Gln Pro
    1190                1195                1200

Glu Gly  Ser Asp Gly Ser Pro  Ala Leu Tyr Ser Cys  Pro Thr Gln
    1205                1210                1215

Pro Gly  Arg Glu Ala Ala Leu  Gly Pro Gly His Leu  Glu Met Leu
    1220                1225                1230

Arg Arg  Thr Gln Ser Leu Pro  Phe Gly Gly Pro Ser  Gln Asn Gly
    1235                1240                1245

Leu Pro  Lys Gly Lys Leu Leu  Glu Gly Leu Pro Phe  Gly Thr Asp
    1250                1255                1260

Gly Thr  Gly Asn Ile Arg Thr  Gly Pro Trp Lys Asn  Glu Thr Thr
    1265                1270                1275

Val
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<210> 2925
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<223> /note="Gene Symbol: ADGRA2; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor A2; "

<220>

<221> source
<223> /note="Uniprot ID: Q96PE1; "

<220>
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<400> 2925
Met Gly Ala Gly Gly Arg Arg Met Arg Gly Ala Pro Ala Arg Leu Leu
1   5   10   15

Leu Pro Leu Leu Pro Trp Leu Leu Leu Leu Leu Ala Pro Glu Ala Arg
            20   25   30

Gly Ala Pro Gly Cys Pro Leu Ser Ile Arg Ser Cys Lys Cys Ser Gly
        35   40   45

Glu Arg Pro Lys Gly Leu Ser Gly Gly Val Pro Gly Pro Ala Arg Arg
    50   55   60

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

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

Thr Gly Leu Arg Asn Gly Ser Phe Leu Gly Leu Ser Leu Leu Glu Lys
            100   105   110

Leu Asp Leu Arg Asn Asn Ile Ile Ser Thr Val Gln Pro Gly Ala Phe
        115   120   125

Leu Gly Leu Gly Glu Leu Lys Arg Leu Asp Leu Ser Asn Asn Arg Ile
    130   135   140

Gly Cys Leu Thr Ser Glu Thr Phe Gln Gly Leu Pro Arg Leu Leu Arg
145   150   155   160

Leu Asn Ile Ser Gly Asn Ile Phe Ser Ser Leu Gln Pro Gly Val Phe
                165   170   175

Asp Glu Leu Pro Ala Leu Lys Val Val Asp Leu Gly Thr Glu Phe Leu
            180   185   190

Thr Cys Asp Cys His Leu Arg Trp Leu Leu Pro Trp Ala Gln Asn Arg

```
        195                 200                 205

Ser Leu Gln Leu Ser Glu His Thr Leu Cys Ala Tyr Pro Ser Ala Leu
    210                 215                 220

His Ala Gln Ala Leu Gly Ser Leu Gln Glu Ala Gln Leu Cys Cys Glu
225                 230                 235                 240

Gly Ala Leu Glu Leu His Thr His His Leu Ile Pro Ser Leu Arg Gln
                245                 250                 255

Val Val Phe Gln Gly Asp Arg Leu Pro Phe Gln Cys Ser Ala Ser Tyr
            260                 265                 270

Leu Gly Asn Asp Thr Arg Ile Arg Trp Tyr His Asn Arg Ala Pro Val
        275                 280                 285

Glu Gly Asp Glu Gln Ala Gly Ile Leu Leu Ala Glu Ser Leu Ile His
    290                 295                 300

Asp Cys Thr Phe Ile Thr Ser Glu Leu Thr Leu Ser His Ile Gly Val
305                 310                 315                 320

Trp Ala Ser Gly Glu Trp Glu Cys Thr Val Ser Met Ala Gln Gly Asn
                325                 330                 335

Ala Ser Lys Lys Val Glu Ile Val Val Leu Glu Thr Ser Ala Ser Tyr
            340                 345                 350

Cys Pro Ala Glu Arg Val Ala Asn Asn Arg Gly Asp Phe Arg Trp Pro
        355                 360                 365

Arg Thr Leu Ala Gly Ile Thr Ala Tyr Gln Ser Cys Leu Gln Tyr Pro
    370                 375                 380

Phe Thr Ser Val Pro Leu Gly Gly Gly Ala Pro Gly Thr Arg Ala Ser
385                 390                 395                 400

Arg Arg Cys Asp Arg Ala Gly Arg Trp Glu Pro Gly Asp Tyr Ser His
                405                 410                 415

Cys Leu Tyr Thr Asn Asp Ile Thr Arg Val Leu Tyr Thr Phe Val Leu
            420                 425                 430
```

```
Met Pro Ile Asn Ala Ser Asn Ala Leu Thr Leu Ala His Gln Leu Arg
        435                 440                 445

Val Tyr Thr Ala Glu Ala Ala Ser Phe Ser Asp Met Met Asp Val Val
    450                 455                 460

Tyr Val Ala Gln Met Ile Gln Lys Phe Leu Gly Tyr Val Asp Gln Ile
465                 470                 475                 480

Lys Glu Leu Val Glu Val Met Val Asp Met Ala Ser Asn Leu Met Leu
                485                 490                 495

Val Asp Glu His Leu Leu Trp Leu Ala Gln Arg Glu Asp Lys Ala Cys
            500                 505                 510

Ser Arg Ile Val Gly Ala Leu Glu Arg Ile Gly Gly Ala Ala Leu Ser
        515                 520                 525

Pro His Ala Gln His Ile Ser Val Glu Leu Ser Ala Phe Pro Arg Glu
    530                 535                 540

Val Gly Gly Ala Gly Ala Gly Leu His Pro Val Val Tyr Pro Cys Thr
545                 550                 555                 560

Ala Leu Leu Leu Leu Cys Leu Phe Ala Thr Ile Ile Thr Tyr Ile Leu
                565                 570                 575

Asn His Ser Ser Ile Arg Val Ser Arg Lys Gly Trp His Met Leu Leu
            580                 585                 590

Asn Leu Cys Phe His Ile Ala Met Thr Ser Ala Val Phe Ala Gly Gly
        595                 600                 605

Ile Thr Leu Thr Asn Tyr Gln Met Val Cys Gln Ala Val Gly Ile Thr
    610                 615                 620

Leu His Tyr Ser Ser Leu Ser Thr Leu Leu Trp Met Gly Val Lys Ala
625                 630                 635                 640

Arg Val Leu His Lys Glu Leu Thr Trp Arg Ala Pro Pro Pro Gln Glu
                645                 650                 655
```

```
Gly Asp Pro Ala Leu Pro Thr Pro Ser Pro Met Leu Arg Phe Tyr Leu
            660                 665                 670

Ile Ala Gly Gly Ile Pro Leu Ile Ile Cys Gly Ile Thr Ala Ala Val
        675                 680                 685

Asn Ile His Asn Tyr Arg Asp His Ser Pro Tyr Cys Trp Leu Val Trp
    690                 695                 700

Arg Pro Ser Leu Gly Ala Phe Tyr Ile Pro Val Ala Leu Ile Leu Leu
705                 710                 715                 720

Ile Thr Trp Ile Tyr Phe Leu Cys Ala Gly Leu Arg Leu Arg Gly Pro
                725                 730                 735

Leu Ala Gln Asn Pro Lys Ala Gly Asn Ser Arg Ala Ser Leu Glu Ala
            740                 745                 750

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

Leu Ser Asp Ser Gly Ser Leu Leu Ala Thr Gly Ser Ala Arg Val Gly
    770                 775                 780

Thr Pro Gly Pro Pro Glu Asp Gly Asp Ser Leu Tyr Ser Pro Gly Val
785                 790                 795                 800

Gln Leu Gly Ala Leu Val Thr Thr His Phe Leu Tyr Leu Ala Met Trp
                805                 810                 815

Ala Cys Gly Ala Leu Ala Val Ser Gln Arg Trp Leu Pro Arg Val Val
            820                 825                 830

Cys Ser Cys Leu Tyr Gly Val Ala Ala Ser Ala Leu Gly Leu Phe Val
        835                 840                 845

Phe Thr His His Cys Ala Arg Arg Arg Asp Val Arg Ala Ser Trp Arg
    850                 855                 860

Ala Cys Cys Pro Pro Ala Ser Pro Ala Ala Pro His Ala Pro Pro Arg
865                 870                 875                 880
```

```
Ala Leu Pro Ala Ala Ala Glu Asp Gly Ser Pro Val Phe Gly Glu Gly
                885                 890                 895

Pro Pro Ser Leu Lys Ser Ser Pro Ser Gly Ser Ser Gly His Pro Leu
            900                 905                 910

Ala Leu Gly Pro Cys Lys Leu Thr Asn Leu Gln Leu Ala Gln Ser Gln
        915                 920                 925

Val Cys Glu Ala Gly Ala Ala Ala Gly Gly Glu Gly Glu Pro Glu Pro
    930                 935                 940

Ala Gly Thr Arg Gly Asn Leu Ala His Arg His Pro Asn Asn Val His
945                 950                 955                 960

His Gly Arg Arg Ala His Lys Ser Arg Ala Lys Gly His Arg Ala Gly
                965                 970                 975

Glu Ala Cys Gly Lys Asn Arg Leu Lys Ala Leu Arg Gly Gly Ala Ala
            980                 985                 990

Gly Ala Leu Glu Leu Leu Ser Ser  Glu Ser Gly Ser Leu  His Asn
Ser
        995                 1000                1005

Pro Thr  Asp Ser Tyr Leu Gly  Ser Ser Arg Asn Ser  Pro Gly Ala
    1010                1015                1020

Gly Leu  Gln Leu Glu Gly Glu  Pro Met Leu Thr Pro  Ser Glu Gly
    1025                1030                1035

Ser Asp  Thr Ser Ala Ala Pro  Leu Ser Glu Ala Gly  Arg Ala Gly
    1040                1045                1050

Gln Arg  Arg Ser Ala Ser Arg  Asp Ser Leu Lys Gly  Gly Gly Ala
    1055                1060                1065

Leu Glu  Lys Glu Ser His Arg  Arg Ser Tyr Pro Leu  Asn Ala Ala
    1070                1075                1080

Ser Leu  Asn Gly Ala Pro Lys  Gly Gly Lys Tyr Asp  Asp Val Thr
    1085                1090                1095
```

```
Leu Met  Gly Ala Glu Val Ala  Ser Gly Gly Cys Met  Lys Thr Gly
    1100                1105                1110

Leu Trp  Lys Ser Glu Thr Thr  Val
    1115                1120
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<210> 2926
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<220>
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adhesion G prt-coupled receptor A2; "

<220>
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<400> 2926

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

Gly Cys Val Ala Ala Phe Leu Tyr Trp Phe Pro Arg Glu His Leu Leu
            20                  25                  30

His Gly Gly Lys Gly Lys Val Pro Ser Tyr Leu Gly Cys Leu Gly Leu
        35                  40                  45

Leu Ser Asn Asn Lys Ile Thr Gly Leu Arg Asn Gly Ser Phe Leu Gly
    50                  55                  60

Leu Ser Leu Leu Glu Lys Leu Asp Leu Arg Asn Asn Ile Ile Ser Thr
65                  70                  75                  80

Val Gln Pro Gly Ala Phe Leu Gly Leu Gly Glu Leu Lys Arg Leu Asp
                85                  90                  95

Leu Ser Asn Asn Arg Ile Gly Cys Leu Thr Ser Glu Thr Phe Gln Gly
            100                 105                 110
```

```
Leu Pro Arg Leu Leu Arg Leu Asn Ile Ser Gly Asn Ile Phe Ser Ser
        115                 120                 125

Leu Gln Pro Gly Val Phe Asp Glu Leu Pro Ala Leu Lys Val Val Asp
    130                 135                 140

Leu Gly Thr Glu Phe Leu Thr Cys Asp Cys His Leu Arg Trp Leu Leu
145                 150                 155                 160

Pro Trp Ala Gln Asn Arg Ser Leu Gln Leu Ser Glu His Thr Leu Cys
                165                 170                 175

Ala Tyr Pro Ser Ala Leu His Ala Gln Ala Leu Gly Ser Leu
            180                 185                 190


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<220>
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<223> /note="Uniprot ID:  Q96PE1; "

<220>
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<400> 2927
Met Gly Ala Gly Gly Arg Arg Met Arg Gly Ala Pro Ala Arg Leu Leu
1               5                   10                  15

Leu Pro Leu Leu Pro Trp Leu Leu Leu Leu Leu Ala Pro Glu Ala Arg
            20                  25                  30
```

```
Gly Ala Pro Gly Cys Pro Leu Ser Ile Arg Ser Cys Lys Cys Ser Gly
        35                  40                  45

Glu Arg Pro Lys Gly Leu Ser Gly Gly Val Pro Gly Pro Ala Arg Arg
    50                  55                  60

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

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

Thr Gly Leu Arg Asn Gly Ser Phe Leu Gly Leu Ser Leu Leu Glu Lys
            100                 105                 110

Leu Asp Leu Arg Asn Asn Ile Ile Ser Thr Val Gln Pro Gly Ala Phe
        115                 120                 125

Leu Gly Leu Gly Glu Leu Lys Arg Leu Asp Leu Ser Asn Asn Arg Ile
    130                 135                 140

Gly Cys Leu Thr Ser Glu Thr Phe Gln Gly Leu Pro Arg Leu Leu Arg
145                 150                 155                 160

Leu Asn Ile Ser Gly Asn Ile Phe Ser Ser Leu Gln Pro Gly Val Phe
                165                 170                 175

Asp Glu Leu Pro Ala Leu Lys Val Val Asp Leu Gly Thr Glu Phe Leu
            180                 185                 190

Thr Cys Asp Cys His Leu Arg Trp Leu Leu Pro Trp Ala Gln Asn Arg
        195                 200                 205

Ser Leu Gln Leu Ser Glu His Thr Leu Cys Ala Tyr Pro Ser Ala Leu
    210                 215                 220

His Ala Gln Ala Leu Gly Ser Leu Gln Glu Ala Gln Leu Cys Cys Glu
225                 230                 235                 240

Gly Ala Leu Glu Leu His Thr His His Leu Ile Pro Ser Leu Arg Gln
                245                 250                 255

Val Val Phe Gln Gly Asp Arg Leu Pro Phe Gln Cys Ser Ala Ser Tyr
```

```
            260                 265                 270

Leu Gly Asn Asp Thr Arg Ile Arg Trp Tyr His Asn Arg Ala Pro Val
        275                 280                 285

Glu Gly Asp Glu Gln Ala Gly Ile Leu Leu Ala Glu Ser Leu Ile His
    290                 295                 300

Asp Cys Thr Phe Ile Thr Ser Glu Leu Thr Leu Ser His Ile Gly Val
305                 310                 315                 320

Trp Ala Ser Gly Glu Trp Glu Cys Thr Val Ser Met Ala Gln Gly Asn
                325                 330                 335

Ala Ser Lys Lys Val Glu Ile Val Val Leu Glu Thr Ser Ala Ser Tyr
            340                 345                 350

Cys Pro Ala Glu Arg Val Ala Asn Asn Arg Gly Asp Phe Arg Trp Pro
        355                 360                 365

Arg Thr Leu Ala Gly Ile Thr Ala Tyr Gln Ser Cys Leu Gln Tyr Pro
    370                 375                 380

Phe Thr Ser Val Pro Leu Gly Gly Gly Ala Pro Gly Thr Arg Ala Ser
385                 390                 395                 400

Arg Arg Cys Asp Arg Ala Gly Arg Trp Glu Pro Gly Asp Tyr Ser His
                405                 410                 415

Cys Leu Tyr Thr Asn Asp Ile Thr Arg Val Leu Tyr Thr Phe Val Leu
            420                 425                 430

Met Pro Ile Asn Ala Ser Asn Ala Leu Thr Leu Ala His Gln Leu Arg
        435                 440                 445

Val Tyr Thr Ala Glu Ala Ala Ser Phe Ser Asp Met Met Asp Val Val
    450                 455                 460

Tyr Val Ala Gln Met Ile Gln Lys Phe Leu Gly Tyr Val Asp Gln Ile
465                 470                 475                 480

Lys Glu Leu Val Glu Val Met Val Asp Met Ala Ser Asn Leu Met Leu
                485                 490                 495
```

```
Val Asp Glu His Leu Leu Trp Leu Ala Gln Arg Glu Asp Lys Ala Cys
            500                 505                 510

Ser Arg Ile Val Gly Ala Leu Glu Arg Ile Gly Gly Ala Ala Leu Ser
        515                 520                 525

Pro His Ala Gln His Ile Ser Val Asn Ala Arg Asn Val Ala Leu Glu
    530                 535                 540

Ala Tyr Leu Ile Lys Pro His Ser Tyr Val Gly Leu Thr Cys Thr Ala
545                 550                 555                 560

Phe Gln Arg Arg Glu Gly Gly Val Pro Gly Thr Arg Pro Gly Ser Pro
                565                 570                 575

Gly Gln Asn Pro Pro Pro Glu Pro Glu Pro Pro Ala Asp Gln Gln Leu
            580                 585                 590

Arg Phe Arg Cys Thr Thr Gly Arg Pro Asn Val Ser Leu Ser Ser Phe
        595                 600                 605

His Ile Lys Asn Ser Val Ala Leu Ala Ser Ile Gln Leu Pro Pro Ser
    610                 615                 620

Leu Phe Ser Ser Leu Pro Ala Ala Leu Ala Pro Pro Val Pro Pro Asp
625                 630                 635                 640

Cys Thr Leu Gln Leu Leu Val Phe Arg Asn Gly Arg Leu Phe His Ser
                645                 650                 655

His Ser Asn Thr Ser Arg Pro Gly Ala Ala Gly Pro Gly Lys Arg Arg
            660                 665                 670

Gly Val Ala Thr Pro Val Ile Phe Ala Gly Thr Ser Gly Cys Gly Val
        675                 680                 685

Gly Asn Leu Thr Glu Pro Val Ala Val Ser Leu Arg His Trp Ala Glu
    690                 695                 700

Gly Ala Glu Pro Val Ala Ala Trp Trp Ser Gln Glu Gly Pro Gly Glu
705                 710                 715                 720
```

```
Ala Gly Gly Trp Thr Ser Glu Gly Cys Gln Leu Arg Ser Ser Gln Pro
                725                 730                 735

Asn Val Ser Ala Leu His Cys Gln His Leu Gly Asn Val Ala Val Leu
            740                 745                 750

Met Glu Leu Ser Ala Phe Pro Arg Glu Val Gly Gly Ala Gly Ala Gly
        755                 760                 765

Leu His Pro Val Val Tyr Pro Cys Thr Ala Leu Leu Leu Leu Cys Leu
    770                 775                 780

Phe Ala Thr Ile Ile Thr Tyr Ile Leu Asn His Ser Ser Ile Arg Val
785                 790                 795                 800

Ser Arg Lys Gly Trp His Met Leu Leu Asn Leu Cys Phe His Ile Ala
                805                 810                 815

Met Thr Ser Ala Val Phe Ala Gly Gly Ile Thr Leu Thr Asn Tyr Gln
            820                 825                 830

Met Val Cys Gln Ala Val Gly Ile Thr Leu His Tyr Ser Ser Leu Ser
        835                 840                 845

Thr Leu Leu Trp Met Gly Val Lys Ala Arg Val Leu His Lys Glu Leu
    850                 855                 860

Thr Trp Arg Ala Pro Pro Pro Gln Glu Gly Asp Pro Ala Leu Pro Thr
865                 870                 875                 880

Pro Ser Pro Met Leu Arg Phe Tyr Leu Ile Ala Gly Gly Ile Pro Leu
                885                 890                 895

Ile Ile Cys Gly Ile Thr Ala Ala Val Asn Ile His Asn Tyr Arg Asp
            900                 905                 910

His Ser Pro Tyr Cys Trp Leu Val Trp Arg Pro Ser Leu Gly Ala Phe
        915                 920                 925

Tyr Ile Pro Val Ala Leu Ile Leu Leu Ile Thr Trp Ile Tyr Phe Leu
    930                 935                 940
```

```
Cys Ala Gly Leu Arg Leu Arg Gly Pro Leu Ala Gln Asn Pro Lys Ala
945                 950                 955                 960

Gly Asn Ser Arg Ala Ser Leu Glu Ala Gly Glu Glu Leu Arg Gly Ser
                965                 970                 975

Thr Arg Leu Arg Gly Ser Gly Pro Leu Leu Ser Asp Ser Gly Ser Leu
            980                 985                 990

Leu Ala Thr Gly Ser Ala Arg Val  Gly Thr Pro Gly Pro  Pro Glu
Asp
        995                 1000                1005

Gly Asp  Ser Leu Tyr Ser Pro  Gly Val Gln Leu Gly  Ala Leu Val
    1010                1015                1020

Thr Thr  His Phe Leu Tyr Leu  Ala Met Trp Ala Cys  Gly Ala Leu
    1025                1030                1035

Ala Val  Ser Gln Arg Trp Leu  Pro Arg Val Val Cys  Ser Cys Leu
    1040                1045                1050

Tyr Gly  Val Ala Ala Ser Ala  Leu Gly Leu Phe Val  Phe Thr His
    1055                1060                1065

His Cys  Ala Arg Arg Arg Asp  Val Arg Ala Ser Trp  Arg Ala Cys
    1070                1075                1080

Cys Pro  Pro Ala Ser Pro Ala  Ala Pro His Ala Pro  Pro Arg Ala
    1085                1090                1095

Leu Pro  Ala Ala Ala Glu Asp  Gly Ser Pro Val Phe  Gly Glu Gly
    1100                1105                1110

Pro Pro  Ser Leu Lys Ser Ser  Pro Ser Gly Ser Ser  Gly His Pro
    1115                1120                1125

Leu Ala  Leu Gly Pro Cys Lys  Leu Thr Asn Leu Gln  Leu Ala Gln
    1130                1135                1140

Ser Gln  Val Cys Glu Ala Gly  Ala Ala Ala Gly Gly  Glu Gly Glu
    1145                1150                1155
```

```
Pro Glu  Pro Ala Gly Thr Arg  Gly Asn Leu Ala His  Arg His Pro
    1160                1165                1170

Asn Asn  Val His His Gly Arg  Arg Ala His Lys Ser  Arg Ala Lys
    1175                1180                1185

Gly His  Arg Ala Gly Glu Ala  Cys Gly Lys Asn Arg  Leu Lys Ala
    1190                1195                1200

Leu Arg  Gly Gly Ala Ala Gly  Ala Leu Glu Leu Leu  Ser Ser Glu
    1205                1210                1215

Ser Gly  Ser Leu His Asn Ser  Pro Thr Asp Ser Tyr  Leu Gly Ser
    1220                1225                1230

Ser Arg  Asn Ser Pro Gly Ala  Gly Leu Gln Leu Glu  Gly Glu Pro
    1235                1240                1245

Met Leu  Thr Pro Ser Glu Gly  Ser Asp Thr Ser Ala  Ala Pro Leu
    1250                1255                1260

Ser Glu  Ala Gly Arg Ala Gly  Gln Arg Arg Ser Ala  Ser Arg Asp
    1265                1270                1275

Ser Leu  Lys Gly Gly Gly Ala  Leu Glu Lys Glu Ser  His Arg Arg
    1280                1285                1290

Ser Tyr  Pro Leu Asn Ala Ala  Ser Leu Asn Gly Ala  Pro Lys Gly
    1295                1300                1305

Gly Lys  Tyr Asp Asp Val Thr  Leu Met Gly Ala Glu  Val Ala Ser
    1310                1315                1320

Gly Gly  Cys Met Lys Thr Gly  Leu Trp Lys Ser Glu  Thr Thr Val
    1325                1330                1335


<210> 2928
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<212> PRT
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adhesion G prt-coupled receptor A3; "

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<220>
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Met Glu Pro Pro Gly Arg Arg Arg Gly Arg Ala Gln Pro Pro Leu Leu
1 5 10 15

Leu Pro Leu Ser Leu Leu Ala Leu Leu Ala Leu Leu Gly Gly Gly Gly
20 25 30

Gly Gly Gly Ala Ala Ala Leu Pro Ala Gly Cys Lys His Asp Gly Arg
35 40 45

Pro Arg Gly Ala Gly Arg Ala Ala Gly Ala Ala Glu Gly Lys Val Val
50 55 60

Cys Ser Ser Leu Glu Leu Ala Gln Val Leu Pro Pro Asp Thr Leu Pro
65 70 75 80

Asn Arg Thr Val Thr Leu Ile Leu Ser Asn Asn Lys Ile Ser Glu Leu
85 90 95

Lys Asn Gly Ser Phe Ser Gly Leu Ser Leu Leu Glu Arg Leu Asp Leu
100 105 110

Arg Asn Asn Leu Ile Ser Ser Ile Asp Pro Gly Ala Phe Trp Gly Leu
115 120 125

Ser Ser Leu Lys Arg Leu Asp Leu Thr Asn Asn Arg Ile Gly Cys Leu
130 135 140

Asn Ala Asp Ile Phe Arg Gly Leu Thr Asn Leu Val Arg Leu Asn Leu
145 150 155 160

```
Ser Gly Asn Leu Phe Ser Ser Leu Ser Gln Gly Thr Phe Asp Tyr Leu
                165                 170                 175

Ala Ser Leu Arg Ser Leu Glu Phe Gln Thr Glu Tyr Leu Leu Cys Asp
            180                 185                 190

Cys Asn Ile Leu Trp Met His Arg Trp Val Lys Glu Lys Asn Ile Thr
        195                 200                 205

Val Arg Asp Thr Arg Cys Val Tyr Pro Lys Ser Leu Gln Ala Gln Pro
    210                 215                 220

Val Thr Gly Val Lys Gln Glu Leu Leu Thr Cys Asp Pro Pro Leu Glu
225                 230                 235                 240

Leu Pro Ser Phe Tyr Met Thr Pro Ser His Arg Gln Val Val Phe Glu
                245                 250                 255

Gly Asp Ser Leu Pro Phe Gln Cys Met Ala Ser Tyr Ile Asp Gln Asp
            260                 265                 270

Met Gln Val Leu Trp Tyr Gln Asp Gly Arg Ile Val Glu Thr Asp Glu
        275                 280                 285

Ser Gln Gly Ile Phe Val Glu Lys Asn Met Ile His Asn Cys Ser Leu
    290                 295                 300

Ile Ala Ser Ala Leu Thr Ile Ser Asn Ile Gln Ala Gly Ser Thr Gly
305                 310                 315                 320

Asn Trp Gly Cys His Val Gln Thr Lys Arg Gly Asn Asn Thr Arg Thr
                325                 330                 335

Val Asp Ile Val Val Leu Glu Ser Ser Ala Gln Tyr Cys Pro Pro Glu
            340                 345                 350

Arg Val Val Asn Asn Lys Gly Asp Phe Arg Trp Pro Arg Thr Leu Ala
        355                 360                 365

Gly Ile Thr Ala Tyr Leu Gln Cys Thr Arg Asn Thr His Gly Ser Gly
    370                 375                 380
```

```
Ile Tyr Pro Gly Asn Pro Gln Asp Glu Arg Lys Ala Trp Arg Arg Cys
385                 390                 395                 400

Asp Arg Gly Gly Phe Trp Ala Asp Asp Asp Tyr Ser Arg Cys Gln Tyr
                405                 410                 415

Ala Asn Asp Val Thr Arg Val Leu Tyr Met Phe Asn Gln Met Pro Leu
            420                 425                 430

Asn Leu Thr Asn Ala Val Ala Thr Ala Arg Gln Leu Leu Ala Tyr Thr
        435                 440                 445

Val Glu Ala Ala Asn Phe Ser Asp Lys Met Asp Val Ile Phe Val Ala
    450                 455                 460

Glu Met Ile Glu Lys Phe Gly Arg Phe Thr Lys Glu Glu Lys Ser Lys
465                 470                 475                 480

Glu Leu Gly Asp Val Met Val Asp Ile Ala Ser Asn Ile Met Leu Ala
                485                 490                 495

Asp Glu Arg Val Leu Trp Leu Ala Gln Arg Glu Ala Lys Ala Cys Ser
            500                 505                 510

Arg Ile Val Gln Cys Leu Gln Arg Ile Ala Thr Tyr Arg Leu Ala Gly
        515                 520                 525

Gly Ala His Val Tyr Ser Thr Tyr Ser Pro Asn Ile Ala Leu Glu Ala
    530                 535                 540

Tyr Val Ile Lys Ser Thr Gly Phe Thr Gly Met Thr Cys Thr Val Phe
545                 550                 555                 560

Gln Lys Val Ala Ala Ser Asp Arg Thr Gly Leu Ser Asp Tyr Gly Arg
                565                 570                 575

Arg Asp Pro Glu Gly Asn Leu Asp Lys Gln Leu Ser Phe Lys Cys Asn
            580                 585                 590

Val Ser Asn Thr Phe Ser Ser Leu Ala Leu Lys Asn Thr Ile Val Glu
        595                 600                 605

Ala Ser Ile Gln Leu Pro Pro Ser Leu Phe Ser Pro Lys Gln Lys Arg
```

610 615 620

Glu Leu Arg Pro Thr Asp Asp Ser Leu Tyr Lys Leu Gln Leu Ile Ala
625 630 635 640

Phe Arg Asn Gly Lys Leu Phe Pro Ala Thr Gly Asn Ser Thr Asn Leu
645 650 655

Ala Asp Asp Gly Lys Arg Arg Thr Val Val Thr Pro Val Ile Leu Thr
660 665 670

Lys Ile Asp Gly Val Asn Val Asp Thr His His Ile Pro Val Asn Val
675 680 685

Thr Leu Arg Arg Ile Ala His Gly Ala Asp Ala Val Ala Ala Arg Trp
690 695 700

Asp Phe Asp Leu Leu Asn Gly Gln Gly Gly Trp Lys Ser Asp Gly Cys
705 710 715 720

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

Leu Ser Asn Tyr Ala Val Leu Met Asp Leu Thr Gly Ser Glu Leu Tyr
740 745 750

Thr Gln Ala Ala Ser Leu Leu His Pro Val Val Tyr Thr Thr Ala Ile
755 760 765

Ile Leu Leu Leu Cys Leu Leu Ala Val Ile Val Ser Tyr Ile Tyr His
770 775 780

His Ser Leu Ile Arg Ile Ser Leu Lys Ser Trp His Met Leu Val Asn
785 790 795 800

Leu Cys Phe His Ile Phe Leu Thr Cys Val Val Phe Val Gly Gly Ile
805 810 815

Thr Gln Thr Arg Asn Ala Ser Ile Cys Gln Ala Val Gly Ile Ile Leu
820 825 830

His Tyr Ser Thr Leu Ala Thr Val Leu Trp Val Gly Val Thr Ala Arg
835 840 845

```
Asn Ile Tyr Lys Gln Val Thr Lys Lys Ala Lys Arg Cys Gln Asp Pro
    850                 855                 860

Asp Glu Pro Pro Pro Pro Pro Arg Pro Met Leu Arg Phe Tyr Leu Ile
865                 870                 875                 880

Gly Gly Gly Ile Pro Ile Ile Val Cys Gly Ile Thr Ala Ala Ala Asn
                885                 890                 895

Ile Lys Asn Tyr Gly Ser Arg Pro Asn Ala Pro Tyr Cys Trp Met Ala
            900                 905                 910

Trp Glu Pro Ser Leu Gly Ala Phe Tyr Gly Pro Ala Ser Phe Ile Thr
        915                 920                 925

Phe Val Asn Cys Met Tyr Phe Leu Ser Ile Phe Ile Gln Leu Lys Arg
    930                 935                 940

His Pro Glu Arg Lys Tyr Glu Leu Lys Glu Pro Thr Glu Glu Gln Gln
945                 950                 955                 960

Arg Leu Ala Ala Asn Glu Asn Gly Glu Ile Asn His Gln Asp Ser Met
                965                 970                 975

Ser Leu Ser Leu Ile Ser Thr Ser Ala Leu Glu Asn Glu His Thr Phe
            980                 985                 990

His Ser Gln Leu Leu Gly Ala Ser  Leu Thr Leu Leu Leu  Tyr Val
Ala
        995                 1000                1005

Leu Trp  Met Phe Gly Ala Leu  Ala Val Ser Leu Tyr  Tyr Pro Leu
    1010                1015                1020

Asp Leu  Val Phe Ser Phe Val  Phe Gly Ala Thr Ser  Leu Ser Phe
    1025                1030                1035

Ser Ala  Phe Phe Val Val His  His Cys Val Asn Arg  Glu Asp Val
    1040                1045                1050

Arg Leu  Ala Trp Ile Met Thr  Cys Cys Pro Gly Arg  Ser Ser Tyr
    1055                1060                1065
```

```
Ser Val  Gln Val Asn Val Gln  Pro Pro Asn Ser Asn  Gly Thr Asn
    1070                1075                1080

Gly Glu  Ala Pro Lys Cys Pro  Asn Ser Ser Ala Glu  Ser Ser Cys
    1085                1090                1095

Thr Asn  Lys Ser Ala Ser Ser  Phe Lys Asn Ser Ser  Gln Gly Cys
    1100                1105                1110

Lys Leu  Thr Asn Leu Gln Ala  Ala Ala Ala Gln Cys  His Ala Asn
    1115                1120                1125

Ser Leu  Pro Leu Asn Ser Thr  Pro Gln Leu Asp Asn  Ser Leu Thr
    1130                1135                1140

Glu His  Ser Met Asp Asn Asp  Ile Lys Met His Val  Ala Pro Leu
    1145                1150                1155

Glu Val  Gln Phe Arg Thr Asn  Val His Ser Ser Arg  His His Lys
    1160                1165                1170

Asn Arg  Ser Lys Gly His Arg  Ala Ser Arg Leu Thr  Val Leu Arg
    1175                1180                1185

Glu Tyr  Ala Tyr Asp Val Pro  Thr Ser Val Glu Gly  Ser Val Gln
    1190                1195                1200

Asn Gly  Leu Pro Lys Ser Arg  Leu Gly Asn Asn Glu  Gly His Ser
    1205                1210                1215

Arg Ser  Arg Arg Ala Tyr Leu  Ala Tyr Arg Glu Arg  Gln Tyr Asn
    1220                1225                1230

Pro Pro  Gln Gln Asp Ser Ser  Asp Ala Cys Ser Thr  Leu Pro Lys
    1235                1240                1245

Ser Ser  Arg Asn Phe Glu Lys  Pro Val Ser Thr Thr  Ser Lys Lys
    1250                1255                1260

Asp Ala  Leu Arg Lys Pro Ala  Val Val Glu Leu Glu  Asn Gln Gln
    1265                1270                1275
```

Lys Ser Tyr Gly Leu Asn Leu Ala Ile Gln Asn Gly Pro Ile Lys
1280 1285 1290

Ser Asn Gly Gln Glu Gly Pro Leu Leu Gly Thr Asp Ser Thr Gly
1295 1300 1305

Asn Val Arg Thr Gly Leu Trp Lys His Glu Thr Thr Val
1310 1315 1320

<210> 2929
<211> 616
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<213> Homo sapiens

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<223> /note="Gene Symbol: ADGRA3; "

<220>
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<220>
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<223> /note="Uniprot ID: Q8IWK6; "

<220>
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Met Glu Pro Pro Gly Arg Arg Arg Gly Arg Ala Gln Pro Pro Leu Leu
1 5 10 15

Leu Pro Leu Ser Leu Leu Ala Leu Leu Ala Leu Leu Gly Gly Gly Gly
20 25 30

Gly Gly Gly Ala Ala Ala Leu Pro Ala Gly Cys Lys His Asp Gly Arg
35 40 45

Pro Arg Gly Ala Gly Arg Ala Ala Gly Ala Ala Glu Gly Lys Val Val
50 55 60

Cys Ser Ser Leu Glu Leu Ala Gln Val Leu Pro Pro Asp Thr Leu Pro

65 70 75 80

Asn Arg Thr Val Thr Leu Ile Leu Ser Asn Asn Lys Ile Ser Glu Leu
85 90 95

Lys Asn Gly Ser Phe Ser Gly Leu Ser Leu Leu Glu Arg Leu Asp Leu
100 105 110

Arg Asn Asn Leu Ile Ser Ser Ile Asp Pro Gly Ala Phe Trp Gly Leu
115 120 125

Ser Ser Leu Lys Arg Leu Asp Leu Thr Asn Asn Arg Ile Gly Cys Leu
130 135 140

Asn Ala Asp Ile Phe Arg Gly Leu Thr Asn Leu Val Arg Leu Asn Leu
145 150 155 160

Ser Gly Asn Leu Phe Ser Ser Leu Ser Gln Gly Thr Phe Asp Tyr Leu
165 170 175

Ala Ser Leu Arg Ser Leu Glu Phe Gln Thr Glu Tyr Leu Leu Cys Asp
180 185 190

Cys Asn Ile Leu Trp Met His Arg Trp Val Lys Glu Lys Asn Ile Thr
195 200 205

Val Arg Asp Thr Arg Cys Val Tyr Pro Lys Ser Leu Gln Ala Gln Pro
210 215 220

Val Thr Gly Val Lys Gln Glu Leu Leu Thr Cys Asp Pro Pro Leu Glu
225 230 235 240

Leu Pro Ser Phe Tyr Met Thr Pro Ser His Arg Gln Val Val Phe Glu
245 250 255

Gly Asp Ser Leu Pro Phe Gln Cys Met Ala Ser Tyr Ile Asp Gln Asp
260 265 270

Met Gln Val Leu Trp Tyr Gln Asp Gly Arg Ile Val Glu Thr Asp Glu
275 280 285

Ser Gln Gly Ile Phe Val Glu Lys Asn Met Ile His Asn Cys Ser Leu
290 295 300

```
Ile Ala Ser Ala Leu Thr Ile Ser Asn Ile Gln Ala Gly Ser Thr Gly
305                 310                 315                 320

Asn Trp Gly Cys His Val Gln Thr Lys Arg Gly Asn Asn Thr Arg Thr
                325                 330                 335

Val Asp Ile Val Val Leu Glu Ser Ser Ala Gln Tyr Cys Pro Pro Glu
            340                 345                 350

Arg Val Val Asn Asn Lys Gly Asp Phe Arg Trp Pro Arg Thr Leu Ala
        355                 360                 365

Gly Ile Thr Ala Tyr Leu Gln Cys Thr Arg Asn Thr His Gly Ser Gly
    370                 375                 380

Ile Tyr Pro Gly Asn Pro Gln Asp Glu Arg Lys Ala Trp Arg Arg Cys
385                 390                 395                 400

Asp Arg Gly Gly Phe Trp Ala Asp Asp Asp Tyr Ser Arg Cys Gln Tyr
                405                 410                 415

Ala Asn Asp Val Thr Arg Val Leu Tyr Met Phe Asn Gln Met Pro Leu
            420                 425                 430

Asn Leu Thr Asn Ala Val Ala Thr Ala Arg Gln Leu Leu Ala Tyr Thr
        435                 440                 445

Val Glu Ala Ala Asn Phe Ser Asp Lys Met Asp Val Ile Phe Val Ala
    450                 455                 460

Glu Met Ile Glu Lys Phe Gly Arg Phe Thr Lys Glu Glu Lys Ser Lys
465                 470                 475                 480

Glu Leu Gly Asp Val Met Val Asp Ile Ala Ser Asn Ile Met Leu Ala
                485                 490                 495

Asp Glu Arg Val Leu Trp Leu Ala Gln Arg Glu Ala Lys Ala Cys Ser
            500                 505                 510

Arg Ile Val Gln Cys Leu Gln Arg Ile Ala Thr Tyr Arg Leu Ala Gly
        515                 520                 525
```

```
Gly Ala His Val Tyr Ser Thr Tyr Ser Pro Asn Ile Ala Leu Glu Ala
    530                 535                 540

Tyr Val Ile Lys Ser Thr Gly Phe Thr Gly Met Thr Cys Thr Val Phe
545                 550                 555                 560

Gln Lys Val Ala Ala Ser Asp Arg Thr Gly Leu Ser Asp Tyr Gly Arg
                565                 570                 575

Arg Asp Pro Glu Gly Asn Leu Asp Lys Gln Leu Ser Phe Lys Cys Asn
            580                 585                 590

Val Ser Asn Thr Phe Ser Ser Leu Ala Leu Lys Val Cys Tyr Ile Leu
        595                 600                 605

Gln Ser Phe Lys Thr Ile Tyr Ser
    610                 615


<210> 2930
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000422606"

<400> 2930
Met Pro Leu Lys Arg Asn Asn Ser Lys Tyr Pro Pro Leu Glu Leu Pro
1               5                   10                  15

Ser Phe Tyr Met Thr Pro Ser His Arg Gln Val Val Phe Glu Gly Asp
```

```
            20                  25                  30

Ser Leu Pro Phe Gln Cys Met Ala Ser Tyr Ile Asp Gln Asp Met Gln
        35                  40                  45

Val Leu Trp Tyr Gln Asp Gly Arg Ile Val Glu Thr Asp Glu Ser Gln
    50                  55                  60

Gly Ile Phe Val Glu Lys Asn Met Ile His Asn Cys Ser Leu Ile Ala
65                  70                  75                  80

Ser Ala Leu Thr Ile Ser Asn Ile Gln Ala Gly Ser Thr Gly Asn Trp
                85                  90                  95

Gly Cys His Val Gln Thr Lys Arg Gly Asn Asn Thr Arg Thr Val Asp
            100                 105                 110

Ile Val Val Leu Glu Ser Ser Ala Gln Tyr Cys Pro Pro Glu Arg Val
        115                 120                 125

Val Asn Asn Lys Gly Asp Phe Arg Trp Pro Arg Thr Leu Ala Gly Ile
    130                 135                 140

Thr Ala Tyr Leu Gln Cys Thr Arg Asn Thr His Gly Ser Gly Ile Tyr
145                 150                 155                 160

Pro Gly Asn Pro Gln Asp Glu Arg Lys Ala Trp Arg Arg Cys Asp Arg
                165                 170                 175

Gly Gly Phe Trp Ala Asp Asp Asp Tyr Ser Arg Cys Gln Tyr Ala Asn
            180                 185                 190

Asp Val Thr Arg Val Leu Tyr Met Phe Asn Gln Met Pro Leu Asn Leu
        195                 200                 205

Thr Asn Ala Val Ala Thr Ala Arg Gln Leu Leu Ala Tyr Thr Val Glu
    210                 215                 220

Ala Ala Asn Phe Ser Asp Lys Met Asp Val Ile Phe Val Ala Glu Met
225                 230                 235                 240

Ile Glu Lys Phe Gly Arg Phe Thr Lys Glu Glu Lys Ser Lys Glu Leu
                245                 250                 255
```

```
Gly Asp Val Met Val Asp Ile Ala Ser Asn Ile Met Leu Ala Asp Glu
            260                 265                 270

Arg Val Leu Trp Leu Ala Gln Arg Glu Ala Lys Ala Cys Ser Arg Ile
        275                 280                 285

Val Gln Cys Leu Gln Arg Ile Ala Thr Tyr Arg Leu Ala Gly Gly Ala
    290                 295                 300

His Val Tyr Ser Thr Tyr Ser Pro Asn Ile Ala Leu Glu Ala Tyr Val
305                 310                 315                 320

Ile Lys Ser Thr Gly Phe Thr Gly Met Thr Cys Thr Val Phe Gln Lys
                325                 330                 335

Val Ala Ala Ser Asp Arg Thr Gly Leu Ser Asp Tyr Gly Arg Arg Asp
            340                 345                 350

Pro Glu Gly Asn Leu Asp Lys Gln Leu Ser Phe Lys Cys Asn Val Ser
        355                 360                 365

Asn Thr Phe Ser Ser Leu Ala Leu Lys Gly Lys Phe Arg
    370                 375                 380


<210> 2931
<211> 34
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<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000424927"

<400> 2931
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```
Met Leu Arg Phe Tyr Leu Ile Gly Gly Gly Ile Pro Ile Ile Val Cys
1               5                   10                  15

Gly Ile Thr Ala Ala Ala Asn Ile Lys Asn Tyr Gly Ser Arg Pro Asn
            20                  25                  30

Ala Pro
```

<210> 2932
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<220>
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<400> 2932

```
Met Ala Ser Tyr Ile Asp Gln Asp Met Gln Val Leu Trp Tyr Gln Asp
1               5                   10                  15

Gly Arg Ile Val Glu Thr Asp Glu Ser Gln Gly Ile Phe Val Glu Lys
            20                  25                  30

Asn Met Ile His Asn Cys Ser Leu Ile Ala Ser Ala Leu Thr Ile Ser
        35                  40                  45

Asn Ile Gln Ala Gly Ser Thr Gly Asn Trp Gly Cys His Val Gln Thr
    50                  55                  60

Lys Arg Gly Asn Asn Thr Arg Thr Val Asp Ile Val Val Leu Glu Ser
65                  70                  75                  80

Ser Ala Gln Tyr Cys Pro Pro Glu Arg Val Val Asn Asn Lys Gly Asp
                85                  90                  95
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Phe

<210> 2933
<211> 1584
<212> PRT
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<223> /note="Gene Symbol: ADGRB1; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor B1; "

<220>
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<223> /note="Uniprot ID: O14514; "

<220>
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<400> 2933
Met Arg Gly Gln Ala Ala Ala Pro Gly Pro Val Trp Ile Leu Ala Pro
1 5 10 15

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

Gly Ala Asp Ala Gly Pro Gly Pro Glu Pro Cys Ala Thr Leu Val Gln
35 40 45

Gly Lys Phe Phe Gly Tyr Phe Ser Ala Ala Ala Val Phe Pro Ala Asn
50 55 60

Ala Ser Arg Cys Ser Trp Thr Leu Arg Asn Pro Asp Pro Arg Arg Tyr
65 70 75 80

Thr Leu Tyr Met Lys Val Ala Lys Ala Pro Val Pro Cys Ser Gly Pro
85 90 95

```
Gly Arg Val Arg Thr Tyr Gln Phe Asp Ser Phe Leu Glu Ser Thr Arg
            100                 105                 110

Thr Tyr Leu Gly Val Glu Ser Phe Asp Glu Val Leu Arg Leu Cys Asp
        115                 120                 125

Pro Ser Ala Pro Leu Ala Phe Leu Gln Ala Ser Lys Gln Phe Leu Gln
    130                 135                 140

Met Arg Arg Gln Gln Pro Pro Gln His Asp Gly Leu Arg Pro Arg Ala
145                 150                 155                 160

Gly Pro Pro Gly Pro Thr Asp Asp Phe Ser Val Glu Tyr Leu Val Val
                165                 170                 175

Gly Asn Arg Asn Pro Ser Arg Ala Ala Cys Gln Met Leu Cys Arg Trp
            180                 185                 190

Leu Asp Ala Cys Leu Ala Gly Ser Arg Ser Ser His Pro Cys Gly Ile
        195                 200                 205

Met Gln Thr Pro Cys Ala Cys Leu Gly Gly Glu Ala Gly Gly Pro Ala
    210                 215                 220

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

Ala Gly Gly Pro Glu Asn Cys Leu Thr Ser Leu Thr Gln Asp Arg Gly
                245                 250                 255

Gly His Gly Ala Thr Gly Gly Trp Lys Leu Trp Ser Leu Trp Gly Glu
            260                 265                 270

Cys Thr Arg Asp Cys Gly Gly Gly Leu Gln Thr Arg Thr Arg Thr Cys
        275                 280                 285

Leu Pro Ala Pro Gly Val Glu Gly Gly Gly Cys Glu Gly Val Leu Glu
    290                 295                 300

Glu Gly Arg Gln Cys Asn Arg Glu Ala Cys Gly Pro Ala Gly Arg Thr
305                 310                 315                 320

Ser Ser Arg Ser Gln Ser Leu Arg Ser Thr Asp Ala Arg Arg Arg Glu
```

```
                325                 330                 335

Glu Leu Gly Asp Glu Leu Gln Gln Phe Gly Phe Pro Ala Pro Gln Thr
            340                 345                 350

Gly Asp Pro Ala Ala Glu Glu Trp Ser Pro Trp Ser Val Cys Ser Ser
        355                 360                 365

Thr Cys Gly Glu Gly Trp Gln Thr Arg Thr Arg Phe Cys Val Ser Ser
    370                 375                 380

Ser Tyr Ser Thr Gln Cys Ser Gly Pro Leu Arg Glu Gln Arg Leu Cys
385                 390                 395                 400

Asn Asn Ser Ala Val Cys Pro Val His Gly Ala Trp Asp Glu Trp Ser
                405                 410                 415

Pro Trp Ser Leu Cys Ser Ser Thr Cys Gly Arg Gly Phe Arg Asp Arg
            420                 425                 430

Thr Arg Thr Cys Arg Pro Pro Gln Phe Gly Gly Asn Pro Cys Glu Gly
        435                 440                 445

Pro Glu Lys Gln Thr Lys Phe Cys Asn Ile Ala Leu Cys Pro Gly Arg
    450                 455                 460

Ala Val Asp Gly Asn Trp Asn Glu Trp Ser Ser Trp Ser Ala Cys Ser
465                 470                 475                 480

Ala Ser Cys Ser Gln Gly Arg Gln Gln Arg Thr Arg Glu Cys Asn Gly
                485                 490                 495

Pro Ser Tyr Gly Gly Ala Glu Cys Gln Gly His Trp Val Glu Thr Arg
            500                 505                 510

Asp Cys Phe Leu Gln Gln Cys Pro Val Asp Gly Lys Trp Gln Ala Trp
        515                 520                 525

Ala Ser Trp Gly Ser Cys Ser Val Thr Cys Gly Ala Gly Ser Gln Arg
    530                 535                 540

Arg Glu Arg Val Cys Ser Gly Pro Phe Phe Gly Gly Ala Ala Cys Gln
545                 550                 555                 560
```

```
Gly Pro Gln Asp Glu Tyr Arg Gln Cys Gly Thr Gln Arg Cys Pro Glu
                565                 570                 575

Pro His Glu Ile Cys Asp Glu Asp Asn Phe Gly Ala Val Ile Trp Lys
            580                 585                 590

Glu Thr Pro Ala Gly Glu Val Ala Ala Val Arg Cys Pro Arg Asn Ala
        595                 600                 605

Thr Gly Leu Ile Leu Arg Arg Cys Glu Leu Asp Glu Glu Gly Ile Ala
    610                 615                 620

Tyr Trp Glu Pro Pro Thr Tyr Ile Arg Cys Val Ser Ile Asp Tyr Arg
625                 630                 635                 640

Asn Ile Gln Met Met Thr Arg Glu His Leu Ala Lys Ala Gln Arg Gly
                645                 650                 655

Leu Pro Gly Glu Gly Val Ser Glu Val Ile Gln Thr Leu Val Glu Ile
            660                 665                 670

Ser Gln Asp Gly Thr Ser Tyr Ser Gly Asp Leu Leu Ser Thr Ile Asp
        675                 680                 685

Val Leu Arg Asn Met Thr Glu Ile Phe Arg Arg Ala Tyr Tyr Ser Pro
    690                 695                 700

Thr Pro Gly Asp Val Gln Asn Phe Val Gln Ile Leu Ser Asn Leu Leu
705                 710                 715                 720

Ala Glu Glu Asn Arg Asp Lys Trp Glu Glu Ala Gln Leu Ala Gly Pro
                725                 730                 735

Asn Ala Lys Glu Leu Phe Arg Leu Val Glu Asp Phe Val Asp Val Ile
            740                 745                 750

Gly Phe Arg Met Lys Asp Leu Arg Asp Ala Tyr Gln Val Thr Asp Asn
        755                 760                 765

Leu Val Leu Ser Ile His Lys Leu Pro Ala Ser Gly Ala Thr Asp Ile
    770                 775                 780
```

```
Ser Phe Pro Met Lys Gly Trp Arg Ala Thr Gly Asp Trp Ala Lys Val
785                 790                 795                 800

Pro Glu Asp Arg Val Thr Val Ser Lys Ser Val Phe Ser Thr Gly Leu
                805                 810                 815

Thr Glu Ala Asp Glu Ala Ser Val Phe Val Val Gly Thr Val Leu Tyr
            820                 825                 830

Arg Asn Leu Gly Ser Phe Leu Ala Leu Gln Arg Asn Thr Thr Val Leu
        835                 840                 845

Asn Ser Lys Val Ile Ser Val Thr Val Lys Pro Pro Pro Arg Ser Leu
    850                 855                 860

Arg Thr Pro Leu Glu Ile Glu Phe Ala His Met Tyr Asn Gly Thr Thr
865                 870                 875                 880

Asn Gln Thr Cys Ile Leu Trp Asp Glu Thr Asp Val Pro Ser Ser Ser
                885                 890                 895

Ala Pro Pro Gln Leu Gly Pro Trp Ser Trp Arg Gly Cys Arg Thr Val
            900                 905                 910

Pro Leu Asp Ala Leu Arg Thr Arg Cys Leu Cys Asp Arg Leu Ser Thr
        915                 920                 925

Phe Ala Ile Leu Ala Gln Leu Ser Ala Asp Ala Asn Met Glu Lys Ala
    930                 935                 940

Thr Leu Pro Ser Val Thr Leu Ile Val Gly Cys Gly Val Ser Ser Leu
945                 950                 955                 960

Thr Leu Leu Met Leu Val Ile Ile Tyr Val Ser Val Trp Arg Tyr Ile
                965                 970                 975

Arg Ser Glu Arg Ser Val Ile Leu Ile Asn Phe Cys Leu Ser Ile Ile
            980                 985                 990

Ser Ser Asn Ala Leu Ile Leu Ile  Gly Gln Thr Gln Thr  Arg Asn
Lys
        995                 1000                1005
```

```
Val Val  Cys Thr Leu Val Ala  Ala Phe Leu His Phe  Phe Phe Leu
    1010                1015                1020

Ser Ser  Phe Cys Trp Val Leu  Thr Glu Ala Trp Gln  Ser Tyr Met
    1025                1030                1035

Ala Val  Thr Gly His Leu Arg  Asn Arg Leu Ile Arg  Lys Arg Phe
    1040                1045                1050

Leu Cys  Leu Gly Trp Gly Leu  Pro Ala Leu Val Val  Ala Ile Ser
    1055                1060                1065

Val Gly  Phe Thr Lys Ala Lys  Gly Tyr Ser Thr Met  Asn Tyr Cys
    1070                1075                1080

Trp Leu  Ser Leu Glu Gly Gly  Leu Leu Tyr Ala Phe  Val Gly Pro
    1085                1090                1095

Ala Ala  Ala Val Val Leu Val  Asn Met Val Ile Gly  Ile Leu Val
    1100                1105                1110

Phe Asn  Lys Leu Val Ser Lys  Asp Gly Ile Thr Asp  Lys Lys Leu
    1115                1120                1125

Lys Glu  Arg Ala Gly Ala Ser  Leu Trp Ser Ser Cys  Val Val Leu
    1130                1135                1140

Pro Leu  Leu Ala Leu Thr Trp  Met Ser Ala Val Leu  Ala Val Thr
    1145                1150                1155

Asp Arg  Arg Ser Ala Leu Phe  Gln Ile Leu Phe Ala  Val Phe Asp
    1160                1165                1170

Ser Leu  Glu Gly Phe Val Ile  Val Met Val His Cys  Ile Leu Arg
    1175                1180                1185

Arg Glu  Val Gln Asp Ala Val  Lys Cys Arg Val Val  Asp Arg Gln
    1190                1195                1200

Glu Glu  Gly Asn Gly Asp Ser  Gly Gly Ser Phe Gln  Asn Gly His
    1205                1210                1215
```

Ala Gln Leu Met Thr Asp Phe Glu Lys Asp Val Asp Leu Ala Cys
1220 1225 1230

Arg Ser Val Leu Asn Lys Asp Ile Ala Ala Cys Arg Thr Ala Thr
1235 1240 1245

Ile Thr Gly Thr Leu Lys Arg Pro Ser Leu Pro Glu Glu Glu Lys
1250 1255 1260

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

Leu Pro Ala Asn Val Ser Lys Leu His Leu His Gly Ser Pro Arg
1280 1285 1290

Tyr Pro Gly Gly Pro Leu Pro Asp Phe Pro Asn His Ser Leu Thr
1295 1300 1305

Leu Lys Arg Asp Lys Ala Pro Lys Ser Ser Phe Val Gly Asp Gly
1310 1315 1320

Asp Ile Phe Lys Lys Leu Asp Ser Glu Leu Ser Arg Ala Gln Glu
1325 1330 1335

Lys Ala Leu Asp Thr Ser Tyr Val Ile Leu Pro Thr Ala Thr Ala
1340 1345 1350

Thr Leu Arg Pro Lys Pro Lys Glu Glu Pro Lys Tyr Ser Ile His
1355 1360 1365

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

Pro Glu Ala Ser Leu Pro Ala Arg Ser Pro Pro Ser Arg Gln Pro
1385 1390 1395

Pro Ser Gly Gly Pro Pro Glu Ala Pro Pro Ala Gln Pro Pro Pro
1400 1405 1410

Pro Pro Pro Pro Pro Pro Pro Pro Pro Gln Gln Pro Leu Pro Pro
1415 1420 1425

Pro Pro Asn Leu Glu Pro Ala Pro Pro Ser Leu Gly Asp Pro Gly

```
    1430                1435                1440

Glu Pro  Ala Ala His Pro Gly  Pro Ser Thr Gly Pro  Ser Thr Lys
    1445                1450                1455

Asn Glu  Asn Val Ala Thr Leu  Ser Val Ser Ser Leu  Glu Arg Arg
    1460                1465                1470

Lys Ser  Arg Tyr Ala Glu Leu  Asp Phe Glu Lys Ile  Met His Thr
    1475                1480                1485

Arg Lys  Arg His Gln Asp Met  Phe Gln Asp Leu Asn  Arg Lys Leu
    1490                1495                1500

Gln His  Ala Ala Glu Lys Asp  Lys Glu Val Leu Gly  Pro Asp Ser
    1505                1510                1515

Lys Pro  Glu Lys Gln Gln Thr  Pro Asn Lys Arg Pro  Trp Glu Ser
    1520                1525                1530

Leu Arg  Lys Ala His Gly Thr  Pro Thr Trp Val Lys  Lys Glu Leu
    1535                1540                1545

Glu Pro  Leu Gln Pro Ser Pro  Leu Glu Leu Arg Ser  Val Glu Trp
    1550                1555                1560

Glu Arg  Ser Gly Ala Thr Ile  Pro Leu Val Gly Gln  Asp Ile Ile
    1565                1570                1575

Asp Leu  Gln Thr Glu Val
    1580


<210> 2934
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<221> source
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<220>
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adhesion G prt-coupled receptor B1; "

<220>
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<223> /note="ENSP ID: ENSP00000427783"

<400> 2934

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Met Arg Gly Gln Ala Ala Ala Pro Gly Pro Val Trp Ile Leu Ala Pro
1               5                  10                  15

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

Gly Ala Asp Ala Gly Pro Gly Pro Glu Pro Cys Ala Thr Leu Val Gln
        35                  40                  45

Gly Lys Phe Phe Gly Tyr Phe Ser Ala Ala Ala Val Phe Pro Ala Asn
    50                  55                  60

Ala Ser Arg Cys Ser Trp Thr Leu Arg Asn Pro Asp Pro Arg Arg Tyr
65                  70                  75                  80

Thr Leu Tyr Met Lys Val Ala Lys Ala Pro Val Pro Cys Ser Gly Pro
                85                  90                  95

Gly Arg Val Arg Thr Tyr Gln Phe Asp Ser Phe Leu Glu Ser Thr Arg
            100                 105                 110

Thr Tyr Leu Gly Val Glu Ser Phe Asp Glu Val Leu Arg Leu Cys Asp
        115                 120                 125

Pro Ser Ala Pro Leu Ala Phe Leu Gln Ala Ser Lys Gln Phe Leu Gln
    130                 135                 140

Met Arg Arg Gln Gln Pro Pro Gln His Asp Gly Leu Arg Pro Arg Ala
145                 150                 155                 160

Gly Pro Pro Gly Pro Thr Asp Asp Phe Ser Val Glu Tyr Leu Val Val
                165                 170                 175

Gly Asn Arg Asn Pro Ser Arg Ala Ala Cys Gln Met Leu Cys Arg Trp
            180                 185                 190
```

```
Leu Asp Ala Cys Leu Ala Gly Ser Arg Ser Ser His Pro Cys Gly Ile
        195                 200                 205

Met Gln Thr Pro Cys Ala Cys Leu Gly Gly Glu Ala Gly Gly Pro Ala
    210                 215                 220

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

Ala Gly Gly Pro Glu Asn Cys Leu Thr Ser Leu Thr Gln Asp Arg Gly
                245                 250                 255

Gly His Gly Ala Thr Gly Gly Trp Lys Leu Trp Ser Leu Trp Gly Glu
            260                 265                 270

Cys Thr Arg Asp Cys Gly Gly Gly Leu Gln Thr Arg Thr Arg Thr Cys
        275                 280                 285

Leu Pro Ala Pro Gly Val Glu Gly Gly Gly Cys Glu Gly Val Leu Glu
    290                 295                 300

Glu Gly Arg Gln Cys Asn Arg Glu Ala Cys Gly Pro Ala Gly Arg Thr
305                 310                 315                 320

Ser Ser Arg Ser Gln Ser Leu Arg Ser Thr Asp Ala Arg Arg Arg Glu
                325                 330                 335

Glu Leu Gly Asp Glu Leu Gln Gln Phe Gly Phe Pro Ala Pro Gln Thr
            340                 345                 350

Gly Asp Pro Ala Ala Glu Glu Trp Ser Pro Trp Ser Val Cys Ser Ser
        355                 360                 365

Thr Cys Gly Glu Gly Trp Gln Thr Arg Thr Arg Phe Cys Val Ser Ser
    370                 375                 380

Ser Tyr Ser Thr Gln Cys Ser Gly Pro Leu Arg Glu Gln Arg Leu Cys
385                 390                 395                 400

Asn Asn Ser Ala Val Cys Pro Val His Gly Ala Trp Asp Glu Trp Ser
                405                 410                 415

Pro Trp Ser Leu Cys Ser Ser Thr Cys Gly Arg Gly Phe Arg Asp Arg
```

```
            420                 425                 430

Thr Arg Thr Cys Arg Pro Pro Gln Phe Gly Gly Asn Pro Cys Glu Gly
        435                 440                 445

Pro Glu Lys Gln Thr Lys Phe Cys Asn Ile Ala Leu Cys Pro Gly Arg
    450                 455                 460

Ala Val Asp Gly Asn Trp Asn Glu Trp Ser Ser Trp Ser Ala Cys Ser
465                 470                 475                 480

Ala Ser Cys Ser Gln Gly Arg Gln Gln Arg Thr Arg Glu Cys Asn Gly
                485                 490                 495

Pro Ser Tyr Gly Gly Ala Glu Cys Gln Gly His Trp Val Glu Thr Arg
            500                 505                 510

Asp Cys Phe Leu Gln Gln Cys Pro Val Asp Gly Lys Trp Gln Ala Trp
        515                 520                 525

Ala Ser Trp Gly Ser Cys Ser Val Thr Cys Gly Ala Gly Ser Gln Arg
    530                 535                 540

Arg Glu Arg Val Cys Ser Gly Pro Phe Phe Gly Gly Ala Ala Cys Gln
545                 550                 555                 560

Gly Pro Gln Asp Glu Tyr Arg Gln Cys Gly Thr Gln Arg Cys Pro Glu
                565                 570                 575

Pro His Glu Ile Cys Asp Glu Asp Asn Phe Gly Ala Val Ile Trp Lys
            580                 585                 590

Glu Thr Pro Ala Gly Glu Val Ala Ala Val Arg Cys Pro Arg Asn Ala
        595                 600                 605

Thr Gly Leu Ile Leu Arg Arg Cys Glu Leu Asp Glu Glu Gly Ile Ala
    610                 615                 620

Tyr Trp Glu Pro Pro Thr Tyr Ile Arg Cys Val Ser Ile Asp Tyr Arg
625                 630                 635                 640

Asn Ile Gln Met Met Thr Arg Glu His Leu Ala Lys Ala Gln Arg Gly
                645                 650                 655
```

```
Leu Pro Gly Glu Gly Val Ser Glu Val Ile Gln Thr Leu Val Glu Ile
            660                 665                 670

Ser Gln Asp Gly Thr Ser Tyr Ser Gly Asp Leu Leu Ser Thr Ile Asp
        675                 680                 685

Val Leu Arg Asn Met Thr Glu Ile Phe Arg Arg Ala Tyr Tyr Ser Pro
    690                 695                 700

Thr Pro Gly Asp Val Gln Asn Phe Val Gln Ile Leu Ser Asn Leu Leu
705                 710                 715                 720

Ala Glu Glu Asn Arg Asp Lys Trp Glu Glu Ala Gln Leu Ala Gly Pro
                725                 730                 735

Asn Ala Lys Glu Leu Phe Arg Leu Val Glu Asp Phe Val Asp Val Ile
            740                 745                 750

Gly Phe Arg Met Lys Asp Leu Arg Asp Ala Tyr Gln Val Thr Asp Asn
        755                 760                 765

Leu Val Leu Ser Ile His Lys Leu Pro Ala Ser Gly Ala Thr Asp Ile
    770                 775                 780

Ser Phe Pro Met Lys Gly Trp Arg Ala Thr Gly Asp Trp Ala Lys Val
785                 790                 795                 800

Pro Glu Asp Arg Val Thr Val Ser Lys Ser Val Phe Ser Thr Gly Leu
                805                 810                 815

Thr Glu Ala Asp Glu Ala Ser Val Phe Val Val Gly Thr Val Leu Tyr
            820                 825                 830

Arg Asn Leu Gly Ser Phe Leu Ala Leu Gln Arg Asn Thr Thr Val Leu
        835                 840                 845

Asn Ser Lys Val Ile Ser Val Thr Val Lys Pro Pro Pro Arg Ser Leu
    850                 855                 860

Arg Thr Pro Leu Glu Ile Glu Phe Ala His Met Tyr Asn Gly Thr Thr
865                 870                 875                 880
```

```
Asn Gln Thr Cys Ile Leu Trp Asp Glu Thr Asp Val Pro Ser Ser Ser
                885                 890                 895

Ala Pro Pro Gln Leu Gly Pro Trp Ser Trp Arg Gly Cys Arg Thr Val
            900                 905                 910

Pro Leu Asp Ala Leu Arg Thr Arg Cys Leu Cys Asp Arg Leu Ser Thr
        915                 920                 925

Phe Ala Ile Leu Ala Gln Leu Ser Ala Asp Ala Asn Met Glu Lys Ala
    930                 935                 940

Thr Leu Pro Ser Val Thr Leu Ile Val Gly Cys Gly Val Ser Ser Leu
945                 950                 955                 960

Thr Leu Leu Met Leu Val Ile Ile Tyr Val Ser Val Trp Arg Tyr Ile
                965                 970                 975

Arg Ser Glu Arg Ser Val Ile Leu Ile Asn Phe Cys Leu Ser Ile Ile
            980                 985                 990

Ser Ser Asn Ala Leu Ile Leu Ile  Gly Gln Thr Gln Thr  Arg Asn
Lys
        995                 1000                1005

Val Val  Cys Thr Leu Val Ala  Ala Phe Leu His Phe  Phe Phe Leu
    1010                1015                1020

Ser Ser  Phe Cys Trp Val Leu  Thr Glu Ala Trp Gln  Ser Tyr Met
    1025                1030                1035

Ala Val  Thr Gly His Leu Arg  Asn Arg Leu Ile Arg  Lys Arg Phe
    1040                1045                1050

Leu Cys  Leu Gly Trp Gly Leu  Pro Ala Leu Val Val  Ala Ile Ser
    1055                1060                1065

Val Gly  Phe Thr Lys Ala Lys  Gly Tyr Ser Thr Met  Asn Tyr Cys
    1070                1075                1080

Trp Leu  Ser Leu Glu Gly Gly  Leu Leu Tyr Ala Phe  Val Gly Pro
    1085                1090                1095
```

```
Ala Ala  Ala Val Val Leu Gly  Leu Pro Val Glu Leu  Leu Arg Gly
    1100                1105                1110

Ala Ala  Ala Ala Gly Ala Asp  Leu Asp Val Gly Cys  Ala Arg Arg
    1115                1120                1125

His Arg  Pro Pro Leu Arg Pro  Leu Pro Asp Pro Leu  Arg Cys Leu
    1130                1135                1140

Arg Leu  Ala Gly Gly Leu Arg  His Arg His Gly Ala  Leu Tyr Pro
    1145                1150                1155

Pro
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<210> 2935
<211> 1584
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ADGRB1; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor B1; "

<220>
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<223> /note="Uniprot ID: O14514; "

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<400> 2935

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Met Arg Gly Gln Ala Ala Ala Pro Gly Pro Val Trp Ile Leu Ala Pro
1               5                  10                  15

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

Gly Ala Asp Ala Gly Pro Gly Pro Glu Pro Cys Ala Thr Leu Val Gln
```

```
        35                  40                  45

Gly Lys Phe Phe Gly Tyr Phe Ser Ala Ala Ala Val Phe Pro Ala Asn
    50                  55                  60

Ala Ser Arg Cys Ser Trp Thr Leu Arg Asn Pro Asp Pro Arg Arg Tyr
65                  70                  75                  80

Thr Leu Tyr Met Lys Val Ala Lys Ala Pro Val Pro Cys Ser Gly Pro
                85                  90                  95

Gly Arg Val Arg Thr Tyr Gln Phe Asp Ser Phe Leu Glu Ser Thr Arg
            100                 105                 110

Thr Tyr Leu Gly Val Glu Ser Phe Asp Glu Val Leu Arg Leu Cys Asp
        115                 120                 125

Pro Ser Ala Pro Leu Ala Phe Leu Gln Ala Ser Lys Gln Phe Leu Gln
    130                 135                 140

Met Arg Arg Gln Gln Pro Pro Gln His Asp Gly Leu Arg Pro Arg Ala
145                 150                 155                 160

Gly Pro Pro Gly Pro Thr Asp Asp Phe Ser Val Glu Tyr Leu Val Val
                165                 170                 175

Gly Asn Arg Asn Pro Ser Arg Ala Ala Cys Gln Met Leu Cys Arg Trp
            180                 185                 190

Leu Asp Ala Cys Leu Ala Gly Ser Arg Ser Ser His Pro Cys Gly Ile
        195                 200                 205

Met Gln Thr Pro Cys Ala Cys Leu Gly Gly Glu Ala Gly Gly Pro Ala
    210                 215                 220

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

Ala Gly Gly Pro Glu Asn Cys Leu Thr Ser Leu Thr Gln Asp Arg Gly
                245                 250                 255

Gly His Gly Ala Thr Gly Gly Trp Lys Leu Trp Ser Leu Trp Gly Glu
            260                 265                 270
```

```
Cys Thr Arg Asp Cys Gly Gly Gly Leu Gln Thr Arg Thr Arg Thr Cys
        275                 280                 285

Leu Pro Ala Pro Gly Val Glu Gly Gly Gly Cys Glu Gly Val Leu Glu
    290                 295                 300

Glu Gly Arg Gln Cys Asn Arg Glu Ala Cys Gly Pro Ala Gly Arg Thr
305                 310                 315                 320

Ser Ser Arg Ser Gln Ser Leu Arg Ser Thr Asp Ala Arg Arg Arg Glu
                325                 330                 335

Glu Leu Gly Asp Glu Leu Gln Gln Phe Gly Phe Pro Ala Pro Gln Thr
            340                 345                 350

Gly Asp Pro Ala Ala Glu Glu Trp Ser Pro Trp Ser Val Cys Ser Ser
        355                 360                 365

Thr Cys Gly Glu Gly Trp Gln Thr Arg Thr Arg Phe Cys Val Ser Ser
    370                 375                 380

Ser Tyr Ser Thr Gln Cys Ser Gly Pro Leu Arg Glu Gln Arg Leu Cys
385                 390                 395                 400

Asn Asn Ser Ala Val Cys Pro Val His Gly Ala Trp Asp Glu Trp Ser
                405                 410                 415

Pro Trp Ser Leu Cys Ser Ser Thr Cys Gly Arg Gly Phe Arg Asp Arg
            420                 425                 430

Thr Arg Thr Cys Arg Pro Pro Gln Phe Gly Gly Asn Pro Cys Glu Gly
        435                 440                 445

Pro Glu Lys Gln Thr Lys Phe Cys Asn Ile Ala Leu Cys Pro Gly Arg
    450                 455                 460

Ala Val Asp Gly Asn Trp Asn Glu Trp Ser Ser Trp Ser Ala Cys Ser
465                 470                 475                 480

Ala Ser Cys Ser Gln Gly Arg Gln Gln Arg Thr Arg Glu Cys Asn Gly
                485                 490                 495
```

```
Pro Ser Tyr Gly Gly Ala Glu Cys Gln Gly His Trp Val Glu Thr Arg
            500                 505                 510

Asp Cys Phe Leu Gln Gln Cys Pro Val Asp Gly Lys Trp Gln Ala Trp
        515                 520                 525

Ala Ser Trp Gly Ser Cys Ser Val Thr Cys Gly Ala Gly Ser Gln Arg
    530                 535                 540

Arg Glu Arg Val Cys Ser Gly Pro Phe Phe Gly Gly Ala Ala Cys Gln
545                 550                 555                 560

Gly Pro Gln Asp Glu Tyr Arg Gln Cys Gly Thr Gln Arg Cys Pro Glu
                565                 570                 575

Pro His Glu Ile Cys Asp Glu Asp Asn Phe Gly Ala Val Ile Trp Lys
            580                 585                 590

Glu Thr Pro Ala Gly Glu Val Ala Ala Val Arg Cys Pro Arg Asn Ala
        595                 600                 605

Thr Gly Leu Ile Leu Arg Arg Cys Glu Leu Asp Glu Glu Gly Ile Ala
    610                 615                 620

Tyr Trp Glu Pro Pro Thr Tyr Ile Arg Cys Val Ser Ile Asp Tyr Arg
625                 630                 635                 640

Asn Ile Gln Met Met Thr Arg Glu His Leu Ala Lys Ala Gln Arg Gly
                645                 650                 655

Leu Pro Gly Glu Gly Val Ser Glu Val Ile Gln Thr Leu Val Glu Ile
            660                 665                 670

Ser Gln Asp Gly Thr Ser Tyr Ser Gly Asp Leu Leu Ser Thr Ile Asp
        675                 680                 685

Val Leu Arg Asn Met Thr Glu Ile Phe Arg Arg Ala Tyr Tyr Ser Pro
    690                 695                 700

Thr Pro Gly Asp Val Gln Asn Phe Val Gln Ile Leu Ser Asn Leu Leu
705                 710                 715                 720
```

```
Ala Glu Glu Asn Arg Asp Lys Trp Glu Glu Ala Gln Leu Ala Gly Pro
                725                 730                 735

Asn Ala Lys Glu Leu Phe Arg Leu Val Glu Asp Phe Val Asp Val Ile
            740                 745                 750

Gly Phe Arg Met Lys Asp Leu Arg Asp Ala Tyr Gln Val Thr Asp Asn
        755                 760                 765

Leu Val Leu Ser Ile His Lys Leu Pro Ala Ser Gly Ala Thr Asp Ile
    770                 775                 780

Ser Phe Pro Met Lys Gly Trp Arg Ala Thr Gly Asp Trp Ala Lys Val
785                 790                 795                 800

Pro Glu Asp Arg Val Thr Val Ser Lys Ser Val Phe Ser Thr Gly Leu
                805                 810                 815

Thr Glu Ala Asp Glu Ala Ser Val Phe Val Val Gly Thr Val Leu Tyr
            820                 825                 830

Arg Asn Leu Gly Ser Phe Leu Ala Leu Gln Arg Asn Thr Thr Val Leu
        835                 840                 845

Asn Ser Lys Val Ile Ser Val Thr Val Lys Pro Pro Pro Arg Ser Leu
    850                 855                 860

Arg Thr Pro Leu Glu Ile Glu Phe Ala His Met Tyr Asn Gly Thr Thr
865                 870                 875                 880

Asn Gln Thr Cys Ile Leu Trp Asp Glu Thr Asp Val Pro Ser Ser Ser
                885                 890                 895

Ala Pro Pro Gln Leu Gly Pro Trp Ser Trp Arg Gly Cys Arg Thr Val
            900                 905                 910

Pro Leu Asp Ala Leu Arg Thr Arg Cys Leu Cys Asp Arg Leu Ser Thr
        915                 920                 925

Phe Ala Ile Leu Ala Gln Leu Ser Ala Asp Ala Asn Met Glu Lys Ala
    930                 935                 940

Thr Leu Pro Ser Val Thr Leu Ile Val Gly Cys Gly Val Ser Ser Leu
```

945 950 955 960

Thr Leu Leu Met Leu Val Ile Ile Tyr Val Ser Val Trp Arg Tyr Ile
965 970 975

Arg Ser Glu Arg Ser Val Ile Leu Ile Asn Phe Cys Leu Ser Ile Ile
980 985 990

Ser Ser Asn Ala Leu Ile Leu Ile Gly Gln Thr Gln Thr Arg Asn
Lys
995 1000 1005

Val Val Cys Thr Leu Val Ala Ala Phe Leu His Phe Phe Phe Leu
1010 1015 1020

Ser Ser Phe Cys Trp Val Leu Thr Glu Ala Trp Gln Ser Tyr Met
1025 1030 1035

Ala Val Thr Gly His Leu Arg Asn Arg Leu Ile Arg Lys Arg Phe
1040 1045 1050

Leu Cys Leu Gly Trp Gly Leu Pro Ala Leu Val Val Ala Ile Ser
1055 1060 1065

Val Gly Phe Thr Lys Ala Lys Gly Tyr Ser Thr Met Asn Tyr Cys
1070 1075 1080

Trp Leu Ser Leu Glu Gly Gly Leu Leu Tyr Ala Phe Val Gly Pro
1085 1090 1095

Ala Ala Ala Val Val Leu Val Asn Met Val Ile Gly Ile Leu Val
1100 1105 1110

Phe Asn Lys Leu Val Ser Lys Asp Gly Ile Thr Asp Lys Lys Leu
1115 1120 1125

Lys Glu Arg Ala Gly Ala Ser Leu Trp Ser Ser Cys Val Val Leu
1130 1135 1140

Pro Leu Leu Ala Leu Thr Trp Met Ser Ala Val Leu Ala Val Thr
1145 1150 1155

Asp Arg Arg Ser Ala Leu Phe Gln Ile Leu Phe Ala Val Phe Asp

1160 1165 1170

Ser Leu Glu Gly Phe Val Ile Val Met Val His Cys Ile Leu Arg
1175 1180 1185

Arg Glu Val Gln Asp Ala Val Lys Cys Arg Val Val Asp Arg Gln
1190 1195 1200

Glu Glu Gly Asn Gly Asp Ser Gly Gly Ser Phe Gln Asn Gly His
1205 1210 1215

Ala Gln Leu Met Thr Asp Phe Glu Lys Asp Val Asp Leu Ala Cys
1220 1225 1230

Arg Ser Val Leu Asn Lys Asp Ile Ala Ala Cys Arg Thr Ala Thr
1235 1240 1245

Ile Thr Gly Thr Leu Lys Arg Pro Ser Leu Pro Glu Glu Glu Lys
1250 1255 1260

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

Leu Pro Ala Asn Val Ser Lys Leu His Leu His Gly Ser Pro Arg
1280 1285 1290

Tyr Pro Gly Gly Pro Leu Pro Asp Phe Pro Asn His Ser Leu Thr
1295 1300 1305

Leu Lys Arg Asp Lys Ala Pro Lys Ser Ser Phe Val Gly Asp Gly
1310 1315 1320

Asp Ile Phe Lys Lys Leu Asp Ser Glu Leu Ser Arg Ala Gln Glu
1325 1330 1335

Lys Ala Leu Asp Thr Ser Tyr Val Ile Leu Pro Thr Ala Thr Ala
1340 1345 1350

Thr Leu Arg Pro Lys Pro Lys Glu Glu Pro Lys Tyr Ser Ile His
1355 1360 1365

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

```
Pro Glu  Ala Ser Leu Pro Ala  Arg Ser Pro Pro Ser  Arg Gln Pro
    1385                1390                1395

Pro Ser  Gly Gly Pro Pro Glu  Ala Pro Pro Ala Gln  Pro Pro Pro
    1400                1405                1410

Pro Pro  Pro Pro Pro Pro Pro  Pro Pro Gln Gln Pro  Leu Pro Pro
    1415                1420                1425

Pro Pro  Asn Leu Glu Pro Ala  Pro Pro Ser Leu Gly  Asp Pro Gly
    1430                1435                1440

Glu Pro  Ala Ala His Pro Gly  Pro Ser Thr Gly Pro  Ser Thr Lys
    1445                1450                1455

Asn Glu  Asn Val Ala Thr Leu  Ser Val Ser Ser Leu  Glu Arg Arg
    1460                1465                1470

Lys Ser  Arg Tyr Ala Glu Leu  Asp Phe Glu Lys Ile  Met His Thr
    1475                1480                1485

Arg Lys  Arg His Gln Asp Met  Phe Gln Asp Leu Asn  Arg Lys Leu
    1490                1495                1500

Gln His  Ala Ala Glu Lys Asp  Lys Glu Val Leu Gly  Pro Asp Ser
    1505                1510                1515

Lys Pro  Glu Lys Gln Gln Thr  Pro Asn Lys Arg Pro  Trp Glu Ser
    1520                1525                1530

Leu Arg  Lys Ala His Gly Thr  Pro Thr Trp Val Lys  Lys Glu Leu
    1535                1540                1545

Glu Pro  Leu Gln Pro Ser Pro  Leu Glu Leu Arg Ser  Val Glu Trp
    1550                1555                1560

Glu Arg  Ser Gly Ala Thr Ile  Pro Leu Val Gly Gln  Asp Ile Ile
    1565                1570                1575

Asp Leu  Gln Thr Glu Val
    1580
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<210> 2936
<211> 1584
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: ADGRB2; "

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adhesion G prt-coupled receptor B2; "

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<223> /note="Uniprot ID: O60241; "

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Met Glu Asn Thr Gly Trp Met Gly Lys Gly His Arg Met Thr Pro Ala
1   5   10   15

Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg Leu Ala Thr Ala
            20   25   30

Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala Ser Gly Val Leu
        35   40   45

Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr Ile Ala Ser Gly
    50   55   60

Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys Tyr Ser Leu Tyr
65   70   75   80

Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His Phe Ala Pro Arg
                85   90   95

Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr Cys Leu Arg Pro
            100   105   110

Ser Pro Glu Glu Ala Val Ala Gln Ala Glu Ser Glu Val Gly Arg Pro

```
        115                 120                 125

Glu Glu Glu Glu Ala Glu Ala Ala Ala Gly Leu Glu Leu Cys Ser Gly
    130                 135                 140

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

Cys Leu Ser Ala Glu Pro Ser Glu Ala Pro Arg Leu Leu Ala Pro Ala
                165                 170                 175

Ala Leu Ala Phe Arg Phe Val Glu Val Leu Leu Ile Asn Asn Asn Asn
            180                 185                 190

Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp Ser Glu Glu Cys
        195                 200                 205

Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln Pro Gly Cys Ser
    210                 215                 220

Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr Thr Ser Pro Gly
225                 230                 235                 240

Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val Pro Gly Gly Pro
                245                 250                 255

Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser Ser Asn Asp Leu
            260                 265                 270

Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu Glu Glu Pro Lys
        275                 280                 285

Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro Gly Leu Tyr Met
    290                 295                 300

Ala Gln Thr Gly Asp Pro Ala Ala Glu Glu Trp Ser Pro Trp Ser Val
305                 310                 315                 320

Cys Ser Leu Thr Cys Gly Gln Gly Leu Gln Val Arg Thr Arg Ser Cys
                325                 330                 335

Val Ser Ser Pro Tyr Gly Thr Leu Cys Ser Gly Pro Leu Arg Glu Thr
            340                 345                 350
```

```
Arg Pro Cys Asn Asn Ser Ala Thr Cys Pro Val His Gly Val Trp Glu
        355                 360                 365

Glu Trp Gly Ser Trp Ser Leu Cys Ser Arg Ser Cys Gly Arg Gly Ser
    370                 375                 380

Arg Ser Arg Met Arg Thr Cys Val Pro Pro Gln His Gly Gly Lys Ala
385                 390                 395                 400

Cys Glu Gly Pro Glu Leu Gln Thr Lys Leu Cys Ser Met Ala Ala Cys
                405                 410                 415

Pro Val Glu Gly Gln Trp Leu Glu Trp Gly Pro Trp Gly Pro Cys Ser
            420                 425                 430

Thr Ser Cys Ala Asn Gly Thr Gln Gln Arg Ser Arg Lys Cys Ser Val
        435                 440                 445

Ala Gly Pro Ala Trp Ala Thr Cys Thr Gly Ala Leu Thr Asp Thr Arg
    450                 455                 460

Glu Cys Ser Asn Leu Glu Cys Pro Ala Thr Asp Ser Lys Trp Gly Pro
465                 470                 475                 480

Trp Asn Ala Trp Ser Leu Cys Ser Lys Thr Cys Asp Thr Gly Trp Gln
                485                 490                 495

Arg Arg Phe Arg Met Cys Gln Ala Thr Gly Thr Gln Gly Tyr Pro Cys
            500                 505                 510

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

Ala Phe His Glu Met Cys Arg Asp Glu Tyr Val Met Leu Met Thr Trp
    530                 535                 540

Lys Lys Ala Ala Ala Gly Glu Ile Ile Tyr Asn Lys Cys Pro Pro Asn
545                 550                 555                 560

Ala Ser Gly Ser Ala Ser Arg Arg Cys Leu Leu Ser Ala Gln Gly Val
                565                 570                 575
```

```
Ala Tyr Trp Gly Leu Pro Ser Phe Ala Arg Cys Ile Ser His Glu Tyr
            580                 585                 590

Arg Tyr Leu Tyr Leu Ser Leu Arg Glu His Leu Ala Lys Gly Gln Arg
        595                 600                 605

Met Leu Ala Gly Glu Gly Met Ser Gln Val Val Arg Ser Leu Gln Glu
    610                 615                 620

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

Asp Ile Leu Arg Asn Val Thr Asp Thr Phe Lys Arg Ala Thr Tyr Val
                645                 650                 655

Pro Ser Ala Asp Asp Val Gln Arg Phe Phe Gln Val Val Ser Phe Met
            660                 665                 670

Val Asp Ala Glu Asn Lys Glu Lys Trp Asp Asp Ala Gln Gln Val Ser
        675                 680                 685

Pro Gly Ser Val His Leu Leu Arg Val Val Glu Asp Phe Ile His Leu
    690                 695                 700

Val Gly Asp Ala Leu Lys Ala Phe Gln Ser Ser Leu Ile Val Thr Asp
705                 710                 715                 720

Asn Leu Val Ile Ser Ile Gln Arg Glu Pro Val Ser Ala Val Ser Ser
                725                 730                 735

Asp Ile Thr Phe Pro Met Arg Gly Arg Arg Gly Met Lys Asp Trp Val
            740                 745                 750

Arg His Ser Glu Asp Arg Leu Phe Leu Pro Lys Glu Val Leu Ser Leu
        755                 760                 765

Ser Ser Pro Gly Lys Pro Ala Thr Ser Gly Ala Ala Gly Ser Pro Gly
    770                 775                 780

Arg Gly Arg Gly Pro Gly Thr Val Pro Pro Gly Pro Gly His Ser His
785                 790                 795                 800
```

```
Gln Arg Leu Leu Pro Ala Asp Pro Asp Glu Ser Ser Tyr Phe Val Ile
                805                 810                 815

Gly Ala Val Leu Tyr Arg Thr Leu Gly Leu Ile Leu Pro Pro Pro Arg
            820                 825                 830

Pro Pro Leu Ala Val Thr Ser Arg Val Met Thr Val Thr Val Arg Pro
        835                 840                 845

Pro Thr Gln Pro Pro Ala Glu Pro Leu Ile Thr Val Glu Leu Ser Tyr
    850                 855                 860

Ile Ile Asn Gly Thr Thr Asp Pro His Cys Ala Ser Trp Asp Tyr Ser
865                 870                 875                 880

Arg Ala Asp Ala Ser Ser Gly Asp Trp Asp Thr Glu Asn Cys Gln Thr
                885                 890                 895

Leu Glu Thr Gln Ala Ala His Thr Arg Cys Gln Cys Gln His Leu Ser
            900                 905                 910

Thr Phe Ala Val Leu Ala Gln Pro Pro Lys Asp Leu Thr Leu Glu Leu
        915                 920                 925

Ala Gly Ser Pro Ser Val Pro Leu Val Ile Gly Cys Ala Val Ser Cys
    930                 935                 940

Met Ala Leu Leu Thr Leu Leu Ala Ile Tyr Ala Ala Phe Trp Arg Phe
945                 950                 955                 960

Ile Lys Ser Glu Arg Ser Ile Ile Leu Leu Asn Phe Cys Leu Ser Ile
                965                 970                 975

Leu Ala Ser Asn Ile Leu Ile Leu Val Gly Gln Ser Arg Val Leu Ser
            980                 985                 990

Lys Gly Val Cys Thr Met Thr Ala  Ala Phe Leu His Phe  Phe Phe
Leu
        995                 1000                1005

Ser Ser  Phe Cys Trp Val Leu  Thr Glu Ala Trp Gln  Ser Tyr Leu
    1010                1015                1020
```

```
Ala Val  Ile Gly Arg Met Arg  Thr Arg Leu Val Arg  Lys Arg Phe
    1025                1030                1035

Leu Cys  Leu Gly Trp Gly Leu  Pro Ala Leu Val Val  Ala Val Ser
    1040                1045                1050

Val Gly  Phe Thr Arg Thr Lys  Gly Tyr Gly Thr Ser  Ser Tyr Cys
    1055                1060                1065

Trp Leu  Ser Leu Glu Gly Gly  Leu Leu Tyr Ala Phe  Val Gly Pro
    1070                1075                1080

Ala Ala  Val Ile Val Leu Val  Asn Met Leu Ile Gly  Ile Ile Val
    1085                1090                1095

Phe Asn  Lys Leu Met Ala Arg  Asp Gly Ile Ser Asp  Lys Ser Lys
    1100                1105                1110

Lys Gln  Arg Ala Gly Ser Glu  Arg Cys Pro Trp Ala  Ser Leu Leu
    1115                1120                1125

Leu Pro  Cys Ser Ala Cys Gly  Ala Val Pro Ser Pro  Leu Leu Ser
    1130                1135                1140

Ser Ala  Ser Ala Arg Asn Ala  Met Ala Ser Leu Trp  Ser Ser Cys
    1145                1150                1155

Val Val  Leu Pro Leu Leu Ala  Leu Thr Trp Met Ser  Ala Val Leu
    1160                1165                1170

Ala Met  Thr Asp Arg Arg Ser  Val Leu Phe Gln Ala  Leu Phe Ala
    1175                1180                1185

Val Phe  Asn Ser Ala Gln Gly  Phe Val Ile Thr Ala  Val His Cys
    1190                1195                1200

Phe Leu  Arg Arg Glu Val Gln  Asp Val Val Lys Cys  Gln Met Gly
    1205                1210                1215

Val Cys  Arg Ala Asp Glu Ser  Glu Asp Ser Pro Asp  Ser Cys Lys
    1220                1225                1230

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

1235 1240 1245

Leu Ala Cys Gln Thr Val Leu Phe Lys Glu Val Asn Thr Cys Asn
1250 1255 1260

Pro Ser Thr Ile Thr Gly Thr Leu Ser Arg Leu Ser Leu Asp Glu
1265 1270 1275

Asp Glu Glu Pro Lys Ser Cys Leu Val Gly Pro Glu Gly Ser Leu
1280 1285 1290

Ser Phe Ser Pro Leu Pro Gly Asn Ile Leu Val Pro Met Ala Ala
1295 1300 1305

Ser Pro Gly Leu Gly Glu Pro Pro Pro Pro Gln Glu Ala Asn Pro
1310 1315 1320

Val Tyr Met Cys Gly Glu Gly Gly Leu Arg Gln Leu Asp Leu Thr
1325 1330 1335

Trp Leu Arg Pro Thr Glu Pro Gly Ser Glu Gly Asp Tyr Met Val
1340 1345 1350

Leu Pro Arg Arg Thr Leu Ser Leu Gln Pro Gly Gly Gly Gly Gly
1355 1360 1365

Gly Gly Glu Asp Ala Pro Arg Ala Arg Pro Glu Gly Thr Pro Arg
1370 1375 1380

Arg Ala Ala Lys Thr Val Ala His Thr Glu Gly Tyr Pro Ser Phe
1385 1390 1395

Leu Ser Val Asp His Ser Gly Leu Gly Leu Gly Pro Ala Tyr Gly
1400 1405 1410

Ser Leu Gln Asn Pro Tyr Gly Met Thr Phe Gln Pro Pro Pro Pro
1415 1420 1425

Thr Pro Ser Ala Arg Gln Val Pro Glu Pro Gly Glu Arg Ser Arg
1430 1435 1440

Thr Met Pro Arg Thr Val Pro Gly Ser Thr Met Lys Met Gly Ser
1445 1450 1455

```
Leu Glu  Arg Lys Lys Leu Arg  Tyr Ser Asp Leu Asp  Phe Glu Val
    1460                1465                1470

Met His  Thr Arg Lys Arg His  Ser Glu Leu Tyr His  Glu Leu Asn
    1475                1480                1485

Gln Lys  Phe His Thr Phe Asp  Arg Tyr Arg Ser Gln  Ser Thr Ala
    1490                1495                1500

Lys Arg  Glu Lys Arg Trp Ser  Val Ser Ser Gly Gly  Ala Ala Glu
    1505                1510                1515

Arg Ser  Val Cys Thr Asp Lys  Pro Ser Pro Gly Glu  Arg Pro Ser
    1520                1525                1530

Leu Ser  Gln His Arg Arg His  Gln Ser Trp Ser Thr  Phe Lys Ser
    1535                1540                1545

Met Thr  Leu Gly Ser Leu Pro  Pro Lys Pro Arg Glu  Arg Leu Thr
    1550                1555                1560

Leu His  Arg Ala Ala Ala Trp  Glu Pro Thr Glu Pro  Pro Asp Gly
    1565                1570                1575

Asp Phe  Gln Thr Glu Val
    1580


<210> 2937
<211> 1585
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: ADGRB2; "

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<223> /note="Gene Name:
      adhesion G prt-coupled receptor B2; "

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<221> source
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<220>
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<400> 2937

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Met Glu Asn Thr Gly Trp Met Gly Lys Gly His Arg Met Thr Pro Ala
1               5                  10                  15

Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg Leu Ala Thr Ala
            20                  25                  30

Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala Ser Gly Val Leu
        35                  40                  45

Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr Ile Ala Ser Gly
    50                  55                  60

Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys Tyr Ser Leu Tyr
65                  70                  75                  80

Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His Phe Ala Pro Arg
                85                  90                  95

Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr Cys Leu Arg Pro
            100                 105                 110

Ser Pro Glu Glu Ala Val Ala Gln Ala Glu Ser Glu Val Gly Arg Pro
        115                 120                 125

Glu Glu Glu Glu Ala Glu Ala Ala Ala Gly Leu Glu Leu Cys Ser Gly
    130                 135                 140

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

Cys Leu Ser Ala Glu Pro Ser Glu Ala Pro Arg Leu Leu Ala Pro Ala
                165                 170                 175

Ala Leu Ala Phe Arg Phe Val Glu Val Leu Leu Ile Asn Asn Asn Asn
            180                 185                 190

Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp Ser Glu Glu Cys
```

195 200 205

Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln Pro Gly Cys Ser
210 215 220

Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr Thr Ser Pro Gly
225 230 235 240

Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val Pro Gly Gly Pro
245 250 255

Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser Ser Asn Asp Leu
260 265 270

Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu Glu Glu Pro Lys
275 280 285

Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro Gly Leu Tyr Met
290 295 300

Ala Gln Thr Gly Asp Pro Ala Ala Glu Glu Trp Ser Pro Trp Ser Val
305 310 315 320

Cys Ser Leu Thr Cys Gly Gln Gly Leu Gln Val Arg Thr Arg Ser Cys
325 330 335

Val Ser Ser Pro Tyr Gly Thr Leu Cys Ser Gly Pro Leu Arg Glu Thr
340 345 350

Arg Pro Cys Asn Asn Ser Ala Thr Cys Pro Val His Gly Val Trp Glu
355 360 365

Glu Trp Gly Ser Trp Ser Leu Cys Ser Arg Ser Cys Gly Arg Gly Ser
370 375 380

Arg Ser Arg Met Arg Thr Cys Val Pro Pro Gln His Gly Gly Lys Ala
385 390 395 400

Cys Glu Gly Pro Glu Leu Gln Thr Lys Leu Cys Ser Met Ala Ala Cys
405 410 415

Pro Val Glu Gly Gln Trp Leu Glu Trp Gly Pro Trp Gly Pro Cys Ser
420 425 430

```
Thr Ser Cys Ala Asn Gly Thr Gln Gln Arg Ser Arg Lys Cys Ser Val
        435                 440                 445

Ala Gly Pro Ala Trp Ala Thr Cys Thr Gly Ala Leu Thr Asp Thr Arg
    450                 455                 460

Glu Cys Ser Asn Leu Glu Cys Pro Ala Thr Asp Ser Lys Trp Gly Pro
465                 470                 475                 480

Trp Asn Ala Trp Ser Leu Cys Ser Lys Thr Cys Asp Thr Gly Trp Gln
                485                 490                 495

Arg Arg Phe Arg Met Cys Gln Ala Thr Gly Thr Gln Gly Tyr Pro Cys
            500                 505                 510

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

Ala Phe His Glu Met Cys Arg Asp Glu Tyr Val Met Leu Met Thr Trp
    530                 535                 540

Lys Lys Ala Ala Ala Gly Glu Ile Ile Tyr Asn Lys Cys Pro Pro Asn
545                 550                 555                 560

Ala Ser Gly Ser Ala Ser Arg Arg Cys Leu Leu Ser Ala Gln Gly Val
                565                 570                 575

Ala Tyr Trp Gly Leu Pro Ser Phe Ala Arg Cys Ile Ser His Glu Tyr
            580                 585                 590

Arg Tyr Leu Tyr Leu Ser Leu Arg Glu His Leu Ala Lys Gly Gln Arg
        595                 600                 605

Met Leu Ala Gly Glu Gly Met Ser Gln Val Val Arg Ser Leu Gln Glu
    610                 615                 620

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

Asp Ile Leu Arg Asn Val Thr Asp Thr Phe Lys Arg Ala Thr Tyr Val
                645                 650                 655
```

```
Pro Ser Ala Asp Asp Val Gln Arg Phe Phe Gln Val Val Ser Phe Met
            660                 665                 670

Val Asp Ala Glu Asn Lys Glu Lys Trp Asp Asp Ala Gln Gln Val Ser
        675                 680                 685

Pro Gly Ser Val His Leu Leu Arg Val Val Glu Asp Phe Ile His Leu
    690                 695                 700

Val Gly Asp Ala Leu Lys Ala Phe Gln Ser Ser Leu Ile Val Thr Asp
705                 710                 715                 720

Asn Leu Val Ile Ser Ile Gln Arg Glu Pro Val Ser Ala Val Ser Ser
                725                 730                 735

Asp Ile Thr Phe Pro Met Arg Gly Arg Arg Gly Met Lys Asp Trp Val
            740                 745                 750

Arg His Ser Glu Asp Arg Leu Phe Leu Pro Lys Glu Val Leu Ser Leu
        755                 760                 765

Ser Ser Pro Gly Lys Pro Ala Thr Ser Gly Ala Ala Gly Ser Pro Gly
    770                 775                 780

Arg Gly Arg Gly Pro Gly Thr Val Pro Pro Gly Pro Gly His Ser His
785                 790                 795                 800

Gln Arg Leu Leu Pro Ala Asp Pro Asp Glu Ser Ser Tyr Phe Val Ile
                805                 810                 815

Gly Ala Val Leu Tyr Arg Thr Leu Gly Leu Ile Leu Pro Pro Pro Arg
            820                 825                 830

Pro Pro Leu Ala Val Thr Ser Arg Val Met Thr Val Thr Val Arg Pro
        835                 840                 845

Pro Thr Gln Pro Pro Ala Glu Pro Leu Ile Thr Val Glu Leu Ser Tyr
    850                 855                 860

Ile Ile Asn Gly Thr Thr Asp Pro His Cys Ala Ser Trp Asp Tyr Ser
865                 870                 875                 880
```

```
Arg Ala Asp Ala Ser Ser Gly Asp Trp Asp Thr Glu Asn Cys Gln Thr
                885                 890                 895

Leu Glu Thr Gln Ala Ala His Thr Arg Cys Gln Cys Gln His Leu Ser
            900                 905                 910

Thr Phe Ala Val Leu Ala Gln Pro Pro Lys Asp Leu Thr Leu Glu Leu
        915                 920                 925

Ala Gly Ser Pro Ser Val Pro Leu Val Ile Gly Cys Ala Val Ser Cys
    930                 935                 940

Met Ala Leu Leu Thr Leu Leu Ala Ile Tyr Ala Ala Phe Trp Arg Phe
945                 950                 955                 960

Ile Lys Ser Glu Arg Ser Ile Ile Leu Leu Asn Phe Cys Leu Ser Ile
                965                 970                 975

Leu Ala Ser Asn Ile Leu Ile Leu Val Gly Gln Ser Arg Val Leu Ser
            980                 985                 990

Lys Gly Val Cys Thr Met Thr Ala  Ala Phe Leu His Phe  Phe Phe
Leu
        995                 1000                1005

Ser Ser  Phe Cys Trp Val Leu  Thr Glu Ala Trp Gln  Ser Tyr Leu
    1010                1015                1020

Ala Val  Ile Gly Arg Met Arg  Thr Arg Leu Val Arg  Lys Arg Phe
    1025                1030                1035

Leu Cys  Leu Gly Trp Gly Leu  Pro Ala Leu Val Val  Ala Val Ser
    1040                1045                1050

Val Gly  Phe Thr Arg Thr Lys  Gly Tyr Gly Thr Ser  Ser Tyr Cys
    1055                1060                1065

Trp Leu  Ser Leu Glu Gly Gly  Leu Leu Tyr Ala Phe  Val Gly Pro
    1070                1075                1080

Ala Ala  Val Ile Val Leu Val  Asn Met Leu Ile Gly  Ile Ile Val
    1085                1090                1095
```

```
Phe Asn  Lys Leu Met Ala Arg  Asp Gly Ile Ser Asp  Lys Ser Lys
    1100                 1105                 1110

Lys Gln  Arg Ala Gly Ser Glu  Arg Cys Pro Trp Ala  Ser Leu Leu
    1115                 1120                 1125

Leu Pro  Cys Ser Ala Cys Gly  Ala Val Pro Ser Pro  Leu Leu Ser
    1130                 1135                 1140

Ser Ala  Ser Ala Arg Asn Ala  Met Ala Ser Leu Trp  Ser Ser Cys
    1145                 1150                 1155

Val Val  Leu Pro Leu Leu Ala  Leu Thr Trp Met Ser  Ala Val Leu
    1160                 1165                 1170

Ala Met  Thr Asp Arg Arg Ser  Val Leu Phe Gln Ala  Leu Phe Ala
    1175                 1180                 1185

Val Phe  Asn Ser Ala Gln Gly  Phe Val Ile Thr Ala  Val His Cys
    1190                 1195                 1200

Phe Leu  Arg Arg Glu Val Gln  Asp Val Val Lys Cys  Gln Met Gly
    1205                 1210                 1215

Val Cys  Arg Ala Asp Glu Ser  Glu Asp Ser Pro Asp  Ser Cys Lys
    1220                 1225                 1230

Asn Gly  Gln Leu Gln Ile Leu  Ser Asp Phe Glu Lys  Asp Val Asp
    1235                 1240                 1245

Leu Ala  Cys Gln Thr Val Leu  Phe Lys Glu Val Asn  Thr Cys Asn
    1250                 1255                 1260

Pro Ser  Thr Ile Thr Gly Thr  Leu Ser Arg Leu Ser  Leu Asp Glu
    1265                 1270                 1275

Asp Glu  Glu Pro Lys Ser Cys  Leu Val Gly Pro Glu  Gly Ser Leu
    1280                 1285                 1290

Ser Phe  Ser Pro Leu Pro Gly  Asn Ile Leu Val Pro  Met Ala Ala
    1295                 1300                 1305

Ser Pro  Gly Leu Gly Glu Pro  Pro Pro Pro Gln Glu  Ala Asn Pro
```

1310 1315 1320

Val Tyr Met Cys Gly Glu Gly Gly Leu Arg Gln Leu Asp Leu Thr
1325 1330 1335

Trp Leu Arg Pro Thr Glu Pro Gly Ser Glu Gly Asp Tyr Met Val
1340 1345 1350

Leu Pro Arg Arg Thr Leu Ser Leu Gln Pro Gly Gly Gly Gly Gly
1355 1360 1365

Gly Gly Glu Asp Ala Pro Arg Ala Arg Pro Glu Gly Thr Pro Arg
1370 1375 1380

Arg Ala Ala Lys Thr Val Ala His Thr Glu Gly Tyr Pro Ser Phe
1385 1390 1395

Leu Ser Val Asp His Ser Gly Leu Gly Leu Gly Pro Ala Tyr Gly
1400 1405 1410

Ser Leu Gln Asn Pro Tyr Gly Met Thr Phe Gln Pro Pro Pro Pro
1415 1420 1425

Thr Pro Ser Ala Arg Gln Val Pro Glu Pro Gly Glu Arg Ser Arg
1430 1435 1440

Thr Met Pro Arg Thr Val Pro Gly Ser Thr Met Lys Met Gly Ser
1445 1450 1455

Leu Glu Arg Lys Lys Leu Arg Tyr Ser Asp Leu Asp Phe Glu Lys
1460 1465 1470

Val Met His Thr Arg Lys Arg His Ser Glu Leu Tyr His Glu Leu
1475 1480 1485

Asn Gln Lys Phe His Thr Phe Asp Arg Tyr Arg Ser Gln Ser Thr
1490 1495 1500

Ala Lys Arg Glu Lys Arg Trp Ser Val Ser Ser Gly Gly Ala Ala
1505 1510 1515

Glu Arg Ser Val Cys Thr Asp Lys Pro Ser Pro Gly Glu Arg Pro
1520 1525 1530

Ser Leu Ser Gln His Arg Arg His Gln Ser Trp Ser Thr Phe Lys
1535 1540 1545

Ser Met Thr Leu Gly Ser Leu Pro Pro Lys Pro Arg Glu Arg Leu
1550 1555 1560

Thr Leu His Arg Ala Ala Ala Trp Glu Pro Thr Glu Pro Pro Asp
1565 1570 1575

Gly Asp Phe Gln Thr Glu Val
1580 1585

<210> 2938
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<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Symbol: ADGRB2; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor B2; "

<220>
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Met Thr Pro Ala Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg
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Leu Ala Thr Ala Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala
20 25 30

Ser Gly Val Leu Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr
35 40 45

Ile Ala Ser Gly Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys
50 55 60

```
Tyr Ser Leu Tyr Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His
65                  70                  75                  80

Phe Ala Pro Arg Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr
                85                  90                  95

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

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

Leu Cys Ser Gly Ser Gly Pro Phe Thr Phe Leu His Phe Asp Lys Asn
    130                 135                 140

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

Leu Ala Pro Ala Ala Leu Ala Phe Arg Phe Val Glu Val Leu Leu Ile
                165                 170                 175

Asn Asn Asn Asn Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp
            180                 185                 190

Ser Glu Glu Cys Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln
        195                 200                 205

Pro Gly Cys Ser Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr
    210                 215                 220

Thr Ser Pro Gly Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val
225                 230                 235                 240

Pro Gly Gly Pro Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser
                245                 250                 255

Ser Asn Asp Leu Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu
            260                 265                 270

Glu Glu Pro Lys Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro
        275                 280                 285

Gly Leu Tyr Met Ala Gln Thr Gly Asp Pro Ala Ala Glu Glu Trp Ser
```

```
    290                 295                 300

Pro Trp Ser Val Cys Ser Leu Thr Cys Gly Gln Gly Leu Gln Val Arg
305                 310                 315                 320

Thr Arg Ser Cys Val Ser Ser Pro Tyr Gly Thr Leu Cys Ser Gly Pro
                325                 330                 335

Leu Arg Glu Thr Arg Pro Cys Asn Asn Ser Ala Thr Cys Pro Val His
            340                 345                 350

Gly Val Trp Glu Glu Trp Gly Ser Trp Ser Leu Cys Ser Arg Ser Cys
        355                 360                 365

Gly Arg Gly Ser Arg Ser Arg Met Arg Thr Cys Val Pro Pro Gln His
    370                 375                 380

Gly Gly Lys Ala Cys Glu Gly Pro Glu Leu Gln Thr Lys Leu Cys Ser
385                 390                 395                 400

Met Ala Ala Cys Pro Val Glu Gly Gln Trp Leu Glu Trp Gly Pro Trp
                405                 410                 415

Gly Pro Cys Ser Thr Ser Cys Ala Asn Gly Thr Gln Gln Arg Ser Arg
            420                 425                 430

Lys Cys Ser Val Ala Gly Pro Ala Trp Ala Thr Cys Thr Gly Ala Leu
        435                 440                 445

Thr Asp Thr Arg Glu Cys Ser Asn Leu Glu Cys Pro Ala Thr Asp Ser
    450                 455                 460

Lys Trp Gly Pro Trp Asn Ala Trp Ser Leu Cys Ser Lys Thr Cys Asp
465                 470                 475                 480

Thr Gly Trp Gln Arg Arg Phe Arg Met Cys Gln Ala Thr Gly Thr Gln
                485                 490                 495

Gly Tyr Pro Cys Glu Gly Thr Gly Glu Glu Val Lys Pro Cys Ser Glu
            500                 505                 510

Lys Arg Cys Pro Ala Phe His Glu Met Cys Arg Asp Glu Tyr Val Met
        515                 520                 525
```

```
Leu Met Thr Trp Lys Lys Ala Ala Ala Gly Glu Ile Ile Tyr Asn Lys
    530                 535                 540

Cys Pro Pro Asn Ala Ser Gly Ser Ala Ser Arg Arg Cys Leu Leu Ser
545                 550                 555                 560

Ala Gln Gly Val Ala Tyr Trp Gly Leu Pro Ser Phe Ala Arg Cys Ile
                565                 570                 575

Ser His Glu Tyr Arg Tyr Leu Tyr Leu Ser Leu Arg Glu His Leu Ala
            580                 585                 590

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

Ser Leu Gln Glu Leu Leu Ala Arg Arg Thr Tyr Tyr Ser Gly Asp Leu
    610                 615                 620

Leu Phe Ser Val Asp Ile Leu Arg Asn Val Thr Asp Thr Phe Lys Arg
625                 630                 635                 640

Ala Thr Tyr Val Pro Ser Ala Asp Asp Val Gln Arg Phe Phe Gln Val
                645                 650                 655

Val Ser Phe Met Val Asp Ala Glu Asn Lys Glu Lys Trp Asp Asp Ala
            660                 665                 670

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

Phe Ile His Leu Val Gly Asp Ala Leu Lys Ala Phe Gln Ser Ser Leu
    690                 695                 700

Ile Val Thr Asp Asn Leu Val Ile Ser Ile Gln Arg Glu Pro Val Ser
705                 710                 715                 720

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

Lys Asp Trp Val Arg His Ser Glu Asp Arg Leu Phe Leu Pro Lys Glu
            740                 745                 750
```

```
Val Leu Ser Leu Ser Ser Pro Gly Lys Pro Ala Thr Ser Gly Ala Ala
        755                 760                 765

Gly Ser Pro Gly Arg Gly Arg Gly Pro Gly Thr Val Pro Pro Gly Pro
    770                 775                 780

Gly His Ser His Gln Arg Leu Leu Pro Ala Asp Pro Asp Glu Ser Ser
785                 790                 795                 800

Tyr Phe Val Ile Gly Ala Val Leu Tyr Arg Thr Leu Gly Leu Ile Leu
                805                 810                 815

Pro Pro Pro Arg Pro Pro Leu Ala Val Thr Ser Arg Val Met Thr Val
            820                 825                 830

Thr Val Arg Pro Pro Thr Gln Pro Pro Ala Glu Pro Leu Ile Thr Val
        835                 840                 845

Glu Leu Ser Tyr Ile Ile Asn Gly Thr Thr Asp Pro His Cys Ala Ser
    850                 855                 860

Trp Asp Tyr Ser Arg Ala Asp Ala Ser Ser Gly Asp Trp Asp Thr Glu
865                 870                 875                 880

Asn Cys Gln Thr Leu Glu Thr Gln Ala Ala His Thr Arg Cys Gln Cys
                885                 890                 895

Gln His Leu Ser Thr Phe Ala Val Leu Ala Gln Pro Pro Lys Asp Leu
            900                 905                 910

Thr Leu Glu Leu Ala Gly Ser Pro Ser Val Pro Leu Val Ile Gly Cys
        915                 920                 925

Ala Val Ser Cys Met Ala Leu Leu Thr Leu Leu Ala Ile Tyr Ala Ala
    930                 935                 940

Phe Trp Arg Phe Ile Lys Ser Glu Arg Ser Ile Ile Leu Leu Asn Phe
945                 950                 955                 960

Cys Leu Ser Ile Leu Ala Ser Asn Ile Leu Ile Leu Val Gly Gln Ser
                965                 970                 975
```

```
Arg Val Leu Ser Lys Gly Val Cys Thr Met Thr Ala Ala Phe Leu His
            980                 985                 990

Phe Phe Phe Leu Ser Ser Phe Cys  Trp Val Leu Thr Glu  Ala Trp
Gln
        995                 1000                1005

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

Lys Arg  Phe Leu Cys Leu Gly  Trp Gly Leu Pro Ala  Leu Val Val
    1025                1030                1035

Ala Val  Ser Val Gly Phe Thr  Arg Thr Lys Gly Tyr  Gly Thr Ser
    1040                1045                1050

Ser Tyr  Cys Trp Leu Ser Leu  Glu Gly Gly Leu Leu  Tyr Ala Phe
    1055                1060                1065

Val Gly  Pro Ala Ala Val Ile  Val Leu Val Asn Met  Leu Ile Gly
    1070                1075                1080

Ile Ile  Val Phe Asn Lys Leu  Met Ala Arg Asp Gly  Ile Ser Asp
    1085                1090                1095

Lys Ser  Lys Lys Gln Arg Ala  Gly Ser Glu Arg Cys  Pro Trp Ala
    1100                1105                1110

Ser Leu  Leu Leu Pro Cys Ser  Ala Cys Gly Ala Val  Pro Ser Pro
    1115                1120                1125

Leu Leu  Ser Ser Ala Ser Ala  Arg Asn Ala Met Ala  Ser Leu Trp
    1130                1135                1140

Ser Ser  Cys Val Val Leu Pro  Leu Leu Ala Leu Thr  Trp Met Ser
    1145                1150                1155

Ala Val  Leu Ala Met Thr Asp  Arg Arg Ser Val Leu  Phe Gln Ala
    1160                1165                1170

Leu Phe  Ala Val Phe Asn Ser  Ala Gln Gly Phe Val  Ile Thr Ala
    1175                1180                1185
```

```
Val His  Cys Phe Leu Arg Arg  Glu Val Gln Asp Val  Val Lys Cys
    1190                1195                1200

Gln Met  Gly Val Cys Arg Ala  Asp Glu Ser Glu Asp  Ser Pro Asp
    1205                1210                1215

Ser Cys  Lys Asn Gly Gln Leu  Gln Ile Leu Ser Asp  Phe Glu Lys
    1220                1225                1230

Asp Val  Asp Leu Ala Cys Gln  Thr Val Leu Phe Lys  Glu Val Asn
    1235                1240                1245

Thr Cys  Asn Pro Ser Thr Ile  Thr Gly Thr Leu Ser  Arg Leu Ser
    1250                1255                1260

Leu Asp  Glu Asp Glu Glu Pro  Lys Ser Cys Leu Val  Gly Pro Glu
    1265                1270                1275

Gly Ser  Leu Ser Phe Ser Pro  Leu Pro Gly Asn Ile  Leu Val Pro
    1280                1285                1290

Met Ala  Ala Ser Pro Gly Leu  Gly Glu Pro Pro Pro  Pro Gln Glu
    1295                1300                1305

Ala Asn  Pro Val Tyr Met Cys  Gly Glu Gly Gly Leu  Arg Gln Leu
    1310                1315                1320

Asp Leu  Thr Trp Leu Arg Pro  Thr Glu Pro Gly Ser  Glu Gly Asp
    1325                1330                1335

Tyr Met  Val Leu Pro Arg Arg  Thr Leu Ser Leu Gln  Pro Gly Gly
    1340                1345                1350

Gly Gly  Gly Gly Gly Glu Asp  Ala Pro Arg Ala Arg  Pro Glu Gly
    1355                1360                1365

Thr Pro  Arg Arg Ala Ala Lys  Thr Val Ala His Thr  Glu Gly Tyr
    1370                1375                1380

Pro Ser  Phe Leu Ser Val Asp  His Ser Gly Leu Gly  Leu Gly Pro
    1385                1390                1395

Ala Tyr  Gly Ser Leu Gln Asn  Pro Tyr Gly Met Thr  Phe Gln Pro
```

```
    1400                1405                1410

Pro Pro  Pro Thr Pro Ser Ala  Arg Gln Val Pro Glu  Pro Gly Glu
    1415                1420                1425

Arg Ser  Arg Thr Met Pro Arg  Thr Val Pro Gly Ser  Thr Met Lys
    1430                1435                1440

Met Gly  Ser Leu Glu Arg Lys  Lys Leu Arg Tyr Ser  Asp Leu Asp
    1445                1450                1455

Phe Glu  Lys Val Met His Thr  Arg Lys Arg His Ser  Glu Leu Tyr
    1460                1465                1470

His Glu  Leu Asn Gln Lys Phe  His Thr Phe Asp Arg  Tyr Arg Ser
    1475                1480                1485

Gln Ser  Thr Ala Lys Asp Lys  Pro Ser Pro Gly Glu  Arg Pro Ser
    1490                1495                1500

Leu Ser  Gln His Arg Arg His  Gln Ser Trp Ser Thr  Phe Lys Ser
    1505                1510                1515

Met Thr  Leu Gly Ser Leu Pro  Pro Lys Pro Arg Glu  Arg Leu Thr
    1520                1525                1530

Leu His  Arg Ala Ala Ala Trp  Glu Pro Thr Glu Pro  Pro Asp Gly
    1535                1540                1545

Asp Phe  Gln Thr Glu Val
    1550


<210> 2939
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<212> PRT
<213> Homo sapiens

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adhesion G prt-coupled receptor B2; "

<220>
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Met Thr Pro Ala Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg
1 5 10 15

Leu Ala Thr Ala Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala
20 25 30

Ser Gly Val Leu Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr
35 40 45

Ile Ala Ser Gly Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys
50 55 60

Tyr Ser Leu Tyr Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His
65 70 75 80

Phe Ala Pro Arg Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr
85 90 95

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

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

Leu Cys Ser Gly Ser Gly Pro Phe Thr Phe Leu His Phe Asp Lys Asn
130 135 140

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

Leu Ala Pro Ala Ala Leu Ala Phe Arg Phe Val Glu Val Leu Leu Ile
165 170 175

Asn Asn Asn Asn Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp
180 185 190

```
Ser Glu Glu Cys Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln
        195                 200                 205

Pro Gly Cys Ser Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr
    210                 215                 220

Thr Ser Pro Gly Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val
225                 230                 235                 240

Pro Gly Gly Pro Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser
                245                 250                 255

Ser Asn Asp Leu Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu
            260                 265                 270

Glu Glu Pro Lys Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro
        275                 280                 285

Gly Leu Tyr Met Ala Gln Thr Gly Asp Pro Ala Ala Glu Glu Trp Ser
    290                 295                 300

Pro Trp Ser Val Cys Ser Leu Thr Cys Gly Gln Gly Leu Gln Val Arg
305                 310                 315                 320

Thr Arg Ser Cys Val Ser Ser Pro Tyr Gly Thr Leu Cys Ser Gly Pro
                325                 330                 335

Leu Arg Glu Thr Arg Pro Cys Asn Asn Ser Ala Thr Cys Pro Val Glu
            340                 345                 350

Gly Gln Trp Leu Glu Trp Gly Pro Trp Gly Pro Cys Ser Thr Ser Cys
        355                 360                 365

Ala Asn Gly Thr Gln Gln Arg Ser Arg Lys Cys Ser Val Ala Gly Pro
    370                 375                 380

Ala Trp Ala Thr Cys Thr Gly Ala Leu Thr Asp Thr Arg Glu Cys Ser
385                 390                 395                 400

Asn Leu Glu Cys Pro Ala Thr Asp Ser Lys Trp Gly Pro Trp Asn Ala
                405                 410                 415

Trp Ser Leu Cys Ser Lys Thr Cys Asp Thr Gly Trp Gln Arg Arg Phe
```

```
            420                 425                 430

Arg Met Cys Gln Ala Thr Gly Thr Gln Gly Tyr Pro Cys Glu Gly Thr
        435                 440                 445

Gly Glu Glu Val Lys Pro Cys Ser Glu Lys Arg Cys Pro Ala Phe His
    450                 455                 460

Glu Met Cys Arg Asp Glu Tyr Val Met Leu Met Thr Trp Lys Lys Ala
465                 470                 475                 480

Ala Ala Gly Glu Ile Ile Tyr Asn Lys Cys Pro Pro Asn Ala Ser Gly
                485                 490                 495

Ser Ala Ser Arg Arg Cys Leu Leu Ser Ala Gln Gly Val Ala Tyr Trp
            500                 505                 510

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

Tyr Leu Ser Leu Arg Glu His Leu Ala Lys Gly Gln Arg Met Leu Ala
    530                 535                 540

Gly Glu Gly Met Ser Gln Val Val Arg Ser Leu Gln Glu Leu Leu Ala
545                 550                 555                 560

Arg Arg Thr Tyr Tyr Ser Gly Asp Leu Leu Phe Ser Val Asp Ile Leu
                565                 570                 575

Arg Asn Val Thr Asp Thr Phe Lys Arg Ala Thr Tyr Val Pro Ser Ala
            580                 585                 590

Asp Asp Val Gln Arg Phe Phe Gln Val Val Ser Phe Met Val Asp Ala
        595                 600                 605

Glu Asn Lys Glu Lys Trp Asp Asp Ala Gln Gln Val Ser Pro Gly Ser
    610                 615                 620

Val His Leu Leu Arg Val Val Glu Asp Phe Ile His Leu Val Gly Asp
625                 630                 635                 640

Ala Leu Lys Ala Phe Gln Ser Ser Leu Ile Val Thr Asp Asn Leu Val
                645                 650                 655
```

```
Ile Ser Ile Gln Arg Glu Pro Val Ser Ala Val Ser Ser Asp Ile Thr
            660                 665                 670

Phe Pro Met Arg Gly Arg Arg Gly Met Lys Asp Trp Val Arg His Ser
        675                 680                 685

Glu Asp Arg Leu Phe Leu Pro Lys Glu Val Leu Ser Leu Ser Ser Pro
    690                 695                 700

Gly Lys Pro Ala Thr Ser Gly Ala Ala Gly Ser Pro Gly Arg Gly Arg
705                 710                 715                 720

Gly Pro Gly Thr Val Pro Pro Gly Pro Gly His Ser His Gln Arg Leu
                725                 730                 735

Leu Pro Ala Asp Pro Asp Glu Ser Ser Tyr Phe Val Ile Gly Ala Val
            740                 745                 750

Leu Tyr Arg Thr Leu Gly Leu Ile Leu Pro Pro Pro Arg Pro Pro Leu
        755                 760                 765

Ala Val Thr Ser Arg Val Met Thr Val Thr Val Arg Pro Pro Thr Gln
    770                 775                 780

Pro Pro Ala Glu Pro Leu Ile Thr Val Glu Leu Ser Tyr Ile Ile Asn
785                 790                 795                 800

Gly Thr Thr Asp Pro His Cys Ala Ser Trp Asp Tyr Ser Arg Ala Asp
                805                 810                 815

Ala Ser Ser Gly Asp Trp Asp Thr Glu Asn Cys Gln Thr Leu Glu Thr
            820                 825                 830

Gln Ala Ala His Thr Arg Cys Gln Cys Gln His Leu Ser Thr Phe Ala
        835                 840                 845

Val Leu Ala Gln Pro Pro Lys Asp Leu Thr Leu Glu Leu Ala Gly Ser
    850                 855                 860

Pro Ser Val Pro Leu Val Ile Gly Cys Ala Val Ser Cys Met Ala Leu
865                 870                 875                 880
```

```
Leu Thr Leu Leu Ala Ile Tyr Ala Ala Phe Trp Arg Phe Ile Lys Ser
                885                 890                 895

Glu Arg Ser Ile Ile Leu Leu Asn Phe Cys Leu Ser Ile Leu Ala Ser
            900                 905                 910

Asn Ile Leu Ile Leu Val Gly Gln Ser Arg Val Leu Ser Lys Gly Val
        915                 920                 925

Cys Thr Met Thr Ala Ala Phe Leu His Phe Phe Phe Leu Ser Ser Phe
    930                 935                 940

Cys Trp Val Leu Thr Glu Ala Trp Gln Ser Tyr Leu Ala Val Ile Gly
945                 950                 955                 960

Arg Met Arg Thr Arg Leu Val Arg Lys Arg Phe Leu Cys Leu Gly Trp
                965                 970                 975

Gly Leu Pro Ala Leu Val Val Ala Val Ser Val Gly Phe Thr Arg Thr
            980                 985                 990

Lys Gly Tyr Gly Thr Ser Ser Tyr  Cys Trp Leu Ser Leu  Glu Gly
Gly
        995                 1000                1005

Leu Leu  Tyr Ala Phe Val Gly  Pro Ala Ala Val Ile  Val Leu Val
    1010                1015                1020

Asn Met  Leu Ile Gly Ile Ile  Val Phe Asn Lys Leu  Met Ala Arg
    1025                1030                1035

Asp Gly  Ile Ser Asp Lys Ser  Lys Lys Gln Arg Ala  Gly Ala Ser
    1040                1045                1050

Leu Trp  Ser Ser Cys Val Val  Leu Pro Leu Leu Ala  Leu Thr Trp
    1055                1060                1065

Met Ser  Ala Val Leu Ala Met  Thr Asp Arg Arg Ser  Val Leu Phe
    1070                1075                1080

Gln Ala  Leu Phe Ala Val Phe  Asn Ser Ala Gln Gly  Phe Val Ile
    1085                1090                1095
```

```
Thr Ala  Val His Cys Phe Leu  Arg Arg Glu Val Gln  Asp Val Val
    1100                1105                1110

Lys Cys  Gln Met Gly Val Cys  Arg Ala Asp Glu Ser  Glu Asp Ser
    1115                1120                1125

Pro Asp  Ser Cys Lys Asn Gly  Gln Leu Gln Ile Leu  Ser Asp Phe
    1130                1135                1140

Glu Lys  Asp Val Asp Leu Ala  Cys Gln Thr Val Leu  Phe Lys Glu
    1145                1150                1155

Val Asn  Thr Cys Asn Pro Ser  Thr Ile Thr Gly Thr  Leu Ser Arg
    1160                1165                1170

Leu Ser  Leu Asp Glu Asp Glu  Glu Pro Lys Ser Cys  Leu Val Gly
    1175                1180                1185

Pro Glu  Gly Ser Leu Ser Phe  Ser Pro Leu Pro Gly  Asn Ile Leu
    1190                1195                1200

Val Pro  Met Ala Ala Ser Pro  Gly Leu Gly Glu Pro  Pro Pro Pro
    1205                1210                1215

Gln Glu  Ala Asn Pro Val Tyr  Met Cys Gly Glu Gly  Gly Leu Arg
    1220                1225                1230

Gln Leu  Asp Leu Thr Trp Leu  Arg Pro Thr Glu Pro  Gly Ser Glu
    1235                1240                1245

Gly Asp  Tyr Met Val Leu Pro  Arg Arg Thr Leu Ser  Leu Gln Pro
    1250                1255                1260

Gly Gly  Gly Gly Gly Gly Gly  Glu Asp Ala Pro Arg  Ala Arg Pro
    1265                1270                1275

Glu Gly  Thr Pro Arg Arg Ala  Ala Lys Thr Val Ala  His Thr Glu
    1280                1285                1290

Gly Tyr  Pro Ser Phe Leu Ser  Val Asp His Ser Gly  Leu Gly Leu
    1295                1300                1305
```

```
Gly Pro  Ala Tyr Gly Ser Leu  Gln Asn Pro Tyr Gly  Met Thr Phe
    1310                1315                1320

Gln Pro  Pro Pro Pro Thr Pro  Ser Ala Arg Gln Val  Pro Glu Pro
    1325                1330                1335

Gly Glu  Arg Ser Arg Thr Met  Pro Arg Thr Val Pro  Gly Ser Thr
    1340                1345                1350

Met Lys  Met Gly Ser Leu Glu  Arg Lys Lys Leu Arg  Tyr Ser Asp
    1355                1360                1365

Leu Asp  Phe Glu Lys Val Met  His Thr Arg Lys Arg  His Ser Glu
    1370                1375                1380

Leu Tyr  His Glu Leu Asn Gln  Lys Phe His Thr Phe  Asp Arg Tyr
    1385                1390                1395

Arg Ser  Gln Ser Thr Ala Lys  Asp Lys Pro Ser Pro  Gly Glu Arg
    1400                1405                1410

Pro Ser  Leu Ser Gln His Arg  Arg His Gln Ser Trp  Ser Thr Phe
    1415                1420                1425

Lys Ser  Met Thr Leu Gly Ser  Leu Pro Pro Lys Pro  Arg Glu Arg
    1430                1435                1440

Leu Thr  Leu His Arg Ala Ala  Ala Trp Glu Pro Thr  Glu Pro Pro
    1445                1450                1455

Asp Gly  Asp Phe Gln Thr Glu  Val
    1460                1465


<210> 2940
<211> 1499
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 675; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRB2; "
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor B2; "

<220>
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<223> /note="ENSP ID: ENSP00000381555"

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Met Thr Pro Ala Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg
1 5 10 15

Leu Ala Thr Ala Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala
20 25 30

Ser Gly Val Leu Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr
35 40 45

Ile Ala Ser Gly Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys
50 55 60

Tyr Ser Leu Tyr Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His
65 70 75 80

Phe Ala Pro Arg Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr
85 90 95

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

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

Leu Cys Ser Gly Ser Gly Pro Phe Thr Phe Leu His Phe Asp Lys Asn
130 135 140

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

Leu Ala Pro Ala Ala Leu Ala Phe Arg Phe Val Glu Val Leu Leu Ile
165 170 175

Asn Asn Asn Asn Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp
180 185 190

```
Ser Glu Glu Cys Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln
        195                 200                 205

Pro Gly Cys Ser Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr
    210                 215                 220

Thr Ser Pro Gly Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val
225                 230                 235                 240

Pro Gly Gly Pro Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser
                245                 250                 255

Ser Asn Asp Leu Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu
            260                 265                 270

Glu Glu Pro Lys Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro
        275                 280                 285

Gly Leu Tyr Met Ala Gln Thr Val His Gly Val Trp Glu Glu Trp Gly
    290                 295                 300

Ser Trp Ser Leu Cys Ser Arg Ser Cys Gly Arg Gly Ser Arg Ser Arg
305                 310                 315                 320

Met Arg Thr Cys Val Pro Pro Gln His Gly Gly Lys Ala Cys Glu Gly
                325                 330                 335

Pro Glu Leu Gln Thr Lys Leu Cys Ser Met Ala Ala Cys Pro Val Glu
            340                 345                 350

Gly Gln Trp Leu Glu Trp Gly Pro Trp Gly Pro Cys Ser Thr Ser Cys
        355                 360                 365

Ala Asn Gly Thr Gln Gln Arg Ser Arg Lys Cys Ser Val Ala Gly Pro
    370                 375                 380

Ala Trp Ala Thr Cys Thr Gly Ala Leu Thr Asp Thr Arg Glu Cys Ser
385                 390                 395                 400

Asn Leu Glu Cys Pro Ala Thr Asp Ser Lys Trp Gly Pro Trp Asn Ala
                405                 410                 415
```

```
Trp Ser Leu Cys Ser Lys Thr Cys Asp Thr Gly Trp Gln Arg Arg Phe
            420                 425                 430

Arg Met Cys Gln Ala Thr Gly Thr Gln Gly Tyr Pro Cys Glu Gly Thr
        435                 440                 445

Gly Glu Glu Val Lys Pro Cys Ser Glu Lys Arg Cys Pro Ala Phe His
    450                 455                 460

Glu Met Cys Arg Asp Glu Tyr Val Met Leu Met Thr Trp Lys Lys Ala
465                 470                 475                 480

Ala Ala Gly Glu Ile Ile Tyr Asn Lys Cys Pro Pro Asn Ala Ser Gly
                485                 490                 495

Ser Ala Ser Arg Arg Cys Leu Leu Ser Ala Gln Gly Val Ala Tyr Trp
            500                 505                 510

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

Tyr Leu Ser Leu Arg Glu His Leu Ala Lys Gly Gln Arg Met Leu Ala
    530                 535                 540

Gly Glu Gly Met Ser Gln Val Val Arg Ser Leu Gln Glu Leu Leu Ala
545                 550                 555                 560

Arg Arg Thr Tyr Tyr Ser Gly Asp Leu Leu Phe Ser Val Asp Ile Leu
                565                 570                 575

Arg Asn Val Thr Asp Thr Phe Lys Arg Ala Thr Tyr Val Pro Ser Ala
            580                 585                 590

Asp Asp Val Gln Arg Phe Phe Gln Val Val Ser Phe Met Val Asp Ala
        595                 600                 605

Glu Asn Lys Glu Lys Trp Asp Asp Ala Gln Gln Val Ser Pro Gly Ser
    610                 615                 620

Val His Leu Leu Arg Val Val Glu Asp Phe Ile His Leu Val Gly Asp
625                 630                 635                 640

Ala Leu Lys Ala Phe Gln Ser Ser Leu Ile Val Thr Asp Asn Leu Val
```

645 650 655

Ile Ser Ile Gln Arg Glu Pro Val Ser Ala Val Ser Ser Asp Ile Thr
660 665 670

Phe Pro Met Arg Gly Arg Arg Gly Met Lys Asp Trp Val Arg His Ser
675 680 685

Glu Asp Arg Leu Phe Leu Pro Lys Glu Val Leu Ser Leu Ser Ser Pro
690 695 700

Gly Lys Pro Ala Thr Ser Gly Ala Ala Gly Ser Pro Gly Arg Gly Arg
705 710 715 720

Gly Pro Gly Thr Val Pro Pro Gly Pro Gly His Ser His Gln Arg Leu
725 730 735

Leu Pro Ala Asp Pro Asp Glu Ser Ser Tyr Phe Val Ile Gly Ala Val
740 745 750

Leu Tyr Arg Thr Leu Gly Leu Ile Leu Pro Pro Pro Arg Pro Pro Leu
755 760 765

Ala Val Thr Ser Arg Val Met Thr Val Thr Val Arg Pro Pro Thr Gln
770 775 780

Pro Pro Ala Glu Pro Leu Ile Thr Val Glu Leu Ser Tyr Ile Ile Asn
785 790 795 800

Gly Thr Thr Asp Pro His Cys Ala Ser Trp Asp Tyr Ser Arg Ala Asp
805 810 815

Ala Ser Ser Gly Asp Trp Asp Thr Glu Asn Cys Gln Thr Leu Glu Thr
820 825 830

Gln Ala Ala His Thr Arg Cys Gln Cys Gln His Leu Ser Thr Phe Ala
835 840 845

Val Leu Ala Gln Pro Pro Lys Asp Leu Thr Leu Glu Leu Ala Gly Ser
850 855 860

Pro Ser Val Pro Leu Val Ile Gly Cys Ala Val Ser Cys Met Ala Leu
865 870 875 880

```
Leu Thr Leu Leu Ala Ile Tyr Ala Ala Phe Trp Arg Phe Ile Lys Ser
                885                 890                 895

Glu Arg Ser Ile Ile Leu Leu Asn Phe Cys Leu Ser Ile Leu Ala Ser
            900                 905                 910

Asn Ile Leu Ile Leu Val Gly Gln Ser Arg Val Leu Ser Lys Gly Val
        915                 920                 925

Cys Thr Met Thr Ala Ala Phe Leu His Phe Phe Phe Leu Ser Ser Phe
    930                 935                 940

Cys Trp Val Leu Thr Glu Ala Trp Gln Ser Tyr Leu Ala Val Ile Gly
945                 950                 955                 960

Arg Met Arg Thr Arg Leu Val Arg Lys Arg Phe Leu Cys Leu Gly Trp
                965                 970                 975

Gly Leu Pro Ala Leu Val Val Ala Val Ser Val Gly Phe Thr Arg Thr
            980                 985                 990

Lys Gly Tyr Gly Thr Ser Ser Tyr  Cys Trp Leu Ser Leu  Glu Gly
Gly
        995                 1000                1005

Leu Leu  Tyr Ala Phe Val Gly  Pro Ala Ala Val Ile  Val Leu Val
    1010                1015                1020

Asn Met  Leu Ile Gly Ile Ile  Val Phe Asn Lys Leu  Met Ala Arg
    1025                1030                1035

Asp Gly  Ile Ser Asp Lys Ser  Lys Lys Gln Arg Ala  Gly Ser Glu
    1040                1045                1050

Arg Cys  Pro Trp Ala Ser Leu  Leu Leu Pro Cys Ser  Ala Cys Gly
    1055                1060                1065

Ala Val  Pro Ser Pro Leu Leu  Ser Ser Ala Ser Ala  Arg Asn Ala
    1070                1075                1080

Met Ala  Ser Leu Trp Ser Ser  Cys Val Val Leu Pro  Leu Leu Ala
    1085                1090                1095
```

```
Leu Thr  Trp Met Ser Ala Val  Leu Ala Met Thr Asp  Arg Arg Ser
    1100                1105                1110

Val Leu  Phe Gln Ala Leu Phe  Ala Val Phe Asn Ser  Ala Gln Gly
    1115                1120                1125

Phe Val  Ile Thr Ala Val His  Cys Phe Leu Arg Arg  Glu Val Gln
    1130                1135                1140

Asp Val  Val Lys Cys Gln Met  Gly Val Cys Arg Ala  Asp Glu Ser
    1145                1150                1155

Glu Asp  Ser Pro Asp Ser Cys  Lys Asn Gly Gln Leu  Gln Ile Leu
    1160                1165                1170

Ser Asp  Phe Glu Lys Asp Val  Asp Leu Ala Cys Gln  Thr Val Leu
    1175                1180                1185

Phe Lys  Glu Val Asn Thr Cys  Asn Pro Ser Thr Ile  Thr Gly Thr
    1190                1195                1200

Leu Ser  Arg Leu Ser Leu Asp  Glu Asp Glu Glu Pro  Lys Ser Cys
    1205                1210                1215

Leu Val  Gly Pro Glu Gly Ser  Leu Ser Phe Ser Pro  Leu Pro Gly
    1220                1225                1230

Asn Ile  Leu Val Pro Met Ala  Ala Ser Pro Gly Leu  Gly Glu Pro
    1235                1240                1245

Pro Pro  Pro Gln Glu Ala Asn  Pro Val Tyr Met Cys  Gly Glu Gly
    1250                1255                1260

Gly Leu  Arg Gln Leu Asp Leu  Thr Trp Leu Arg Pro  Thr Glu Pro
    1265                1270                1275

Gly Ser  Glu Gly Asp Tyr Met  Val Leu Pro Arg Arg  Thr Leu Ser
    1280                1285                1290

Leu Gln  Pro Gly Gly Gly Gly  Gly Gly Gly Glu Asp  Ala Pro Arg
    1295                1300                1305
```

```
Ala Arg  Pro Glu Gly Thr Pro  Arg Arg Ala Ala Lys  Thr Val Ala
    1310                1315                1320

His Thr  Glu Gly Tyr Pro Ser  Phe Leu Ser Val Asp  His Ser Gly
    1325                1330                1335

Leu Gly  Leu Gly Pro Ala Tyr  Gly Ser Leu Gln Asn  Pro Tyr Gly
    1340                1345                1350

Met Thr  Phe Gln Pro Pro Pro  Pro Thr Pro Ser Ala  Arg Gln Val
    1355                1360                1365

Pro Glu  Pro Gly Glu Arg Ser  Arg Thr Met Pro Arg  Thr Val Pro
    1370                1375                1380

Gly Ser  Thr Met Lys Met Gly  Ser Leu Glu Arg Lys  Lys Leu Arg
    1385                1390                1395

Tyr Ser  Asp Leu Asp Phe Glu  Lys Val Met His Thr  Arg Lys Arg
    1400                1405                1410

His Ser  Glu Leu Tyr His Glu  Leu Asn Gln Lys Phe  His Thr Phe
    1415                1420                1425

Asp Arg  Tyr Arg Ser Gln Ser  Thr Ala Lys Asp Lys  Pro Ser Pro
    1430                1435                1440

Gly Glu  Arg Pro Ser Leu Ser  Gln His Arg Arg His  Gln Ser Trp
    1445                1450                1455

Ser Thr  Phe Lys Ser Met Thr  Leu Gly Ser Leu Pro  Pro Lys Pro
    1460                1465                1470

Arg Glu  Arg Leu Thr Leu His  Arg Ala Ala Ala Trp  Glu Pro Thr
    1475                1480                1485

Glu Pro  Pro Asp Gly Asp Phe  Gln Thr Glu Val
    1490                1495
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<210> 2941
<211> 1500
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 675; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRB2; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor B2; "

<220>
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<223> /note="ENSP ID: ENSP00000381564"

<400> 2941
Met Leu Ser Leu Arg Gly Pro Asp Thr His Gly Lys Gly His Arg Met
1 5 10 15

Thr Pro Ala Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg Leu
20 25 30

Ala Thr Ala Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala Ser
35 40 45

Gly Val Leu Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr Ile
50 55 60

Ala Ser Gly Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys Tyr
65 70 75 80

Ser Leu Tyr Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His Phe
85 90 95

Ala Pro Arg Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr Cys
100 105 110

Leu Arg Pro Ser Pro Glu Glu Ala Val Ala Gln Ala Glu Ser Glu Val
115 120 125

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

Cys Ser Gly Ser Gly Pro Phe Thr Phe Leu His Phe Asp Lys Asn Phe
145 150 155 160

```
Val Gln Leu Cys Leu Ser Ala Glu Pro Ser Glu Ala Pro Arg Leu Leu
                165                 170                 175

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

Asn Asn Asn Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp Ser
        195                 200                 205

Glu Glu Cys Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln Pro
    210                 215                 220

Gly Cys Ser Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr Thr
225                 230                 235                 240

Ser Pro Gly Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val Pro
                245                 250                 255

Gly Gly Pro Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser Ser
            260                 265                 270

Asn Asp Leu Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu Glu
        275                 280                 285

Glu Pro Lys Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro Gly
    290                 295                 300

Leu Tyr Met Ala Gln Thr Val His Gly Val Trp Glu Glu Trp Gly Ser
305                 310                 315                 320

Trp Ser Leu Cys Ser Arg Ser Cys Gly Arg Gly Ser Arg Ser Arg Met
                325                 330                 335

Arg Thr Cys Val Pro Pro Gln His Gly Gly Lys Ala Cys Glu Gly Pro
            340                 345                 350

Glu Leu Gln Thr Lys Leu Cys Ser Met Ala Ala Cys Pro Val Glu Gly
        355                 360                 365

Gln Trp Leu Glu Trp Gly Pro Trp Gly Pro Cys Ser Thr Ser Cys Ala
    370                 375                 380
```

```
Asn Gly Thr Gln Gln Arg Ser Arg Lys Cys Ser Val Ala Gly Pro Ala
385                 390                 395                 400

Trp Ala Thr Cys Thr Gly Ala Leu Thr Asp Thr Arg Glu Cys Ser Asn
                405                 410                 415

Leu Glu Cys Pro Ala Thr Asp Ser Lys Trp Gly Pro Trp Asn Ala Trp
            420                 425                 430

Ser Leu Cys Ser Lys Thr Cys Asp Thr Gly Trp Gln Arg Arg Phe Arg
        435                 440                 445

Met Cys Gln Ala Thr Gly Thr Gln Gly Tyr Pro Cys Glu Gly Thr Gly
    450                 455                 460

Glu Glu Val Lys Pro Cys Ser Glu Lys Arg Cys Pro Ala Phe His Glu
465                 470                 475                 480

Met Cys Arg Asp Glu Tyr Val Met Leu Met Thr Trp Lys Lys Ala Ala
                485                 490                 495

Ala Gly Glu Ile Ile Tyr Asn Lys Cys Pro Pro Asn Ala Ser Gly Ser
            500                 505                 510

Ala Ser Arg Arg Cys Leu Leu Ser Ala Gln Gly Val Ala Tyr Trp Gly
        515                 520                 525

Leu Pro Ser Phe Ala Arg Cys Ile Ser His Glu Tyr Arg Tyr Leu Tyr
    530                 535                 540

Leu Ser Leu Arg Glu His Leu Ala Lys Gly Gln Arg Met Leu Ala Gly
545                 550                 555                 560

Glu Gly Met Ser Gln Val Val Arg Ser Leu Gln Glu Leu Leu Ala Arg
                565                 570                 575

Arg Thr Tyr Tyr Ser Gly Asp Leu Leu Phe Ser Val Asp Ile Leu Arg
            580                 585                 590

Asn Val Thr Asp Thr Phe Lys Arg Ala Thr Tyr Val Pro Ser Ala Asp
        595                 600                 605
```

```
Asp Val Gln Arg Phe Phe Gln Val Val Ser Phe Met Val Asp Ala Glu
    610                 615                 620

Asn Lys Glu Lys Trp Asp Asp Ala Gln Gln Val Ser Pro Gly Ser Val
625                 630                 635                 640

His Leu Leu Arg Val Val Glu Asp Phe Ile His Leu Val Gly Asp Ala
                645                 650                 655

Leu Lys Ala Phe Gln Ser Ser Leu Ile Val Thr Asp Asn Leu Val Ile
            660                 665                 670

Ser Ile Gln Arg Glu Pro Val Ser Ala Val Ser Ser Asp Ile Thr Phe
        675                 680                 685

Pro Met Arg Gly Arg Arg Gly Met Lys Asp Trp Val Arg His Ser Glu
    690                 695                 700

Asp Arg Leu Phe Leu Pro Lys Glu Val Leu Ser Leu Ser Ser Pro Gly
705                 710                 715                 720

Lys Pro Ala Thr Ser Gly Ala Ala Gly Ser Pro Gly Arg Gly Arg Gly
                725                 730                 735

Pro Gly Thr Val Pro Pro Gly Pro Gly His Ser His Gln Arg Leu Leu
            740                 745                 750

Pro Ala Asp Pro Asp Glu Ser Ser Tyr Phe Val Ile Gly Ala Val Leu
        755                 760                 765

Tyr Arg Thr Leu Gly Leu Ile Leu Pro Pro Pro Arg Pro Pro Leu Ala
    770                 775                 780

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

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

Thr Thr Asp Pro His Cys Ala Ser Trp Asp Tyr Ser Arg Ala Asp Ala
            820                 825                 830

Ser Ser Gly Asp Trp Asp Thr Glu Asn Cys Gln Thr Leu Glu Thr Gln
```

```
        835                 840                 845

Ala Ala His Thr Arg Cys Gln Cys Gln His Leu Ser Thr Phe Ala Val
    850                 855                 860

Leu Ala Gln Pro Pro Lys Asp Leu Thr Leu Glu Leu Ala Gly Ser Pro
865                 870                 875                 880

Ser Val Pro Leu Val Ile Gly Cys Ala Val Ser Cys Met Ala Leu Leu
                885                 890                 895

Thr Leu Leu Ala Ile Tyr Ala Ala Phe Trp Arg Phe Ile Lys Ser Glu
            900                 905                 910

Arg Ser Ile Ile Leu Leu Asn Phe Cys Leu Ser Ile Leu Ala Ser Asn
        915                 920                 925

Ile Leu Ile Leu Val Gly Gln Ser Arg Val Leu Ser Lys Gly Val Cys
    930                 935                 940

Thr Met Thr Ala Ala Phe Leu His Phe Phe Phe Leu Ser Ser Phe Cys
945                 950                 955                 960

Trp Val Leu Thr Glu Ala Trp Gln Ser Tyr Leu Ala Val Ile Gly Arg
                965                 970                 975

Met Arg Thr Arg Leu Val Arg Lys Arg Phe Leu Cys Leu Gly Trp Gly
            980                 985                 990

Leu Pro Ala Leu Val Val Ala Val  Ser Val Gly Phe Thr  Arg Thr
Lys
        995                 1000                1005

Gly Tyr  Gly Thr Ser Ser Tyr  Cys Trp Leu Ser Leu  Glu Gly Gly
    1010                1015                1020

Leu Leu  Tyr Ala Phe Val Gly  Pro Ala Ala Val Ile  Val Leu Val
    1025                1030                1035

Asn Met  Leu Ile Gly Ile Ile  Val Phe Asn Lys Leu  Met Ala Arg
    1040                1045                1050

Asp Gly  Ile Ser Asp Lys Ser  Lys Lys Gln Arg Ala  Gly Ala Ser
```

1055 1060 1065

Leu Trp Ser Ser Cys Val Val Leu Pro Leu Leu Ala Leu Thr Trp
1070 1075 1080

Met Ser Ala Val Leu Ala Met Thr Asp Arg Arg Ser Val Leu Phe
1085 1090 1095

Gln Ala Leu Phe Ala Val Phe Asn Ser Ala Gln Gly Phe Val Ile
1100 1105 1110

Thr Ala Val His Cys Phe Leu Arg Arg Glu Val Gln Asp Val Val
1115 1120 1125

Lys Cys Gln Met Gly Val Cys Arg Ala Asp Glu Ser Glu Asp Ser
1130 1135 1140

Pro Asp Ser Cys Lys Asn Gly Gln Leu Gln Ile Leu Ser Asp Phe
1145 1150 1155

Glu Lys Asp Val Asp Leu Ala Cys Gln Thr Val Leu Phe Lys Glu
1160 1165 1170

Val Asn Thr Cys Asn Pro Ser Thr Ile Thr Gly Thr Leu Ser Arg
1175 1180 1185

Leu Ser Leu Asp Glu Asp Glu Glu Pro Lys Ser Cys Leu Val Gly
1190 1195 1200

Pro Glu Gly Ser Leu Ser Phe Ser Pro Leu Pro Gly Asn Ile Leu
1205 1210 1215

Val Pro Met Ala Ala Ser Pro Gly Leu Gly Glu Pro Pro Pro Pro
1220 1225 1230

Gln Glu Ala Asn Pro Val Tyr Met Cys Gly Glu Gly Gly Leu Arg
1235 1240 1245

Gln Leu Asp Leu Thr Trp Leu Arg Pro Thr Glu Pro Gly Ser Glu
1250 1255 1260

Gly Asp Tyr Met Val Leu Pro Arg Arg Thr Leu Ser Leu Gln Pro
1265 1270 1275

```
Gly Gly  Gly Gly Gly Gly Gly  Glu Asp Ala Pro Arg  Ala Arg Pro
    1280                 1285                 1290

Glu Gly  Thr Pro Arg Arg Ala  Ala Lys Thr Val Ala  His Thr Glu
    1295                 1300                 1305

Gly Tyr  Pro Ser Phe Leu Ser  Val Asp His Ser Gly  Leu Gly Leu
    1310                 1315                 1320

Gly Pro  Ala Tyr Gly Ser Leu  Gln Asn Pro Tyr Gly  Met Thr Phe
    1325                 1330                 1335

Gln Pro  Pro Pro Pro Thr Pro  Ser Ala Arg Gln Val  Pro Glu Pro
    1340                 1345                 1350

Gly Glu  Arg Ser Arg Thr Met  Pro Arg Thr Val Pro  Gly Ser Thr
    1355                 1360                 1365

Met Lys  Met Gly Ser Leu Glu  Arg Lys Lys Leu Arg  Tyr Ser Asp
    1370                 1375                 1380

Leu Asp  Phe Glu Lys Val Met  His Thr Arg Lys Arg  His Ser Glu
    1385                 1390                 1395

Leu Tyr  His Glu Leu Asn Gln  Lys Phe His Thr Phe  Asp Arg Tyr
    1400                 1405                 1410

Arg Ser  Gln Ser Thr Ala Lys  Arg Glu Lys Arg Trp  Ser Val Ser
    1415                 1420                 1425

Ser Gly  Gly Ala Ala Glu Arg  Ser Val Cys Thr Asp  Lys Pro Ser
    1430                 1435                 1440

Pro Gly  Glu Arg Pro Ser Leu  Ser Gln His Arg Arg  His Gln Ser
    1445                 1450                 1455

Trp Ser  Thr Phe Lys Ser Met  Thr Leu Gly Ser Leu  Pro Pro Lys
    1460                 1465                 1470

Pro Arg  Glu Arg Leu Thr Leu  His Arg Ala Ala Ala  Trp Glu Pro
    1475                 1480                 1485
```

Thr Glu Pro Pro Asp Gly Asp Phe Gln Thr Glu Val
1490 1495 1500

<210> 2942
<211> 847
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADGRB2; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor B2; "

<220>
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<400> 2942
Gly Lys Gly His Arg Met Thr Pro Ala Cys Pro Leu Leu Leu Ser Val
1 5 10 15

Ile Leu Ser Leu Arg Leu Ala Thr Ala Phe Asp Pro Ala Pro Ser Ala
20 25 30

Cys Ser Ala Leu Ala Ser Gly Val Leu Tyr Gly Ala Phe Ser Leu Gln
35 40 45

Asp Leu Phe Pro Thr Ile Ala Ser Gly Cys Ser Trp Thr Leu Glu Asn
50 55 60

Pro Asp Pro Thr Lys Tyr Ser Leu Tyr Leu Arg Phe Asn Arg Gln Glu
65 70 75 80

Gln Val Cys Ala His Phe Ala Pro Arg Leu Leu Pro Leu Asp His Tyr
85 90 95

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

Gln Ala Glu Ser Glu Val Gly Arg Pro Glu Glu Glu Glu Ala Glu Ala

```
        115                 120                 125

Ala Ala Gly Leu Glu Leu Cys Ser Gly Ser Gly Pro Phe Thr Phe Leu
    130                 135                 140

His Phe Asp Lys Asn Phe Val Gln Leu Cys Leu Ser Ala Glu Pro Ser
145                 150                 155                 160

Glu Ala Pro Arg Leu Leu Ala Pro Ala Ala Leu Ala Phe Arg Phe Val
                165                 170                 175

Glu Val Leu Leu Ile Asn Asn Asn Asn Ser Ser Gln Phe Thr Cys Gly
            180                 185                 190

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

Cys Gly Phe Ala Gln Pro Gly Cys Ser Cys Pro Gly Glu Ala Gly Ala
    210                 215                 220

Gly Ser Thr Thr Thr Thr Ser Pro Gly Pro Pro Ala Ala His Thr Leu
225                 230                 235                 240

Ser Asn Ala Leu Val Pro Gly Gly Pro Ala Pro Pro Ala Glu Ala Asp
                245                 250                 255

Leu His Ser Gly Ser Ser Asn Asp Leu Phe Thr Thr Glu Met Arg Tyr
            260                 265                 270

Gly Glu Glu Pro Glu Glu Glu Pro Lys Val Lys Thr Gln Trp Pro Arg
        275                 280                 285

Ser Ala Asp Glu Pro Gly Leu Tyr Met Ala Gln Thr Gly Asp Pro Ala
    290                 295                 300

Ala Glu Glu Trp Ser Pro Trp Ser Val Cys Ser Leu Thr Cys Gly Gln
305                 310                 315                 320

Gly Leu Gln Val Arg Thr Arg Ser Cys Val Ser Ser Pro Tyr Gly Thr
                325                 330                 335

Leu Cys Ser Gly Pro Leu Arg Glu Thr Arg Pro Cys Asn Asn Ser Ala
            340                 345                 350
```

```
Thr Cys Pro Val Glu Gly Gln Trp Leu Glu Trp Gly Pro Trp Gly Pro
        355                 360                 365

Cys Ser Thr Ser Cys Ala Asn Gly Thr Gln Gln Arg Ser Arg Lys Cys
    370                 375                 380

Ser Val Ala Gly Pro Ala Trp Ala Thr Cys Thr Gly Ala Leu Thr Asp
385                 390                 395                 400

Thr Arg Glu Cys Ser Asn Leu Glu Cys Pro Ala Thr Asp Ser Lys Trp
                405                 410                 415

Gly Pro Trp Asn Ala Trp Ser Leu Cys Ser Lys Thr Cys Asp Thr Gly
            420                 425                 430

Trp Gln Arg Arg Phe Arg Met Cys Gln Ala Thr Gly Thr Gln Gly Tyr
        435                 440                 445

Pro Cys Glu Gly Thr Gly Glu Glu Val Lys Pro Cys Ser Glu Lys Arg
    450                 455                 460

Cys Pro Ala Phe His Glu Met Cys Arg Asp Glu Tyr Val Met Leu Met
465                 470                 475                 480

Thr Trp Lys Lys Ala Ala Ala Gly Glu Ile Ile Tyr Asn Lys Cys Pro
                485                 490                 495

Pro Asn Ala Ser Gly Ser Ala Ser Arg Arg Cys Leu Leu Ser Ala Gln
            500                 505                 510

Gly Val Ala Tyr Trp Gly Leu Pro Ser Phe Ala Arg Cys Ile Ser His
        515                 520                 525

Glu Tyr Arg Tyr Leu Tyr Leu Ser Leu Arg Glu His Leu Ala Lys Gly
    530                 535                 540

Gln Arg Met Leu Ala Gly Glu Gly Met Ser Gln Val Val Arg Ser Leu
545                 550                 555                 560

Gln Glu Leu Leu Ala Arg Arg Thr Tyr Tyr Ser Gly Asp Leu Leu Phe
                565                 570                 575
```

```
Ser Val Asp Ile Leu Arg Asn Val Thr Asp Thr Phe Lys Arg Ala Thr
            580                 585                 590

Tyr Val Pro Ser Ala Asp Asp Val Gln Arg Phe Phe Gln Val Val Ser
        595                 600                 605

Phe Met Val Asp Ala Glu Asn Lys Glu Lys Trp Asp Asp Ala Gln Gln
    610                 615                 620

Val Ser Pro Gly Ser Val His Leu Leu Arg Val Val Glu Asp Phe Ile
625                 630                 635                 640

His Leu Val Gly Asp Ala Leu Lys Ala Phe Gln Ser Ser Leu Ile Val
                645                 650                 655

Thr Asp Asn Leu Val Ile Ser Ile Gln Arg Glu Pro Val Ser Ala Val
            660                 665                 670

Ser Ser Asp Ile Thr Phe Pro Met Arg Gly Arg Arg Gly Met Lys Asp
        675                 680                 685

Trp Val Arg His Ser Glu Asp Arg Leu Phe Leu Pro Lys Glu Val Leu
    690                 695                 700

Ser Leu Ser Ser Pro Gly Lys Pro Ala Thr Ser Gly Ala Ala Gly Ser
705                 710                 715                 720

Pro Gly Arg Gly Arg Gly Pro Gly Thr Val Pro Pro Gly Pro Gly His
                725                 730                 735

Ser His Gln Arg Leu Leu Pro Ala Asp Pro Asp Glu Ser Ser Tyr Phe
            740                 745                 750

Val Ile Gly Ala Val Leu Tyr Arg Thr Leu Gly Leu Ile Leu Pro Pro
        755                 760                 765

Pro Arg Pro Pro Leu Ala Val Thr Ser Arg Val Met Thr Val Thr Val
    770                 775                 780

Arg Pro Pro Thr Gln Pro Pro Ala Glu Pro Leu Ile Thr Val Glu Leu
785                 790                 795                 800
```

```
Ser Tyr Ile Ile Asn Gly Thr Thr Asp Pro His Cys Ala Ser Trp Asp
                805                 810                 815

Tyr Ser Arg Ala Asp Ala Ser Ser Gly Asp Trp Asp Thr Glu Asn Cys
            820                 825                 830

Gln Thr Leu Glu Thr Gln Ala Ala His Thr Arg Cys Gln Cys Gln
        835                 840                 845


<210> 2943
<211> 1
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<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor B2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414758"

<400> 2943
Met
1


<210> 2944
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<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<223> /note="Uniprot ID: O60241; "

<220>
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<400> 2944
Met Glu Asn Thr Gly Trp Met Gly Lys Gly His Arg Met Thr Pro Ala
1   5   10   15

Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg Leu Ala Thr Ala
            20   25   30

Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala Ser Gly Val Leu
        35   40   45

Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr Ile Ala Ser Gly
    50   55   60

Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys Tyr Ser Leu Tyr
65   70   75   80

Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His Phe Ala Pro Arg
                85   90   95

Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr Cys Leu Arg Pro
            100   105   110

Ser Pro Glu Glu Ala Val Ala Gln Ala Glu Ser Glu Val Gly Arg Pro
        115   120   125

Glu Glu Glu Glu Ala Glu Ala Ala Ala Gly Leu Glu Leu Cys Ser Gly
    130   135   140

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

Cys Leu Ser Ala Glu Pro Ser Glu Ala Pro Arg Leu Leu Ala Pro Ala
                165   170   175

Ala Leu Ala Phe Arg Phe Val Glu Val Leu Leu Ile Asn Asn Asn Asn
            180   185   190

```
Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp Ser Glu Glu Cys
        195                 200                 205

Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln Pro Gly Cys Ser
    210                 215                 220

Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr Thr Ser Pro Gly
225                 230                 235                 240

Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val Pro Gly Gly Pro
                245                 250                 255

Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser Ser Asn Asp Leu
            260                 265                 270

Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu Glu Glu Pro Lys
        275                 280                 285

Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro Gly Leu Tyr Met
    290                 295                 300

Ala Gln Thr Gly Asp Pro Ala Ala Glu Glu Trp Ser Pro Trp Ser Val
305                 310                 315                 320

Cys Ser Leu Thr Cys Gly Gln Gly Leu Gln Val Arg Thr Arg Ser Cys
                325                 330                 335

Val Ser Ser Pro Tyr Gly Thr Leu Cys Ser Gly Pro Leu Arg Glu Thr
            340                 345                 350

Arg Pro Cys Asn Asn Ser Ala Thr Cys Pro Val His Gly Val Trp Glu
        355                 360                 365

Glu Trp Gly Ser Trp Ser Leu Cys Ser Arg Ser Cys Gly Arg Gly Ser
    370                 375                 380

Arg Ser Arg Met Arg Thr Cys Val Pro Pro Gln His Gly Gly Lys Ala
385                 390                 395                 400

Cys Glu Gly Pro Glu Leu Gln Thr Lys Leu Cys Ser Met Ala Ala Cys
                405                 410                 415

Pro Val Glu Gly Gln Trp Leu Glu Trp Gly Pro Trp Gly Pro Cys Ser
```

420 425 430

Thr Ser Cys Ala Asn Gly Thr Gln Gln Arg Ser Arg Lys Cys Ser Val
435 440 445

Ala Gly Pro Ala Trp Ala Thr Cys Thr Gly Ala Leu Thr Asp Thr Arg
450 455 460

Glu Cys Ser Asn Leu Glu Cys Pro Ala Thr Asp Ser Lys Trp Gly Pro
465 470 475 480

Trp Asn Ala Trp Ser Leu Cys Ser Lys Thr Cys Asp Thr Gly Trp Gln
485 490 495

Arg Arg Phe Arg Met Cys Gln Ala Thr Gly Thr Gln Gly Tyr Pro Cys
500 505 510

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

Ala Phe His Glu Met Cys Arg Asp Glu Tyr Val Met Leu Met Thr Trp
530 535 540

Lys Lys Ala Ala Ala Gly Glu Ile Ile Tyr Asn Lys Cys Pro Pro Asn
545 550 555 560

Ala Ser Gly Ser Ala Ser Arg Arg Cys Leu Leu Ser Ala Gln Gly Val
565 570 575

Ala Tyr Trp Gly Leu Pro Ser Phe Ala Arg Cys Ile Ser His Glu Tyr
580 585 590

Arg Tyr Leu Tyr Leu Ser Leu Arg Glu His Leu Ala Lys Gly Gln Arg
595 600 605

Met Leu Ala Gly Glu Gly Met Ser Gln Val Val Arg Ser Leu Gln Glu
610 615 620

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

Asp Ile Leu Arg Asn Val Thr Asp Thr Phe Lys Arg Ala Thr Tyr Val
645 650 655

```
Pro Ser Ala Asp Asp Val Gln Arg Phe Phe Gln Val Val Ser Phe Met
            660                 665                 670

Val Asp Ala Glu Asn Lys Glu Lys Trp Asp Asp Ala Gln Gln Val Ser
        675                 680                 685

Pro Gly Ser Val His Leu Leu Arg Val Val Glu Asp Phe Ile His Leu
    690                 695                 700

Val Gly Asp Ala Leu Lys Ala Phe Gln Ser Ser Leu Ile Val Thr Asp
705                 710                 715                 720

Asn Leu Val Ile Ser Ile Gln Arg Glu Pro Val Ser Ala Val Ser Ser
                725                 730                 735

Asp Ile Thr Phe Pro Met Arg Gly Arg Arg Gly Met Lys Asp Trp Val
            740                 745                 750

Arg His Ser Glu Asp Arg Leu Phe Leu Pro Lys Glu Val Leu Ser Leu
        755                 760                 765

Ser Ser Pro Gly Lys Pro Ala Thr Ser Gly Ala Ala Gly Ser Pro Gly
    770                 775                 780

Arg Gly Arg Gly Pro Gly Thr Val Pro Pro Gly Pro Gly His Ser His
785                 790                 795                 800

Gln Arg Leu Leu Pro Ala Asp Pro Asp Glu Ser Ser Tyr Phe Val Ile
                805                 810                 815

Gly Ala Val Leu Tyr Arg Thr Leu Gly Leu Ile Leu Pro Pro Pro Arg
            820                 825                 830

Pro Pro Leu Ala Val Thr Ser Arg Val Met Thr Val Thr Val Arg Pro
        835                 840                 845

Pro Thr Gln Pro Pro Ala Glu Pro Leu Ile Thr Val Glu Leu Ser Tyr
    850                 855                 860

Ile Ile Asn Gly Thr Thr Asp Pro His Cys Ala Ser Trp Asp Tyr Ser
865                 870                 875                 880
```

```
Arg Ala Asp Ala Ser Ser Gly Asp Trp Asp Thr Glu Asn Cys Gln Thr
                885                 890                 895

Leu Glu Thr Gln Ala Ala His Thr Arg Cys Gln Cys Gln His Leu Ser
            900                 905                 910

Thr Phe Ala Val Leu Ala Gln Pro Pro Lys Asp Leu Thr Leu Glu Leu
        915                 920                 925

Ala Gly Ser Pro Ser Val Pro Leu Val Ile Gly Cys Ala Val Ser Cys
    930                 935                 940

Met Ala Leu Leu Thr Leu Leu Ala Ile Tyr Ala Ala Phe Trp Arg Phe
945                 950                 955                 960

Ile Lys Ser Glu Arg Ser Ile Ile Leu Leu Asn Phe Cys Leu Ser Ile
                965                 970                 975

Leu Ala Ser Asn Ile Leu Ile Leu Val Gly Gln Ser Arg Val Leu Ser
            980                 985                 990

Lys Gly Val Cys Thr Met Thr Ala  Ala Phe Leu His Phe  Phe Phe
Leu
        995                 1000                1005

Ser Ser  Phe Cys Trp Val Leu  Thr Glu Ala Trp Gln  Ser Tyr Leu
    1010                1015                1020

Ala Val  Ile Gly Arg Met Arg  Thr Arg Leu Val Arg  Lys Arg Phe
    1025                1030                1035

Leu Cys  Leu Gly Trp Gly Leu  Pro Ala Leu Val Val  Ala Val Ser
    1040                1045                1050

Val Gly  Phe Thr Arg Thr Lys  Gly Tyr Gly Thr Ser  Ser Tyr Cys
    1055                1060                1065

Trp Leu  Ser Leu Glu Gly Gly  Leu Leu Tyr Ala Phe  Val Gly Pro
    1070                1075                1080

Ala Ala  Val Ile Val Leu Val  Asn Met Leu Ile Gly  Ile Ile Val
    1085                1090                1095
```

```
Phe Asn  Lys Leu Met Ala Arg  Asp Gly Ile Ser Asp  Lys Ser Lys
    1100                1105                1110

Lys Gln  Arg Ala Gly Ala Ser  Leu Trp Ser Ser Cys  Val Val Leu
    1115                1120                1125

Pro Leu  Leu Ala Leu Thr Trp  Met Ser Ala Val Leu  Ala Met Thr
    1130                1135                1140

Asp Arg  Arg Ser Val Leu Phe  Gln Ala Leu Phe Ala  Val Phe Asn
    1145                1150                1155

Ser Ala  Gln Gly Phe Val Ile  Thr Ala Val His Cys  Phe Leu Arg
    1160                1165                1170

Arg Glu  Val Gln Asp Val Val  Lys Cys Gln Met Gly  Val Cys Arg
    1175                1180                1185

Ala Asp  Glu Ser Glu Asp Ser  Pro Asp Ser Cys Lys  Asn Gly Gln
    1190                1195                1200

Leu Gln  Ile Leu Ser Asp Phe  Glu Lys Asp Val Asp  Leu Ala Cys
    1205                1210                1215

Gln Thr  Val Leu Phe Lys Glu  Val Asn Thr Cys Asn  Pro Ser Thr
    1220                1225                1230

Ile Thr  Gly Thr Leu Ser Arg  Leu Ser Leu Asp Glu  Asp Glu Glu
    1235                1240                1245

Pro Lys  Ser Cys Leu Val Gly  Pro Glu Gly Ser Leu  Ser Phe Ser
    1250                1255                1260

Pro Leu  Pro Gly Asn Ile Leu  Val Pro Met Ala Ala  Ser Pro Gly
    1265                1270                1275

Leu Gly  Glu Pro Pro Pro Pro  Gln Glu Ala Asn Pro  Val Tyr Met
    1280                1285                1290

Cys Gly  Glu Gly Gly Leu Arg  Gln Leu Asp Leu Thr  Trp Leu Arg
    1295                1300                1305
```

```
Pro Thr  Glu Pro Gly Ser Glu  Gly Asp Tyr Met Val  Leu Pro Arg
    1310                1315                1320

Arg Thr  Leu Ser Leu Gln Pro  Gly Gly Gly Gly Gly  Gly Gly Glu
    1325                1330                1335

Asp Ala  Pro Arg Ala Arg Pro  Glu Gly Thr Pro Arg  Arg Ala Ala
    1340                1345                1350

Lys Thr  Val Ala His Thr Glu  Gly Tyr Pro Ser Phe  Leu Ser Val
    1355                1360                1365

Asp His  Ser Gly Leu Gly Leu  Gly Pro Ala Tyr Gly  Ser Leu Gln
    1370                1375                1380

Asn Pro  Tyr Gly Met Thr Phe  Gln Pro Pro Pro Pro  Thr Pro Ser
    1385                1390                1395

Ala Arg  Gln Val Pro Glu Pro  Gly Glu Arg Ser Arg  Thr Met Pro
    1400                1405                1410

Arg Thr  Val Pro Gly Ser Thr  Met Lys Met Gly Ser  Leu Glu Arg
    1415                1420                1425

Lys Lys  Leu Arg Tyr Ser Asp  Leu Asp Phe Glu Val  Met His Thr
    1430                1435                1440

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

His Thr  Phe Asp Arg Tyr Arg  Ser Gln Ser Thr Ala  Lys Arg Glu
    1460                1465                1470

Lys Arg  Trp Ser Val Ser Ser  Gly Gly Ala Ala Glu  Arg Ser Val
    1475                1480                1485

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

His Arg  Arg His Gln Ser Trp  Ser Thr Phe Lys Ser  Met Thr Leu
    1505                1510                1515

Gly Ser  Leu Pro Pro Lys Pro  Arg Glu Arg Leu Thr  Leu His Arg
```

1520 1525 1530

Ala Ala Ala Trp Glu Pro Thr Glu Pro Pro Asp Gly Asp Phe Gln
1535 1540 1545

Thr Glu Val
1550

<210> 2945
<211> 507
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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adhesion G prt-coupled receptor B2; "

<220>
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Met His Leu Pro Arg Gln His Gly Ser Ala His Leu Gly His Leu Tyr
1 5 10 15

Ala Tyr Ala Lys Phe Ser Ala His Asp Trp His Leu His Ala Gln Gly
20 25 30

His Ala Ile Cys Asn Ala His Gly Lys Gly Lys Gly His Arg Met Thr
35 40 45

Pro Ala Cys Pro Leu Leu Leu Ser Val Ile Leu Ser Leu Arg Leu Ala
50 55 60

Thr Ala Phe Asp Pro Ala Pro Ser Ala Cys Ser Ala Leu Ala Ser Gly
65 70 75 80

Val Leu Tyr Gly Ala Phe Ser Leu Gln Asp Leu Phe Pro Thr Ile Ala
85 90 95

```
Ser Gly Cys Ser Trp Thr Leu Glu Asn Pro Asp Pro Thr Lys Tyr Ser
            100                 105                 110

Leu Tyr Leu Arg Phe Asn Arg Gln Glu Gln Val Cys Ala His Phe Ala
        115                 120                 125

Pro Arg Leu Leu Pro Leu Asp His Tyr Leu Val Asn Phe Thr Cys Leu
    130                 135                 140

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

Arg Pro Glu Glu Glu Glu Ala Glu Ala Ala Ala Gly Leu Glu Leu Cys
                165                 170                 175

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

Gln Leu Cys Leu Ser Ala Glu Pro Ser Glu Ala Pro Arg Leu Leu Ala
        195                 200                 205

Pro Ala Ala Leu Ala Phe Arg Phe Val Glu Val Leu Leu Ile Asn Asn
    210                 215                 220

Asn Asn Ser Ser Gln Phe Thr Cys Gly Val Leu Cys Arg Trp Ser Glu
225                 230                 235                 240

Glu Cys Gly Arg Ala Ala Gly Arg Ala Cys Gly Phe Ala Gln Pro Gly
                245                 250                 255

Cys Ser Cys Pro Gly Glu Ala Gly Ala Gly Ser Thr Thr Thr Thr Ser
            260                 265                 270

Pro Gly Pro Pro Ala Ala His Thr Leu Ser Asn Ala Leu Val Pro Gly
        275                 280                 285

Gly Pro Ala Pro Pro Ala Glu Ala Asp Leu His Ser Gly Ser Ser Asn
    290                 295                 300

Asp Leu Phe Thr Thr Glu Met Arg Tyr Gly Glu Glu Pro Glu Glu Glu
305                 310                 315                 320
```

```
Pro Lys Val Lys Thr Gln Trp Pro Arg Ser Ala Asp Glu Pro Gly Leu
                325                 330                 335

Tyr Met Ala Gln Thr Val His Gly Val Trp Glu Glu Trp Gly Ser Trp
            340                 345                 350

Ser Leu Cys Ser Arg Ser Cys Gly Arg Gly Ser Arg Ser Arg Met Arg
        355                 360                 365

Thr Cys Val Pro Pro Gln His Gly Gly Lys Ala Cys Glu Gly Pro Glu
    370                 375                 380

Leu Gln Thr Lys Leu Cys Ser Met Ala Ala Cys Pro Val Glu Gly Gln
385                 390                 395                 400

Trp Leu Glu Trp Gly Pro Trp Gly Pro Cys Ser Thr Ser Cys Ala Asn
                405                 410                 415

Gly Thr Gln Gln Arg Ser Arg Lys Cys Ser Val Ala Gly Pro Ala Trp
            420                 425                 430

Ala Thr Cys Thr Gly Ala Leu Thr Asp Thr Arg Glu Cys Ser Asn Leu
        435                 440                 445

Glu Cys Pro Ala Thr Asp Ser Lys Trp Gly Pro Trp Asn Ala Trp Ser
    450                 455                 460

Leu Cys Ser Lys Thr Cys Asp Thr Gly Trp Gln Arg Arg Phe Arg Met
465                 470                 475                 480

Cys Gln Ala Thr Gly Thr Gln Gly Tyr Pro Cys Glu Gly Thr Gly Glu
                485                 490                 495

Glu Val Lys Pro Cys Ser Glu Lys Arg Cys Pro
            500                 505
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<210> 2946
<211> 728
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADGRB3; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor B3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000238918"

<400> 2946
Met Leu Leu Pro Gln Gly Lys Glu Ala Val Glu Gly Lys Lys Cys Gln
1 5 10 15

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

Arg Asn Glu Ser Leu Gly Thr Trp Ser Thr Gln Gly Cys Lys Thr Val
35 40 45

Leu Thr Asp Ala Ser His Thr Lys Cys Leu Cys Asp Arg Leu Ser Thr
50 55 60

Phe Ala Ile Leu Ala Gln Gln Pro Arg Glu Ile Ile Met Glu Ser Ser
65 70 75 80

Gly Thr Pro Ser Val Thr Leu Ile Val Gly Ser Gly Leu Ser Cys Leu
85 90 95

Ala Leu Ile Thr Leu Ala Val Val Tyr Ala Ala Leu Trp Arg Tyr Ile
100 105 110

Arg Ser Glu Arg Ser Ile Ile Leu Ile Asn Phe Cys Leu Ser Ile Ile
115 120 125

Ser Ser Asn Ile Leu Ile Leu Val Gly Gln Thr Gln Thr His Asn Lys
130 135 140

Ser Ile Cys Thr Thr Thr Thr Ala Phe Leu His Phe Phe Phe Leu Ala
145 150 155 160

Ser Phe Cys Trp Val Leu Thr Glu Ala Trp Gln Ser Tyr Met Ala Val
165 170 175

```
Thr Gly Lys Ile Arg Thr Arg Leu Ile Arg Lys Arg Phe Leu Cys Leu
            180                 185                 190

Gly Trp Gly Leu Pro Ala Leu Val Val Ala Thr Ser Val Gly Phe Thr
        195                 200                 205

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

Gly Gly Leu Leu Tyr Ala Phe Val Gly Pro Ala Ala Ala Val Val Leu
225                 230                 235                 240

Val Asn Met Val Ile Gly Ile Leu Val Phe Asn Lys Leu Val Ser Arg
                245                 250                 255

Asp Gly Ile Leu Asp Lys Lys Leu Lys His Arg Ala Gly Gln Met Ser
            260                 265                 270

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

Ser Thr Thr Ala Leu Ser Ala Thr Thr Ala Ser Asn Ala Met Ala Ser
    290                 295                 300

Leu Trp Ser Ser Cys Val Val Leu Pro Leu Leu Ala Leu Thr Trp Met
305                 310                 315                 320

Ser Ala Val Leu Ala Met Thr Asp Lys Arg Ser Ile Leu Phe Gln Ile
                325                 330                 335

Leu Phe Ala Val Phe Asp Ser Leu Gln Gly Phe Val Ile Val Met Val
            340                 345                 350

His Cys Ile Leu Arg Arg Glu Val Gln Asp Ala Phe Arg Cys Arg Leu
        355                 360                 365

Arg Asn Cys Gln Asp Pro Ile Asn Ala Asp Ser Ser Ser Ser Phe Pro
    370                 375                 380

Asn Gly His Ala Gln Ile Met Thr Asp Phe Glu Lys Asp Val Asp Ile
385                 390                 395                 400
```

```
Ala Cys Arg Ser Val Leu His Lys Asp Ile Gly Pro Cys Arg Ala Ala
                405                 410                 415

Thr Ile Thr Gly Thr Leu Ser Arg Ile Ser Leu Asn Asp Asp Glu Glu
            420                 425                 430

Glu Lys Gly Thr Asn Pro Glu Gly Leu Ser Tyr Ser Thr Leu Pro Gly
        435                 440                 445

Asn Val Ile Ser Lys Val Ile Ile Gln Gln Pro Thr Gly Leu His Met
    450                 455                 460

Pro Met Ser Met Asn Glu Leu Ser Asn Pro Cys Leu Lys Lys Glu Asn
465                 470                 475                 480

Ser Glu Leu Arg Arg Thr Val Tyr Leu Cys Thr Asp Asp Asn Leu Arg
                485                 490                 495

Gly Ala Asp Met Asp Ile Val His Pro Gln Glu Arg Met Met Glu Ser
            500                 505                 510

Asp Tyr Ile Val Met Pro Arg Ser Ser Val Asn Asn Gln Pro Ser Met
        515                 520                 525

Lys Glu Glu Ser Lys Met Asn Ile Gly Met Glu Thr Leu Pro His Glu
    530                 535                 540

Arg Leu Leu His Tyr Lys Val Asn Pro Glu Phe Asn Met Asn Pro Pro
545                 550                 555                 560

Val Met Asp Gln Phe Asn Met Asn Leu Glu Gln His Leu Ala Pro Gln
                565                 570                 575

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

Phe Met Ala Ser Glu Leu Asp Asp Asn Ala Gly Leu Ser Arg Ser Glu
        595                 600                 605

Thr Gly Ser Thr Ile Ser Met Ser Ser Leu Glu Arg Arg Lys Ser Arg
    610                 615                 620

Tyr Ser Asp Leu Asp Phe Glu Lys Val Met His Thr Arg Lys Arg His
```

625 630 635 640

Met Glu Leu Phe Gln Glu Leu Asn Gln Lys Phe Gln Thr Leu Asp Arg
645 650 655

Phe Arg Asp Ile Pro Asn Thr Ser Ser Met Glu Asn Pro Ala Pro Asn
660 665 670

Lys Asn Pro Trp Asp Thr Phe Lys Asn Pro Ser Glu Tyr Pro His Tyr
675 680 685

Thr Thr Ile Asn Val Leu Asp Thr Glu Ala Lys Asp Ala Leu Glu Leu
690 695 700

Arg Pro Ala Glu Trp Glu Lys Cys Leu Asn Leu Pro Leu Asp Val Gln
705 710 715 720

Glu Gly Asp Phe Gln Thr Glu Val
725

<210> 2947
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<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Uniprot ID: O60242; "

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Met Lys Ala Val Arg Asn Leu Leu Ile Tyr Ile Phe Ser Thr Tyr Leu
1 5 10 15

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Leu Val Met Phe Gly Phe Asn Ala Ala Gln Asp Phe Trp Cys Ser Thr
            20                  25                  30

Leu Val Lys Gly Val Ile Tyr Gly Ser Tyr Ser Val Ser Glu Met Phe
        35                  40                  45

Pro Lys Asn Phe Thr Asn Cys Thr Trp Thr Leu Glu Asn Pro Asp Pro
    50                  55                  60

Thr Lys Tyr Ser Ile Tyr Leu Lys Phe Ser Lys Lys Asp Leu Ser Cys
65                  70                  75                  80

Ser Asn Phe Ser Leu Leu Ala Tyr Gln Phe Asp His Phe Ser His Glu
                85                  90                  95

Lys Ile Lys Asp Leu Leu Arg Lys Asn His Ser Ile Met Gln Leu Cys
            100                 105                 110

Asn Ser Lys Asn Ala Phe Val Phe Leu Gln Tyr Asp Lys Asn Phe Ile
        115                 120                 125

Gln Ile Arg Arg Val Phe Pro Thr Asn Phe Pro Gly Leu Gln Lys Lys
    130                 135                 140

Gly Glu Glu Asp Gln Lys Ser Phe Phe Glu Phe Leu Val Leu Asn Lys
145                 150                 155                 160

Val Ser Pro Ser Gln Phe Gly Cys His Val Leu Cys Thr Trp Leu Glu
                165                 170                 175

Ser Cys Leu Lys Ser Glu Asn Gly Arg Thr Glu Ser Cys Gly Ile Met
            180                 185                 190

Tyr Thr Lys Cys Thr Cys Pro Gln His Leu Gly Glu Trp Gly Ile Asp
        195                 200                 205

Asp Gln Ser Leu Ile Leu Leu Asn Asn Val Val Leu Pro Leu Asn Glu
    210                 215                 220

Gln Thr Glu Gly Cys Leu Thr Gln Glu Leu Gln Thr Thr Gln Val Cys
225                 230                 235                 240
```

```
Asn Leu Thr Arg Glu Ala Lys Arg Pro Pro Lys Glu Glu Phe Gly Met
                245                 250                 255

Met Gly Asp His Thr Ile Lys Ser Gln Arg Pro Arg Ser Val His Glu
            260                 265                 270

Lys Arg Val Pro Gln Glu Gln Ala Asp Ala Ala Lys Phe Met Ala Gln
        275                 280                 285

Thr Gly Glu Ser Gly Val Glu Glu Trp Ser Gln Trp Ser Thr Cys Ser
    290                 295                 300

Val Thr Cys Gly Gln Gly Ser Gln Val Arg Thr Arg Thr Cys Val Ser
305                 310                 315                 320

Pro Tyr Gly Thr His Cys Ser Gly Pro Leu Arg Glu Ser Arg Val Cys
                325                 330                 335

Asn Asn Thr Ala Leu Cys Pro Val His Gly Val Trp Glu Glu Trp Ser
            340                 345                 350

Pro Trp Ser Leu Cys Ser Phe Thr Cys Gly Arg Gly Gln Arg Thr Arg
        355                 360                 365

Thr Arg Ser Cys Thr Pro Pro Gln Tyr Gly Gly Arg Pro Cys Glu Gly
    370                 375                 380

Pro Glu Thr His His Lys Pro Cys Asn Ile Ala Leu Cys Pro Val Asp
385                 390                 395                 400

Gly Gln Trp Gln Glu Trp Ser Ser Trp Ser Gln Cys Ser Val Thr Cys
                405                 410                 415

Ser Asn Gly Thr Gln Gln Arg Ser Arg Gln Cys Thr Ala Ala Ala His
            420                 425                 430

Gly Gly Ser Glu Cys Arg Gly Pro Trp Ala Glu Ser Arg Glu Cys Tyr
        435                 440                 445

Asn Pro Glu Cys Thr Ala Asn Gly Gln Trp Asn Gln Trp Gly His Trp
    450                 455                 460

Ser Gly Cys Ser Lys Ser Cys Asp Gly Gly Trp Glu Arg Arg Ile Arg
```

```
465                 470                 475                 480

Thr Cys Gln Gly Ala Val Ile Thr Gly Gln Gln Cys Glu Gly Thr Gly
                485                 490                 495

Glu Glu Val Arg Arg Cys Asn Glu Gln Arg Cys Pro Ala Pro Tyr Glu
            500                 505                 510

Ile Cys Pro Glu Asp Tyr Leu Met Ser Met Val Trp Lys Arg Thr Pro
        515                 520                 525

Ala Gly Asp Leu Ala Phe Asn Gln Cys Pro Leu Asn Ala Thr Gly Thr
    530                 535                 540

Thr Ser Arg Arg Cys Ser Leu Ser Leu His Gly Val Ala Phe Trp Glu
545                 550                 555                 560

Gln Pro Ser Phe Ala Arg Cys Ile Ser Asn Glu Tyr Arg His Leu Gln
                565                 570                 575

His Ser Ile Lys Glu His Leu Ala Lys Gly Gln Arg Met Leu Ala Gly
            580                 585                 590

Asp Gly Met Ser Gln Val Thr Lys Thr Leu Leu Asp Leu Thr Gln Arg
        595                 600                 605

Lys Asn Phe Tyr Ala Gly Asp Leu Leu Met Ser Val Glu Ile Leu Arg
    610                 615                 620

Asn Val Thr Asp Thr Phe Lys Arg Ala Ser Tyr Ile Pro Ala Ser Asp
625                 630                 635                 640

Gly Val Gln Asn Phe Phe Gln Ile Val Ser Asn Leu Leu Asp Glu Glu
                645                 650                 655

Asn Lys Glu Lys Trp Glu Asp Ala Gln Gln Ile Tyr Pro Gly Ser Ile
            660                 665                 670

Glu Leu Met Gln Val Ile Glu Asp Phe Ile His Ile Val Gly Met Gly
        675                 680                 685

Met Met Asp Phe Gln Asn Ser Tyr Leu Met Thr Gly Asn Val Val Ala
    690                 695                 700
```

```
Ser Ile Gln Lys Leu Pro Ala Ala Ser Val Leu Thr Asp Ile Asn Phe
705                 710                 715                 720

Pro Met Lys Gly Arg Lys Gly Met Val Asp Trp Ala Arg Asn Ser Glu
                725                 730                 735

Asp Arg Val Val Ile Pro Lys Ser Ile Phe Thr Pro Val Ser Ser Lys
            740                 745                 750

Glu Leu Asp Glu Ser Ser Val Phe Val Leu Gly Ala Val Leu Tyr Lys
        755                 760                 765

Asn Leu Asp Leu Ile Leu Pro Thr Leu Arg Asn Tyr Thr Val Ile Asn
    770                 775                 780

Ser Lys Ile Ile Val Val Thr Ile Arg Pro Glu Pro Lys Thr Thr Asp
785                 790                 795                 800

Ser Phe Leu Glu Ile Glu Leu Ala His Leu Ala Asn Gly Thr Leu Asn
                805                 810                 815

Pro Tyr Cys Val Leu Trp Asp Asp Ser Lys Thr Asn Glu Ser Leu Gly
            820                 825                 830

Thr Trp Ser Thr Gln Gly Cys Lys Thr Val Leu Thr Asp Ala Ser His
        835                 840                 845

Thr Lys Cys Leu Cys Asp Arg Leu Ser Thr Phe Ala Ile Leu Ala Gln
    850                 855                 860

Gln Pro Arg Glu Ile Ile Met Glu Ser Ser Gly Thr Pro Ser Val Thr
865                 870                 875                 880

Leu Ile Val Gly Ser Gly Leu Ser Cys Leu Ala Leu Ile Thr Leu Ala
                885                 890                 895

Val Val Tyr Ala Ala Leu Trp Arg Tyr Ile Arg Ser Glu Arg Ser Ile
            900                 905                 910

Ile Leu Ile Asn Phe Cys Leu Ser Ile Ile Ser Ser Asn Ile Leu Ile
        915                 920                 925
```

```
Leu Val Gly Gln Thr Gln Thr His Asn Lys Ser Ile Cys Thr Thr Thr
    930                 935                 940

Thr Ala Phe Leu His Phe Phe Phe Leu Ala Ser Phe Cys Trp Val Leu
945                 950                 955                 960

Thr Glu Ala Trp Gln Ser Tyr Met Ala Val Thr Gly Lys Ile Arg Thr
                965                 970                 975

Arg Leu Ile Arg Lys Arg Phe Leu Cys Leu Gly Trp Gly Leu Pro Ala
            980                 985                 990

Leu Val Val Ala Thr Ser Val Gly  Phe Thr Arg Thr Lys  Gly Tyr
Gly
        995                 1000                1005

Thr Asp  His Tyr Cys Trp Leu  Ser Leu Glu Gly Gly  Leu Leu Tyr
    1010                1015                1020

Ala Phe  Val Gly Pro Ala Ala  Ala Val Val Leu Val  Asn Met Val
    1025                1030                1035

Ile Gly  Ile Leu Val Phe Asn  Lys Leu Val Ser Arg  Asp Gly Ile
    1040                1045                1050

Leu Asp  Lys Lys Leu Lys His  Arg Ala Gly Gln Met  Ser Glu Pro
    1055                1060                1065

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

Thr Thr  Ala Leu Ser Ala Thr  Thr Ala Ser Asn Ala  Met Ala Ser
    1085                1090                1095

Leu Trp  Ser Ser Cys Val Val  Leu Pro Leu Leu Ala  Leu Thr Trp
    1100                1105                1110

Met Ser  Ala Val Leu Ala Met  Thr Asp Lys Arg Ser  Ile Leu Phe
    1115                1120                1125

Gln Ile  Leu Phe Ala Val Phe  Asp Ser Leu Gln Gly  Phe Val Ile
    1130                1135                1140
```

Val Met Val His Cys Ile Leu Arg Arg Glu Val Gln Asp Ala Phe
1145 1150 1155

Arg Cys Arg Leu Arg Asn Cys Gln Asp Pro Ile Asn Ala Asp Ser
1160 1165 1170

Ser Ser Ser Phe Pro Asn Gly His Ala Gln Ile Met Thr Asp Phe
1175 1180 1185

Glu Lys Asp Val Asp Ile Ala Cys Arg Ser Val Leu His Lys Asp
1190 1195 1200

Ile Gly Pro Cys Arg Ala Ala Thr Ile Thr Gly Thr Leu Ser Arg
1205 1210 1215

Ile Ser Leu Asn Asp Asp Glu Glu Glu Lys Gly Thr Asn Pro Glu
1220 1225 1230

Gly Leu Ser Tyr Ser Thr Leu Pro Gly Asn Val Ile Ser Lys Val
1235 1240 1245

Ile Ile Gln Gln Pro Thr Gly Leu His Met Pro Met Ser Met Asn
1250 1255 1260

Glu Leu Ser Asn Pro Cys Leu Lys Lys Glu Asn Ser Glu Leu Arg
1265 1270 1275

Arg Thr Val Tyr Leu Cys Thr Asp Asp Asn Leu Arg Gly Ala Asp
1280 1285 1290

Met Asp Ile Val His Pro Gln Glu Arg Met Met Glu Ser Asp Tyr
1295 1300 1305

Ile Val Met Pro Arg Ser Ser Val Asn Asn Gln Pro Ser Met Lys
1310 1315 1320

Glu Glu Ser Lys Met Asn Ile Gly Met Glu Thr Leu Pro His Glu
1325 1330 1335

Arg Leu Leu His Tyr Lys Val Asn Pro Glu Phe Asn Met Asn Pro
1340 1345 1350

```
Pro Val  Met Asp Gln Phe Asn  Met Asn Leu Glu Gln  His Leu Ala
    1355                1360                1365

Pro Gln  Glu His Met Gln Asn  Leu Pro Phe Glu Pro  Arg Thr Ala
    1370                1375                1380

Val Lys  Asn Phe Met Ala Ser  Glu Leu Asp Asp Asn  Ala Gly Leu
    1385                1390                1395

Ser Arg  Ser Glu Thr Gly Ser  Thr Ile Ser Met Ser  Ser Leu Glu
    1400                1405                1410

Arg Arg  Lys Ser Arg Tyr Ser  Asp Leu Asp Phe Glu  Lys Val Met
    1415                1420                1425

His Thr  Arg Lys Arg His Met  Glu Leu Phe Gln Glu  Leu Asn Gln
    1430                1435                1440

Lys Phe  Gln Thr Leu Asp Arg  Phe Arg Asp Ile Pro  Asn Thr Ser
    1445                1450                1455

Ser Met  Glu Asn Pro Ala Pro  Asn Lys Asn Pro Trp  Asp Thr Phe
    1460                1465                1470

Lys Asn  Pro Ser Glu Tyr Pro  His Tyr Thr Thr Ile  Asn Val Leu
    1475                1480                1485

Asp Thr  Glu Ala Lys Asp Ala  Leu Glu Leu Arg Pro  Ala Glu Trp
    1490                1495                1500

Glu Lys  Cys Leu Asn Leu Pro  Leu Asp Val Gln Glu  Gly Asp Phe
    1505                1510                1515

Gln Thr  Glu Val
    1520


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1 5 10 15

Leu Val Met Phe Gly Phe Asn Ala Ala Gln Asp Phe Trp Cys Ser Thr
20 25 30

Leu Val Lys Gly Val Ile Tyr Gly Ser Tyr Ser Val Ser Glu Met Phe
35 40 45

Pro Lys Asn Phe Thr Asn Cys Thr Trp Thr Leu Glu Asn Pro Asp Pro
50 55 60

Thr Lys Tyr Ser Ile Tyr Leu Lys Phe Ser Lys Lys Asp Leu Ser Cys
65 70 75 80

Ser Asn Phe Ser Leu Leu Ala Tyr Gln Phe Asp His Phe Ser His Glu
85 90 95

Lys Ile Lys Asp Leu Leu Arg Lys Asn His Ser Ile Met Gln Leu Cys
100 105 110

Asn Ser Lys Asn Ala Phe Val Phe Leu Gln Tyr Asp Lys Asn Phe Ile
115 120 125

Gln Ile Arg Arg Val Phe Pro Thr Asn Phe Pro Gly Leu Gln Lys Lys
130 135 140

Gly Glu Glu Asp Gln Lys Ser Phe Phe Glu Phe Leu Val Leu Asn Lys
145 150 155 160

```
Val Ser Pro Ser Gln Phe Gly Cys His Val Leu Cys Thr Trp Leu Glu
                165                 170                 175

Ser Cys Leu Lys Ser Glu Asn Gly Arg Thr Glu Ser Cys Gly Ile Met
            180                 185                 190

Tyr Thr Lys Cys Thr Cys Pro Gln His Leu Gly Glu Trp Gly Ile Asp
        195                 200                 205

Asp Gln Ser Leu Ile Leu Leu Asn Asn Val Val Leu Pro Leu Asn Glu
    210                 215                 220

Gln Thr Glu Gly Cys Leu Thr Gln Glu Leu Gln Thr Thr Gln Val Cys
225                 230                 235                 240

Asn Leu Thr Arg Glu Ala Lys Arg Pro Pro Lys Glu Glu Phe Gly Met
                245                 250                 255

Met Gly Asp His Thr Ile Lys Ser Gln Arg Pro Arg Ser Val His Glu
            260                 265                 270

Lys Arg Val Pro Gln Glu Gln Ala Asp Ala Ala Lys Phe Met Ala Gln
        275                 280                 285

Thr Gly Glu Ser Gly Val Glu Glu Trp Ser Gln Trp Ser Thr Cys Ser
    290                 295                 300

Val Thr Cys Gly Gln Gly Ser Gln Val Arg Thr Arg Thr Cys Val Ser
305                 310                 315                 320

Pro Tyr Gly Thr His Cys Ser Gly Pro Leu Arg Glu Ser Arg Val Cys
                325                 330                 335

Asn Asn Thr Ala Leu Cys Pro Val His Gly Val Trp Glu Glu Trp Ser
            340                 345                 350

Pro Trp Ser Leu Cys Ser Phe Thr Cys Gly Arg Gly Gln Arg Thr Arg
        355                 360                 365

Thr Arg Ser Cys Thr Pro Pro Gln Tyr Gly Gly Arg Pro Cys Glu Gly
    370                 375                 380
```

```
Pro Glu Thr His His Lys Pro Cys Asn Ile Ala Leu Cys Pro Val Asp
385                 390                 395                 400

Gly Gln Trp Gln Glu Trp Ser Ser Trp Ser Gln Cys Ser Val Thr Cys
                405                 410                 415

Ser Asn Gly Thr Gln Gln Arg Ser Arg Gln Cys Thr Ala Ala Ala His
            420                 425                 430

Gly Gly Ser Glu Cys Arg Gly Pro Trp Ala Glu Ser Arg Glu Cys Tyr
        435                 440                 445

Asn Pro Glu Cys Thr Ala Asn Gly Gln Trp Asn Gln Trp Gly His Trp
    450                 455                 460

Ser Gly Cys Ser Lys Ser Cys Asp Gly Gly Trp Glu Arg Arg Ile Arg
465                 470                 475                 480

Thr Cys Gln Gly Ala Val Ile Thr Gly Gln Gln Cys Glu Gly Thr Gly
                485                 490                 495

Glu Glu Val Arg Arg Cys Asn Glu Gln Arg Cys Pro Ala Pro Tyr Glu
            500                 505                 510

Ile Cys Pro Glu Asp Tyr Leu Met Ser Met Val Trp Lys Arg Thr Pro
        515                 520                 525

Ala Gly Asp Leu Ala Phe Asn Gln Cys Pro Leu Asn Ala Thr Gly Thr
    530                 535                 540

Thr Ser Arg Arg Cys Ser Leu Ser Leu His Gly Val Ala Phe Trp Glu
545                 550                 555                 560

Gln Pro Ser Phe Ala Arg Cys Ile Ser Asn Glu Tyr Arg His Leu Gln
                565                 570                 575

His Ser Ile Lys Glu His Leu Ala Lys Gly Gln Arg Met Leu Ala Gly
            580                 585                 590

Asp Gly Met Ser Gln Val Thr Lys Thr Leu Leu Asp Leu Thr Gln Arg
        595                 600                 605

Lys Asn Phe Tyr Ala Gly Asp Leu Leu Met Ser Val Glu Ile Leu Arg
```

610 615 620

Asn Val Thr Asp Thr Phe Lys Arg Ala Ser Tyr Ile Pro Ala Ser Asp
625 630 635 640

Gly Val Gln Asn Phe Phe Gln Ile Val Ser Asn Leu Leu Asp Glu Glu
645 650 655

Asn Lys Glu Lys Trp Glu Asp Ala Gln Gln Ile Tyr Pro Gly Ser Ile
660 665 670

Glu Leu Met Gln Val Ile Glu Asp Phe Ile His Ile Val Gly Met Gly
675 680 685

Met Met Asp Phe Gln Asn Ser Tyr Leu Met Thr Gly Asn Val Val Ala
690 695 700

Ser Ile Gln Lys Leu Pro Ala Ala Ser Val Leu Thr Asp Ile Asn Phe
705 710 715 720

Pro Met Lys Gly Arg Lys Gly Met Val Asp Trp Ala Arg Asn Ser Glu
725 730 735

Asp Arg Val Val Ile Pro Lys Ser Ile Phe Thr Pro Val Ser Ser Lys
740 745 750

Glu Leu Asp Glu Ser Ser Val Phe Val Leu Gly Ala Val Leu Tyr Lys
755 760 765

Asn Leu Asp Leu Ile Leu Pro Thr Leu Arg Asn Tyr Thr Val Ile Asn
770 775 780

Ser Lys Ile Ile Val Val Thr Ile Arg Pro Glu Pro Lys Thr Thr Asp
785 790 795 800

Ser Phe Leu Glu Ile Glu Leu Ala His Leu Ala Asn Gly Thr Leu Asn
805 810 815

Pro Tyr Cys Val Leu Trp Asp Asp Ser Lys Thr Asn Glu Ser Leu Gly
820 825 830

Thr Trp Ser Thr Gln Gly Cys Lys Thr Val Leu Thr Asp Ala Ser His
835 840 845

```
Thr Lys Cys Leu Cys Asp Arg Leu Ser Thr Phe Ala Ile Leu Ala Gln
    850                 855                 860

Gln Pro Arg Glu Ile Ile Met Glu Ser Ser Gly Thr Pro Ser Val Thr
865                 870                 875                 880

Leu Ile Val Gly Ser Gly Leu Ser Cys Leu Ala Leu Ile Thr Leu Ala
                885                 890                 895

Val Val Tyr Ala Ala Leu Trp Arg Tyr Ile Arg Ser Glu Arg Ser Ile
            900                 905                 910

Ile Leu Ile Asn Phe Cys Leu Ser Ile Ile Ser Ser Asn Ile Leu Ile
        915                 920                 925

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

Thr Ala Phe Leu His Phe Phe Phe Leu Ala Ser Phe Cys Trp Val Leu
945                 950                 955                 960

Thr Glu Ala Trp Gln Ser Tyr Met Ala Val Thr Gly Lys Ile Arg Thr
                965                 970                 975

Arg Leu Ile Arg Lys Arg Phe Leu Cys Leu Gly Trp Gly Leu Pro Ala
            980                 985                 990

Leu Val Val Ala Thr Ser Val Gly  Phe Thr Arg Thr Lys  Gly Tyr
Gly
        995                 1000                1005

Thr Asp  His Tyr Cys Trp Leu  Ser Leu Glu Gly Gly  Leu Leu Tyr
    1010                1015                1020

Ala Phe  Val Gly Pro Ala Ala  Ala Val Val Leu Val  Asn Met Val
    1025                1030                1035

Ile Gly  Ile Leu Val Phe Asn  Lys Leu Val Ser Arg  Asp Gly Ile
    1040                1045                1050

Leu Asp  Lys Lys Leu Lys His  Arg Ala Gly Gln Met  Ser Glu Pro
    1055                1060                1065
```

```
His Ser  Gly Leu Thr Leu Lys  Cys Ala Lys Cys Gly  Val Val Ser
    1070                 1075                 1080

Thr Thr  Ala Leu Ser Ala Thr  Thr Ala Ser Asn Ala  Met Ala Ser
    1085                 1090                 1095

Leu Trp  Ser Ser Cys Val Val  Leu Pro Leu Leu Ala  Leu Thr Trp
    1100                 1105                 1110

Met Ser  Ala Val Leu Ala Met  Thr Asp Lys Arg Ser  Ile Leu Phe
    1115                 1120                 1125

Gln Ile  Leu Phe Ala Val Phe  Asp Ser Leu Gln Gly  Phe Val Ile
    1130                 1135                 1140

Val Met  Val His Cys Ile Leu  Arg Arg Glu Val Gln  Asp Ala Phe
    1145                 1150                 1155

Arg Cys  Arg Leu Arg Asn Cys  Gln Asp Pro Ile Asn  Ala Asp Ser
    1160                 1165                 1170

Ser Ser  Ser Phe Pro Asn Gly  His Ala Gln Ile Met  Thr Asp Phe
    1175                 1180                 1185

Glu Lys  Asp Val Asp Ile Ala  Cys Arg Ser Val Leu  His Lys Asp
    1190                 1195                 1200

Ile Gly  Pro Cys Arg Ala Ala  Thr Ile Thr Gly Thr  Leu Ser Arg
    1205                 1210                 1215

Ile Ser  Leu Asn Asp Asp Glu  Glu Glu Lys Gly Thr  Asn Pro Glu
    1220                 1225                 1230

Gly Leu  Ser Tyr Ser Thr Leu  Pro Gly Asn Val Ile  Ser Lys Val
    1235                 1240                 1245

Ile Ile  Gln Gln Pro Thr Gly  Leu His Met Pro Met  Ser Met Asn
    1250                 1255                 1260

Glu Leu  Ser Asn Pro Cys Leu  Lys Lys Glu Asn Ser  Glu Leu Arg
    1265                 1270                 1275
```

```
Arg Thr  Val Tyr Leu Cys Thr  Asp Asp Asn Leu Arg  Gly Ala Asp
    1280                1285                1290

Met Asp  Ile Val His Pro Gln  Glu Arg Met Met Glu  Ser Asp Tyr
    1295                1300                1305

Ile Val  Met Pro Arg Ser Ser  Val Asn Asn Gln Pro  Ser Met Lys
    1310                1315                1320

Glu Glu  Ser Lys Met Asn Ile  Gly Met Glu Thr Leu  Pro His Glu
    1325                1330                1335

Arg Leu  Leu His Tyr Lys Val  Asn Pro Glu Phe Asn  Met Asn Pro
    1340                1345                1350

Pro Val  Met Asp Gln Phe Asn  Met Asn Leu Glu Gln  His Leu Ala
    1355                1360                1365

Pro Gln  Glu His Met Gln Asn  Leu Pro Phe Glu Pro  Arg Thr Ala
    1370                1375                1380

Val Lys  Asn Phe Met Ala Ser  Glu Leu Asp Asp Asn  Ala Gly Leu
    1385                1390                1395

Ser Arg  Ser Glu Thr Gly Ser  Thr Ile Ser Met Ser  Ser Leu Glu
    1400                1405                1410

Arg Arg  Lys Ser Arg Tyr Ser  Asp Leu Asp Phe Glu  Lys Val Met
    1415                1420                1425

His Thr  Arg Lys Arg His Met  Glu Leu Phe Gln Glu  Leu Asn Gln
    1430                1435                1440

Lys Phe  Gln Thr Leu Asp Arg  Phe Arg Asp Ile Pro  Asn Thr Ser
    1445                1450                1455

Ser Met  Glu Asn Pro Ala Pro  Asn Lys Asn Pro Trp  Asp Thr Phe
    1460                1465                1470

Lys Asn  Pro Ser Glu Tyr Pro  His Tyr Thr Thr Ile  Asn Val Leu
    1475                1480                1485
```

Asp Thr Glu Ala Lys Asp Ala Leu Glu Leu Arg Pro Ala Glu Trp
1490 1495 1500

Glu Lys Cys Leu Asn Leu Pro Leu Asp Val Gln Glu Gly Asp Phe
1505 1510 1515

Gln Thr Glu Val
1520

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Met His Leu Asn Tyr Ile Leu Phe Asn Asn Lys Asn Glu Ser Leu Gly
1 5 10 15

Thr Trp Ser Thr Gln Gly Cys Lys Thr Val Leu Thr Asp Ala Ser His
20 25 30

Thr Lys Cys Leu Cys Asp Arg Leu Ser Thr Phe Ala Ile Leu Ala Gln
35 40 45

Gln Pro Arg Glu Ile Ile Met Glu Ser Ser Gly Thr Pro Ser Val Thr
50 55 60

Leu Ile Val Gly Ser Gly Leu Ser Cys Leu Ala Leu Ile Thr Leu Ala
65 70 75 80

Val Val Tyr Ala Ala Leu Trp Arg Tyr Ile Arg Ser Glu Arg Ser Ile
85 90 95

```
Ile Leu Ile Asn Phe Cys Leu Ser Ile Ile Ser Ser Asn Ile Leu Ile
            100                 105                 110

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

Thr Ala Phe Leu His Phe Phe Phe Leu Ala Ser Phe Cys Trp Val Leu
    130                 135                 140

Thr
145


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<400> 2950
Met Glu Ser Ser Gly Thr Pro Ser Val Thr Leu Ile Val Gly Ser Gly
1               5                   10                  15

Leu Ser Cys Leu Ala Leu Ile Thr Leu Ala Val Val Tyr Ala Ala Leu
            20                  25                  30

Trp Arg Tyr Ile Arg Ser Glu Arg Ser Ile Ile Leu Ile Asn Phe Cys
        35                  40                  45

Leu Ser Ile Ile Ser Ser Asn Ile Leu Ile Leu Val Gly Gln Thr Gln
    50                  55                  60
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Thr His Asn Lys
65

<210> 2951
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Met Glu Lys Leu Leu Arg Leu Cys Cys Trp Tyr Ser Trp Leu Leu Leu
1 5 10 15

Phe Tyr Tyr Asn Phe Gln Val Arg Gly Val Tyr Ser Arg Ser Gln Asp
20 25 30

His Pro Gly Phe Gln Val Leu Ala Ser Ala Ser His Tyr Trp Pro Leu
35 40 45

Glu Asn Val Asp Gly Ile His Glu Leu Gln Asp Thr Thr Gly Asp Ile
50 55 60

Val Glu Gly Lys Val Asn Lys Gly Ile Tyr Leu Lys Glu Glu Lys Gly
65 70 75 80

Val Thr Leu Leu Tyr Tyr Gly Arg Tyr Asn Ser Ser Cys Ile Ser Lys
85 90 95

Pro Glu Gln Cys Gly Pro Glu Gly Val Thr Phe Ser Phe Phe Trp Lys
100 105 110

```
Thr Gln Gly Glu Gln Ser Arg Pro Ile Pro Ser Ala Tyr Gly Gly Gln
        115                 120                 125

Val Ile Ser Asn Gly Phe Lys Val Cys Ser Ser Gly Gly Arg Gly Ser
    130                 135                 140

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

Ser Pro Pro Gly Pro Tyr Trp Thr His Val Leu Phe Thr Trp Lys Ser
                165                 170                 175

Lys Glu Gly Leu Lys Val Tyr Val Asn Gly Thr Leu Ser Thr Ser Asp
            180                 185                 190

Pro Ser Gly Lys Val Ser Arg Asp Tyr Gly Glu Ser Asn Val Asn Leu
        195                 200                 205

Val Ile Gly Ser Glu Gln Asp Gln Ala Lys Cys Tyr Glu Asn Gly Ala
    210                 215                 220

Phe Asp Glu Phe Ile Ile Trp Glu Arg Ala Leu Thr Pro Asp Glu Ile
225                 230                 235                 240

Ala Met Tyr Phe Thr Ala Ala Ile Gly Lys His Ala Leu Leu Ser Ser
                245                 250                 255

Thr Leu Pro Ser Leu Phe Met Thr Ser Thr Ala Ser Pro Val Met Pro
            260                 265                 270

Thr Asp Ala Tyr His Pro Ile Ile Thr Asn Leu Thr Glu Glu Arg Lys
        275                 280                 285

Thr Phe Gln Ser Pro Gly Val Ile Leu Ser Tyr Leu Gln Asn Val Ser
    290                 295                 300

Leu Ser Leu Pro Ser Lys Ser Leu Ser Glu Gln Thr Ala Leu Asn Leu
305                 310                 315                 320

Thr Lys Thr Phe Leu Lys Ala Val Gly Glu Ile Leu Leu Leu Pro Gly
                325                 330                 335
```

```
Trp Ile Ala Leu Ser Glu Asp Ser Ala Val Val Leu Ser Leu Ile Asp
            340                 345                 350

Thr Ile Asp Thr Val Met Gly His Val Ser Ser Asn Leu His Gly Ser
        355                 360                 365

Thr Pro Gln Val Thr Val Glu Gly Ser Ser Ala Met Ala Glu Phe Ser
    370                 375                 380

Val Ala Lys Ile Leu Pro Lys Thr Val Asn Ser Ser His Tyr Arg Phe
385                 390                 395                 400

Pro Ala His Gly Gln Ser Phe Ile Gln Ile Pro His Glu Ala Phe His
                405                 410                 415

Arg His Ala Trp Ser Thr Val Val Gly Leu Leu Tyr His Ser Met His
            420                 425                 430

Tyr Tyr Leu Asn Asn Ile Trp Pro Ala His Thr Lys Ile Ala Glu Ala
        435                 440                 445

Met His His Gln Asp Cys Leu Leu Phe Ala Thr Ser His Leu Ile Ser
    450                 455                 460

Leu Glu Val Ser Pro Pro Pro Thr Leu Ser Gln Asn Leu Ser Gly Ser
465                 470                 475                 480

Pro Leu Ile Thr Val His Leu Lys His Arg Leu Thr Arg Lys Gln His
                485                 490                 495

Ser Glu Ala Thr Asn Ser Ser Asn Arg Val Phe Val Tyr Cys Ala Phe
            500                 505                 510

Leu Asp Phe Ser Ser Gly Glu Gly Val Trp Ser Asn His Gly Cys Ala
        515                 520                 525

Leu Thr Arg Gly Asn Leu Thr Tyr Ser Val Cys Arg Cys Thr His Leu
    530                 535                 540

Thr Asn Phe Ala Ile Leu Met Gln Val Val Pro Leu Glu Leu Ala Arg
545                 550                 555                 560
```

```
Gly His Gln Val Ala Leu Ser Ser Ile Ser Tyr Val Gly Cys Ser Leu
                565                 570                 575

Ser Val Leu Cys Leu Val Ala Thr Leu Val Thr Phe Ala Val Leu Ser
            580                 585                 590

Ser Val Ser Thr Ile Arg Asn Gln Arg Tyr His Ile His Ala Asn Leu
        595                 600                 605

Ser Phe Ala Val Leu Val Ala Gln Val Leu Leu Leu Ile Ser Phe Arg
    610                 615                 620

Leu Glu Pro Gly Thr Thr Pro Cys Gln Val Met Ala Val Leu Leu His
625                 630                 635                 640

Tyr Phe Phe Leu Ser Ala Phe Ala Trp Met Leu Val Glu Gly Leu His
                645                 650                 655

Leu Tyr Ser Met Val Ile Lys Val Phe Gly Ser Glu Asp Ser Lys His
            660                 665                 670

Arg Tyr Tyr Tyr Gly Met Gly Trp Gly Phe Pro Leu Leu Ile Cys Ile
        675                 680                 685

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

Trp Leu Ser Leu Ala Ser Gly Ala Ile Trp Ala Phe Val Ala Pro Ala
705                 710                 715                 720

Leu Phe Val Ile Val Val Asn Ile Gly Ile Leu Ile Ala Val Thr Arg
                725                 730                 735

Val Ile Ser Gln Ile Ser Ala Asp Asn Tyr Lys Ile His Gly Asp Pro
            740                 745                 750

Ser Ala Phe Lys Leu Thr Ala Lys Ala Val Ala Val Leu Leu Pro Ile
        755                 760                 765

Leu Gly Thr Ser Trp Val Phe Gly Val Leu Ala Val Asn Gly Cys Ala
    770                 775                 780

Val Val Phe Gln Tyr Met Phe Ala Thr Leu Asn Ser Leu Gln Gly Leu
```

785 790 795 800

Phe Ile Phe Leu Phe His Cys Leu Leu Asn Ser Glu Val Arg Ala Ala
805 810 815

Phe Lys His Lys Thr Lys Val Trp Ser Leu Thr Ser Ser Ser Ala Arg
820 825 830

Thr Ser Asn Ala Lys Pro Phe His Ser Asp Leu Met Asn Gly Thr Arg
835 840 845

Pro Gly Met Ala Ser Thr Lys Leu Ser Pro Trp Asp Lys Ser Ser His
850 855 860

Ser Ala His Arg Val Asp Leu Ser Ala Val
865 870

<210> 2952
<211> 156
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 677; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRD1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor D1; "

<220>
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<400> 2952
Met Gln Val Val Pro Leu Glu Val Asn Ile Gly Ile Leu Ile Ala Val
1 5 10 15

Thr Arg Val Ile Ser Gln Ile Ser Ala Asp Asn Tyr Lys Ile His Gly
20 25 30

Asp Pro Ser Ala Phe Lys Leu Thr Ala Lys Ala Val Ala Val Leu Leu
35 40 45

```
Pro Ile Leu Gly Thr Ser Trp Val Phe Gly Val Leu Ala Val Asn Gly
    50                  55                  60

Cys Ala Val Val Phe Gln Tyr Met Phe Ala Thr Leu Asn Ser Leu Gln
65                  70                  75                  80

Gly Leu Phe Ile Phe Leu Phe His Cys Leu Leu Asn Ser Glu Val Arg
                85                  90                  95

Ala Ala Phe Lys His Lys Thr Lys Val Trp Ser Leu Thr Ser Ser Ser
            100                 105                 110

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

Thr Arg Pro Gly Met Ala Ser Thr Lys Leu Ser Pro Trp Asp Lys Ser
    130                 135                 140

Ser His Ser Ala His Arg Val Asp Leu Ser Ala Val
145                 150                 155


<210> 2953
<211> 393
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
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<220>
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      adhesion G prt-coupled receptor D1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6QNK2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438021"

<400> 2953
Met His Arg Val Cys Phe Leu Ser Phe Gln Thr Arg Lys Gln His Ser
```

```
1               5                   10                  15

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

Asp Phe Ser Ser Gly Glu Gly Val Trp Ser Asn His Gly Cys Ala Leu
        35                  40                  45

Thr Arg Gly Asn Leu Thr Tyr Ser Val Cys Arg Cys Thr His Leu Thr
    50                  55                  60

Asn Phe Ala Ile Leu Met Gln Val Val Pro Leu Glu Leu Ala Arg Gly
65                  70                  75                  80

His Gln Val Ala Leu Ser Ser Ile Ser Tyr Val Gly Cys Ser Leu Ser
                85                  90                  95

Val Leu Cys Leu Val Ala Thr Leu Val Thr Phe Ala Val Leu Ser Ser
            100                 105                 110

Val Ser Thr Ile Arg Asn Gln Arg Tyr His Ile His Ala Asn Leu Ser
        115                 120                 125

Phe Ala Val Leu Val Ala Gln Val Leu Leu Leu Ile Ser Phe Arg Leu
    130                 135                 140

Glu Pro Gly Thr Thr Pro Cys Gln Val Met Ala Val Leu Leu His Tyr
145                 150                 155                 160

Phe Phe Leu Ser Ala Phe Ala Trp Met Leu Val Glu Gly Leu His Leu
                165                 170                 175

Tyr Ser Met Val Ile Lys Val Phe Gly Ser Glu Asp Ser Lys His Arg
            180                 185                 190

Tyr Tyr Tyr Gly Met Gly Trp Gly Phe Pro Leu Leu Ile Cys Ile Ile
        195                 200                 205

Ser Leu Ser Phe Ala Met Asp Ser Tyr Gly Thr Ser Asn Asn Cys Trp
    210                 215                 220

Leu Ser Leu Ala Ser Gly Ala Ile Trp Ala Phe Val Ala Pro Ala Leu
225                 230                 235                 240
```

```
Phe Val Ile Val Val Asn Ile Gly Ile Leu Ile Ala Val Thr Arg Val
                245                 250                 255

Ile Ser Gln Ile Ser Ala Asp Asn Tyr Lys Ile His Gly Asp Pro Ser
            260                 265                 270

Ala Phe Lys Leu Thr Ala Lys Ala Val Ala Val Leu Leu Pro Ile Leu
        275                 280                 285

Gly Thr Ser Trp Val Phe Gly Val Leu Ala Val Asn Gly Cys Ala Val
    290                 295                 300

Val Phe Gln Tyr Met Phe Ala Thr Leu Asn Ser Leu Gln Gly Leu Phe
305                 310                 315                 320

Ile Phe Leu Phe His Cys Leu Leu Asn Ser Glu Val Arg Ala Ala Phe
                325                 330                 335

Lys His Lys Thr Lys Val Trp Ser Leu Thr Ser Ser Ser Ala Arg Thr
            340                 345                 350

Ser Asn Ala Lys Pro Phe His Ser Asp Leu Met Asn Gly Thr Arg Pro
        355                 360                 365

Gly Met Ala Ser Thr Lys Leu Ser Pro Trp Asp Lys Ser Ser His Ser
    370                 375                 380

Ala His Arg Val Asp Leu Ser Ala Val
385                 390


<210> 2954
<211> 220
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 677; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRD1; "

<220>
<221> source
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<223> /note="Gene Name:
adhesion G prt-coupled receptor D1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442501"

<400> 2954

```
Met Glu Lys Leu Leu Arg Leu Cys Cys Trp Tyr Ser Trp Leu Leu Leu
1               5                  10                  15

Phe Tyr Tyr Asn Phe Gln Val Arg Gly Val Tyr Ser Arg Ser Gln Asp
            20                  25                  30

His Pro Gly Phe Gln Val Leu Ala Ser Ala Ser His Tyr Trp Pro Leu
        35                  40                  45

Glu Asn Val Asp Gly Ile His Glu Leu Gln Asp Thr Thr Gly Asp Ile
    50                  55                  60

Val Glu Gly Lys Val Asn Lys Gly Ile Tyr Leu Lys Glu Glu Lys Gly
65                  70                  75                  80

Val Thr Leu Leu Tyr Tyr Gly Arg Tyr Asn Ser Ser Cys Ile Ser Lys
                85                  90                  95

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

Thr Trp Lys Ser Lys Glu Gly Leu Lys Val Tyr Val Asn Gly Thr Leu
        115                 120                 125

Ser Thr Ser Asp Pro Ser Gly Lys Val Ser Arg Asp Tyr Gly Glu Ser
    130                 135                 140

Asn Val Asn Leu Val Ile Gly Ser Glu Gln Asp Gln Ala Lys Cys Tyr
145                 150                 155                 160

Glu Asn Gly Ala Phe Asp Glu Phe Ile Ile Trp Glu Arg Ala Leu Thr
                165                 170                 175

Pro Asp Glu Ile Ala Met Tyr Phe Thr Ala Ala Ile Gly Lys His Ala
            180                 185                 190

Leu Leu Ser Ser Thr Leu Pro Ser Leu Phe Met Thr Ser Thr Ala Ser
```

195 200 205

Pro Val Met Pro Thr Asp Ala Tyr His Pro Ile Ile
210 215 220

<210> 2955
<211> 906
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 677; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRD1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor D1; "

<220>
<221> source
<223> /note="Uniprot ID: Q6QNK2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000444425"

<400> 2955
Met Glu Lys Leu Leu Arg Leu Cys Cys Trp Tyr Ser Trp Leu Leu Leu
1 5 10 15

Phe Tyr Tyr Asn Phe Gln Val Arg Gly Val Tyr Ser Arg Ser Gln Asp
20 25 30

His Pro Gly Phe Gln Val Leu Ala Ser Ala Ser His Tyr Trp Pro Leu
35 40 45

Glu Asn Val Asp Gly Ile His Glu Leu Gln Asp Thr Thr Gly Ala Ser
50 55 60

Arg Thr His Lys Leu Thr Val Leu Pro Ser Arg Asn Ala Thr Phe Val
65 70 75 80

Tyr Ser Asn Asp Ser Ala Tyr Ser Asn Leu Ser Ala Thr Val Asp Ile
85 90 95

```
Val Glu Gly Lys Val Asn Lys Gly Ile Tyr Leu Lys Glu Glu Lys Gly
            100                 105                 110

Val Thr Leu Leu Tyr Tyr Gly Arg Tyr Asn Ser Ser Cys Ile Ser Lys
        115                 120                 125

Pro Glu Gln Cys Gly Pro Glu Gly Val Thr Phe Ser Phe Phe Trp Lys
    130                 135                 140

Thr Gln Gly Glu Gln Ser Arg Pro Ile Pro Ser Ala Tyr Gly Gly Gln
145                 150                 155                 160

Val Ile Ser Asn Gly Phe Lys Val Cys Ser Ser Gly Gly Arg Gly Ser
                165                 170                 175

Val Glu Leu Tyr Thr Arg Asp Asn Ser Met Thr Trp Glu Ala Ser Phe
            180                 185                 190

Ser Pro Pro Gly Pro Tyr Trp Thr His Val Leu Phe Thr Trp Lys Ser
        195                 200                 205

Lys Glu Gly Leu Lys Val Tyr Val Asn Gly Thr Leu Ser Thr Ser Asp
    210                 215                 220

Pro Ser Gly Lys Val Ser Arg Asp Tyr Gly Glu Ser Asn Val Asn Leu
225                 230                 235                 240

Val Ile Gly Ser Glu Gln Asp Gln Ala Lys Cys Tyr Glu Asn Gly Ala
                245                 250                 255

Phe Asp Glu Phe Ile Ile Trp Glu Arg Ala Leu Thr Pro Asp Glu Ile
            260                 265                 270

Ala Met Tyr Phe Thr Ala Ala Ile Gly Lys His Ala Leu Leu Ser Ser
        275                 280                 285

Thr Leu Pro Ser Leu Phe Met Thr Ser Thr Ala Ser Pro Val Met Pro
    290                 295                 300

Thr Asp Ala Tyr His Pro Ile Ile Thr Asn Leu Thr Glu Glu Arg Lys
305                 310                 315                 320
```

```
Thr Phe Gln Ser Pro Gly Val Ile Leu Ser Tyr Leu Gln Asn Val Ser
                325                 330                 335

Leu Ser Leu Pro Ser Lys Ser Leu Ser Glu Gln Thr Ala Leu Asn Leu
            340                 345                 350

Thr Lys Thr Phe Leu Lys Ala Val Gly Glu Ile Leu Leu Leu Pro Gly
        355                 360                 365

Trp Ile Ala Leu Ser Glu Asp Ser Ala Val Val Leu Ser Leu Ile Asp
    370                 375                 380

Thr Ile Asp Thr Val Met Gly His Val Ser Ser Asn Leu His Gly Ser
385                 390                 395                 400

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

Val Ala Lys Ile Leu Pro Lys Thr Val Asn Ser Ser His Tyr Arg Phe
            420                 425                 430

Pro Ala His Gly Gln Ser Phe Ile Gln Ile Pro His Glu Ala Phe His
        435                 440                 445

Arg His Ala Trp Ser Thr Val Val Gly Leu Leu Tyr His Ser Met His
    450                 455                 460

Tyr Tyr Leu Asn Asn Ile Trp Pro Ala His Thr Lys Ile Ala Glu Ala
465                 470                 475                 480

Met His His Gln Asp Cys Leu Leu Phe Ala Thr Ser His Leu Ile Ser
                485                 490                 495

Leu Glu Val Ser Pro Pro Pro Thr Leu Ser Gln Asn Leu Ser Gly Ser
            500                 505                 510

Pro Leu Ile Thr Val His Leu Lys His Arg Leu Thr Arg Lys Gln His
        515                 520                 525

Ser Glu Ala Thr Asn Ser Ser Asn Arg Val Phe Val Tyr Cys Ala Phe
    530                 535                 540

Leu Asp Phe Ser Ser Gly Glu Gly Val Trp Ser Asn His Gly Cys Ala
```

545 550 555 560

Leu Thr Arg Gly Asn Leu Thr Tyr Ser Val Cys Arg Cys Thr His Leu
565 570 575

Thr Asn Phe Ala Ile Leu Met Gln Val Val Pro Leu Glu Leu Ala Arg
580 585 590

Gly His Gln Val Ala Leu Ser Ser Ile Ser Tyr Val Gly Cys Ser Leu
595 600 605

Ser Val Leu Cys Leu Val Ala Thr Leu Val Thr Phe Ala Val Leu Ser
610 615 620

Ser Val Ser Thr Ile Arg Asn Gln Arg Tyr His Ile His Ala Asn Leu
625 630 635 640

Ser Phe Ala Val Leu Val Ala Gln Val Leu Leu Leu Ile Ser Phe Arg
645 650 655

Leu Glu Pro Gly Thr Thr Pro Cys Gln Val Met Ala Val Leu Leu His
660 665 670

Tyr Phe Phe Leu Ser Ala Phe Ala Trp Met Leu Val Glu Gly Leu His
675 680 685

Leu Tyr Ser Met Val Ile Lys Val Phe Gly Ser Glu Asp Ser Lys His
690 695 700

Arg Tyr Tyr Tyr Gly Met Gly Trp Gly Phe Pro Leu Leu Ile Cys Ile
705 710 715 720

Ile Ser Leu Ser Phe Ala Met Asp Ser Tyr Gly Thr Ser Asn Asn Cys
725 730 735

Trp Leu Ser Leu Ala Ser Gly Ala Ile Trp Ala Phe Val Ala Pro Ala
740 745 750

Leu Phe Val Ile Val Val Asn Ile Gly Ile Leu Ile Ala Val Thr Arg
755 760 765

Val Ile Ser Gln Ile Ser Ala Asp Asn Tyr Lys Ile His Gly Asp Pro
770 775 780

```
Ser Ala Phe Lys Leu Thr Ala Lys Ala Val Ala Val Leu Leu Pro Ile
785                 790                 795                 800

Leu Gly Thr Ser Trp Val Phe Gly Val Leu Ala Val Asn Gly Cys Ala
                805                 810                 815

Val Val Phe Gln Tyr Met Phe Ala Thr Leu Asn Ser Leu Gln Gly Leu
            820                 825                 830

Phe Ile Phe Leu Phe His Cys Leu Leu Asn Ser Glu Val Arg Ala Ala
        835                 840                 845

Phe Lys His Lys Thr Lys Val Trp Ser Leu Thr Ser Ser Ser Ala Arg
    850                 855                 860

Thr Ser Asn Ala Lys Pro Phe His Ser Asp Leu Met Asn Gly Thr Arg
865                 870                 875                 880

Pro Gly Met Ala Ser Thr Lys Leu Ser Pro Trp Asp Lys Ser Ser His
                885                 890                 895

Ser Ala His Arg Val Asp Leu Ser Ala Val
            900                 905


<210> 2956
<211> 345
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 677; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRD1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor D1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482235"

<400> 2956
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Met Gln Val Val Pro Leu Glu Leu Ala Arg Gly His Gln Val Ala Leu
1               5                  10                  15

Ser Ser Ile Ser Tyr Val Gly Cys Ser Leu Ser Val Leu Cys Leu Val
            20                  25                  30

Ala Thr Leu Val Thr Phe Ala Val Leu Ser Ser Val Ser Thr Ile Arg
        35                  40                  45

Asn Gln Arg Tyr His Ile His Ala Asn Leu Ser Phe Ala Val Leu Val
    50                  55                  60

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

Pro Cys Gln Val Met Ala Val Leu Leu His Tyr Phe Phe Leu Ser Ala
                85                  90                  95

Phe Ala Trp Met Leu Val Glu Gly Leu His Leu Tyr Ser Met Val Ile
            100                 105                 110

Lys Val Phe Gly Ser Glu Asp Ser Lys His Arg Tyr Tyr Tyr Gly Met
        115                 120                 125

Gly Trp Gly Phe Pro Leu Leu Ile Cys Ile Ile Ser Leu Ser Phe Ala
    130                 135                 140

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

Gly Ala Ile Trp Ala Phe Val Ala Pro Ala Leu Phe Val Ile Val Val
                165                 170                 175

Asn Ile Gly Ile Leu Ile Ala Val Thr Arg Val Ile Ser Gln Ile Ser
            180                 185                 190

Ala Asp Asn Tyr Lys Ile His Gly Asp Pro Ser Ala Phe Lys Leu Thr
        195                 200                 205

Ala Lys Ala Val Ala Val Leu Leu Pro Ile Leu Gly Thr Ser Trp Val
    210                 215                 220

Phe Gly Val Leu Ala Val Asn Gly Cys Ala Val Val Phe Gln Tyr Met
```

225 230 235 240

Phe Ala Thr Leu Asn Ser Leu Gln Gly Leu Phe Ile Phe Leu Phe His
245 250 255

Cys Leu Leu Asn Ser Glu Ala Arg Trp Ala Lys Glu Gly Arg Ala Glu
260 265 270

Ser Leu Ser Arg Met Val Ala Gly Gln Lys Gly Cys Met Ile Thr Lys
275 280 285

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

Arg Trp Ile Pro Val Ala Gly Arg Gln Cys Ser His Gly Ser Pro Pro
305 310 315 320

Ala His Pro Pro Ala Cys Pro Pro Arg Ile Cys Leu Phe Ala Ser Leu
325 330 335

Ser His Ser Pro Arg Asp Ile His Cys
340 345

<210> 2957
<211> 972
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 678; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRD2; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor D2; "

<220>
<221> source
<223> /note="Uniprot ID: Q7Z7M1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000335156"

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

<400> 2957
Xaa Ser Gly Val Ser Leu Gly Pro Pro Pro Thr Pro Gln Val Asn Gln
1 5 10 15

Gly Thr Leu Gly Pro Gln Val Ala Pro Val Ala Ala Gly Glu Val Val
20 25 30

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

Trp Gln Ala Gln Glu Ser Cys Glu Gln Gln Phe Gly His Leu Ala Leu
50 55 60

Gln Pro Pro Asp Gly Val Leu Ala Ser Arg Leu Arg Asp Pro Val Trp
65 70 75 80

Val Gly Gln Arg Glu Ala Pro Leu Arg Arg Pro Pro Gln Arg Arg Ala
85 90 95

Arg Thr Thr Ala Val Leu Val Phe Asp Glu Arg Thr Ala Asp Arg Ala
100 105 110

Ala Arg Leu Arg Ser Pro Leu Pro Glu Leu Ala Ala Leu Thr Ala Cys
115 120 125

Thr His Val Gln Trp Asp Cys Ala Ser Pro Asp Pro Ala Ala Leu Phe
130 135 140

Ser Val Ala Ala Pro Ala Leu Pro Asn Ala Leu Gln Leu Arg Ala Phe
145 150 155 160

Ala Glu Pro Gly Gly Val Val Arg Ala Ala Leu Val Val Arg Gly Gln
165 170 175

His Ala Pro Phe Leu Ala Ala Phe Arg Ala Asp Gly Arg Trp His His
180 185 190

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

```
Asp Gly Arg Arg Arg Ala Gly Ala Arg Gly Leu Gly Ala Gly His Pro
    210                 215                 220

Val Pro Ser Gly Gly Ile Leu Val Leu Gly Gln Asp Gln Asp Ser Leu
225                 230                 235                 240

Gly Gly Gly Phe Ser Val Arg His Ala Leu Ser Gly Asn Leu Thr Asp
                245                 250                 255

Phe His Leu Trp Ala Arg Ala Leu Ser Pro Ala Gln Leu His Arg Ala
            260                 265                 270

Arg Ala Cys Ala Pro Pro Ser Glu Gly Leu Leu Phe Arg Trp Asp Pro
        275                 280                 285

Gly Ala Leu Asp Val Thr Pro Ser Leu Leu Pro Thr Val Trp Val Arg
    290                 295                 300

Leu Leu Cys Pro Val Pro Ser Glu Glu Cys Pro Thr Trp Asn Pro Gly
305                 310                 315                 320

Pro Arg Ser Glu Gly Ser Glu Leu Cys Leu Glu Pro Gln Pro Phe Leu
                325                 330                 335

Cys Cys Tyr Arg Thr Glu Pro Tyr Arg Arg Leu Gln Asp Ala Gln Ser
            340                 345                 350

Trp Pro Gly Gln Asp Val Ile Ser Arg Val Asn Ala Leu Ala Asn Asp
        355                 360                 365

Ile Val Leu Leu Pro Asp Pro Leu Ser Glu Val His Gly Ala Leu Ser
    370                 375                 380

Pro Ala Glu Ala Ser Ser Phe Leu Gly Leu Leu Glu His Val Leu Ala
385                 390                 395                 400

Met Glu Met Ala Pro Leu Gly Pro Ala Ala Leu Leu Ala Val Val Arg
                405                 410                 415

Phe Leu Lys Arg Val Val Ala Leu Gly Ala Gly Asp Pro Glu Leu Leu
            420                 425                 430
```

```
Leu Thr Gly Pro Trp Glu Gln Leu Ser Gln Gly Val Val Ser Val Ala
        435                 440                 445

Ser Leu Val Leu Glu Glu Gln Val Ala Asp Thr Trp Leu Ser Leu Arg
    450                 455                 460

Glu Val Ile Gly Gly Pro Met Ala Leu Val Ala Ser Val Gln Arg Leu
465                 470                 475                 480

Ala Pro Leu Leu Ser Thr Ser Met Thr Ser Glu Arg Pro Arg Met Arg
                485                 490                 495

Ile Gln His Arg His Ala Gly Leu Glu Val Arg Ser Leu Arg Leu Arg
            500                 505                 510

Glu Ala Ser Thr Arg Gly Cys Leu Phe Thr Met Pro Gly Gly Arg Pro
        515                 520                 525

Glu Gly Pro Gly His Ile His Ile Pro Ala Ser Glu Val Arg Arg Leu
    530                 535                 540

Leu Arg Lys Gly Leu Ser Gly Val Thr Val Ile His Ser Trp Phe Thr
545                 550                 555                 560

Ser Arg Val Phe Gln His Thr Leu Glu Gly Pro Asp Leu Glu Pro Gln
                565                 570                 575

Ala Pro Ala Ser Ser Glu Glu Ala Asn Arg Val Gln Arg Phe Leu Ser
            580                 585                 590

Thr Gln Val Gly Ser Ala Ile Ile Ser Ser Glu Val Trp Asp Val Thr
        595                 600                 605

Gly Glu Val Asn Val Ala Met Thr Phe His Leu Gln His Arg Ala Gln
    610                 615                 620

Ser Pro Leu Phe Pro Pro His Pro Pro Ser Pro Tyr Thr Gly Gly Ala
625                 630                 635                 640

Trp Ala Thr Thr Gly Cys Ser Val Ala Ala Leu Tyr Leu Asp Ser Thr
                645                 650                 655
```

```
Ala Cys Phe Cys Asn His Ser Thr Ser Phe Ala Ile Leu Leu Gln Ile
            660                 665                 670

Tyr Glu Val Gln Arg Gly Pro Glu Glu Glu Ser Leu Leu Arg Thr Leu
        675                 680                 685

Ser Phe Val Gly Cys Gly Val Ser Phe Cys Ala Leu Thr Thr Thr Phe
    690                 695                 700

Leu Leu Phe Leu Val Ala Gly Val Pro Lys Ser Glu Arg Thr Thr Val
705                 710                 715                 720

His Lys Asn Leu Thr Phe Ser Leu Ala Ser Ala Glu Gly Phe Leu Met
                725                 730                 735

Thr Ser Glu Trp Ala Lys Ala Asn Glu Val Ala Cys Val Ala Val Thr
            740                 745                 750

Val Ala Met His Phe Leu Phe Leu Val Ala Phe Ser Trp Met Leu Val
        755                 760                 765

Glu Gly Leu Leu Leu Trp Arg Lys Val Val Ala Val Ser Met His Pro
    770                 775                 780

Gly Pro Gly Met Arg Leu Tyr His Ala Thr Gly Trp Gly Val Pro Val
785                 790                 795                 800

Gly Ile Val Ala Val Thr Leu Ala Met Leu Pro His Asp Tyr Val Ala
                805                 810                 815

Pro Gly His Cys Trp Leu Asn Val His Thr Asn Ala Ile Trp Ala Phe
            820                 825                 830

Val Gly Pro Val Leu Phe Val Leu Thr Ala Asn Thr Cys Ile Leu Ala
        835                 840                 845

Arg Val Val Met Ile Thr Val Ser Ser Ala Arg Arg Arg Ala Arg Met
    850                 855                 860

Leu Ser Pro Gln Pro Cys Leu Gln Gln Gln Ile Trp Thr Gln Ile Trp
865                 870                 875                 880

Ala Thr Val Lys Pro Val Leu Val Leu Leu Pro Val Leu Gly Leu Thr
```

885 890 895

Trp Leu Ala Gly Ile Leu Val His Leu Ser Pro Ala Trp Ala Tyr Ala
900 905 910

Ala Val Gly Leu Asn Ser Ile Gln Gly Leu Tyr Ile Phe Leu Val Tyr
915 920 925

Ala Ala Cys Asn Glu Glu Val Arg Ser Ala Leu Gln Arg Met Ala Glu
930 935 940

Lys Lys Val Ala Glu Gly Pro Met Ala Leu Glu Leu Pro Gln His Ser
945 950 955 960

Pro Pro Leu Gln Thr Arg Arg Asp Arg Leu Trp Asn
965 970

<210> 2958
<211> 41
<212> PRT
<213> Homo sapiens

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<220>
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<400> 2958
Phe Leu Val Ala Phe Ser Trp Met Leu Val Glu Gly Leu Leu Leu Trp
1 5 10 15

Arg Lys Val Val Ala Val Ser Met His Pro Gly Pro Gly Met Arg Leu
20 25 30

Tyr His Ala Thr Gly Trp Gly Pro Arg
35 40

<210> 2959
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<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor E1; "

<220>
<221> source
<223> /note="Uniprot ID: Q14246; "

<220>
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<400> 2959
Met Arg Gly Phe Asn Leu Leu Leu Phe Trp Gly Cys Cys Val Met His
1   5   10   15

Ser Trp Glu Gly His Ile Arg Pro Thr Arg Lys Pro Asn Thr Lys Gly
            20   25   30

Asn Asn Cys Arg Asp Ser Thr Leu Cys Pro Ala Tyr Ala Thr Cys Thr
        35   40   45

Asn Thr Val Asp Ser Tyr Tyr Cys Ala Cys Lys Gln Gly Phe Leu Ser
    50   55   60

Ser Asn Gly Gln Asn His Phe Lys Asp Pro Gly Val Arg Cys Lys Asp
65   70   75   80

Ile Asp Glu Cys Ser Gln Ser Pro Gln Pro Cys Gly Pro Asn Ser Ser
                85   90   95

Cys Lys Asn Leu Ser Gly Arg Tyr Lys Cys Ser Cys Leu Asp Gly Phe
            100   105   110

Ser Ser Pro Thr Gly Asn Asp Trp Val Pro Gly Lys Pro Gly Asn Phe

```
        115                 120                 125

Ser Cys Thr Asp Ile Asn Glu Cys Leu Thr Ser Ser Val Cys Pro Glu
    130                 135                 140

His Ser Asp Cys Val Asn Ser Met Gly Ser Tyr Ser Cys Ser Cys Gln
145                 150                 155                 160

Val Gly Phe Ile Ser Arg Asn Ser Thr Cys Glu Asp Val Asp Glu Cys
                165                 170                 175

Ala Asp Pro Arg Ala Cys Pro Glu His Ala Thr Cys Asn Asn Thr Val
            180                 185                 190

Gly Asn Tyr Ser Cys Phe Cys Asn Pro Gly Phe Glu Ser Ser Ser Gly
        195                 200                 205

His Leu Ser Phe Gln Gly Leu Lys Ala Ser Cys Glu Asp Ile Asp Glu
    210                 215                 220

Cys Thr Glu Met Cys Pro Ile Asn Ser Thr Cys Thr Asn Thr Pro Gly
225                 230                 235                 240

Ser Tyr Phe Cys Thr Cys His Pro Gly Phe Ala Pro Ser Asn Gly Gln
                245                 250                 255

Leu Asn Phe Thr Asp Gln Gly Val Glu Cys Arg Asp Ile Asp Glu Cys
            260                 265                 270

Arg Gln Asp Pro Ser Thr Cys Gly Pro Asn Ser Ile Cys Thr Asn Ala
        275                 280                 285

Leu Gly Ser Tyr Ser Cys Gly Cys Ile Ala Gly Phe His Pro Asn Pro
    290                 295                 300

Glu Gly Ser Gln Lys Asp Gly Asn Phe Ser Cys Gln Arg Val Leu Phe
305                 310                 315                 320

Lys Cys Lys Glu Asp Val Ile Pro Asp Asn Lys Gln Ile Gln Gln Cys
                325                 330                 335

Gln Glu Gly Thr Ala Val Lys Pro Ala Tyr Val Ser Phe Cys Ala Gln
            340                 345                 350
```

```
Ile Asn Asn Ile Phe Ser Val Leu Asp Lys Val Cys Glu Asn Lys Thr
        355                 360                 365

Thr Val Val Ser Leu Lys Asn Thr Thr Glu Ser Phe Val Pro Val Leu
    370                 375                 380

Lys Gln Ile Ser Thr Trp Thr Lys Phe Thr Lys Glu Glu Thr Ser Ser
385                 390                 395                 400

Leu Ala Thr Val Phe Leu Glu Ser Val Glu Ser Met Thr Leu Ala Ser
                405                 410                 415

Phe Trp Lys Pro Ser Ala Asn Ile Thr Pro Ala Val Arg Thr Glu Tyr
            420                 425                 430

Leu Asp Ile Glu Ser Lys Val Ile Asn Lys Glu Cys Ser Glu Glu Asn
        435                 440                 445

Val Thr Leu Asp Leu Val Ala Lys Gly Asp Lys Met Lys Ile Gly Cys
    450                 455                 460

Ser Thr Ile Glu Glu Ser Glu Ser Thr Glu Thr Thr Gly Val Ala Phe
465                 470                 475                 480

Val Ser Phe Val Gly Met Glu Ser Val Leu Asn Glu Arg Phe Phe Lys
                485                 490                 495

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

Ser Arg Val Val Gly Gly Ile Met Thr Gly Glu Lys Lys Asp Gly Phe
        515                 520                 525

Ser Asp Pro Ile Ile Tyr Thr Leu Glu Asn Ile Gln Pro Lys Gln Lys
    530                 535                 540

Phe Glu Arg Pro Ile Cys Val Ser Trp Ser Thr Asp Val Lys Gly Gly
545                 550                 555                 560

Arg Trp Thr Ser Phe Gly Cys Val Ile Leu Glu Ala Ser Glu Thr Tyr
                565                 570                 575
```

```
Thr Ile Cys Ser Cys Asn Gln Met Ala Asn Leu Ala Val Ile Met Ala
            580                 585                 590

Ser Gly Glu Leu Thr Met Gly Cys Ala Ile Ile Ala Gly Phe Leu His
        595                 600                 605

Tyr Leu Phe Leu Ala Cys Phe Phe Trp Met Leu Val Glu Ala Val Ile
    610                 615                 620

Leu Phe Leu Met Val Arg Asn Leu Lys Val Val Asn Tyr Phe Ser Ser
625                 630                 635                 640

Arg Asn Ile Lys Met Leu His Ile Cys Ala Phe Gly Tyr Gly Leu Pro
                645                 650                 655

Met Leu Val Val Val Ile Ser Ala Ser Val Gln Pro Gln Gly Tyr Gly
            660                 665                 670

Met His Asn Arg Cys Trp Leu Asn Thr Glu Thr Gly Phe Ile Trp Ser
        675                 680                 685

Phe Leu Gly Pro Val Cys Thr Val Ile Val Ile Asn Ser Leu Leu Leu
    690                 695                 700

Thr Trp Thr Leu Trp Ile Leu Arg Gln Arg Leu Ser Ser Val Asn Ala
705                 710                 715                 720

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

Ala Gln Leu Phe Ile Leu Gly Cys Ser Trp Val Leu Gly Ile Phe Gln
            740                 745                 750

Ile Gly Pro Val Ala Gly Val Met Ala Tyr Leu Phe Thr Ile Ile Asn
        755                 760                 765

Ser Leu Gln Gly Ala Phe Ile Phe Leu Ile His Cys Leu Leu Asn Gly
    770                 775                 780

Gln Val Arg Glu Glu Tyr Lys Arg Trp Ile Thr Gly Lys Thr Lys Pro
785                 790                 795                 800
```

```
Ser Ser Gln Ser Gln Thr Ser Arg Ile Leu Leu Ser Ser Met Pro Ser
                805                 810                 815

Ala Ser Lys Thr Gly
            820
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<210> 2960
<211> 886
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor E1; "

<220>
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<223> /note="Uniprot ID: Q14246; "

<220>
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<223> /note="ENSP ID: ENSP00000311545"

<400> 2960

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Met Arg Gly Phe Asn Leu Leu Leu Phe Trp Gly Cys Cys Val Met His
1               5                   10                  15

Ser Trp Glu Gly His Ile Arg Pro Thr Arg Lys Pro Asn Thr Lys Gly
            20                  25                  30

Asn Asn Cys Arg Asp Ser Thr Leu Cys Pro Ala Tyr Ala Thr Cys Thr
        35                  40                  45

Asn Thr Val Asp Ser Tyr Tyr Cys Ala Cys Lys Gln Gly Phe Leu Ser
    50                  55                  60

Ser Asn Gly Gln Asn His Phe Lys Asp Pro Gly Val Arg Cys Lys Asp
65                  70                  75                  80

Ile Asp Glu Cys Ser Gln Ser Pro Gln Pro Cys Gly Pro Asn Ser Ser
                85                  90                  95
```

```
Cys Lys Asn Leu Ser Gly Arg Tyr Lys Cys Ser Cys Leu Asp Gly Phe
            100                 105                 110

Ser Ser Pro Thr Gly Asn Asp Trp Val Pro Gly Lys Pro Gly Asn Phe
        115                 120                 125

Ser Cys Thr Asp Ile Asn Glu Cys Leu Thr Ser Ser Val Cys Pro Glu
    130                 135                 140

His Ser Asp Cys Val Asn Ser Met Gly Ser Tyr Ser Cys Ser Cys Gln
145                 150                 155                 160

Val Gly Phe Ile Ser Arg Asn Ser Thr Cys Glu Asp Val Asp Glu Cys
                165                 170                 175

Ala Asp Pro Arg Ala Cys Pro Glu His Ala Thr Cys Asn Asn Thr Val
            180                 185                 190

Gly Asn Tyr Ser Cys Phe Cys Asn Pro Gly Phe Glu Ser Ser Ser Gly
        195                 200                 205

His Leu Ser Phe Gln Gly Leu Lys Ala Ser Cys Glu Asp Ile Asp Glu
    210                 215                 220

Cys Thr Glu Met Cys Pro Ile Asn Ser Thr Cys Thr Asn Thr Pro Gly
225                 230                 235                 240

Ser Tyr Phe Cys Thr Cys His Pro Gly Phe Ala Pro Ser Asn Gly Gln
                245                 250                 255

Leu Asn Phe Thr Asp Gln Gly Val Glu Cys Arg Asp Ile Asp Glu Cys
            260                 265                 270

Arg Gln Asp Pro Ser Thr Cys Gly Pro Asn Ser Ile Cys Thr Asn Ala
        275                 280                 285

Leu Gly Ser Tyr Ser Cys Gly Cys Ile Ala Gly Phe His Pro Asn Pro
    290                 295                 300

Glu Gly Ser Gln Lys Asp Gly Asn Phe Ser Cys Gln Arg Val Leu Phe
305                 310                 315                 320
```

```
Lys Cys Lys Glu Asp Val Ile Pro Asp Asn Lys Gln Ile Gln Gln Cys
                325                 330                 335

Gln Glu Gly Thr Ala Val Lys Pro Ala Tyr Val Ser Phe Cys Ala Gln
            340                 345                 350

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

Thr Val Val Ser Leu Lys Asn Thr Thr Glu Ser Phe Val Pro Val Leu
    370                 375                 380

Lys Gln Ile Ser Thr Trp Thr Lys Phe Thr Lys Glu Glu Thr Ser Ser
385                 390                 395                 400

Leu Ala Thr Val Phe Leu Glu Ser Val Glu Ser Met Thr Leu Ala Ser
                405                 410                 415

Phe Trp Lys Pro Ser Ala Asn Ile Thr Pro Ala Val Arg Thr Glu Tyr
            420                 425                 430

Leu Asp Ile Glu Ser Lys Val Ile Asn Lys Glu Cys Ser Glu Glu Asn
        435                 440                 445

Val Thr Leu Asp Leu Val Ala Lys Gly Asp Lys Met Lys Ile Gly Cys
    450                 455                 460

Ser Thr Ile Glu Glu Ser Glu Ser Thr Glu Thr Thr Gly Val Ala Phe
465                 470                 475                 480

Val Ser Phe Val Gly Met Glu Ser Val Leu Asn Glu Arg Phe Phe Lys
                485                 490                 495

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

Ser Arg Val Val Gly Gly Ile Met Thr Gly Glu Lys Lys Asp Gly Phe
        515                 520                 525

Ser Asp Pro Ile Ile Tyr Thr Leu Glu Asn Ile Gln Pro Lys Gln Lys
    530                 535                 540
```

```
Phe Glu Arg Pro Ile Cys Val Ser Trp Ser Thr Asp Val Lys Gly Gly
545                 550                 555                 560

Arg Trp Thr Ser Phe Gly Cys Val Ile Leu Glu Ala Ser Glu Thr Tyr
                565                 570                 575

Thr Ile Cys Ser Cys Asn Gln Met Ala Asn Leu Ala Val Ile Met Ala
            580                 585                 590

Ser Gly Glu Leu Thr Met Asp Phe Ser Leu Tyr Ile Ile Ser His Val
        595                 600                 605

Gly Ile Ile Ile Ser Leu Val Cys Leu Val Leu Ala Ile Ala Thr Phe
    610                 615                 620

Leu Leu Cys Arg Ser Ile Arg Asn His Asn Thr Tyr Leu His Leu His
625                 630                 635                 640

Leu Cys Val Cys Leu Leu Leu Ala Lys Thr Leu Phe Leu Ala Gly Ile
                645                 650                 655

His Lys Thr Asp Asn Lys Met Gly Cys Ala Ile Ile Ala Gly Phe Leu
            660                 665                 670

His Tyr Leu Phe Leu Ala Cys Phe Phe Trp Met Leu Val Glu Ala Val
        675                 680                 685

Ile Leu Phe Leu Met Val Arg Asn Leu Lys Val Val Asn Tyr Phe Ser
    690                 695                 700

Ser Arg Asn Ile Lys Met Leu His Ile Cys Ala Phe Gly Tyr Gly Leu
705                 710                 715                 720

Pro Met Leu Val Val Val Ile Ser Ala Ser Val Gln Pro Gln Gly Tyr
                725                 730                 735

Gly Met His Asn Arg Cys Trp Leu Asn Thr Glu Thr Gly Phe Ile Trp
            740                 745                 750

Ser Phe Leu Gly Pro Val Cys Thr Val Ile Val Ile Asn Ser Leu Leu
        755                 760                 765

Leu Thr Trp Thr Leu Trp Ile Leu Arg Gln Arg Leu Ser Ser Val Asn
```

```
    770                 775                 780

Ala Glu Val Ser Thr Leu Lys Asp Thr Arg Leu Leu Thr Phe Lys Ala
785                 790                 795                 800

Phe Ala Gln Leu Phe Ile Leu Gly Cys Ser Trp Val Leu Gly Ile Phe
                805                 810                 815

Gln Ile Gly Pro Val Ala Gly Val Met Ala Tyr Leu Phe Thr Ile Ile
            820                 825                 830

Asn Ser Leu Gln Gly Ala Phe Ile Phe Leu Ile His Cys Leu Leu Asn
        835                 840                 845

Gly Gln Val Arg Glu Glu Tyr Lys Arg Trp Ile Thr Gly Lys Thr Lys
    850                 855                 860

Pro Ser Ser Gln Ser Gln Thr Ser Arg Ile Leu Leu Ser Ser Met Pro
865                 870                 875                 880

Ser Ala Ser Lys Thr Gly
                885


<210> 2961
<211> 867
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 679; "

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<223> /note="Gene Symbol: ADGRE1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor E1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q14246; "

<220>
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<400> 2961
Met Arg Gly Phe Asn Leu Leu Leu Phe Trp Gly Cys Cys Val Met His
1 5 10 15

Ser Trp Glu Gly His Ile Arg Pro Thr Arg Lys Pro Asn Thr Lys Gly
20 25 30

Asn Asn Cys Arg Asp Ser Thr Leu Cys Pro Ala Tyr Ala Thr Cys Thr
35 40 45

Asn Thr Val Asp Ser Tyr Tyr Cys Ala Cys Lys Gln Gly Phe Leu Ser
50 55 60

Ser Asn Gly Gln Asn His Phe Lys Asp Pro Gly Val Arg Cys Lys Asp
65 70 75 80

Ile Asn Glu Cys Leu Thr Ser Ser Val Cys Pro Glu His Ser Asp Cys
85 90 95

Val Asn Ser Met Gly Ser Tyr Ser Cys Ser Cys Gln Val Gly Phe Ile
100 105 110

Ser Arg Asn Ser Thr Cys Glu Asp Val Asp Glu Cys Ala Asp Pro Arg
115 120 125

Ala Cys Pro Glu His Ala Thr Cys Asn Asn Thr Val Gly Asn Tyr Ser
130 135 140

Cys Phe Cys Asn Pro Gly Phe Glu Ser Ser Ser Gly His Leu Ser Phe
145 150 155 160

Gln Gly Leu Lys Ala Ser Cys Glu Asp Ile Asp Glu Cys Thr Glu Met
165 170 175

Cys Pro Ile Asn Ser Thr Cys Thr Asn Thr Pro Gly Ser Tyr Phe Cys
180 185 190

Thr Cys His Pro Gly Phe Ala Pro Ser Asn Gly Gln Leu Asn Phe Thr
195 200 205

Asp Gln Gly Val Glu Cys Arg Asp Ile Asp Glu Cys Arg Gln Asp Pro
210 215 220

```
Ser Thr Cys Gly Pro Asn Ser Ile Cys Thr Asn Ala Leu Gly Ser Tyr
225                 230                 235                 240

Ser Cys Gly Cys Ile Ala Gly Phe His Pro Asn Pro Glu Gly Ser Gln
                245                 250                 255

Lys Asp Gly Asn Phe Ser Cys Gln Arg Val Leu Phe Lys Cys Lys Glu
            260                 265                 270

Asp Val Ile Pro Asp Asn Lys Gln Ile Gln Gln Cys Gln Glu Gly Thr
        275                 280                 285

Ala Val Lys Pro Ala Tyr Val Ser Phe Cys Ala Gln Ile Asn Asn Ile
    290                 295                 300

Phe Ser Val Leu Asp Lys Val Cys Glu Asn Lys Thr Thr Val Val Ser
305                 310                 315                 320

Leu Lys Asn Thr Thr Glu Ser Phe Val Pro Val Leu Lys Gln Ile Ser
                325                 330                 335

Thr Trp Thr Lys Phe Thr Lys Glu Glu Thr Ser Ser Leu Ala Thr Val
            340                 345                 350

Phe Leu Glu Ser Val Glu Ser Met Thr Leu Ala Ser Phe Trp Lys Pro
        355                 360                 365

Ser Ala Asn Ile Thr Pro Ala Val Arg Thr Glu Tyr Leu Asp Ile Glu
    370                 375                 380

Ser Lys Val Ile Asn Lys Glu Cys Ser Glu Glu Asn Val Thr Leu Asp
385                 390                 395                 400

Leu Val Ala Lys Gly Asp Lys Met Lys Ile Gly Cys Ser Thr Ile Glu
                405                 410                 415

Glu Ser Glu Ser Thr Glu Thr Thr Gly Val Ala Phe Val Ser Phe Val
            420                 425                 430

Gly Met Glu Ser Val Leu Asn Glu Arg Phe Phe Lys Asp His Gln Ala
        435                 440                 445

Pro Leu Thr Thr Ser Glu Ile Lys Leu Lys Met Asn Ser Arg Val Val
```

```
    450                 455                 460

Gly Gly Ile Met Thr Gly Glu Lys Lys Asp Gly Phe Ser Asp Pro Ile
465                 470                 475                 480

Ile Tyr Thr Leu Glu Asn Ile Gln Pro Lys Gln Lys Phe Glu Arg Pro
                485                 490                 495

Ile Cys Val Ser Trp Ser Thr Asp Val Lys Gly Gly Arg Trp Thr Ser
            500                 505                 510

Phe Gly Cys Val Ile Leu Glu Ala Ser Glu Thr Tyr Thr Ile Cys Ser
        515                 520                 525

Cys Asn Gln Met Ala Asn Leu Ala Val Ile Met Ala Ser Gly Glu Leu
    530                 535                 540

Thr Met Asp Phe Ser Leu Tyr Ile Ile Ser His Val Gly Ile Ile Ile
545                 550                 555                 560

Ser Leu Val Cys Leu Val Leu Ala Ile Ala Thr Phe Leu Leu Cys Arg
                565                 570                 575

Ser Ile Arg Asn His Asn Thr Tyr Leu His Leu His Leu Cys Val Cys
            580                 585                 590

Leu Leu Leu Ala Lys Thr Leu Phe Leu Ala Gly Ile His Lys Thr Asp
        595                 600                 605

Asn Lys Met Gly Cys Ala Ile Ile Ala Gly Phe Leu His Tyr Leu Phe
    610                 615                 620

Leu Ala Cys Phe Phe Trp Met Leu Val Glu Ala Val Ile Leu Phe Leu
625                 630                 635                 640

Met Val Arg Asn Leu Lys Val Val Asn Tyr Phe Ser Ser Arg Asn Ile
                645                 650                 655

Lys Met Leu His Ile Cys Ala Phe Gly Tyr Gly Leu Pro Met Leu Val
            660                 665                 670

Val Val Ile Ser Ala Ser Val Gln Pro Gln Gly Tyr Gly Met His Asn
        675                 680                 685
```

Arg Cys Trp Leu Asn Thr Glu Thr Gly Phe Ile Trp Ser Phe Leu Gly
690 695 700

Pro Val Cys Thr Val Ile Val Val Ser Lys Tyr Tyr Asn Ser Leu Ala
705 710 715 720

Lys Cys Val Leu Lys Glu Glu Gln Gly Asp Leu Arg Asp Leu Glu Phe
725 730 735

Pro Gly Thr Cys Ala Ala Glu Arg Ile Asn Ser Leu Leu Leu Thr Trp
740 745 750

Thr Leu Trp Ile Leu Arg Gln Arg Leu Ser Ser Val Asn Ala Glu Val
755 760 765

Ser Thr Leu Lys Asp Thr Arg Leu Leu Thr Phe Lys Ala Phe Ala Gln
770 775 780

Leu Phe Ile Leu Gly Cys Ser Trp Val Leu Gly Ile Phe Gln Ile Gly
785 790 795 800

Pro Val Ala Gly Val Met Ala Tyr Leu Phe Thr Ile Ile Asn Ser Leu
805 810 815

Gln Gly Ala Phe Ile Phe Leu Ile His Cys Leu Leu Asn Gly Gln Val
820 825 830

Arg Glu Glu Tyr Lys Arg Trp Ile Thr Gly Lys Thr Lys Pro Ser Ser
835 840 845

Gln Ser Gln Thr Ser Arg Ile Leu Leu Ser Ser Met Pro Ser Ala Ser
850 855 860

Lys Thr Gly
865

<210> 2962
<211> 745
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 679; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRE1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor E1; "

<220>
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<223> /note="Uniprot ID: Q14246; "

<220>
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<223> /note="ENSP ID: ENSP00000370814"

<400> 2962

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Met Arg Gly Phe Asn Leu Leu Leu Phe Trp Gly Cys Cys Val Met His
1               5                  10                  15

Ser Trp Glu Gly His Ile Arg Pro Thr Arg Lys Pro Asn Thr Lys Gly
            20                  25                  30

Asn Asn Cys Arg Asp Ser Thr Leu Cys Pro Ala Tyr Ala Thr Cys Thr
        35                  40                  45

Asn Thr Val Asp Ser Tyr Tyr Cys Ala Cys Lys Gln Gly Phe Leu Ser
    50                  55                  60

Ser Asn Gly Gln Asn His Phe Lys Asp Pro Gly Val Arg Cys Lys Asp
65                  70                  75                  80

Ile Asp Glu Cys Thr Glu Met Cys Pro Ile Asn Ser Thr Cys Thr Asn
                85                  90                  95

Thr Pro Gly Ser Tyr Phe Cys Thr Cys His Pro Gly Phe Ala Pro Ser
            100                 105                 110

Asn Gly Gln Leu Asn Phe Thr Asp Gln Gly Val Glu Cys Arg Asp Ile
        115                 120                 125

Asp Glu Cys Arg Gln Asp Pro Ser Thr Cys Gly Pro Asn Ser Ile Cys
    130                 135                 140

Thr Asn Ala Leu Gly Ser Tyr Ser Cys Gly Cys Ile Ala Gly Phe His
```

145 150 155 160

Pro Asn Pro Glu Gly Ser Gln Lys Asp Gly Asn Phe Ser Cys Gln Arg
165 170 175

Val Leu Phe Lys Cys Lys Glu Asp Val Ile Pro Asp Asn Lys Gln Ile
180 185 190

Gln Gln Cys Gln Glu Gly Thr Ala Val Lys Pro Ala Tyr Val Ser Phe
195 200 205

Cys Ala Gln Ile Asn Asn Ile Phe Ser Val Leu Asp Lys Val Cys Glu
210 215 220

Asn Lys Thr Thr Val Val Ser Leu Lys Asn Thr Thr Glu Ser Phe Val
225 230 235 240

Pro Val Leu Lys Gln Ile Ser Thr Trp Thr Lys Phe Thr Lys Glu Glu
245 250 255

Thr Ser Ser Leu Ala Thr Val Phe Leu Glu Ser Val Glu Ser Met Thr
260 265 270

Leu Ala Ser Phe Trp Lys Pro Ser Ala Asn Ile Thr Pro Ala Val Arg
275 280 285

Thr Glu Tyr Leu Asp Ile Glu Ser Lys Val Ile Asn Lys Glu Cys Ser
290 295 300

Glu Glu Asn Val Thr Leu Asp Leu Val Ala Lys Gly Asp Lys Met Lys
305 310 315 320

Ile Gly Cys Ser Thr Ile Glu Glu Ser Glu Ser Thr Glu Thr Thr Gly
325 330 335

Val Ala Phe Val Ser Phe Val Gly Met Glu Ser Val Leu Asn Glu Arg
340 345 350

Phe Phe Lys Asp His Gln Ala Pro Leu Thr Thr Ser Glu Ile Lys Leu
355 360 365

Lys Met Asn Ser Arg Val Val Gly Gly Ile Met Thr Gly Glu Lys Lys
370 375 380

Asp Gly Phe Ser Asp Pro Ile Ile Tyr Thr Leu Glu Asn Ile Gln Pro
385 390 395 400

Lys Gln Lys Phe Glu Arg Pro Ile Cys Val Ser Trp Ser Thr Asp Val
405 410 415

Lys Gly Gly Arg Trp Thr Ser Phe Gly Cys Val Ile Leu Glu Ala Ser
420 425 430

Glu Thr Tyr Thr Ile Cys Ser Cys Asn Gln Met Ala Asn Leu Ala Val
435 440 445

Ile Met Ala Ser Gly Glu Leu Thr Met Asp Phe Ser Leu Tyr Ile Ile
450 455 460

Ser His Val Gly Ile Ile Ile Ser Leu Val Cys Leu Val Leu Ala Ile
465 470 475 480

Ala Thr Phe Leu Leu Cys Arg Ser Ile Arg Asn His Asn Thr Tyr Leu
485 490 495

His Leu His Leu Cys Val Cys Leu Leu Leu Ala Lys Thr Leu Phe Leu
500 505 510

Ala Gly Ile His Lys Thr Asp Asn Lys Met Gly Cys Ala Ile Ile Ala
515 520 525

Gly Phe Leu His Tyr Leu Phe Leu Ala Cys Phe Phe Trp Met Leu Val
530 535 540

Glu Ala Val Ile Leu Phe Leu Met Val Arg Asn Leu Lys Val Val Asn
545 550 555 560

Tyr Phe Ser Ser Arg Asn Ile Lys Met Leu His Ile Cys Ala Phe Gly
565 570 575

Tyr Gly Leu Pro Met Leu Val Val Val Ile Ser Ala Ser Val Gln Pro
580 585 590

Gln Gly Tyr Gly Met His Asn Arg Cys Trp Leu Asn Thr Glu Thr Gly
595 600 605

```
Phe Ile Trp Ser Phe Leu Gly Pro Val Cys Thr Val Ile Val Ile Asn
    610                 615                 620

Ser Leu Leu Leu Thr Trp Thr Leu Trp Ile Leu Arg Gln Arg Leu Ser
625                 630                 635                 640

Ser Val Asn Ala Glu Val Ser Thr Leu Lys Asp Thr Arg Leu Leu Thr
                645                 650                 655

Phe Lys Ala Phe Ala Gln Leu Phe Ile Leu Gly Cys Ser Trp Val Leu
            660                 665                 670

Gly Ile Phe Gln Ile Gly Pro Val Ala Gly Val Met Ala Tyr Leu Phe
        675                 680                 685

Thr Ile Ile Asn Ser Leu Gln Gly Ala Phe Ile Phe Leu Ile His Cys
    690                 695                 700

Leu Leu Asn Gly Gln Val Arg Glu Glu Tyr Lys Arg Trp Ile Thr Gly
705                 710                 715                 720

Lys Thr Lys Pro Ser Ser Gln Ser Gln Thr Ser Arg Ile Leu Leu Ser
                725                 730                 735

Ser Met Pro Ser Ala Ser Lys Thr Gly
            740                 745


<210> 2963
<211> 709
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 679; "

<220>
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<220>
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      adhesion G prt-coupled receptor E1; "

<220>
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<223> /note="Uniprot ID: Q14246; "

<220>
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Met Arg Gly Phe Asn Leu Leu Leu Phe Trp Gly Cys Cys Val Met His
1   5   10   15

Ser Trp Glu Gly His Ile Arg Pro Thr Arg Lys Pro Asn Thr Lys Gly
            20   25   30

Asn Asn Cys Arg Asp Ser Thr Leu Cys Pro Ala Tyr Ala Thr Cys Thr
        35   40   45

Asn Thr Val Asp Ser Tyr Tyr Cys Ala Cys Lys Gln Gly Phe Leu Ser
    50   55   60

Ser Asn Gly Gln Asn His Phe Lys Asp Pro Gly Val Arg Cys Lys Asp
65   70   75   80

Ile Asp Glu Cys Ser Gln Ser Pro Gln Pro Cys Gly Pro Asn Ser Ser
                85   90   95

Cys Lys Asn Leu Ser Gly Arg Tyr Lys Cys Ser Cys Leu Asp Gly Phe
            100   105   110

Ser Ser Pro Thr Gly Asn Asp Trp Val Pro Gly Lys Pro Gly Asn Phe
        115   120   125

Ser Cys Thr Asp Ile Asn Glu Cys Leu Thr Ser Arg Val Leu Phe Lys
    130   135   140

Cys Lys Glu Asp Val Ile Pro Asp Asn Lys Gln Ile Gln Gln Cys Gln
145   150   155   160

Glu Gly Thr Ala Val Lys Pro Ala Tyr Val Ser Phe Cys Ala Gln Ile
                165   170   175

Asn Asn Ile Phe Ser Val Leu Asp Lys Val Cys Glu Asn Lys Thr Thr
            180   185   190

Val Val Ser Leu Lys Asn Thr Thr Glu Ser Phe Val Pro Val Leu Lys
        195   200   205

```
Gln Ile Ser Thr Trp Thr Lys Phe Thr Lys Glu Glu Thr Ser Ser Leu
    210                 215                 220

Ala Thr Val Phe Leu Glu Ser Val Glu Ser Met Thr Leu Ala Ser Phe
225                 230                 235                 240

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

Asp Ile Glu Ser Lys Val Ile Asn Lys Glu Cys Ser Glu Glu Asn Val
            260                 265                 270

Thr Leu Asp Leu Val Ala Lys Gly Asp Lys Met Lys Ile Gly Cys Ser
        275                 280                 285

Thr Ile Glu Glu Ser Glu Ser Thr Glu Thr Thr Gly Val Ala Phe Val
    290                 295                 300

Ser Phe Val Gly Met Glu Ser Val Leu Asn Glu Arg Phe Phe Lys Asp
305                 310                 315                 320

His Gln Ala Pro Leu Thr Thr Ser Glu Ile Lys Leu Lys Met Asn Ser
                325                 330                 335

Arg Val Val Gly Gly Ile Met Thr Gly Glu Lys Lys Asp Gly Phe Ser
            340                 345                 350

Asp Pro Ile Ile Tyr Thr Leu Glu Asn Ile Gln Pro Lys Gln Lys Phe
        355                 360                 365

Glu Arg Pro Ile Cys Val Ser Trp Ser Thr Asp Val Lys Gly Gly Arg
    370                 375                 380

Trp Thr Ser Phe Gly Cys Val Ile Leu Glu Ala Ser Glu Thr Tyr Thr
385                 390                 395                 400

Ile Cys Ser Cys Asn Gln Met Ala Asn Leu Ala Val Ile Met Ala Ser
                405                 410                 415

Gly Glu Leu Thr Met Asp Phe Ser Leu Tyr Ile Ile Ser His Val Gly
            420                 425                 430
```

```
Ile Ile Ile Ser Leu Val Cys Leu Val Leu Ala Ile Ala Thr Phe Leu
        435                 440                 445

Leu Cys Arg Ser Ile Arg Asn His Asn Thr Tyr Leu His Leu His Leu
    450                 455                 460

Cys Val Cys Leu Leu Leu Ala Lys Thr Leu Phe Leu Ala Gly Ile His
465                 470                 475                 480

Lys Thr Asp Asn Lys Met Gly Cys Ala Ile Ile Ala Gly Phe Leu His
                485                 490                 495

Tyr Leu Phe Leu Ala Cys Phe Phe Trp Met Leu Val Glu Ala Val Ile
            500                 505                 510

Leu Phe Leu Met Val Arg Asn Leu Lys Val Val Asn Tyr Phe Ser Ser
        515                 520                 525

Arg Asn Ile Lys Met Leu His Ile Cys Ala Phe Gly Tyr Gly Leu Pro
    530                 535                 540

Met Leu Val Val Val Ile Ser Ala Ser Val Gln Pro Gln Gly Tyr Gly
545                 550                 555                 560

Met His Asn Arg Cys Trp Leu Asn Thr Glu Thr Gly Phe Ile Trp Ser
                565                 570                 575

Phe Leu Gly Pro Val Cys Thr Val Ile Val Ile Asn Ser Leu Leu Leu
            580                 585                 590

Thr Trp Thr Leu Trp Ile Leu Arg Gln Arg Leu Ser Ser Val Asn Ala
        595                 600                 605

Glu Val Ser Thr Leu Lys Asp Thr Arg Leu Leu Thr Phe Lys Ala Phe
    610                 615                 620

Ala Gln Leu Phe Ile Leu Gly Cys Ser Trp Val Leu Gly Ile Phe Gln
625                 630                 635                 640

Ile Gly Pro Val Ala Gly Val Met Ala Tyr Leu Phe Thr Ile Ile Asn
                645                 650                 655
```

```
Ser Leu Gln Gly Ala Phe Ile Phe Leu Ile His Cys Leu Leu Asn Gly
            660                 665                 670

Gln Val Arg Glu Glu Tyr Lys Arg Trp Ile Thr Gly Lys Thr Lys Pro
        675                 680                 685

Ser Ser Gln Ser Gln Thr Ser Arg Ile Leu Leu Ser Ser Met Pro Ser
    690                 695                 700

Ala Ser Lys Thr Gly
705
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<210> 2964
<211> 318
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADGRE1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor E1; "

<220>
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<400> 2964

```
Cys Arg Asp Ser Thr Leu Cys Pro Ala Tyr Ala Thr Cys Thr Asn Thr
1               5                  10                  15

Val Asp Ser Tyr Tyr Cys Ala Cys Lys Gln Gly Phe Leu Ser Ser Asn
            20                  25                  30

Gly Gln Asn His Phe Lys Asp Pro Gly Val Arg Cys Lys Asp Ile Asp
        35                  40                  45

Glu Cys Ser Gln Ser Pro Gln Pro Cys Gly Pro Asn Ser Ser Cys Lys
    50                  55                  60

Asn Leu Ser Gly Arg Tyr Lys Cys Ser Cys Leu Asp Gly Phe Ser Ser
65                  70                  75                  80
```

```
Pro Thr Gly Asn Asp Trp Val Pro Gly Lys Pro Gly Asn Phe Ser Cys
                85                  90                  95

Thr Asp Ile Asn Glu Cys Leu Thr Ser Ser Val Cys Pro Glu His Ser
            100                 105                 110

Asp Cys Val Asn Ser Met Gly Ser Tyr Ser Cys Ser Cys Gln Val Gly
        115                 120                 125

Phe Ile Ser Arg Asn Ser Thr Cys Glu Asp Val Asp Glu Cys Ala Asp
    130                 135                 140

Pro Arg Ala Cys Pro Glu His Ala Thr Cys Asn Asn Thr Val Gly Asn
145                 150                 155                 160

Tyr Ser Cys Phe Cys Asn Pro Gly Phe Glu Ser Ser Ser Gly His Leu
                165                 170                 175

Ser Phe Gln Gly Leu Lys Ala Ser Cys Glu Asp Ile Asp Glu Cys Thr
            180                 185                 190

Glu Met Cys Pro Ile Asn Ser Thr Cys Thr Asn Thr Pro Gly Ser Tyr
        195                 200                 205

Phe Cys Thr Cys His Pro Gly Phe Ala Pro Ser Asn Gly Gln Leu Asn
    210                 215                 220

Phe Thr Asp Gln Gly Val Glu Cys Arg Gly Val Leu Phe Lys Cys Lys
225                 230                 235                 240

Glu Asp Val Ile Pro Asp Asn Lys Gln Ile Gln Gln Cys Gln Glu Gly
                245                 250                 255

Thr Ala Val Lys Pro Ala Tyr Val Ser Phe Cys Ala Gln Ile Asn Asn
            260                 265                 270

Ile Phe Ser Val Leu Asp Lys Val Cys Glu Asn Lys Thr Thr Val Val
        275                 280                 285

Ser Leu Lys Asn Thr Thr Glu Ser Phe Val Pro Val Leu Lys Gln Ile
    290                 295                 300
```

Ser Thr Trp Thr Lys Phe Thr Lys Glu Glu Thr Ser Ser Leu
305 310 315

<210> 2965
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<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor E2; "

<220>
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<223> /note="Uniprot ID: Q9UHX3; "

<220>
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<223> /note="ENSP ID: ENSP00000319883"

<400> 2965
Met Gly Gly Arg Val Phe Leu Val Phe Leu Ala Phe Cys Val Trp Leu
1 5 10 15

Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
20 25 30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
35 40 45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
50 55 60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65 70 75 80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
85 90 95

Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu

```
            100                 105                 110

Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg
        115                 120                 125

Leu Cys Lys Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr
    130                 135                 140

Cys Gln Cys Leu Pro Gly Phe Lys Leu Lys Pro Glu Asp Pro Lys Leu
145                 150                 155                 160

Cys Thr Asp Val Asn Glu Cys Thr Ser Gly Gln Asn Pro Cys His Ser
                165                 170                 175

Ser Thr His Cys Leu Asn Asn Val Gly Ser Tyr Gln Cys Arg Cys Arg
            180                 185                 190

Pro Gly Trp Gln Pro Ile Pro Gly Ser Pro Asn Gly Pro Asn Asn Thr
        195                 200                 205

Val Cys Glu Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp
    210                 215                 220

Ser Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr Ser Cys Arg Cys
225                 230                 235                 240

Arg Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp
                245                 250                 255

Thr Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly
            260                 265                 270

Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu
        275                 280                 285

Gly Arg Asp Tyr Lys Pro Gly Leu Ala Asn Asn Thr Ile Gln Ser Ile
    290                 295                 300

Leu Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp Leu Glu Thr
305                 310                 315                 320

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

```
Leu Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser Asn Gly Leu
            340                 345                 350

Leu Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu Glu Val Gln
        355                 360                 365

Lys Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln Ala Val Met
    370                 375                 380

Gln Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro Gly Pro Ser
385                 390                 395                 400

Val Val Gly Leu Val Ser Ile Pro Gly Met Gly Lys Leu Leu Ala Glu
                405                 410                 415

Ala Pro Leu Val Leu Glu Pro Glu Lys Gln Met Leu Leu His Glu Thr
            420                 425                 430

His Gln Gly Leu Leu Gln Asp Gly Ser Pro Ile Leu Leu Ser Asp Val
        435                 440                 445

Ile Ser Ala Phe Leu Ser Asn Asn Asp Thr Gln Asn Leu Ser Ser Pro
    450                 455                 460

Val Thr Phe Thr Phe Ser His Arg Ser Val Ile Pro Arg Gln Lys Val
465                 470                 475                 480

Leu Cys Val Phe Trp Glu His Gly Gln Asn Gly Cys Gly His Trp Ala
                485                 490                 495

Thr Thr Gly Cys Ser Thr Ile Gly Thr Arg Asp Thr Ser Thr Ile Cys
            500                 505                 510

Arg Cys Thr His Leu Ser Ser Phe Ala Val Leu Met Ala His Tyr Asp
        515                 520                 525

Val Gln Glu Glu Asp Pro Val Leu Thr Val Ile Thr Tyr Met Gly Leu
    530                 535                 540

Ser Val Ser Leu Leu Cys Leu Leu Leu Ala Ala Leu Thr Phe Leu Leu
545                 550                 555                 560
```

```
Cys Lys Ala Ile Gln Asn Thr Ser Thr Ser Leu His Leu Gln Leu Ser
                565                 570                 575

Leu Cys Leu Phe Leu Ala His Leu Leu Phe Leu Val Ala Ile Asp Gln
            580                 585                 590

Thr Gly His Lys Val Leu Cys Ser Ile Ile Ala Gly Thr Leu His Tyr
        595                 600                 605

Leu Tyr Leu Ala Thr Leu Thr Trp Met Leu Leu Glu Ala Leu Tyr Leu
    610                 615                 620

Phe Leu Thr Ala Arg Asn Leu Thr Val Val Asn Tyr Ser Ser Ile Asn
625                 630                 635                 640

Arg Phe Met Lys Lys Leu Met Phe Pro Val Gly Tyr Gly Val Pro Ala
                645                 650                 655

Val Thr Val Ala Ile Ser Ala Ala Ser Arg Pro His Leu Tyr Gly Thr
            660                 665                 670

Pro Ser Arg Cys Trp Leu Gln Pro Glu Lys Gly Phe Ile Trp Gly Phe
        675                 680                 685

Leu Gly Pro Val Cys Ala Ile Phe Ser Val Asn Leu Val Leu Phe Leu
    690                 695                 700

Val Thr Leu Trp Ile Leu Lys Asn Arg Leu Ser Ser Leu Asn Ser Glu
705                 710                 715                 720

Val Ser Thr Leu Arg Asn Thr Arg Met Leu Ala Phe Lys Ala Thr Ala
                725                 730                 735

Gln Leu Phe Ile Leu Gly Cys Thr Trp Cys Leu Gly Ile Leu Gln Val
            740                 745                 750

Gly Pro Ala Ala Arg Val Met Ala Tyr Leu Phe Thr Ile Ile Asn Ser
        755                 760                 765

Leu Gln Gly Val Phe Ile Phe Leu Val Tyr Cys Leu Leu Ser Gln Gln
    770                 775                 780
```

```
Val Arg Glu Gln Tyr Gly Lys Trp Ser Lys Gly Ile Arg Lys Leu Lys
785                 790                 795                 800

Thr Glu Ser Glu Met His Thr Leu Ser Ser Ser Ala Lys Ala Asp Thr
                805                 810                 815

Ser Lys Pro Ser Thr Val Asn
            820


<210> 2966
<211> 379
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 680; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor E2; "

<220>
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<223> /note="ENSP ID: ENSP00000376689"

<400> 2966
Met Gly Gly Arg Val Phe Leu Val Phe Leu Ala Phe Cys Val Trp Leu
1               5                   10                  15

Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
            20                  25                  30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
        35                  40                  45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
    50                  55                  60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65                  70                  75                  80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
                85                  90                  95
```

```
Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu
            100                 105                 110

Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg
        115                 120                 125

Leu Cys Lys Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr
    130                 135                 140

Cys Gln Cys Leu Pro Gly Phe Lys Leu Lys Pro Glu Asp Pro Lys Leu
145                 150                 155                 160

Cys Thr Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp Ser
                165                 170                 175

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

Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp Thr
        195                 200                 205

Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly Val
    210                 215                 220

His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu Gly
225                 230                 235                 240

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

Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp Leu Glu Thr Leu
            260                 265                 270

Pro Arg Leu Gln Gln His Cys Val Ala Ser His Leu Leu Asp Gly Leu
        275                 280                 285

Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser Asn Gly Leu Leu
    290                 295                 300

Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu Glu Val Gln Lys
305                 310                 315                 320
```

```
Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln Ala Val Met Gln
                325                 330                 335

Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro Gly Gly Gly Ser
            340                 345                 350

Arg Ala Asp Cys His His Leu His Gly Ala Glu Arg Leu Ser Ala Val
        355                 360                 365

Pro Pro Pro Gly Gly Pro His Phe Ser Pro Val
    370                 375


<210> 2967
<211> 765
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor E2; "

<220>
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<223> /note="Uniprot ID:  Q9UHX3; "

<220>
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<400> 2967
Met Gly Gly Arg Val Phe Leu Val Phe Leu Ala Phe Cys Val Trp Leu
1               5                   10                  15

Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
            20                  25                  30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
        35                  40                  45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
```

```
    50                  55                  60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65                  70                  75                  80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
                85                  90                  95

Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu
            100                 105                 110

Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg
        115                 120                 125

Leu Cys Lys Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr
    130                 135                 140

Cys Gln Cys Leu Pro Gly Phe Lys Leu Lys Pro Glu Asp Pro Lys Leu
145                 150                 155                 160

Cys Thr Asp Val Asn Glu Cys Thr Ser Gly Gln Asn Pro Cys His Ser
                165                 170                 175

Ser Thr His Cys Leu Asn Asn Val Gly Ser Tyr Gln Cys Arg Cys Arg
            180                 185                 190

Pro Gly Trp Gln Pro Ile Pro Gly Ser Pro Asn Gly Pro Asn Asn Thr
        195                 200                 205

Val Cys Glu Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp
    210                 215                 220

Ser Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr Ser Cys Arg Cys
225                 230                 235                 240

Arg Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp
                245                 250                 255

Thr Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly
            260                 265                 270

Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu
        275                 280                 285
```

```
Gly Arg Asp Tyr Lys Pro Gly Leu Ala Asn Asn Thr Ile Gln Ser Ile
    290                 295                 300

Leu Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp Leu Glu Thr
305                 310                 315                 320

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

Leu Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser Asn Gly Leu
            340                 345                 350

Leu Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu Glu Val Gln
        355                 360                 365

Lys Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln Ala Val Met
    370                 375                 380

Gln Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro Gly Pro Ser
385                 390                 395                 400

Val Val Gly Leu Val Ser Ile Pro Gly Met Gly Lys Leu Leu Ala Glu
                405                 410                 415

Ala Pro Leu Val Leu Glu Pro Glu Lys Gln Met Leu Leu His Glu Thr
            420                 425                 430

His Gln Gly Leu Leu Gln Asp Gly Ser Pro Ile Leu Leu Ser Asp Val
        435                 440                 445

Ile Ser Ala Phe Leu Ser Asn Asn Asp Thr Gln Asn Leu Ser Ser Pro
    450                 455                 460

Val Thr Phe Thr Phe Ser His Arg Glu Glu Asp Pro Val Leu Thr Val
465                 470                 475                 480

Ile Thr Tyr Met Gly Leu Ser Val Ser Leu Leu Cys Leu Leu Leu Ala
                485                 490                 495

Ala Leu Thr Phe Leu Leu Cys Lys Ala Ile Gln Asn Thr Ser Thr Ser
            500                 505                 510
```

```
Leu His Leu Gln Leu Ser Leu Cys Leu Phe Leu Ala His Leu Leu Phe
        515                 520                 525

Leu Val Ala Ile Asp Gln Thr Gly His Lys Val Leu Cys Ser Ile Ile
    530                 535                 540

Ala Gly Thr Leu His Tyr Leu Tyr Leu Ala Thr Leu Thr Trp Met Leu
545                 550                 555                 560

Leu Glu Ala Leu Tyr Leu Phe Leu Thr Ala Arg Asn Leu Thr Val Val
                565                 570                 575

Asn Tyr Ser Ser Ile Asn Arg Phe Met Lys Lys Leu Met Phe Pro Val
            580                 585                 590

Gly Tyr Gly Val Pro Ala Val Thr Val Ala Ile Ser Ala Ala Ser Arg
        595                 600                 605

Pro His Leu Tyr Gly Thr Pro Ser Arg Cys Trp Leu Gln Pro Glu Lys
    610                 615                 620

Gly Phe Ile Trp Gly Phe Leu Gly Pro Val Cys Ala Ile Phe Ser Val
625                 630                 635                 640

Asn Leu Val Leu Phe Leu Val Thr Leu Trp Ile Leu Lys Asn Arg Leu
                645                 650                 655

Ser Ser Leu Asn Ser Glu Val Ser Thr Leu Arg Asn Thr Arg Met Leu
            660                 665                 670

Ala Phe Lys Ala Thr Ala Gln Leu Phe Ile Leu Gly Cys Thr Trp Cys
        675                 680                 685

Leu Gly Ile Leu Gln Val Gly Pro Ala Ala Arg Val Met Ala Tyr Leu
    690                 695                 700

Phe Thr Ile Ile Asn Ser Leu Gln Gly Val Phe Ile Phe Leu Val Tyr
705                 710                 715                 720

Cys Leu Leu Ser Gln Gln Val Arg Glu Gln Tyr Gly Lys Trp Ser Lys
                725                 730                 735
```

```
Gly Ile Arg Lys Leu Lys Thr Glu Ser Glu Met His Thr Leu Ser Ser
            740                 745                 750

Ser Ala Lys Ala Asp Thr Ser Lys Pro Ser Thr Val Asn
        755                 760                 765


<210> 2968
<211> 681
<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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<223> /note="Uniprot ID:  Q9UHX3; "

<220>
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Met Gly Gly Arg Val Phe Leu Val Phe Leu Ala Phe Cys Val Trp Leu
1               5                   10                  15

Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
            20                  25                  30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
        35                  40                  45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
    50                  55                  60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65                  70                  75                  80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
                85                  90                  95
```

```
Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu
            100                 105                 110

Ser Glu Asn Thr Cys Gln Asp Met Thr Phe Ser Thr Trp Thr Pro Pro
        115                 120                 125

Pro Gly Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln
    130                 135                 140

Asp Leu Gly Arg Asp Tyr Lys Pro Gly Leu Ala Asn Asn Thr Ile Gln
145                 150                 155                 160

Ser Ile Leu Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp Leu
                165                 170                 175

Glu Thr Leu Pro Arg Leu Gln Gln His Cys Val Ala Ser His Leu Leu
            180                 185                 190

Asp Gly Leu Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser Asn
        195                 200                 205

Gly Leu Leu Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu Glu
    210                 215                 220

Val Gln Lys Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln Ala
225                 230                 235                 240

Val Met Gln Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro Gly
                245                 250                 255

Pro Ser Val Val Gly Leu Val Ser Ile Pro Gly Met Gly Lys Leu Leu
            260                 265                 270

Ala Glu Ala Pro Leu Val Leu Glu Pro Glu Lys Gln Met Leu Leu His
        275                 280                 285

Glu Thr His Gln Gly Leu Leu Gln Asp Gly Ser Pro Ile Leu Leu Ser
    290                 295                 300

Asp Val Ile Ser Ala Phe Leu Ser Asn Asn Asp Thr Gln Asn Leu Ser
305                 310                 315                 320
```

Ser Pro Val Thr Phe Thr Phe Ser His Arg Ser Val Ile Pro Arg Gln
325 330 335

Lys Val Leu Cys Val Phe Trp Glu His Gly Gln Asn Gly Cys Gly His
340 345 350

Trp Ala Thr Thr Gly Cys Ser Thr Ile Gly Thr Arg Asp Thr Ser Thr
355 360 365

Ile Cys Arg Cys Thr His Leu Ser Ser Phe Ala Val Leu Met Ala His
370 375 380

Tyr Asp Val Gln Glu Glu Asp Pro Val Leu Thr Val Ile Thr Tyr Met
385 390 395 400

Gly Leu Ser Val Ser Leu Leu Cys Leu Leu Leu Ala Ala Leu Thr Phe
405 410 415

Leu Leu Cys Lys Ala Ile Gln Asn Thr Ser Thr Ser Leu His Leu Gln
420 425 430

Leu Ser Leu Cys Leu Phe Leu Ala His Leu Leu Phe Leu Val Ala Ile
435 440 445

Asp Gln Thr Gly His Lys Val Leu Cys Ser Ile Ile Ala Gly Thr Leu
450 455 460

His Tyr Leu Tyr Leu Ala Thr Leu Thr Trp Met Leu Leu Glu Ala Leu
465 470 475 480

Tyr Leu Phe Leu Thr Ala Arg Asn Leu Thr Val Val Asn Tyr Ser Ser
485 490 495

Ile Asn Arg Phe Met Lys Lys Leu Met Phe Pro Val Gly Tyr Gly Val
500 505 510

Pro Ala Val Thr Val Ala Ile Ser Ala Ala Ser Arg Pro His Leu Tyr
515 520 525

Gly Thr Pro Ser Arg Cys Trp Leu Gln Pro Glu Lys Gly Phe Ile Trp
530 535 540

```
Gly Phe Leu Gly Pro Val Cys Ala Ile Phe Ser Val Asn Leu Val Leu
545                 550                 555                 560

Phe Leu Val Thr Leu Trp Ile Leu Lys Asn Arg Leu Ser Ser Leu Asn
                565                 570                 575

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

Thr Ala Gln Leu Phe Ile Leu Gly Cys Thr Trp Cys Leu Gly Ile Leu
        595                 600                 605

Gln Val Gly Pro Ala Ala Arg Val Met Ala Tyr Leu Phe Thr Ile Ile
    610                 615                 620

Asn Ser Leu Gln Gly Val Phe Ile Phe Leu Val Tyr Cys Leu Leu Ser
625                 630                 635                 640

Gln Gln Val Arg Glu Gln Tyr Gly Lys Trp Ser Lys Gly Ile Arg Lys
                645                 650                 655

Leu Lys Thr Glu Ser Glu Met His Thr Leu Ser Ser Ser Ala Lys Ala
            660                 665                 670

Asp Thr Ser Lys Pro Ser Thr Val Asn
        675                 680


<210> 2969
<211> 330
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 680; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRE2; "

<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor E2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000469605"
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 2969
Xaa Phe Lys Asn Glu Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys
1   5   10   15

Gln Gln Asn Pro Arg Leu Cys Lys Ser Tyr Gly Thr Cys Val Asn Thr
            20   25   30

Leu Gly Ser Tyr Thr Cys Gln Cys Leu Pro Gly Phe Lys Leu Lys Pro
        35   40   45

Glu Asp Pro Lys Leu Cys Thr Asp Val Asp Glu Cys Ser Ser Gly Gln
    50   55   60

His Gln Cys Asp Ser Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr
65   70   75   80

Ser Cys Arg Cys Arg Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn
                85   90   95

Asn Gln Lys Asp Thr Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr
            100   105   110

Pro Pro Pro Gly Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys
        115   120   125

Val Gln Asp Leu Gly Arg Asp Tyr Lys Pro Gly Leu Ala Asn Asn Thr
    130   135   140

Ile Gln Ser Ile Leu Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly
145   150   155   160

Asp Leu Glu Thr Leu Pro Arg Leu Gln Gln His Cys Val Ala Ser His
                165   170   175

Leu Leu Asp Gly Leu Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu
            180   185   190

Ser Asn Gly Leu Leu Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser

```
        195                 200                 205

Leu Glu Val Gln Lys Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn
    210                 215                 220

Gln Ala Val Met Gln Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp
225                 230                 235                 240

Pro Val Ser Asp Pro Glu Thr Glu Gly Ala Leu Cys Leu Leu Gly Ala
                245                 250                 255

Trp Pro Glu Trp Met Trp Ser Leu Gly His His Arg Leu Gln His Asn
            260                 265                 270

Arg His Gln Arg His Gln His His Leu Pro Leu His Pro Pro Glu Gln
        275                 280                 285

Leu Cys Arg Pro His Gly Pro Leu Arg Cys Ala Gly Gly Gly Ser Arg
    290                 295                 300

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

Pro Pro Gly Gly Pro His Phe Ser Pro Val
                325                 330


<210> 2970
<211> 774
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<220>
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<223> /note="Gene Symbol: ADGRE2; "

<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor E2; "

<220>
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<223> /note="Uniprot ID:  Q9UHX3; "
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<220>
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<400> 2970
Met Gly Gly Arg Val Phe Leu Val Phe Leu Ala Phe Cys Val Trp Leu
1   5   10   15

Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
            20   25   30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
        35   40   45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
    50   55   60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65   70   75   80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
                85   90   95

Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu
            100   105   110

Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg
        115   120   125

Leu Cys Lys Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr
    130   135   140

Cys Gln Cys Leu Pro Gly Phe Lys Leu Lys Pro Glu Asp Pro Lys Leu
145   150   155   160

Cys Thr Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp Ser
                165   170   175

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

Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp Thr
        195   200   205

```
Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly Val
    210                 215                 220

His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu Gly
225                 230                 235                 240

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

Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp Leu Glu Thr Leu
            260                 265                 270

Pro Arg Leu Gln Gln His Cys Val Ala Ser His Leu Leu Asp Gly Leu
        275                 280                 285

Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser Asn Gly Leu Leu
    290                 295                 300

Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu Glu Val Gln Lys
305                 310                 315                 320

Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln Ala Val Met Gln
                325                 330                 335

Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro Gly Pro Ser Val
            340                 345                 350

Val Gly Leu Val Ser Ile Pro Gly Met Gly Lys Leu Leu Ala Glu Ala
        355                 360                 365

Pro Leu Val Leu Glu Pro Glu Lys Gln Met Leu Leu His Glu Thr His
    370                 375                 380

Gln Gly Leu Leu Gln Asp Gly Ser Pro Ile Leu Leu Ser Asp Val Ile
385                 390                 395                 400

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

Thr Phe Thr Phe Ser His Arg Ser Val Ile Pro Arg Gln Lys Val Leu
            420                 425                 430

Cys Val Phe Trp Glu His Gly Gln Asn Gly Cys Gly His Trp Ala Thr
```

```
        435                 440                 445

Thr Gly Cys Ser Thr Ile Gly Thr Arg Asp Thr Ser Thr Ile Cys Arg
    450                 455                 460

Cys Thr His Leu Ser Ser Phe Ala Val Leu Met Ala His Tyr Asp Val
465                 470                 475                 480

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

Val Ser Leu Leu Cys Leu Leu Leu Ala Ala Leu Thr Phe Leu Leu Cys
            500                 505                 510

Lys Ala Ile Gln Asn Thr Ser Thr Ser Leu His Leu Gln Leu Ser Leu
        515                 520                 525

Cys Leu Phe Leu Ala His Leu Leu Phe Leu Val Ala Ile Asp Gln Thr
    530                 535                 540

Gly His Lys Val Leu Cys Ser Ile Ile Ala Gly Thr Leu His Tyr Leu
545                 550                 555                 560

Tyr Leu Ala Thr Leu Thr Trp Met Leu Leu Glu Ala Leu Tyr Leu Phe
                565                 570                 575

Leu Thr Ala Arg Asn Leu Thr Val Val Asn Tyr Ser Ser Ile Asn Arg
            580                 585                 590

Phe Met Lys Lys Leu Met Phe Pro Val Gly Tyr Gly Val Pro Ala Val
        595                 600                 605

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

Ser Arg Cys Trp Leu Gln Pro Glu Lys Gly Phe Ile Trp Gly Phe Leu
625                 630                 635                 640

Gly Pro Val Cys Ala Ile Phe Ser Val Asn Leu Val Leu Phe Leu Val
                645                 650                 655

Thr Leu Trp Ile Leu Lys Asn Arg Leu Ser Ser Leu Asn Ser Glu Val
            660                 665                 670
```

```
Ser Thr Leu Arg Asn Thr Arg Met Leu Ala Phe Lys Ala Thr Ala Gln
        675                 680                 685

Leu Phe Ile Leu Gly Cys Thr Trp Cys Leu Gly Ile Leu Gln Val Gly
    690                 695                 700

Pro Ala Ala Arg Val Met Ala Tyr Leu Phe Thr Ile Ile Asn Ser Leu
705                 710                 715                 720

Gln Gly Val Phe Ile Phe Leu Val Tyr Cys Leu Leu Ser Gln Gln Val
                725                 730                 735

Arg Glu Gln Tyr Gly Lys Trp Ser Lys Gly Ile Arg Lys Leu Lys Thr
            740                 745                 750

Glu Ser Glu Met His Thr Leu Ser Ser Ser Ala Lys Ala Asp Thr Ser
        755                 760                 765

Lys Pro Ser Thr Val Asn
    770
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<210> 2971
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<220>
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adhesion G prt-coupled receptor E2; "

<220>
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<400> 2971

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Met Gly Gly Arg Val Phe Leu Val Phe Leu Ala Phe Cys Val Trp Leu
1               5                   10                  15
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```
Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
            20                  25                  30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
        35                  40                  45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
    50                  55                  60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65                  70                  75                  80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
                85                  90                  95

Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu
            100                 105                 110

Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg
        115                 120                 125

Leu Cys Lys Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr
    130                 135                 140

Cys Gln Cys Leu Pro Gly Phe Lys Leu Lys Pro Glu Asp Pro Lys Leu
145                 150                 155                 160

Cys Thr Asp Val Asn Glu Cys Thr Ser Gly Gln Asn Pro Cys His Ser
                165                 170                 175

Ser Thr His Cys Leu Asn Asn Val Gly Ser Tyr Gln Cys Arg Cys Arg
            180                 185                 190

Pro Gly Trp Gln Pro Ile Pro Gly Ser Pro Asn Gly Pro Asn Asn Thr
        195                 200                 205

Val Cys Glu Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp
    210                 215                 220

Ser Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr Ser Cys Arg Cys
225                 230                 235                 240

Arg Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp
```

```
                245                 250                 255

Thr Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly
            260                 265                 270

Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu
        275                 280                 285

Gly Arg Asp Tyr Lys Pro Gly Leu Ala Asn Asn Thr Ile Gln Ser Ile
    290                 295                 300

Leu Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp Leu Glu Thr
305                 310                 315                 320

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

Leu Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser Asn Gly Leu
            340                 345                 350

Leu Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu Glu Val Gln
        355                 360                 365

Lys Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln Ala Val Met
    370                 375                 380

Gln Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro Gly Met Gly
385                 390                 395                 400

Lys Leu Leu Ala Glu Ala Pro Leu Val Leu Glu Pro Glu Lys Gln Met
                405                 410                 415

Leu Leu His Glu Thr His Gln Gly Leu Leu Gln Asp Gly Ser Pro Ile
            420                 425                 430

Leu Leu Ser Asp Val Ile Ser Ala Phe Leu Ser Asn Asn Asp Thr Gln
        435                 440                 445

Asn Leu Ser Ser Pro Val Thr Phe Thr Phe Ser His Arg Ser Val Ile
    450                 455                 460

Pro Arg Gln Lys Val Leu Cys Val Phe Trp Glu His Gly Gln Asn Gly
465                 470                 475                 480
```

```
Cys Gly His Trp Ala Thr Thr Gly Cys Ser Thr Ile Gly Thr Arg Asp
                485                 490                 495

Thr Ser Thr Ile Cys Arg Cys Thr His Leu Ser Ser Phe Ala Val Leu
            500                 505                 510

Met Ala His Tyr Asp Val Gln Glu Glu Asp Pro Val Leu Thr Val Ile
        515                 520                 525

Thr Tyr Met Gly Leu Ser Val Ser Leu Leu Cys Leu Leu Leu Ala Ala
    530                 535                 540

Leu Thr Phe Leu Leu Cys Lys Ala Ile Gln Asn Thr Ser Thr Ser Leu
545                 550                 555                 560

His Leu Gln Leu Ser Leu Cys Leu Phe Leu Ala His Leu Leu Phe Leu
                565                 570                 575

Val Ala Ile Asp Gln Thr Gly His Lys Val Leu Cys Ser Ile Ile Ala
            580                 585                 590

Gly Thr Leu His Tyr Leu Tyr Leu Ala Thr Leu Thr Trp Met Leu Leu
        595                 600                 605

Glu Ala Leu Tyr Leu Phe Leu Thr Ala Arg Asn Leu Thr Val Val Asn
    610                 615                 620

Tyr Ser Ser Ile Asn Arg Phe Met Lys Lys Leu Met Phe Pro Val Gly
625                 630                 635                 640

Tyr Gly Val Pro Ala Val Thr Val Ala Ile Ser Ala Ala Ser Arg Pro
                645                 650                 655

His Leu Tyr Gly Thr Pro Ser Arg Cys Trp Leu Gln Pro Glu Lys Gly
            660                 665                 670

Phe Ile Trp Gly Phe Leu Gly Pro Val Cys Ala Ile Phe Ser Val Asn
        675                 680                 685

Leu Val Leu Phe Leu Val Thr Leu Trp Ile Leu Lys Asn Arg Leu Ser
    690                 695                 700
```

```
Ser Leu Asn Ser Glu Val Ser Thr Leu Arg Asn Thr Arg Met Leu Ala
705                 710                 715                 720

Phe Lys Ala Thr Ala Gln Leu Phe Ile Leu Gly Cys Thr Trp Cys Leu
                725                 730                 735

Gly Ile Leu Gln Val Gly Pro Ala Ala Arg Val Met Ala Tyr Leu Phe
            740                 745                 750

Thr Ile Ile Asn Ser Leu Gln Gly Val Phe Ile Phe Leu Val Tyr Cys
        755                 760                 765

Leu Leu Ser Gln Gln Val Arg Glu Gln Tyr Gly Lys Trp Ser Lys Gly
    770                 775                 780

Ile Arg Lys Leu Lys Thr Glu Ser Glu Met His Thr Leu Ser Ser Ser
785                 790                 795                 800

Ala Lys Ala Asp Thr Ser Lys Pro Ser Thr Pro Gly Thr Val Val Gln
                805                 810                 815

Ala Cys Asn Ala Ser Thr Leu Gly Gly Gln Ser Arg Lys Ile Thr
            820                 825                 830


<210> 2972
<211> 812
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  Q9UHX3; "

<220>
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<223> /note="ENSP ID: ENSP00000472280"

<400> 2972

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

Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
            20                  25                  30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
        35                  40                  45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
    50                  55                  60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65                  70                  75                  80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
                85                  90                  95

Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu
            100                 105                 110

Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg
        115                 120                 125

Leu Cys Lys Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr
    130                 135                 140

Cys Gln Cys Leu Pro Gly Phe Lys Leu Lys Pro Glu Asp Pro Lys Leu
145                 150                 155                 160

Cys Thr Asp Val Asn Glu Cys Thr Ser Gly Gln Asn Pro Cys His Ser
                165                 170                 175

Ser Thr His Cys Leu Asn Asn Val Gly Ser Tyr Gln Cys Arg Cys Arg
            180                 185                 190

Pro Gly Trp Gln Pro Ile Pro Gly Ser Pro Asn Gly Pro Asn Asn Thr
        195                 200                 205

Val Cys Glu Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp
    210                 215                 220
```

```
Ser Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr Ser Cys Arg Cys
225                 230                 235                 240

Arg Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp
                245                 250                 255

Thr Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly
            260                 265                 270

Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu
        275                 280                 285

Gly Arg Asp Tyr Lys Pro Gly Leu Ala Asn Asn Thr Ile Gln Ser Ile
    290                 295                 300

Leu Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp Leu Glu Thr
305                 310                 315                 320

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

Leu Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser Asn Gly Leu
            340                 345                 350

Leu Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu Glu Val Gln
        355                 360                 365

Lys Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln Ala Val Met
    370                 375                 380

Gln Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro Gly Met Gly
385                 390                 395                 400

Lys Leu Leu Ala Glu Ala Pro Leu Val Leu Glu Pro Glu Lys Gln Met
                405                 410                 415

Leu Leu His Glu Thr His Gln Gly Leu Leu Gln Asp Gly Ser Pro Ile
            420                 425                 430

Leu Leu Ser Asp Val Ile Ser Ala Phe Leu Ser Asn Asn Asp Thr Gln
        435                 440                 445
```

```
Asn Leu Ser Ser Pro Val Thr Phe Thr Phe Ser His Arg Ser Val Ile
    450                 455                 460

Pro Arg Gln Lys Val Leu Cys Val Phe Trp Glu His Gly Gln Asn Gly
465                 470                 475                 480

Cys Gly His Trp Ala Thr Thr Gly Cys Ser Thr Ile Gly Thr Arg Asp
                485                 490                 495

Thr Ser Thr Ile Cys Arg Cys Thr His Leu Ser Ser Phe Ala Val Leu
            500                 505                 510

Met Ala His Tyr Asp Val Gln Glu Glu Asp Pro Val Leu Thr Val Ile
        515                 520                 525

Thr Tyr Met Gly Leu Ser Val Ser Leu Leu Cys Leu Leu Leu Ala Ala
    530                 535                 540

Leu Thr Phe Leu Leu Cys Lys Ala Ile Gln Asn Thr Ser Thr Ser Leu
545                 550                 555                 560

His Leu Gln Leu Ser Leu Cys Leu Phe Leu Ala His Leu Leu Phe Leu
                565                 570                 575

Val Ala Ile Asp Gln Thr Gly His Lys Val Leu Cys Ser Ile Ile Ala
            580                 585                 590

Gly Thr Leu His Tyr Leu Tyr Leu Ala Thr Leu Thr Trp Met Leu Leu
        595                 600                 605

Glu Ala Leu Tyr Leu Phe Leu Thr Ala Arg Asn Leu Thr Val Val Asn
    610                 615                 620

Tyr Ser Ser Ile Asn Arg Phe Met Lys Lys Leu Met Phe Pro Val Gly
625                 630                 635                 640

Tyr Gly Val Pro Ala Val Thr Val Ala Ile Ser Ala Ala Ser Arg Pro
                645                 650                 655

His Leu Tyr Gly Thr Pro Ser Arg Cys Trp Leu Gln Pro Glu Lys Gly
            660                 665                 670
```

```
Phe Ile Trp Gly Phe Leu Gly Pro Val Cys Ala Ile Phe Ser Val Asn
        675                 680                 685

Leu Val Leu Phe Leu Val Thr Leu Trp Ile Leu Lys Asn Arg Leu Ser
    690                 695                 700

Ser Leu Asn Ser Glu Val Ser Thr Leu Arg Asn Thr Arg Met Leu Ala
705                 710                 715                 720

Phe Lys Ala Thr Ala Gln Leu Phe Ile Leu Gly Cys Thr Trp Cys Leu
                725                 730                 735

Gly Ile Leu Gln Val Gly Pro Ala Ala Arg Val Met Ala Tyr Leu Phe
            740                 745                 750

Thr Ile Ile Asn Ser Leu Gln Gly Val Phe Ile Phe Leu Val Tyr Cys
        755                 760                 765

Leu Leu Ser Gln Gln Val Arg Glu Gln Tyr Gly Lys Trp Ser Lys Gly
    770                 775                 780

Ile Arg Lys Leu Lys Thr Glu Ser Glu Met His Thr Leu Ser Ser Ser
785                 790                 795                 800

Ala Lys Ala Asp Thr Ser Lys Pro Ser Thr Val Asn
                805                 810


<210> 2973
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<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<223> /note="Uniprot ID:  Q9UHX3; "
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<400> 2973
Met Gly Gly Arg Val Phe Leu Val Phe Leu Ala Phe Cys Val Trp Leu
1   5   10   15

Thr Leu Pro Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp
            20   25   30

Cys Pro Gln Asp Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn
        35   40   45

Pro Gly Phe Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Met Glu Thr
    50   55   60

Cys Asp Asp Ile Asn Glu Cys Ala Thr Leu Ser Lys Val Ser Cys Gly
65   70   75   80

Lys Phe Ser Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys
                85   90   95

Ser Pro Gly Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu
            100   105   110

Ser Glu Asn Thr Cys Gln Asp Val Asp Glu Cys Ser Ser Gly Gln His
        115   120   125

Gln Cys Asp Ser Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr Ser
    130   135   140

Cys Arg Cys Arg Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn
145   150   155   160

Gln Lys Asp Thr Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro
                165   170   175

Pro Pro Gly Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val
            180   185   190

Gln Asp Leu Gly Arg Asp Tyr Lys Pro Gly Leu Ala Asn Asn Thr Ile
        195   200   205

```
Gln Ser Ile Leu Gln Ala Leu Asp Glu Leu Leu Glu Ala Pro Gly Asp
    210                 215                 220

Leu Glu Thr Leu Pro Arg Leu Gln Gln His Cys Val Ala Ser His Leu
225                 230                 235                 240

Leu Asp Gly Leu Glu Asp Val Leu Arg Gly Leu Ser Lys Asn Leu Ser
                245                 250                 255

Asn Gly Leu Leu Asn Phe Ser Tyr Pro Ala Gly Thr Glu Leu Ser Leu
            260                 265                 270

Glu Val Gln Lys Gln Val Asp Arg Ser Val Thr Leu Arg Gln Asn Gln
        275                 280                 285

Ala Val Met Gln Leu Asp Trp Asn Gln Ala Gln Lys Ser Gly Asp Pro
    290                 295                 300

Gly Pro Ser Val Val Gly Leu Val Ser Ile Pro Gly Met Gly Lys Leu
305                 310                 315                 320

Leu Ala Glu Ala Pro Leu Val Leu Glu Pro Glu Lys Gln Met Leu Leu
                325                 330                 335

His Glu Thr His Gln Gly Leu Leu Gln Asp Gly Ser Pro Ile Leu Leu
            340                 345                 350

Ser Asp Val Ile Ser Ala Phe Leu Ser Asn Asn Asp Thr Gln Asn Leu
        355                 360                 365

Ser Ser Pro Val Thr Phe Thr Phe Ser His Arg Ser Val Ile Pro Arg
    370                 375                 380

Gln Lys Val Leu Cys Val Phe Trp Glu His Gly Gln Asn Gly Cys Gly
385                 390                 395                 400

His Trp Ala Thr Thr Gly Cys Ser Thr Ile Gly Thr Arg Asp Thr Ser
                405                 410                 415

Thr Ile Cys Arg Cys Thr His Leu Ser Ser Phe Ala Val Leu Met Ala
            420                 425                 430
```

```
His Tyr Asp Val Gln Glu Glu Asp Pro Val Leu Thr Val Ile Thr Tyr
        435                 440                 445

Met Gly Leu Ser Val Ser Leu Leu Cys Leu Leu Leu Ala Ala Leu Thr
    450                 455                 460

Phe Leu Leu Cys Lys Ala Ile Gln Asn Thr Ser Thr Ser Leu His Leu
465                 470                 475                 480

Gln Leu Ser Leu Cys Leu Phe Leu Ala His Leu Leu Phe Leu Val Ala
                485                 490                 495

Ile Asp Gln Thr Gly His Lys Val Leu Cys Ser Ile Ile Ala Gly Thr
            500                 505                 510

Leu His Tyr Leu Tyr Leu Ala Thr Leu Thr Trp Met Leu Leu Glu Ala
        515                 520                 525

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

Ser Ile Asn Arg Phe Met Lys Lys Leu Met Phe Pro Val Gly Tyr Gly
545                 550                 555                 560

Val Pro Ala Val Thr Val Ala Ile Ser Ala Ala Ser Arg Pro His Leu
                565                 570                 575

Tyr Gly Thr Pro Ser Arg Cys Trp Leu Gln Pro Glu Lys Gly Phe Ile
            580                 585                 590

Trp Gly Phe Leu Gly Pro Val Cys Ala Ile Phe Ser Val Asn Leu Val
        595                 600                 605

Leu Phe Leu Val Thr Leu Trp Ile Leu Lys Asn Arg Leu Ser Ser Leu
    610                 615                 620

Asn Ser Glu Val Ser Thr Leu Arg Asn Thr Arg Met Leu Ala Phe Lys
625                 630                 635                 640

Ala Thr Ala Gln Leu Phe Ile Leu Gly Cys Thr Trp Cys Leu Gly Ile
                645                 650                 655

Leu Gln Val Gly Pro Ala Ala Arg Val Met Ala Tyr Leu Phe Thr Ile
```

660 665 670

Ile Asn Ser Leu Gln Gly Val Phe Ile Phe Leu Val Tyr Cys Leu Leu
675 680 685

Ser Gln Gln Val Arg Glu Gln Tyr Gly Lys Trp Ser Lys Gly Ile Arg
690 695 700

Lys Leu Lys Thr Glu Ser Glu Met His Thr Leu Ser Ser Ser Ala Lys
705 710 715 720

Ala Asp Thr Ser Lys Pro Ser Thr Val Asn
725 730

<210> 2974
<211> 652
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: ADGRE3; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor E3; "

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<223> /note="Uniprot ID: Q9BY15; "

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<400> 2974
Met Gln Gly Pro Leu Leu Leu Pro Gly Leu Cys Phe Leu Leu Ser Leu
1 5 10 15

Phe Gly Ala Val Thr Gln Lys Thr Lys Thr Ser Cys Ala Lys Cys Pro
20 25 30

Pro Asn Ala Ser Cys Val Asn Asn Thr His Cys Thr Cys Asn His Gly
35 40 45

```
Tyr Thr Ser Gly Ser Gly Gln Lys Leu Phe Thr Phe Pro Leu Glu Thr
    50                  55                  60

Cys Asn Asp Ile Asn Glu Cys Thr Pro Pro Tyr Ser Val Tyr Cys Gly
65                  70                  75                  80

Phe Asn Ala Val Cys Tyr Asn Val Glu Gly Ser Phe Tyr Cys Gln Cys
                85                  90                  95

Val Pro Gly Tyr Arg Leu His Ser Gly Asn Glu Gln Phe Ser Asn Ser
            100                 105                 110

Asn Glu Asn Thr Cys Gln Asp Thr Thr Ser Ser Lys Thr Thr Glu Gly
        115                 120                 125

Arg Lys Glu Leu Gln Lys Ile Val Asp Lys Phe Glu Ser Leu Leu Thr
    130                 135                 140

Asn Gln Thr Leu Trp Arg Thr Glu Gly Arg Gln Glu Ile Ser Ser Thr
145                 150                 155                 160

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

Leu Lys Asp Pro Glu Gln Lys Val Leu Lys Ile Gln Asn Asp Ser Val
            180                 185                 190

Ala Ile Glu Thr Gln Ala Ile Thr Asp Asn Cys Ser Glu Glu Arg Lys
        195                 200                 205

Thr Phe Asn Leu Asn Val Gln Met Asn Ser Met Asp Ile Arg Cys Ser
    210                 215                 220

Asp Ile Ile Gln Gly Asp Thr Gln Gly Pro Ser Ala Ile Ala Phe Ile
225                 230                 235                 240

Ser Tyr Ser Ser Leu Gly Asn Ile Ile Asn Ala Thr Phe Phe Glu Glu
                245                 250                 255

Met Asp Lys Lys Asp Gln Val Tyr Leu Asn Ser Gln Val Val Ser Ala
            260                 265                 270
```

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

Thr Phe Gln His Val Lys Met Thr Pro Ser Thr Lys Lys Val Phe Cys
    290                 295                 300

Val Tyr Trp Lys Ser Thr Gly Gln Gly Ser Gln Trp Ser Arg Asp Gly
305                 310                 315                 320

Cys Phe Leu Ile His Val Asn Lys Ser His Thr Met Cys Asn Cys Ser
                325                 330                 335

His Leu Ser Ser Phe Ala Val Leu Met Ala Leu Thr Ser Gln Glu Glu
            340                 345                 350

Asp Pro Val Leu Thr Val Ile Thr Tyr Val Gly Leu Ser Val Ser Leu
        355                 360                 365

Leu Cys Leu Leu Leu Ala Ala Leu Thr Phe Leu Leu Cys Lys Ala Ile
    370                 375                 380

Arg Asn Thr Ser Thr Ser Leu His Leu Gln Leu Ser Leu Cys Leu Phe
385                 390                 395                 400

Leu Ala His Leu Leu Phe Leu Val Gly Ile Asp Arg Thr Glu Pro Lys
                405                 410                 415

Val Leu Cys Ser Ile Ile Ala Gly Ala Leu His Tyr Leu Tyr Leu Ala
            420                 425                 430

Ala Phe Thr Trp Met Leu Leu Glu Gly Val His Leu Phe Leu Thr Ala
        435                 440                 445

Arg Asn Leu Thr Val Val Asn Tyr Ser Ser Ile Asn Arg Leu Met Lys
    450                 455                 460

Trp Ile Met Phe Pro Val Gly Tyr Gly Val Pro Ala Val Thr Val Ala
465                 470                 475                 480

Ile Ser Ala Ala Ser Trp Pro His Leu Tyr Gly Thr Ala Asp Arg Cys
                485                 490                 495

Trp Leu His Leu Asp Gln Gly Phe Met Trp Ser Phe Leu Gly Pro Val
```

```
            500                 505                 510

Cys Ala Ile Phe Ser Ala Asn Leu Val Leu Phe Ile Leu Val Phe Trp
        515                 520                 525

Ile Leu Lys Arg Lys Leu Ser Ser Leu Asn Ser Glu Val Ser Thr Ile
    530                 535                 540

Gln Asn Thr Arg Met Leu Ala Phe Lys Ala Thr Ala Gln Leu Phe Ile
545                 550                 555                 560

Leu Gly Cys Thr Trp Cys Leu Gly Leu Leu Gln Val Gly Pro Ala Ala
                565                 570                 575

Gln Val Met Ala Tyr Leu Phe Thr Ile Ile Asn Ser Leu Gln Gly Phe
            580                 585                 590

Phe Ile Phe Leu Val Tyr Cys Leu Leu Ser Gln Gln Val Gln Lys Gln
        595                 600                 605

Tyr Gln Lys Trp Phe Arg Glu Ile Val Lys Ser Lys Ser Glu Ser Glu
    610                 615                 620

Thr Tyr Thr Leu Ser Ser Lys Met Gly Pro Asp Ser Lys Pro Ser Glu
625                 630                 635                 640

Gly Asp Val Phe Pro Gly Gln Val Lys Arg Lys Tyr
                645                 650


<210> 2975
<211> 600
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADGRE3; "

<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor E3; "
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<220>
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<223> /note="Uniprot ID: Q9BY15; "

<220>
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<400> 2975
Met Gln Gly Pro Leu Leu Leu Pro Gly Leu Cys Phe Leu Leu Ser Leu
1   5   10   15

Phe Gly Ala Val Thr Gln Lys Thr Lys Thr Ser Cys Ala Lys Cys Pro
            20   25   30

Pro Asn Ala Ser Cys Val Asn Asn Thr His Cys Thr Cys Asn His Gly
        35   40   45

Tyr Thr Ser Gly Ser Gly Gln Lys Leu Phe Thr Phe Pro Leu Glu Thr
    50   55   60

Cys Asn Asp Thr Thr Ser Ser Lys Thr Thr Glu Gly Arg Lys Glu Leu
65   70   75   80

Gln Lys Ile Val Asp Lys Phe Glu Ser Leu Leu Thr Asn Gln Thr Leu
                85   90   95

Trp Arg Thr Glu Gly Arg Gln Glu Ile Ser Ser Thr Ala Thr Thr Ile
            100   105   110

Leu Arg Asp Val Glu Ser Lys Val Leu Glu Thr Ala Leu Lys Asp Pro
        115   120   125

Glu Gln Lys Val Leu Lys Ile Gln Asn Asp Ser Val Ala Ile Glu Thr
    130   135   140

Gln Ala Ile Thr Asp Asn Cys Ser Glu Glu Arg Lys Thr Phe Asn Leu
145   150   155   160

Asn Val Gln Met Asn Ser Met Asp Ile Arg Cys Ser Asp Ile Ile Gln
                165   170   175

Gly Asp Thr Gln Gly Pro Ser Ala Ile Ala Phe Ile Ser Tyr Ser Ser
            180   185   190

```
Leu Gly Asn Ile Ile Asn Ala Thr Phe Phe Glu Glu Met Asp Lys Lys
        195                 200                 205

Asp Gln Val Tyr Leu Asn Ser Gln Val Val Ser Ala Ala Ile Gly Pro
    210                 215                 220

Lys Arg Asn Val Ser Leu Ser Lys Ser Val Thr Leu Thr Phe Gln His
225                 230                 235                 240

Val Lys Met Thr Pro Ser Thr Lys Lys Val Phe Cys Val Tyr Trp Lys
                245                 250                 255

Ser Thr Gly Gln Gly Ser Gln Trp Ser Arg Asp Gly Cys Phe Leu Ile
            260                 265                 270

His Val Asn Lys Ser His Thr Met Cys Asn Cys Ser His Leu Ser Ser
        275                 280                 285

Phe Ala Val Leu Met Ala Leu Thr Ser Gln Glu Glu Asp Pro Val Leu
    290                 295                 300

Thr Val Ile Thr Tyr Val Gly Leu Ser Val Ser Leu Leu Cys Leu Leu
305                 310                 315                 320

Leu Ala Ala Leu Thr Phe Leu Leu Cys Lys Ala Ile Arg Asn Thr Ser
                325                 330                 335

Thr Ser Leu His Leu Gln Leu Ser Leu Cys Leu Phe Leu Ala His Leu
            340                 345                 350

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

Ile Ile Ala Gly Ala Leu His Tyr Leu Tyr Leu Ala Ala Phe Thr Trp
    370                 375                 380

Met Leu Leu Glu Gly Val His Leu Phe Leu Thr Ala Arg Asn Leu Thr
385                 390                 395                 400

Val Val Asn Tyr Ser Ser Ile Asn Arg Leu Met Lys Trp Ile Met Phe
                405                 410                 415

Pro Val Gly Tyr Gly Val Pro Ala Val Thr Val Ala Ile Ser Ala Ala
```

```
            420                 425                 430

Ser Trp Pro His Leu Tyr Gly Thr Ala Asp Arg Cys Trp Leu His Leu
        435                 440                 445

Asp Gln Gly Phe Met Trp Ser Phe Leu Gly Pro Val Cys Ala Ile Phe
    450                 455                 460

Ser Ala Asn Leu Val Leu Phe Ile Leu Val Phe Trp Ile Leu Lys Arg
465                 470                 475                 480

Lys Leu Ser Ser Leu Asn Ser Glu Val Ser Thr Ile Gln Asn Thr Arg
                485                 490                 495

Met Leu Ala Phe Lys Ala Thr Ala Gln Leu Phe Ile Leu Gly Cys Thr
            500                 505                 510

Trp Cys Leu Gly Leu Leu Gln Val Gly Pro Ala Ala Gln Val Met Ala
        515                 520                 525

Tyr Leu Phe Thr Ile Ile Asn Ser Leu Gln Gly Phe Phe Ile Phe Leu
    530                 535                 540

Val Tyr Cys Leu Leu Ser Gln Gln Val Gln Lys Gln Tyr Gln Lys Trp
545                 550                 555                 560

Phe Arg Glu Ile Val Lys Ser Lys Ser Glu Ser Glu Thr Tyr Thr Leu
                565                 570                 575

Ser Ser Lys Met Gly Pro Asp Ser Lys Pro Ser Glu Gly Asp Val Phe
            580                 585                 590

Pro Gly Gln Val Lys Arg Lys Tyr
        595                 600


<210> 2976
<211> 526
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 681; "

<220>
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<221> source
<223> /note="Gene Symbol: ADGRE3; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor E3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396208"

<400> 2976

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Met Gln Gly Pro Leu Leu Leu Pro Gly Leu Cys Phe Leu Leu Ser Leu
1               5                  10                  15

Phe Gly Ala Val Thr Gln Lys Thr Lys Thr Ser Cys Ala Lys Cys Pro
            20                  25                  30

Pro Asn Ala Ser Cys Val Asn Asn Thr His Cys Thr Cys Asn His Gly
        35                  40                  45

Tyr Thr Ser Gly Ser Gly Gln Lys Leu Phe Thr Phe Pro Leu Glu Thr
    50                  55                  60

Cys Asn Ala Ile Glu Thr Gln Ala Ile Thr Asp Asn Cys Ser Glu Glu
65                  70                  75                  80

Arg Lys Thr Phe Asn Leu Asn Val Gln Met Asn Ser Met Asp Ile Arg
                85                  90                  95

Cys Ser Asp Ile Ile Gln Gly Asp Thr Gln Gly Pro Ser Ala Ile Ala
            100                 105                 110

Phe Ile Ser Tyr Ser Ser Leu Gly Asn Ile Ile Asn Ala Thr Phe Phe
        115                 120                 125

Glu Glu Met Asp Lys Lys Asp Gln Val Tyr Leu Asn Ser Gln Val Val
    130                 135                 140

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

Thr Leu Thr Phe Gln His Val Lys Met Thr Pro Ser Thr Lys Lys Val
                165                 170                 175
```

```
Phe Cys Val Tyr Trp Lys Ser Thr Gly Gln Gly Ser Gln Trp Ser Arg
            180                 185                 190

Asp Gly Cys Phe Leu Ile His Val Asn Lys Ser His Thr Met Cys Asn
        195                 200                 205

Cys Ser His Leu Ser Ser Phe Ala Val Leu Met Ala Leu Thr Ser Gln
    210                 215                 220

Glu Glu Asp Pro Val Leu Thr Val Ile Thr Tyr Val Gly Leu Ser Val
225                 230                 235                 240

Ser Leu Leu Cys Leu Leu Leu Ala Ala Leu Thr Phe Leu Leu Cys Lys
                245                 250                 255

Ala Ile Arg Asn Thr Ser Thr Ser Leu His Leu Gln Leu Ser Leu Cys
            260                 265                 270

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

Pro Lys Val Leu Cys Ser Ile Ile Ala Gly Ala Leu His Tyr Leu Tyr
    290                 295                 300

Leu Ala Ala Phe Thr Trp Met Leu Leu Glu Gly Val His Leu Phe Leu
305                 310                 315                 320

Thr Ala Arg Asn Leu Thr Val Val Asn Tyr Ser Ser Ile Asn Arg Leu
                325                 330                 335

Met Lys Trp Ile Met Phe Pro Val Gly Tyr Gly Val Pro Ala Val Thr
            340                 345                 350

Val Ala Ile Ser Ala Ala Ser Trp Pro His Leu Tyr Gly Thr Ala Asp
        355                 360                 365

Arg Cys Trp Leu His Leu Asp Gln Gly Phe Met Trp Ser Phe Leu Gly
    370                 375                 380

Pro Val Cys Ala Ile Phe Ser Ala Asn Leu Val Leu Phe Ile Leu Val
385                 390                 395                 400

Phe Trp Ile Leu Lys Arg Lys Leu Ser Ser Leu Asn Ser Glu Val Ser
```

```
                405                 410                 415

Thr Ile Gln Asn Thr Arg Met Leu Ala Phe Lys Ala Thr Ala Gln Leu
            420                 425                 430

Phe Ile Leu Gly Cys Thr Trp Cys Leu Gly Leu Leu Gln Val Gly Pro
        435                 440                 445

Ala Ala Gln Val Met Ala Tyr Leu Phe Thr Ile Ile Asn Ser Leu Gln
    450                 455                 460

Gly Phe Phe Ile Phe Leu Val Tyr Cys Leu Leu Ser Gln Gln Val Gln
465                 470                 475                 480

Lys Gln Tyr Gln Lys Trp Phe Arg Glu Ile Val Lys Ser Lys Ser Glu
                485                 490                 495

Ser Glu Thr Tyr Thr Leu Ser Ser Lys Met Gly Pro Asp Ser Lys Pro
            500                 505                 510

Ser Glu Gly Asp Val Phe Pro Gly Gln Val Lys Arg Lys Tyr
        515                 520                 525


<210> 2977
<211> 57
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ADGRE3; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor E3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000469965"

<400> 2977
Met Gln Gly Pro Leu Leu Leu Pro Gly Leu Cys Phe Leu Leu Ser Leu
1               5                   10                  15
```

```
Phe Gly Ala Val Thr Gln Lys Thr Lys Ser Glu Cys Ser Glu Pro Glu
            20                  25                  30

Gln Arg Thr Cys Gly Pro Arg Ala Gly Pro Gly Ala Thr His Gly Leu
        35                  40                  45

Gln Trp Ala Gly Glu Lys Cys Leu Phe
    50                  55


<210> 2978
<211> 437
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 681; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRE3; "

<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor E3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000471853"

<400> 2978
Met Asn Ser Met Asp Ile Arg Cys Ser Asp Ile Ile Gln Gly Asp Thr
1               5                   10                  15

Gln Gly Pro Ser Ala Ile Ala Phe Ile Ser Tyr Ser Ser Leu Gly Asn
            20                  25                  30

Ile Ile Asn Ala Thr Phe Phe Glu Glu Met Asp Lys Lys Asp Gln Val
        35                  40                  45

Tyr Leu Asn Ser Gln Val Val Ser Ala Ala Ile Gly Pro Lys Arg Asn
    50                  55                  60

Val Ser Leu Ser Lys Ser Val Thr Leu Thr Phe Gln His Val Lys Met
65                  70                  75                  80

Thr Pro Ser Thr Lys Lys Val Phe Cys Val Tyr Trp Lys Ser Thr Gly
```

```
                85                  90                  95

Gln Gly Ser Gln Trp Ser Arg Asp Gly Cys Phe Leu Ile His Val Asn
            100                 105                 110

Lys Ser His Thr Met Cys Asn Cys Ser His Leu Ser Ser Phe Ala Val
        115                 120                 125

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

Thr Tyr Val Gly Leu Ser Val Ser Leu Leu Cys Leu Leu Leu Ala Ala
145                 150                 155                 160

Leu Thr Phe Leu Leu Cys Lys Ala Ile Arg Asn Thr Ser Thr Ser Leu
                165                 170                 175

His Leu Gln Leu Ser Leu Cys Leu Phe Leu Ala His Leu Leu Phe Leu
            180                 185                 190

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

Gly Ala Leu His Tyr Leu Tyr Leu Ala Ala Phe Thr Trp Met Leu Leu
    210                 215                 220

Glu Gly Val His Leu Phe Leu Thr Ala Arg Asn Leu Thr Val Val Asn
225                 230                 235                 240

Tyr Ser Ser Ile Asn Arg Leu Met Lys Trp Ile Met Phe Pro Val Gly
                245                 250                 255

Tyr Gly Val Pro Ala Val Thr Val Ala Ile Ser Ala Ala Ser Trp Pro
            260                 265                 270

His Leu Tyr Gly Thr Ala Asp Arg Cys Trp Leu His Leu Asp Gln Gly
        275                 280                 285

Phe Met Trp Ser Phe Leu Gly Pro Val Cys Ala Ile Phe Ser Ala Asn
    290                 295                 300

Leu Val Leu Phe Ile Leu Val Phe Trp Ile Leu Lys Arg Lys Leu Ser
305                 310                 315                 320
```

```
Ser Leu Asn Ser Glu Val Ser Thr Ile Gln Asn Thr Arg Met Leu Ala
                325                 330                 335

Phe Lys Ala Thr Ala Gln Leu Phe Ile Leu Gly Cys Thr Trp Cys Leu
            340                 345                 350

Gly Leu Leu Gln Val Gly Pro Ala Ala Gln Val Met Ala Tyr Leu Phe
        355                 360                 365

Thr Ile Ile Asn Ser Leu Gln Gly Phe Phe Ile Phe Leu Val Tyr Cys
    370                 375                 380

Leu Leu Ser Gln Gln Val Gln Lys Gln Tyr Gln Lys Trp Phe Arg Glu
385                 390                 395                 400

Ile Val Lys Ser Lys Ser Glu Ser Glu Thr Tyr Thr Leu Ser Ser Lys
                405                 410                 415

Met Gly Pro Asp Ser Lys Pro Ser Glu Gly Asp Val Phe Pro Gly Gln
            420                 425                 430

Val Lys Arg Lys Tyr
        435


<210> 2979
<211> 835
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 682; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRE5; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor E5; "

<220>
<221> source
<223> /note="Uniprot ID:  P48960; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000242786"

<400> 2979
Met Gly Gly Arg Val Phe Leu Ala Phe Cys Val Trp Leu Thr Leu Pro
1 5 10 15

Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp Cys Pro Gln
20 25 30

Asn Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn Pro Gly Phe
35 40 45

Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Thr Glu Thr Cys Asp Asp
50 55 60

Ile Asn Glu Cys Ala Thr Pro Ser Lys Val Ser Cys Gly Lys Phe Ser
65 70 75 80

Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys Ser Pro Gly
85 90 95

Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu Ser Glu Asn
100 105 110

Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg Leu Cys Lys
115 120 125

Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr Cys Gln Cys
130 135 140

Leu Pro Gly Phe Lys Phe Ile Pro Glu Asp Pro Lys Val Cys Thr Asp
145 150 155 160

Val Asn Glu Cys Thr Ser Gly Gln Asn Pro Cys His Ser Ser Thr His
165 170 175

Cys Leu Asn Asn Val Gly Ser Tyr Gln Cys Arg Cys Arg Pro Gly Trp
180 185 190

Gln Pro Ile Pro Gly Ser Pro Asn Gly Pro Asn Asn Thr Val Cys Glu
195 200 205

Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp Ser Ser Thr

```
    210                 215                 220

Val Cys Phe Asn Thr Val Gly Ser Tyr Ser Cys Arg Cys Arg Pro Gly
225                 230                 235                 240

Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp Thr Val Cys
                245                 250                 255

Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly Val His Ser
            260                 265                 270

Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu Gly Arg Asp
        275                 280                 285

Ser Lys Thr Ser Ser Ala Glu Val Thr Ile Gln Asn Val Ile Lys Leu
    290                 295                 300

Val Asp Glu Leu Met Glu Ala Pro Gly Asp Val Glu Ala Leu Ala Pro
305                 310                 315                 320

Pro Val Arg His Leu Ile Ala Thr Gln Leu Leu Ser Asn Leu Glu Asp
                325                 330                 335

Ile Met Arg Ile Leu Ala Lys Ser Leu Pro Lys Gly Pro Phe Thr Tyr
            340                 345                 350

Ile Ser Pro Ser Asn Thr Glu Leu Thr Leu Met Ile Gln Glu Arg Gly
        355                 360                 365

Asp Lys Asn Val Thr Met Gly Gln Ser Ser Ala Arg Met Lys Leu Asn
    370                 375                 380

Trp Ala Val Ala Ala Gly Ala Glu Asp Pro Gly Pro Ala Val Ala Gly
385                 390                 395                 400

Ile Leu Ser Ile Gln Asn Met Thr Thr Leu Leu Ala Asn Ala Ser Leu
                405                 410                 415

Asn Leu His Ser Lys Lys Gln Ala Glu Leu Glu Glu Ile Tyr Glu Ser
            420                 425                 430

Ser Ile Arg Gly Val Gln Leu Arg Arg Leu Ser Ala Val Asn Ser Ile
        435                 440                 445
```

```
Phe Leu Ser His Asn Asn Thr Lys Glu Leu Asn Ser Pro Ile Leu Phe
    450                 455                 460

Ala Phe Ser His Leu Glu Ser Ser Asp Gly Glu Ala Gly Arg Asp Pro
465                 470                 475                 480

Pro Ala Lys Asp Val Met Pro Gly Pro Arg Gln Glu Leu Leu Cys Ala
                485                 490                 495

Phe Trp Lys Ser Asp Ser Asp Arg Gly Gly His Trp Ala Thr Glu Gly
            500                 505                 510

Cys Gln Val Leu Gly Ser Lys Asn Gly Ser Thr Thr Cys Gln Cys Ser
        515                 520                 525

His Leu Ser Ser Phe Ala Ile Leu Met Ala His Tyr Asp Val Glu Asp
    530                 535                 540

Trp Lys Leu Thr Leu Ile Thr Arg Val Gly Leu Ala Leu Ser Leu Phe
545                 550                 555                 560

Cys Leu Leu Leu Cys Ile Leu Thr Phe Leu Leu Val Arg Pro Ile Gln
                565                 570                 575

Gly Ser Arg Thr Thr Ile His Leu His Leu Cys Ile Cys Leu Phe Val
            580                 585                 590

Gly Ser Thr Ile Phe Leu Ala Gly Ile Glu Asn Glu Gly Gly Gln Val
        595                 600                 605

Gly Leu Arg Cys Arg Leu Val Ala Gly Leu Leu His Tyr Cys Phe Leu
    610                 615                 620

Ala Ala Phe Cys Trp Met Ser Leu Glu Gly Leu Glu Leu Tyr Phe Leu
625                 630                 635                 640

Val Val Arg Val Phe Gln Gly Gln Gly Leu Ser Thr Arg Trp Leu Cys
                645                 650                 655

Leu Ile Gly Tyr Gly Val Pro Leu Leu Ile Val Gly Val Ser Ala Ala
            660                 665                 670
```

```
Ile Tyr Ser Lys Gly Tyr Gly Arg Pro Arg Tyr Cys Trp Leu Asp Phe
        675                 680                 685

Glu Gln Gly Phe Leu Trp Ser Phe Leu Gly Pro Val Thr Phe Ile Ile
    690                 695                 700

Leu Cys Asn Ala Val Ile Phe Val Thr Thr Val Trp Lys Leu Thr Gln
705                 710                 715                 720

Lys Phe Ser Glu Ile Asn Pro Asp Met Lys Lys Leu Lys Lys Ala Arg
                725                 730                 735

Ala Leu Thr Ile Thr Ala Ile Ala Gln Leu Phe Leu Leu Gly Cys Thr
            740                 745                 750

Trp Val Phe Gly Leu Phe Ile Phe Asp Asp Arg Ser Leu Val Leu Thr
        755                 760                 765

Tyr Val Phe Thr Ile Leu Asn Cys Leu Gln Gly Ala Phe Leu Tyr Leu
    770                 775                 780

Leu His Cys Leu Leu Asn Lys Lys Val Arg Glu Glu Tyr Arg Lys Trp
785                 790                 795                 800

Ala Cys Leu Val Ala Gly Gly Ser Lys Tyr Ser Glu Phe Thr Ser Thr
                805                 810                 815

Thr Ser Gly Thr Gly His Asn Gln Thr Arg Ala Leu Arg Ala Ser Glu
            820                 825                 830

Ser Gly Ile
        835
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<210> 2980
<211> 786
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 682; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor E5; "

<220>
<221> source
<223> /note="Uniprot ID: P48960; "

<220>
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<223> /note="ENSP ID: ENSP00000349918"

<400> 2980
Met Gly Gly Arg Val Phe Leu Ala Phe Cys Val Trp Leu Thr Leu Pro
1   5   10   15

Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp Cys Pro Gln
            20   25   30

Asn Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn Pro Gly Phe
        35   40   45

Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Thr Glu Thr Cys Asp Asp
    50   55   60

Ile Asn Glu Cys Ala Thr Pro Ser Lys Val Ser Cys Gly Lys Phe Ser
65   70   75   80

Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys Ser Pro Gly
                85   90   95

Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu Ser Glu Asn
            100   105   110

Thr Cys Gln Asp Val Asp Glu Cys Gln Gln Asn Pro Arg Leu Cys Lys
        115   120   125

Ser Tyr Gly Thr Cys Val Asn Thr Leu Gly Ser Tyr Thr Cys Gln Cys
    130   135   140

Leu Pro Gly Phe Lys Phe Ile Pro Glu Asp Pro Lys Val Cys Thr Asp
145   150   155   160

Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp Ser Ser Thr Val
                165   170   175

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

Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp Thr Val Cys Glu
        195                 200                 205

Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly Val His Ser Gln
    210                 215                 220

Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu Gly Arg Asp Ser
225                 230                 235                 240

Lys Thr Ser Ser Ala Glu Val Thr Ile Gln Asn Val Ile Lys Leu Val
                245                 250                 255

Asp Glu Leu Met Glu Ala Pro Gly Asp Val Glu Ala Leu Ala Pro Pro
            260                 265                 270

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

Met Arg Ile Leu Ala Lys Ser Leu Pro Lys Gly Pro Phe Thr Tyr Ile
    290                 295                 300

Ser Pro Ser Asn Thr Glu Leu Thr Leu Met Ile Gln Glu Arg Gly Asp
305                 310                 315                 320

Lys Asn Val Thr Met Gly Gln Ser Ser Ala Arg Met Lys Leu Asn Trp
                325                 330                 335

Ala Val Ala Ala Gly Ala Glu Asp Pro Gly Pro Ala Val Ala Gly Ile
            340                 345                 350

Leu Ser Ile Gln Asn Met Thr Thr Leu Leu Ala Asn Ala Ser Leu Asn
        355                 360                 365

Leu His Ser Lys Lys Gln Ala Glu Leu Glu Glu Ile Tyr Glu Ser Ser
    370                 375                 380

Ile Arg Gly Val Gln Leu Arg Arg Leu Ser Ala Val Asn Ser Ile Phe
385                 390                 395                 400
```

```
Leu Ser His Asn Asn Thr Lys Glu Leu Asn Ser Pro Ile Leu Phe Ala
                405                 410                 415

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

Ala Lys Asp Val Met Pro Gly Pro Arg Gln Glu Leu Leu Cys Ala Phe
        435                 440                 445

Trp Lys Ser Asp Ser Asp Arg Gly Gly His Trp Ala Thr Glu Gly Cys
    450                 455                 460

Gln Val Leu Gly Ser Lys Asn Gly Ser Thr Thr Cys Gln Cys Ser His
465                 470                 475                 480

Leu Ser Ser Phe Ala Ile Leu Met Ala His Tyr Asp Val Glu Asp Trp
                485                 490                 495

Lys Leu Thr Leu Ile Thr Arg Val Gly Leu Ala Leu Ser Leu Phe Cys
            500                 505                 510

Leu Leu Leu Cys Ile Leu Thr Phe Leu Leu Val Arg Pro Ile Gln Gly
        515                 520                 525

Ser Arg Thr Thr Ile His Leu His Leu Cys Ile Cys Leu Phe Val Gly
    530                 535                 540

Ser Thr Ile Phe Leu Ala Gly Ile Glu Asn Glu Gly Gly Gln Val Gly
545                 550                 555                 560

Leu Arg Cys Arg Leu Val Ala Gly Leu Leu His Tyr Cys Phe Leu Ala
                565                 570                 575

Ala Phe Cys Trp Met Ser Leu Glu Gly Leu Glu Leu Tyr Phe Leu Val
            580                 585                 590

Val Arg Val Phe Gln Gly Gln Gly Leu Ser Thr Arg Trp Leu Cys Leu
        595                 600                 605

Ile Gly Tyr Gly Val Pro Leu Leu Ile Val Gly Val Ser Ala Ala Ile
    610                 615                 620
```

```
Tyr Ser Lys Gly Tyr Gly Arg Pro Arg Tyr Cys Trp Leu Asp Phe Glu
625                 630                 635                 640

Gln Gly Phe Leu Trp Ser Phe Leu Gly Pro Val Thr Phe Ile Ile Leu
                645                 650                 655

Cys Asn Ala Val Ile Phe Val Thr Thr Val Trp Lys Leu Thr Gln Lys
            660                 665                 670

Phe Ser Glu Ile Asn Pro Asp Met Lys Lys Leu Lys Lys Ala Arg Ala
        675                 680                 685

Leu Thr Ile Thr Ala Ile Ala Gln Leu Phe Leu Leu Gly Cys Thr Trp
    690                 695                 700

Val Phe Gly Leu Phe Ile Phe Asp Asp Arg Ser Leu Val Leu Thr Tyr
705                 710                 715                 720

Val Phe Thr Ile Leu Asn Cys Leu Gln Gly Ala Phe Leu Tyr Leu Leu
                725                 730                 735

His Cys Leu Leu Asn Lys Lys Val Arg Glu Glu Tyr Arg Lys Trp Ala
            740                 745                 750

Cys Leu Val Ala Gly Gly Ser Lys Tyr Ser Glu Phe Thr Ser Thr Thr
        755                 760                 765

Ser Gly Thr Gly His Asn Gln Thr Arg Ala Leu Arg Ala Ser Glu Ser
    770                 775                 780

Gly Ile
785
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<210> 2981
<211> 742
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 682; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRE5; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor E5; "

<220>
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<223> /note="Uniprot ID: P48960; "

<220>
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<400> 2981
Met Gly Gly Arg Val Phe Leu Ala Phe Cys Val Trp Leu Thr Leu Pro
1   5   10   15

Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp Cys Pro Gln
            20   25   30

Asn Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn Pro Gly Phe
        35   40   45

Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Thr Glu Thr Cys Asp Asp
    50   55   60

Ile Asn Glu Cys Ala Thr Pro Ser Lys Val Ser Cys Gly Lys Phe Ser
65   70   75   80

Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys Ser Pro Gly
                85   90   95

Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu Ser Glu Asn
            100   105   110

Thr Cys Gln Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp
        115   120   125

Ser Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr Ser Cys Arg Cys
    130   135   140

Arg Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp
145   150   155   160

Thr Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro Pro Pro Gly
                165   170   175

```
Val His Ser Gln Thr Leu Ser Arg Phe Phe Asp Lys Val Gln Asp Leu
            180                 185                 190

Gly Arg Asp Ser Lys Thr Ser Ser Ala Glu Val Thr Ile Gln Asn Val
        195                 200                 205

Ile Lys Leu Val Asp Glu Leu Met Glu Ala Pro Gly Asp Val Glu Ala
    210                 215                 220

Leu Ala Pro Pro Val Arg His Leu Ile Ala Thr Gln Leu Leu Ser Asn
225                 230                 235                 240

Leu Glu Asp Ile Met Arg Ile Leu Ala Lys Ser Leu Pro Lys Gly Pro
                245                 250                 255

Phe Thr Tyr Ile Ser Pro Ser Asn Thr Glu Leu Thr Leu Met Ile Gln
            260                 265                 270

Glu Arg Gly Asp Lys Asn Val Thr Met Gly Gln Ser Ser Ala Arg Met
        275                 280                 285

Lys Leu Asn Trp Ala Val Ala Ala Gly Ala Glu Asp Pro Gly Pro Ala
    290                 295                 300

Val Ala Gly Ile Leu Ser Ile Gln Asn Met Thr Thr Leu Leu Ala Asn
305                 310                 315                 320

Ala Ser Leu Asn Leu His Ser Lys Lys Gln Ala Glu Leu Glu Glu Ile
                325                 330                 335

Tyr Glu Ser Ser Ile Arg Gly Val Gln Leu Arg Arg Leu Ser Ala Val
            340                 345                 350

Asn Ser Ile Phe Leu Ser His Asn Asn Thr Lys Glu Leu Asn Ser Pro
        355                 360                 365

Ile Leu Phe Ala Phe Ser His Leu Glu Ser Ser Asp Gly Glu Ala Gly
    370                 375                 380

Arg Asp Pro Pro Ala Lys Asp Val Met Pro Gly Pro Arg Gln Glu Leu
385                 390                 395                 400
```

```
Leu Cys Ala Phe Trp Lys Ser Asp Ser Asp Arg Gly Gly His Trp Ala
                405                 410                 415

Thr Glu Gly Cys Gln Val Leu Gly Ser Lys Asn Gly Ser Thr Thr Cys
            420                 425                 430

Gln Cys Ser His Leu Ser Ser Phe Ala Ile Leu Met Ala His Tyr Asp
        435                 440                 445

Val Glu Asp Trp Lys Leu Thr Leu Ile Thr Arg Val Gly Leu Ala Leu
    450                 455                 460

Ser Leu Phe Cys Leu Leu Leu Cys Ile Leu Thr Phe Leu Leu Val Arg
465                 470                 475                 480

Pro Ile Gln Gly Ser Arg Thr Thr Ile His Leu His Leu Cys Ile Cys
                485                 490                 495

Leu Phe Val Gly Ser Thr Ile Phe Leu Ala Gly Ile Glu Asn Glu Gly
            500                 505                 510

Gly Gln Val Gly Leu Arg Cys Arg Leu Val Ala Gly Leu Leu His Tyr
        515                 520                 525

Cys Phe Leu Ala Ala Phe Cys Trp Met Ser Leu Glu Gly Leu Glu Leu
    530                 535                 540

Tyr Phe Leu Val Val Arg Val Phe Gln Gly Gln Gly Leu Ser Thr Arg
545                 550                 555                 560

Trp Leu Cys Leu Ile Gly Tyr Gly Val Pro Leu Leu Ile Val Gly Val
                565                 570                 575

Ser Ala Ala Ile Tyr Ser Lys Gly Tyr Gly Arg Pro Arg Tyr Cys Trp
            580                 585                 590

Leu Asp Phe Glu Gln Gly Phe Leu Trp Ser Phe Leu Gly Pro Val Thr
        595                 600                 605

Phe Ile Ile Leu Cys Asn Ala Val Ile Phe Val Thr Thr Val Trp Lys
    610                 615                 620

Leu Thr Gln Lys Phe Ser Glu Ile Asn Pro Asp Met Lys Lys Leu Lys
```

625 630 635 640

Lys Ala Arg Ala Leu Thr Ile Thr Ala Ile Ala Gln Leu Phe Leu Leu
645 650 655

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

Val Leu Thr Tyr Val Phe Thr Ile Leu Asn Cys Leu Gln Gly Ala Phe
675 680 685

Leu Tyr Leu Leu His Cys Leu Leu Asn Lys Lys Val Arg Glu Glu Tyr
690 695 700

Arg Lys Trp Ala Cys Leu Val Ala Gly Gly Ser Lys Tyr Ser Glu Phe
705 710 715 720

Thr Ser Thr Thr Ser Gly Thr Gly His Asn Gln Thr Arg Ala Leu Arg
725 730 735

Ala Ser Glu Ser Gly Ile
740

<210> 2982
<211> 154
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 682; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRE5; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor E5; "

<220>
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<223> /note="ENSP ID: ENSP00000465800"

<400> 2982
Met Gly Gly Arg Val Phe Leu Ala Phe Cys Val Trp Leu Thr Leu Pro
1 5 10 15

```
Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp Cys Pro Gln
            20                  25                  30

Asn Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn Pro Gly Phe
        35                  40                  45

Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Thr Glu Thr Cys Asp Asp
    50                  55                  60

Ile Asn Glu Cys Ala Thr Pro Ser Lys Val Ser Cys Gly Lys Phe Ser
65                  70                  75                  80

Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys Ser Pro Gly
                85                  90                  95

Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu Ser Glu Asn
            100                 105                 110

Thr Cys Gln Gly Lys Asn His Pro Thr Ser Ser Asp Phe Pro Ser Met
        115                 120                 125

Arg Phe Gly Val Thr Arg Ala Ile Leu Ala Ala Ser Arg Glu Gln Gly
    130                 135                 140

Leu Gly Cys Arg Val Ser Ala Trp Arg Leu
145                 150


<210> 2983
<211> 156
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Symbol: ADGRE5; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor E5; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000467351"

<400> 2983
Met Gly Gly Arg Val Phe Leu Gly Cys Ala Arg Trp Cys Pro Gln Asn
1 5 10 15

Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn Pro Gly Phe Ser
20 25 30

Ser Phe Ser Glu Ile Ile Thr Thr Pro Thr Glu Thr Cys Asp Asp Ile
35 40 45

Asn Glu Cys Ala Thr Pro Ser Lys Val Ser Cys Gly Lys Phe Ser Asp
50 55 60

Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys Ser Pro Gly Tyr
65 70 75 80

Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu Ser Glu Asn Thr
85 90 95

Cys Gln Asp Val Asp Glu Cys Ser Ser Gly Gln His Gln Cys Asp Ser
100 105 110

Ser Thr Val Cys Phe Asn Thr Val Gly Ser Tyr Ser Cys Arg Cys Arg
115 120 125

Pro Gly Trp Lys Pro Arg His Gly Ile Pro Asn Asn Gln Lys Asp Thr
130 135 140

Val Cys Glu Asp Met Thr Phe Ser Thr Trp Thr Pro
145 150 155

<210> 2984
<211> 164
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>

<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor E5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467478"

<400> 2984
Met Gly Gly Arg Val Phe Leu Ala Phe Cys Val Trp Leu Thr Leu Pro
1 5 10 15

Gly Ala Glu Thr Gln Asp Ser Arg Gly Cys Ala Arg Trp Cys Pro Gln
20 25 30

Asn Ser Ser Cys Val Asn Ala Thr Ala Cys Arg Cys Asn Pro Gly Phe
35 40 45

Ser Ser Phe Ser Glu Ile Ile Thr Thr Pro Thr Glu Thr Cys Asp Asp
50 55 60

Ile Asn Glu Cys Ala Thr Pro Ser Lys Val Ser Cys Gly Lys Phe Ser
65 70 75 80

Asp Cys Trp Asn Thr Glu Gly Ser Tyr Asp Cys Val Cys Ser Pro Gly
85 90 95

Tyr Glu Pro Val Ser Gly Ala Lys Thr Phe Lys Asn Glu Ser Glu Asn
100 105 110

Thr Cys Gln Asp Val Asn Glu Cys Thr Ser Gly Gln Asn Pro Cys His
115 120 125

Ser Ser Thr His Cys Leu Asn Asn Val Gly Ser Tyr Gln Cys Arg Cys
130 135 140

Arg Pro Gly Trp Gln Pro Ile Pro Gly Ser Pro Asn Gly Pro Asn Asn
145 150 155 160

Thr Val Cys Glu

<210> 2985
<211> 713
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 683; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRF1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor F1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000283297"

<400> 2985
Met Asp Ile Ser Ile Gln Arg Asn Gly Ser Ile Val Ala Gly Tyr Glu
1 5 10 15

Val Val Gly Ser Ser Ser Ala Ser Glu Leu Leu Ser Ala Ile Glu His
20 25 30

Val Ala Glu Lys Ala Lys Thr Ala Leu His Lys Leu Phe Pro Leu Glu
35 40 45

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

Phe Gly Phe Gly Ser Lys Asp Asp Glu Tyr Thr Leu Pro Cys Ser Ser
65 70 75 80

Gly Tyr Arg Gly Asn Ile Thr Ala Lys Cys Glu Ser Ser Gly Trp Gln
85 90 95

Val Ile Arg Glu Thr Cys Val Leu Ser Leu Leu Glu Glu Leu Asn Lys
100 105 110

Asn Phe Ser Met Ile Val Gly Asn Ala Thr Glu Ala Ala Val Ser Ser
115 120 125

Phe Val Gln Asn Leu Ser Val Ile Ile Arg Gln Asn Pro Ser Thr Thr
130 135 140

Val Gly Asn Leu Ala Ser Val Val Ser Ile Leu Ser Asn Ile Ser Ser
145 150 155 160

```
Leu Ser Leu Ala Ser His Phe Arg Val Ser Asn Ser Thr Met Glu Asp
                165                 170                 175

Val Ile Ser Ile Ala Asp Asn Ile Leu Asn Ser Ala Ser Val Thr Asn
            180                 185                 190

Trp Thr Val Leu Leu Arg Glu Glu Lys Tyr Ala Ser Ser Arg Leu Leu
        195                 200                 205

Glu Thr Leu Glu Asn Ile Ser Thr Leu Val Pro Pro Thr Ala Leu Pro
    210                 215                 220

Leu Asn Phe Ser Arg Lys Phe Ile Asp Trp Lys Gly Ile Pro Val Asn
225                 230                 235                 240

Lys Ser Gln Leu Lys Arg Gly Tyr Ser Tyr Gln Ile Lys Met Cys Pro
                245                 250                 255

Gln Asn Thr Ser Ile Pro Ile Arg Gly Arg Val Leu Ile Gly Ser Asp
            260                 265                 270

Gln Phe Gln Arg Ser Leu Pro Glu Thr Ile Ile Ser Met Ala Ser Leu
        275                 280                 285

Thr Leu Gly Asn Ile Leu Pro Val Ser Lys Asn Gly Asn Ala Gln Val
    290                 295                 300

Asn Gly Pro Val Ile Ser Thr Val Ile Gln Asn Tyr Ser Ile Asn Glu
305                 310                 315                 320

Val Phe Leu Phe Phe Ser Lys Ile Glu Ser Asn Leu Ser Gln Pro His
                325                 330                 335

Cys Val Phe Trp Asp Phe Ser His Leu Gln Trp Asn Asp Ala Gly Cys
            340                 345                 350

His Leu Val Asn Glu Thr Gln Asp Ile Val Thr Cys Gln Cys Thr His
        355                 360                 365

Leu Thr Ser Phe Ser Ile Leu Met Ser Pro Phe Val Pro Ser Thr Ile
    370                 375                 380
```

```
Phe Pro Val Val Lys Trp Ile Thr Tyr Val Gly Leu Gly Ile Ser Ile
385                 390                 395                 400

Gly Ser Leu Ile Leu Cys Leu Ile Ile Glu Ala Leu Phe Trp Lys Gln
                405                 410                 415

Ile Lys Lys Ser Gln Thr Ser His Thr Arg Arg Ile Cys Met Val Asn
            420                 425                 430

Ile Ala Leu Ser Leu Leu Ile Ala Asp Val Trp Phe Ile Val Gly Ala
        435                 440                 445

Thr Val Asp Thr Thr Val Asn Pro Ser Gly Val Cys Thr Ala Ala Val
    450                 455                 460

Phe Phe Thr His Phe Phe Tyr Leu Ser Leu Phe Phe Trp Met Leu Met
465                 470                 475                 480

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

Ala Gln His Leu Met Met Ala Val Gly Phe Cys Leu Gly Tyr Gly Cys
            500                 505                 510

Pro Leu Ile Ile Ser Val Ile Thr Ile Ala Val Thr Gln Pro Ser Asn
        515                 520                 525

Thr Tyr Lys Arg Lys Asp Val Cys Trp Leu Asn Trp Ser Asn Gly Ser
    530                 535                 540

Lys Pro Leu Leu Ala Phe Val Val Pro Ala Leu Ala Ile Val Ala Val
545                 550                 555                 560

Asn Phe Val Val Val Leu Leu Val Leu Thr Lys Leu Trp Arg Pro Thr
                565                 570                 575

Val Gly Glu Arg Leu Ser Arg Asp Asp Lys Ala Thr Ile Ile Arg Val
            580                 585                 590

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

```
Phe Gly Ile Gly Thr Ile Val Asp Ser Gln Asn Leu Ala Trp His Val
    610                 615                 620

Ile Phe Ala Leu Leu Asn Ala Phe Gln Gly Phe Phe Ile Leu Cys Phe
625                 630                 635                 640

Gly Ile Leu Leu Asp Ser Lys Leu Arg Gln Leu Leu Phe Asn Lys Leu
                645                 650                 655

Ser Ala Leu Ser Ser Trp Lys Gln Thr Glu Lys Gln Asn Ser Ser Asp
            660                 665                 670

Leu Ser Ala Lys Pro Lys Phe Ser Lys Pro Phe Asn Pro Leu Gln Asn
        675                 680                 685

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

Met Leu Thr Gln Phe Val Ser Asn Glu
705                 710


<210> 2986
<211> 218
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 683; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRF1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor F1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5T601; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360289"

<400> 2986
Met Lys Val Gly Val Leu Trp Leu Ile Ser Phe Phe Thr Phe Thr Asp
1               5                   10                  15
```

Gly His Gly Gly Phe Leu Gly Lys Asn Asp Gly Ile Lys Thr Lys Lys
20 25 30

Glu Leu Ile Val Asn Lys Lys Lys His Leu Gly Pro Val Glu Glu Tyr
35 40 45

Gln Leu Leu Leu Gln Val Thr Tyr Arg Asp Ser Lys Glu Lys Arg Asp
50 55 60

Leu Arg Asn Phe Leu Lys Leu Leu Lys Pro Pro Leu Leu Trp Ser His
65 70 75 80

Gly Leu Ile Arg Ile Ile Arg Ala Lys Ala Thr Thr Asp Cys Asn Ser
85 90 95

Leu Asn Gly Val Leu Gln Cys Thr Cys Glu Asp Ser Tyr Thr Trp Phe
100 105 110

Pro Pro Ser Cys Leu Asp Pro Gln Asn Cys Tyr Leu His Thr Ala Gly
115 120 125

Ala Leu Pro Ser Cys Glu Cys His Leu Asn Asn Leu Ser Gln Ser Val
130 135 140

Asn Phe Cys Glu Arg Thr Lys Ile Trp Gly Thr Phe Lys Ile Asn Glu
145 150 155 160

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

Tyr Ala Asn Gly Ile Glu Ile Gln Leu Lys Lys Ala Tyr Glu Arg Ile
180 185 190

Gln Gly Phe Glu Ser Val Gln Val Thr Gln Phe Arg Met Ser Leu Leu
195 200 205

Ser Pro Lys Leu Glu Cys Asn Gly Thr Ile
210 215

<210> 2987
<211> 910
<212> PRT

<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADGRF1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor F1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5T601; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360299"

<400> 2987

```
Met Lys Val Gly Val Leu Trp Leu Ile Ser Phe Phe Thr Phe Thr Asp
1               5                  10                  15


Gly His Gly Gly Phe Leu Gly Lys Asn Asp Gly Ile Lys Thr Lys Lys
            20                  25                  30


Glu Leu Ile Val Asn Lys Lys Lys His Leu Gly Pro Val Glu Glu Tyr
        35                  40                  45


Gln Leu Leu Leu Gln Val Thr Tyr Arg Asp Ser Lys Glu Lys Arg Asp
    50                  55                  60


Leu Arg Asn Phe Leu Lys Leu Leu Lys Pro Pro Leu Leu Trp Ser His
65                  70                  75                  80


Gly Leu Ile Arg Ile Ile Arg Ala Lys Ala Thr Thr Asp Cys Asn Ser
                85                  90                  95


Leu Asn Gly Val Leu Gln Cys Thr Cys Glu Asp Ser Tyr Thr Trp Phe
            100                 105                 110


Pro Pro Ser Cys Leu Asp Pro Gln Asn Cys Tyr Leu His Thr Ala Gly
        115                 120                 125


Ala Leu Pro Ser Cys Glu Cys His Leu Asn Asn Leu Ser Gln Ser Val
```

```
    130                 135                 140

Asn Phe Cys Glu Arg Thr Lys Ile Trp Gly Thr Phe Lys Ile Asn Glu
145                 150                 155                 160

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

Tyr Ala Asn Gly Ile Glu Ile Gln Leu Lys Lys Ala Tyr Glu Arg Ile
            180                 185                 190

Gln Gly Phe Glu Ser Val Gln Val Thr Gln Phe Arg Asn Gly Ser Ile
        195                 200                 205

Val Ala Gly Tyr Glu Val Val Gly Ser Ser Ser Ala Ser Glu Leu Leu
    210                 215                 220

Ser Ala Ile Glu His Val Ala Glu Lys Ala Lys Thr Ala Leu His Lys
225                 230                 235                 240

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

Cys Asn Asp Ile Val Phe Gly Phe Gly Ser Lys Asp Asp Glu Tyr Thr
            260                 265                 270

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

Ser Ser Gly Trp Gln Val Ile Arg Glu Thr Cys Val Leu Ser Leu Leu
    290                 295                 300

Glu Glu Leu Asn Lys Asn Phe Ser Met Ile Val Gly Asn Ala Thr Glu
305                 310                 315                 320

Ala Ala Val Ser Ser Phe Val Gln Asn Leu Ser Val Ile Ile Arg Gln
                325                 330                 335

Asn Pro Ser Thr Thr Val Gly Asn Leu Ala Ser Val Val Ser Ile Leu
            340                 345                 350

Ser Asn Ile Ser Ser Leu Ser Leu Ala Ser His Phe Arg Val Ser Asn
        355                 360                 365
```

```
Ser Thr Met Glu Asp Val Ile Ser Ile Ala Asp Asn Ile Leu Asn Ser
    370                 375                 380

Ala Ser Val Thr Asn Trp Thr Val Leu Leu Arg Glu Glu Lys Tyr Ala
385                 390                 395                 400

Ser Ser Arg Leu Leu Glu Thr Leu Glu Asn Ile Ser Thr Leu Val Pro
                405                 410                 415

Pro Thr Ala Leu Pro Leu Asn Phe Ser Arg Lys Phe Ile Asp Trp Lys
            420                 425                 430

Gly Ile Pro Val Asn Lys Ser Gln Leu Lys Arg Gly Tyr Ser Tyr Gln
        435                 440                 445

Ile Lys Met Cys Pro Gln Asn Thr Ser Ile Pro Ile Arg Gly Arg Val
    450                 455                 460

Leu Ile Gly Ser Asp Gln Phe Gln Arg Ser Leu Pro Glu Thr Ile Ile
465                 470                 475                 480

Ser Met Ala Ser Leu Thr Leu Gly Asn Ile Leu Pro Val Ser Lys Asn
                485                 490                 495

Gly Asn Ala Gln Val Asn Gly Pro Val Ile Ser Thr Val Ile Gln Asn
            500                 505                 510

Tyr Ser Ile Asn Glu Val Phe Leu Phe Phe Ser Lys Ile Glu Ser Asn
        515                 520                 525

Leu Ser Gln Pro His Cys Val Phe Trp Asp Phe Ser His Leu Gln Trp
    530                 535                 540

Asn Asp Ala Gly Cys His Leu Val Asn Glu Thr Gln Asp Ile Val Thr
545                 550                 555                 560

Cys Gln Cys Thr His Leu Thr Ser Phe Ser Ile Leu Met Ser Pro Phe
                565                 570                 575

Val Pro Ser Thr Ile Phe Pro Val Val Lys Trp Ile Thr Tyr Val Gly
            580                 585                 590
```

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

Leu Phe Trp Lys Gln Ile Lys Lys Ser Gln Thr Ser His Thr Arg Arg
610 615 620

Ile Cys Met Val Asn Ile Ala Leu Ser Leu Leu Ile Ala Asp Val Trp
625 630 635 640

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

Cys Thr Ala Ala Val Phe Phe Thr His Phe Phe Tyr Leu Ser Leu Phe
660 665 670

Phe Trp Met Leu Met Leu Gly Ile Leu Leu Ala Tyr Arg Ile Ile Leu
675 680 685

Val Phe His His Met Ala Gln His Leu Met Met Ala Val Gly Phe Cys
690 695 700

Leu Gly Tyr Gly Cys Pro Leu Ile Ile Ser Val Ile Thr Ile Ala Val
705 710 715 720

Thr Gln Pro Ser Asn Thr Tyr Lys Arg Lys Asp Val Cys Trp Leu Asn
725 730 735

Trp Ser Asn Gly Ser Lys Pro Leu Leu Ala Phe Val Val Pro Ala Leu
740 745 750

Ala Ile Val Ala Val Asn Phe Val Val Val Leu Leu Val Leu Thr Lys
755 760 765

Leu Trp Arg Pro Thr Val Gly Glu Arg Leu Ser Arg Asp Asp Lys Ala
770 775 780

Thr Ile Ile Arg Val Gly Lys Ser Leu Leu Ile Leu Thr Pro Leu Leu
785 790 795 800

Gly Leu Thr Trp Gly Phe Gly Ile Gly Thr Ile Val Asp Ser Gln Asn
805 810 815

```
Leu Ala Trp His Val Ile Phe Ala Leu Leu Asn Ala Phe Gln Gly Phe
            820                 825                 830

Phe Ile Leu Cys Phe Gly Ile Leu Leu Asp Ser Lys Leu Arg Gln Leu
        835                 840                 845

Leu Phe Asn Lys Leu Ser Ala Leu Ser Ser Trp Lys Gln Thr Glu Lys
    850                 855                 860

Gln Asn Ser Ser Asp Leu Ser Ala Lys Pro Lys Phe Ser Lys Pro Phe
865                 870                 875                 880

Asn Pro Leu Gln Asn Lys Gly His Tyr Ala Phe Ser His Thr Gly Asp
                885                 890                 895

Ser Ser Asp Asn Ile Met Leu Thr Gln Phe Val Ser Asn Glu
            900                 905                 910


<210> 2988
<211> 160
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 683; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRF1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor F1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417732"

<400> 2988
Glu Tyr Gln Leu Leu Leu Gln Val Thr Tyr Arg Asp Ser Lys Glu Lys
1               5                   10                  15

Arg Asp Leu Arg Asn Phe Leu Lys Leu Leu Lys Pro Pro Leu Leu Trp
            20                  25                  30

Ser His Gly Leu Ile Arg Ile Ile Arg Ala Lys Ala Thr Thr Asp Cys
        35                  40                  45
```

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

Trp Phe Pro Pro Ser Cys Leu Asp Pro Gln Asn Cys Tyr Leu His Thr
65                  70                  75                  80

Ala Gly Ala Leu Pro Ser Cys Glu Cys His Leu Asn Asn Leu Ser Gln
                85                  90                  95

Ser Val Asn Phe Cys Glu Arg Thr Lys Ile Trp Gly Thr Phe Lys Ile
            100                 105                 110

Asn Glu Arg Phe Thr Asn Asp Leu Leu Asn Ser Ser Ser Ala Ile Tyr
        115                 120                 125

Ser Lys Tyr Ala Asn Gly Ile Glu Ile Gln Leu Lys Lys Ala Tyr Glu
    130                 135                 140

Arg Ile Gln Gly Phe Glu Ser Val Gln Val Thr Gln Phe Arg Pro Val
145                 150                 155                 160
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<210> 2989
<211> 137
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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adhesion G prt-coupled receptor F1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419109"

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

<400> 2989
Xaa Trp Ser His Gly Leu Ile Arg Ile Ile Arg Ala Lys Ala Thr Thr
1 5 10 15

Asp Cys Asn Ser Leu Asn Gly Val Leu Gln Cys Thr Cys Glu Asp Ser
20 25 30

Tyr Thr Trp Phe Pro Pro Ser Cys Leu Asp Pro Gln Asn Cys Tyr Leu
35 40 45

His Thr Ala Gly Ala Leu Pro Ser Cys Glu Cys His Leu Asn Asn Leu
50 55 60

Ser Gln Ser Val Asn Phe Cys Glu Arg Thr Lys Ile Trp Gly Thr Phe
65 70 75 80

Lys Ile Asn Glu Arg Phe Thr Asn Asp Leu Leu Asn Ser Ser Ser Ala
85 90 95

Ile Tyr Ser Lys Tyr Ala Asn Gly Ile Glu Ile Gln Leu Lys Lys Ala
100 105 110

Tyr Glu Arg Ile Gln Gly Phe Glu Ser Val Gln Val Thr Gln Phe Arg
115 120 125

Thr Val Ile His Leu Trp Asn Leu Val
130 135

<210> 2990
<211> 708
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor F2; "

<220>

<221> source
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<220>
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<400> 2990
Met Gly Leu Thr Ala Tyr Gly Asn Arg Arg Val Gln Pro Gly Glu Leu
1   5   10   15

Pro Phe Gly Ala Asn Leu Thr Leu Ile His Thr Arg Ala Gln Pro Val
            20   25   30

Ile Cys Ser Lys Leu Leu Leu Thr Lys Arg Val Ser Pro Ile Ser Phe
        35   40   45

Phe Leu Ser Lys Phe Gln Asn Ser Trp Gly Glu Asp Gly Trp Val Gln
    50   55   60

Leu Asp Gln Leu Pro Ser Pro Asn Ala Val Ser Ser Asp Gln Val His
65   70   75   80

Cys Ser Ala Gly Cys Thr His Arg Lys Cys Gly Trp Ala Ala Ser Lys
                85   90   95

Ser Lys Glu Lys Val Pro Ala Arg Pro His Gly Val Cys Asp Gly Val
            100   105   110

Cys Thr Asp Tyr Ser Gln Cys Thr Gln Pro Cys Pro Pro Asp Thr Gln
        115   120   125

Gly Asn Met Gly Phe Ser Cys Arg Gln Lys Thr Trp His Lys Ile Thr
    130   135   140

Asp Thr Cys Gln Thr Leu Asn Ala Leu Asn Ile Phe Glu Glu Asp Ser
145   150   155   160

Arg Leu Val Gln Pro Phe Glu Asp Asn Ile Lys Ile Ser Val Tyr Thr
                165   170   175

Gly Lys Ser Glu Thr Ile Thr Asp Met Leu Leu Gln Lys Cys Pro Thr
            180   185   190

Asp Leu Ser Cys Val Ile Arg Asn Ile Gln Gln Ser Pro Trp Ile Pro

195 200 205

Gly Asn Ile Ala Val Ile Val Gln Leu Leu His Asn Ile Ser Thr Ala
210 215 220

Ile Trp Thr Gly Val Asp Glu Ala Lys Met Gln Ser Tyr Ser Thr Ile
225 230 235 240

Ala Asn His Ile Leu Asn Ser Lys Ser Ile Ser Asn Trp Thr Phe Ile
245 250 255

Pro Asp Arg Asn Ser Ser Tyr Ile Leu Leu His Ser Val Asn Ser Phe
260 265 270

Ala Arg Arg Leu Phe Ile Asp Lys His Pro Val Asp Ile Ser Asp Val
275 280 285

Phe Ile His Thr Met Gly Thr Thr Ile Ser Gly Asp Asn Ile Gly Lys
290 295 300

Asn Phe Thr Phe Ser Met Arg Ile Asn Asp Thr Ser Asn Glu Val Thr
305 310 315 320

Gly Arg Val Leu Ile Ser Arg Asp Glu Leu Arg Lys Val Pro Ser Pro
325 330 335

Ser Gln Val Ile Ser Ile Ala Phe Pro Thr Ile Gly Ala Ile Leu Glu
340 345 350

Ala Ser Leu Leu Glu Asn Val Thr Val Asn Gly Leu Val Leu Ser Ala
355 360 365

Ile Leu Pro Lys Glu Leu Lys Arg Ile Ser Leu Ile Phe Glu Lys Ile
370 375 380

Ser Lys Ser Glu Glu Arg Arg Thr Gln Cys Val Gly Trp His Ser Val
385 390 395 400

Glu Asn Arg Trp Asp Gln Gln Ala Cys Lys Met Ile Gln Glu Asn Ser
405 410 415

Gln Gln Ala Val Cys Lys Cys Arg Pro Ser Lys Leu Phe Thr Ser Phe
420 425 430

```
Ser Ile Leu Met Ser Pro His Ile Leu Glu Ser Leu Ile Leu Thr Tyr
        435                 440                 445

Ile Thr Tyr Val Gly Leu Gly Ile Ser Ile Cys Ser Leu Ile Leu Cys
    450                 455                 460

Leu Ser Ile Glu Val Leu Val Trp Ser Gln Val Thr Lys Thr Glu Ile
465                 470                 475                 480

Thr Tyr Leu Arg His Val Cys Ile Val Asn Ile Ala Ala Thr Leu Leu
                485                 490                 495

Met Ala Asp Val Trp Phe Ile Val Ala Ser Phe Leu Ser Gly Pro Ile
            500                 505                 510

Thr His His Lys Gly Cys Val Ala Ala Thr Phe Phe Val His Phe Phe
        515                 520                 525

Tyr Leu Ser Val Phe Phe Trp Met Leu Ala Lys Ala Leu Leu Ile Leu
    530                 535                 540

Tyr Gly Ile Met Ile Val Phe His Thr Leu Pro Lys Ser Val Leu Val
545                 550                 555                 560

Ala Ser Leu Phe Ser Val Gly Tyr Gly Cys Pro Leu Ala Ile Ala Ala
                565                 570                 575

Ile Thr Val Ala Ala Thr Glu Pro Gly Lys Gly Tyr Leu Arg Pro Glu
            580                 585                 590

Ile Cys Trp Leu Asn Trp Asp Met Thr Lys Ala Leu Leu Ala Phe Val
        595                 600                 605

Ile Pro Ala Leu Ala Ile Val Val Val Asn Leu Ile Thr Val Thr Leu
    610                 615                 620

Val Ile Val Lys Thr Gln Arg Ala Ala Ile Gly Asn Ser Met Phe Gln
625                 630                 635                 640

Glu Val Arg Ala Ile Val Arg Ile Ser Lys Asn Ile Ala Ile Leu Thr
                645                 650                 655
```

```
Pro Leu Leu Gly Leu Thr Trp Gly Phe Gly Val Ala Thr Val Ile Asp
            660                 665                 670

Asp Arg Ser Leu Ala Phe His Ile Ile Phe Ser Leu Leu Asn Ala Phe
        675                 680                 685

Gln Val Ser Pro Asp Ala Ser Asp Gln Val Gln Ser Glu Arg Ile His
    690                 695                 700

Glu Asp Val Leu
705
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<210> 2991
<211> 642
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 684; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRF2; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor F2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZF7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381727"

<400> 2991

```
Met Thr His Ile Leu Leu Leu Tyr Tyr Leu Val Phe Leu Leu Pro Thr
1               5                  10                  15

Glu Ser Cys Arg Thr Leu Tyr Gln Ala Ala Ser Lys Ser Lys Glu Lys
            20                  25                  30

Val Pro Ala Arg Pro His Gly Val Cys Asp Gly Val Cys Thr Asp Tyr
        35                  40                  45

Ser Gln Cys Thr Gln Pro Cys Pro Pro Asp Thr Gln Gly Asn Met Gly
```

```
    50                  55                  60

Phe Ser Cys Arg Gln Lys Thr Trp His Lys Ile Thr Asp Thr Cys Gln
65                  70                  75                  80

Thr Leu Asn Ala Leu Asn Ile Phe Glu Glu Asp Ser Arg Leu Val Gln
                85                  90                  95

Pro Phe Glu Asp Asn Ile Lys Ile Ser Val Tyr Thr Gly Lys Ser Glu
            100                 105                 110

Thr Ile Thr Asp Met Leu Leu Gln Lys Cys Pro Thr Asp Leu Ser Cys
        115                 120                 125

Val Ile Arg Asn Ile Gln Gln Ser Pro Trp Ile Pro Gly Asn Ile Ala
    130                 135                 140

Val Ile Val Gln Leu Leu His Asn Ile Ser Thr Ala Ile Trp Thr Gly
145                 150                 155                 160

Val Asp Glu Ala Lys Met Gln Ser Tyr Ser Thr Ile Ala Asn His Ile
                165                 170                 175

Leu Asn Ser Lys Ser Ile Ser Asn Trp Thr Phe Ile Pro Asp Arg Asn
            180                 185                 190

Ser Ser Tyr Ile Leu Leu His Ser Val Asn Ser Phe Ala Arg Arg Leu
        195                 200                 205

Phe Ile Asp Lys His Pro Val Asp Ile Ser Asp Val Phe Ile His Thr
    210                 215                 220

Met Gly Thr Thr Ile Ser Gly Asp Asn Ile Gly Lys Asn Phe Thr Phe
225                 230                 235                 240

Ser Met Arg Ile Asn Asp Thr Ser Asn Glu Val Thr Gly Arg Val Leu
                245                 250                 255

Ile Ser Arg Asp Glu Leu Arg Lys Val Pro Ser Pro Ser Gln Val Ile
            260                 265                 270

Ser Ile Ala Phe Pro Thr Ile Gly Ala Ile Leu Glu Ala Ser Leu Leu
        275                 280                 285
```

```
Glu Asn Val Thr Val Asn Gly Leu Val Leu Ser Ala Ile Leu Pro Lys
    290                 295                 300

Glu Leu Lys Arg Ile Ser Leu Ile Phe Glu Lys Ile Ser Lys Ser Glu
305                 310                 315                 320

Glu Arg Arg Thr Gln Cys Val Gly Trp His Ser Val Glu Asn Arg Trp
                325                 330                 335

Asp Gln Gln Ala Cys Lys Met Ile Gln Glu Asn Ser Gln Gln Ala Val
            340                 345                 350

Cys Lys Cys Arg Pro Ser Lys Leu Phe Thr Ser Phe Ser Ile Leu Met
        355                 360                 365

Ser Pro His Ile Leu Glu Ser Leu Ile Leu Thr Tyr Ile Thr Tyr Val
    370                 375                 380

Gly Leu Gly Ile Ser Ile Cys Ser Leu Ile Leu Cys Leu Ser Ile Glu
385                 390                 395                 400

Val Leu Val Trp Ser Gln Val Thr Lys Thr Glu Ile Thr Tyr Leu Arg
                405                 410                 415

His Val Cys Ile Val Asn Ile Ala Ala Thr Leu Leu Met Ala Asp Val
            420                 425                 430

Trp Phe Ile Val Ala Ser Phe Leu Ser Gly Pro Ile Thr His His Lys
        435                 440                 445

Gly Cys Val Ala Ala Thr Phe Phe Val His Phe Phe Tyr Leu Ser Val
    450                 455                 460

Phe Phe Trp Met Leu Ala Lys Ala Leu Leu Ile Leu Tyr Gly Ile Met
465                 470                 475                 480

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

Ser Val Gly Tyr Gly Cys Pro Leu Ala Ile Ala Ala Ile Thr Val Ala
            500                 505                 510
```

```
Ala Thr Glu Pro Gly Lys Gly Tyr Leu Arg Pro Glu Ile Cys Trp Leu
        515                 520                 525

Asn Trp Asp Met Thr Lys Ala Leu Leu Ala Phe Val Ile Pro Ala Leu
    530                 535                 540

Ala Ile Val Val Val Asn Leu Ile Thr Val Thr Leu Val Ile Val Lys
545                 550                 555                 560

Thr Gln Arg Ala Ala Ile Gly Asn Ser Met Phe Gln Glu Val Arg Ala
                565                 570                 575

Ile Val Arg Ile Ser Lys Asn Ile Ala Ile Leu Thr Pro Leu Leu Gly
            580                 585                 590

Leu Thr Trp Gly Phe Gly Val Ala Thr Val Ile Asp Asp Arg Ser Leu
        595                 600                 605

Ala Phe His Ile Ile Phe Ser Leu Leu Asn Ala Phe Gln Gly Phe Phe
    610                 615                 620

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

Lys Gly
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<210> 2992
<211> 640
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 684; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRF2; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor F2; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000422934"

<400> 2992

```
Met Thr His Ile Leu Leu Leu Tyr Tyr Leu Val Phe Leu Leu Pro Thr
1               5                  10                  15

Glu Ser Cys Arg Thr Leu Tyr Gln Ala Ala Ser Lys Ser Lys Glu Lys
            20                  25                  30

Val Pro Ala Arg Pro His Gly Val Cys Asp Gly Val Cys Thr Asp Tyr
        35                  40                  45

Ser Gln Cys Thr Gln Pro Cys Pro Pro Asp Thr Gln Gly Asn Met Gly
    50                  55                  60

Phe Ser Cys Arg Gln Lys Thr Trp His Lys Ile Thr Asp Thr Cys Gln
65                  70                  75                  80

Thr Leu Asn Ala Leu Asn Ile Phe Glu Glu Asp Ser Arg Leu Val Gln
                85                  90                  95

Pro Phe Glu Asp Asn Ile Lys Ile Ser Val Tyr Thr Gly Lys Ser Glu
            100                 105                 110

Thr Ile Thr Asp Met Leu Leu Gln Lys Cys Pro Thr Asp Leu Ser Cys
        115                 120                 125

Val Ile Arg Asn Ile Gln Gln Ser Pro Trp Ile Pro Gly Asn Ile Ala
    130                 135                 140

Val Ile Val Gln Leu Leu His Asn Ile Ser Thr Ala Ile Trp Thr Gly
145                 150                 155                 160

Val Asp Glu Ala Lys Met Gln Ser Tyr Ser Thr Ile Ala Asn His Ile
                165                 170                 175

Leu Asn Ser Lys Ser Ile Ser Asn Trp Thr Phe Ile Pro Asp Arg Asn
            180                 185                 190

Ser Ser Tyr Ile Leu Leu His Ser Val Asn Ser Phe Ala Arg Arg Leu
        195                 200                 205

Phe Ile Asp Lys His Pro Val Asp Ile Ser Asp Val Phe Ile His Thr
    210                 215                 220
```

Met Gly Thr Thr Ile Ser Gly Asp Asn Ile Gly Lys Asn Phe Thr Phe
225 230 235 240

Ser Met Arg Ile Asn Asp Thr Ser Asn Glu Val Thr Gly Arg Val Leu
245 250 255

Ile Ser Arg Asp Glu Leu Arg Lys Val Pro Ser Pro Ser Gln Val Ile
260 265 270

Ser Ile Ala Phe Pro Thr Ile Gly Ala Ile Leu Glu Ala Ser Leu Leu
275 280 285

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

Glu Leu Lys Arg Ile Ser Leu Ile Phe Glu Lys Ile Ser Lys Ser Glu
305 310 315 320

Glu Arg Arg Thr Gln Cys Val Gly Trp His Ser Val Glu Asn Arg Trp
325 330 335

Asp Gln Gln Ala Cys Lys Met Ile Gln Glu Asn Ser Gln Gln Ala Val
340 345 350

Cys Lys Cys Arg Pro Ser Lys Leu Phe Thr Ser Phe Ser Ile Leu Met
355 360 365

Ser Pro His Ile Leu Glu Ser Leu Ile Leu Thr Tyr Ile Thr Tyr Val
370 375 380

Gly Leu Gly Ile Ser Ile Cys Ser Leu Ile Leu Cys Leu Ser Ile Glu
385 390 395 400

Val Leu Val Trp Ser Gln Val Thr Lys Thr Glu Ile Thr Tyr Leu Arg
405 410 415

His Val Cys Ile Val Asn Ile Ala Ala Thr Leu Leu Met Ala Asp Val
420 425 430

Trp Phe Ile Val Ala Ser Phe Leu Ser Gly Pro Ile Thr His His Lys
435 440 445

```
Gly Cys Val Ala Ala Thr Phe Phe Val His Phe Phe Tyr Leu Ser Val
    450                 455                 460

Phe Phe Trp Met Leu Ala Lys Ala Leu Leu Ile Leu Tyr Gly Ile Met
465                 470                 475                 480

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

Ser Val Gly Tyr Gly Cys Pro Leu Ala Ile Ala Ala Ile Thr Val Ala
            500                 505                 510

Ala Thr Glu Pro Gly Lys Gly Tyr Leu Arg Pro Glu Ile Cys Trp Leu
        515                 520                 525

Asn Trp Asp Met Thr Lys Ala Leu Leu Ala Phe Val Ile Pro Ala Leu
    530                 535                 540

Ala Ile Val Val Val Asn Leu Ile Thr Val Thr Leu Val Ile Val Lys
545                 550                 555                 560

Thr Gln Arg Ala Ala Ile Gly Asn Ser Met Phe Gln Glu Val Arg Ala
                565                 570                 575

Ile Val Arg Ile Ser Lys Asn Ile Ala Ile Leu Thr Pro Leu Leu Gly
            580                 585                 590

Leu Thr Trp Gly Phe Gly Val Ala Thr Val Ile Asp Asp Arg Ser Leu
        595                 600                 605

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

Asp Ala Ser Asp Gln Val Gln Ser Glu Arg Ile His Glu Asp Val Leu
625                 630                 635                 640
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<210> 2993
<211> 642
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 684; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRF2; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor F2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZF7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425269"

<400> 2993
Met Thr His Ile Leu Leu Leu Tyr Tyr Leu Val Phe Leu Leu Pro Thr
1 5 10 15

Glu Ser Cys Arg Thr Leu Tyr Gln Ala Ala Ser Lys Ser Lys Glu Lys
20 25 30

Val Pro Ala Arg Pro His Gly Val Cys Asp Gly Val Cys Thr Asp Tyr
35 40 45

Ser Gln Cys Thr Gln Pro Cys Pro Pro Asp Thr Gln Gly Asn Met Gly
50 55 60

Phe Ser Cys Arg Gln Lys Thr Trp His Lys Ile Thr Asp Thr Cys Gln
65 70 75 80

Thr Leu Asn Ala Leu Asn Ile Phe Glu Glu Asp Ser Arg Leu Val Gln
85 90 95

Pro Phe Glu Asp Asn Ile Lys Ile Ser Val Tyr Thr Gly Lys Ser Glu
100 105 110

Thr Ile Thr Asp Met Leu Leu Gln Lys Cys Pro Thr Asp Leu Ser Cys
115 120 125

Val Ile Arg Asn Ile Gln Gln Ser Pro Trp Ile Pro Gly Asn Ile Ala
130 135 140

Val Ile Val Gln Leu Leu His Asn Ile Ser Thr Ala Ile Trp Thr Gly
145 150 155 160

Val Asp Glu Ala Lys Met Gln Ser Tyr Ser Thr Ile Ala Asn His Ile
165 170 175

Leu Asn Ser Lys Ser Ile Ser Asn Trp Thr Phe Ile Pro Asp Arg Asn
180 185 190

Ser Ser Tyr Ile Leu Leu His Ser Val Asn Ser Phe Ala Arg Arg Leu
195 200 205

Phe Ile Asp Lys His Pro Val Asp Ile Ser Asp Val Phe Ile His Thr
210 215 220

Met Gly Thr Thr Ile Ser Gly Asp Asn Ile Gly Lys Asn Phe Thr Phe
225 230 235 240

Ser Met Arg Ile Asn Asp Thr Ser Asn Glu Val Thr Gly Arg Val Leu
245 250 255

Ile Ser Arg Asp Glu Leu Arg Lys Val Pro Ser Pro Ser Gln Val Ile
260 265 270

Ser Ile Ala Phe Pro Thr Ile Gly Ala Ile Leu Glu Ala Ser Leu Leu
275 280 285

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

Glu Leu Lys Arg Ile Ser Leu Ile Phe Glu Lys Ile Ser Lys Ser Glu
305 310 315 320

Glu Arg Arg Thr Gln Cys Val Gly Trp His Ser Val Glu Asn Arg Trp
325 330 335

Asp Gln Gln Ala Cys Lys Met Ile Gln Glu Asn Ser Gln Gln Ala Val
340 345 350

Cys Lys Cys Arg Pro Ser Lys Leu Phe Thr Ser Phe Ser Ile Leu Met
355 360 365

Ser Pro His Ile Leu Glu Ser Leu Ile Leu Thr Tyr Ile Thr Tyr Val
370 375 380

```
Gly Leu Gly Ile Ser Ile Cys Ser Leu Ile Leu Cys Leu Ser Ile Glu
385                 390                 395                 400

Val Leu Val Trp Ser Gln Val Thr Lys Thr Glu Ile Thr Tyr Leu Arg
                405                 410                 415

His Val Cys Ile Val Asn Ile Ala Ala Thr Leu Leu Met Ala Asp Val
            420                 425                 430

Trp Phe Ile Val Ala Ser Phe Leu Ser Gly Pro Ile Thr His His Lys
        435                 440                 445

Gly Cys Val Ala Ala Thr Phe Phe Val His Phe Phe Tyr Leu Ser Val
    450                 455                 460

Phe Phe Trp Met Leu Ala Lys Ala Leu Leu Ile Leu Tyr Gly Ile Met
465                 470                 475                 480

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

Ser Val Gly Tyr Gly Cys Pro Leu Ala Ile Ala Ala Ile Thr Val Ala
            500                 505                 510

Ala Thr Glu Pro Gly Lys Gly Tyr Leu Arg Pro Glu Ile Cys Trp Leu
        515                 520                 525

Asn Trp Asp Met Thr Lys Ala Leu Leu Ala Phe Val Ile Pro Ala Leu
    530                 535                 540

Ala Ile Val Val Val Asn Leu Ile Thr Val Thr Leu Val Ile Val Lys
545                 550                 555                 560

Thr Gln Arg Ala Ala Ile Gly Asn Ser Met Phe Gln Glu Val Arg Ala
                565                 570                 575

Ile Val Arg Ile Ser Lys Asn Ile Ala Ile Leu Thr Pro Leu Leu Gly
            580                 585                 590

Leu Thr Trp Gly Phe Gly Val Ala Thr Val Ile Asp Asp Arg Ser Leu
        595                 600                 605
```

```
Ala Phe His Ile Ile Phe Ser Leu Leu Asn Ala Phe Gln Gly Phe Phe
    610                 615                 620

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

Lys Gly
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<210> 2994
<211> 1079
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 685; "

<220>
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<223> /note="Gene Symbol: ADGRF3; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor F3; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZF5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000307831"

<400> 2994

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Met Val Cys Ser Ala Ala Pro Leu Leu Leu Leu Ala Thr Thr Leu Pro
1               5                  10                  15

Leu Leu Gly Ser Pro Val Ala Gln Ala Ser Gln Pro Val Ser Glu Thr
            20                  25                  30

Gly Val Arg Pro Arg Glu Gly Leu Gln Arg Arg Gln Trp Gly Pro Leu
        35                  40                  45

Ile Gly Arg Asp Lys Ala Trp Asn Glu Arg Ile Asp Arg Pro Phe Pro
    50                  55                  60

Ala Cys Pro Ile Pro Leu Ser Ser Ser Phe Gly Arg Trp Pro Lys Gly
65                  70                  75                  80
```

```
Gln Thr Met Trp Ala Gln Thr Ser Thr Leu Thr Leu Thr Glu Glu Glu
                85                  90                  95

Leu Gly Gln Ser Gln Ala Gly Gly Glu Ser Gly Ser Gly Gln Leu Leu
            100                 105                 110

Asp Gln Glu Asn Gly Ala Gly Glu Ser Ala Leu Val Ser Val Tyr Val
        115                 120                 125

His Leu Asp Phe Pro Asp Lys Thr Trp Pro Pro Glu Leu Ser Arg Thr
    130                 135                 140

Leu Thr Leu Pro Ala Ala Ser Ala Ser Ser Ser Pro Arg Pro Leu Leu
145                 150                 155                 160

Thr Gly Leu Arg Leu Thr Thr Glu Cys Asn Val Asn His Lys Gly Asn
                165                 170                 175

Phe Tyr Cys Ala Cys Leu Ser Gly Tyr Gln Trp Asn Thr Ser Ile Cys
            180                 185                 190

Leu His Tyr Pro Pro Cys Gln Ser Leu His Asn His Gln Pro Cys Gly
        195                 200                 205

Cys Leu Val Phe Ser His Pro Glu Pro Gly Tyr Cys Gln Leu Leu Pro
    210                 215                 220

Pro Gly Ser Pro Val Thr Cys Leu Pro Ala Val Pro Gly Ile Leu Asn
225                 230                 235                 240

Leu Asn Ser Gln Leu Gln Met Pro Gly Asp Thr Leu Ser Leu Thr Leu
                245                 250                 255

His Leu Ser Gln Glu Ala Thr Asn Leu Ser Trp Phe Leu Arg His Pro
            260                 265                 270

Gly Ser Pro Ser Pro Ile Leu Leu Gln Pro Gly Thr Gln Val Ser Val
        275                 280                 285

Thr Ser Ser His Gly Gln Ala Ala Leu Ser Val Ser Asn Met Ser His
    290                 295                 300
```

```
His Trp Ala Gly Glu Tyr Met Ser Cys Phe Glu Ala Gln Gly Phe Lys
305                 310                 315                 320

Trp Asn Leu Tyr Glu Val Val Arg Val Pro Leu Lys Ala Thr Asp Val
                325                 330                 335

Ala Arg Leu Pro Tyr Gln Leu Ser Ile Ser Cys Ala Thr Ser Pro Gly
            340                 345                 350

Phe Gln Leu Ser Cys Cys Ile Pro Ser Thr Asn Leu Ala Tyr Thr Ala
        355                 360                 365

Ala Trp Ser Pro Gly Glu Gly Ser Lys Ala Ser Ser Phe Asn Glu Ser
    370                 375                 380

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

Thr Thr Tyr Ala Cys Asp Leu Gln Ser Leu Gly Leu Ala Pro Leu Arg
                405                 410                 415

Val Pro Ile Ser Ile Thr Ile Ile Gln Asp Gly Asp Ile Thr Cys Pro
            420                 425                 430

Glu Asp Ala Ser Val Leu Thr Trp Asn Val Thr Lys Ala Gly His Val
        435                 440                 445

Ala Gln Ala Pro Cys Pro Glu Ser Lys Arg Gly Ile Val Arg Arg Leu
    450                 455                 460

Cys Gly Ala Asp Gly Val Trp Gly Pro Val His Ser Ser Cys Thr Asp
465                 470                 475                 480

Ala Arg Leu Leu Ala Leu Phe Thr Arg Thr Lys Leu Leu Gln Ala Gly
                485                 490                 495

Gln Gly Ser Pro Ala Glu Glu Val Pro Gln Ile Leu Ala Gln Leu Pro
            500                 505                 510

Gly Gln Ala Ala Glu Ala Ser Ser Pro Ser Asp Leu Leu Thr Leu Leu
        515                 520                 525
```

```
Ser Thr Met Lys Tyr Val Ala Lys Val Val Ala Glu Ala Arg Ile Gln
    530                 535                 540

Leu Asp Arg Arg Ala Leu Lys Asn Leu Leu Ile Ala Thr Asp Lys Val
545                 550                 555                 560

Leu Asp Met Asp Thr Arg Ser Leu Trp Thr Leu Ala Gln Ala Arg Lys
                565                 570                 575

Pro Trp Ala Gly Ser Thr Leu Leu Leu Ala Val Glu Thr Leu Ala Cys
            580                 585                 590

Ser Leu Cys Pro Gln Asp His Pro Phe Ala Phe Ser Leu Pro Asn Val
        595                 600                 605

Leu Leu Gln Ser Gln Leu Phe Gly Pro Thr Phe Pro Ala Asp Tyr Ser
    610                 615                 620

Ile Ser Phe Pro Thr Arg Pro Pro Leu Gln Ala Gln Ile Pro Arg His
625                 630                 635                 640

Ser Leu Ala Pro Leu Val Arg Asn Gly Thr Glu Ile Ser Ile Thr Ser
                645                 650                 655

Leu Val Leu Arg Lys Leu Asp His Leu Leu Pro Ser Asn Tyr Gly Gln
            660                 665                 670

Gly Leu Gly Asp Ser Leu Tyr Ala Thr Pro Gly Leu Val Leu Val Ile
        675                 680                 685

Ser Ile Met Ala Gly Asp Arg Ala Phe Ser Gln Gly Glu Val Ile Met
    690                 695                 700

Asp Phe Gly Asn Thr Asp Gly Ser Pro His Cys Val Phe Trp Asp His
705                 710                 715                 720

Ser Leu Phe Gln Gly Arg Gly Gly Trp Ser Lys Glu Gly Cys Gln Ala
                725                 730                 735

Gln Val Ala Ser Ala Ser Pro Thr Ala Gln Cys Leu Cys Gln His Leu
            740                 745                 750

Thr Ala Phe Ser Val Leu Met Ser Pro His Thr Val Pro Glu Glu Pro
```

```
        755                 760                 765

Ala Leu Ala Leu Leu Thr Gln Val Gly Leu Gly Ala Ser Ile Leu Ala
    770                 775                 780

Leu Leu Val Cys Leu Gly Val Tyr Trp Leu Val Trp Arg Val Val Val
785                 790                 795                 800

Arg Asn Lys Ile Ser Tyr Phe Arg His Ala Ala Leu Leu Asn Met Val
                805                 810                 815

Phe Cys Leu Leu Ala Ala Asp Thr Cys Phe Leu Gly Ala Pro Phe Leu
            820                 825                 830

Ser Pro Gly Pro Arg Ser Pro Leu Cys Leu Ala Ala Ala Phe Leu Cys
        835                 840                 845

His Phe Leu Tyr Leu Ala Thr Phe Phe Trp Met Leu Ala Gln Ala Leu
    850                 855                 860

Val Leu Ala His Gln Leu Leu Phe Val Phe His Gln Leu Ala Lys His
865                 870                 875                 880

Arg Val Leu Pro Leu Met Val Leu Leu Gly Tyr Leu Cys Pro Leu Gly
                885                 890                 895

Leu Ala Gly Val Thr Leu Gly Leu Tyr Leu Pro Gln Gly Gln Tyr Leu
            900                 905                 910

Arg Glu Gly Glu Cys Trp Leu Asp Gly Lys Gly Gly Ala Leu Tyr Thr
        915                 920                 925

Phe Val Gly Pro Val Leu Ala Ile Ile Gly Val Asn Gly Leu Val Leu
    930                 935                 940

Ala Met Ala Met Leu Lys Leu Leu Arg Pro Ser Leu Ser Glu Gly Pro
945                 950                 955                 960

Pro Ala Glu Lys Arg Gln Ala Leu Leu Gly Val Ile Lys Ala Leu Leu
                965                 970                 975

Ile Leu Thr Pro Ile Phe Gly Leu Thr Trp Gly Leu Gly Leu Ala Thr
            980                 985                 990
```

Leu Leu Glu Glu Val Ser Thr Val Pro His Tyr Ile Phe Thr Ile
Leu
        995   1000   1005

Asn Thr Leu Gln Gly Val Phe Ile Leu Leu Phe Gly Cys Leu Met
    1010   1015   1020

Asp Arg Lys Ile Gln Glu Ala Leu Arg Lys Arg Phe Cys Arg Ala
    1025   1030   1035

Gln Ala Pro Ser Ser Thr Ile Ser Leu Val Ser Cys Cys Leu Gln
    1040   1045   1050

Ile Leu Ser Cys Ala Ser Lys Ser Met Ser Glu Gly Ile Pro Trp
    1055   1060   1065

Pro Ser Ser Glu Asp Met Gly Thr Ala Arg Ser
    1070   1075

<210> 2995
<211> 873
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q8IZF5; "

<220>
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<400> 2995
Met Thr Thr Arg Lys Leu Ser Ala His Ser Ala Ala Thr Pro Gly Tyr
1   5   10   15

```
Lys Ala Val Thr His Lys His His Thr Gly Trp Ala Arg Met Ala Lys
            20                  25                  30

Thr Gly Leu Pro Glu Lys Gly Gln Ser Gln Ala Gly Gly Glu Ser Gly
        35                  40                  45

Ser Gly Gln Leu Leu Asp Gln Glu Asn Gly Ala Gly Glu Ser Ala Leu
    50                  55                  60

Val Ser Val Tyr Val His Leu Asp Phe Pro Asp Lys Thr Trp Pro Pro
65                  70                  75                  80

Glu Leu Ser Arg Thr Leu Thr Leu Pro Ala Ala Ser Ala Ser Ser Ser
                85                  90                  95

Pro Arg Pro Leu Leu Thr Gly Leu Arg Leu Thr Thr Gly Glu Tyr Met
            100                 105                 110

Ser Cys Phe Glu Ala Gln Gly Phe Lys Trp Asn Leu Tyr Glu Val Val
        115                 120                 125

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

Ser Ile Ser Cys Ala Thr Ser Pro Gly Phe Gln Leu Ser Cys Cys Ile
145                 150                 155                 160

Pro Ser Thr Asn Leu Ala Tyr Thr Ala Ala Trp Ser Pro Gly Glu Gly
                165                 170                 175

Ser Lys Ala Ser Ser Phe Asn Glu Ser Gly Ser Gln Cys Phe Val Leu
            180                 185                 190

Ala Val Gln Arg Cys Pro Met Ala Asp Thr Thr Tyr Ala Cys Asp Leu
        195                 200                 205

Gln Ser Leu Gly Leu Ala Pro Leu Arg Val Pro Ile Ser Ile Thr Ile
    210                 215                 220

Ile Gln Asp Gly Asp Ile Thr Cys Pro Glu Asp Ala Ser Val Leu Thr
225                 230                 235                 240
```

```
Trp Asn Val Thr Lys Ala Gly His Val Ala Gln Ala Pro Cys Pro Glu
                245                 250                 255

Ser Lys Arg Gly Ile Val Arg Arg Leu Cys Gly Ala Asp Gly Val Trp
            260                 265                 270

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

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

Val Pro Gln Ile Leu Ala Gln Leu Pro Gly Gln Ala Ala Glu Ala Ser
305                 310                 315                 320

Ser Pro Ser Asp Leu Leu Thr Leu Leu Ser Thr Met Lys Tyr Val Ala
                325                 330                 335

Lys Val Val Ala Glu Ala Arg Ile Gln Leu Asp Arg Arg Ala Leu Lys
            340                 345                 350

Asn Leu Leu Ile Ala Thr Asp Lys Val Leu Asp Met Asp Thr Arg Ser
        355                 360                 365

Leu Trp Thr Leu Ala Gln Ala Arg Lys Pro Trp Ala Gly Ser Thr Leu
    370                 375                 380

Leu Leu Ala Val Glu Thr Leu Ala Cys Ser Leu Cys Pro Gln Asp His
385                 390                 395                 400

Pro Phe Ala Phe Ser Leu Pro Asn Val Leu Leu Gln Ser Gln Leu Phe
                405                 410                 415

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

Pro Leu Gln Ala Gln Ile Pro Arg His Ser Leu Ala Pro Leu Val Arg
        435                 440                 445

Asn Gly Thr Glu Ile Ser Ile Thr Ser Leu Val Leu Arg Lys Leu Asp
    450                 455                 460

His Leu Leu Pro Ser Asn Tyr Gly Gln Gly Leu Gly Asp Ser Leu Tyr
```

```
465                 470                 475                 480

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

Ala Phe Ser Gln Gly Glu Val Ile Met Asp Phe Gly Asn Thr Asp Gly
            500                 505                 510

Ser Pro His Cys Val Phe Trp Asp His Ser Leu Phe Gln Gly Arg Gly
        515                 520                 525

Gly Trp Ser Lys Glu Gly Cys Gln Ala Gln Val Ala Ser Ala Ser Pro
    530                 535                 540

Thr Ala Gln Cys Leu Cys Gln His Leu Thr Ala Phe Ser Val Leu Met
545                 550                 555                 560

Ser Pro His Thr Val Pro Glu Glu Pro Ala Leu Ala Leu Leu Thr Gln
                565                 570                 575

Val Gly Leu Gly Ala Ser Ile Leu Ala Leu Leu Val Cys Leu Gly Val
            580                 585                 590

Tyr Trp Leu Val Trp Arg Val Val Val Arg Asn Lys Ile Ser Tyr Phe
        595                 600                 605

Arg His Ala Ala Leu Leu Asn Met Val Phe Cys Leu Leu Ala Ala Asp
    610                 615                 620

Thr Cys Phe Leu Gly Ala Pro Phe Leu Ser Pro Gly Pro Arg Ser Pro
625                 630                 635                 640

Leu Cys Leu Ala Ala Ala Phe Leu Cys His Phe Leu Tyr Leu Ala Thr
                645                 650                 655

Phe Phe Trp Met Leu Ala Gln Ala Leu Val Leu Ala His Gln Leu Leu
            660                 665                 670

Phe Val Phe His Gln Leu Ala Lys His Arg Val Leu Pro Leu Met Val
        675                 680                 685

Leu Leu Gly Tyr Leu Cys Pro Leu Gly Leu Ala Gly Val Thr Leu Gly
    690                 695                 700
```

```
Leu Tyr Leu Pro Gln Gly Gln Tyr Leu Arg Glu Gly Glu Cys Trp Leu
705                 710                 715                 720

Asp Gly Lys Gly Gly Ala Leu Tyr Thr Phe Val Gly Pro Val Leu Ala
                725                 730                 735

Ile Ile Gly Val Asn Gly Leu Val Leu Ala Met Ala Met Leu Lys Leu
            740                 745                 750

Leu Arg Pro Ser Leu Ser Glu Gly Pro Pro Ala Glu Lys Arg Gln Ala
        755                 760                 765

Leu Leu Gly Val Ile Lys Ala Leu Leu Ile Leu Thr Pro Ile Phe Gly
    770                 775                 780

Leu Thr Trp Gly Leu Gly Leu Ala Thr Leu Leu Glu Glu Val Ser Thr
785                 790                 795                 800

Val Pro His Tyr Ile Phe Thr Ile Leu Asn Thr Leu Gln Gly Val Phe
                805                 810                 815

Ile Leu Leu Phe Gly Cys Leu Met Asp Arg Lys Ile Gln Glu Ala Leu
            820                 825                 830

Arg Lys Arg Phe Cys Arg Ala Gln Ala Pro Ser Ser Thr Ile Ser Leu
        835                 840                 845

Ala Thr Asn Glu Gly Cys Ile Leu Glu His Ser Lys Gly Gly Ser Asp
    850                 855                 860

Thr Ala Arg Lys Thr Asp Ala Ser Glu
865                 870


<210> 2996
<211> 997
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ADGRF3; "

<220>
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adhesion G prt-coupled receptor F3; "

<220>
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<223> /note="Uniprot ID: Q8IZF5; "

<220>
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<223> /note="ENSP ID: ENSP00000388537"

<400> 2996

```
Met Val Cys Ser Ala Ala Pro Leu Leu Leu Leu Ala Thr Thr Leu Pro
1               5                  10                  15

Leu Leu Gly Ser Pro Val Ala Gln Ala Ser Gln Pro Gly Gln Ser Gln
            20                  25                  30

Ala Gly Gly Glu Ser Gly Ser Gly Gln Leu Leu Asp Gln Glu Asn Gly
        35                  40                  45

Ala Gly Glu Ser Ala Leu Val Ser Val Tyr Val His Leu Asp Phe Pro
    50                  55                  60

Asp Lys Thr Trp Pro Pro Glu Leu Ser Arg Thr Leu Thr Leu Pro Ala
65                  70                  75                  80

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

Thr Thr Glu Cys Asn Val Asn His Lys Gly Asn Phe Tyr Cys Ala Cys
            100                 105                 110

Leu Ser Gly Tyr Gln Trp Asn Thr Ser Ile Cys Leu His Tyr Pro Pro
        115                 120                 125

Cys Gln Ser Leu His Asn His Gln Pro Cys Gly Cys Leu Val Phe Ser
    130                 135                 140

His Pro Glu Pro Gly Tyr Cys Gln Leu Leu Pro Pro Gly Ser Pro Val
145                 150                 155                 160

Thr Cys Leu Pro Ala Val Pro Gly Ile Leu Asn Leu Asn Ser Gln Leu
```

```
                165                 170                 175

Gln Met Pro Gly Asp Thr Leu Ser Leu Thr Leu His Leu Ser Gln Glu
            180                 185                 190

Ala Thr Asn Leu Ser Trp Phe Leu Arg His Pro Gly Ser Pro Ser Pro
        195                 200                 205

Ile Leu Leu Gln Pro Gly Thr Gln Val Ser Val Thr Ser Ser His Gly
    210                 215                 220

Gln Ala Ala Leu Ser Val Ser Asn Met Ser His His Trp Ala Gly Glu
225                 230                 235                 240

Tyr Met Ser Cys Phe Glu Ala Gln Gly Phe Lys Trp Asn Leu Tyr Glu
                245                 250                 255

Val Val Arg Val Pro Leu Lys Ala Thr Asp Val Ala Arg Leu Pro Tyr
            260                 265                 270

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

Cys Ile Pro Ser Thr Asn Leu Ala Tyr Thr Ala Ala Trp Ser Pro Gly
    290                 295                 300

Glu Gly Ser Lys Ala Ser Ser Phe Asn Glu Ser Gly Ser Gln Cys Phe
305                 310                 315                 320

Val Leu Ala Val Gln Arg Cys Pro Met Ala Asp Thr Thr Tyr Ala Cys
                325                 330                 335

Asp Leu Gln Ser Leu Gly Leu Ala Pro Leu Arg Val Pro Ile Ser Ile
            340                 345                 350

Thr Ile Ile Gln Asp Gly Asp Ile Thr Cys Pro Glu Asp Ala Ser Val
        355                 360                 365

Leu Thr Trp Asn Val Thr Lys Ala Gly His Val Ala Gln Ala Pro Cys
    370                 375                 380

Pro Glu Ser Lys Arg Gly Ile Val Arg Arg Leu Cys Gly Ala Asp Gly
385                 390                 395                 400
```

```
Val Trp Gly Pro Val His Ser Ser Cys Thr Asp Ala Arg Leu Leu Ala
                405                 410                 415

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

Glu Glu Val Pro Gln Ile Leu Ala Gln Leu Pro Gly Gln Ala Ala Glu
        435                 440                 445

Ala Ser Ser Pro Ser Asp Leu Leu Thr Leu Leu Ser Thr Met Lys Tyr
    450                 455                 460

Val Ala Lys Val Val Ala Glu Ala Arg Ile Gln Leu Asp Arg Arg Ala
465                 470                 475                 480

Leu Lys Asn Leu Leu Ile Ala Thr Asp Lys Val Leu Asp Met Asp Thr
                485                 490                 495

Arg Ser Leu Trp Thr Leu Ala Gln Ala Arg Lys Pro Trp Ala Gly Ser
            500                 505                 510

Thr Leu Leu Leu Ala Val Glu Thr Leu Ala Cys Ser Leu Cys Pro Gln
        515                 520                 525

Asp His Pro Phe Ala Phe Ser Leu Pro Asn Val Leu Leu Gln Ser Gln
    530                 535                 540

Leu Phe Gly Pro Thr Phe Pro Ala Asp Tyr Ser Ile Ser Phe Pro Thr
545                 550                 555                 560

Arg Pro Pro Leu Gln Ala Gln Ile Pro Arg His Ser Leu Ala Pro Leu
                565                 570                 575

Val Arg Asn Gly Thr Glu Ile Ser Ile Thr Ser Leu Val Leu Arg Lys
            580                 585                 590

Leu Asp His Leu Leu Pro Ser Asn Tyr Gly Gln Gly Leu Gly Asp Ser
        595                 600                 605

Leu Tyr Ala Thr Pro Gly Leu Val Leu Val Ile Ser Ile Met Ala Gly
    610                 615                 620
```

```
Asp Arg Ala Phe Ser Gln Gly Glu Val Ile Met Asp Phe Gly Asn Thr
625                 630                 635                 640

Asp Gly Ser Pro His Cys Val Phe Trp Asp His Ser Leu Phe Gln Gly
                645                 650                 655

Arg Gly Gly Trp Ser Lys Glu Gly Cys Gln Ala Gln Val Ala Ser Ala
            660                 665                 670

Ser Pro Thr Ala Gln Cys Leu Cys Gln His Leu Thr Ala Phe Ser Val
        675                 680                 685

Leu Met Ser Pro His Thr Val Pro Glu Glu Pro Ala Leu Ala Leu Leu
    690                 695                 700

Thr Gln Val Gly Leu Gly Ala Ser Ile Leu Ala Leu Leu Val Cys Leu
705                 710                 715                 720

Gly Val Tyr Trp Leu Val Trp Arg Val Val Val Arg Asn Lys Ile Ser
                725                 730                 735

Tyr Phe Arg His Ala Ala Leu Leu Asn Met Val Phe Cys Leu Leu Ala
            740                 745                 750

Ala Asp Thr Cys Phe Leu Gly Ala Pro Phe Leu Ser Pro Gly Pro Arg
        755                 760                 765

Ser Pro Leu Cys Leu Ala Ala Ala Phe Leu Cys His Phe Leu Tyr Leu
    770                 775                 780

Ala Thr Phe Phe Trp Met Leu Ala Gln Ala Leu Val Leu Ala His Gln
785                 790                 795                 800

Leu Leu Phe Val Phe His Gln Leu Ala Lys His Arg Val Leu Pro Leu
                805                 810                 815

Met Val Leu Leu Gly Tyr Leu Cys Pro Leu Gly Leu Ala Gly Val Thr
            820                 825                 830

Leu Gly Leu Tyr Leu Pro Gln Gly Gln Tyr Leu Arg Glu Gly Glu Cys
        835                 840                 845
```

```
Trp Leu Asp Gly Lys Gly Gly Ala Leu Tyr Thr Phe Val Gly Pro Val
    850                 855                 860

Leu Ala Ile Ile Gly Val Asn Gly Leu Val Leu Ala Met Ala Met Leu
865                 870                 875                 880

Lys Leu Leu Arg Pro Ser Leu Ser Glu Gly Pro Pro Ala Glu Lys Arg
                885                 890                 895

Gln Ala Leu Leu Gly Val Ile Lys Ala Leu Leu Ile Leu Thr Pro Ile
            900                 905                 910

Phe Gly Leu Thr Trp Gly Leu Gly Leu Ala Thr Leu Leu Glu Glu Val
        915                 920                 925

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

Val Phe Ile Leu Leu Phe Gly Cys Leu Met Asp Arg Lys Ile Gln Glu
945                 950                 955                 960

Ala Leu Arg Lys Arg Phe Cys Arg Ala Gln Ala Pro Ser Ser Thr Ile
                965                 970                 975

Ser Leu Ala Thr Asn Glu Gly Cys Ile Leu Glu His Ser Lys Gly Gly
            980                 985                 990

Ser Asp Thr Ala Arg
        995


<210> 2997
<211> 120
<212> PRT
<213> Homo sapiens

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<221> source
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<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor F3; "
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<220>
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<223> /note="ENSP ID: ENSP00000394162"

<400> 2997
Met Thr Thr Arg Lys Leu Ser Ala His Ser Ala Ala Thr Pro Gly Tyr
1   5   10   15

Lys Ala Val Thr His Lys His His Thr Gly Trp Ala Arg Met Ala Lys
            20   25   30

Thr Gly Leu Pro Glu Lys Leu Pro Pro Ser Thr Ser Gln Ala Leu Ser
        35   40   45

Ala Leu Cys Trp Leu Phe Ser Ala Ala Arg Trp Leu Thr Pro Arg Thr
    50   55   60

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

Pro Ser Pro Ser Ser Arg Met Glu Thr Ser Pro Ala Leu Arg Thr Pro
                85   90   95

Arg Cys Ser Pro Gly Met Ser Pro Arg Leu Ala Thr Trp His Arg Pro
            100   105   110

His Val Leu Arg Ala Arg Gly Ala
        115   120

<210> 2998
<211> 873
<212> PRT
<213> Homo sapiens

<220>
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<220>

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<223> /note="Uniprot ID: Q8IZF5; "

<220>
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<223> /note="ENSP ID: ENSP00000404775"

<400> 2998
Met Thr Thr Arg Lys Leu Ser Ala His Ser Ala Ala Thr Pro Gly Tyr
1   5   10   15

Lys Ala Val Thr His Lys His His Thr Gly Trp Ala Arg Met Ala Lys
            20   25   30

Thr Gly Leu Pro Glu Lys Gly Gln Ser Gln Ala Gly Gly Glu Ser Gly
        35   40   45

Ser Gly Gln Leu Leu Asp Gln Glu Asn Gly Ala Gly Glu Ser Ala Leu
    50   55   60

Val Ser Val Tyr Val His Leu Asp Phe Pro Asp Lys Thr Trp Pro Pro
65   70   75   80

Glu Leu Ser Arg Thr Leu Thr Leu Pro Ala Ala Ser Ala Ser Ser Ser
                85   90   95

Pro Arg Pro Leu Leu Thr Gly Leu Arg Leu Thr Thr Gly Glu Tyr Met
            100   105   110

Ser Cys Phe Glu Ala Gln Gly Phe Lys Trp Asn Leu Tyr Glu Val Val
        115   120   125

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

Ser Ile Ser Cys Ala Thr Ser Pro Gly Phe Gln Leu Ser Cys Cys Ile
145   150   155   160

Pro Ser Thr Asn Leu Ala Tyr Thr Ala Ala Trp Ser Pro Gly Glu Gly
                165   170   175

Ser Lys Ala Ser Ser Phe Asn Glu Ser Gly Ser Gln Cys Phe Val Leu
            180   185   190

Ala Val Gln Arg Cys Pro Met Ala Asp Thr Thr Tyr Ala Cys Asp Leu

```
        195                 200                 205

Gln Ser Leu Gly Leu Ala Pro Leu Arg Val Pro Ile Ser Ile Thr Ile
    210                 215                 220

Ile Gln Asp Gly Asp Ile Thr Cys Pro Glu Asp Ala Ser Val Leu Thr
225                 230                 235                 240

Trp Asn Val Thr Lys Ala Gly His Val Ala Gln Ala Pro Cys Pro Glu
                245                 250                 255

Ser Lys Arg Gly Ile Val Arg Arg Leu Cys Gly Ala Asp Gly Val Trp
            260                 265                 270

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

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

Val Pro Gln Ile Leu Ala Gln Leu Pro Gly Gln Ala Ala Glu Ala Ser
305                 310                 315                 320

Ser Pro Ser Asp Leu Leu Thr Leu Leu Ser Thr Met Lys Tyr Val Ala
                325                 330                 335

Lys Val Val Ala Glu Ala Arg Ile Gln Leu Asp Arg Arg Ala Leu Lys
            340                 345                 350

Asn Leu Leu Ile Ala Thr Asp Lys Val Leu Asp Met Asp Thr Arg Ser
        355                 360                 365

Leu Trp Thr Leu Ala Gln Ala Arg Lys Pro Trp Ala Gly Ser Thr Leu
    370                 375                 380

Leu Leu Ala Val Glu Thr Leu Ala Cys Ser Leu Cys Pro Gln Asp His
385                 390                 395                 400

Pro Phe Ala Phe Ser Leu Pro Asn Val Leu Leu Gln Ser Gln Leu Phe
                405                 410                 415

Gly Pro Thr Phe Pro Ala Asp Tyr Ser Ile Ser Phe Pro Thr Arg Pro
            420                 425                 430
```

```
Pro Leu Gln Ala Gln Ile Pro Arg His Ser Leu Ala Pro Leu Val Arg
        435                 440                 445

Asn Gly Thr Glu Ile Ser Ile Thr Ser Leu Val Leu Arg Lys Leu Asp
    450                 455                 460

His Leu Leu Pro Ser Asn Tyr Gly Gln Gly Leu Gly Asp Ser Leu Tyr
465                 470                 475                 480

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

Ala Phe Ser Gln Gly Glu Val Ile Met Asp Phe Gly Asn Thr Asp Gly
            500                 505                 510

Ser Pro His Cys Val Phe Trp Asp His Ser Leu Phe Gln Gly Arg Gly
        515                 520                 525

Gly Trp Ser Lys Glu Gly Cys Gln Ala Gln Val Ala Ser Ala Ser Pro
    530                 535                 540

Thr Ala Gln Cys Leu Cys Gln His Leu Thr Ala Phe Ser Val Leu Met
545                 550                 555                 560

Ser Pro His Thr Val Pro Glu Glu Pro Ala Leu Ala Leu Leu Thr Gln
                565                 570                 575

Val Gly Leu Gly Ala Ser Ile Leu Ala Leu Leu Val Cys Leu Gly Val
            580                 585                 590

Tyr Trp Leu Val Trp Arg Val Val Val Arg Asn Lys Ile Ser Tyr Phe
        595                 600                 605

Arg His Ala Ala Leu Leu Asn Met Val Phe Cys Leu Leu Ala Ala Asp
    610                 615                 620

Thr Cys Phe Leu Gly Ala Pro Phe Leu Ser Pro Gly Pro Arg Ser Pro
625                 630                 635                 640

Leu Cys Leu Ala Ala Ala Phe Leu Cys His Phe Leu Tyr Leu Ala Thr
                645                 650                 655
```

```
Phe Phe Trp Met Leu Ala Gln Ala Leu Val Leu Ala His Gln Leu Leu
            660                 665                 670

Phe Val Phe His Gln Leu Ala Lys His Arg Val Leu Pro Leu Met Val
        675                 680                 685

Leu Leu Gly Tyr Leu Cys Pro Leu Gly Leu Ala Gly Val Thr Leu Gly
    690                 695                 700

Leu Tyr Leu Pro Gln Gly Gln Tyr Leu Arg Glu Gly Glu Cys Trp Leu
705                 710                 715                 720

Asp Gly Lys Gly Gly Ala Leu Tyr Thr Phe Val Gly Pro Val Leu Ala
                725                 730                 735

Ile Ile Gly Val Asn Gly Leu Val Leu Ala Met Ala Met Leu Lys Leu
            740                 745                 750

Leu Arg Pro Ser Leu Ser Glu Gly Pro Pro Ala Glu Lys Arg Gln Ala
        755                 760                 765

Leu Leu Gly Val Ile Lys Ala Leu Leu Ile Leu Thr Pro Ile Phe Gly
    770                 775                 780

Leu Thr Trp Gly Leu Gly Leu Ala Thr Leu Leu Glu Glu Val Ser Thr
785                 790                 795                 800

Val Pro His Tyr Ile Phe Thr Ile Leu Asn Thr Leu Gln Gly Val Phe
                805                 810                 815

Ile Leu Leu Phe Gly Cys Leu Met Asp Arg Lys Ile Gln Glu Ala Leu
            820                 825                 830

Arg Lys Arg Phe Cys Arg Ala Gln Ala Pro Ser Ser Thr Ile Ser Leu
        835                 840                 845

Ala Thr Asn Glu Gly Cys Ile Leu Glu His Ser Lys Gly Gly Ser Asp
    850                 855                 860

Thr Ala Arg Lys Thr Asp Ala Ser Glu
865                 870
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<210> 2999
<211> 87
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 685; "

<220>
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<223> /note="Gene Symbol: ADGRF3; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor F3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409595"

<400> 2999
Met Thr Thr Arg Lys Leu Ser Ala His Ser Ala Ala Thr Pro Gly Tyr
1 5 10 15

Lys Ala Val Thr His Lys His His Thr Gly Trp Ala Arg Met Ala Lys
20 25 30

Thr Gly Leu Pro Glu Lys Gly Gln Ser Gln Ala Gly Gly Glu Ser Gly
35 40 45

Ser Gly Gln Leu Leu Asp Gln Glu Asn Gly Ala Gly Glu Ser Ala Leu
50 55 60

Val Ser Val Tyr Val His Leu Asp Phe Pro Asp Lys Thr Trp Pro Pro
65 70 75 80

Glu Leu Ser Arg Thr Leu Thr
85

<210> 3000
<211> 695
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: ADGRF4; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor F4; "

<220>
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<223> /note="Uniprot ID: Q8IZF3; "

<220>
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<223> /note="ENSP ID: ENSP00000283303"

<400> 3000

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Met Lys Met Lys Ser Gln Ala Thr Met Ile Cys Cys Leu Val Phe Phe
1               5                  10                  15


Leu Ser Thr Glu Cys Ser His Tyr Arg Ser Lys Ile His Leu Lys Ala
            20                  25                  30


Gly Asp Lys Leu Gln Ser Pro Glu Gly Lys Pro Lys Thr Gly Arg Ile
        35                  40                  45


Gln Glu Lys Cys Glu Gly Pro Cys Ile Ser Ser Ser Asn Cys Ser Gln
    50                  55                  60


Pro Cys Ala Lys Asp Phe His Gly Glu Ile Gly Phe Thr Cys Asn Gln
65                  70                  75                  80


Lys Lys Trp Gln Lys Ser Ala Glu Thr Cys Thr Ser Leu Ser Val Glu
                85                  90                  95


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


Pro Ser Ile Pro Leu His Ile Leu Asp Phe Arg Ala Pro Glu Thr Ile
        115                 120                 125


Glu Ser Val Ala Gln Gly Ile Arg Lys Asn Cys Pro Phe Asp Tyr Ala
    130                 135                 140


Cys Ile Thr Asp Met Val Lys Ser Ser Glu Thr Thr Ser Gly Asn Ile
145                 150                 155                 160
```

```
Ala Phe Ile Val Glu Leu Leu Lys Asn Ile Ser Thr Asp Leu Ser Asp
                165                 170                 175

Asn Val Thr Arg Glu Lys Met Lys Ser Tyr Ser Glu Val Ala Asn His
            180                 185                 190

Ile Leu Asp Thr Ala Ala Ile Ser Asn Trp Ala Phe Ile Pro Asn Lys
        195                 200                 205

Asn Ala Ser Ser Asp Leu Leu Gln Ser Val Asn Leu Phe Ala Arg Gln
    210                 215                 220

Leu His Ile His Asn Asn Ser Glu Asn Ile Val Asn Glu Leu Phe Ile
225                 230                 235                 240

Gln Thr Lys Gly Phe His Ile Asn His Asn Thr Ser Glu Lys Ser Leu
                245                 250                 255

Asn Phe Ser Met Ser Met Asn Asn Thr Thr Glu Asp Ile Leu Gly Met
            260                 265                 270

Val Gln Ile Pro Arg Gln Glu Leu Arg Lys Leu Trp Pro Asn Ala Ser
        275                 280                 285

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

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

Leu Ser Val Val Leu Pro Glu Arg Leu Gln Glu Ile Ile Leu Thr Phe
                325                 330                 335

Glu Lys Ile Asn Lys Thr Arg Asn Ala Arg Ala Gln Cys Val Gly Trp
            340                 345                 350

His Ser Lys Lys Arg Arg Trp Asp Glu Lys Ala Cys Gln Met Met Leu
        355                 360                 365

Asp Ile Arg Asn Glu Val Lys Cys Arg Cys Asn Tyr Thr Ser Val Val
    370                 375                 380

Met Ser Phe Ser Ile Leu Met Ser Ser Lys Ser Met Thr Asp Lys Val
```

385 390 395 400

Leu Asp Tyr Ile Thr Cys Ile Gly Leu Ser Val Ser Ile Leu Ser Leu
405 410 415

Val Leu Cys Leu Ile Ile Glu Ala Thr Val Trp Ser Arg Val Val Val
420 425 430

Thr Glu Ile Ser Tyr Met Arg His Val Cys Ile Val Asn Ile Ala Val
435 440 445

Ser Leu Leu Thr Ala Asn Val Trp Phe Ile Ile Gly Ser His Phe Asn
450 455 460

Ile Lys Ala Gln Asp Tyr Asn Met Cys Val Ala Val Thr Phe Phe Ser
465 470 475 480

His Phe Phe Tyr Leu Ser Leu Phe Phe Trp Met Leu Phe Lys Ala Leu
485 490 495

Leu Ile Ile Tyr Gly Ile Leu Val Ile Phe Arg Arg Met Met Lys Ser
500 505 510

Arg Met Met Val Ile Gly Phe Ala Ile Gly Tyr Gly Cys Pro Leu Ile
515 520 525

Ile Ala Val Thr Thr Val Ala Ile Thr Glu Pro Glu Lys Gly Tyr Met
530 535 540

Arg Pro Glu Ala Cys Trp Leu Asn Trp Asp Asn Thr Lys Ala Leu Leu
545 550 555 560

Ala Phe Ala Ile Pro Ala Phe Val Ile Val Ala Val Asn Leu Ile Val
565 570 575

Val Leu Val Val Ala Val Asn Thr Gln Arg Pro Ser Ile Gly Ser Ser
580 585 590

Lys Ser Gln Asp Val Val Ile Ile Met Arg Ile Ser Lys Asn Val Ala
595 600 605

Ile Leu Thr Pro Leu Leu Gly Leu Thr Trp Gly Phe Gly Ile Ala Thr
610 615 620

```
Leu Ile Glu Gly Thr Ser Leu Thr Phe His Ile Ile Phe Ala Leu Leu
625                 630                 635                 640

Asn Ala Phe Gln Gly Phe Phe Ile Leu Leu Phe Gly Thr Ile Met Asp
                645                 650                 655

His Lys Ile Arg Asp Ala Leu Arg Met Arg Met Ser Ser Leu Lys Gly
            660                 665                 670

Lys Ser Arg Ala Ala Glu Asn Ala Ser Leu Gly Pro Thr Asn Gly Ser
        675                 680                 685

Lys Leu Met Asn Arg Gln Gly
    690                 695


<210> 3001
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<220>
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<220>
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<220>
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<400> 3001
Met Lys Met Lys Ser Gln Ala Thr Met Ile Cys Cys Leu Val Phe Phe
1               5                   10                  15

Leu Ser Thr Glu Cys Ser His Tyr Arg Ser Lys Ile His Leu Lys Ala
            20                  25                  30
```

```
Gly Asp Lys Leu Gln Ser Pro Glu Gly Lys Pro Lys Thr Gly Arg Ile
        35                  40                  45

Gln Glu Lys Cys Glu Gly Pro Cys Ile Ser Ser Ser Asn Cys Ser Gln
    50                  55                  60

Pro Cys Ala Lys Asp Phe His Gly Glu Ile Gly Phe Thr Cys Asn Gln
65                  70                  75                  80

Lys Lys Trp Gln Lys Ser Ala Glu Thr Cys Thr Ser Leu Ser Val Glu
                85                  90                  95

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

Pro Ser Ile Pro Leu His Ile Leu Asp Phe Arg Ala Pro Glu Thr Ile
        115                 120                 125

Glu Ser Val Ala Gln Gly Ile Arg Lys Asn Cys Pro Phe Asp Tyr Ala
    130                 135                 140

Cys Ile Thr Asp Met Val Lys Ser Ser Glu Thr Thr Ser Gly Asn Ile
145                 150                 155                 160

Ala Phe Ile Val Glu Leu Leu Lys Asn Ile Ser Thr Asp Leu Ser Asp
                165                 170                 175

Asn Val Thr Arg Glu Lys Met Lys Ser Tyr Ser Glu Val Ala Asn His
            180                 185                 190

Ile Leu Asp Thr Ala Ala Ile Ser Asn Trp Ala Phe Ile Pro Asn Lys
        195                 200                 205

Asn Ala Ser Ser Asp Leu Leu Gln Ser Val Asn Leu Phe Ala Arg Gln
    210                 215                 220

Leu His Ile His Asn Asn Ser Glu Asn Ile Val Asn Glu Leu Phe Ile
225                 230                 235                 240

Gln Thr Lys Gly Phe His Ile Asn His Asn Thr Ser Glu Lys Ser Leu
                245                 250                 255

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

```
            260                 265                 270

Val Gln Ile Pro Arg Gln Glu Leu Arg Lys Leu Trp Pro Asn Ala Ser
        275                 280                 285

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

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

Leu Ser Val Val Leu Pro Glu Arg Leu Gln Glu Ile Ile Leu Thr Phe
                325                 330                 335

Glu Lys Ile Asn Lys Thr Arg Asn Ala Arg Ala Gln Cys Val Gly Trp
            340                 345                 350

His Ser Lys Lys Arg Arg Trp Asp Glu Lys Ala Cys Gln Met Met Leu
        355                 360                 365

Asp Ile Arg Asn Glu Val Lys Cys Arg Cys Asn Tyr Thr Ser Val Val
    370                 375                 380

Met Ser Phe Ser Ile Leu Met Ser Ser Lys Ser Met Thr Asp Lys Val
385                 390                 395                 400

Leu Asp Tyr Ile Thr Cys Ile Gly Leu Ser Val Ser Ile Leu Ser Leu
                405                 410                 415

Val Leu Cys Leu Ile Ile Glu Ala Thr Val Trp Ser Arg Val Val Val
            420                 425                 430

Thr Glu Ile Ser Tyr Met Arg His Val Cys Ile Val Asn Ile Ala Val
        435                 440                 445

Ser Leu Leu Thr Ala Asn Val Trp Phe Ile Ile Gly Ser His Phe Asn
    450                 455                 460

Ile Lys Ala Gln Asp Tyr Asn Met Cys Val Ala Val Thr Phe Phe Ser
465                 470                 475                 480

His Phe Phe Tyr Leu Ser Leu Phe Phe Trp Met Leu Phe Lys Ala Leu
                485                 490                 495
```

Leu Ile Ile Tyr Gly Ile Leu Val Ile Phe Arg Arg Met Met Lys Ser
500 505 510

Arg Met Met Val Ile Gly Phe Ala Ile Gly Tyr Gly Cys Pro Leu Ile
515 520 525

Ile Ala Val Thr Thr Val Ala Ile Thr Glu Pro Glu Lys Gly Tyr Met
530 535 540

Arg Pro Glu Ala Cys Trp Leu Asn Trp Asp Asn Thr Lys Ala Leu Leu
545 550 555 560

Ala Phe Ala Ile Pro Ala Phe Val Ile Val Ala Val Asn Leu Ile Val
565 570 575

Val Leu Val Val Ala Val Asn Thr Gln Arg Pro Ser Ile Gly Ser Ser
580 585 590

Lys Ser Gln Asp Val Val Ile Ile Met Arg Ile Ser Lys Asn Val Ala
595 600 605

Ile Leu Thr Pro Leu Leu Gly Leu Thr Trp Gly Phe Gly Ile Ala Thr
610 615 620

Leu Ile Glu Gly Thr Ser Leu Thr Phe His Ile Ile Phe Ala Leu Leu
625 630 635 640

Asn Ala Phe Gln Gly Phe Phe Ile Leu Leu Phe Gly Thr Ile Met Asp
645 650 655

His Lys Ile Arg Asp Ala Leu Arg Met Arg Met Ser Ser Leu Lys Gly
660 665 670

Lys Ser Arg Ala Ala Glu Asn Ala Ser Leu Gly Pro Thr Asn Gly Ser
675 680 685

Lys Leu Met Asn Arg Gln Gly
690 695

<210> 3002
<211> 752
<212> PRT

<213> Homo sapiens

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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor F4; "

<220>
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<400> 3002

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Met Tyr Thr Gly Pro Cys Lys Val Leu His Leu Ser Ser Gly Leu Leu
1               5                  10                  15

Pro Asn Ser Gly Arg Phe Gly Ile Val Leu Ser Asp Glu Tyr Gln Val
            20                  25                  30

Val Thr Ser Leu Trp Cys Gln Leu Tyr Thr Thr His Ala Pro Gln Gln
        35                  40                  45

Ala Ser Gly Met Leu Leu Leu Asn Tyr Leu Val Ile Pro Ser Lys Ala
    50                  55                  60

Gln Val Asn Lys Pro Gly Tyr Ile Pro Asn Leu Gly Glu Cys Ser His
65                  70                  75                  80

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

Glu Gly Lys Pro Lys Thr Gly Arg Ile Gln Glu Lys Cys Glu Gly Pro
            100                 105                 110

Cys Ile Ser Ser Ser Asn Cys Ser Gln Pro Cys Ala Lys Asp Phe His
        115                 120                 125

Gly Glu Ile Gly Phe Thr Cys Asn Gln Lys Lys Trp Gln Lys Ser Ala
    130                 135                 140

Glu Thr Cys Thr Ser Leu Ser Val Glu Lys Leu Phe Lys Asp Ser Thr
```

```
145                 150                 155                 160

Gly Ala Ser Arg Leu Ser Val Ala Ala Pro Ser Ile Pro Leu His Ile
                165                 170                 175

Leu Asp Phe Arg Ala Pro Glu Thr Ile Glu Ser Val Ala Gln Gly Ile
            180                 185                 190

Arg Lys Asn Cys Pro Phe Asp Tyr Ala Cys Ile Thr Asp Met Val Lys
        195                 200                 205

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

Lys Asn Ile Ser Thr Asp Leu Ser Asp Asn Val Thr Arg Glu Lys Met
225                 230                 235                 240

Lys Ser Tyr Ser Glu Val Ala Asn His Ile Leu Asp Thr Ala Ala Ile
                245                 250                 255

Ser Asn Trp Ala Phe Ile Pro Asn Lys Asn Ala Ser Ser Asp Leu Leu
            260                 265                 270

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

Glu Asn Ile Val Asn Glu Leu Phe Ile Gln Thr Lys Gly Phe His Ile
    290                 295                 300

Asn His Asn Thr Ser Glu Lys Ser Leu Asn Phe Ser Met Ser Met Asn
305                 310                 315                 320

Asn Thr Thr Glu Asp Ile Leu Gly Met Val Gln Ile Pro Arg Gln Glu
                325                 330                 335

Leu Arg Lys Leu Trp Pro Asn Ala Ser Gln Ala Ile Ser Ile Ala Phe
            340                 345                 350

Pro Thr Leu Gly Ala Ile Leu Arg Glu Ala His Leu Gln Asn Val Ser
        355                 360                 365

Leu Pro Arg Gln Val Asn Gly Leu Val Leu Ser Val Val Leu Pro Glu
    370                 375                 380
```

```
Arg Leu Gln Glu Ile Ile Leu Thr Phe Glu Lys Ile Asn Lys Thr Arg
385                 390                 395                 400

Asn Ala Arg Ala Gln Cys Val Gly Trp His Ser Lys Lys Arg Arg Trp
                405                 410                 415

Asp Glu Lys Ala Cys Gln Met Met Leu Asp Ile Arg Asn Glu Val Lys
            420                 425                 430

Cys Arg Cys Asn Tyr Thr Ser Val Val Met Ser Phe Ser Ile Leu Met
        435                 440                 445

Ser Ser Lys Ser Met Thr Asp Lys Val Leu Asp Tyr Ile Thr Cys Ile
    450                 455                 460

Gly Leu Ser Val Ser Ile Leu Ser Leu Val Leu Cys Leu Ile Ile Glu
465                 470                 475                 480

Ala Thr Val Trp Ser Arg Val Val Val Thr Glu Ile Ser Tyr Met Arg
                485                 490                 495

His Val Cys Ile Val Asn Ile Ala Val Ser Leu Leu Thr Ala Asn Val
            500                 505                 510

Trp Phe Ile Ile Gly Ser His Phe Asn Ile Lys Ala Gln Asp Tyr Asn
        515                 520                 525

Met Cys Val Ala Val Thr Phe Phe Ser His Phe Phe Tyr Leu Ser Leu
    530                 535                 540

Phe Phe Trp Met Leu Phe Lys Ala Leu Leu Ile Ile Tyr Gly Ile Leu
545                 550                 555                 560

Val Ile Phe Arg Arg Met Met Lys Ser Arg Met Met Val Ile Gly Phe
                565                 570                 575

Ala Ile Gly Tyr Gly Cys Pro Leu Ile Ile Ala Val Thr Thr Val Ala
            580                 585                 590

Ile Thr Glu Pro Glu Lys Gly Tyr Met Arg Pro Glu Ala Cys Trp Leu
        595                 600                 605
```

```
Asn Trp Asp Asn Thr Lys Ala Leu Leu Ala Phe Ala Ile Pro Ala Phe
    610                 615                 620

Val Ile Val Ala Val Asn Leu Ile Val Val Leu Val Val Ala Val Asn
625                 630                 635                 640

Thr Gln Arg Pro Ser Ile Gly Ser Ser Lys Ser Gln Asp Val Val Ile
                645                 650                 655

Ile Met Arg Ile Ser Lys Asn Val Ala Ile Leu Thr Pro Leu Leu Gly
            660                 665                 670

Leu Thr Trp Gly Phe Gly Ile Ala Thr Leu Ile Glu Gly Thr Ser Leu
        675                 680                 685

Thr Phe His Ile Ile Phe Ala Leu Leu Asn Ala Phe Gln Gly Phe Phe
    690                 695                 700

Ile Leu Leu Phe Gly Thr Ile Met Asp His Lys Ile Arg Asp Ala Leu
705                 710                 715                 720

Arg Met Arg Met Ser Ser Leu Lys Gly Lys Ser Arg Ala Ala Glu Asn
                725                 730                 735

Ala Ser Leu Gly Pro Thr Asn Gly Ser Lys Leu Met Asn Arg Gln Gly
            740                 745                 750
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<210> 3003
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<213> Homo sapiens

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adhesion G prt-coupled receptor F5; "

<220>
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<223> /note="Uniprot ID: Q8IZF2; "

<220>
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<400> 3003

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Met Lys Ser Pro Arg Arg Thr Thr Leu Cys Leu Met Phe Ile Val Ile
1               5                  10                  15

Tyr Ser Ser Lys Ala Ala Leu Asn Trp Asn Tyr Glu Ser Thr Ile His
            20                  25                  30

Pro Leu Ser Leu His Glu His Glu Pro Ala Gly Glu Glu Ala Leu Arg
        35                  40                  45

Gln Lys Arg Ala Val Ala Thr Lys Ser Pro Thr Ala Glu Glu Tyr Thr
    50                  55                  60

Val Asn Ile Glu Ile Ser Phe Glu Asn Ala Ser Phe Leu Asp Pro Ile
65                  70                  75                  80

Lys Ala Tyr Leu Asn Ser Leu Ser Phe Pro Ile His Gly Asn Asn Thr
                85                  90                  95

Asp Gln Ile Thr Asp Ile Leu Ser Ile Asn Val Thr Thr Val Cys Arg
            100                 105                 110

Pro Ala Gly Asn Glu Ile Trp Cys Ser Cys Glu Thr Gly Tyr Gly Trp
        115                 120                 125

Pro Arg Glu Arg Cys Leu His Asn Leu Ile Cys Gln Glu Arg Asp Val
    130                 135                 140

Phe Leu Pro Gly His His Cys Ser Cys Leu Lys Glu Leu Pro Pro Asn
145                 150                 155                 160

Gly Pro Phe Cys Leu Leu Gln Glu Asp Val Thr Leu Asn Met Arg Val
                165                 170                 175

Arg Leu Asn Val Gly Phe Gln Glu Asp Leu Met Asn Thr Ser Ser Ala
            180                 185                 190

Leu Tyr Arg Ser Tyr Lys Thr Asp Leu Glu Thr Ala Phe Arg Lys Gly
        195                 200                 205
```

```
Tyr Gly Ile Leu Pro Gly Phe Lys Gly Val Thr Val Thr Gly Phe Lys
    210                 215                 220

Ser Gly Ser Val Val Val Thr Tyr Glu Val Lys Thr Thr Pro Pro Ser
225                 230                 235                 240

Leu Glu Leu Ile His Lys Ala Asn Glu Gln Val Val Gln Ser Leu Asn
                245                 250                 255

Gln Thr Tyr Lys Met Asp Tyr Asn Ser Phe Gln Ala Val Thr Ile Asn
            260                 265                 270

Glu Ser Asn Phe Phe Val Thr Pro Glu Ile Ile Phe Glu Gly Asp Thr
        275                 280                 285

Val Ser Leu Val Cys Glu Lys Glu Val Leu Ser Ser Asn Val Ser Trp
    290                 295                 300

Arg Tyr Glu Glu Gln Gln Leu Glu Ile Gln Asn Ser Ser Arg Phe Ser
305                 310                 315                 320

Ile Tyr Thr Ala Leu Phe Asn Asn Met Thr Ser Val Ser Lys Leu Thr
                325                 330                 335

Ile His Asn Ile Thr Pro Gly Asp Ala Gly Glu Tyr Val Cys Lys Leu
            340                 345                 350

Ile Leu Asp Ile Phe Glu Tyr Glu Cys Lys Lys Lys Ile Asp Val Met
        355                 360                 365

Pro Ile Gln Ile Leu Ala Asn Glu Glu Met Lys Val Met Cys Asp Asn
    370                 375                 380

Asn Pro Val Ser Leu Asn Cys Cys Ser Gln Gly Asn Val Asn Trp Ser
385                 390                 395                 400

Lys Val Glu Trp Lys Gln Glu Gly Lys Ile Asn Ile Pro Gly Thr Pro
                405                 410                 415

Glu Thr Asp Ile Asp Ser Ser Cys Ser Arg Tyr Thr Leu Lys Ala Asp
            420                 425                 430
```

```
Gly Thr Gln Cys Pro Ser Gly Ser Ser Gly Thr Thr Val Ile Tyr Thr
        435                 440                 445

Cys Glu Phe Ile Ser Ala Tyr Gly Ala Arg Gly Ser Ala Asn Ile Lys
    450                 455                 460

Val Thr Phe Ile Ser Val Ala Asn Leu Thr Ile Thr Pro Asp Pro Ile
465                 470                 475                 480

Ser Val Ser Glu Gly Gln Asn Phe Ser Ile Lys Cys Ile Ser Asp Val
                485                 490                 495

Ser Asn Tyr Asp Glu Val Tyr Trp Asn Thr Ser Ala Gly Ile Lys Ile
            500                 505                 510

Tyr Gln Arg Phe Tyr Thr Thr Arg Arg Tyr Leu Asp Gly Ala Glu Ser
        515                 520                 525

Val Leu Thr Val Lys Thr Ser Thr Arg Glu Trp Asn Gly Thr Tyr His
    530                 535                 540

Cys Ile Phe Arg Tyr Lys Asn Ser Tyr Ser Ile Ala Thr Lys Asp Val
545                 550                 555                 560

Ile Val His Pro Leu Pro Leu Lys Leu Asn Ile Met Val Asp Pro Leu
                565                 570                 575

Glu Ala Thr Val Ser Cys Ser Gly Ser His His Ile Lys Cys Cys Ile
            580                 585                 590

Glu Glu Asp Gly Asp Tyr Lys Val Thr Phe His Thr Gly Ser Ser Ser
        595                 600                 605

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

Asn Phe Asn Ala Ser Ser Val Ser Trp Cys Ser Lys Thr Val Asp Val
625                 630                 635                 640

Cys Cys His Phe Thr Asn Ala Ala Asn Asn Ser Val Trp Ser Pro Ser
                645                 650                 655
```

```
Met Lys Leu Asn Leu Val Pro Gly Glu Asn Ile Thr Cys Gln Asp Pro
            660                 665                 670

Val Ile Gly Val Gly Glu Pro Gly Lys Val Ile Gln Lys Leu Cys Arg
        675                 680                 685

Phe Ser Asn Val Pro Ser Ser Pro Glu Ser Pro Ile Gly Gly Thr Ile
    690                 695                 700

Thr Tyr Lys Cys Val Gly Ser Gln Trp Glu Glu Lys Arg Asn Asp Cys
705                 710                 715                 720

Ile Ser Ala Pro Ile Asn Ser Leu Leu Gln Met Ala Lys Ala Leu Ile
                725                 730                 735

Lys Ser Pro Ser Gln Asp Glu Met Leu Pro Thr Tyr Leu Lys Asp Leu
            740                 745                 750

Ser Ile Ser Ile Asp Lys Ala Glu His Glu Ile Ser Ser Ser Pro Gly
        755                 760                 765

Ser Leu Gly Ala Ile Ile Asn Ile Leu Asp Leu Leu Ser Thr Val Pro
    770                 775                 780

Thr Gln Val Asn Ser Glu Met Met Thr His Val Leu Ser Thr Val Asn
785                 790                 795                 800

Val Ile Leu Gly Lys Pro Val Leu Asn Thr Trp Lys Val Leu Gln Gln
                805                 810                 815

Gln Trp Thr Asn Gln Ser Ser Gln Leu Leu His Ser Val Glu Arg Phe
            820                 825                 830

Ser Gln Ala Leu Gln Ser Gly Asp Ser Pro Pro Leu Ser Phe Ser Gln
        835                 840                 845

Thr Asn Val Gln Met Ser Ser Met Val Ile Lys Ser Ser His Pro Glu
    850                 855                 860

Thr Tyr Gln Gln Arg Phe Val Phe Pro Tyr Phe Asp Leu Trp Gly Asn
865                 870                 875                 880

Val Val Ile Asp Lys Ser Tyr Leu Glu Asn Leu Gln Ser Asp Ser Ser
```

885 890 895

Ile Val Thr Met Ala Phe Pro Thr Leu Gln Ala Ile Leu Ala Gln Asp
900 905 910

Ile Gln Glu Asn Asn Phe Ala Glu Ser Leu Val Met Thr Thr Thr Val
915 920 925

Ser His Asn Thr Thr Met Pro Phe Arg Ile Ser Met Thr Phe Lys Asn
930 935 940

Asn Ser Pro Ser Gly Gly Glu Thr Lys Cys Val Phe Trp Asn Phe Arg
945 950 955 960

Leu Ala Asn Asn Thr Gly Gly Trp Asp Ser Ser Gly Cys Tyr Val Glu
965 970 975

Glu Gly Asp Gly Asp Asn Val Thr Cys Ile Cys Asp His Leu Thr Ser
980 985 990

Phe Ser Ile Leu Met Ser Pro Asp Ser Pro Asp Pro Ser Ser Leu
Leu
995 1000 1005

Gly Ile Leu Leu Asp Ile Ile Ser Tyr Val Gly Val Gly Phe Ser
1010 1015 1020

Ile Leu Ser Leu Ala Ala Cys Leu Val Val Glu Ala Val Val Trp
1025 1030 1035

Lys Ser Val Thr Lys Asn Arg Thr Ser Tyr Met Arg His Thr Cys
1040 1045 1050

Ile Val Asn Ile Ala Ala Ser Leu Leu Val Ala Asn Thr Trp Phe
1055 1060 1065

Ile Val Val Ala Ala Ile Gln Asp Asn Arg Tyr Ile Leu Cys Lys
1070 1075 1080

Thr Ala Cys Val Ala Ala Thr Phe Phe Ile His Phe Phe Tyr Leu
1085 1090 1095

Ser Val Phe Phe Trp Met Leu Thr Leu Gly Leu Met Leu Phe Tyr

```
    1100                1105                1110

Arg Leu  Val Phe Ile Leu His  Glu Thr Ser Arg Ser  Thr Gln Lys
    1115                1120                1125

Ala Ile  Ala Phe Cys Leu Gly  Tyr Gly Cys Pro Leu  Ala Ile Ser
    1130                1135                1140

Val Ile  Thr Leu Gly Ala Thr  Gln Pro Arg Glu Val  Tyr Thr Arg
    1145                1150                1155

Lys Asn  Val Cys Trp Leu Asn  Trp Glu Asp Thr Lys  Ala Leu Leu
    1160                1165                1170

Ala Phe  Ala Ile Pro Ala Leu  Ile Ile Val Val Val  Asn Ile Thr
    1175                1180                1185

Ile Thr  Ile Val Val Ile Thr  Lys Ile Leu Arg Pro  Ser Ile Gly
    1190                1195                1200

Asp Lys  Pro Cys Lys Gln Glu  Lys Ser Ser Leu Phe  Gln Ile Ser
    1205                1210                1215

Lys Ser  Ile Gly Val Leu Thr  Pro Leu Leu Gly Leu  Thr Trp Gly
    1220                1225                1230

Phe Gly  Leu Thr Thr Val Phe  Pro Gly Thr Asn Leu  Val Phe His
    1235                1240                1245

Ile Ile  Phe Ala Ile Leu Asn  Val Phe Gln Gly Leu  Phe Ile Leu
    1250                1255                1260

Leu Phe  Gly Cys Leu Trp Asp  Leu Lys Val Gln Glu  Ala Leu Leu
    1265                1270                1275

Asn Lys  Phe Ser Leu Ser Arg  Trp Ser Ser Gln His  Ser Lys Ser
    1280                1285                1290

Thr Ser  Leu Gly Ser Ser Thr  Pro Val Phe Ser Met  Ser Ser Pro
    1295                1300                1305

Ile Ser  Arg Arg Phe Asn Asn  Leu Phe Gly Lys Thr  Gly Thr Tyr
    1310                1315                1320
```

```
Asn Val  Ser Thr Pro Glu Ala  Thr Ser Ser Ser Leu  Glu Asn Ser
    1325                1330                1335


Ser Ser  Ala Ser Ser Leu Leu  Asn
    1340                1345


<210> 3004
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<213> Homo sapiens

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<223> /note="Uniprot ID:  Q8IZF2; "

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<400> 3004
Met Lys Ser Pro Arg Arg Thr Thr Leu Cys Leu Met Phe Ile Val Ile
1               5                   10                  15


Tyr Ser Ser Lys Ala Ala Leu Asn Trp Asn Tyr Glu Ser Thr Ile His
            20                  25                  30


Pro Leu Ser Leu His Glu His Glu Pro Ala Gly Glu Glu Ala Leu Arg
        35                  40                  45


Gln Lys Arg Ala Val Ala Thr Lys Ser Pro Thr Ala Glu Glu Tyr Thr
    50                  55                  60


Val Asn Ile Glu Ile Ser Phe Glu Asn Ala Ser Phe Leu Asp Pro Ile
65                  70                  75                  80
```

```
Lys Ala Tyr Leu Asn Ser Leu Ser Phe Pro Ile His Gly Asn Asn Thr
                85                  90                  95

Asp Gln Ile Thr Asp Ile Leu Ser Ile Asn Val Thr Thr Val Cys Arg
            100                 105                 110

Pro Ala Gly Asn Glu Ile Trp Cys Ser Cys Glu Thr Gly Tyr Gly Trp
        115                 120                 125

Pro Arg Glu Arg Cys Leu His Asn Leu Ile Cys Gln Glu Arg Asp Val
    130                 135                 140

Phe Leu Pro Gly His His Cys Ser Cys Leu Lys Glu Leu Pro Pro Asn
145                 150                 155                 160

Gly Pro Phe Cys Leu Leu Gln Glu Asp Val Thr Leu Asn Met Arg Val
                165                 170                 175

Arg Leu Asn Val Gly Phe Gln Glu Asp Leu Met Asn Thr Ser Ser Ala
            180                 185                 190

Leu Tyr Arg Ser Tyr Lys Thr Asp Leu Glu Thr Ala Phe Arg Lys Gly
        195                 200                 205

Tyr Gly Ile Leu Pro Gly Phe Lys Gly Val Thr Val Thr Gly Phe Lys
    210                 215                 220

Ser Gly Ser Val Val Val Thr Tyr Glu Val Lys Thr Thr Pro Pro Ser
225                 230                 235                 240

Leu Glu Leu Ile His Lys Ala Asn Glu Gln Val Val Gln Ser Leu Asn
                245                 250                 255

Gln Thr Tyr Lys Met Asp Tyr Asn Ser Phe Gln Ala Val Thr Ile Asn
            260                 265                 270

Glu Ser Asn Phe Phe Val Thr Pro Glu Ile Ile Phe Glu Gly Asp Thr
        275                 280                 285

Val Ser Leu Val Cys Glu Lys Glu Val Leu Ser Ser Asn Val Ser Trp
    290                 295                 300

Arg Tyr Glu Glu Gln Gln Leu Glu Ile Gln Asn Ser Ser Arg Phe Ser
```

305 310 315 320

Ile Tyr Thr Ala Leu Phe Asn Asn Met Thr Ser Val Ser Lys Leu Thr
325 330 335

Ile His Asn Ile Thr Pro Gly Asp Ala Gly Glu Tyr Val Cys Lys Leu
340 345 350

Ile Leu Asp Ile Phe Glu Tyr Glu Cys Lys Lys Lys Ile Asp Val Met
355 360 365

Pro Ile Gln Ile Leu Ala Asn Glu Glu Met Lys Val Met Cys Asp Asn
370 375 380

Asn Pro Val Ser Leu Asn Cys Cys Ser Gln Gly Asn Val Asn Trp Ser
385 390 395 400

Lys Val Glu Trp Lys Gln Glu Gly Lys Ile Asn Ile Pro Gly Thr Pro
405 410 415

Glu Thr Asp Ile Asp Ser Ser Cys Ser Arg Tyr Thr Leu Lys Ala Asp
420 425 430

Gly Thr Gln Cys Pro Ser Gly Ser Ser Gly Thr Thr Val Ile Tyr Thr
435 440 445

Cys Glu Phe Ile Ser Ala Tyr Gly Ala Arg Gly Ser Ala Asn Ile Lys
450 455 460

Val Thr Phe Ile Ser Val Ala Asn Leu Thr Ile Thr Pro Asp Pro Ile
465 470 475 480

Ser Val Ser Glu Gly Gln Asn Phe Ser Ile Lys Cys Ile Ser Asp Val
485 490 495

Ser Asn Tyr Asp Glu Val Tyr Trp Asn Thr Ser Ala Gly Ile Lys Ile
500 505 510

Tyr Gln Arg Phe Tyr Thr Thr Arg Arg Tyr Leu Asp Gly Ala Glu Ser
515 520 525

Val Leu Thr Val Lys Thr Ser Thr Arg Glu Trp Asn Gly Thr Tyr His
530 535 540

```
Cys Ile Phe Arg Tyr Lys Asn Ser Tyr Ser Ile Ala Thr Lys Asp Val
545                 550                 555                 560

Ile Val His Pro Leu Pro Leu Lys Leu Asn Ile Met Val Asp Pro Leu
                565                 570                 575

Glu Ala Thr Val Ser Cys Ser Gly Ser His His Ile Lys Cys Cys Ile
            580                 585                 590

Glu Glu Asp Gly Asp Tyr Lys Val Thr Phe His Thr Gly Ser Ser Ser
        595                 600                 605

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

Asn Phe Asn Ala Ser Ser Val Ser Trp Cys Ser Lys Thr Val Asp Val
625                 630                 635                 640

Cys Cys His Phe Thr Asn Ala Ala Asn Asn Ser Val Trp Ser Pro Ser
                645                 650                 655

Met Lys Leu Asn Leu Val Pro Gly Glu Asn Ile Thr Cys Gln Asp Pro
            660                 665                 670

Val Ile Gly Val Gly Glu Pro Gly Lys Val Ile Gln Lys Leu Cys Arg
        675                 680                 685

Phe Ser Asn Val Pro Ser Ser Pro Glu Ser Pro Ile Gly Gly Thr Ile
    690                 695                 700

Thr Tyr Lys Cys Val Gly Ser Gln Trp Glu Glu Lys Arg Asn Asp Cys
705                 710                 715                 720

Ile Ser Ala Pro Ile Asn Ser Leu Leu Gln Met Ala Lys Ala Leu Ile
                725                 730                 735

Lys Ser Pro Ser Gln Asp Glu Met Leu Pro Thr Tyr Leu Lys Asp Leu
            740                 745                 750

Ser Ile Ser Ile Asp Lys Ala Glu His Glu Ile Ser Ser Ser Pro Gly
        755                 760                 765
```

```
Ser Leu Gly Ala Ile Ile Asn Ile Leu Asp Leu Leu Ser Thr Val Pro
    770                 775                 780

Thr Gln Val Asn Ser Glu Met Met Thr His Val Leu Ser Thr Val Asn
785                 790                 795                 800

Val Ile Leu Gly Lys Pro Val Leu Asn Thr Trp Lys Val Leu Gln Gln
                805                 810                 815

Gln Trp Thr Asn Gln Ser Ser Gln Leu Leu His Ser Val Glu Arg Phe
            820                 825                 830

Ser Gln Ala Leu Gln Ser Gly Asp Ser Pro Pro Leu Ser Phe Ser Gln
        835                 840                 845

Thr Asn Val Gln Met Ser Ser Met Val Ile Lys Ser Ser His Pro Glu
    850                 855                 860

Thr Tyr Gln Gln Arg Phe Val Phe Pro Tyr Phe Asp Leu Trp Gly Asn
865                 870                 875                 880

Val Val Ile Asp Lys Ser Tyr Leu Glu Asn Leu Gln Ser Asp Ser Ser
                885                 890                 895

Ile Val Thr Met Ala Phe Pro Thr Leu Gln Ala Ile Leu Ala Gln Asp
            900                 905                 910

Ile Gln Glu Asn Asn Phe Ala Glu Ser Leu Val Met Thr Thr Thr Val
        915                 920                 925

Ser His Asn Thr Thr Met Pro Phe Arg Ile Ser Met Thr Phe Lys Asn
    930                 935                 940

Asn Ser Pro Ser Gly Gly Glu Thr Lys Cys Val Phe Trp Asn Phe Arg
945                 950                 955                 960

Leu Ala Asn Asn Thr Gly Gly Trp Asp Ser Ser Gly Cys Tyr Val Glu
                965                 970                 975

Glu Gly Asp Gly Asp Asn Val Thr Cys Ile Cys Asp His Leu Thr Ser
            980                 985                 990
```

Phe Ser Ile Leu Met Ser Pro Asp Ser Pro Asp Pro Ser Ser Leu Leu
995 1000 1005

Gly Ile Leu Leu Asp Ile Ile Ser Tyr Val Gly Val Gly Phe Ser
1010 1015 1020

Ile Leu Ser Leu Ala Ala Cys Leu Val Val Glu Ala Val Val Trp
1025 1030 1035

Lys Ser Val Thr Lys Asn Arg Thr Ser Tyr Met Arg His Thr Cys
1040 1045 1050

Ile Val Asn Ile Ala Ala Ser Leu Leu Val Ala Asn Thr Trp Phe
1055 1060 1065

Ile Val Val Ala Ala Ile Gln Asp Asn Arg Tyr Ile Leu Cys Lys
1070 1075 1080

Thr Ala Cys Val Ala Ala Thr Phe Phe Ile His Phe Phe Tyr Leu
1085 1090 1095

Ser Val Phe Phe Trp Met Leu Thr Leu Gly Leu Met Leu Phe Tyr
1100 1105 1110

Arg Leu Val Phe Ile Leu His Glu Thr Ser Arg Ser Thr Gln Lys
1115 1120 1125

Ala Ile Ala Phe Cys Leu Gly Tyr Gly Cys Pro Leu Ala Ile Ser
1130 1135 1140

Val Ile Thr Leu Gly Ala Thr Gln Pro Arg Glu Val Tyr Thr Arg
1145 1150 1155

Lys Asn Val Cys Trp Leu Asn Trp Glu Asp Thr Lys Ala Leu Leu
1160 1165 1170

Ala Phe Ala Ile Pro Ala Leu Ile Ile Val Val Val Asn Ile Thr
1175 1180 1185

Ile Thr Ile Val Val Ile Thr Lys Ile Leu Arg Pro Ser Ile Gly
1190 1195 1200

```
Asp Lys  Pro Cys Lys Gln Glu  Lys Ser Ser Leu Phe  Gln Ile Ser
    1205                1210                1215

Lys Ser  Ile Gly Val Leu Thr  Pro Leu Leu Gly Leu  Thr Trp Gly
    1220                1225                1230

Phe Gly  Leu Thr Thr Val Phe  Pro Gly Thr Asn Leu  Val Phe His
    1235                1240                1245

Ile Ile  Phe Ala Ile Leu Asn  Val Phe Gln Gly Leu  Phe Ile Leu
    1250                1255                1260

Leu Phe  Gly Cys Leu Trp Asp  Leu Lys Val Gln Glu  Ala Leu Leu
    1265                1270                1275

Asn Lys  Phe Ser Leu Ser Arg  Trp Ser Ser Gln His  Ser Lys Ser
    1280                1285                1290

Thr Ser  Leu Gly Ser Ser Thr  Pro Val Phe Ser Met  Ser Ser Pro
    1295                1300                1305

Ile Ser  Arg Arg Phe Asn Asn  Leu Phe Gly Lys Thr  Gly Thr Tyr
    1310                1315                1320

Asn Val  Ser Thr Pro Glu Ala  Thr Ser Ser Ser Leu  Glu Asn Ser
    1325                1330                1335

Ser Ser  Ala Ser Ser Leu Leu  Asn
    1340                1345


<210> 3005
<211> 687
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      adhesion G prt-coupled receptor G1; "
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<220>
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<220>
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Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20   25   30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35   40   45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50   55   60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65   70   75   80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85   90   95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100   105   110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115   120   125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130   135   140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145   150   155   160

Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165   170   175

Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180   185   190

```
Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240

Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255

Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val Leu Leu Pro Arg Thr
            260                 265                 270

Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu Ala Glu Lys Arg Leu
        275                 280                 285

Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe Gln Asp Lys Asn Ser
    290                 295                 300

Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile Val Val Gln Asn Thr
305                 310                 315                 320

Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu Thr Phe Gln His Gln
                325                 330                 335

Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val Phe Trp Val Glu Asp
            340                 345                 350

Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser Ala Gly Cys Glu Thr
        355                 360                 365

Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys Asn His Leu Thr Tyr
    370                 375                 380

Phe Ala Val Leu Met Val Ser Ser Val Glu Val Asp Ala Val His Lys
385                 390                 395                 400

His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys Val Val Ser Ala Leu
                405                 410                 415
```

```
Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys Ser Arg Arg Lys Pro
            420                 425                 430

Arg Asp Tyr Thr Ile Lys Val His Met Asn Leu Leu Leu Ala Val Phe
        435                 440                 445

Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu Pro Val Ala Leu Thr Gly
    450                 455                 460

Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile Phe Leu His Phe Ser Leu
465                 470                 475                 480

Leu Thr Cys Leu Ser Trp Met Gly Leu Glu Gly Tyr Asn Leu Tyr Arg
                485                 490                 495

Leu Val Val Glu Val Phe Gly Thr Tyr Val Pro Gly Tyr Leu Leu Lys
            500                 505                 510

Leu Ser Ala Met Gly Trp Gly Phe Pro Ile Phe Leu Val Thr Leu Val
        515                 520                 525

Ala Leu Val Asp Val Asp Asn Tyr Gly Pro Ile Ile Leu Ala Val His
    530                 535                 540

Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser Met Cys Trp Ile Arg Asp
545                 550                 555                 560

Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly Leu Phe Ser Leu Val Phe
                565                 570                 575

Leu Phe Asn Met Ala Met Leu Ala Thr Met Val Val Gln Ile Leu Arg
            580                 585                 590

Leu Arg Pro His Thr Gln Lys Trp Ser His Val Leu Thr Leu Leu Gly
        595                 600                 605

Leu Ser Leu Val Leu Gly Leu Pro Trp Ala Leu Ile Phe Phe Ser Phe
    610                 615                 620

Ala Ser Gly Thr Phe Gln Leu Val Val Leu Tyr Leu Phe Ser Ile Ile
625                 630                 635                 640

Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile Trp Tyr Trp Ser Met Arg
```

645 650 655

Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu Lys Ser Asn Ser Asp Ser
660 665 670

Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr Ser Ser Ser Arg Ile
675 680 685

<210> 3006
<211> 692
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor G1; "

<220>
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<220>
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<400> 3006
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

```
Pro Ala Ser Arg Ser Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys
                85                  90                  95

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
            100                 105                 110

Arg Asp Phe Leu Leu Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln
        115                 120                 125

His Gln Glu Glu Ser Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser
    130                 135                 140

Val Thr Ser Trp Trp Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala
145                 150                 155                 160

Ser Phe Thr Phe Ser Phe His Ser Pro Pro His Thr Ala Ala His Asn
                165                 170                 175

Ala Ser Val Asp Met Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser
            180                 185                 190

Gln Phe Leu Lys His Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala
        195                 200                 205

Pro Ala Ser Gln Gln Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val
    210                 215                 220

Arg Phe Met Gly Asp Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala
225                 230                 235                 240

Thr Val Trp Lys Leu Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile
                245                 250                 255

His Ser Arg Gln Glu Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val
            260                 265                 270

Leu Leu Pro Arg Thr Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu
        275                 280                 285

Ala Glu Lys Arg Leu Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe
    290                 295                 300
```

```
Gln Asp Lys Asn Ser Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile
305                 310                 315                 320

Val Val Gln Asn Thr Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu
                325                 330                 335

Thr Phe Gln His Gln Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val
            340                 345                 350

Phe Trp Val Glu Asp Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser
        355                 360                 365

Ala Gly Cys Glu Thr Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys
    370                 375                 380

Asn His Leu Thr Tyr Phe Ala Val Leu Met Val Ser Ser Val Glu Val
385                 390                 395                 400

Asp Ala Val His Lys His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys
                405                 410                 415

Val Val Ser Ala Leu Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys
            420                 425                 430

Ser Arg Arg Lys Pro Arg Asp Tyr Thr Ile Lys Val His Met Asn Leu
        435                 440                 445

Leu Leu Ala Val Phe Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu Pro
    450                 455                 460

Val Ala Leu Thr Gly Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile Phe
465                 470                 475                 480

Leu His Phe Ser Leu Leu Thr Cys Leu Ser Trp Met Gly Leu Glu Gly
                485                 490                 495

Tyr Asn Leu Tyr Arg Leu Val Val Glu Val Phe Gly Thr Tyr Val Pro
            500                 505                 510

Gly Tyr Leu Leu Lys Leu Ser Ala Met Gly Trp Gly Phe Pro Ile Phe
        515                 520                 525

Leu Val Thr Leu Val Ala Leu Val Asp Val Asp Asn Tyr Gly Pro Ile
```

```
    530                 535                 540

Ile Leu Ala Val His Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser Met
545                 550                 555                 560

Cys Trp Ile Arg Asp Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly Leu
                565                 570                 575

Phe Ser Leu Val Phe Leu Phe Asn Met Ala Met Leu Ala Thr Met Val
            580                 585                 590

Val Gln Ile Leu Arg Leu Arg Pro His Thr Gln Lys Trp Ser His Val
        595                 600                 605

Leu Thr Leu Leu Gly Leu Ser Leu Val Leu Gly Leu Pro Trp Ala Leu
    610                 615                 620

Ile Phe Phe Ser Phe Ala Ser Gly Thr Phe Gln Leu Val Val Leu Tyr
625                 630                 635                 640

Leu Phe Ser Ile Ile Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile Trp
                645                 650                 655

Tyr Trp Ser Met Arg Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu Lys
            660                 665                 670

Ser Asn Ser Asp Ser Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr Ser
        675                 680                 685

Ser Ser Arg Ile
    690


<210> 3007
<211> 687
<212> PRT
<213> Homo sapiens

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<221> source
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<221> source
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adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="Uniprot ID: Q9Y653; "

<220>
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<223> /note="ENSP ID: ENSP00000444911"

<400> 3007

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Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175
```

```
Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190

Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240

Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255

Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val Leu Leu Pro Arg Thr
            260                 265                 270

Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu Ala Glu Lys Arg Leu
        275                 280                 285

Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe Gln Asp Lys Asn Ser
    290                 295                 300

Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile Val Val Gln Asn Thr
305                 310                 315                 320

Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu Thr Phe Gln His Gln
                325                 330                 335

Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val Phe Trp Val Glu Asp
            340                 345                 350

Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser Ala Gly Cys Glu Thr
        355                 360                 365

Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys Asn His Leu Thr Tyr
    370                 375                 380

Phe Ala Val Leu Met Val Ser Ser Val Glu Val Asp Ala Val His Lys
385                 390                 395                 400

His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys Val Val Ser Ala Leu
```

405 410 415

Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys Ser Arg Arg Lys Pro
420 425 430

Arg Asp Tyr Thr Ile Lys Val His Met Asn Leu Leu Leu Ala Val Phe
435 440 445

Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu Pro Val Ala Leu Thr Gly
450 455 460

Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile Phe Leu His Phe Ser Leu
465 470 475 480

Leu Thr Cys Leu Ser Trp Met Gly Leu Glu Gly Tyr Asn Leu Tyr Arg
485 490 495

Leu Val Val Glu Val Phe Gly Thr Tyr Val Pro Gly Tyr Leu Leu Lys
500 505 510

Leu Ser Ala Met Gly Trp Gly Phe Pro Ile Phe Leu Val Thr Leu Val
515 520 525

Ala Leu Val Asp Val Asp Asn Tyr Gly Pro Ile Ile Leu Ala Val His
530 535 540

Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser Met Cys Trp Ile Arg Asp
545 550 555 560

Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly Leu Phe Ser Leu Val Phe
565 570 575

Leu Phe Asn Met Ala Met Leu Ala Thr Met Val Val Gln Ile Leu Arg
580 585 590

Leu Arg Pro His Thr Gln Lys Trp Ser His Val Leu Thr Leu Leu Gly
595 600 605

Leu Ser Leu Val Leu Gly Leu Pro Trp Ala Leu Ile Phe Phe Ser Phe
610 615 620

Ala Ser Gly Thr Phe Gln Leu Val Val Leu Tyr Leu Phe Ser Ile Ile
625 630 635 640

Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile Trp Tyr Trp Ser Met Arg
645 650 655

Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu Lys Ser Asn Ser Asp Ser
660 665 670

Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr Ser Ser Ser Arg Ile
675 680 685

<210> 3008
<211> 94
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<213> Homo sapiens

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adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000454233"

<400> 3008
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

```
Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp
                85                  90


<210> 3009
<211> 125
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<400> 3009
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15


Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
            20                  25                  30


His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
        35                  40                  45


Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
    50                  55                  60


Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65                  70                  75                  80


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


Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
            100                 105                 110


Arg Asp Phe Leu Leu Ser Asp Lys Ala Ser Ser Leu Leu
        115                 120                 125
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<210> 3010
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<223> /note="ENSP ID: ENSP00000454289"

<400> 3010
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
115 120 125

Leu Ala Gln
130

<210> 3011
<211> 81
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<223> /note="ENSP ID: ENSP00000454321"

<400> 3011
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Arg Cys Pro Arg Gln Gly Pro Gln Gly Arg
20 25 30

Leu Ser Leu Leu Gln Pro Ala Glu Pro Asp Thr Gln Glu Gln Pro Pro
35 40 45

Leu Gln Thr His Thr Arg Pro Ala His Leu His Arg Glu Leu Arg Arg
50 55 60

Gly Pro His Ser Pro Cys Pro Phe Pro Cys Ser Pro Pro Cys Phe Pro
65 70 75 80

Ile

<210> 3012
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<400> 3012
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu
115

<210> 3013
<211> 6
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000454490"

<400> 3013
Met Thr Pro Gln Ser Leu
1 5

<210> 3014
<211> 97
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 688; "

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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000454574"

<400> 3014
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Gly Thr Arg His Thr Gly Ala Ala Ser
20 25 30

Thr Thr Asn Pro His Gln Thr Cys Ala Ser Pro Ser Arg Thr Pro Lys
35 40 45

Arg Pro Ser Gln Ser Met Pro Leu Ser Leu Gln Pro Thr Leu Leu Pro
50 55 60

Asp Pro Ser Leu Thr Pro Gly Ala Ser Thr Thr Ser Ala Ser Thr Gly
65 70 75 80

Thr Asp Met Leu Gly Asp Tyr Ile Phe Ser Met Ala Ser Val Thr Ser
85 90 95

Cys

<210> 3015
<211> 146
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000454607"

<400> 3015
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

Pro Ala Ser Arg Ser Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys

```
                85                  90                  95

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
            100                 105                 110

Arg Asp Phe Leu Leu Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln
        115                 120                 125

His Gln Glu Glu Ser Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser
    130                 135                 140

Val Thr
145
```

<210> 3016
<211> 97
<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: ENSP00000454779"

<400> 3016

```
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Gly Ser Gly Thr Arg His Thr Gly Ala Ala Ser
            20                  25                  30

Thr Thr Asn Pro His Gln Thr Cys Ala Ser Pro Ser Arg Thr Pro Lys
        35                  40                  45

Arg Pro Ser Gln Ser Met Pro Leu Ser Leu Gln Pro Thr Leu Leu Pro
    50                  55                  60
```

```
Asp Pro Ser Leu Thr Pro Gly Ala Ser Thr Thr Ser Ala Ser Thr Gly
65                  70                  75                  80

Thr Asp Met Leu Gly Asp Tyr Ile Phe Ser Met Ala Ser Val Thr Ser
                85                  90                  95

Cys
```

<210> 3017
<211> 198
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000454855"

<400> 3017

```
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
            20                  25                  30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
        35                  40                  45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
    50                  55                  60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65                  70                  75                  80

Pro Ala Ser Arg Ser Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys
```

```
                85                  90                  95

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
            100                 105                 110

Arg Asp Phe Leu Leu Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln
        115                 120                 125

His Gln Glu Glu Ser Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser
    130                 135                 140

Val Thr Ser Trp Trp Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala
145                 150                 155                 160

Ser Phe Thr Phe Ser Phe His Ser Pro Pro His Thr Ala Ala His Asn
                165                 170                 175

Ala Ser Val Asp Met Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser
            180                 185                 190

Gln Phe Leu Lys His Pro
        195


<210> 3018
<211> 97
<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: ENSP00000454879"

<400> 3018
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15
```

```
Leu Phe Leu Val Gln Ala Ser Gly Thr Arg His Thr Gly Ala Ala Ser
            20                  25                  30

Thr Thr Asn Pro His Gln Thr Cys Ala Ser Pro Ser Arg Thr Pro Lys
        35                  40                  45

Arg Pro Ser Gln Ser Met Pro Leu Ser Leu Gln Pro Thr Leu Leu Pro
    50                  55                  60

Asp Pro Ser Leu Thr Pro Gly Ala Ser Thr Thr Ser Ala Ser Thr Gly
65                  70                  75                  80

Thr Asp Met Leu Gly Asp Tyr Ile Phe Ser Met Ala Ser Val Thr Ser
                85                  90                  95

Cys
```

<210> 3019
<211> 94
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454933"

<400> 3019

```
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
```

```
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp
                85                  90


<210> 3020
<211> 116
<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:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000455074"

<400> 3020
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80
```

```
Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala
        115


<210> 3021
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

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<221> source
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<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455176"

<400> 3021
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
            20                  25                  30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
        35                  40                  45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
    50                  55                  60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65                  70                  75                  80

Pro Ala Ser Arg Ser Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys
```

```
                85                  90                  95

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
            100                 105                 110

Arg Asp Phe Leu Leu Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln
        115                 120                 125

His Gln Glu Glu Ser Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser
    130                 135                 140

Val Thr Ser Trp Trp Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala
145                 150                 155                 160

Ser Phe Thr Phe Ser Phe His Ser
                165
```

<210> 3022
<211> 78
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455209"

<400> 3022

```
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15

Leu Phe Leu Val Gln Gly Arg Cys Pro Arg Gln Gly Pro Gln Gly Arg
            20                  25                  30

Leu Ser Leu Leu Gln Pro Ala Glu Pro Asp Thr Gln Glu Gln Pro Pro
        35                  40                  45
```

```
Leu Gln Thr His Thr Arg Pro Ala His Leu His Arg Glu Leu Arg Arg
    50                  55                  60

Gly Pro His Ser Pro Cys Pro Phe Pro Cys Ser Pro Pro Cys
65                  70                  75

<210> 3023
<211> 693
<212> PRT
<213> Homo sapiens

<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:  Q9Y653; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455215"

<400> 3023
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
```

```
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175

Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190

Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240

Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255

Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val Leu Leu Pro Arg Thr
            260                 265                 270

Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu Ala Glu Lys Arg Leu
        275                 280                 285

Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe Gln Asp Lys Asn Ser
    290                 295                 300

Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile Val Val Gln Asn Thr
305                 310                 315                 320
```

```
Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu Thr Phe Gln His Gln
                325                 330                 335

Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val Phe Trp Val Glu Asp
            340                 345                 350

Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser Ala Gly Cys Glu Thr
        355                 360                 365

Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys Asn His Leu Thr Tyr
    370                 375                 380

Phe Ala Val Leu Met Val Ser Ser Val Glu Val Asp Ala Val His Lys
385                 390                 395                 400

His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys Val Val Ser Ala Leu
                405                 410                 415

Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys Ser Arg Val Pro Leu
            420                 425                 430

Pro Cys Arg Arg Lys Pro Arg Asp Tyr Thr Ile Lys Val His Met Asn
        435                 440                 445

Leu Leu Leu Ala Val Phe Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu
    450                 455                 460

Pro Val Ala Leu Thr Gly Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile
465                 470                 475                 480

Phe Leu His Phe Ser Leu Leu Thr Cys Leu Ser Trp Met Gly Leu Glu
                485                 490                 495

Gly Tyr Asn Leu Tyr Arg Leu Val Val Glu Val Phe Gly Thr Tyr Val
            500                 505                 510

Pro Gly Tyr Leu Leu Lys Leu Ser Ala Met Gly Trp Gly Phe Pro Ile
        515                 520                 525

Phe Leu Val Thr Leu Val Ala Leu Val Asp Val Asp Asn Tyr Gly Pro
    530                 535                 540
```

```
Ile Ile Leu Ala Val His Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser
545                 550                 555                 560

Met Cys Trp Ile Arg Asp Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly
                565                 570                 575

Leu Phe Ser Leu Val Phe Leu Phe Asn Met Ala Met Leu Ala Thr Met
            580                 585                 590

Val Val Gln Ile Leu Arg Leu Arg Pro His Thr Gln Lys Trp Ser His
        595                 600                 605

Val Leu Thr Leu Leu Gly Leu Ser Leu Val Leu Gly Leu Pro Trp Ala
    610                 615                 620

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

Tyr Leu Phe Ser Ile Ile Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile
                645                 650                 655

Trp Tyr Trp Ser Met Arg Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu
            660                 665                 670

Lys Ser Asn Ser Asp Ser Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr
        675                 680                 685

Ser Ser Ser Arg Ile
    690


<210> 3024
<211> 98
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
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<223> /note="Gene Symbol: ADGRG1; "

<220>
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<223> /note="Gene Name:
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adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455226"

<400> 3024
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

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

Leu Tyr

<210> 3025
<211> 97
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455245"

<400> 3025
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ser Gly Thr Arg His Thr Gly Ala Ala Ser
            20   25   30

Thr Thr Asn Pro His Gln Thr Cys Ala Ser Pro Ser Arg Thr Pro Lys
        35   40   45

Arg Pro Ser Gln Ser Met Pro Leu Ser Leu Gln Pro Thr Leu Leu Pro
    50   55   60

Asp Pro Ser Leu Thr Pro Gly Ala Ser Thr Thr Ser Ala Ser Thr Gly
65   70   75   80

Thr Asp Met Leu Gly Asp Tyr Ile Phe Ser Met Ala Ser Val Thr Ser
                85   90   95

Cys

<210> 3026
<211> 687
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y653; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455351"

<400> 3026
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu

```
1               5                   10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175

Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190

Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240
```

```
Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255

Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val Leu Leu Pro Arg Thr
            260                 265                 270

Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu Ala Glu Lys Arg Leu
        275                 280                 285

Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe Gln Asp Lys Asn Ser
    290                 295                 300

Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile Val Val Gln Asn Thr
305                 310                 315                 320

Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu Thr Phe Gln His Gln
                325                 330                 335

Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val Phe Trp Val Glu Asp
            340                 345                 350

Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser Ala Gly Cys Glu Thr
        355                 360                 365

Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys Asn His Leu Thr Tyr
    370                 375                 380

Phe Ala Val Leu Met Val Ser Ser Val Glu Val Asp Ala Val His Lys
385                 390                 395                 400

His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys Val Val Ser Ala Leu
                405                 410                 415

Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys Ser Arg Arg Lys Pro
            420                 425                 430

Arg Asp Tyr Thr Ile Lys Val His Met Asn Leu Leu Leu Ala Val Phe
        435                 440                 445

Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu Pro Val Ala Leu Thr Gly
    450                 455                 460
```

Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile Phe Leu His Phe Ser Leu
465 470 475 480

Leu Thr Cys Leu Ser Trp Met Gly Leu Glu Gly Tyr Asn Leu Tyr Arg
485 490 495

Leu Val Val Glu Val Phe Gly Thr Tyr Val Pro Gly Tyr Leu Leu Lys
500 505 510

Leu Ser Ala Met Gly Trp Gly Phe Pro Ile Phe Leu Val Thr Leu Val
515 520 525

Ala Leu Val Asp Val Asp Asn Tyr Gly Pro Ile Ile Leu Ala Val His
530 535 540

Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser Met Cys Trp Ile Arg Asp
545 550 555 560

Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly Leu Phe Ser Leu Val Phe
565 570 575

Leu Phe Asn Met Ala Met Leu Ala Thr Met Val Val Gln Ile Leu Arg
580 585 590

Leu Arg Pro His Thr Gln Lys Trp Ser His Val Leu Thr Leu Leu Gly
595 600 605

Leu Ser Leu Val Leu Gly Leu Pro Trp Ala Leu Ile Phe Phe Ser Phe
610 615 620

Ala Ser Gly Thr Phe Gln Leu Val Val Leu Tyr Leu Phe Ser Ile Ile
625 630 635 640

Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile Trp Tyr Trp Ser Met Arg
645 650 655

Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu Lys Ser Asn Ser Asp Ser
660 665 670

Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr Ser Ser Ser Arg Ile
675 680 685

<210> 3027
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455553"

<400> 3027
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala His Pro Ala Ser Arg Ser Phe Pro Asp Pro
20 25 30

Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg His Ala Gly Arg
35 40 45

Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu Ser Asp Lys Ala
50 55 60

Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser Leu Ala Gln Gly
65 70 75 80

Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp Ser Pro Gln
85 90 95

<210> 3028
<211> 167
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>

<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455600"

<400> 3028

```
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr
                165
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<210> 3029
<211> 90
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<220>
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<220>
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<400> 3029
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

Pro Ala Ser Arg Ser Phe Pro Asp Pro Arg
85 90

<210> 3030
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<220>
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<400> 3030
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu
50

<210> 3031
<211> 159
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<220>
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<400> 3031
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe

```
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe
145                 150                 155


<210> 3032
<211> 111
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<213> Homo sapiens

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<400> 3032
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20   25   30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35   40   45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50   55   60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65   70   75   80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85   90   95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu
            100   105   110

<210> 3033
<211> 70
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<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000456166"

<400> 3033
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe

```
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro
65                  70


<210> 3034
<211> 256
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<213> Homo sapiens

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<220>
<221> source
<223> /note="ENSP ID: ENSP00000456238"

<400> 3034
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80
```

```
Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175

Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190

Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240

Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255


<210> 3035
<211> 118
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

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<223> /note="ENSP ID: ENSP00000456256"

<400> 3035
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

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

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
100 105 110

Arg Asp Phe Leu Leu Ser
115

<210> 3036
<211> 154
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
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<400> 3036
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
115 120 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
130 135 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala
145 150

<210> 3037
<211> 167
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 3037

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Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr
                165
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<210> 3038
<211> 140
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<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ADGRG1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456469"

<400> 3038
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
115 120 125

```
Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val
    130                 135                 140


<210> 3039
<211> 42
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<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000456494"

<400> 3039
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15


Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30


Arg Phe Cys Ser Gln Arg Asn Gln Thr His
        35                  40


<210> 3040
<211> 118
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000456544"

<400> 3040
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Ala Pro Ala Thr Gly Ser His Leu Gln Pro Leu
            20   25   30

Pro Pro Gln Val Pro Thr Ala Gly Ala Thr Gly Lys Thr Phe Ala Ser
        35   40   45

Ala Ala Ser Gly Thr Arg His Thr Gly Ala Ala Ser Thr Thr Asn Pro
    50   55   60

His Gln Thr Cys Ala Ser Pro Ser Arg Thr Pro Lys Arg Pro Ser Gln
65   70   75   80

Ser Met Pro Leu Ser Leu Gln Pro Thr Leu Leu Pro Asp Pro Ser Leu
                85   90   95

Thr Pro Gly Ala Ser Thr Thr Ser Ala Ser Thr Gly Thr Asp Met Leu
            100   105   110

Gly Asp Tyr Ile Phe Ser
        115

<210> 3041
<211> 131
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<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000456599"

<400> 3041
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
115 120 125

Leu Ala Gln
130

<210> 3042
<211> 90
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ADGRG1; "

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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000456603"

<400> 3042
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Ala Pro Ala Thr Gly Ser His Leu Gln Pro Leu
            20   25   30

Pro Pro Gln Val Pro Thr Ala Gly Ala Thr Gly Lys Thr Phe Ala Ser
        35   40   45

Ala Ala Ser Gly Thr Arg His Thr Gly Ala Ala Ser Thr Thr Asn Pro
    50   55   60

His Gln Thr Cys Ala Ser Pro Ser Arg Thr Pro Lys Arg Pro Ser Gln
65   70   75   80

Ser Met Pro Leu Ser Leu Gln Pro Thr Leu
                85   90

<210> 3043
<211> 687
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000456620"

<400> 3043
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu

```
1               5                   10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175

Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190

Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240
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Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255

Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val Leu Leu Pro Arg Thr
            260                 265                 270

Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu Ala Glu Lys Arg Leu
        275                 280                 285

Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe Gln Asp Lys Asn Ser
    290                 295                 300

Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile Val Val Gln Asn Thr
305                 310                 315                 320

Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu Thr Phe Gln His Gln
                325                 330                 335

Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val Phe Trp Val Glu Asp
            340                 345                 350

Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser Ala Gly Cys Glu Thr
        355                 360                 365

Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys Asn His Leu Thr Tyr
    370                 375                 380

Phe Ala Val Leu Met Val Ser Ser Val Glu Val Asp Ala Val His Lys
385                 390                 395                 400

His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys Val Val Ser Ala Leu
                405                 410                 415

Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys Ser Arg Arg Lys Pro
            420                 425                 430

Arg Asp Tyr Thr Ile Lys Val His Met Asn Leu Leu Leu Ala Val Phe
        435                 440                 445

Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu Pro Val Ala Leu Thr Gly
    450                 455                 460
```

Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile Phe Leu His Phe Ser Leu
465 470 475 480

Leu Thr Cys Leu Ser Trp Met Gly Leu Glu Gly Tyr Asn Leu Tyr Arg
485 490 495

Leu Val Val Glu Val Phe Gly Thr Tyr Val Pro Gly Tyr Leu Leu Lys
500 505 510

Leu Ser Ala Met Gly Trp Gly Phe Pro Ile Phe Leu Val Thr Leu Val
515 520 525

Ala Leu Val Asp Val Asp Asn Tyr Gly Pro Ile Ile Leu Ala Val His
530 535 540

Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser Met Cys Trp Ile Arg Asp
545 550 555 560

Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly Leu Phe Ser Leu Val Phe
565 570 575

Leu Phe Asn Met Ala Met Leu Ala Thr Met Val Val Gln Ile Leu Arg
580 585 590

Leu Arg Pro His Thr Gln Lys Trp Ser His Val Leu Thr Leu Leu Gly
595 600 605

Leu Ser Leu Val Leu Gly Leu Pro Trp Ala Leu Ile Phe Phe Ser Phe
610 615 620

Ala Ser Gly Thr Phe Gln Leu Val Val Leu Tyr Leu Phe Ser Ile Ile
625 630 635 640

Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile Trp Tyr Trp Ser Met Arg
645 650 655

Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu Lys Ser Asn Ser Asp Ser
660 665 670

Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr Ser Ser Ser Arg Ile
675 680 685

<210> 3044
<211> 116
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<220>
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<220>
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adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000456632"

<400> 3044
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala
115

<210> 3045
<211> 125

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 688; "

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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000456682"

<400> 3045

Met	Thr	Pro	Gln	Ser	Leu	Leu	Gln	Thr	Thr	Leu	Phe	Leu	Leu	Ser	Leu
1				5				10						15	

Leu	Phe	Leu	Val	Gln	Ala	His	Pro	Ala	Ser	Arg	Ser	Phe	Pro	Asp	Pro
			20					25					30		

Arg	Gly	Leu	Tyr	His	Phe	Cys	Leu	Tyr	Trp	Asn	Arg	His	Ala	Gly	Arg
		35					40					45			

Leu	His	Leu	Leu	Tyr	Gly	Lys	Arg	Asp	Phe	Leu	Leu	Ser	Asp	Lys	Ala
	50					55					60				

Ser	Ser	Leu	Leu	Cys	Phe	Gln	His	Gln	Glu	Glu	Ser	Leu	Ala	Gln	Gly
65					70					75					80

Pro	Pro	Leu	Leu	Ala	Thr	Ser	Val	Thr	Ser	Trp	Trp	Ser	Pro	Gln	Asn
				85					90					95	

Ile	Ser	Leu	Pro	Ser	Ala	Ala	Ser	Phe	Thr	Phe	Ser	Phe	His	Ser	Pro
			100					105					110		

Pro	His	Thr	Ala	Ala	His	Asn	Ala	Ser	Val	Asp	Met	Cys			
			115					120					125		

<210> 3046
<211> 187
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000456731"

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

<400> 3046
Xaa Ser Val Asp Met Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser
1 5 10 15

Gln Phe Leu Lys His Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala
20 25 30

Pro Ala Ser Gln Gln Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val
35 40 45

Arg Phe Met Gly Asp Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala
50 55 60

Thr Val Trp Lys Leu Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile
65 70 75 80

His Ser Arg Gln Glu Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val
85 90 95

Leu Leu Pro Arg Thr Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu
100 105 110

Ala Glu Lys Arg Leu Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe
115 120 125

```
Gln Asp Lys Asn Ser Ser Gln Val Leu Gly Glu Lys Val Phe Gly Thr
    130                 135                 140

Tyr Val Pro Gly Tyr Leu Leu Lys Leu Ser Ala Met Gly Trp Gly Phe
145                 150                 155                 160

Pro Ile Phe Leu Val Thr Leu Val Ala Leu Val Asp Val Asp Asn Tyr
                165                 170                 175

Gly Pro Ile Ile Leu Ala Val His Arg Thr Pro
            180                 185
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<210> 3047
<211> 49
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456781"

<400> 3047

```
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys
```

<210> 3048
<211> 107

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000456787"

<400> 3048
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
100 105

<210> 3049
<211> 693
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="Uniprot ID: Q9Y653; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456794"

<400> 3049

```
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                  10                  15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160
```

```
Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175

Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190

Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240

Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255

Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val Leu Leu Pro Arg Thr
            260                 265                 270

Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu Ala Glu Lys Arg Leu
        275                 280                 285

Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe Gln Asp Lys Asn Ser
    290                 295                 300

Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile Val Val Gln Asn Thr
305                 310                 315                 320

Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu Thr Phe Gln His Gln
                325                 330                 335

Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val Phe Trp Val Glu Asp
            340                 345                 350

Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser Ala Gly Cys Glu Thr
        355                 360                 365

Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys Asn His Leu Thr Tyr
    370                 375                 380
```

```
Phe Ala Val Leu Met Val Ser Ser Val Glu Val Asp Ala Val His Lys
385                 390                 395                 400

His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys Val Val Ser Ala Leu
                405                 410                 415

Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys Ser Arg Val Pro Leu
            420                 425                 430

Pro Cys Arg Arg Lys Pro Arg Asp Tyr Thr Ile Lys Val His Met Asn
        435                 440                 445

Leu Leu Leu Ala Val Phe Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu
    450                 455                 460

Pro Val Ala Leu Thr Gly Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile
465                 470                 475                 480

Phe Leu His Phe Ser Leu Leu Thr Cys Leu Ser Trp Met Gly Leu Glu
                485                 490                 495

Gly Tyr Asn Leu Tyr Arg Leu Val Val Glu Val Phe Gly Thr Tyr Val
            500                 505                 510

Pro Gly Tyr Leu Leu Lys Leu Ser Ala Met Gly Trp Gly Phe Pro Ile
        515                 520                 525

Phe Leu Val Thr Leu Val Ala Leu Val Asp Val Asp Asn Tyr Gly Pro
    530                 535                 540

Ile Ile Leu Ala Val His Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser
545                 550                 555                 560

Met Cys Trp Ile Arg Asp Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly
                565                 570                 575

Leu Phe Ser Leu Val Phe Leu Phe Asn Met Ala Met Leu Ala Thr Met
            580                 585                 590

Val Val Gln Ile Leu Arg Leu Arg Pro His Thr Gln Lys Trp Ser His
        595                 600                 605
```

```
Val Leu Thr Leu Leu Gly Leu Ser Leu Val Leu Gly Leu Pro Trp Ala
    610                 615                 620

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

Tyr Leu Phe Ser Ile Ile Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile
                645                 650                 655

Trp Tyr Trp Ser Met Arg Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu
            660                 665                 670

Lys Ser Asn Ser Asp Ser Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr
        675                 680                 685

Ser Ser Ser Arg Ile
    690


<210> 3050
<211> 103
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456796"

<400> 3050
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
            20                  25                  30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
        35                  40                  45
```

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

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

Leu Tyr Trp Asn Arg His Ala
100

<210> 3051
<211> 77
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456819"

<400> 3051
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

```
Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala
65                  70                  75


<210> 3052
<211> 118
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457063"

<400> 3052
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15


Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
            20                  25                  30


His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
        35                  40                  45


Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
    50                  55                  60


Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65                  70                  75                  80


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


Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
            100                 105                 110


Arg Asp Phe Leu Leu Ser
        115
```

<210> 3053
<211> 113
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457073"

<400> 3053
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser

<210> 3054
<211> 56
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457122"

<400> 3054
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile
50 55

<210> 3055
<211> 84
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457143"

<400> 3055
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20   25   30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35   40   45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50   55   60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65   70   75   80

Phe Pro Asp Pro

<210> 3056
<211> 153
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457178"

<400> 3056
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe

```
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser
145                 150


<210> 3057
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
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<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457223"
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<400> 3057
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20   25   30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35   40   45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50   55   60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65   70   75   80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85   90   95

His Ala Gly Arg
            100

<210> 3058
<211> 118
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457307"

<400> 3058
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1   5   10   15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe

```
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser
        115


<210> 3059
<211> 687
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
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<220>
<221> source
<223> /note="Uniprot ID:  Q9Y653; "

<220>
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<223> /note="ENSP ID: ENSP00000457456"

<400> 3059
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15
```

```
Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
            100                 105                 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
        115                 120                 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
    130                 135                 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160

Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175

Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190

Pro Gln Lys Ala Ser Arg Arg Pro Ser Ala Ala Pro Ala Ser Gln Gln
        195                 200                 205

Leu Gln Ser Leu Glu Ser Lys Leu Thr Ser Val Arg Phe Met Gly Asp
    210                 215                 220

Met Val Ser Phe Glu Glu Asp Arg Ile Asn Ala Thr Val Trp Lys Leu
225                 230                 235                 240
```

```
Gln Pro Thr Ala Gly Leu Gln Asp Leu His Ile His Ser Arg Gln Glu
                245                 250                 255

Glu Glu Gln Ser Glu Ile Met Glu Tyr Ser Val Leu Leu Pro Arg Thr
            260                 265                 270

Leu Phe Gln Arg Thr Lys Gly Arg Ser Gly Glu Ala Glu Lys Arg Leu
        275                 280                 285

Leu Leu Val Asp Phe Ser Ser Gln Ala Leu Phe Gln Asp Lys Asn Ser
    290                 295                 300

Ser Gln Val Leu Gly Glu Lys Val Leu Gly Ile Val Val Gln Asn Thr
305                 310                 315                 320

Lys Val Ala Asn Leu Thr Glu Pro Val Val Leu Thr Phe Gln His Gln
                325                 330                 335

Leu Gln Pro Lys Asn Val Thr Leu Gln Cys Val Phe Trp Val Glu Asp
            340                 345                 350

Pro Thr Leu Ser Ser Pro Gly His Trp Ser Ser Ala Gly Cys Glu Thr
        355                 360                 365

Val Arg Arg Glu Thr Gln Thr Ser Cys Phe Cys Asn His Leu Thr Tyr
    370                 375                 380

Phe Ala Val Leu Met Val Ser Ser Val Glu Val Asp Ala Val His Lys
385                 390                 395                 400

His Tyr Leu Ser Leu Leu Ser Tyr Val Gly Cys Val Val Ser Ala Leu
                405                 410                 415

Ala Cys Leu Val Thr Ile Ala Ala Tyr Leu Cys Ser Arg Arg Lys Pro
            420                 425                 430

Arg Asp Tyr Thr Ile Lys Val His Met Asn Leu Leu Leu Ala Val Phe
        435                 440                 445

Leu Leu Asp Thr Ser Phe Leu Leu Ser Glu Pro Val Ala Leu Thr Gly
    450                 455                 460

Ser Glu Ala Gly Cys Arg Ala Ser Ala Ile Phe Leu His Phe Ser Leu
```

```
465                 470                 475                 480

Leu Thr Cys Leu Ser Trp Met Gly Leu Glu Gly Tyr Asn Leu Tyr Arg
                485                 490                 495

Leu Val Val Glu Val Phe Gly Thr Tyr Val Pro Gly Tyr Leu Leu Lys
            500                 505                 510

Leu Ser Ala Met Gly Trp Gly Phe Pro Ile Phe Leu Val Thr Leu Val
        515                 520                 525

Ala Leu Val Asp Val Asp Asn Tyr Gly Pro Ile Ile Leu Ala Val His
    530                 535                 540

Arg Thr Pro Glu Gly Val Ile Tyr Pro Ser Met Cys Trp Ile Arg Asp
545                 550                 555                 560

Ser Leu Val Ser Tyr Ile Thr Asn Leu Gly Leu Phe Ser Leu Val Phe
                565                 570                 575

Leu Phe Asn Met Ala Met Leu Ala Thr Met Val Val Gln Ile Leu Arg
            580                 585                 590

Leu Arg Pro His Thr Gln Lys Trp Ser His Val Leu Thr Leu Leu Gly
        595                 600                 605

Leu Ser Leu Val Leu Gly Leu Pro Trp Ala Leu Ile Phe Phe Ser Phe
    610                 615                 620

Ala Ser Gly Thr Phe Gln Leu Val Val Leu Tyr Leu Phe Ser Ile Ile
625                 630                 635                 640

Thr Ser Phe Gln Gly Phe Leu Ile Phe Ile Trp Tyr Trp Ser Met Arg
                645                 650                 655

Leu Gln Ala Arg Gly Gly Pro Ser Pro Leu Lys Ser Asn Ser Asp Ser
            660                 665                 670

Ala Arg Leu Pro Ile Ser Ser Gly Ser Thr Ser Ser Ser Arg Ile
        675                 680                 685
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<210> 3060
<211> 97

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000457612"

<400> 3060
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Gly Thr Arg His Thr Gly Ala Ala Ser
20 25 30

Thr Thr Asn Pro His Gln Thr Cys Ala Ser Pro Ser Arg Thr Pro Lys
35 40 45

Arg Pro Ser Gln Ser Met Pro Leu Ser Leu Gln Pro Thr Leu Leu Pro
50 55 60

Asp Pro Ser Leu Thr Pro Gly Ala Ser Thr Thr Ser Ala Ser Thr Gly
65 70 75 80

Thr Asp Met Leu Gly Asp Tyr Ile Phe Ser Met Ala Ser Val Thr Ser
85 90 95

Cys

<210> 3061
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457635"

<400> 3061
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe
115 120

<210> 3062
<211> 114
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 688; "

<220>

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<223> /note="Gene Symbol: ADGRG1; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000457657"

<400> 3062
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

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

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
100 105 110

Arg Asp

<210> 3063
<211> 164
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADGRG1; "

<220>
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adhesion G prt-coupled receptor G1; "

<220>
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<400> 3063
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

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

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
100 105 110

Arg Asp Phe Leu Leu Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln
115 120 125

His Gln Glu Glu Ser Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser
130 135 140

Val Thr Ser Trp Trp Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala
145 150 155 160

Ser Phe Thr Phe

<210> 3064
<211> 199

<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor G1; "

<220>
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<400> 3064
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
115 120 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
130 135 140

```
Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145                 150                 155                 160


Phe His Ser Pro Pro His Thr Ala Ala His Asn Ala Ser Val Asp Met
                165                 170                 175


Cys Glu Leu Lys Arg Asp Leu Gln Leu Leu Ser Gln Phe Leu Lys His
            180                 185                 190


Pro Gln Lys Ala Ser Arg Arg
        195


<210> 3065
<211> 110
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000457979"

<400> 3065
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15


Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
            20                  25                  30


Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
        35                  40                  45


Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
    50                  55                  60


Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65                  70                  75                  80
```

```
Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
                85                  90                  95


His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe
            100                 105                 110


<210> 3066
<211> 68
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000457994"

<400> 3066
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1               5                   10                  15


Leu Phe Leu Val Gln Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu
            20                  25                  30


Glu Ser Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser
        35                  40                  45


Trp Trp Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr
    50                  55                  60


Phe Ser Phe His
65


<210> 3067
<211> 144
<212> PRT
<213> Homo sapiens
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<220>
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<223> /note="Payload ID: 688; "

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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458014"

<400> 3067
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Ala Ser Ala Ser Ser Gly Ala His Gly Arg Gly
20 25 30

His Arg Glu Asp Phe Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg
35 40 45

Ser Ser Leu His Tyr Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu
50 55 60

Asn Ser Glu Glu Ala Leu Thr Val His Ala Pro Phe Pro Ala Ala His
65 70 75 80

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

Leu Tyr Trp Asn Arg His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys
100 105 110

Arg Asp Phe Leu Leu Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln
115 120 125

His Gln Glu Glu Ser Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser
130 135 140

<210> 3068
<211> 162

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADGRG1; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000458063"

<400> 3068
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro Arg Gly Leu Tyr His Phe Cys Leu Tyr Trp Asn Arg
85 90 95

His Ala Gly Arg Leu His Leu Leu Tyr Gly Lys Arg Asp Phe Leu Leu
100 105 110

Ser Asp Lys Ala Ser Ser Leu Leu Cys Phe Gln His Gln Glu Glu Ser
115 120 125

Leu Ala Gln Gly Pro Pro Leu Leu Ala Thr Ser Val Thr Ser Trp Trp
130 135 140

Ser Pro Gln Asn Ile Ser Leu Pro Ser Ala Ala Ser Phe Thr Phe Ser
145 150 155 160

Phe His

<210> 3069
<211> 84
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 688; "

<220>
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G1; "

<220>
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<223> /note="ENSP ID: ENSP00000458087"

<400> 3069
Met Thr Pro Gln Ser Leu Leu Gln Thr Thr Leu Phe Leu Leu Ser Leu
1 5 10 15

Leu Phe Leu Val Gln Gly Ala His Gly Arg Gly His Arg Glu Asp Phe
20 25 30

Arg Phe Cys Ser Gln Arg Asn Gln Thr His Arg Ser Ser Leu His Tyr
35 40 45

Lys Pro Thr Pro Asp Leu Arg Ile Ser Ile Glu Asn Ser Glu Glu Ala
50 55 60

Leu Thr Val His Ala Pro Phe Pro Ala Ala His Pro Ala Ser Arg Ser
65 70 75 80

Phe Pro Asp Pro

<210> 3070
<211> 898

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 689; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG2; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZP9; "

<220>
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<223> /note="ENSP ID: ENSP00000344972"

<400> 3070

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

Val	Leu	Leu	Thr	Phe	Lys	Ile	Phe	Leu	Val	Ile	Ile	Cys	Leu	His	Val
			20					25					30		

Val	Leu	Val	Thr	Ser	Leu	Glu	Glu	Asp	Thr	Asp	Asn	Ser	Ser	Leu	Ser
		35					40					45			

Pro	Pro	Pro	Glu	Val	Glu	Thr	Thr	Ser	Leu	Asn	Asp	Val	Thr	Leu	Ser
	50					55					60				

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

Asn	Leu	Ser	Ser	Ile	Cys	Asn	Asp	Ser	Ala	Phe	Phe	Arg	Gly	Glu	Ile
				85					90					95	

Met	Phe	Gln	Tyr	Asp	Lys	Glu	Ser	Thr	Val	Pro	Gln	Asn	Gln	His	Ile
			100					105					110		

Thr	Asn	Gly	Thr	Leu	Thr	Gly	Val	Leu	Ser	Leu	Ser	Glu	Leu	Lys	Arg
		115					120					125			

```
Ser Glu Leu Asn Lys Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile
    130                 135                 140

Met Cys Ala Thr Ala Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr
145                 150                 155                 160

Ile Lys Leu Asn Asn Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu
                165                 170                 175

Glu Arg Val Lys Ile Arg Pro Met Glu His Cys Cys Cys Ser Val Arg
            180                 185                 190

Ile Pro Cys Pro Ser Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp
        195                 200                 205

Leu Gln Asp Pro Ile Val Cys Leu Ala Asp His Pro Arg Gly Pro Pro
    210                 215                 220

Phe Ser Ser Ser Gln Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu
225                 230                 235                 240

Ser Gln Val Pro Lys Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser
                245                 250                 255

Pro Val Thr His Asn Val Pro Ser Pro Ile Gly Glu Ile Gln Pro Leu
            260                 265                 270

Ser Pro Gln Pro Ser Ala Pro Ile Ala Ser Ser Pro Ala Ile Asp Met
        275                 280                 285

Pro Pro Gln Ser Glu Thr Ile Ser Ser Pro Met Pro Gln Thr His Val
    290                 295                 300

Ser Gly Thr Pro Pro Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val
305                 310                 315                 320

Ser Ala Pro Ala Asn Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr
                325                 330                 335

Asp Ile Val Asn Thr Ser Ser Ile Ser Asp Leu Glu Asn Gln Val Leu
            340                 345                 350

Gln Met Glu Lys Ala Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala
```

```
        355                 360                 365

Gly Glu Met Ile Asn Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp
    370                 375                 380

Met Leu Ala Pro Leu Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile
385                 390                 395                 400

Gly Leu Gln Leu Asn Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro
                405                 410                 415

Ser Leu Ala Leu Ala Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr
            420                 425                 430

Thr Thr Phe Val Ala Gln Asp Pro Ala Asn Leu Gln Asp Glu Leu Thr
        435                 440                 445

Val Arg Cys Val Phe Trp Asp Leu Gly Arg Asn Gly Gly Arg Gly Gly
    450                 455                 460

Trp Ser Asp Asn Gly Cys Ser Val Lys Asp Arg Arg Leu Asn Glu Thr
465                 470                 475                 480

Ile Cys Thr Cys Ser His Leu Thr Ser Phe Gly Val Leu Leu Asp Leu
                485                 490                 495

Ser Arg Thr Ser Val Leu Pro Ala Gln Met Met Ala Leu Thr Phe Ile
            500                 505                 510

Thr Tyr Ile Gly Cys Gly Leu Ser Ser Ile Phe Leu Ser Val Thr Leu
        515                 520                 525

Val Thr Tyr Ile Ala Phe Glu Lys Ile Arg Arg Asp Tyr Pro Ser Lys
    530                 535                 540

Ile Leu Ile Gln Leu Cys Ala Ala Leu Leu Leu Leu Asn Leu Val Phe
545                 550                 555                 560

Leu Leu Asp Ser Trp Ile Ala Leu Tyr Lys Met Gln Gly Leu Cys Ile
                565                 570                 575

Ser Val Ala Val Phe Leu His Tyr Phe Leu Leu Val Ser Phe Thr Trp
            580                 585                 590
```

```
Met Gly Leu Glu Ala Phe His Met Tyr Leu Ala Leu Val Lys Val Phe
        595                 600                 605

Asn Thr Tyr Ile Arg Lys Tyr Ile Leu Lys Phe Cys Ile Val Gly Trp
    610                 615                 620

Gly Val Pro Ala Val Val Val Thr Ile Ile Leu Thr Ile Ser Pro Asp
625                 630                 635                 640

Asn Tyr Gly Leu Gly Ser Tyr Gly Lys Phe Pro Asn Gly Ser Pro Asp
                645                 650                 655

Asp Phe Cys Trp Ile Asn Asn Asn Ala Val Phe Tyr Ile Thr Val Val
            660                 665                 670

Gly Tyr Phe Cys Val Ile Phe Leu Leu Asn Val Ser Met Phe Ile Val
        675                 680                 685

Val Leu Val Gln Leu Cys Arg Ile Lys Lys Lys Lys Gln Leu Gly Ala
    690                 695                 700

Gln Arg Lys Thr Ser Ile Gln Asp Leu Arg Ser Ile Ala Gly Leu Thr
705                 710                 715                 720

Phe Leu Leu Gly Ile Thr Trp Gly Phe Ala Phe Phe Ala Trp Gly Pro
                725                 730                 735

Val Asn Val Thr Phe Met Tyr Leu Phe Ala Ile Phe Asn Thr Leu Gln
            740                 745                 750

Gly Phe Phe Ile Phe Ile Phe Tyr Cys Val Ala Lys Glu Asn Val Arg
        755                 760                 765

Lys Gln Trp Arg Arg Tyr Leu Cys Cys Gly Lys Leu Arg Leu Ala Glu
    770                 775                 780

Asn Ser Asp Trp Ser Lys Thr Ala Thr Asn Gly Leu Lys Lys Gln Thr
785                 790                 795                 800

Val Asn Gln Gly Val Ser Ser Ser Ser Asn Ser Leu Gln Ser Ser Ser
                805                 810                 815
```

```
Asn Ser Thr Asn Ser Thr Thr Leu Leu Val Asn Asn Asp Cys Ser Val
            820                 825                 830

His Ala Ser Gly Asn Gly Asn Ala Ser Thr Glu Arg Asn Gly Val Ser
        835                 840                 845

Phe Ser Val Gln Asn Gly Asp Val Cys Leu His Asp Phe Thr Gly Lys
    850                 855                 860

Gln His Met Phe Asn Glu Lys Glu Asp Ser Cys Asn Gly Lys Gly Arg
865                 870                 875                 880

Met Ala Leu Arg Arg Thr Ser Lys Arg Gly Ser Leu His Phe Ile Glu
                885                 890                 895

Gln Met
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<210> 3071
<211> 898
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 689; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZP9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000346845"

<400> 3071

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

Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
```

```
            20                  25                  30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
        35                  40                  45

Pro Pro Pro Glu Val Glu Thr Thr Ser Leu Asn Asp Val Thr Leu Ser
    50                  55                  60

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

Asn Leu Ser Ser Ile Cys Asn Asp Ser Ala Phe Phe Arg Gly Glu Ile
                85                  90                  95

Met Phe Gln Tyr Asp Lys Glu Ser Thr Val Pro Gln Asn Gln His Ile
            100                 105                 110

Thr Asn Gly Thr Leu Thr Gly Val Leu Ser Leu Ser Glu Leu Lys Arg
        115                 120                 125

Ser Glu Leu Asn Lys Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile
    130                 135                 140

Met Cys Ala Thr Ala Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr
145                 150                 155                 160

Ile Lys Leu Asn Asn Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu
                165                 170                 175

Glu Arg Val Lys Ile Arg Pro Met Glu His Cys Cys Cys Ser Val Arg
            180                 185                 190

Ile Pro Cys Pro Ser Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp
        195                 200                 205

Leu Gln Asp Pro Ile Val Cys Leu Ala Asp His Pro Arg Gly Pro Pro
    210                 215                 220

Phe Ser Ser Ser Gln Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu
225                 230                 235                 240

Ser Gln Val Pro Lys Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser
                245                 250                 255
```

```
Pro Val Thr His Asn Val Pro Ser Pro Ile Gly Glu Ile Gln Pro Leu
            260                 265                 270

Ser Pro Gln Pro Ser Ala Pro Ile Ala Ser Ser Pro Ala Ile Asp Met
        275                 280                 285

Pro Pro Gln Ser Glu Thr Ile Ser Ser Pro Met Pro Gln Thr His Val
    290                 295                 300

Ser Gly Thr Pro Pro Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val
305                 310                 315                 320

Ser Ala Pro Ala Asn Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr
                325                 330                 335

Asp Ile Val Asn Thr Ser Ser Ile Ser Asp Leu Glu Asn Gln Val Leu
            340                 345                 350

Gln Met Glu Lys Ala Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala
        355                 360                 365

Gly Glu Met Ile Asn Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp
    370                 375                 380

Met Leu Ala Pro Leu Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile
385                 390                 395                 400

Gly Leu Gln Leu Asn Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro
                405                 410                 415

Ser Leu Ala Leu Ala Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr
            420                 425                 430

Thr Thr Phe Val Ala Gln Asp Pro Ala Asn Leu Gln Asp Glu Leu Thr
        435                 440                 445

Val Arg Cys Val Phe Trp Asp Leu Gly Arg Asn Gly Gly Arg Gly Gly
    450                 455                 460

Trp Ser Asp Asn Gly Cys Ser Val Lys Asp Arg Arg Leu Asn Glu Thr
465                 470                 475                 480
```

```
Ile Cys Thr Cys Ser His Leu Thr Ser Phe Gly Val Leu Leu Asp Leu
                485                 490                 495

Ser Arg Thr Ser Val Leu Pro Ala Gln Met Met Ala Leu Thr Phe Ile
            500                 505                 510

Thr Tyr Ile Gly Cys Gly Leu Ser Ser Ile Phe Leu Ser Val Thr Leu
        515                 520                 525

Val Thr Tyr Ile Ala Phe Glu Lys Ile Arg Arg Asp Tyr Pro Ser Lys
    530                 535                 540

Ile Leu Ile Gln Leu Cys Ala Ala Leu Leu Leu Leu Asn Leu Val Phe
545                 550                 555                 560

Leu Leu Asp Ser Trp Ile Ala Leu Tyr Lys Met Gln Gly Leu Cys Ile
                565                 570                 575

Ser Val Ala Val Phe Leu His Tyr Phe Leu Leu Val Ser Phe Thr Trp
            580                 585                 590

Met Gly Leu Glu Ala Phe His Met Tyr Leu Ala Leu Val Lys Val Phe
        595                 600                 605

Asn Thr Tyr Ile Arg Lys Tyr Ile Leu Lys Phe Cys Ile Val Gly Trp
    610                 615                 620

Gly Val Pro Ala Val Val Val Thr Ile Ile Leu Thr Ile Ser Pro Asp
625                 630                 635                 640

Asn Tyr Gly Leu Gly Ser Tyr Gly Lys Phe Pro Asn Gly Ser Pro Asp
                645                 650                 655

Asp Phe Cys Trp Ile Asn Asn Asn Ala Val Phe Tyr Ile Thr Val Val
            660                 665                 670

Gly Tyr Phe Cys Val Ile Phe Leu Leu Asn Val Ser Met Phe Ile Val
        675                 680                 685

Val Leu Val Gln Leu Cys Arg Ile Lys Lys Lys Lys Gln Leu Gly Ala
    690                 695                 700
```

```
Gln Arg Lys Thr Ser Ile Gln Asp Leu Arg Ser Ile Ala Gly Leu Thr
705                 710                 715                 720

Phe Leu Leu Gly Ile Thr Trp Gly Phe Ala Phe Phe Ala Trp Gly Pro
                725                 730                 735

Val Asn Val Thr Phe Met Tyr Leu Phe Ala Ile Phe Asn Thr Leu Gln
            740                 745                 750

Gly Phe Phe Ile Phe Ile Phe Tyr Cys Val Ala Lys Glu Asn Val Arg
        755                 760                 765

Lys Gln Trp Arg Arg Tyr Leu Cys Cys Gly Lys Leu Arg Leu Ala Glu
    770                 775                 780

Asn Ser Asp Trp Ser Lys Thr Ala Thr Asn Gly Leu Lys Lys Gln Thr
785                 790                 795                 800

Val Asn Gln Gly Val Ser Ser Ser Ser Asn Ser Leu Gln Ser Ser Ser
                805                 810                 815

Asn Ser Thr Asn Ser Thr Thr Leu Leu Val Asn Asn Asp Cys Ser Val
            820                 825                 830

His Ala Ser Gly Asn Gly Asn Ala Ser Thr Glu Arg Asn Gly Val Ser
        835                 840                 845

Phe Ser Val Gln Asn Gly Asp Val Cys Leu His Asp Phe Thr Gly Lys
    850                 855                 860

Gln His Met Phe Asn Glu Lys Glu Asp Ser Cys Asn Gly Lys Gly Arg
865                 870                 875                 880

Met Ala Leu Arg Arg Thr Ser Lys Arg Gly Ser Leu His Phe Ile Glu
                885                 890                 895

Gln Met
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<210> 3072
<211> 1003
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 689; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG2; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor G2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZP9; "

<220>
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<223> /note="ENSP ID: ENSP00000349015"

<400> 3072
Met Val Phe Ser Val Arg Gln Cys Gly His Val Gly Arg Thr Glu Glu
1   5   10   15

Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
            20   25   30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
        35   40   45

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

Gly Thr Pro Glu Val Glu Thr Thr Ser Leu Asn Asp Val Thr Leu Ser
65   70   75   80

Leu Leu Pro Ser Asn Glu Thr Gly Val Lys Pro Gln Arg Asn Ile Cys
                85   90   95

Asn Leu Ser Ser Ile Cys Asn Asp Ser Ala Phe Phe Arg Gly Glu Ile
            100   105   110

Met Phe Gln Tyr Asp Lys Glu Ser Thr Val Pro Gln Asn Gln His Ile
        115   120   125

Thr Asn Gly Thr Leu Thr Gly Val Leu Ser Leu Ser Glu Leu Lys Arg
    130   135   140

```
Ser Glu Leu Asn Lys Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile
145                 150                 155                 160

Met Cys Ala Thr Ala Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr
                165                 170                 175

Ile Lys Leu Asn Asn Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu
            180                 185                 190

Glu Arg Val Lys Ile Arg Pro Met Glu His Cys Cys Cys Ser Val Arg
        195                 200                 205

Ile Pro Cys Pro Ser Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp
    210                 215                 220

Leu Gln Asp Pro Ile Val Cys Leu Ala Asp His Pro Arg Gly Pro Pro
225                 230                 235                 240

Phe Ser Ser Ser Gln Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu
                245                 250                 255

Ser Gln Val Pro Lys Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser
            260                 265                 270

Pro Val Thr His Asn Val Pro Ser Pro Ile Gly Glu Ile Gln Pro Leu
        275                 280                 285

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

Pro Pro Gln Ser Glu Thr Ile Ser Ser Pro Met Pro Gln Thr His Val
305                 310                 315                 320

Ser Gly Thr Pro Pro Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val
                325                 330                 335

Ser Ala Pro Ala Asn Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr
            340                 345                 350

Asp Ile Val Asn Thr Ser Ser Ile Ser Asp Leu Glu Asn Gln Val Leu
        355                 360                 365
```

```
Gln Met Glu Lys Ala Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala
    370                 375                 380

Gly Glu Met Ile Asn Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp
385                 390                 395                 400

Met Leu Ala Pro Leu Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile
                405                 410                 415

Gly Leu Gln Leu Asn Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro
            420                 425                 430

Ser Leu Ala Leu Ala Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr
        435                 440                 445

Thr Thr Phe Val Ala Gln Asp Pro Ala Asn Leu Gln Val Ser Leu Glu
    450                 455                 460

Thr Gln Ala Pro Glu Asn Ser Ile Gly Thr Ile Thr Leu Pro Ser Ser
465                 470                 475                 480

Leu Met Asn Asn Leu Pro Ala His Asp Met Glu Leu Ala Ser Arg Val
                485                 490                 495

Gln Phe Asn Phe Phe Glu Thr Pro Ala Leu Phe Gln Asp Pro Ser Leu
            500                 505                 510

Glu Asn Leu Ser Leu Ile Ser Tyr Val Ile Ser Ser Ser Val Ala Asn
        515                 520                 525

Leu Thr Val Arg Asn Leu Thr Arg Asn Val Thr Val Thr Leu Lys His
    530                 535                 540

Ile Asn Pro Ser Gln Asp Glu Leu Thr Val Arg Cys Val Phe Trp Asp
545                 550                 555                 560

Leu Gly Arg Asn Gly Gly Arg Gly Gly Trp Ser Asp Asn Gly Cys Ser
                565                 570                 575

Val Lys Asp Arg Arg Leu Asn Glu Thr Ile Cys Thr Cys Ser His Leu
            580                 585                 590

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

595 600 605

Ala Gln Met Met Ala Leu Thr Phe Ile Thr Tyr Ile Gly Cys Gly Leu
610 615 620

Ser Ser Ile Phe Leu Ser Val Thr Leu Val Thr Tyr Ile Ala Phe Glu
625 630 635 640

Lys Ile Arg Arg Asp Tyr Pro Ser Lys Ile Leu Ile Gln Leu Cys Ala
645 650 655

Ala Leu Leu Leu Leu Asn Leu Val Phe Leu Leu Asp Ser Trp Ile Ala
660 665 670

Leu Tyr Lys Met Gln Gly Leu Cys Ile Ser Val Ala Val Phe Leu His
675 680 685

Tyr Phe Leu Leu Val Ser Phe Thr Trp Met Gly Leu Glu Ala Phe His
690 695 700

Met Tyr Leu Ala Leu Val Lys Val Phe Asn Thr Tyr Ile Arg Lys Tyr
705 710 715 720

Ile Leu Lys Phe Cys Ile Val Gly Trp Gly Val Pro Ala Val Val Val
725 730 735

Thr Ile Ile Leu Thr Ile Ser Pro Asp Asn Tyr Gly Leu Gly Ser Tyr
740 745 750

Gly Lys Phe Pro Asn Gly Ser Pro Asp Asp Phe Cys Trp Ile Asn Asn
755 760 765

Asn Ala Val Phe Tyr Ile Thr Val Val Gly Tyr Phe Cys Val Ile Phe
770 775 780

Leu Leu Asn Val Ser Met Phe Ile Val Val Leu Val Gln Leu Cys Arg
785 790 795 800

Ile Lys Lys Lys Lys Gln Leu Gly Ala Gln Arg Lys Thr Ser Ile Gln
805 810 815

Asp Leu Arg Ser Ile Ala Gly Leu Thr Phe Leu Leu Gly Ile Thr Trp
820 825 830

```
Gly Phe Ala Phe Phe Ala Trp Gly Pro Val Asn Val Thr Phe Met Tyr
        835                 840                 845

Leu Phe Ala Ile Phe Asn Thr Leu Gln Gly Phe Phe Ile Phe Ile Phe
    850                 855                 860

Tyr Cys Val Ala Lys Glu Asn Val Arg Lys Gln Trp Arg Arg Tyr Leu
865                 870                 875                 880

Cys Cys Gly Lys Leu Arg Leu Ala Glu Asn Ser Asp Trp Ser Lys Thr
                885                 890                 895

Ala Thr Asn Gly Leu Lys Lys Gln Thr Val Asn Gln Gly Val Ser Ser
            900                 905                 910

Ser Ser Asn Ser Leu Gln Ser Ser Ser Asn Ser Thr Asn Ser Thr Thr
        915                 920                 925

Leu Leu Val Asn Asn Asp Cys Ser Val His Ala Ser Gly Asn Gly Asn
    930                 935                 940

Ala Ser Thr Glu Arg Asn Gly Val Ser Phe Ser Val Gln Asn Gly Asp
945                 950                 955                 960

Val Cys Leu His Asp Phe Thr Gly Lys Gln His Met Phe Asn Glu Lys
                965                 970                 975

Glu Asp Ser Cys Asn Gly Lys Gly Arg Met Ala Leu Arg Arg Thr Ser
            980                 985                 990

Lys Arg Gly Ser Leu His Phe Ile  Glu Gln Met
        995                 1000


<210> 3073
<211> 987
<212> PRT
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<220>
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<220>
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<220>
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<400> 3073

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


Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
            20                  25                  30


Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
        35                  40                  45


Pro Pro Pro Glu Val Glu Thr Thr Ser Leu Asn Asp Val Thr Leu Ser
    50                  55                  60


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


Asn Leu Ser Ser Ile Cys Asn Asp Ser Ala Phe Phe Arg Gly Glu Ile
                85                  90                  95


Met Phe Gln Tyr Asp Lys Glu Ser Thr Val Pro Gln Asn Gln His Ile
            100                 105                 110


Thr Asn Gly Thr Leu Thr Gly Val Leu Ser Leu Ser Glu Leu Lys Arg
        115                 120                 125


Ser Glu Leu Asn Lys Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile
    130                 135                 140


Met Cys Ala Thr Ala Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr
145                 150                 155                 160


Ile Lys Leu Asn Asn Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu
```

```
                165                 170                 175

Glu Arg Val Lys Ile Arg Pro Met Glu His Cys Cys Cys Ser Val Arg
            180                 185                 190

Ile Pro Cys Pro Ser Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp
        195                 200                 205

Leu Gln Asp Pro Ile Val Cys Leu Ala Asp His Pro Arg Gly Pro Pro
    210                 215                 220

Phe Ser Ser Ser Gln Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu
225                 230                 235                 240

Ser Gln Val Pro Lys Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser
                245                 250                 255

Pro Val Thr His Asn Val Pro Ser Pro Ile Gly Glu Ile Gln Pro Leu
            260                 265                 270

Ser Pro Gln Pro Ser Ala Pro Ile Ala Ser Ser Pro Ala Ile Asp Met
        275                 280                 285

Pro Pro Gln Ser Glu Thr Ile Ser Ser Pro Met Pro Gln Thr His Val
    290                 295                 300

Ser Gly Thr Pro Pro Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val
305                 310                 315                 320

Ser Ala Pro Ala Asn Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr
                325                 330                 335

Asp Ile Val Asn Thr Ser Ser Ile Ser Asp Leu Glu Asn Gln Val Leu
            340                 345                 350

Gln Met Glu Lys Ala Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala
        355                 360                 365

Gly Glu Met Ile Asn Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp
    370                 375                 380

Met Leu Ala Pro Leu Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile
385                 390                 395                 400
```

```
Gly Leu Gln Leu Asn Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro
                405                 410                 415

Ser Leu Ala Leu Ala Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr
            420                 425                 430

Thr Thr Phe Val Ala Gln Asp Pro Ala Asn Leu Gln Val Ser Leu Glu
        435                 440                 445

Thr Gln Ala Pro Glu Asn Ser Ile Gly Thr Ile Thr Leu Pro Ser Ser
    450                 455                 460

Leu Met Asn Asn Leu Pro Ala His Asp Met Glu Leu Ala Ser Arg Val
465                 470                 475                 480

Gln Phe Asn Phe Phe Glu Thr Pro Ala Leu Phe Gln Asp Pro Ser Leu
                485                 490                 495

Glu Asn Leu Ser Leu Ile Ser Tyr Val Ile Ser Ser Ser Val Ala Asn
            500                 505                 510

Leu Thr Val Arg Asn Leu Thr Arg Asn Val Thr Val Thr Leu Lys His
        515                 520                 525

Ile Asn Pro Ser Gln Asp Glu Leu Thr Val Arg Cys Val Phe Trp Asp
    530                 535                 540

Leu Gly Arg Asn Gly Gly Arg Gly Gly Trp Ser Asp Asn Gly Cys Ser
545                 550                 555                 560

Val Lys Asp Arg Arg Leu Asn Glu Thr Ile Cys Thr Cys Ser His Leu
                565                 570                 575

Thr Ser Phe Gly Val Leu Leu Asp Leu Ser Arg Thr Ser Val Leu Pro
            580                 585                 590

Ala Gln Met Met Ala Leu Thr Phe Ile Thr Tyr Ile Gly Cys Gly Leu
        595                 600                 605

Ser Ser Ile Phe Leu Ser Val Thr Leu Val Thr Tyr Ile Ala Phe Glu
    610                 615                 620
```

```
Lys Ile Arg Arg Asp Tyr Pro Ser Lys Ile Leu Ile Gln Leu Cys Ala
625                 630                 635                 640

Ala Leu Leu Leu Leu Asn Leu Val Phe Leu Leu Asp Ser Trp Ile Ala
                645                 650                 655

Leu Tyr Lys Met Gln Gly Leu Cys Ile Ser Val Ala Val Phe Leu His
            660                 665                 670

Tyr Phe Leu Leu Val Ser Phe Thr Trp Met Gly Leu Glu Ala Phe His
        675                 680                 685

Met Tyr Leu Ala Leu Val Lys Val Phe Asn Thr Tyr Ile Arg Lys Tyr
    690                 695                 700

Ile Leu Lys Phe Cys Ile Val Gly Trp Gly Val Pro Ala Val Val Val
705                 710                 715                 720

Thr Ile Ile Leu Thr Ile Ser Pro Asp Asn Tyr Gly Leu Gly Ser Tyr
                725                 730                 735

Gly Lys Phe Pro Asn Gly Ser Pro Asp Asp Phe Cys Trp Ile Asn Asn
            740                 745                 750

Asn Ala Val Phe Tyr Ile Thr Val Val Gly Tyr Phe Cys Val Ile Phe
        755                 760                 765

Leu Leu Asn Val Ser Met Phe Ile Val Val Leu Val Gln Leu Cys Arg
    770                 775                 780

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

Asp Leu Arg Ser Ile Ala Gly Leu Thr Phe Leu Leu Gly Ile Thr Trp
                805                 810                 815

Gly Phe Ala Phe Phe Ala Trp Gly Pro Val Asn Val Thr Phe Met Tyr
            820                 825                 830

Leu Phe Ala Ile Phe Asn Thr Leu Gln Gly Phe Phe Ile Phe Ile Phe
        835                 840                 845
```

```
Tyr Cys Val Ala Lys Glu Asn Val Arg Lys Gln Trp Arg Arg Tyr Leu
    850                 855                 860

Cys Cys Gly Lys Leu Arg Leu Ala Glu Asn Ser Asp Trp Ser Lys Thr
865                 870                 875                 880

Ala Thr Asn Gly Leu Lys Lys Gln Thr Val Asn Gln Gly Val Ser Ser
                885                 890                 895

Ser Ser Asn Ser Leu Gln Ser Ser Ser Asn Ser Thr Asn Ser Thr Thr
            900                 905                 910

Leu Leu Val Asn Asn Asp Cys Ser Val His Ala Ser Gly Asn Gly Asn
        915                 920                 925

Ala Ser Thr Glu Arg Asn Gly Val Ser Phe Ser Val Gln Asn Gly Asp
    930                 935                 940

Val Cys Leu His Asp Phe Thr Gly Lys Gln His Met Phe Asn Glu Lys
945                 950                 955                 960

Glu Asp Ser Cys Asn Gly Lys Gly Arg Met Ala Leu Arg Arg Thr Ser
                965                 970                 975

Lys Arg Gly Ser Leu His Phe Ile Glu Gln Met
            980                 985


<210> 3074
<211> 1014
<212> PRT
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<220>
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<223> /note="Gene Symbol: ADGRG2; "

<220>
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      adhesion G prt-coupled receptor G2; "

<220>
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<223> /note="Uniprot ID:  Q8IZP9; "
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<220>
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Met Val Phe Ser Val Arg Gln Cys Gly His Val Gly Arg Thr Glu Glu
1 5 10 15

Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
20 25 30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
35 40 45

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

Glu Val Glu Thr Thr Ser Leu Asn Asp Val Thr Leu Ser Leu Leu Pro
65 70 75 80

Ser Asn Glu Thr Glu Lys Thr Lys Ile Thr Ile Val Lys Thr Phe Asn
85 90 95

Ala Ser Gly Val Lys Pro Gln Arg Asn Ile Cys Asn Leu Ser Ser Ile
100 105 110

Cys Asn Asp Ser Ala Phe Phe Arg Gly Glu Ile Met Phe Gln Tyr Asp
115 120 125

Lys Glu Ser Thr Val Pro Gln Asn Gln His Ile Thr Asn Gly Thr Leu
130 135 140

Thr Gly Val Leu Ser Leu Ser Glu Leu Lys Arg Ser Glu Leu Asn Lys
145 150 155 160

Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile Met Cys Ala Thr Ala
165 170 175

Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr Ile Lys Leu Asn Asn
180 185 190

Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu Glu Arg Val Lys Ile
195 200 205

```
Arg Pro Met Glu His Cys Cys Cys Ser Val Arg Ile Pro Cys Pro Ser
    210                 215                 220

Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp Leu Gln Asp Pro Ile
225                 230                 235                 240

Val Cys Leu Ala Asp His Pro Arg Gly Pro Pro Phe Ser Ser Ser Gln
                245                 250                 255

Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu Ser Gln Val Pro Lys
            260                 265                 270

Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser Pro Val Thr His Asn
        275                 280                 285

Val Pro Ser Pro Ile Gly Glu Ile Gln Pro Leu Ser Pro Gln Pro Ser
    290                 295                 300

Ala Pro Ile Ala Ser Ser Pro Ala Ile Asp Met Pro Pro Gln Ser Glu
305                 310                 315                 320

Thr Ile Ser Ser Pro Met Pro Gln Thr His Val Ser Gly Thr Pro Pro
                325                 330                 335

Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val Ser Ala Pro Ala Asn
            340                 345                 350

Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr Asp Ile Val Asn Thr
        355                 360                 365

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

Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala Gly Glu Met Ile Asn
385                 390                 395                 400

Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp Met Leu Ala Pro Leu
                405                 410                 415

Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile Gly Leu Gln Leu Asn
            420                 425                 430
```

```
Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro Ser Leu Ala Leu Ala
        435                 440                 445

Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr Thr Thr Phe Val Ala
    450                 455                 460

Gln Asp Pro Ala Asn Leu Gln Val Ser Leu Glu Thr Gln Ala Pro Glu
465                 470                 475                 480

Asn Ser Ile Gly Thr Ile Thr Leu Pro Ser Ser Leu Met Asn Asn Leu
                485                 490                 495

Pro Ala His Asp Met Glu Leu Ala Ser Arg Val Gln Phe Asn Phe Phe
            500                 505                 510

Glu Thr Pro Ala Leu Phe Gln Asp Pro Ser Leu Glu Asn Leu Ser Leu
        515                 520                 525

Ile Ser Tyr Val Ile Ser Ser Ser Val Ala Asn Leu Thr Val Arg Asn
    530                 535                 540

Leu Thr Arg Asn Val Thr Val Thr Leu Lys His Ile Asn Pro Ser Gln
545                 550                 555                 560

Asp Glu Leu Thr Val Arg Cys Val Phe Trp Asp Leu Gly Arg Asn Gly
                565                 570                 575

Gly Arg Gly Gly Trp Ser Asp Asn Gly Cys Ser Val Lys Asp Arg Arg
            580                 585                 590

Leu Asn Glu Thr Ile Cys Thr Cys Ser His Leu Thr Ser Phe Gly Val
        595                 600                 605

Leu Leu Asp Leu Ser Arg Thr Ser Val Leu Pro Ala Gln Met Met Ala
    610                 615                 620

Leu Thr Phe Ile Thr Tyr Ile Gly Cys Gly Leu Ser Ser Ile Phe Leu
625                 630                 635                 640

Ser Val Thr Leu Val Thr Tyr Ile Ala Phe Glu Lys Ile Arg Arg Asp
                645                 650                 655

Tyr Pro Ser Lys Ile Leu Ile Gln Leu Cys Ala Ala Leu Leu Leu Leu
```

660 665 670

Asn Leu Val Phe Leu Leu Asp Ser Trp Ile Ala Leu Tyr Lys Met Gln
675 680 685

Gly Leu Cys Ile Ser Val Ala Val Phe Leu His Tyr Phe Leu Leu Val
690 695 700

Ser Phe Thr Trp Met Gly Leu Glu Ala Phe His Met Tyr Leu Ala Leu
705 710 715 720

Val Lys Val Phe Asn Thr Tyr Ile Arg Lys Tyr Ile Leu Lys Phe Cys
725 730 735

Ile Val Gly Trp Gly Val Pro Ala Val Val Val Thr Ile Ile Leu Thr
740 745 750

Ile Ser Pro Asp Asn Tyr Gly Leu Gly Ser Tyr Gly Lys Phe Pro Asn
755 760 765

Gly Ser Pro Asp Asp Phe Cys Trp Ile Asn Asn Asn Ala Val Phe Tyr
770 775 780

Ile Thr Val Val Gly Tyr Phe Cys Val Ile Phe Leu Leu Asn Val Ser
785 790 795 800

Met Phe Ile Val Val Leu Val Gln Leu Cys Arg Ile Lys Lys Lys Lys
805 810 815

Gln Leu Gly Ala Gln Arg Lys Thr Ser Ile Gln Asp Leu Arg Ser Ile
820 825 830

Ala Gly Leu Thr Phe Leu Leu Gly Ile Thr Trp Gly Phe Ala Phe Phe
835 840 845

Ala Trp Gly Pro Val Asn Val Thr Phe Met Tyr Leu Phe Ala Ile Phe
850 855 860

Asn Thr Leu Gln Gly Phe Phe Ile Phe Ile Phe Tyr Cys Val Ala Lys
865 870 875 880

Glu Asn Val Arg Lys Gln Trp Arg Arg Tyr Leu Cys Cys Gly Lys Leu
885 890 895

```
Arg Leu Ala Glu Asn Ser Asp Trp Ser Lys Thr Ala Thr Asn Gly Leu
            900                 905                 910

Lys Lys Gln Thr Val Asn Gln Gly Val Ser Ser Ser Ser Asn Ser Leu
        915                 920                 925

Gln Ser Ser Ser Asn Ser Thr Asn Ser Thr Thr Leu Leu Val Asn Asn
    930                 935                 940

Asp Cys Ser Val His Ala Ser Gly Asn Gly Asn Ala Ser Thr Glu Arg
945                 950                 955                 960

Asn Gly Val Ser Phe Ser Val Gln Asn Gly Asp Val Cys Leu His Asp
                965                 970                 975

Phe Thr Gly Lys Gln His Met Phe Asn Glu Lys Glu Asp Ser Cys Asn
            980                 985                 990

Gly Lys Gly Arg Met Ala Leu Arg  Arg Thr Ser Lys Arg  Gly Ser
Leu
        995                 1000                1005

His Phe  Ile Glu Gln Met
    1010


<210> 3075
<211> 995
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Met Val Phe Ser Val Arg Gln Cys Gly His Val Gly Arg Thr Glu Glu
1 5 10 15

Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
20 25 30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
35 40 45

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

Gly Thr Pro Asp Val Thr Leu Ser Leu Leu Pro Ser Asn Glu Thr Gly
65 70 75 80

Val Lys Pro Gln Arg Asn Ile Cys Asn Leu Ser Ser Ile Cys Asn Asp
85 90 95

Ser Ala Phe Phe Arg Gly Glu Ile Met Phe Gln Tyr Asp Lys Glu Ser
100 105 110

Thr Val Pro Gln Asn Gln His Ile Thr Asn Gly Thr Leu Thr Gly Val
115 120 125

Leu Ser Leu Ser Glu Leu Lys Arg Ser Glu Leu Asn Lys Thr Leu Gln
130 135 140

Thr Leu Ser Glu Thr Tyr Phe Ile Met Cys Ala Thr Ala Glu Ala Gln
145 150 155 160

Ser Thr Leu Asn Cys Thr Phe Thr Ile Lys Leu Asn Asn Thr Met Asn
165 170 175

Ala Cys Ala Val Ile Ala Ala Leu Glu Arg Val Lys Ile Arg Pro Met
180 185 190

Glu His Cys Cys Cys Ser Val Arg Ile Pro Cys Pro Ser Ser Pro Glu
195 200 205

```
Glu Leu Glu Lys Leu Gln Cys Asp Leu Gln Asp Pro Ile Val Cys Leu
    210                 215                 220

Ala Asp His Pro Arg Gly Pro Pro Phe Ser Ser Ser Gln Ser Ile Pro
225                 230                 235                 240

Val Val Pro Arg Ala Thr Val Leu Ser Gln Val Pro Lys Ala Thr Ser
                245                 250                 255

Phe Ala Glu Pro Pro Asp Tyr Ser Pro Val Thr His Asn Val Pro Ser
            260                 265                 270

Pro Ile Gly Glu Ile Gln Pro Leu Ser Pro Gln Pro Ser Ala Pro Ile
        275                 280                 285

Ala Ser Ser Pro Ala Ile Asp Met Pro Pro Gln Ser Glu Thr Ile Ser
    290                 295                 300

Ser Pro Met Pro Gln Thr His Val Ser Gly Thr Pro Pro Pro Val Lys
305                 310                 315                 320

Ala Ser Phe Ser Ser Pro Thr Val Ser Ala Pro Ala Asn Val Asn Thr
                325                 330                 335

Thr Ser Ala Pro Pro Val Gln Thr Asp Ile Val Asn Thr Ser Ser Ile
            340                 345                 350

Ser Asp Leu Glu Asn Gln Val Leu Gln Met Glu Lys Ala Leu Ser Leu
        355                 360                 365

Gly Ser Leu Glu Pro Asn Leu Ala Gly Glu Met Ile Asn Gln Val Ser
    370                 375                 380

Arg Leu Leu His Ser Pro Pro Asp Met Leu Ala Pro Leu Ala Gln Arg
385                 390                 395                 400

Leu Leu Lys Val Val Asp Asp Ile Gly Leu Gln Leu Asn Phe Ser Asn
                405                 410                 415

Thr Thr Ile Ser Leu Thr Ser Pro Ser Leu Ala Leu Ala Val Ile Arg
            420                 425                 430

Val Asn Ala Ser Ser Phe Asn Thr Thr Thr Phe Val Ala Gln Asp Pro
```

```
        435                 440                 445

Ala Asn Leu Gln Val Ser Leu Glu Thr Gln Ala Pro Glu Asn Ser Ile
    450                 455                 460

Gly Thr Ile Thr Leu Pro Ser Ser Leu Met Asn Asn Leu Pro Ala His
465                 470                 475                 480

Asp Met Glu Leu Ala Ser Arg Val Gln Phe Asn Phe Phe Glu Thr Pro
                485                 490                 495

Ala Leu Phe Gln Asp Pro Ser Leu Glu Asn Leu Ser Leu Ile Ser Tyr
            500                 505                 510

Val Ile Ser Ser Ser Val Ala Asn Leu Thr Val Arg Asn Leu Thr Arg
        515                 520                 525

Asn Val Thr Val Thr Leu Lys His Ile Asn Pro Ser Gln Asp Glu Leu
    530                 535                 540

Thr Val Arg Cys Val Phe Trp Asp Leu Gly Arg Asn Gly Gly Arg Gly
545                 550                 555                 560

Gly Trp Ser Asp Asn Gly Cys Ser Val Lys Asp Arg Arg Leu Asn Glu
                565                 570                 575

Thr Ile Cys Thr Cys Ser His Leu Thr Ser Phe Gly Val Leu Leu Asp
            580                 585                 590

Leu Ser Arg Thr Ser Val Leu Pro Ala Gln Met Met Ala Leu Thr Phe
        595                 600                 605

Ile Thr Tyr Ile Gly Cys Gly Leu Ser Ser Ile Phe Leu Ser Val Thr
    610                 615                 620

Leu Val Thr Tyr Ile Ala Phe Glu Lys Ile Arg Arg Asp Tyr Pro Ser
625                 630                 635                 640

Lys Ile Leu Ile Gln Leu Cys Ala Ala Leu Leu Leu Leu Asn Leu Val
                645                 650                 655

Phe Leu Leu Asp Ser Trp Ile Ala Leu Tyr Lys Met Gln Gly Leu Cys
            660                 665                 670
```

```
Ile Ser Val Ala Val Phe Leu His Tyr Phe Leu Leu Val Ser Phe Thr
        675                 680                 685

Trp Met Gly Leu Glu Ala Phe His Met Tyr Leu Ala Leu Val Lys Val
    690                 695                 700

Phe Asn Thr Tyr Ile Arg Lys Tyr Ile Leu Lys Phe Cys Ile Val Gly
705                 710                 715                 720

Trp Gly Val Pro Ala Val Val Val Thr Ile Ile Leu Thr Ile Ser Pro
                725                 730                 735

Asp Asn Tyr Gly Leu Gly Ser Tyr Gly Lys Phe Pro Asn Gly Ser Pro
            740                 745                 750

Asp Asp Phe Cys Trp Ile Asn Asn Asn Ala Val Phe Tyr Ile Thr Val
        755                 760                 765

Val Gly Tyr Phe Cys Val Ile Phe Leu Leu Asn Val Ser Met Phe Ile
    770                 775                 780

Val Val Leu Val Gln Leu Cys Arg Ile Lys Lys Lys Lys Gln Leu Gly
785                 790                 795                 800

Ala Gln Arg Lys Thr Ser Ile Gln Asp Leu Arg Ser Ile Ala Gly Leu
                805                 810                 815

Thr Phe Leu Leu Gly Ile Thr Trp Gly Phe Ala Phe Phe Ala Trp Gly
            820                 825                 830

Pro Val Asn Val Thr Phe Met Tyr Leu Phe Ala Ile Phe Asn Thr Leu
        835                 840                 845

Gln Gly Phe Phe Ile Phe Ile Phe Tyr Cys Val Ala Lys Glu Asn Val
    850                 855                 860

Arg Lys Gln Trp Arg Arg Tyr Leu Cys Cys Gly Lys Leu Arg Leu Ala
865                 870                 875                 880

Glu Asn Ser Asp Trp Ser Lys Thr Ala Thr Asn Gly Leu Lys Lys Gln
                885                 890                 895
```

```
Thr Val Asn Gln Gly Val Ser Ser Ser Ser Asn Ser Leu Gln Ser Ser
            900                 905                 910

Ser Asn Ser Thr Asn Ser Thr Thr Leu Leu Val Asn Asn Asp Cys Ser
        915                 920                 925

Val His Ala Ser Gly Asn Gly Asn Ala Ser Thr Glu Arg Asn Gly Val
    930                 935                 940

Ser Phe Ser Val Gln Asn Gly Asp Val Cys Leu His Asp Phe Thr Gly
945                 950                 955                 960

Lys Gln His Met Phe Asn Glu Lys Glu Asp Ser Cys Asn Gly Lys Gly
                965                 970                 975

Arg Met Ala Leu Arg Arg Thr Ser Lys Arg Gly Ser Leu His Phe Ile
            980                 985                 990

Glu Gln Met
        995


<210> 3076
<211> 1017
<212> PRT
<213> Homo sapiens

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      adhesion G prt-coupled receptor G2; "

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<400> 3076
Met Val Phe Ser Val Arg Gln Cys Gly His Val Gly Arg Thr Glu Glu
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1               5                   10                  15

Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
            20                  25                  30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
        35                  40                  45

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

Gly Thr Pro Glu Val Glu Thr Thr Ser Leu Asn Asp Val Thr Leu Ser
65                  70                  75                  80

Leu Leu Pro Ser Asn Glu Thr Glu Lys Thr Lys Ile Thr Ile Val Lys
                85                  90                  95

Thr Phe Asn Ala Ser Gly Val Lys Pro Gln Arg Asn Ile Cys Asn Leu
            100                 105                 110

Ser Ser Ile Cys Asn Asp Ser Ala Phe Phe Arg Gly Glu Ile Met Phe
        115                 120                 125

Gln Tyr Asp Lys Glu Ser Thr Val Pro Gln Asn Gln His Ile Thr Asn
    130                 135                 140

Gly Thr Leu Thr Gly Val Leu Ser Leu Ser Glu Leu Lys Arg Ser Glu
145                 150                 155                 160

Leu Asn Lys Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile Met Cys
                165                 170                 175

Ala Thr Ala Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr Ile Lys
            180                 185                 190

Leu Asn Asn Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu Glu Arg
        195                 200                 205

Val Lys Ile Arg Pro Met Glu His Cys Cys Cys Ser Val Arg Ile Pro
    210                 215                 220

Cys Pro Ser Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp Leu Gln
225                 230                 235                 240
```

```
Asp Pro Ile Val Cys Leu Ala Asp His Pro Arg Gly Pro Pro Phe Ser
                245                 250                 255

Ser Ser Gln Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu Ser Gln
            260                 265                 270

Val Pro Lys Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser Pro Val
        275                 280                 285

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

Gln Pro Ser Ala Pro Ile Ala Ser Ser Pro Ala Ile Asp Met Pro Pro
305                 310                 315                 320

Gln Ser Glu Thr Ile Ser Ser Pro Met Pro Gln Thr His Val Ser Gly
                325                 330                 335

Thr Pro Pro Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val Ser Ala
            340                 345                 350

Pro Ala Asn Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr Asp Ile
        355                 360                 365

Val Asn Thr Ser Ser Ile Ser Asp Leu Glu Asn Gln Val Leu Gln Met
    370                 375                 380

Glu Lys Ala Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala Gly Glu
385                 390                 395                 400

Met Ile Asn Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp Met Leu
                405                 410                 415

Ala Pro Leu Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile Gly Leu
            420                 425                 430

Gln Leu Asn Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro Ser Leu
        435                 440                 445

Ala Leu Ala Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr Thr Thr
    450                 455                 460
```

```
Phe Val Ala Gln Asp Pro Ala Asn Leu Gln Val Ser Leu Glu Thr Gln
465                 470                 475                 480

Ala Pro Glu Asn Ser Ile Gly Thr Ile Thr Leu Pro Ser Ser Leu Met
                485                 490                 495

Asn Asn Leu Pro Ala His Asp Met Glu Leu Ala Ser Arg Val Gln Phe
            500                 505                 510

Asn Phe Phe Glu Thr Pro Ala Leu Phe Gln Asp Pro Ser Leu Glu Asn
        515                 520                 525

Leu Ser Leu Ile Ser Tyr Val Ile Ser Ser Ser Val Ala Asn Leu Thr
    530                 535                 540

Val Arg Asn Leu Thr Arg Asn Val Thr Val Thr Leu Lys His Ile Asn
545                 550                 555                 560

Pro Ser Gln Asp Glu Leu Thr Val Arg Cys Val Phe Trp Asp Leu Gly
                565                 570                 575

Arg Asn Gly Gly Arg Gly Gly Trp Ser Asp Asn Gly Cys Ser Val Lys
            580                 585                 590

Asp Arg Arg Leu Asn Glu Thr Ile Cys Thr Cys Ser His Leu Thr Ser
        595                 600                 605

Phe Gly Val Leu Leu Asp Leu Ser Arg Thr Ser Val Leu Pro Ala Gln
    610                 615                 620

Met Met Ala Leu Thr Phe Ile Thr Tyr Ile Gly Cys Gly Leu Ser Ser
625                 630                 635                 640

Ile Phe Leu Ser Val Thr Leu Val Thr Tyr Ile Ala Phe Glu Lys Ile
                645                 650                 655

Arg Arg Asp Tyr Pro Ser Lys Ile Leu Ile Gln Leu Cys Ala Ala Leu
            660                 665                 670

Leu Leu Leu Asn Leu Val Phe Leu Leu Asp Ser Trp Ile Ala Leu Tyr
        675                 680                 685
```

```
Lys Met Gln Gly Leu Cys Ile Ser Val Ala Val Phe Leu His Tyr Phe
    690                 695                 700

Leu Leu Val Ser Phe Thr Trp Met Gly Leu Glu Ala Phe His Met Tyr
705                 710                 715                 720

Leu Ala Leu Val Lys Val Phe Asn Thr Tyr Ile Arg Lys Tyr Ile Leu
                725                 730                 735

Lys Phe Cys Ile Val Gly Trp Gly Val Pro Ala Val Val Val Thr Ile
            740                 745                 750

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

Phe Pro Asn Gly Ser Pro Asp Asp Phe Cys Trp Ile Asn Asn Asn Ala
    770                 775                 780

Val Phe Tyr Ile Thr Val Val Gly Tyr Phe Cys Val Ile Phe Leu Leu
785                 790                 795                 800

Asn Val Ser Met Phe Ile Val Val Leu Val Gln Leu Cys Arg Ile Lys
                805                 810                 815

Lys Lys Lys Gln Leu Gly Ala Gln Arg Lys Thr Ser Ile Gln Asp Leu
            820                 825                 830

Arg Ser Ile Ala Gly Leu Thr Phe Leu Leu Gly Ile Thr Trp Gly Phe
        835                 840                 845

Ala Phe Phe Ala Trp Gly Pro Val Asn Val Thr Phe Met Tyr Leu Phe
    850                 855                 860

Ala Ile Phe Asn Thr Leu Gln Gly Phe Phe Ile Phe Ile Phe Tyr Cys
865                 870                 875                 880

Val Ala Lys Glu Asn Val Arg Lys Gln Trp Arg Arg Tyr Leu Cys Cys
                885                 890                 895

Gly Lys Leu Arg Leu Ala Glu Asn Ser Asp Trp Ser Lys Thr Ala Thr
            900                 905                 910

Asn Gly Leu Lys Lys Gln Thr Val Asn Gln Gly Val Ser Ser Ser Ser
```

915 920 925

Asn Ser Leu Gln Ser Ser Ser Asn Ser Thr Asn Ser Thr Thr Leu Leu
930 935 940

Val Asn Asn Asp Cys Ser Val His Ala Ser Gly Asn Gly Asn Ala Ser
945 950 955 960

Thr Glu Arg Asn Gly Val Ser Phe Ser Val Gln Asn Gly Asp Val Cys
965 970 975

Leu His Asp Phe Thr Gly Lys Gln His Met Phe Asn Glu Lys Glu Asp
980 985 990

Ser Cys Asn Gly Lys Gly Arg Met Ala Leu Arg Arg Thr Ser Lys
Arg
995 1000 1005

Gly Ser Leu His Phe Ile Glu Gln Met
1010 1015

<210> 3077
<211> 966
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor G2; "

<220>
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<220>
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<400> 3077
Met Val Phe Ser Val Arg Gln Cys Gly His Val Gly Arg Thr Glu Glu
1 5 10 15

```
Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
            20                  25                  30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
        35                  40                  45

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

Gly Thr Pro Glu Val Glu Thr Thr Ser Leu Asn Asp Val Thr Leu Ser
65                  70                  75                  80

Leu Leu Pro Ser Asn Glu Thr Glu Lys Thr Lys Ile Thr Ile Val Lys
                85                  90                  95

Thr Phe Asn Ala Ser Gly Val Lys Pro Gln Arg Asn Ile Cys Asn Leu
            100                 105                 110

Ser Ser Ile Cys Asn Asp Ser Ala Phe Phe Arg Gly Glu Ile Met Phe
        115                 120                 125

Gln Tyr Asp Lys Glu Ser Thr Val Pro Gln Asn Gln His Ile Thr Asn
    130                 135                 140

Gly Thr Leu Thr Gly Val Leu Ser Leu Ser Glu Leu Lys Arg Ser Glu
145                 150                 155                 160

Leu Asn Lys Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile Met Cys
                165                 170                 175

Ala Thr Ala Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr Ile Lys
            180                 185                 190

Leu Asn Asn Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu Glu Arg
        195                 200                 205

Val Lys Ile Arg Pro Met Glu His Cys Cys Cys Ser Val Arg Ile Pro
    210                 215                 220

Cys Pro Ser Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp Leu Gln
225                 230                 235                 240
```

```
Asp Pro Ile Val Cys Leu Ala Asp His Pro Arg Gly Pro Pro Phe Ser
                245                 250                 255

Ser Ser Gln Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu Ser Gln
            260                 265                 270

Val Pro Lys Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser Pro Val
        275                 280                 285

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

Gln Pro Ser Ala Pro Ile Ala Ser Ser Pro Ala Ile Asp Met Pro Pro
305                 310                 315                 320

Gln Ser Glu Thr Ile Ser Ser Pro Met Pro Gln Thr His Val Ser Gly
                325                 330                 335

Thr Pro Pro Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val Ser Ala
            340                 345                 350

Pro Ala Asn Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr Asp Ile
        355                 360                 365

Val Asn Thr Ser Ser Ile Ser Asp Leu Glu Asn Gln Val Leu Gln Met
    370                 375                 380

Glu Lys Ala Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala Gly Glu
385                 390                 395                 400

Met Ile Asn Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp Met Leu
                405                 410                 415

Ala Pro Leu Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile Gly Leu
            420                 425                 430

Gln Leu Asn Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro Ser Leu
        435                 440                 445

Ala Leu Ala Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr Thr Thr
    450                 455                 460
```

```
Phe Val Ala Gln Asp Pro Ala Asn Leu Gln Val Ser Leu Glu Thr Gln
465                 470                 475                 480

Ala Pro Glu Asn Ser Ile Gly Thr Ile Thr Leu Pro Ser Ser Leu Met
                485                 490                 495

Asn Asn Leu Pro Ala His Asp Met Glu Leu Ala Ser Arg Val Gln Phe
            500                 505                 510

Asn Phe Phe Glu Thr Pro Ala Leu Phe Gln Asp Pro Ser Leu Glu Asn
        515                 520                 525

Leu Ser Leu Ile Ser Tyr Val Ile Ser Ser Ser Val Ala Asn Leu Thr
    530                 535                 540

Val Arg Asn Leu Thr Arg Asn Val Thr Val Thr Leu Lys His Ile Asn
545                 550                 555                 560

Pro Ser Gln Asp Glu Leu Thr Val Arg Cys Val Phe Trp Asp Leu Gly
                565                 570                 575

Arg Asn Gly Gly Arg Gly Gly Trp Ser Asp Asn Gly Cys Ser Val Lys
            580                 585                 590

Asp Arg Arg Leu Asn Glu Thr Ile Cys Thr Cys Ser His Leu Thr Ser
        595                 600                 605

Phe Gly Val Leu Leu Asp Leu Ser Arg Thr Ser Val Leu Pro Ala Gln
    610                 615                 620

Met Met Ala Leu Thr Phe Ile Thr Tyr Ile Gly Cys Gly Leu Ser Ser
625                 630                 635                 640

Ile Phe Leu Ser Val Thr Leu Val Thr Tyr Ile Ala Phe Glu Lys Ile
                645                 650                 655

Arg Arg Asp Tyr Pro Ser Lys Ile Leu Ile Gln Leu Cys Ala Ala Leu
            660                 665                 670

Leu Leu Leu Asn Leu Val Phe Leu Leu Asp Ser Trp Ile Ala Leu Tyr
        675                 680                 685

Lys Met Gln Gly Leu Cys Ile Ser Val Ala Val Phe Leu His Tyr Phe
```

690 695 700

Leu Leu Val Ser Phe Thr Trp Met Gly Leu Glu Ala Phe His Met Tyr
705 710 715 720

Leu Ala Leu Val Lys Val Phe Asn Thr Tyr Ile Arg Lys Tyr Ile Leu
725 730 735

Lys Phe Cys Ile Val Gly Trp Gly Val Pro Ala Val Val Val Thr Ile
740 745 750

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

Phe Pro Asn Gly Ser Pro Asp Asp Phe Cys Trp Ile Asn Asn Asn Ala
770 775 780

Val Phe Tyr Ile Thr Val Val Gly Tyr Phe Cys Val Ile Phe Leu Leu
785 790 795 800

Asn Val Ser Met Phe Ile Val Val Leu Val Gln Leu Cys Arg Ile Lys
805 810 815

Lys Lys Lys Gln Leu Gly Ala Gln Arg Lys Thr Ser Ile Gln Asp Leu
820 825 830

Arg Ser Ile Ala Gly Leu Thr Phe Leu Leu Gly Ile Thr Trp Gly Phe
835 840 845

Ala Phe Phe Ala Trp Gly Pro Val Asn Val Thr Phe Met Tyr Leu Phe
850 855 860

Ala Ile Phe Asn Thr Leu Gln Gly Phe Phe Ile Phe Ile Phe Tyr Cys
865 870 875 880

Val Ala Lys Glu Asn Val Arg Lys Gln Trp Arg Arg Tyr Leu Cys Cys
885 890 895

Gly Lys Leu Arg Leu Ala Glu Asn Ser Gly Asn Ala Ser Thr Glu Arg
900 905 910

Asn Gly Val Ser Phe Ser Val Gln Asn Gly Asp Val Cys Leu His Asp
915 920 925

```
Phe Thr Gly Lys Gln His Met Phe Asn Glu Lys Glu Asp Ser Cys Asn
    930                 935                 940

Gly Lys Gly Arg Met Ala Leu Arg Arg Thr Ser Lys Arg Gly Ser Leu
945                 950                 955                 960

His Phe Ile Glu Gln Met
                965
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<210> 3078
<211> 993
<212> PRT
<213> Homo sapiens

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adhesion G prt-coupled receptor G2; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000369205"

<400> 3078

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

Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
            20                  25                  30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
        35                  40                  45

Pro Pro Pro Asp Val Thr Leu Ser Leu Leu Pro Ser Asn Glu Thr Glu
    50                  55                  60
```

```
Lys Thr Lys Ile Thr Ile Val Lys Thr Phe Asn Ala Ser Gly Val Lys
65                  70                  75                  80

Pro Gln Arg Asn Ile Cys Asn Leu Ser Ser Ile Cys Asn Asp Ser Ala
                85                  90                  95

Phe Phe Arg Gly Glu Ile Met Phe Gln Tyr Asp Lys Glu Ser Thr Val
            100                 105                 110

Pro Gln Asn Gln His Ile Thr Asn Gly Thr Leu Thr Gly Val Leu Ser
        115                 120                 125

Leu Ser Glu Leu Lys Arg Ser Glu Leu Asn Lys Thr Leu Gln Thr Leu
    130                 135                 140

Ser Glu Thr Tyr Phe Ile Met Cys Ala Thr Ala Glu Ala Gln Ser Thr
145                 150                 155                 160

Leu Asn Cys Thr Phe Thr Ile Lys Leu Asn Asn Thr Met Asn Ala Cys
                165                 170                 175

Ala Val Ile Ala Ala Leu Glu Arg Val Lys Ile Arg Pro Met Glu His
            180                 185                 190

Cys Cys Cys Ser Val Arg Ile Pro Cys Pro Ser Ser Pro Glu Glu Leu
        195                 200                 205

Glu Lys Leu Gln Cys Asp Leu Gln Asp Pro Ile Val Cys Leu Ala Asp
    210                 215                 220

His Pro Arg Gly Pro Pro Phe Ser Ser Ser Gln Ser Ile Pro Val Val
225                 230                 235                 240

Pro Arg Ala Thr Val Leu Ser Gln Val Pro Lys Ala Thr Ser Phe Ala
                245                 250                 255

Glu Pro Pro Asp Tyr Ser Pro Val Thr His Asn Val Pro Ser Pro Ile
            260                 265                 270

Gly Glu Ile Gln Pro Leu Ser Pro Gln Pro Ser Ala Pro Ile Ala Ser
        275                 280                 285

Ser Pro Ala Ile Asp Met Pro Pro Gln Ser Glu Thr Ile Ser Ser Pro
```

290 295 300

Met Pro Gln Thr His Val Ser Gly Thr Pro Pro Pro Val Lys Ala Ser
305 310 315 320

Phe Ser Ser Pro Thr Val Ser Ala Pro Ala Asn Val Asn Thr Thr Ser
325 330 335

Ala Pro Pro Val Gln Thr Asp Ile Val Asn Thr Ser Ser Ile Ser Asp
340 345 350

Leu Glu Asn Gln Val Leu Gln Met Glu Lys Ala Leu Ser Leu Gly Ser
355 360 365

Leu Glu Pro Asn Leu Ala Gly Glu Met Ile Asn Gln Val Ser Arg Leu
370 375 380

Leu His Ser Pro Pro Asp Met Leu Ala Pro Leu Ala Gln Arg Leu Leu
385 390 395 400

Lys Val Val Asp Asp Ile Gly Leu Gln Leu Asn Phe Ser Asn Thr Thr
405 410 415

Ile Ser Leu Thr Ser Pro Ser Leu Ala Leu Ala Val Ile Arg Val Asn
420 425 430

Ala Ser Ser Phe Asn Thr Thr Thr Phe Val Ala Gln Asp Pro Ala Asn
435 440 445

Leu Gln Val Ser Leu Glu Thr Gln Ala Pro Glu Asn Ser Ile Gly Thr
450 455 460

Ile Thr Leu Pro Ser Ser Leu Met Asn Asn Leu Pro Ala His Asp Met
465 470 475 480

Glu Leu Ala Ser Arg Val Gln Phe Asn Phe Phe Glu Thr Pro Ala Leu
485 490 495

Phe Gln Asp Pro Ser Leu Glu Asn Leu Ser Leu Ile Ser Tyr Val Ile
500 505 510

Ser Ser Ser Val Ala Asn Leu Thr Val Arg Asn Leu Thr Arg Asn Val
515 520 525

Thr Val Thr Leu Lys His Ile Asn Pro Ser Gln Asp Glu Leu Thr Val
530 535 540

Arg Cys Val Phe Trp Asp Leu Gly Arg Asn Gly Gly Arg Gly Gly Trp
545 550 555 560

Ser Asp Asn Gly Cys Ser Val Lys Asp Arg Arg Leu Asn Glu Thr Ile
565 570 575

Cys Thr Cys Ser His Leu Thr Ser Phe Gly Val Leu Leu Asp Leu Ser
580 585 590

Arg Thr Ser Val Leu Pro Ala Gln Met Met Ala Leu Thr Phe Ile Thr
595 600 605

Tyr Ile Gly Cys Gly Leu Ser Ser Ile Phe Leu Ser Val Thr Leu Val
610 615 620

Thr Tyr Ile Ala Phe Glu Lys Ile Arg Arg Asp Tyr Pro Ser Lys Ile
625 630 635 640

Leu Ile Gln Leu Cys Ala Ala Leu Leu Leu Leu Asn Leu Val Phe Leu
645 650 655

Leu Asp Ser Trp Ile Ala Leu Tyr Lys Met Gln Gly Leu Cys Ile Ser
660 665 670

Val Ala Val Phe Leu His Tyr Phe Leu Leu Val Ser Phe Thr Trp Met
675 680 685

Gly Leu Glu Ala Phe His Met Tyr Leu Ala Leu Val Lys Val Phe Asn
690 695 700

Thr Tyr Ile Arg Lys Tyr Ile Leu Lys Phe Cys Ile Val Gly Trp Gly
705 710 715 720

Val Pro Ala Val Val Val Thr Ile Ile Leu Thr Ile Ser Pro Asp Asn
725 730 735

Tyr Gly Leu Gly Ser Tyr Gly Lys Phe Pro Asn Gly Ser Pro Asp Asp
740 745 750

```
Phe Cys Trp Ile Asn Asn Asn Ala Val Phe Tyr Ile Thr Val Val Gly
        755                 760                 765

Tyr Phe Cys Val Ile Phe Leu Leu Asn Val Ser Met Phe Ile Val Val
    770                 775                 780

Leu Val Gln Leu Cys Arg Ile Lys Lys Lys Lys Gln Leu Gly Ala Gln
785                 790                 795                 800

Arg Lys Thr Ser Ile Gln Asp Leu Arg Ser Ile Ala Gly Leu Thr Phe
                805                 810                 815

Leu Leu Gly Ile Thr Trp Gly Phe Ala Phe Phe Ala Trp Gly Pro Val
            820                 825                 830

Asn Val Thr Phe Met Tyr Leu Phe Ala Ile Phe Asn Thr Leu Gln Gly
        835                 840                 845

Phe Phe Ile Phe Ile Phe Tyr Cys Val Ala Lys Glu Asn Val Arg Lys
    850                 855                 860

Gln Trp Arg Arg Tyr Leu Cys Cys Gly Lys Leu Arg Leu Ala Glu Asn
865                 870                 875                 880

Ser Asp Trp Ser Lys Thr Ala Thr Asn Gly Leu Lys Lys Gln Thr Val
                885                 890                 895

Asn Gln Gly Val Ser Ser Ser Ser Asn Ser Leu Gln Ser Ser Ser Asn
            900                 905                 910

Ser Thr Asn Ser Thr Thr Leu Leu Val Asn Asn Asp Cys Ser Val His
        915                 920                 925

Ala Ser Gly Asn Gly Asn Ala Ser Thr Glu Arg Asn Gly Val Ser Phe
    930                 935                 940

Ser Val Gln Asn Gly Asp Val Cys Leu His Asp Phe Thr Gly Lys Gln
945                 950                 955                 960

His Met Phe Asn Glu Lys Glu Asp Ser Cys Asn Gly Lys Gly Arg Met
                965                 970                 975
```

```
Ala Leu Arg Arg Thr Ser Lys Arg Gly Ser Leu His Phe Ile Glu Gln
            980                 985                 990

Met



<210> 3079
<211> 1001
<212> PRT
<213> Homo sapiens

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      adhesion G prt-coupled receptor G2; "

<220>
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<223> /note="Uniprot ID:  Q8IZP9; "

<220>
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<400> 3079
Met Val Phe Ser Val Arg Gln Cys Gly His Val Gly Arg Thr Glu Glu
1               5                  10                  15

Val Leu Leu Thr Phe Lys Ile Phe Leu Val Ile Ile Cys Leu His Val
            20                  25                  30

Val Leu Val Thr Ser Leu Glu Glu Asp Thr Asp Asn Ser Ser Leu Ser
        35                  40                  45

Pro Pro Pro Glu Val Glu Thr Thr Ser Leu Asn Asp Val Thr Leu Ser
    50                  55                  60

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

Thr Phe Asn Ala Ser Gly Val Lys Pro Gln Arg Asn Ile Cys Asn Leu
                85                  90                  95
```

```
Ser Ser Ile Cys Asn Asp Ser Ala Phe Phe Arg Gly Glu Ile Met Phe
            100                 105                 110

Gln Tyr Asp Lys Glu Ser Thr Val Pro Gln Asn Gln His Ile Thr Asn
        115                 120                 125

Gly Thr Leu Thr Gly Val Leu Ser Leu Ser Glu Leu Lys Arg Ser Glu
    130                 135                 140

Leu Asn Lys Thr Leu Gln Thr Leu Ser Glu Thr Tyr Phe Ile Met Cys
145                 150                 155                 160

Ala Thr Ala Glu Ala Gln Ser Thr Leu Asn Cys Thr Phe Thr Ile Lys
                165                 170                 175

Leu Asn Asn Thr Met Asn Ala Cys Ala Val Ile Ala Ala Leu Glu Arg
            180                 185                 190

Val Lys Ile Arg Pro Met Glu His Cys Cys Cys Ser Val Arg Ile Pro
        195                 200                 205

Cys Pro Ser Ser Pro Glu Glu Leu Glu Lys Leu Gln Cys Asp Leu Gln
    210                 215                 220

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

Ser Ser Gln Ser Ile Pro Val Val Pro Arg Ala Thr Val Leu Ser Gln
                245                 250                 255

Val Pro Lys Ala Thr Ser Phe Ala Glu Pro Pro Asp Tyr Ser Pro Val
            260                 265                 270

Thr His Asn Val Pro Ser Pro Ile Gly Glu Ile Gln Pro Leu Ser Pro
        275                 280                 285

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

Gln Ser Glu Thr Ile Ser Ser Pro Met Pro Gln Thr His Val Ser Gly
305                 310                 315                 320
```

Thr Pro Pro Pro Val Lys Ala Ser Phe Ser Ser Pro Thr Val Ser Ala
325 330 335

Pro Ala Asn Val Asn Thr Thr Ser Ala Pro Pro Val Gln Thr Asp Ile
340 345 350

Val Asn Thr Ser Ser Ile Ser Asp Leu Glu Asn Gln Val Leu Gln Met
355 360 365

Glu Lys Ala Leu Ser Leu Gly Ser Leu Glu Pro Asn Leu Ala Gly Glu
370 375 380

Met Ile Asn Gln Val Ser Arg Leu Leu His Ser Pro Pro Asp Met Leu
385 390 395 400

Ala Pro Leu Ala Gln Arg Leu Leu Lys Val Val Asp Asp Ile Gly Leu
405 410 415

Gln Leu Asn Phe Ser Asn Thr Thr Ile Ser Leu Thr Ser Pro Ser Leu
420 425 430

Ala Leu Ala Val Ile Arg Val Asn Ala Ser Ser Phe Asn Thr Thr Thr
435 440 445

Phe Val Ala Gln Asp Pro Ala Asn Leu Gln Val Ser Leu Glu Thr Gln
450 455 460

Ala Pro Glu Asn Ser Ile Gly Thr Ile Thr Leu Pro Ser Ser Leu Met
465 470 475 480

Asn Asn Leu Pro Ala His Asp Met Glu Leu Ala Ser Arg Val Gln Phe
485 490 495

Asn Phe Phe Glu Thr Pro Ala Leu Phe Gln Asp Pro Ser Leu Glu Asn
500 505 510

Leu Ser Leu Ile Ser Tyr Val Ile Ser Ser Ser Val Ala Asn Leu Thr
515 520 525

Val Arg Asn Leu Thr Arg Asn Val Thr Val Thr Leu Lys His Ile Asn
530 535 540

```
Pro Ser Gln Asp Glu Leu Thr Val Arg Cys Val Phe Trp Asp Leu Gly
545                 550                 555                 560

Arg Asn Gly Gly Arg Gly Gly Trp Ser Asp Asn Gly Cys Ser Val Lys
                565                 570                 575

Asp Arg Arg Leu Asn Glu Thr Ile Cys Thr Cys Ser His Leu Thr Ser
            580                 585                 590

Phe Gly Val Leu Leu Asp Leu Ser Arg Thr Ser Val Leu Pro Ala Gln
        595                 600                 605

Met Met Ala Leu Thr Phe Ile Thr Tyr Ile Gly Cys Gly Leu Ser Ser
    610                 615                 620

Ile Phe Leu Ser Val Thr Leu Val Thr Tyr Ile Ala Phe Glu Lys Ile
625                 630                 635                 640

Arg Arg Asp Tyr Pro Ser Lys Ile Leu Ile Gln Leu Cys Ala Ala Leu
                645                 650                 655

Leu Leu Leu Asn Leu Val Phe Leu Leu Asp Ser Trp Ile Ala Leu Tyr
            660                 665                 670

Lys Met Gln Gly Leu Cys Ile Ser Val Ala Val Phe Leu His Tyr Phe
        675                 680                 685

Leu Leu Val Ser Phe Thr Trp Met Gly Leu Glu Ala Phe His Met Tyr
    690                 695                 700

Leu Ala Leu Val Lys Val Phe Asn Thr Tyr Ile Arg Lys Tyr Ile Leu
705                 710                 715                 720

Lys Phe Cys Ile Val Gly Trp Gly Val Pro Ala Val Val Val Thr Ile
                725                 730                 735

Ile Leu Thr Ile Ser Pro Asp Asn Tyr Gly Leu Gly Ser Tyr Gly Lys
            740                 745                 750

Phe Pro Asn Gly Ser Pro Asp Asp Phe Cys Trp Ile Asn Asn Asn Ala
        755                 760                 765

Val Phe Tyr Ile Thr Val Val Gly Tyr Phe Cys Val Ile Phe Leu Leu
```

770 775 780

Asn Val Ser Met Phe Ile Val Val Leu Val Gln Leu Cys Arg Ile Lys
785 790 795 800

Lys Lys Lys Gln Leu Gly Ala Gln Arg Lys Thr Ser Ile Gln Asp Leu
805 810 815

Arg Ser Ile Ala Gly Leu Thr Phe Leu Leu Gly Ile Thr Trp Gly Phe
820 825 830

Ala Phe Phe Ala Trp Gly Pro Val Asn Val Thr Phe Met Tyr Leu Phe
835 840 845

Ala Ile Phe Asn Thr Leu Gln Gly Phe Phe Ile Phe Ile Phe Tyr Cys
850 855 860

Val Ala Lys Glu Asn Val Arg Lys Gln Trp Arg Arg Tyr Leu Cys Cys
865 870 875 880

Gly Lys Leu Arg Leu Ala Glu Asn Ser Asp Trp Ser Lys Thr Ala Thr
885 890 895

Asn Gly Leu Lys Lys Gln Thr Val Asn Gln Gly Val Ser Ser Ser Ser
900 905 910

Asn Ser Leu Gln Ser Ser Ser Asn Ser Thr Asn Ser Thr Thr Leu Leu
915 920 925

Val Asn Asn Asp Cys Ser Val His Ala Ser Gly Asn Gly Asn Ala Ser
930 935 940

Thr Glu Arg Asn Gly Val Ser Phe Ser Val Gln Asn Gly Asp Val Cys
945 950 955 960

Leu His Asp Phe Thr Gly Lys Gln His Met Phe Asn Glu Lys Glu Asp
965 970 975

Ser Cys Asn Gly Lys Gly Arg Met Ala Leu Arg Arg Thr Ser Lys Arg
980 985 990

Gly Ser Leu His Phe Ile Glu Gln Met
995 1000

<210> 3080
<211> 549
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q86Y34; "

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<400> 3080
Met Ala Thr Pro Arg Gly Leu Gly Ala Leu Leu Leu Leu Leu Leu Leu
1   5   10   15

Pro Thr Ser Gly Gln Glu Lys Pro Thr Glu Gly Pro Arg Asn Thr Cys
            20   25   30

Leu Gly Ser Asn Asn Met Tyr Asp Ile Phe Asn Leu Asn Asp Lys Ala
        35   40   45

Leu Cys Phe Thr Lys Cys Arg Gln Ser Gly Ser Asp Ser Cys Asn Val
    50   55   60

Glu Asn Leu Gln Arg Tyr Trp Leu Asn Tyr Glu Ala His Leu Met Lys
65   70   75   80

Glu Gly Leu Thr Gln Lys Val Asn Thr Pro Phe Leu Lys Ala Leu Val
                85   90   95

Gln Asn Leu Ser Thr Asn Thr Ala Glu Asp Phe Tyr Phe Ser Leu Glu
            100   105   110

```
Pro Ser Gln Val Pro Arg Gln Val Met Lys Asp Glu Asp Lys Pro Pro
        115                 120                 125

Asp Arg Val Arg Leu Pro Lys Ser Leu Phe Arg Ser Leu Pro Gly Asn
    130                 135                 140

Arg Ser Val Val Arg Leu Ala Val Thr Ile Leu Asp Ile Gly Pro Gly
145                 150                 155                 160

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

Leu Asn Asn Arg Leu Val Gly Leu Ser Val Gly Gln Met His Val Thr
            180                 185                 190

Lys Leu Ala Glu Pro Leu Glu Ile Val Phe Ser His Gln Arg Pro Pro
        195                 200                 205

Pro Asn Met Thr Leu Thr Cys Val Phe Trp Asp Val Thr Lys Gly Thr
    210                 215                 220

Thr Gly Asp Trp Ser Ser Glu Gly Cys Ser Thr Glu Val Arg Pro Glu
225                 230                 235                 240

Gly Thr Val Cys Cys Cys Asp His Leu Thr Phe Phe Ala Leu Leu Leu
                245                 250                 255

Arg Pro Thr Leu Asp Gln Ser Thr Val His Ile Leu Thr Arg Ile Ser
            260                 265                 270

Gln Ala Gly Cys Gly Val Ser Met Ile Phe Leu Ala Phe Thr Ile Ile
        275                 280                 285

Leu Tyr Ala Phe Leu Arg Leu Ser Arg Glu Arg Phe Lys Ser Glu Asp
    290                 295                 300

Ala Pro Lys Ile His Val Ala Leu Gly Gly Ser Leu Phe Leu Leu Asn
305                 310                 315                 320

Leu Ala Phe Leu Val Asn Val Gly Ser Gly Ser Lys Gly Ser Asp Ala
                325                 330                 335

Ala Cys Trp Ala Arg Gly Ala Val Phe His Tyr Phe Leu Leu Cys Ala
```

340 345 350

Phe Thr Trp Met Gly Leu Glu Ala Phe His Leu Tyr Leu Leu Ala Val
355 360 365

Arg Val Phe Asn Thr Tyr Phe Gly His Tyr Phe Leu Lys Leu Ser Leu
370 375 380

Val Gly Trp Gly Leu Pro Ala Leu Met Val Ile Gly Thr Gly Ser Ala
385 390 395 400

Asn Ser Tyr Gly Leu Tyr Thr Ile Arg Asp Arg Glu Asn Arg Thr Ser
405 410 415

Leu Glu Leu Cys Trp Phe Arg Glu Gly Thr Thr Met Tyr Ala Leu Tyr
420 425 430

Ile Thr Val His Gly Tyr Phe Leu Ile Thr Phe Leu Phe Gly Met Val
435 440 445

Val Leu Ala Leu Val Val Trp Lys Ile Phe Thr Leu Ser Arg Ala Thr
450 455 460

Ala Val Lys Glu Arg Gly Lys Asn Arg Lys Lys Val Leu Thr Leu Leu
465 470 475 480

Gly Leu Ser Ser Leu Val Gly Val Thr Trp Gly Leu Ala Ile Phe Thr
485 490 495

Pro Leu Gly Leu Ser Thr Val Tyr Ile Phe Ala Leu Phe Asn Ser Leu
500 505 510

Gln Gly Val Phe Ile Cys Cys Trp Phe Thr Ile Leu Tyr Leu Pro Ser
515 520 525

Gln Ser Thr Thr Val Ser Ser Ser Thr Ala Arg Leu Asp Gln Ala His
530 535 540

Ser Ala Ser Gln Glu
545

<210> 3081
<211> 429

<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor G3; "

<220>
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<223> /note="ENSP ID: ENSP00000404803"

<400> 3081
Met Lys Asp Glu Asp Lys Pro Pro Asp Arg Val Arg Leu Pro Lys Ser
1 5 10 15

Leu Phe Arg Ser Leu Pro Gly Asn Arg Ser Val Val Arg Leu Ala Val
20 25 30

Thr Ile Leu Asp Ile Gly Pro Gly Thr Leu Phe Lys Gly Pro Arg Leu
35 40 45

Gly Leu Gly Asp Gly Ser Gly Val Leu Asn Asn Arg Leu Val Gly Leu
50 55 60

Ser Val Gly Gln Met His Val Thr Lys Leu Ala Glu Pro Leu Glu Ile
65 70 75 80

Val Phe Ser His Gln Arg Pro Pro Pro Asn Met Thr Leu Thr Cys Val
85 90 95

Phe Trp Asp Val Thr Lys Gly Thr Thr Gly Asp Trp Ser Ser Glu Gly
100 105 110

Cys Ser Thr Glu Val Arg Pro Glu Gly Thr Val Cys Cys Cys Asp His
115 120 125

Leu Thr Phe Phe Ala Leu Leu Leu Arg Pro Thr Leu Asp Gln Ser Thr
130 135 140

```
Val His Ile Leu Thr Arg Ile Ser Gln Ala Gly Cys Gly Val Ser Met
145                 150                 155                 160

Ile Phe Leu Ala Phe Thr Ile Ile Leu Tyr Ala Phe Leu Arg Leu Ser
                165                 170                 175

Arg Glu Arg Phe Lys Ser Glu Asp Ala Pro Lys Ile His Val Ala Leu
            180                 185                 190

Gly Gly Ser Leu Phe Leu Leu Asn Leu Ala Phe Leu Val Asn Val Gly
        195                 200                 205

Ser Gly Ser Lys Gly Ser Asp Ala Ala Cys Trp Ala Arg Gly Ala Val
    210                 215                 220

Phe His Tyr Phe Leu Leu Cys Ala Phe Thr Trp Met Gly Leu Glu Ala
225                 230                 235                 240

Phe His Leu Tyr Leu Leu Ala Val Arg Val Phe Asn Thr Tyr Phe Gly
                245                 250                 255

His Tyr Phe Leu Lys Leu Ser Leu Val Gly Trp Gly Leu Pro Ala Leu
            260                 265                 270

Met Val Ile Gly Thr Gly Ser Ala Asn Ser Tyr Gly Leu Tyr Thr Ile
        275                 280                 285

Arg Asp Arg Glu Asn Arg Thr Ser Leu Glu Leu Cys Trp Phe Arg Glu
    290                 295                 300

Gly Thr Thr Met Tyr Ala Leu Tyr Ile Thr Val His Gly Tyr Phe Leu
305                 310                 315                 320

Ile Thr Phe Leu Phe Gly Met Val Val Leu Ala Leu Val Val Trp Lys
                325                 330                 335

Ile Phe Thr Leu Ser Arg Ala Thr Ala Val Lys Glu Arg Gly Lys Asn
            340                 345                 350

Arg Lys Lys Val Leu Thr Leu Leu Gly Leu Ser Ser Leu Val Gly Val
        355                 360                 365

Thr Trp Gly Leu Ala Ile Phe Thr Pro Leu Gly Leu Ser Thr Val Tyr
```

370 375 380

Ile Phe Ala Leu Phe Asn Ser Leu Gln Gly Val Phe Ile Cys Cys Trp
385 390 395 400

Phe Thr Ile Leu Tyr Leu Pro Ser Gln Ser Thr Thr Val Ser Ser Ser
405 410 415

Thr Ala Arg Leu Asp Gln Ala His Ser Ala Ser Gln Glu
420 425

<210> 3082
<211> 315
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 690; "

<220>
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<223> /note="Gene Symbol: ADGRG3; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000456409"

<400> 3082
Met Ala Thr Pro Arg Gly Leu Gly Ala Leu Leu Leu Leu Leu Leu Leu
1 5 10 15

Pro Thr Ser Gly Gln Glu Lys Pro Thr Glu Gly Pro Arg Asn Thr Cys
20 25 30

Leu Gly Ser Asn Asn Met Tyr Asp Ile Phe Asn Leu Asn Asp Lys Ala
35 40 45

Leu Cys Phe Thr Lys Cys Arg Gln Ser Gly Ser Asp Ser Cys Asn Val
50 55 60

Glu Asn Leu Gln Arg Tyr Trp Leu Asn Tyr Glu Ala His Leu Met Lys
65 70 75 80

```
Glu Gly Leu Thr Gln Lys Val Asn Thr Pro Phe Leu Lys Ala Leu Val
                85                  90                  95

Gln Asn Leu Ser Thr Asn Thr Ala Glu Asp Phe Tyr Phe Ser Leu Glu
            100                 105                 110

Pro Ser Gln Val Pro Arg Gln Val Met Lys Asp Glu Asp Lys Pro Pro
        115                 120                 125

Asp Arg Val Arg Leu Pro Lys Ser Leu Phe Arg Ser Leu Pro Gly Asn
    130                 135                 140

Arg Ser Val Val Arg Leu Ala Val Thr Ile Leu Asp Ile Gly Pro Gly
145                 150                 155                 160

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

Leu Asn Asn Arg Leu Val Gly Leu Ser Val Gly Gln Met His Val Thr
            180                 185                 190

Lys Leu Ala Glu Pro Leu Glu Ile Val Phe Ser His Gln Arg Pro Pro
        195                 200                 205

Pro Asn Met Thr Leu Thr Cys Val Phe Trp Asp Val Thr Lys Gly Thr
    210                 215                 220

Thr Gly Asp Trp Ser Ser Glu Gly Cys Ser Thr Glu Val Arg Pro Glu
225                 230                 235                 240

Gly Thr Val Cys Cys Cys Asp His Leu Thr Phe Phe Ala Leu Leu Leu
                245                 250                 255

Arg Pro Thr Leu Asp Gln Ser Thr Val His Ile Leu Thr Arg Ile Ser
            260                 265                 270

Gln Ala Gly Cys Gly Val Ser Met Ile Phe Leu Ala Phe Thr Ile Ile
        275                 280                 285

Leu Tyr Ala Phe Leu Arg Pro Ala Arg Pro Asp Gly His Arg His Trp
    290                 295                 300
```

Glu Cys Gln Gln Leu Arg Pro Leu His His Pro
305 310 315

<210> 3083
<211> 69
<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: ENSP00000456576"

<400> 3083
Met Ala Thr Pro Arg Gly Leu Gly Ala Leu Leu Leu Leu Leu Leu Leu
1 5 10 15

Pro Thr Ser Gly Gln Glu Lys Pro Thr Glu Gly Pro Arg Asn Thr Cys
20 25 30

Leu Gly Ser Asn Asn Met Tyr Asp Ile Phe Asn Leu Asn Asp Lys Ala
35 40 45

Leu Cys Phe Thr Lys Cys Arg Gln Ser Gly Ser Asp Ser Cys Asn Val
50 55 60

Glu Asn Leu Gln Arg
65

<210> 3084
<211> 3080
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 691; "

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<221> source
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<220>
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<220>
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<223> /note="Uniprot ID: Q8IZF6; "

<220>
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<400> 3084

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

```
Gly His Phe Leu Lys Asn Glu Ser Ser Glu Val Lys Ser Met Met Arg
                165                 170                 175

Ser Phe Pro Gly Ser Leu Tyr Tyr Phe Gln Leu Trp Asp His Ile Leu
            180                 185                 190

Glu Asn Glu Glu Phe Met Lys Cys Leu Asp Gly Asn Ile Val Ser Trp
        195                 200                 205

Glu Glu Asp Val Trp Leu Val Asn Lys Ile Ile Pro Thr Val Asp Arg
    210                 215                 220

Thr Leu Arg Cys Phe Val Pro Glu Asn Met Thr Ile Gln Glu Lys Ser
225                 230                 235                 240

Thr Thr Val Ser Gln Gln Ile Asp Met Thr Thr Pro Ser Gln Ile Thr
                245                 250                 255

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

Ser Ile Pro Ile Phe Ala Thr Asp Tyr Thr Thr Ile Ser Tyr Ser Asn
        275                 280                 285

Thr Thr Ser Pro Pro Leu Glu Thr Met Thr Ala Gln Lys Ile Leu Lys
    290                 295                 300

Thr Leu Val Asp Glu Thr Ala Thr Phe Ala Val Asp Val Leu Ser Thr
305                 310                 315                 320

Ser Ser Ala Ile Ser Leu Pro Thr Gln Ser Ile Ser Ile Asp Asn Thr
                325                 330                 335

Thr Asn Ser Met Lys Lys Thr Lys Ser Pro Ser Ser Glu Ser Thr Lys
            340                 345                 350

Thr Thr Lys Met Val Glu Ala Met Ala Thr Glu Ile Phe Gln Pro Pro
        355                 360                 365

Thr Pro Ser Asn Phe Leu Ser Thr Ser Arg Phe Thr Lys Asn Ser Val
    370                 375                 380

Val Ser Thr Thr Ser Ala Ile Lys Ser Gln Ser Ala Val Thr Lys Thr
```

385 390 395 400

Thr Ser Leu Phe Ser Thr Ile Glu Ser Thr Ser Met Ser Thr Thr Pro
405 410 415

Cys Leu Lys Gln Lys Ser Thr Asn Thr Gly Ala Leu Pro Ile Ser Thr
420 425 430

Ala Gly Gln Glu Phe Ile Glu Ser Thr Ala Ala Gly Thr Val Pro Trp
435 440 445

Phe Thr Val Glu Lys Thr Ser Pro Ala Ser Thr His Val Gly Thr Ala
450 455 460

Ser Ser Phe Pro Pro Glu Pro Val Leu Ile Ser Thr Ala Ala Pro Val
465 470 475 480

Asp Ser Val Phe Pro Arg Asn Gln Thr Ala Phe Pro Leu Ala Thr Thr
485 490 495

Asp Met Lys Ile Ala Phe Thr Val His Ser Leu Thr Leu Pro Thr Arg
500 505 510

Leu Ile Glu Thr Thr Pro Ala Pro Arg Thr Ala Glu Thr Glu Leu Thr
515 520 525

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

Ser Thr Ser Met Ser Lys Glu Thr Ser Ser Lys Thr Phe Ser Phe Leu
545 550 555 560

Thr Ser Phe Ser Phe Thr Gly Thr Glu Ser Val Gln Thr Val Ile Asp
565 570 575

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

Thr Val Ala Glu Thr Met Leu Ser Ser Thr Ile Thr Gly Arg Val Tyr
595 600 605

Thr Gln Asn Thr Pro Thr Ala Asp Gly His Leu Leu Thr Leu Met Ser
610 615 620

```
Thr Arg Ser Ala Ser Thr Ser Lys Ala Pro Glu Ser Gly Pro Thr Ser
625                 630                 635                 640

Thr Thr Asp Glu Ala Ala His Leu Phe Ser Ser Asn Glu Thr Ile Trp
                645                 650                 655

Thr Ser Arg Pro Asp Gln Ala Leu Leu Ala Ser Met Asn Thr Thr Thr
            660                 665                 670

Ile Leu Thr Phe Val Pro Asn Glu Asn Phe Thr Ser Ala Phe His Glu
        675                 680                 685

Asn Thr Thr Tyr Thr Glu Tyr Leu Ser Ala Thr Thr Asn Ile Thr Pro
    690                 695                 700

Leu Lys Ala Ser Pro Glu Gly Lys Gly Thr Thr Ala Asn Asp Ala Thr
705                 710                 715                 720

Thr Ala Arg Tyr Thr Thr Ala Val Ser Lys Leu Thr Ser Pro Trp Phe
                725                 730                 735

Ala Asn Phe Ser Ile Val Ser Gly Thr Thr Ser Ile Thr Asn Met Pro
            740                 745                 750

Glu Phe Lys Leu Thr Thr Leu Leu Leu Lys Thr Ile Pro Met Ser Thr
        755                 760                 765

Lys Pro Ala Asn Glu Leu Pro Leu Thr Pro Arg Glu Thr Val Val Pro
    770                 775                 780

Ser Val Asp Ile Ile Ser Thr Leu Ala Cys Ile Gln Pro Asn Phe Ser
785                 790                 795                 800

Thr Glu Glu Ser Ala Ser Glu Thr Thr Gln Thr Glu Ile Asn Gly Ala
                805                 810                 815

Ile Val Phe Gly Gly Thr Thr Thr Pro Val Pro Lys Ser Ala Thr Thr
            820                 825                 830

Gln Arg Leu Asn Ala Thr Val Thr Arg Lys Glu Ala Thr Ser His Tyr
        835                 840                 845
```

```
Leu Met Arg Lys Ser Thr Ile Ala Ala Val Ala Glu Val Ser Pro Phe
    850                 855                 860

Ser Thr Met Leu Glu Val Thr Asp Glu Ser Ala Gln Arg Val Thr Ala
865                 870                 875                 880

Ser Val Thr Val Ser Ser Phe Pro Asp Ile Glu Lys Leu Ser Thr Pro
                885                 890                 895

Leu Asp Asn Lys Thr Ala Thr Thr Glu Val Arg Glu Ser Trp Leu Leu
            900                 905                 910

Thr Lys Leu Val Lys Thr Thr Pro Arg Ser Ser Tyr Asn Glu Met Thr
        915                 920                 925

Glu Met Phe Asn Phe Asn His Thr Tyr Val Ala His Trp Thr Ser Glu
    930                 935                 940

Thr Ser Glu Gly Ile Ser Ala Gly Ser Pro Thr Ser Gly Ser Thr His
945                 950                 955                 960

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

Ser Phe Ser Thr Thr Pro Thr Asp Arg Thr Ala Thr Ser Leu Ser Asp
            980                 985                 990

Gly Ile Leu Pro Pro Gln Pro Thr  Ala Ala His Ser Ser  Ala Thr
Pro
        995                 1000                1005

Val Pro  Val Thr His Met Phe  Ser Leu Pro Val Asn  Gly Ser Ser
    1010                1015                1020

Val Val  Ala Glu Glu Thr Glu  Val Thr Met Ser Glu  Pro Ser Thr
    1025                1030                1035

Leu Ala  Arg Ala Phe Ser Thr  Ser Val Leu Ser Asp  Val Ser Asn
    1040                1045                1050

Leu Ser  Ser Thr Thr Met Thr  Thr Ala Leu Val Pro  Pro Leu Asp
    1055                1060                1065
```

```
Gln Thr  Ala Ser Thr Thr Ile  Val Ile Val Pro Thr  His Gly Asp
    1070                1075                1080

Leu Ile  Arg Thr Thr Ser Glu  Ala Thr Val Ile Ser  Val Arg Lys
    1085                1090                1095

Thr Ser  Met Ala Val Pro Ser  Leu Thr Glu Thr Pro  Phe His Ser
    1100                1105                1110

Leu Arg  Leu Ser Thr Pro Val  Thr Ala Lys Ala Glu  Thr Thr Leu
    1115                1120                1125

Phe Ser  Thr Ser Val Asp Thr  Val Thr Pro Ser Thr  His Thr Leu
    1130                1135                1140

Val Cys  Ser Lys Pro Pro Pro  Asp Asn Ile Pro Pro  Ala Ser Ser
    1145                1150                1155

Thr His  Val Ile Ser Thr Thr  Ser Thr Pro Glu Ala  Thr Gln Pro
    1160                1165                1170

Ile Ser  Gln Val Glu Glu Thr  Ser Thr Tyr Ala Leu  Ser Phe Pro
    1175                1180                1185

Tyr Thr  Phe Ser Gly Gly Gly  Val Val Ala Ser Leu  Ala Thr Gly
    1190                1195                1200

Thr Thr  Glu Thr Ser Val Val  Asp Glu Thr Thr Pro  Ser His Ile
    1205                1210                1215

Ser Ala  Asn Lys Leu Thr Thr  Ser Val Asn Ser His  Ile Ser Ser
    1220                1225                1230

Ser Ala  Thr Tyr Arg Val His  Thr Pro Val Ser Ile  Gln Leu Val
    1235                1240                1245

Thr Ser  Thr Ser Val Leu Ser  Ser Asp Lys Asp Gln  Met Thr Ile
    1250                1255                1260

Ser Leu  Gly Lys Thr Pro Arg  Thr Met Glu Val Thr  Glu Met Ser
    1265                1270                1275
```

```
Pro Ser  Lys Asn Ser Phe Ile  Ser Tyr Ser Arg Gly  Thr Pro Ser
    1280                1285                1290

Leu Glu  Met Thr Asp Thr Gly  Phe Pro Glu Thr Thr  Lys Ile Ser
    1295                1300                1305

Ser His  Gln Thr His Ser Pro  Ser Glu Ile Pro Leu  Gly Thr Pro
    1310                1315                1320

Ser Asp  Gly Asn Leu Ala Ser  Ser Pro Thr Ser Gly  Ser Thr Gln
    1325                1330                1335

Ile Thr  Pro Thr Leu Thr Ser  Ser Asn Thr Val Gly  Val His Ile
    1340                1345                1350

Pro Glu  Met Ser Thr Ser Leu  Gly Lys Thr Ala Leu  Pro Ser Gln
    1355                1360                1365

Ala Leu  Thr Ile Thr Thr Phe  Leu Cys Pro Glu Lys  Glu Ser Thr
    1370                1375                1380

Ser Ala  Leu Pro Ala Tyr Thr  Pro Arg Thr Val Glu  Met Ile Val
    1385                1390                1395

Asn Ser  Thr Tyr Val Thr His  Ser Val Ser Tyr Gly  Gln Asp Thr
    1400                1405                1410

Ser Phe  Val Asp Thr Thr Thr  Ser Ser Ser Thr Arg  Ile Ser Asn
    1415                1420                1425

Pro Met  Asp Ile Asn Thr Thr  Phe Ser His Leu His  Ser Leu Arg
    1430                1435                1440

Thr Gln  Pro Glu Val Thr Ser  Val Ala Ser Phe Ile  Ser Glu Ser
    1445                1450                1455

Thr Gln  Thr Phe Pro Glu Ser  Leu Ser Leu Ser Thr  Ala Gly Leu
    1460                1465                1470

Tyr Asn  Asp Gly Phe Thr Val  Leu Ser Asp Arg Ile  Thr Thr Ala
    1475                1480                1485

Phe Ser  Val Pro Asn Val Pro  Thr Met Leu Pro Arg  Glu Ser Ser
```

1490 1495 1500

Met Ala Thr Ser Thr Pro Ile Tyr Gln Met Ser Ser Leu Pro Val
1505 1510 1515

Asn Val Thr Ala Phe Thr Ser Lys Lys Val Ser Asp Thr Pro Pro
1520 1525 1530

Ile Val Ile Thr Lys Ser Ser Lys Thr Met His Pro Gly Cys Leu
1535 1540 1545

Lys Ser Pro Cys Thr Ala Thr Ser Gly Pro Met Ser Glu Met Ser
1550 1555 1560

Ser Ile Pro Val Asn Asn Ser Ala Phe Thr Pro Ala Thr Val Ser
1565 1570 1575

Ser Asp Thr Ser Thr Arg Val Gly Leu Phe Ser Thr Leu Leu Ser
1580 1585 1590

Ser Val Thr Pro Arg Thr Thr Met Thr Met Gln Thr Ser Thr Leu
1595 1600 1605

Asp Val Thr Pro Val Ile Tyr Ala Gly Ala Thr Ser Lys Asn Lys
1610 1615 1620

Met Val Ser Ser Ala Phe Thr Thr Glu Met Ile Glu Ala Pro Ser
1625 1630 1635

Arg Ile Thr Pro Thr Thr Phe Leu Ser Pro Thr Glu Pro Thr Leu
1640 1645 1650

Pro Phe Val Lys Thr Val Pro Thr Thr Ile Met Ala Gly Ile Val
1655 1660 1665

Thr Pro Phe Val Gly Thr Thr Ala Phe Ser Pro Leu Ser Ser Lys
1670 1675 1680

Ser Thr Gly Ala Ile Ser Ser Ile Pro Lys Thr Thr Phe Ser Pro
1685 1690 1695

Phe Leu Ser Ala Thr Gln Gln Ser Ser Gln Ala Asp Glu Ala Thr
1700 1705 1710

```
Thr Leu  Gly Ile Leu Ser Gly  Ile Thr Asn Arg Ser  Leu Ser Thr
    1715                1720                1725

Val Asn  Ser Gly Thr Gly Val  Ala Leu Thr Asp Thr  Tyr Ser Arg
    1730                1735                1740

Ile Thr  Val Pro Glu Asn Met  Leu Ser Pro Thr His  Ala Asp Ser
    1745                1750                1755

Leu His  Thr Ser Phe Asn Ile  Gln Val Ser Pro Ser  Leu Thr Ser
    1760                1765                1770

Phe Lys  Ser Ala Ser Gly Pro  Thr Lys Asn Val Lys  Thr Thr Thr
    1775                1780                1785

Asn Cys  Phe Ser Ser Asn Thr  Arg Lys Met Thr Ser  Leu Leu Glu
    1790                1795                1800

Lys Thr  Ser Leu Thr Asn Tyr  Ala Thr Ser Leu Asn  Thr Pro Val
    1805                1810                1815

Ser Tyr  Pro Pro Trp Thr Pro  Ser Ser Ala Thr Leu  Pro Ser Leu
    1820                1825                1830

Thr Ser  Phe Val Tyr Ser Pro  His Ser Thr Glu Ala  Glu Ile Ser
    1835                1840                1845

Thr Pro  Lys Thr Ser Pro Pro  Pro Thr Ser Gln Met  Val Glu Phe
    1850                1855                1860

Pro Val  Leu Gly Thr Arg Met  Thr Ser Ser Asn Thr  Gln Pro Leu
    1865                1870                1875

Leu Met  Thr Ser Trp Asn Ile  Pro Thr Ala Glu Gly  Ser Gln Phe
    1880                1885                1890

Pro Ile  Ser Thr Thr Ile Asn  Val Pro Thr Ser Asn  Glu Met Glu
    1895                1900                1905

Thr Glu  Thr Leu His Leu Val  Pro Gly Pro Leu Ser  Thr Phe Thr
    1910                1915                1920
```

```
Ala Ser  Gln Thr Gly Leu Val  Ser Lys Asp Val Met  Ala Met Ser
    1925                1930                1935

Ser Ile  Pro Met Ser Gly Ile  Leu Pro Asn His Gly  Leu Ser Glu
    1940                1945                1950

Asn Pro  Ser Leu Ser Thr Ser  Leu Arg Ala Ile Thr  Ser Thr Leu
    1955                1960                1965

Ala Asp  Val Lys His Thr Phe  Glu Lys Met Thr Thr  Ser Val Thr
    1970                1975                1980

Pro Gly  Thr Thr Leu Pro Ser  Ile Leu Ser Gly Ala  Thr Ser Gly
    1985                1990                1995

Ser Val  Ile Ser Lys Ser Pro  Ile Leu Thr Trp Leu  Leu Ser Ser
    2000                2005                2010

Leu Pro  Ser Gly Ser Pro Pro  Ala Thr Val Ser Asn  Ala Pro His
    2015                2020                2025

Val Met  Thr Ser Ser Thr Val  Glu Val Ser Lys Ser  Thr Phe Leu
    2030                2035                2040

Thr Ser  Asp Met Ile Ser Ala  His Pro Phe Thr Asn  Leu Thr Thr
    2045                2050                2055

Leu Pro  Ser Ala Thr Met Ser  Thr Ile Leu Thr Arg  Thr Ile Pro
    2060                2065                2070

Thr Pro  Thr Leu Gly Gly Ile  Thr Thr Gly Phe Pro  Thr Ser Leu
    2075                2080                2085

Pro Met  Ser Ile Asn Val Thr  Asp Asp Ile Val Tyr  Ile Ser Thr
    2090                2095                2100

His Pro  Glu Ala Ser Ser Arg  Thr Thr Ile Thr Ala  Asn Pro Arg
    2105                2110                2115

Thr Val  Ser His Pro Ser Ser  Phe Ser Arg Lys Thr  Met Ser Pro
    2120                2125                2130
```

```
Ser Thr  Thr Asp His Thr Leu  Ser Val Gly Ala Met  Pro Leu Pro
    2135                2140                2145

Ser Ser  Thr Ile Thr Ser Ser  Trp Asn Arg Ile Pro  Thr Ala Ser
    2150                2155                2160

Ser Pro  Ser Thr Leu Ile Ile  Pro Lys Pro Thr Leu  Asp Ser Leu
    2165                2170                2175

Leu Asn  Ile Met Thr Thr Thr  Ser Thr Val Pro Gly  Ala Ser Phe
    2180                2185                2190

Pro Leu  Ile Ser Thr Gly Val  Thr Tyr Pro Phe Thr  Ala Thr Val
    2195                2200                2205

Ser Ser  Pro Ile Ser Ser Phe  Phe Glu Thr Thr Trp  Leu Asp Ser
    2210                2215                2220

Thr Pro  Ser Phe Leu Ser Thr  Glu Ala Ser Thr Ser  Pro Thr Ala
    2225                2230                2235

Thr Lys  Ser Thr Val Ser Phe  Tyr Asn Val Glu Met  Ser Phe Ser
    2240                2245                2250

Val Phe  Val Glu Glu Pro Arg  Ile Pro Ile Thr Ser  Val Ile Asn
    2255                2260                2265

Glu Phe  Thr Glu Asn Ser Leu  Asn Ser Ile Phe Gln  Asn Ser Glu
    2270                2275                2280

Phe Ser  Leu Ala Thr Leu Glu  Thr Gln Ile Lys Ser  Arg Asp Ile
    2285                2290                2295

Ser Glu  Glu Glu Met Val Met  Asp Arg Ala Ile Leu  Glu Gln Arg
    2300                2305                2310

Glu Gly  Gln Glu Met Ala Thr  Ile Ser Tyr Val Pro  Tyr Ser Cys
    2315                2320                2325

Val Cys  Gln Val Ile Ile Lys  Ala Ser Ser Ser Leu  Ala Ser Ser
    2330                2335                2340

Glu Leu  Met Arg Lys Ile Lys  Ser Lys Ile His Gly  Asn Phe Thr
```

2345 2350 2355

His Gly Asn Phe Thr Gln Asp Gln Leu Thr Leu Leu Val Asn Cys
2360 2365 2370

Glu His Val Ala Val Lys Lys Leu Glu Pro Gly Asn Cys Lys Ala
2375 2380 2385

Asp Glu Thr Ala Ser Lys Tyr Lys Gly Thr Tyr Lys Trp Leu Leu
2390 2395 2400

Thr Asn Pro Thr Glu Thr Ala Gln Thr Arg Cys Ile Lys Asn Glu
2405 2410 2415

Asp Gly Asn Ala Thr Arg Phe Cys Ser Ile Ser Ile Asn Thr Gly
2420 2425 2430

Lys Ser Gln Trp Glu Lys Pro Lys Phe Lys Gln Cys Lys Leu Leu
2435 2440 2445

Gln Glu Leu Pro Asp Lys Ile Val Asp Leu Ala Asn Ile Thr Ile
2450 2455 2460

Ser Asp Glu Asn Ala Glu Asp Val Ala Glu His Ile Leu Asn Leu
2465 2470 2475

Ile Asn Glu Ser Pro Ala Leu Gly Lys Glu Glu Thr Lys Ile Ile
2480 2485 2490

Val Ser Lys Ile Ser Asp Ile Ser Gln Cys Asp Glu Ile Ser Met
2495 2500 2505

Asn Leu Thr His Val Met Leu Gln Ile Ile Asn Val Val Leu Glu
2510 2515 2520

Lys Gln Asn Asn Ser Ala Ser Asp Leu His Glu Ile Ser Asn Glu
2525 2530 2535

Ile Leu Arg Ile Ile Glu Arg Thr Gly His Lys Met Glu Phe Ser
2540 2545 2550

Gly Gln Ile Ala Asn Leu Thr Val Ala Gly Leu Ala Leu Ala Val
2555 2560 2565

```
Leu Arg  Gly Asp His Thr Phe  Asp Gly Met Ala Phe  Ser Ile His
    2570                2575                2580

Ser Tyr  Glu Glu Gly Thr Asp  Pro Glu Ile Phe Leu  Gly Asn Val
    2585                2590                2595

Pro Val  Gly Gly Ile Leu Ala  Ser Ile Tyr Leu Pro  Lys Ser Leu
    2600                2605                2610

Thr Glu  Arg Ile Pro Leu Ser  Asn Leu Gln Thr Ile  Leu Phe Asn
    2615                2620                2625

Phe Phe  Gly Gln Thr Ser Leu  Phe Lys Thr Lys Asn  Val Thr Lys
    2630                2635                2640

Ala Leu  Thr Thr Tyr Val Val  Ser Ala Ser Ile Ser  Asp Asp Met
    2645                2650                2655

Phe Ile  Gln Asn Leu Ala Asp  Pro Val Val Ile Thr  Leu Gln His
    2660                2665                2670

Ile Gly  Gly Asn Gln Asn Tyr  Gly Gln Val His Cys  Ala Phe Trp
    2675                2680                2685

Asp Phe  Glu Asn Asn Asn Gly  Leu Gly Gly Trp Asn  Ser Ser Gly
    2690                2695                2700

Cys Lys  Val Lys Glu Thr Asn  Val Asn Tyr Thr Ile  Cys Gln Cys
    2705                2710                2715

Asp His  Leu Thr His Phe Gly  Val Leu Met Asp Leu  Ser Arg Ser
    2720                2725                2730

Thr Val  Asp Ser Val Asn Glu  Gln Ile Leu Ala Leu  Ile Thr Tyr
    2735                2740                2745

Thr Gly  Cys Gly Ile Ser Ser  Ile Phe Leu Gly Val  Ala Val Val
    2750                2755                2760

Thr Tyr  Ile Ala Phe His Lys  Leu Arg Lys Asp Tyr  Pro Ala Lys
    2765                2770                2775
```

```
Ile Leu  Ile Asn Leu Cys Thr  Ala Leu Leu Met Leu  Asn Leu Val
    2780                2785                2790

Phe Leu  Ile Asn Ser Trp Leu  Ser Ser Phe Gln Lys  Val Gly Val
    2795                2800                2805

Cys Ile  Thr Ala Ala Val Ala  Leu His Tyr Phe Leu  Leu Val Ser
    2810                2815                2820

Phe Thr  Trp Met Gly Leu Glu  Ala Val His Met Tyr  Leu Ala Leu
    2825                2830                2835

Val Lys  Val Phe Asn Ile Tyr  Ile Pro Asn Tyr Ile  Leu Lys Phe
    2840                2845                2850

Cys Leu  Val Gly Trp Gly Ile  Pro Ala Ile Met Val  Ala Ile Thr
    2855                2860                2865

Val Ser  Val Lys Lys Asp Leu  Tyr Gly Thr Leu Ser  Pro Thr Thr
    2870                2875                2880

Pro Phe  Cys Trp Ile Lys Asp  Asp Ser Ile Phe Tyr  Ile Ser Val
    2885                2890                2895

Val Ala  Tyr Phe Cys Leu Ile  Phe Leu Met Asn Leu  Ser Met Phe
    2900                2905                2910

Cys Thr  Val Leu Val Gln Leu  Asn Ser Val Lys Ser  Gln Ile Gln
    2915                2920                2925

Lys Thr  Arg Arg Lys Met Ile  Leu His Asp Leu Lys  Gly Thr Met
    2930                2935                2940

Ser Leu  Thr Phe Leu Leu Gly  Leu Thr Trp Gly Phe  Ala Phe Phe
    2945                2950                2955

Ala Trp  Gly Pro Met Arg Asn  Phe Phe Leu Tyr Leu  Phe Ala Ile
    2960                2965                2970

Phe Asn  Thr Leu Gln Gly Phe  Phe Ile Phe Val Phe  His Cys Val
    2975                2980                2985
```

```
Met Lys  Glu Ser Val Arg Glu  Gln Trp Gln Ile His  Leu Cys Cys
    2990                 2995                 3000

Gly Trp  Leu Arg Leu Asp Asn  Ser Ser Asp Gly Ser  Ser Arg Cys
    3005                 3010                 3015

Gln Ile  Lys Val Gly Tyr Lys  Gln Glu Gly Leu Lys  Lys Ile Phe
    3020                 3025                 3030

Glu His  Lys Leu Leu Thr Pro  Ser Leu Lys Ser Thr  Ala Thr Ser
    3035                 3040                 3045

Ser Thr  Phe Lys Ser Leu Gly  Ser Ala Gln Gly Thr  Pro Ser Glu
    3050                 3055                 3060

Ile Ser  Phe Pro Asn Asp Asp  Phe Asp Lys Asp Pro  Tyr Cys Ser
    3065                 3070                 3075

Ser Pro
    3080


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Ser Ser Phe Ile Phe Leu Ser Val Val Pro Glu Asn Met Thr Ile Gln
            20                  25                  30

Glu Lys Ser Thr Thr Val Ser Gln Gln Ile Asp Met Thr Thr Pro Ser
        35                  40                  45

Gln Ile Thr Gly Val Lys Pro Gln Asn Thr Ala His Ser Ser Thr Leu
    50                  55                  60

Leu Ser Gln Ser Ile Pro Ile Phe Ala Thr Asp Tyr Thr Thr Ile Ser
65                  70                  75                  80

Tyr Ser Asn Thr Thr Ser Pro Pro Leu Glu Thr Met Thr Ala Gln Lys
                85                  90                  95

Ile Leu Lys Thr Leu Val Asp Glu Thr Ala Thr Phe Ala Val Asp Val
            100                 105                 110

Leu Ser Thr Ser Ser Ala Ile Ser Leu Pro Thr Gln Ser Ile Ser Ile
        115                 120                 125

Asp Asn Thr Thr Asn Ser Met Lys Lys Thr Lys Ser Pro Ser Ser Glu
    130                 135                 140

Ser Thr Lys Thr Thr Lys Met Val Glu Ala Met Ala Thr Glu Ile Phe
145                 150                 155                 160

Gln Pro Pro Thr Pro Ser Asn Phe Leu Ser Thr Ser Arg Phe Thr Lys
                165                 170                 175

Asn Ser Val Val Ser Thr Thr Ser Ala Ile Lys Ser Gln Ser Ala Val
            180                 185                 190

Thr Lys Thr Thr Ser Leu Phe Ser Thr Ile Glu Ser Thr Ser Met Ser
        195                 200                 205

Thr Thr Pro Cys Leu Lys Gln Lys Ser Thr Asn Thr Gly Ala Leu Pro
    210                 215                 220

Ile Ser Thr Ala Gly Gln Glu Phe Ile Glu Ser Thr Ala Ala Gly Thr
225                 230                 235                 240
```

```
Val Pro Trp Phe Thr Val Glu Lys Thr Ser Pro Ala Ser Thr His Val
                245                 250                 255

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

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

Ala Thr Thr Asp Met Lys Ile Ala Phe Thr Val His Ser Leu Thr Leu
    290                 295                 300

Pro Thr Arg Leu Ile Glu Thr Thr Pro Ala Pro Arg Thr Ala Glu Thr
305                 310                 315                 320

Glu Leu Thr Ser Thr Asn Phe Gln Asp Val Ser Leu Pro Arg Val Glu
                325                 330                 335

Asp Ala Met Ser Thr Ser Met Ser Lys Glu Thr Ser Ser Lys Thr Phe
            340                 345                 350

Ser Phe Leu Thr Ser Phe Ser Phe Thr Gly Thr Glu Ser Val Gln Thr
        355                 360                 365

Val Ile Asp Ala Glu Ala Thr Arg Thr Ala Leu Thr Pro Glu Ile Thr
    370                 375                 380

Leu Ala Ser Thr Val Ala Glu Thr Met Leu Ser Ser Thr Ile Thr Gly
385                 390                 395                 400

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

Leu Met Ser Thr Arg Ser Ala Ser Thr Ser Lys Ala Pro Glu Ser Gly
            420                 425                 430

Pro Thr Ser Thr Thr Asp Glu Ala Ala His Leu Phe Ser Ser Asn Glu
        435                 440                 445

Thr Ile Trp Thr Ser Arg Pro Asp Gln Ala Leu Leu Ala Ser Met Asn
    450                 455                 460
```

```
Thr Thr Thr Ile Leu Thr Phe Val Pro Asn Glu Asn Phe Thr Ser Ala
465                 470                 475                 480

Phe His Glu Asn Thr Thr Tyr Thr Glu Tyr Leu Ser Ala Thr Thr Asn
                485                 490                 495

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

Asp Ala Thr Thr Ala Arg Tyr Thr Thr Ala Val Ser Lys Leu Thr Ser
        515                 520                 525

Pro Trp Phe Ala Asn Phe Ser Ile Val Ser Gly Thr Thr Ser Ile Thr
    530                 535                 540

Asn Met Pro Glu Phe Lys Leu Thr Thr Leu Leu Leu Lys Thr Ile Pro
545                 550                 555                 560

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

Val Val Pro Ser Val Asp Ile Ile Ser Thr Leu Ala Cys Ile Gln Pro
            580                 585                 590

Asn Phe Ser Thr Glu Glu Ser Ala Ser Glu Thr Thr Gln Thr Glu Ile
        595                 600                 605

Asn Gly Ala Ile Val Phe Gly Gly Thr Thr Thr Pro Val Pro Lys Ser
    610                 615                 620

Ala Thr Thr Gln Arg Leu Asn Ala Thr Val Thr Arg Lys Glu Ala Thr
625                 630                 635                 640

Ser His Tyr Leu Met Arg Lys Ser Thr Ile Ala Ala Val Ala Glu Val
                645                 650                 655

Ser Pro Phe Ser Thr Met Leu Glu Val Thr Asp Glu Ser Ala Gln Arg
            660                 665                 670

Val Thr Ala Ser Val Thr Val Ser Ser Phe Pro Asp Ile Glu Lys Leu
        675                 680                 685

Ser Thr Pro Leu Asp Asn Lys Thr Ala Thr Thr Glu Val Arg Glu Ser
```

690 695 700

Trp Leu Leu Thr Lys Leu Val Lys Thr Thr Pro Arg Ser Ser Tyr Asn
705 710 715 720

Glu Met Thr Glu Met Phe Asn Phe Asn His Thr Tyr Val Ala His Trp
725 730 735

Thr Ser Glu Thr Ser Glu Gly Ile Ser Ala Gly Ser Pro Thr Ser Gly
740 745 750

Ser Thr His Ile Phe Gly Glu Pro Leu Gly Ala Ser Thr Thr Arg Ile
755 760 765

Ser Glu Thr Ser Phe Ser Thr Thr Pro Thr Asp Arg Thr Ala Thr Ser
770 775 780

Leu Ser Asp Gly Ile Leu Pro Pro Gln Pro Thr Ala Ala His Ser Ser
785 790 795 800

Ala Thr Pro Val Pro Val Thr His Met Phe Ser Leu Pro Val Asn Gly
805 810 815

Ser Ser Val Val Ala Glu Glu Thr Glu Val Thr Met Ser Glu Pro Ser
820 825 830

Thr Leu Ala Arg Ala Phe Ser Thr Ser Val Leu Ser Asp Val Ser Asn
835 840 845

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

Thr Ala Ser Thr Thr Ile Val Ile Val Pro Thr His Gly Asp Leu Ile
865 870 875 880

Arg Thr Thr Ser Glu Ala Thr Val Ile Ser Val Arg Lys Thr Ser Met
885 890 895

Ala Val Pro Ser Leu Thr Glu Thr Pro Phe His Ser Leu Arg Leu Ser
900 905 910

Thr Pro Val Thr Ala Lys Ala Glu Thr Thr Leu Phe Ser Thr Ser Val
915 920 925

```
Asp Thr Val Thr Pro Ser Thr His Thr Leu Val Cys Ser Lys Pro Pro
    930                 935                 940

Pro Asp Asn Ile Pro Pro Ala Ser Ser Thr His Val Ile Ser Thr Thr
945                 950                 955                 960

Ser Thr Pro Glu Ala Thr Gln Pro Ile Ser Gln Val Glu Glu Thr Ser
                965                 970                 975

Thr Tyr Ala Leu Ser Phe Pro Tyr Thr Phe Ser Gly Gly Gly Val Val
            980                 985                 990

Ala Ser Leu Ala Thr Gly Thr Thr  Glu Thr Ser Val Val  Asp Glu
Thr
        995                 1000                1005

Thr Pro  Ser His Ile Ser Ala  Asn Lys Leu Thr Thr  Ser Val Asn
    1010                1015                1020

Ser His  Ile Ser Ser Ser Ala  Thr Tyr Arg Val His  Thr Pro Val
    1025                1030                1035

Ser Ile  Gln Leu Val Thr Ser  Thr Ser Val Leu Ser  Ser Asp Lys
    1040                1045                1050

Asp Gln  Met Thr Ile Ser Leu  Gly Lys Thr Pro Arg  Thr Met Glu
    1055                1060                1065

Val Thr  Glu Met Ser Pro Ser  Lys Asn Ser Phe Ile  Ser Tyr Ser
    1070                1075                1080

Arg Gly  Thr Pro Ser Leu Glu  Met Thr Asp Thr Gly  Phe Pro Glu
    1085                1090                1095

Thr Thr  Lys Ile Ser Ser His  Gln Thr His Ser Pro  Ser Glu Ile
    1100                1105                1110

Pro Leu  Gly Thr Pro Ser Asp  Gly Asn Leu Ala Ser  Ser Pro Thr
    1115                1120                1125

Ser Gly  Ser Thr Gln Ile Thr  Pro Thr Leu Thr Ser  Ser Asn Thr
    1130                1135                1140
```

```
Val Gly  Val His Ile Pro Glu  Met Ser Thr Ser Leu  Gly Lys Thr
    1145                1150                1155

Ala Leu  Pro Ser Gln Ala Leu  Thr Ile Thr Thr Phe  Leu Cys Pro
    1160                1165                1170

Glu Lys  Glu Ser Thr Ser Ala  Leu Pro Ala Tyr Thr  Pro Arg Thr
    1175                1180                1185

Val Glu  Met Ile Val Asn Ser  Thr Tyr Val Thr His  Ser Val Ser
    1190                1195                1200

Tyr Gly  Gln Asp Thr Ser Phe  Val Asp Thr Thr Thr  Ser Ser Ser
    1205                1210                1215

Thr Arg  Ile Ser Asn Pro Met  Asp Ile Asn Thr Thr  Phe Ser His
    1220                1225                1230

Leu His  Ser Leu Arg Thr Gln  Pro Glu Val Thr Ser  Val Ala Ser
    1235                1240                1245

Phe Ile  Ser Glu Ser Thr Gln  Thr Phe Pro Glu Ser  Leu Ser Leu
    1250                1255                1260

Ser Thr  Ala Gly Leu Tyr Asn  Asp Gly Phe Thr Val  Leu Ser Asp
    1265                1270                1275

Arg Ile  Thr Thr Ala Phe Ser  Val Pro Asn Val Pro  Thr Met Leu
    1280                1285                1290

Pro Arg  Glu Ser Ser Met Ala  Thr Ser Thr Pro Ile  Tyr Gln Met
    1295                1300                1305

Ser Ser  Leu Pro Val Asn Val  Thr Ala Phe Thr Ser  Lys Lys Val
    1310                1315                1320

Ser Asp  Thr Pro Pro Ile Val  Ile Thr Lys Ser Ser  Lys Thr Met
    1325                1330                1335

His Pro  Gly Cys Leu Lys Ser  Pro Cys Thr Ala Thr  Ser Gly Pro
    1340                1345                1350
```

```
Met Ser  Glu Met Ser Ser Ile  Pro Val Asn Asn Ser  Ala Phe Thr
    1355                1360                1365

Pro Ala  Thr Val Ser Ser Asp  Thr Ser Thr Arg Val  Gly Leu Phe
    1370                1375                1380

Ser Thr  Leu Leu Ser Ser Val  Thr Pro Arg Thr Thr  Met Thr Met
    1385                1390                1395

Gln Thr  Ser Thr Leu Asp Val  Thr Pro Val Ile Tyr  Ala Gly Ala
    1400                1405                1410

Thr Ser  Lys Asn Lys Met Val  Ser Ser Ala Phe Thr  Thr Glu Met
    1415                1420                1425

Ile Glu  Ala Pro Ser Arg Ile  Thr Pro Thr Thr Phe  Leu Ser Pro
    1430                1435                1440

Thr Glu  Pro Thr Leu Pro Phe  Val Lys Thr Val Pro  Thr Thr Ile
    1445                1450                1455

Met Ala  Gly Ile Val Thr Pro  Phe Val Gly Thr Thr  Ala Phe Ser
    1460                1465                1470

Pro Leu  Ser Ser Lys Ser Thr  Gly Ala Ile Ser Ser  Ile Pro Lys
    1475                1480                1485

Thr Thr  Phe Ser Pro Phe Leu  Ser Ala Thr Gln Gln  Ser Ser Gln
    1490                1495                1500

Ala Asp  Glu Ala Thr Thr Leu  Gly Ile Leu Ser Gly  Ile Thr Asn
    1505                1510                1515

Arg Ser  Leu Ser Thr Val Asn  Ser Gly Thr Gly Val  Ala Leu Thr
    1520                1525                1530

Asp Thr  Tyr Ser Arg Ile Thr  Val Pro Glu Asn Met  Leu Ser Pro
    1535                1540                1545

Thr His  Ala Asp Ser Leu His  Thr Ser Phe Asn Ile  Gln Val Ser
    1550                1555                1560
```

```
Pro Ser  Leu Thr Ser Phe Lys  Ser Ala Ser Gly Pro  Thr Lys Asn
    1565                1570                1575

Val Lys  Thr Thr Thr Asn Cys  Phe Ser Ser Asn Thr  Arg Lys Met
    1580                1585                1590

Thr Ser  Leu Leu Glu Lys Thr  Ser Leu Thr Asn Tyr  Ala Thr Ser
    1595                1600                1605

Leu Asn  Thr Pro Val Ser Tyr  Pro Pro Trp Thr Pro  Ser Ser Ala
    1610                1615                1620

Thr Leu  Pro Ser Leu Thr Ser  Phe Val Tyr Ser Pro  His Ser Thr
    1625                1630                1635

Glu Ala  Glu Ile Ser Thr Pro  Lys Thr Ser Pro Pro  Pro Thr Ser
    1640                1645                1650

Gln Met  Val Glu Phe Pro Val  Leu Gly Thr Arg Met  Thr Ser Ser
    1655                1660                1665

Asn Thr  Gln Pro Leu Leu Met  Thr Ser Trp Asn Ile  Pro Thr Ala
    1670                1675                1680

Glu Gly  Ser Gln Phe Pro Ile  Ser Thr Thr Ile Asn  Val Pro Thr
    1685                1690                1695

Ser Asn  Glu Met Glu Thr Glu  Thr Leu His Leu Val  Pro Gly Pro
    1700                1705                1710

Leu Ser  Thr Phe Thr Ala Ser  Gln Thr Gly Leu Val  Ser Lys Asp
    1715                1720                1725

Val Met  Ala Met Ser Ser Ile  Pro Met Ser Gly Ile  Leu Pro Asn
    1730                1735                1740

His Gly  Leu Ser Glu Asn Pro  Ser Leu Ser Thr Ser  Leu Arg Ala
    1745                1750                1755

Ile Thr  Ser Thr Leu Ala Asp  Val Lys His Thr Phe  Glu Lys Met
    1760                1765                1770

Thr Thr  Ser Val Thr Pro Gly  Thr Thr Leu Pro Ser  Ile Leu Ser
```

1775 1780 1785

Gly Ala Thr Ser Gly Ser Val Ile Ser Lys Ser Pro Ile Leu Thr
1790 1795 1800

Trp Leu Leu Ser Ser Leu Pro Ser Gly Ser Pro Pro Ala Thr Val
1805 1810 1815

Ser Asn Ala Pro His Val Met Thr Ser Ser Thr Val Glu Val Ser
1820 1825 1830

Lys Ser Thr Phe Leu Thr Ser Asp Met Ile Ser Ala His Pro Phe
1835 1840 1845

Thr Asn Leu Thr Thr Leu Pro Ser Ala Thr Met Ser Thr Ile Leu
1850 1855 1860

Thr Arg Thr Ile Pro Thr Pro Thr Leu Gly Gly Ile Thr Thr Gly
1865 1870 1875

Phe Pro Thr Ser Leu Pro Met Ser Ile Asn Val Thr Asp Asp Ile
1880 1885 1890

Val Tyr Ile Ser Thr His Pro Glu Ala Ser Ser Arg Thr Thr Ile
1895 1900 1905

Thr Ala Asn Pro Arg Thr Val Ser His Pro Ser Ser Phe Ser Arg
1910 1915 1920

Lys Thr Met Ser Pro Ser Thr Thr Asp His Thr Leu Ser Val Gly
1925 1930 1935

Ala Met Pro Leu Pro Ser Ser Thr Ile Thr Ser Ser Trp Asn Arg
1940 1945 1950

Ile Pro Thr Ala Ser Ser Pro Ser Thr Leu Ile Ile Pro Lys Pro
1955 1960 1965

Thr Leu Asp Ser Leu Leu Asn Ile Met Thr Thr Thr Ser Thr Val
1970 1975 1980

Pro Gly Ala Ser Phe Pro Leu Ile Ser Thr Gly Val Thr Tyr Pro
1985 1990 1995

```
Phe Thr  Ala Thr Val Ser Ser  Pro Ile Ser Ser Phe  Phe Glu Thr
    2000                2005                2010

Thr Trp  Leu Asp Ser Thr Pro  Ser Phe Leu Ser Thr  Glu Ala Ser
    2015                2020                2025

Thr Ser  Pro Thr Ala Thr Lys  Ser Thr Val Ser Phe  Tyr Asn Val
    2030                2035                2040

Glu Met  Ser Phe Ser Val Phe  Val Glu Glu Pro Arg  Ile Pro Ile
    2045                2050                2055

Thr Ser  Val Ile Asn Glu Phe  Thr Glu Asn Ser Leu  Asn Ser Ile
    2060                2065                2070

Phe Gln  Asn Ser Glu Phe Ser  Leu Ala Thr Leu Glu  Thr Gln Ile
    2075                2080                2085

Lys Ser  Arg Asp Ile Ser Glu  Glu Glu Met Val Met  Asp Arg Ala
    2090                2095                2100

Ile Leu  Glu Gln Arg Glu Gly  Gln Glu Met Ala Thr  Ile Ser Tyr
    2105                2110                2115

Val Pro  Tyr Ser Cys Val Cys  Gln Val Ile Ile Lys  Ala Ser Ser
    2120                2125                2130

Ser Leu  Ala Ser Ser Glu Leu  Met Arg Lys Ile Lys  Ser Lys Ile
    2135                2140                2145

His Gly  Asn Phe Thr His Gly  Asn Phe Thr Gln Asp  Gln Leu Thr
    2150                2155                2160

Leu Leu  Val Asn Cys Glu His  Val Ala Val Lys Lys  Leu Glu Pro
    2165                2170                2175

Gly Asn  Cys Lys Ala Asp Glu  Thr Ala Ser Lys Tyr  Lys Gly Thr
    2180                2185                2190

Tyr Lys  Trp Leu Leu Thr Asn  Pro Thr Glu Thr Ala  Gln Thr Arg
    2195                2200                2205
```

Cys Ile Lys Asn Glu Asp Gly Asn Ala Thr Arg Phe Cys Ser Ile
2210 2215 2220

Ser Ile Asn Thr Gly Lys Ser Gln Trp Glu Lys Pro Lys Phe Lys
2225 2230 2235

Gln Cys Lys Leu Leu Gln Glu Leu Pro Asp Lys Ile Val Asp Leu
2240 2245 2250

Ala Asn Ile Thr Ile Ser Asp Glu Asn Ala Glu Asp Val Ala Glu
2255 2260 2265

His Ile Leu Asn Leu Ile Asn Glu Ser Pro Ala Leu Gly Lys Glu
2270 2275 2280

Glu Thr Lys Ile Ile Val Ser Lys Ile Ser Asp Ile Ser Gln Cys
2285 2290 2295

Asp Glu Ile Ser Met Asn Leu Thr His Val Met Leu Gln Ile Ile
2300 2305 2310

Asn Val Val Leu Glu Lys Gln Asn Asn Ser Ala Ser Asp Leu His
2315 2320 2325

Glu Ile Ser Asn Glu Ile Leu Arg Ile Ile Glu Arg Thr Gly His
2330 2335 2340

Lys Met Glu Phe Ser Gly Gln Ile Ala Asn Leu Thr Val Ala Gly
2345 2350 2355

Leu Ala Leu Ala Val Leu Arg Gly Asp His Thr Phe Asp Gly Met
2360 2365 2370

Ala Phe Ser Ile His Ser Tyr Glu Glu Gly Thr Asp Pro Glu Ile
2375 2380 2385

Phe Leu Gly Asn Val Pro Val Gly Gly Ile Leu Ala Ser Ile Tyr
2390 2395 2400

Leu Pro Lys Ser Leu Thr Glu Arg Ile Pro Leu Ser Asn Leu Gln
2405 2410 2415

Thr Ile Leu Phe Asn Phe Phe Gly Gln Thr Ser Leu Phe Lys Thr
2420 2425 2430

Lys Asn Val Thr Lys Ala Leu Thr Thr Tyr Val Val Ser Ala Ser
2435 2440 2445

Ile Ser Asp Asp Met Phe Ile Gln Asn Leu Ala Asp Pro Val Val
2450 2455 2460

Ile Thr Leu Gln His Ile Gly Gly Asn Gln Asn Tyr Gly Gln Val
2465 2470 2475

His Cys Ala Phe Trp Asp Phe Glu Asn Asn Asn Gly Leu Gly Gly
2480 2485 2490

Trp Asn Ser Ser Gly Cys Lys Val Lys Glu Thr Asn Val Asn Tyr
2495 2500 2505

Thr Ile Cys Gln Cys Asp His Leu Thr His Phe Gly Val Leu Met
2510 2515 2520

Asp Leu Ser Arg Ser Thr Val Asp Ser Val Asn Glu Gln Ile Leu
2525 2530 2535

Ala Leu Ile Thr Tyr Thr Gly Cys Gly Ile Ser Ser Ile Phe Leu
2540 2545 2550

Gly Val Ala Val Val Thr Tyr Ile Ala Phe His Lys Leu Arg Lys
2555 2560 2565

Asp Tyr Pro Ala Lys Ile Leu Ile Asn Leu Cys Thr Ala Leu Leu
2570 2575 2580

Met Leu Asn Leu Val Phe Leu Ile Asn Ser Trp Leu Ser Ser Phe
2585 2590 2595

Gln Lys Val Gly Val Cys Ile Thr Ala Ala Val Ala Leu His Tyr
2600 2605 2610

Phe Leu Leu Val Ser Phe Thr Trp Met Gly Leu Glu Ala Val His
2615 2620 2625

Met Tyr Leu Ala Leu Val Lys Val Phe Asn Ile Tyr Ile Pro Asn

2630 2635 2640

Tyr Ile Leu Lys Phe Cys Leu Val Gly Trp Gly Ile Pro Ala Ile
2645 2650 2655

Met Val Ala Ile Thr Val Ser Val Lys Lys Asp Leu Tyr Gly Thr
2660 2665 2670

Leu Ser Pro Thr Thr Pro Phe Cys Trp Ile Lys Asp Asp Ser Ile
2675 2680 2685

Phe Tyr Ile Ser Val Val Ala Tyr Phe Cys Leu Ile Phe Leu Met
2690 2695 2700

Asn Leu Ser Met Phe Cys Thr Val Leu Val Gln Leu Asn Ser Val
2705 2710 2715

Lys Ser Gln Ile Gln Lys Thr Arg Arg Lys Met Ile Leu His Asp
2720 2725 2730

Leu Lys Gly Thr Met Ser Leu Thr Phe Leu Leu Gly Leu Thr Trp
2735 2740 2745

Gly Phe Ala Phe Phe Ala Trp Gly Pro Met Arg Asn Phe Phe Leu
2750 2755 2760

Tyr Leu Phe Ala Ile Phe Asn Thr Leu Gln Gly Phe Phe Ile Phe
2765 2770 2775

Val Phe His Cys Val Met Lys Glu Ser Val Arg Glu Gln Trp Gln
2780 2785 2790

Ile His Leu Cys Cys Gly Trp Leu Arg Leu Asp Asn Ser Ser Asp
2795 2800 2805

Gly Ser Ser Arg Cys Gln Ile Lys Val Gly Tyr Lys Gln Glu Gly
2810 2815 2820

Leu Lys Lys Ile Phe Glu His Lys Leu Leu Thr Pro Ser Leu Lys
2825 2830 2835

Ser Thr Ala Thr Ser Ser Thr Phe Lys Ser Leu Gly Ser Ala Gln
2840 2845 2850

```
Gly Thr  Pro Ser Glu Ile Ser  Phe Pro Asn Asp Asp  Phe Asp Lys
    2855                 2860                 2865


Asp Pro  Tyr Cys Ser Ser Pro
    2870                 2875


<210> 3086
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Met Lys Glu His Ile Ile Tyr Gln Lys Leu Tyr Gly Leu Ile Leu Met
1               5                  10                  15


Ser Ser Phe Ile Phe Leu Ser Asp Thr Leu Ser Leu Lys Gly Lys Lys
            20                  25                  30


Leu Asp Phe Phe Gly Arg Gly Asp Thr Tyr Val Ser Leu Ile Asp Thr
        35                  40                  45


Ile Pro Glu Leu Ser Arg Phe Thr Ala Cys Ile Asp Leu Val Phe Met
    50                  55                  60


Asp Asp Asn Ser Arg Tyr Trp Met Ala Phe Ser Tyr Ile Thr Asn Asn
65                  70                  75                  80
```

```
Ala Leu Leu Gly Arg Glu Asp Ile Asp Leu Gly Leu Ala Gly Asp His
                85                  90                  95

Gln Gln Leu Ile Leu Tyr Arg Leu Gly Lys Thr Phe Ser Ile Arg His
            100                 105                 110

His Leu Ala Ser Phe Gln Trp His Thr Ile Cys Leu Ile Trp Asp Gly
        115                 120                 125

Val Lys Gly Lys Leu Glu Leu Phe Leu Asn Lys Glu Arg Ile Leu Glu
    130                 135                 140

Val Thr Asp Gln Pro His Asn Leu Thr Pro His Gly Thr Leu Phe Leu
145                 150                 155                 160

Gly His Phe Leu Lys Asn Glu Ser Ser Glu Val Lys Ser Met Met Arg
                165                 170                 175

Ser Phe Pro Gly Ser Leu Tyr Tyr Phe Gln Leu Trp Asp His Ile Leu
            180                 185                 190

Glu Asn Glu Glu Phe Met Lys Cys Leu Asp Gly Asn Ile Val Ser Trp
        195                 200                 205

Glu Glu Asp Val Trp Leu Val Asn Lys Ile Ile Pro Thr Val Asp Arg
    210                 215                 220

Thr Leu Arg Cys Phe Val Pro Glu Asn Met Thr Ile Gln Glu Lys Ser
225                 230                 235                 240

Thr Thr Val Ser Gln Gln Ile Asp Met Thr Thr Pro Ser Gln Ile Thr
                245                 250                 255

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

Ser Ile Pro Ile Phe Ala Thr Asp Tyr Thr Thr Ile Ser Tyr Ser Asn
        275                 280                 285

Thr Thr Ser Pro Pro Leu Glu Thr Met Thr Ala Gln Lys Ile Leu Lys
    290                 295                 300

Thr Leu Val Asp Glu Thr Ala Thr Phe Ala Val Asp Val Leu Ser Thr
```

305 310 315 320

Ser Ser Ala Ile Ser Leu Pro Thr Gln Ser Ile Ser Ile Asp Asn Thr
325 330 335

Thr Asn Ser Met Lys Lys Thr Lys Ser Pro Ser Ser Glu Ser Thr Lys
340 345 350

Thr Thr Lys Met Val Glu Ala Met Ala Thr Glu Ile Phe Gln Pro Pro
355 360 365

Thr Pro Ser Asn Phe Leu Ser Thr Ser Arg Phe Thr Lys Asn Ser Val
370 375 380

Val Ser Thr Thr Ser Ala Ile Lys Ser Gln Ser Ala Val Thr Lys Thr
385 390 395 400

Thr Ser Leu Phe Ser Thr Ile Glu Ser Thr Ser Met Ser Thr Thr Pro
405 410 415

Cys Leu Lys Gln Lys Ser Thr Asn Thr Gly Ala Leu Pro Ile Ser Thr
420 425 430

Ala Gly Gln Glu Phe Ile Glu Ser Thr Ala Ala Gly Thr Val Pro Trp
435 440 445

Phe Thr Val Glu Lys Thr Ser Pro Ala Ser Thr His Val Gly Thr Ala
450 455 460

Ser Ser Phe Pro Pro Glu Pro Val Leu Ile Ser Thr Ala Ala Pro Val
465 470 475 480

Asp Ser Val Phe Pro Arg Asn Gln Thr Ala Phe Pro Leu Ala Thr Thr
485 490 495

Asp Met Lys Ile Ala Phe Thr Val His Ser Leu Thr Leu Pro Thr Arg
500 505 510

Leu Ile Glu Thr Thr Pro Ala Pro Arg Thr Ala Glu Thr Glu Leu Thr
515 520 525

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

```
Ser Thr Ser Met Ser Lys Glu Thr Ser Ser Lys Thr Phe Ser Phe Leu
545                 550                 555                 560

Thr Ser Phe Ser Phe Thr Gly Thr Glu Ser Val Gln Thr Val Ile Asp
                565                 570                 575

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

Thr Val Ala Glu Thr Met Leu Ser Ser Thr Ile Thr Gly Arg Val Tyr
        595                 600                 605

Thr Gln Asn Thr Pro Thr Ala Asp Gly His Leu Leu Thr Leu Met Ser
    610                 615                 620

Thr Arg Ser Ala Ser Thr Ser Lys Ala Pro Glu Ser Gly Pro Thr Ser
625                 630                 635                 640

Thr Thr Asp Glu Ala Ala His Leu Phe Ser Ser Asn Glu Thr Ile Trp
                645                 650                 655

Thr Ser Arg Pro Asp Gln Ala Leu Leu Ala Ser Met Asn Thr Thr Thr
            660                 665                 670

Ile Leu Thr Phe Val Pro Asn Glu Asn Phe Thr Ser Ala Phe His Glu
        675                 680                 685

Asn Thr Thr Tyr Thr Glu Tyr Leu Ser Ala Thr Thr Asn Ile Thr Pro
    690                 695                 700

Leu Lys Ala Ser Pro Glu Gly Lys Gly Thr Thr Ala Asn Asp Ala Thr
705                 710                 715                 720

Thr Ala Arg Tyr Thr Thr Ala Val Ser Lys Leu Thr Ser Pro Trp Phe
                725                 730                 735

Ala Asn Phe Ser Ile Val Ser Gly Thr Thr Ser Ile Thr Asn Met Pro
            740                 745                 750

Glu Phe Lys Leu Thr Thr Leu Leu Leu Lys Thr Ile Pro Met Ser Thr
        755                 760                 765
```

```
Lys Pro Ala Asn Glu Leu Pro Leu Thr Pro Arg Glu Thr Val Val Pro
    770                 775                 780

Ser Val Asp Ile Ile Ser Thr Leu Ala Cys Ile Gln Pro Asn Phe Ser
785                 790                 795                 800

Thr Glu Glu Ser Ala Ser Glu Thr Thr Gln Thr Glu Ile Asn Gly Ala
                805                 810                 815

Ile Val Phe Gly Gly Thr Thr Thr Pro Val Pro Lys Ser Ala Thr Thr
            820                 825                 830

Gln Arg Leu Asn Ala Thr Val Thr Arg Lys Glu Ala Thr Ser His Tyr
        835                 840                 845

Leu Met Arg Lys Ser Thr Ile Ala Ala Val Ala Glu Val Ser Pro Phe
    850                 855                 860

Ser Thr Met Leu Glu Val Thr Asp Glu Ser Ala Gln Arg Val Thr Ala
865                 870                 875                 880

Ser Val Thr Val Ser Ser Phe Pro Asp Ile Glu Lys Leu Ser Thr Pro
                885                 890                 895

Leu Asp Asn Lys Thr Ala Thr Thr Glu Val Arg Glu Ser Trp Leu Leu
            900                 905                 910

Thr Lys Leu Val Lys Thr Thr Pro Arg Ser Ser Tyr Asn Glu Met Thr
        915                 920                 925

Glu Met Phe Asn Phe Asn His Thr Tyr Val Ala His Trp Thr Ser Glu
    930                 935                 940

Thr Ser Glu Gly Ile Ser Ala Gly Ser Pro Thr Ser Gly Ser Thr His
945                 950                 955                 960

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

Ser Phe Ser Thr Thr Pro Thr Asp Arg Thr Ala Thr Ser Leu Ser Asp
            980                 985                 990
```

Gly Ile Leu Pro Pro Gln Pro Thr Ala Ala His Ser Ser Ala Thr Pro
995 1000 1005

Val Pro Val Thr His Met Phe Ser Leu Pro Val Asn Gly Ser Ser
1010 1015 1020

Val Val Ala Glu Glu Thr Glu Val Thr Met Ser Glu Pro Ser Thr
1025 1030 1035

Leu Ala Arg Ala Phe Ser Thr Ser Val Leu Ser Asp Val Ser Asn
1040 1045 1050

Leu Ser Ser Thr Thr Met Thr Thr Ala Leu Val Pro Pro Leu Asp
1055 1060 1065

Gln Thr Ala Ser Thr Thr Ile Val Ile Val Pro Thr His Gly Asp
1070 1075 1080

Leu Ile Arg Thr Thr Ser Glu Ala Thr Val Ile Ser Val Arg Lys
1085 1090 1095

Thr Ser Met Ala Val Pro Ser Leu Thr Glu Thr Pro Phe His Ser
1100 1105 1110

Leu Arg Leu Ser Thr Pro Val Thr Ala Lys Ala Glu Thr Thr Leu
1115 1120 1125

Phe Ser Thr Ser Val Asp Thr Val Thr Pro Ser Thr His Thr Leu
1130 1135 1140

Val Cys Ser Lys Pro Pro Pro Asp Asn Ile Pro Pro Ala Ser Ser
1145 1150 1155

Thr His Val Ile Ser Thr Thr Ser Thr Pro Glu Ala Thr Gln Pro
1160 1165 1170

Ile Ser Gln Val Glu Glu Thr Ser Thr Tyr Ala Leu Ser Phe Pro
1175 1180 1185

Tyr Thr Phe Ser Gly Gly Gly Val Val Ala Ser Leu Ala Thr Gly
1190 1195 1200

```
Thr Thr  Glu Thr Ser Val Val  Asp Glu Thr Thr Pro  Ser His Ile
    1205                1210                1215

Ser Ala  Asn Lys Leu Thr Thr  Ser Val Asn Ser His  Ile Ser Ser
    1220                1225                1230

Ser Ala  Thr Tyr Arg Val His  Thr Pro Val Ser Ile  Gln Leu Val
    1235                1240                1245

Thr Ser  Thr Ser Val Leu Ser  Ser Asp Lys Asp Gln  Met Thr Ile
    1250                1255                1260

Ser Leu  Gly Lys Thr Pro Arg  Thr Met Glu Val Thr  Glu Met Ser
    1265                1270                1275

Pro Ser  Lys Asn Ser Phe Ile  Ser Tyr Ser Arg Gly  Thr Pro Ser
    1280                1285                1290

Leu Glu  Met Thr Asp Thr Gly  Phe Pro Glu Thr Thr  Lys Ile Ser
    1295                1300                1305

Ser His  Gln Thr His Ser Pro  Ser Glu Ile Pro Leu  Gly Thr Pro
    1310                1315                1320

Ser Asp  Gly Asn Leu Ala Ser  Ser Pro Thr Ser Gly  Ser Thr Gln
    1325                1330                1335

Ile Thr  Pro Thr Leu Thr Ser  Ser Asn Thr Val Gly  Val His Ile
    1340                1345                1350

Pro Glu  Met Ser Thr Ser Leu  Gly Lys Thr Ala Leu  Pro Ser Gln
    1355                1360                1365

Ala Leu  Thr Ile Thr Thr Phe  Leu Cys Pro Glu Lys  Glu Ser Thr
    1370                1375                1380

Ser Ala  Leu Pro Ala Tyr Thr  Pro Arg Thr Val Glu  Met Ile Val
    1385                1390                1395

Asn Ser  Thr Tyr Val Thr His  Ser Val Ser Tyr Gly  Gln Asp Thr
    1400                1405                1410

Ser Phe  Val Asp Thr Thr Thr  Ser Ser Ser Thr Arg  Ile Ser Asn
```

1415 1420 1425

Pro Met Asp Ile Asn Thr Thr Phe Ser His Leu His Ser Leu Arg
1430 1435 1440

Thr Gln Pro Glu Val Thr Ser Val Ala Ser Phe Ile Ser Glu Ser
1445 1450 1455

Thr Gln Thr Phe Pro Glu Ser Leu Ser Leu Ser Thr Ala Gly Leu
1460 1465 1470

Tyr Asn Asp Gly Phe Thr Val Leu Ser Asp Arg Ile Thr Thr Ala
1475 1480 1485

Phe Ser Val Pro Asn Val Pro Thr Met Leu Pro Arg Glu Ser Ser
1490 1495 1500

Met Ala Thr Ser Thr Pro Ile Tyr Gln Met Ser Ser Leu Pro Val
1505 1510 1515

Asn Val Thr Ala Phe Thr Ser Lys Lys Val Ser Asp Thr Pro Pro
1520 1525 1530

Ile Val Ile Thr Lys Ser Ser Lys Thr Met His Pro Gly Cys Leu
1535 1540 1545

Lys Ser Pro Cys Thr Ala Thr Ser Gly Pro Met Ser Glu Met Ser
1550 1555 1560

Ser Ile Pro Val Asn Asn Ser Ala Phe Thr Pro Ala Thr Val Ser
1565 1570 1575

Ser Asp Thr Ser Thr Arg Val Gly Leu Phe Ser Thr Leu Leu Ser
1580 1585 1590

Ser Val Thr Pro Arg Thr Thr Met Thr Met Gln Thr Ser Thr Leu
1595 1600 1605

Asp Val Thr Pro Val Ile Tyr Ala Gly Ala Thr Ser Lys Asn Lys
1610 1615 1620

Met Val Ser Ser Ala Phe Thr Thr Glu Met Ile Glu Ala Pro Ser
1625 1630 1635

```
Arg Ile  Thr Pro Thr Thr Phe  Leu Ser Pro Thr Glu  Pro Thr Leu
    1640                1645                1650

Pro Phe  Val Lys Thr Val Pro  Thr Thr Ile Met Ala  Gly Ile Val
    1655                1660                1665

Thr Pro  Phe Val Gly Thr Thr  Ala Phe Ser Pro Leu  Ser Ser Lys
    1670                1675                1680

Ser Thr  Gly Ala Ile Ser Ser  Ile Pro Lys Thr Thr  Phe Ser Pro
    1685                1690                1695

Phe Leu  Ser Ala Thr Gln Gln  Ser Ser Gln Ala Asp  Glu Ala Thr
    1700                1705                1710

Thr Leu  Gly Ile Leu Ser Gly  Ile Thr Asn Arg Ser  Leu Ser Thr
    1715                1720                1725

Val Asn  Ser Gly Thr Gly Val  Ala Leu Thr Asp Thr  Tyr Ser Arg
    1730                1735                1740

Ile Thr  Val Pro Glu Asn Met  Leu Ser Pro Thr His  Ala Asp Ser
    1745                1750                1755

Leu His  Thr Ser Phe Asn Ile  Gln Val Ser Pro Ser  Leu Thr Ser
    1760                1765                1770

Phe Lys  Ser Ala Ser Gly Pro  Thr Lys Asn Val Lys  Thr Thr Thr
    1775                1780                1785

Asn Cys  Phe Ser Ser Asn Thr  Arg Lys Met Thr Ser  Leu Leu Glu
    1790                1795                1800

Lys Thr  Ser Leu Thr Asn Tyr  Ala Thr Ser Leu Asn  Thr Pro Val
    1805                1810                1815

Ser Tyr  Pro Pro Trp Thr Pro  Ser Ser Ala Thr Leu  Pro Ser Leu
    1820                1825                1830

Thr Ser  Phe Val Tyr Ser Pro  His Ser Thr Glu Ala  Glu Ile Ser
    1835                1840                1845
```

```
Thr Pro  Lys Thr Ser Pro Pro  Pro Thr Ser Gln Met  Val Glu Phe
    1850                1855                1860

Pro Val  Leu Gly Thr Arg Met  Thr Ser Ser Asn Thr  Gln Pro Leu
    1865                1870                1875

Leu Met  Thr Ser Trp Asn Ile  Pro Thr Ala Glu Gly  Ser Gln Phe
    1880                1885                1890

Pro Ile  Ser Thr Thr Ile Asn  Val Pro Thr Ser Asn  Glu Met Glu
    1895                1900                1905

Thr Glu  Thr Leu His Leu Val  Pro Gly Pro Leu Ser  Thr Phe Thr
    1910                1915                1920

Ala Ser  Gln Thr Gly Leu Val  Ser Lys Asp Val Met  Ala Met Ser
    1925                1930                1935

Ser Ile  Pro Met Ser Gly Ile  Leu Pro Asn His Gly  Leu Ser Glu
    1940                1945                1950

Asn Pro  Ser Leu Ser Thr Ser  Leu Arg Ala Ile Thr  Ser Thr Leu
    1955                1960                1965

Ala Asp  Val Lys His Thr Phe  Glu Lys Met Thr Thr  Ser Val Thr
    1970                1975                1980

Pro Gly  Thr Thr Leu Pro Ser  Ile Leu Ser Gly Ala  Thr Ser Gly
    1985                1990                1995

Ser Val  Ile Ser Lys Ser Pro  Ile Leu Thr Trp Leu  Leu Ser Ser
    2000                2005                2010

Leu Pro  Ser Gly Ser Pro Pro  Ala Thr Val Ser Asn  Ala Pro His
    2015                2020                2025

Val Met  Thr Ser Ser Thr Val  Glu Val Ser Lys Ser  Thr Phe Leu
    2030                2035                2040

Thr Ser  Asp Met Ile Ser Ala  His Pro Phe Thr Asn  Leu Thr Thr
    2045                2050                2055
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Leu Pro Ser Ala Thr Met Ser Thr Ile Leu Thr Arg Thr Ile Pro
2060 2065 2070

Thr Pro Thr Leu Gly Gly Ile Thr Thr Gly Phe Pro Thr Ser Leu
2075 2080 2085

Pro Met Ser Ile Asn Val Thr Asp Asp Ile Val Tyr Ile Ser Thr
2090 2095 2100

His Pro Glu Ala Ser Ser Arg Thr Thr Ile Thr Ala Asn Pro Arg
2105 2110 2115

Thr Val Ser His Pro Ser Ser Phe Ser Arg Lys Thr Met Ser Pro
2120 2125 2130

Ser Thr Thr Asp His Thr Leu Ser Val Gly Ala Met Pro Leu Pro
2135 2140 2145

Ser Ser Thr Ile Thr Ser Ser Trp Asn Arg Ile Pro Thr Ala Ser
2150 2155 2160

Ser Pro Ser Thr Leu Ile Ile Pro Lys Pro Thr Leu Asp Ser Leu
2165 2170 2175

Leu Asn Ile Met Thr Thr Thr Ser Thr Val Pro Gly Ala Ser Phe
2180 2185 2190

Pro Leu Ile Ser Thr Gly Val Thr Tyr Pro Phe Thr Ala Thr Val
2195 2200 2205

Ser Ser Pro Ile Ser Ser Phe Phe Glu Thr Thr Trp Leu Asp Ser
2210 2215 2220

Thr Pro Ser Phe Leu Ser Thr Glu Ala Ser Thr Ser Pro Thr Ala
2225 2230 2235

Thr Lys Ser Thr Val Ser Phe Tyr Asn Val Glu Met Ser Phe Ser
2240 2245 2250

Val Phe Val Glu Glu Pro Arg Ile Pro Ile Thr Ser Val Ile Asn
2255 2260 2265

Glu Phe Thr Glu Asn Ser Leu Asn Ser Ile Phe Gln Asn Ser Glu

2270 2275 2280

Phe Ser Leu Ala Thr Leu Glu Thr Gln Ile Lys Ser Arg Asp Ile
2285 2290 2295

Ser Glu Glu Glu Met Val Met Asp Arg Ala Ile Leu Glu Gln Arg
2300 2305 2310

Glu Gly Gln Glu Met Ala Thr Ile Ser Tyr Val Pro Tyr Ser Cys
2315 2320 2325

Val Cys Gln Val Ile Ile Lys Ala Ser Ser Ser Leu Ala Ser Ser
2330 2335 2340

Glu Leu Met Arg Lys Ile Lys Ser Lys Ile His Gly Asn Phe Thr
2345 2350 2355

His Gly Asn Phe Thr Gln Asp Gln Leu Thr Leu Leu Val Asn Cys
2360 2365 2370

Glu His Val Ala Val Lys Lys Leu Glu Pro Gly Asn Cys Lys Ala
2375 2380 2385

Asp Glu Thr Ala Ser Lys Tyr Lys Gly Thr Tyr Lys Trp Leu Leu
2390 2395 2400

Thr Asn Pro Thr Glu Thr Ala Gln Thr Arg Cys Ile Lys Asn Glu
2405 2410 2415

Asp Gly Asn Ala Thr Arg Phe Cys Ser Ile Ser Ile Asn Thr Gly
2420 2425 2430

Lys Ser Gln Trp Glu Lys Pro Lys Phe Lys Gln Cys Lys Leu Leu
2435 2440 2445

Gln Glu Leu Pro Asp Lys Ile Val Asp Leu Ala Asn Ile Thr Ile
2450 2455 2460

Ser Asp Glu Asn Ala Glu Asp Val Ala Glu His Ile Leu Asn Leu
2465 2470 2475

Ile Asn Glu Ser Pro Ala Leu Gly Lys Glu Glu Thr Lys Ile Ile
2480 2485 2490

Val Ser Lys Ile Ser Asp Ile Ser Gln Cys Asp Glu Ile Ser Met
2495 2500 2505

Asn Leu Thr His Val Met Leu Gln Ile Ile Asn Val Val Leu Glu
2510 2515 2520

Lys Gln Asn Asn Ser Ala Ser Asp Leu His Glu Ile Ser Asn Glu
2525 2530 2535

Ile Leu Arg Ile Ile Glu Arg Thr Gly His Lys Met Glu Phe Ser
2540 2545 2550

Gly Gln Ile Ala Asn Leu Thr Val Ala Gly Leu Ala Leu Ala Val
2555 2560 2565

Leu Arg Gly Asp His Thr Phe Asp Gly Met Ala Phe Ser Ile His
2570 2575 2580

Ser Tyr Glu Glu Gly Thr Asp Pro Glu Ile Phe Leu Gly Asn Val
2585 2590 2595

Pro Val Gly Gly Ile Leu Ala Ser Ile Tyr Leu Pro Lys Ser Leu
2600 2605 2610

Thr Glu Arg Ile Pro Leu Ser Asn Leu Gln Thr Ile Leu Phe Asn
2615 2620 2625

Phe Phe Gly Gln Thr Ser Leu Phe Lys Thr Lys Asn Val Thr Lys
2630 2635 2640

Ala Leu Thr Thr Tyr Val Val Ser Ala Ser Ile Ser Asp Asp Met
2645 2650 2655

Phe Ile Gln Asn Leu Ala Asp Pro Val Val Ile Thr Leu Gln His
2660 2665 2670

Ile Gly Gly Asn Gln Asn Tyr Gly Gln Val His Cys Ala Phe Trp
2675 2680 2685

Asp Phe Glu Asn Asn Asn Gly Leu Gly Gly Trp Asn Ser Ser Gly
2690 2695 2700

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Cys Lys  Val Lys Glu Thr Asn  Val Asn Tyr Thr Ile  Cys Gln Cys
    2705                2710                2715

Asp His  Leu Thr His Phe Gly  Val Leu Met Asp Leu  Ser Arg Ser
    2720                2725                2730

Thr Val  Asp Ser Val Asn Glu  Gln Ile Leu Ala Leu  Ile Thr Tyr
    2735                2740                2745

Thr Gly  Cys Gly Ile Ser Ser  Ile Phe Leu Gly Val  Ala Val Val
    2750                2755                2760

Thr Tyr  Ile Ala Phe His Lys  Leu Arg Lys Asp Tyr  Pro Ala Lys
    2765                2770                2775

Ile Leu  Ile Asn Leu Cys Thr  Ala Leu Leu Met Leu  Asn Leu Val
    2780                2785                2790

Phe Leu  Ile Asn Ser Trp Leu  Ser Ser Phe Gln Lys  Val Gly Val
    2795                2800                2805

Cys Ile  Thr Ala Ala Val Ala  Leu His Tyr Phe Leu  Leu Val Ser
    2810                2815                2820

Phe Thr  Trp Met Gly Leu Glu  Ala Val His Met Tyr  Leu Ala Leu
    2825                2830                2835

Val Lys  Val Phe Asn Ile Tyr  Ile Pro Asn Tyr Ile  Leu Lys Phe
    2840                2845                2850

Cys Leu  Val Gly Trp Gly Ile  Pro Ala Ile Met Val  Ala Ile Thr
    2855                2860                2865

Val Ser  Val Lys Lys Asp Leu  Tyr Gly Thr Leu Ser  Pro Thr Thr
    2870                2875                2880

Pro Phe  Cys Trp Ile Lys Asp  Asp Ser Ile Phe Tyr  Ile Ser Val
    2885                2890                2895

Val Ala  Tyr Phe Cys Leu Ile  Phe Leu Met Asn Leu  Ser Met Phe
    2900                2905                2910
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Cys Thr  Val Leu Val Gln Leu  Asn Ser Val Lys Ser  Gln Ile Gln
    2915                2920                2925

Lys Thr  Arg Arg Lys Met Ile  Leu His Asp Leu Lys  Gly Thr Met
    2930                2935                2940

Ser Leu  Thr Phe Leu Leu Gly  Leu Thr Trp Gly Phe  Ala Phe Phe
    2945                2950                2955

Ala Trp  Gly Pro Met Arg Asn  Phe Phe Leu Tyr Leu  Phe Ala Ile
    2960                2965                2970

Phe Asn  Thr Leu Gln Gly Phe  Phe Ile Phe Val Phe  His Cys Val
    2975                2980                2985

Met Lys  Glu Ser Val Arg Glu  Gln Trp Gln Ile His  Leu Cys Cys
    2990                2995                3000

Gly Trp  Leu Arg Leu Asp Asn  Ser Ser Asp Gly Ser  Ser Arg Cys
    3005                3010                3015

Gln Ile  Lys Val Gly Tyr Lys  Gln Glu Gly Leu Lys  Lys Ile Phe
    3020                3025                3030

Glu His  Lys Leu Leu Thr Pro  Ser Leu Lys Ser Thr  Ala Thr Ser
    3035                3040                3045

Ser Thr  Phe Lys Ser Leu Gly  Ser Ala Gln Gly Thr  Pro Ser Glu
    3050                3055                3060

Ile Ser  Phe Pro Asn Asp Asp  Phe Asp Lys Asp Pro  Tyr Cys Ser
    3065                3070                3075

Ser Pro
    3080


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

Gln Asn Ala Thr Thr Glu Thr Trp Glu Glu Leu Leu Ser Tyr Met Glu
            20                  25                  30

Asn Met Gln Val Ser Arg Gly Arg Ser Ser Val Phe Ser Ser Arg Gln
        35                  40                  45

Leu His Gln Leu Glu Gln Met Leu Leu Asn Thr Ser Phe Pro Gly Tyr
    50                  55                  60

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

Ser Cys Asp Phe Ser Gly Leu Ser Leu Thr Ser Ala Thr Leu Lys Arg
                85                  90                  95

Val Pro Gln Ala Gly Gly Gln His Ala Arg Gly Gln His Ala Met Gln
            100                 105                 110

Phe Pro Ala Glu Leu Thr Arg Asp Ala Cys Lys Thr Arg Pro Arg Glu
        115                 120                 125

Leu Arg Leu Ile Cys Ile Tyr Phe Ser Asn Thr His Phe Phe Lys Asp
    130                 135                 140

Glu Asn Asn Ser Ser Leu Leu Asn Asn Tyr Val Leu Gly Ala Gln Leu
145                 150                 155                 160
```

```
Ser His Gly His Val Asn Asn Leu Arg Asp Pro Val Asn Ile Ser Phe
                165                 170                 175

Trp His Asn Gln Ser Leu Glu Gly Tyr Thr Leu Thr Cys Val Phe Trp
            180                 185                 190

Lys Glu Gly Ala Arg Lys Gln Pro Trp Gly Gly Trp Ser Pro Glu Gly
        195                 200                 205

Cys Arg Thr Glu Gln Pro Ser His Ser Gln Val Leu Cys Arg Cys Asn
    210                 215                 220

His Leu Thr Tyr Phe Ala Val Leu Met Gln Leu Ser Pro Ala Leu Val
225                 230                 235                 240

Pro Ala Glu Leu Leu Ala Pro Leu Thr Tyr Ile Ser Leu Val Gly Cys
                245                 250                 255

Ser Ile Ser Ile Val Ala Ser Leu Ile Thr Val Leu Leu His Phe His
            260                 265                 270

Phe Arg Lys Gln Ser Asp Ser Leu Thr Arg Ile His Met Asn Leu His
        275                 280                 285

Ala Ser Val Leu Leu Leu Asn Ile Ala Phe Leu Leu Ser Pro Ala Phe
    290                 295                 300

Ala Met Ser Pro Val Pro Gly Ser Ala Cys Thr Ala Leu Ala Ala Ala
305                 310                 315                 320

Leu His Tyr Ala Leu Leu Ser Cys Leu Thr Trp Met Ala Ile Glu Gly
                325                 330                 335

Phe Asn Leu Tyr Leu Leu Leu Gly Arg Val Tyr Asn Ile Tyr Ile Arg
            340                 345                 350

Arg Tyr Val Phe Lys Leu Gly Val Leu Gly Trp Gly Ala Pro Ala Leu
        355                 360                 365

Leu Val Leu Leu Ser Leu Ser Val Lys Ser Ser Val Tyr Gly Pro Cys
    370                 375                 380
```

```
Thr Ile Pro Val Phe Asp Ser Trp Glu Asn Gly Thr Gly Phe Gln Asn
385                 390                 395                 400

Met Ser Ile Cys Trp Val Arg Ser Pro Val Val His Ser Val Leu Val
                405                 410                 415

Met Gly Tyr Gly Gly Leu Thr Ser Leu Phe Asn Leu Val Val Leu Ala
            420                 425                 430

Trp Ala Leu Trp Thr Leu Arg Arg Leu Arg Glu Arg Ala Asp Ala Pro
        435                 440                 445

Ser Val Arg Ala Cys His Asp Thr Val Thr Val Leu Gly Leu Thr Val
    450                 455                 460

Leu Leu Gly Thr Thr Trp Ala Leu Ala Phe Phe Ser Phe Gly Val Phe
465                 470                 475                 480

Leu Leu Pro Gln Leu Phe Leu Phe Thr Ile Leu Asn Ser Leu Tyr Gly
                485                 490                 495

Phe Phe Leu Phe Leu Trp Phe Cys Ser Gln Arg Cys Arg Ser Glu Ala
            500                 505                 510

Glu Ala Lys Ala Gln Ile Glu Ala Phe Ser Ser Ser Gln Thr Thr Gln
        515                 520                 525


<210> 3088
<211> 528
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: ADGRG5; "

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<400> 3088
Met Asp His Cys Gly Ala Leu Phe Leu Cys Leu Cys Leu Leu Thr Leu
1   5   10   15

Gln Asn Ala Thr Thr Glu Thr Trp Glu Glu Leu Leu Ser Tyr Met Glu
            20   25   30

Asn Met Gln Val Ser Arg Gly Arg Ser Ser Val Phe Ser Ser Arg Gln
        35   40   45

Leu His Gln Leu Glu Gln Met Leu Leu Asn Thr Ser Phe Pro Gly Tyr
    50   55   60

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

Ser Cys Asp Phe Ser Gly Leu Ser Leu Thr Ser Ala Thr Leu Lys Arg
                85   90   95

Val Pro Gln Ala Gly Gly Gln His Ala Arg Gly Gln His Ala Met Gln
            100   105   110

Phe Pro Ala Glu Leu Thr Arg Asp Ala Cys Lys Thr Arg Pro Arg Glu
        115   120   125

Leu Arg Leu Ile Cys Ile Tyr Phe Ser Asn Thr His Phe Phe Lys Asp
    130   135   140

Glu Asn Asn Ser Ser Leu Leu Asn Asn Tyr Val Leu Gly Ala Gln Leu
145   150   155   160

Ser His Gly His Val Asn Asn Leu Arg Asp Pro Val Asn Ile Ser Phe
                165   170   175

Trp His Asn Gln Ser Leu Glu Gly Tyr Thr Leu Thr Cys Val Phe Trp
            180   185   190

Lys Glu Gly Ala Arg Lys Gln Pro Trp Gly Gly Trp Ser Pro Glu Gly
        195   200   205

```
Cys Arg Thr Glu Gln Pro Ser His Ser Gln Val Leu Cys Arg Cys Asn
    210                 215                 220

His Leu Thr Tyr Phe Ala Val Leu Met Gln Leu Ser Pro Ala Leu Val
225                 230                 235                 240

Pro Ala Glu Leu Leu Ala Pro Leu Thr Tyr Ile Ser Leu Val Gly Cys
                245                 250                 255

Ser Ile Ser Ile Val Ala Ser Leu Ile Thr Val Leu Leu His Phe His
            260                 265                 270

Phe Arg Lys Gln Ser Asp Ser Leu Thr Arg Ile His Met Asn Leu His
        275                 280                 285

Ala Ser Val Leu Leu Leu Asn Ile Ala Phe Leu Leu Ser Pro Ala Phe
    290                 295                 300

Ala Met Ser Pro Val Pro Gly Ser Ala Cys Thr Ala Leu Ala Ala Ala
305                 310                 315                 320

Leu His Tyr Ala Leu Leu Ser Cys Leu Thr Trp Met Ala Ile Glu Gly
                325                 330                 335

Phe Asn Leu Tyr Leu Leu Leu Gly Arg Val Tyr Asn Ile Tyr Ile Arg
            340                 345                 350

Arg Tyr Val Phe Lys Leu Gly Val Leu Gly Trp Gly Ala Pro Ala Leu
        355                 360                 365

Leu Val Leu Leu Ser Leu Ser Val Lys Ser Ser Val Tyr Gly Pro Cys
    370                 375                 380

Thr Ile Pro Val Phe Asp Ser Trp Glu Asn Gly Thr Gly Phe Gln Asn
385                 390                 395                 400

Met Ser Ile Cys Trp Val Arg Ser Pro Val Val His Ser Val Leu Val
                405                 410                 415

Met Gly Tyr Gly Gly Leu Thr Ser Leu Phe Asn Leu Val Val Leu Ala
            420                 425                 430
```

```
Trp Ala Leu Trp Thr Leu Arg Arg Leu Arg Glu Arg Ala Asp Ala Pro
        435                 440                 445

Ser Val Arg Ala Cys His Asp Thr Val Thr Val Leu Gly Leu Thr Val
    450                 455                 460

Leu Leu Gly Thr Thr Trp Ala Leu Ala Phe Phe Ser Phe Gly Val Phe
465                 470                 475                 480

Leu Leu Pro Gln Leu Phe Leu Phe Thr Ile Leu Asn Ser Leu Tyr Gly
                485                 490                 495

Phe Phe Leu Phe Leu Trp Phe Cys Ser Gln Arg Cys Arg Ser Glu Ala
            500                 505                 510

Glu Ala Lys Ala Gln Ile Glu Ala Phe Ser Ser Ser Gln Thr Thr Gln
        515                 520                 525


<210> 3089
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<213> Homo sapiens

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

Gln Asn Ala Thr Thr Glu Thr Trp Glu Glu Leu Leu Ser Tyr Met Glu
            20                  25                  30

Asn Met Gln Val Ser Arg Gly Arg Ser Ser Val Phe Ser Ser Arg Gln
        35                  40                  45
```

```
Leu His Gln Leu Glu Gln Met Leu Leu Asn Thr Ser Phe Pro Gly Tyr
    50                  55                  60

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

Ser Cys Asp Phe Ser Gly Leu Ser Leu Thr Ser Ala Thr Leu Lys Arg
                85                  90                  95

Val Pro Gln Ala Gly Gly Gln His Ala Arg Gly Gln His Ala Met Gln
            100                 105                 110

Phe Pro Ala Glu Leu Thr Arg Asp Ala Cys Lys Thr Arg Pro Arg Glu
        115                 120                 125

Leu Arg Leu Ile Cys Ile Tyr Phe Ser Asn Thr His Phe Phe Lys Asp
    130                 135                 140

Glu Asn Asn Ser Ser Leu Leu Asn Asn Tyr Val Leu Gly Ala Gln Leu
145                 150                 155                 160

Ser His Gly His Val Asn Asn Leu Arg Asp Pro Val Asn Ile Ser Phe
                165                 170                 175

Trp His Asn Gln Ser Leu Val Leu Leu Gly Ala Pro Pro Phe Pro Leu
            180                 185                 190

His Pro Cys Pro Ser Val Thr Leu Leu Leu Asn Thr Gly Leu Thr Arg
        195                 200                 205

Pro Lys Pro Val Glu Pro Ser Trp Lys Ser Ile Thr Leu
    210                 215                 220


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Met Met Phe Arg Ser Asp Arg Met Trp Ser Cys His Trp Lys Trp Lys
1 5 10 15

Pro Ser Pro Leu Leu Phe Leu Phe Ala Leu Tyr Ile Met Cys Val Pro
20 25 30

His Ser Val Trp Gly Cys Ala Asn Cys Arg Val Val Leu Ser Asn Pro
35 40 45

Ser Gly Thr Phe Thr Ser Pro Cys Tyr Pro Asn Asp Tyr Pro Asn Ser
50 55 60

Gln Ala Cys Met Trp Thr Leu Arg Ala Pro Thr Gly Tyr Ile Ile Gln
65 70 75 80

Ile Thr Phe Asn Asp Phe Asp Ile Glu Glu Ala Pro Asn Cys Ile Tyr
85 90 95

Asp Ser Leu Ser Leu Asp Asn Gly Glu Ser Gln Thr Lys Phe Cys Gly
100 105 110

Ala Thr Ala Lys Gly Leu Ser Phe Asn Ser Ser Ala Asn Glu Met His
115 120 125

Val Ser Phe Ser Ser Asp Phe Ser Ile Gln Lys Lys Gly Phe Asn Ala
130 135 140

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

Pro Gln Thr Ser Asp Ala Tyr Gln Val Ser Val Ala Lys Ser Ile Ser

```
                165                 170                 175

Ile Pro Glu Leu Ser Ala Phe Thr Leu Cys Phe Glu Ala Thr Lys Val
            180                 185                 190

Gly His Glu Asp Ser Asp Trp Thr Ala Phe Ser Tyr Ser Asn Ala Ser
        195                 200                 205

Phe Thr Gln Leu Leu Ser Phe Gly Lys Ala Lys Ser Gly Tyr Phe Leu
    210                 215                 220

Ser Ile Ser Asp Ser Lys Cys Leu Leu Asn Asn Ala Leu Pro Val Lys
225                 230                 235                 240

Glu Lys Glu Asp Ile Phe Ala Glu Ser Phe Glu Gln Leu Cys Leu Val
                245                 250                 255

Trp Asn Asn Ser Leu Gly Ser Ile Gly Val Asn Phe Lys Arg Asn Tyr
            260                 265                 270

Glu Thr Val Pro Cys Asp Ser Thr Ile Ser Lys Val Ile Pro Gly Asn
        275                 280                 285

Gly Lys Leu Leu Leu Gly Ser Asn Gln Asn Glu Ile Val Ser Leu Lys
    290                 295                 300

Gly Asp Ile Tyr Asn Phe Arg Leu Trp Asn Phe Thr Met Asn Ala Lys
305                 310                 315                 320

Ile Leu Ser Asn Leu Ser Cys Asn Val Lys Gly Asn Val Val Asp Trp
                325                 330                 335

Gln Asn Asp Phe Trp Asn Ile Pro Asn Leu Ala Leu Lys Ala Glu Ser
            340                 345                 350

Asn Leu Ser Cys Gly Ser Tyr Leu Ile Pro Leu Pro Ala Ala Glu Leu
        355                 360                 365

Ala Ser Cys Ala Asp Leu Gly Thr Leu Cys Gln Ala Thr Val Asn Ser
    370                 375                 380

Pro Ser Thr Thr Pro Pro Thr Val Thr Thr Asn Met Pro Val Thr Asn
385                 390                 395                 400
```

```
Arg Ile Asp Lys Gln Arg Asn Asp Gly Ile Ile Tyr Arg Ile Ser Val
                405                 410                 415

Val Ile Gln Asn Ile Leu Arg His Pro Glu Val Lys Val Gln Ser Lys
            420                 425                 430

Val Ala Glu Trp Leu Asn Ser Thr Phe Gln Asn Trp Asn Tyr Thr Val
        435                 440                 445

Tyr Val Val Asn Ile Ser Phe His Leu Ser Ala Gly Glu Asp Lys Ile
    450                 455                 460

Lys Val Lys Arg Ser Leu Glu Asp Glu Pro Arg Leu Val Leu Trp Ala
465                 470                 475                 480

Leu Leu Val Tyr Asn Ala Thr Asn Asn Thr Asn Leu Glu Gly Lys Ile
                485                 490                 495

Ile Gln Gln Lys Leu Leu Lys Asn Asn Glu Ser Leu Asp Glu Gly Leu
            500                 505                 510

Arg Leu His Thr Val Asn Val Arg Gln Leu Gly His Cys Leu Ala Met
        515                 520                 525

Glu Glu Pro Lys Gly Tyr Tyr Trp Pro Ser Ile Gln Pro Ser Glu Tyr
    530                 535                 540

Val Leu Pro Cys Pro Asp Lys Pro Gly Phe Ser Ala Ser Arg Ile Cys
545                 550                 555                 560

Phe Tyr Asn Ala Thr Asn Pro Leu Val Thr Tyr Trp Gly Pro Val Asp
                565                 570                 575

Ile Ser Asn Cys Leu Lys Glu Ala Asn Glu Val Ala Asn Gln Ile Leu
            580                 585                 590

Asn Leu Thr Ala Asp Gly Gln Asn Leu Thr Ser Ala Asn Ile Thr Asn
        595                 600                 605

Ile Val Glu Gln Val Lys Arg Ile Val Asn Lys Glu Glu Asn Ile Asp
    610                 615                 620
```

```
Ile Thr Leu Gly Ser Thr Leu Met Asn Ile Phe Ser Asn Ile Leu Ser
625                 630                 635                 640

Ser Ser Asp Ser Asp Leu Leu Glu Ser Ser Ser Glu Ala Leu Lys Thr
                645                 650                 655

Ile Asp Glu Leu Ala Phe Lys Ile Asp Leu Asn Ser Thr Ser His Val
            660                 665                 670

Asn Ile Thr Thr Arg Asn Leu Ala Leu Ser Val Ser Ser Leu Leu Pro
        675                 680                 685

Gly Thr Asn Ala Ile Ser Asn Phe Ser Ile Gly Leu Pro Ser Asn Asn
    690                 695                 700

Glu Ser Tyr Phe Gln Met Asp Phe Glu Ser Gly Gln Val Asp Pro Leu
705                 710                 715                 720

Ala Ser Val Ile Leu Pro Pro Asn Leu Leu Glu Asn Leu Ser Pro Glu
                725                 730                 735

Asp Ser Val Leu Val Arg Arg Ala Gln Phe Thr Phe Phe Asn Lys Thr
            740                 745                 750

Gly Leu Phe Gln Asp Val Gly Pro Gln Arg Lys Thr Leu Val Ser Tyr
        755                 760                 765

Val Met Ala Cys Ser Ile Gly Asn Ile Thr Ile Gln Asn Leu Lys Asp
    770                 775                 780

Pro Val Gln Ile Lys Ile Lys His Thr Arg Thr Gln Glu Val His His
785                 790                 795                 800

Pro Ile Cys Ala Phe Trp Asp Leu Asn Lys Asn Lys Ser Phe Gly Gly
                805                 810                 815

Trp Asn Thr Ser Gly Cys Val Ala His Arg Asp Ser Asp Ala Ser Glu
            820                 825                 830

Thr Val Cys Leu Cys Asn His Phe Thr His Phe Gly Val Leu Met Asp
        835                 840                 845
```

```
Leu Pro Arg Ser Ala Ser Gln Leu Asp Ala Arg Asn Thr Lys Val Leu
    850                 855                 860

Thr Phe Ile Ser Tyr Ile Gly Cys Gly Ile Ser Ala Ile Phe Ser Ala
865                 870                 875                 880

Ala Thr Leu Leu Thr Tyr Val Ala Phe Glu Lys Leu Arg Arg Asp Tyr
                885                 890                 895

Pro Ser Lys Ile Leu Met Asn Leu Ser Thr Ala Leu Leu Phe Leu Asn
            900                 905                 910

Leu Leu Phe Leu Leu Asp Gly Trp Ile Thr Ser Phe Asn Val Asp Gly
        915                 920                 925

Leu Cys Ile Ala Val Ala Val Leu Leu His Phe Phe Leu Leu Ala Thr
    930                 935                 940

Phe Thr Trp Met Gly Leu Glu Ala Ile His Met Tyr Ile Ala Leu Val
945                 950                 955                 960

Lys Val Phe Asn Thr Tyr Ile Arg Arg Tyr Ile Leu Lys Phe Cys Ile
                965                 970                 975

Ile Gly Trp Gly Leu Pro Ala Leu Val Val Ser Val Val Leu Ala Ser
            980                 985                 990

Arg Asn Asn Asn Glu Val Tyr Gly  Lys Glu Ser Tyr Gly  Lys Glu
Lys
        995                 1000                1005

Gly Asp  Glu Phe Cys Trp Ile  Gln Asp Pro Val Ile  Phe Tyr Val
    1010                1015                1020

Thr Cys  Ala Gly Tyr Phe Gly  Val Met Phe Phe Leu  Asn Ile Ala
    1025                1030                1035

Met Phe  Ile Val Val Met Val  Gln Ile Cys Gly Arg  Asn Gly Lys
    1040                1045                1050

Arg Ser  Asn Arg Thr Leu Arg  Glu Glu Val Leu Arg  Asn Leu Arg
    1055                1060                1065
```

```
Ser Val  Val Ser Leu Thr Phe  Leu Leu Gly Met Thr  Trp Gly Phe
    1070                1075                1080

Ala Phe  Phe Ala Trp Gly Pro  Leu Asn Ile Pro Phe  Met Tyr Leu
    1085                1090                1095

Phe Ser  Ile Phe Asn Ser Leu  Gln Gly Leu Phe Ile  Phe Ile Phe
    1100                1105                1110

His Cys  Ala Met Lys Glu Asn  Val Gln Lys Gln Trp  Arg Gln His
    1115                1120                1125

Leu Cys  Cys Gly Arg Phe Arg  Leu Ala Asp Asn Ser  Asp Trp Ser
    1130                1135                1140

Lys Thr  Ala Thr Asn Ile Ile  Lys Lys Ser Ser Asp  Asn Leu Gly
    1145                1150                1155

Lys Ser  Leu Ser Ser Ser Ser  Ile Gly Ser Asn Ser  Thr Tyr Leu
    1160                1165                1170

Thr Ser  Lys Ser Lys Ser Ser  Ser Thr Thr Tyr Phe  Lys Arg Asn
    1175                1180                1185

Ser His  Thr Asp Asn Val Ser  Tyr Glu His Ser Phe  Asn Lys Ser
    1190                1195                1200

Gly Ser  Leu Arg Gln Cys Phe  His Gly Gln Val Leu  Val Lys Thr
    1205                1210                1215

Gly Pro  Cys
    1220


<210> 3091
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Met Met Phe Arg Ser Asp Arg Met Trp Ser Cys His Trp Lys Trp Lys
1 5 10 15

Pro Ser Pro Leu Leu Phe Leu Phe Ala Leu Tyr Ile Met Cys Val Pro
20 25 30

His Ser Val Trp Gly Cys Ala Asn Cys Arg Val Val Leu Ser Asn Pro
35 40 45

Ser Gly Thr Phe Thr Ser Pro Cys Tyr Pro Asn Asp Tyr Pro Asn Ser
50 55 60

Gln Ala Cys Met Trp Thr Leu Arg Ala Pro Thr Gly Tyr Ile Ile Gln
65 70 75 80

Ile Thr Phe Asn Asp Phe Asp Ile Glu Glu Ala Pro Asn Cys Ile Tyr
85 90 95

Asp Ser Leu Ser Leu Asp Asn Gly Glu Ser Gln Thr Lys Phe Cys Gly
100 105 110

Ala Thr Ala Lys Gly Leu Ser Phe Asn Ser Ser Ala Asn Glu Met His
115 120 125

Val Ser Phe Ser Ser Asp Phe Ser Ile Gln Lys Lys Gly Phe Asn Ala
130 135 140

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

Pro Gln Thr Ser Asp Ala Tyr Gln Val Ser Val Ala Lys Ser Ile Ser
165 170 175

```
Ile Pro Glu Leu Ser Ala Phe Thr Leu Cys Phe Glu Ala Thr Lys Val
            180                 185                 190

Gly His Glu Asp Ser Asp Trp Thr Ala Phe Ser Tyr Ser Asn Ala Ser
        195                 200                 205

Phe Thr Gln Leu Leu Ser Phe Gly Lys Ala Lys Ser Gly Tyr Phe Leu
    210                 215                 220

Ser Ile Ser Asp Ser Lys Cys Leu Leu Asn Asn Ala Leu Pro Val Lys
225                 230                 235                 240

Glu Lys Glu Asp Ile Phe Ala Glu Ser Phe Glu Gln Leu Cys Leu Val
                245                 250                 255

Trp Asn Asn Ser Leu Gly Ser Ile Gly Val Asn Phe Lys Arg Asn Tyr
            260                 265                 270

Glu Thr Val Pro Cys Asp Ser Thr Ile Ser Lys Val Ile Pro Gly Asn
        275                 280                 285

Gly Lys Leu Leu Leu Gly Ser Asn Gln Asn Glu Ile Val Ser Leu Lys
    290                 295                 300

Gly Asp Ile Tyr Asn Phe Arg Leu Trp Asn Phe Thr Met Asn Ala Lys
305                 310                 315                 320

Ile Leu Ser Asn Leu Ser Cys Asn Val Lys Gly Asn Val Val Asp Trp
                325                 330                 335

Gln Asn Asp Phe Trp Asn Ile Pro Asn Leu Ala Leu Lys Ala Glu Ser
            340                 345                 350

Asn Leu Ser Cys Gly Ser Tyr Leu Ile Pro Leu Pro Ala Ala Glu Leu
        355                 360                 365

Ala Ser Cys Ala Asp Leu Gly Thr Leu Cys Gln Asp Gly Ile Ile Tyr
    370                 375                 380

Arg Ile Ser Val Val Ile Gln Asn Ile Leu Arg His Pro Glu Val Lys
385                 390                 395                 400
```

```
Val Gln Ser Lys Val Ala Glu Trp Leu Asn Ser Thr Phe Gln Asn Trp
                405                 410                 415

Asn Tyr Thr Val Tyr Val Val Asn Ile Ser Phe His Leu Ser Ala Gly
            420                 425                 430

Glu Asp Lys Ile Lys Val Lys Arg Ser Leu Glu Asp Glu Pro Arg Leu
        435                 440                 445

Val Leu Trp Ala Leu Leu Val Tyr Asn Ala Thr Asn Asn Thr Asn Leu
    450                 455                 460

Glu Gly Lys Ile Ile Gln Gln Lys Leu Leu Lys Asn Asn Glu Ser Leu
465                 470                 475                 480

Asp Glu Gly Leu Arg Leu His Thr Val Asn Val Arg Gln Leu Gly His
                485                 490                 495

Cys Leu Ala Met Glu Glu Pro Lys Gly Tyr Tyr Trp Pro Ser Ile Gln
            500                 505                 510

Pro Ser Glu Tyr Val Leu Pro Cys Pro Asp Lys Pro Gly Phe Ser Ala
        515                 520                 525

Ser Arg Ile Cys Phe Tyr Asn Ala Thr Asn Pro Leu Val Thr Tyr Trp
    530                 535                 540

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

Asn Gln Ile Leu Asn Leu Thr Ala Asp Gly Gln Asn Leu Thr Ser Ala
                565                 570                 575

Asn Ile Thr Asn Ile Val Glu Gln Val Lys Arg Ile Val Asn Lys Glu
            580                 585                 590

Glu Asn Ile Asp Ile Thr Leu Gly Ser Thr Leu Met Asn Ile Phe Ser
        595                 600                 605

Asn Ile Leu Ser Ser Ser Asp Ser Asp Leu Leu Glu Ser Ser Ser Glu
    610                 615                 620

Ala Leu Lys Thr Ile Asp Glu Leu Ala Phe Lys Ile Asp Leu Asn Ser
```

625 630 635 640

Thr Ser His Val Asn Ile Thr Thr Arg Asn Leu Ala Leu Ser Val Ser
645 650 655

Ser Leu Leu Pro Gly Thr Asn Ala Ile Ser Asn Phe Ser Ile Gly Leu
660 665 670

Pro Ser Asn Asn Glu Ser Tyr Phe Gln Met Asp Phe Glu Ser Gly Gln
675 680 685

Val Asp Pro Leu Ala Ser Val Ile Leu Pro Pro Asn Leu Leu Glu Asn
690 695 700

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

Phe Asn Lys Thr Gly Leu Phe Gln Asp Val Gly Pro Gln Arg Lys Thr
725 730 735

Leu Val Ser Tyr Val Met Ala Cys Ser Ile Gly Asn Ile Thr Ile Gln
740 745 750

Asn Leu Lys Asp Pro Val Gln Ile Lys Ile Lys His Thr Arg Thr Gln
755 760 765

Glu Val His His Pro Ile Cys Ala Phe Trp Asp Leu Asn Lys Asn Lys
770 775 780

Ser Phe Gly Gly Trp Asn Thr Ser Gly Cys Val Ala His Arg Asp Ser
785 790 795 800

Asp Ala Ser Glu Thr Val Cys Leu Cys Asn His Phe Thr His Phe Gly
805 810 815

Val Leu Met Asp Leu Pro Arg Ser Ala Ser Gln Leu Asp Ala Arg Asn
820 825 830

Thr Lys Val Leu Thr Phe Ile Ser Tyr Ile Gly Cys Gly Ile Ser Ala
835 840 845

Ile Phe Ser Ala Ala Thr Leu Leu Thr Tyr Val Ala Phe Glu Lys Leu
850 855 860

```
Arg Arg Asp Tyr Pro Ser Lys Ile Leu Met Asn Leu Ser Thr Ala Leu
865                 870                 875                 880

Leu Phe Leu Asn Leu Leu Phe Leu Leu Asp Gly Trp Ile Thr Ser Phe
                885                 890                 895

Asn Val Asp Gly Leu Cys Ile Ala Val Ala Val Leu Leu His Phe Phe
            900                 905                 910

Leu Leu Ala Thr Phe Thr Trp Met Gly Leu Glu Ala Ile His Met Tyr
        915                 920                 925

Ile Ala Leu Val Lys Val Phe Asn Thr Tyr Ile Arg Arg Tyr Ile Leu
    930                 935                 940

Lys Phe Cys Ile Ile Gly Trp Gly Leu Pro Ala Leu Val Val Ser Val
945                 950                 955                 960

Val Leu Ala Ser Arg Asn Asn Asn Glu Val Tyr Gly Lys Glu Ser Tyr
                965                 970                 975

Gly Lys Glu Lys Gly Asp Glu Phe Cys Trp Ile Gln Asp Pro Val Ile
            980                 985                 990

Phe Tyr Val Thr Cys Ala Gly Tyr  Phe Gly Val Met Phe  Phe Leu
Asn
        995                 1000                1005

Ile Ala  Met Phe Ile Val Val  Met Val Gln Ile Cys  Gly Arg Asn
    1010                1015                1020

Gly Lys  Arg Ser Asn Arg Thr  Leu Arg Glu Glu Val  Leu Arg Asn
    1025                1030                1035

Leu Arg  Ser Val Val Ser Leu  Thr Phe Leu Leu Gly  Met Thr Trp
    1040                1045                1050

Gly Phe  Ala Phe Phe Ala Trp  Gly Pro Leu Asn Ile  Pro Phe Met
    1055                1060                1065

Tyr Leu  Phe Ser Ile Phe Asn  Ser Leu Gln Gly Leu  Phe Ile Phe
    1070                1075                1080
```

```
Ile Phe  His Cys Ala Met Lys  Glu Asn Val Gln Lys  Gln Trp Arg
    1085                1090                1095

Gln His  Leu Cys Cys Gly Arg  Phe Arg Leu Ala Asp  Asn Ser Asp
    1100                1105                1110

Trp Ser  Lys Thr Ala Thr Asn  Ile Ile Lys Lys Ser  Ser Asp Asn
    1115                1120                1125

Leu Gly  Lys Ser Leu Ser Ser  Ser Ser Ile Gly Ser  Asn Ser Thr
    1130                1135                1140

Tyr Leu  Thr Ser Lys Ser Lys  Ser Ser Ser Thr Thr  Tyr Phe Lys
    1145                1150                1155

Arg Asn  Ser His Thr Asp Asn  Val Ser Tyr Glu His  Ser Phe Asn
    1160                1165                1170

Lys Ser  Gly Ser Leu Arg Gln  Cys Phe His Gly Gln  Val Leu Val
    1175                1180                1185

Lys Thr  Gly Pro Cys
    1190


<210> 3092
<211> 1222
<212> PRT
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<220>
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Met Met Phe Arg Ser Asp Arg Met Trp Ser Cys His Trp Lys Trp Lys
1 5 10 15

Pro Ser Pro Leu Leu Phe Leu Phe Ala Leu Tyr Ile Met Cys Val Pro
20 25 30

His Ser Val Trp Gly Cys Ala Asn Cys Arg Val Val Leu Ser Asn Pro
35 40 45

Ser Gly Thr Phe Thr Ser Pro Cys Tyr Pro Asn Asp Tyr Pro Asn Ser
50 55 60

Gln Ala Cys Met Trp Thr Leu Arg Ala Pro Thr Gly Tyr Ile Ile Gln
65 70 75 80

Ile Thr Phe Asn Asp Phe Asp Ile Glu Glu Ala Pro Asn Cys Ile Tyr
85 90 95

Asp Ser Leu Ser Leu Asp Asn Gly Glu Ser Gln Thr Lys Phe Cys Gly
100 105 110

Ala Thr Ala Lys Gly Leu Ser Phe Asn Ser Ser Ala Asn Glu Met His
115 120 125

Val Ser Phe Ser Ser Asp Phe Ser Ile Gln Lys Lys Gly Phe Asn Ala
130 135 140

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

Pro Gln Thr Ser Asp Ala Tyr Gln Val Ser Val Ala Lys Ser Ile Ser
165 170 175

Ile Pro Glu Leu Ser Ala Phe Thr Leu Cys Phe Glu Ala Thr Lys Val
180 185 190

Gly His Glu Asp Ser Asp Trp Thr Ala Phe Ser Tyr Ser Asn Ala Ser
195 200 205

Phe Thr Gln Leu Leu Ser Phe Gly Lys Ala Lys Ser Gly Tyr Phe Leu

```
    210                 215                 220

Ser Ile Ser Asp Ser Lys Cys Leu Leu Asn Asn Ala Leu Pro Val Lys
225                 230                 235                 240

Glu Lys Glu Asp Ile Phe Ala Glu Ser Phe Glu Gln Leu Cys Leu Val
                245                 250                 255

Trp Asn Asn Ser Leu Gly Ser Ile Gly Val Asn Phe Lys Arg Asn Tyr
            260                 265                 270

Glu Thr Val Pro Cys Asp Ser Thr Ile Ser Lys Val Ile Pro Gly Asn
        275                 280                 285

Gly Lys Leu Leu Leu Gly Ser Asn Gln Asn Glu Ile Val Ser Leu Lys
    290                 295                 300

Gly Asp Ile Tyr Asn Phe Arg Leu Trp Asn Phe Thr Met Asn Ala Lys
305                 310                 315                 320

Ile Leu Ser Asn Leu Ser Cys Asn Val Lys Gly Asn Val Val Asp Trp
                325                 330                 335

Gln Asn Asp Phe Trp Asn Ile Pro Asn Leu Ala Leu Lys Ala Glu Ser
            340                 345                 350

Asn Leu Ser Cys Gly Ser Tyr Leu Ile Pro Leu Pro Ala Ala Glu Leu
        355                 360                 365

Ala Ser Cys Ala Asp Leu Gly Thr Leu Cys Gln Asp Gly Ile Ile Tyr
    370                 375                 380

Arg Ile Ser Val Val Ile Gln Asn Ile Leu Arg His Pro Glu Val Lys
385                 390                 395                 400

Val Gln Ser Lys Val Ala Glu Trp Leu Asn Ser Thr Phe Gln Asn Trp
                405                 410                 415

Asn Tyr Thr Val Tyr Val Val Asn Ile Ser Phe His Leu Ser Ala Gly
            420                 425                 430

Glu Asp Lys Ile Lys Val Lys Arg Ser Leu Glu Asp Glu Pro Arg Leu
        435                 440                 445
```

```
Val Leu Trp Ala Leu Leu Val Tyr Asn Ala Thr Asn Asn Thr Asn Leu
    450                 455                 460

Glu Gly Lys Ile Ile Gln Gln Lys Leu Leu Lys Asn Asn Glu Ser Leu
465                 470                 475                 480

Asp Glu Gly Leu Arg Leu His Thr Val Asn Val Arg Gln Leu Gly His
                485                 490                 495

Cys Leu Ala Met Glu Glu Pro Lys Gly Tyr Tyr Trp Pro Ser Ile Gln
            500                 505                 510

Pro Ser Glu Tyr Val Leu Pro Cys Pro Asp Lys Pro Gly Phe Ser Ala
        515                 520                 525

Ser Arg Ile Cys Phe Tyr Asn Ala Thr Asn Pro Leu Val Thr Tyr Trp
    530                 535                 540

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

Asn Gln Ile Leu Asn Leu Thr Ala Asp Gly Gln Asn Leu Thr Ser Ala
                565                 570                 575

Asn Ile Thr Asn Ile Val Glu Gln Val Lys Arg Ile Val Asn Lys Glu
            580                 585                 590

Glu Asn Ile Asp Ile Thr Leu Gly Ser Thr Leu Met Asn Ile Phe Ser
        595                 600                 605

Asn Ile Leu Ser Ser Ser Asp Ser Asp Leu Leu Glu Ser Ser Ser Glu
    610                 615                 620

Ala Leu Lys Thr Ile Asp Glu Leu Ala Phe Lys Ile Asp Leu Asn Ser
625                 630                 635                 640

Thr Ser His Val Asn Ile Thr Thr Arg Asn Leu Ala Leu Ser Val Ser
                645                 650                 655

Ser Leu Leu Pro Gly Thr Asn Ala Ile Ser Asn Phe Ser Ile Gly Leu
            660                 665                 670
```

```
Pro Ser Asn Asn Glu Ser Tyr Phe Gln Met Asp Phe Glu Ser Gly Gln
        675                 680                 685

Val Asp Pro Leu Ala Ser Val Ile Leu Pro Pro Asn Leu Leu Glu Asn
    690                 695                 700

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

Phe Asn Lys Thr Gly Leu Phe Gln Asp Val Gly Pro Gln Arg Lys Thr
                725                 730                 735

Leu Val Ser Tyr Val Met Ala Cys Ser Ile Gly Asn Ile Thr Ile Gln
            740                 745                 750

Asn Leu Lys Asp Pro Val Gln Ile Lys Ile Lys His Thr Arg Thr Gln
        755                 760                 765

Glu Val His His Pro Ile Cys Ala Phe Trp Asp Leu Asn Lys Asn Lys
    770                 775                 780

Ser Phe Gly Gly Trp Asn Thr Ser Gly Cys Val Ala His Arg Asp Ser
785                 790                 795                 800

Asp Ala Ser Glu Thr Val Cys Leu Cys Asn His Phe Thr His Phe Gly
                805                 810                 815

Val Leu Met Asp Leu Pro Arg Ser Ala Ser Gln Leu Asp Ala Arg Asn
            820                 825                 830

Thr Lys Val Leu Thr Phe Ile Ser Tyr Ile Gly Cys Gly Ile Ser Ala
        835                 840                 845

Ile Phe Ser Ala Ala Thr Leu Leu Thr Tyr Val Ala Phe Glu Lys Leu
    850                 855                 860

Arg Arg Asp Tyr Pro Ser Lys Ile Leu Met Asn Leu Ser Thr Ala Leu
865                 870                 875                 880

Leu Phe Leu Asn Leu Leu Phe Leu Leu Asp Gly Trp Ile Thr Ser Phe
                885                 890                 895
```

```
Asn Val Asp Gly Leu Cys Ile Ala Val Ala Val Leu Leu His Phe Phe
            900                 905                 910

Leu Leu Ala Thr Phe Thr Trp Met Gly Leu Glu Ala Ile His Met Tyr
        915                 920                 925

Ile Ala Leu Val Lys Val Phe Asn Thr Tyr Ile Arg Arg Tyr Ile Leu
    930                 935                 940

Lys Phe Cys Ile Ile Gly Trp Gly Leu Pro Ala Leu Val Val Ser Val
945                 950                 955                 960

Val Leu Ala Ser Arg Asn Asn Asn Glu Val Tyr Gly Lys Glu Ser Tyr
                965                 970                 975

Gly Lys Glu Lys Gly Asp Glu Phe Cys Trp Ile Gln Asp Pro Val Ile
            980                 985                 990

Phe Tyr Val Thr Cys Ala Gly Tyr  Phe Gly Val Met Phe  Phe Leu
Asn
        995                 1000                1005

Ile Ala  Met Phe Ile Val Val  Met Val Gln Ile Cys  Gly Arg Asn
    1010                1015                1020

Gly Lys  Arg Ser Asn Arg Thr  Leu Arg Glu Glu Val  Leu Arg Asn
    1025                1030                1035

Leu Arg  Ser Val Val Ser Leu  Thr Phe Leu Leu Gly  Met Thr Trp
    1040                1045                1050

Gly Phe  Ala Phe Phe Ala Trp  Gly Pro Leu Asn Ile  Pro Phe Met
    1055                1060                1065

Tyr Leu  Phe Ser Ile Phe Asn  Ser Leu Gln Gly Leu  Phe Ile Phe
    1070                1075                1080

Ile Phe  His Cys Ala Met Lys  Glu Asn Val Gln Lys  Gln Trp Arg
    1085                1090                1095

Gln His  Leu Cys Cys Gly Arg  Phe Arg Leu Ala Asp  Asn Ser Asp
    1100                1105                1110
```

```
Trp Ser  Lys Thr Ala Thr Asn  Ile Ile Lys Lys Ser  Ser Asp Asn
    1115                1120                1125

Leu Gly  Lys Ser Leu Ser Ser  Ser Ser Ile Gly Ser  Asn Ser Thr
    1130                1135                1140

Tyr Leu  Thr Ser Lys Ser Lys  Ser Ser Ser Thr Thr  Tyr Phe Lys
    1145                1150                1155

Arg Asn  Ser His Thr Asp Ser  Ala Ser Met Asp Lys  Ser Leu Ser
    1160                1165                1170

Lys Leu  Ala His Ala Asp Gly  Asp Gln Thr Ser Ile  Ile Pro Val
    1175                1180                1185

His Gln  Val Ile Asp Lys Val  Lys Gly Tyr Cys Asn  Ala His Ser
    1190                1195                1200

Asp Asn  Phe Tyr Lys Asn Ile  Ile Met Ser Asp Thr  Phe Ser His
    1205                1210                1215

Ser Thr  Lys Phe
    1220


<210> 3093
<211> 1250
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 693; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG6; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor G6; "

<220>
<221> source
<223> /note="Uniprot ID:  Q86SQ4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356581"
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<400> 3093
Met Met Phe Arg Ser Asp Arg Met Trp Ser Cys His Trp Lys Trp Lys
1 5 10 15

Pro Ser Pro Leu Leu Phe Leu Phe Ala Leu Tyr Ile Met Cys Val Pro
20 25 30

His Ser Val Trp Gly Cys Ala Asn Cys Arg Val Val Leu Ser Asn Pro
35 40 45

Ser Gly Thr Phe Thr Ser Pro Cys Tyr Pro Asn Asp Tyr Pro Asn Ser
50 55 60

Gln Ala Cys Met Trp Thr Leu Arg Ala Pro Thr Gly Tyr Ile Ile Gln
65 70 75 80

Ile Thr Phe Asn Asp Phe Asp Ile Glu Glu Ala Pro Asn Cys Ile Tyr
85 90 95

Asp Ser Leu Ser Leu Asp Asn Gly Glu Ser Gln Thr Lys Phe Cys Gly
100 105 110

Ala Thr Ala Lys Gly Leu Ser Phe Asn Ser Ser Ala Asn Glu Met His
115 120 125

Val Ser Phe Ser Ser Asp Phe Ser Ile Gln Lys Lys Gly Phe Asn Ala
130 135 140

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

Pro Gln Thr Ser Asp Ala Tyr Gln Val Ser Val Ala Lys Ser Ile Ser
165 170 175

Ile Pro Glu Leu Ser Ala Phe Thr Leu Cys Phe Glu Ala Thr Lys Val
180 185 190

Gly His Glu Asp Ser Asp Trp Thr Ala Phe Ser Tyr Ser Asn Ala Ser
195 200 205

Phe Thr Gln Leu Leu Ser Phe Gly Lys Ala Lys Ser Gly Tyr Phe Leu
210 215 220

```
Ser Ile Ser Asp Ser Lys Cys Leu Leu Asn Asn Ala Leu Pro Val Lys
225                 230                 235                 240

Glu Lys Glu Asp Ile Phe Ala Glu Ser Phe Glu Gln Leu Cys Leu Val
                245                 250                 255

Trp Asn Asn Ser Leu Gly Ser Ile Gly Val Asn Phe Lys Arg Asn Tyr
            260                 265                 270

Glu Thr Val Pro Cys Asp Ser Thr Ile Ser Lys Val Ile Pro Gly Asn
        275                 280                 285

Gly Lys Leu Leu Leu Gly Ser Asn Gln Asn Glu Ile Val Ser Leu Lys
    290                 295                 300

Gly Asp Ile Tyr Asn Phe Arg Leu Trp Asn Phe Thr Met Asn Ala Lys
305                 310                 315                 320

Ile Leu Ser Asn Leu Ser Cys Asn Val Lys Gly Asn Val Val Asp Trp
                325                 330                 335

Gln Asn Asp Phe Trp Asn Ile Pro Asn Leu Ala Leu Lys Ala Glu Ser
            340                 345                 350

Asn Leu Ser Cys Gly Ser Tyr Leu Ile Pro Leu Pro Ala Ala Glu Leu
        355                 360                 365

Ala Ser Cys Ala Asp Leu Gly Thr Leu Cys Gln Ala Thr Val Asn Ser
    370                 375                 380

Pro Ser Thr Thr Pro Pro Thr Val Thr Thr Asn Met Pro Val Thr Asn
385                 390                 395                 400

Arg Ile Asp Lys Gln Arg Asn Asp Gly Ile Ile Tyr Arg Ile Ser Val
                405                 410                 415

Val Ile Gln Asn Ile Leu Arg His Pro Glu Val Lys Val Gln Ser Lys
            420                 425                 430

Val Ala Glu Trp Leu Asn Ser Thr Phe Gln Asn Trp Asn Tyr Thr Val
        435                 440                 445
```

```
Tyr Val Val Asn Ile Ser Phe His Leu Ser Ala Gly Glu Asp Lys Ile
    450                 455                 460

Lys Val Lys Arg Ser Leu Glu Asp Glu Pro Arg Leu Val Leu Trp Ala
465                 470                 475                 480

Leu Leu Val Tyr Asn Ala Thr Asn Asn Thr Asn Leu Glu Gly Lys Ile
                485                 490                 495

Ile Gln Gln Lys Leu Leu Lys Asn Asn Glu Ser Leu Asp Glu Gly Leu
            500                 505                 510

Arg Leu His Thr Val Asn Val Arg Gln Leu Gly His Cys Leu Ala Met
        515                 520                 525

Glu Glu Pro Lys Gly Tyr Tyr Trp Pro Ser Ile Gln Pro Ser Glu Tyr
    530                 535                 540

Val Leu Pro Cys Pro Asp Lys Pro Gly Phe Ser Ala Ser Arg Ile Cys
545                 550                 555                 560

Phe Tyr Asn Ala Thr Asn Pro Leu Val Thr Tyr Trp Gly Pro Val Asp
                565                 570                 575

Ile Ser Asn Cys Leu Lys Glu Ala Asn Glu Val Ala Asn Gln Ile Leu
            580                 585                 590

Asn Leu Thr Ala Asp Gly Gln Asn Leu Thr Ser Ala Asn Ile Thr Asn
        595                 600                 605

Ile Val Glu Gln Val Lys Arg Ile Val Asn Lys Glu Glu Asn Ile Asp
    610                 615                 620

Ile Thr Leu Gly Ser Thr Leu Met Asn Ile Phe Ser Asn Ile Leu Ser
625                 630                 635                 640

Ser Ser Asp Ser Asp Leu Leu Glu Ser Ser Ser Glu Ala Leu Lys Thr
                645                 650                 655

Ile Asp Glu Leu Ala Phe Lys Ile Asp Leu Asn Ser Thr Ser His Val
            660                 665                 670

Asn Ile Thr Thr Arg Asn Leu Ala Leu Ser Val Ser Ser Leu Leu Pro
```

675 680 685

Gly Thr Asn Ala Ile Ser Asn Phe Ser Ile Gly Leu Pro Ser Asn Asn
690 695 700

Glu Ser Tyr Phe Gln Met Asp Phe Glu Ser Gly Gln Val Asp Pro Leu
705 710 715 720

Ala Ser Val Ile Leu Pro Pro Asn Leu Leu Glu Asn Leu Ser Pro Glu
725 730 735

Asp Ser Val Leu Val Arg Arg Ala Gln Phe Thr Phe Phe Asn Lys Thr
740 745 750

Gly Leu Phe Gln Asp Val Gly Pro Gln Arg Lys Thr Leu Val Ser Tyr
755 760 765

Val Met Ala Cys Ser Ile Gly Asn Ile Thr Ile Gln Asn Leu Lys Asp
770 775 780

Pro Val Gln Ile Lys Ile Lys His Thr Arg Thr Gln Glu Val His His
785 790 795 800

Pro Ile Cys Ala Phe Trp Asp Leu Asn Lys Asn Lys Ser Phe Gly Gly
805 810 815

Trp Asn Thr Ser Gly Cys Val Ala His Arg Asp Ser Asp Ala Ser Glu
820 825 830

Thr Val Cys Leu Cys Asn His Phe Thr His Phe Gly Val Leu Met Asp
835 840 845

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

Thr Phe Ile Ser Tyr Ile Gly Cys Gly Ile Ser Ala Ile Phe Ser Ala
865 870 875 880

Ala Thr Leu Leu Thr Tyr Val Ala Phe Glu Lys Leu Arg Arg Asp Tyr
885 890 895

Pro Ser Lys Ile Leu Met Asn Leu Ser Thr Ala Leu Leu Phe Leu Asn
900 905 910

```
Leu Leu Phe Leu Leu Asp Gly Trp Ile Thr Ser Phe Asn Val Asp Gly
        915                 920                 925

Leu Cys Ile Ala Val Ala Val Leu Leu His Phe Phe Leu Leu Ala Thr
    930                 935                 940

Phe Thr Trp Met Gly Leu Glu Ala Ile His Met Tyr Ile Ala Leu Val
945                 950                 955                 960

Lys Val Phe Asn Thr Tyr Ile Arg Arg Tyr Ile Leu Lys Phe Cys Ile
                965                 970                 975

Ile Gly Trp Gly Leu Pro Ala Leu Val Val Ser Val Val Leu Ala Ser
            980                 985                 990

Arg Asn Asn Asn Glu Val Tyr Gly  Lys Glu Ser Tyr Gly  Lys Glu
Lys
        995                 1000                1005

Gly Asp  Glu Phe Cys Trp Ile  Gln Asp Pro Val Ile  Phe Tyr Val
    1010                1015                1020

Thr Cys  Ala Gly Tyr Phe Gly  Val Met Phe Phe Leu  Asn Ile Ala
    1025                1030                1035

Met Phe  Ile Val Val Met Val  Gln Ile Cys Gly Arg  Asn Gly Lys
    1040                1045                1050

Arg Ser  Asn Arg Thr Leu Arg  Glu Glu Val Leu Arg  Asn Leu Arg
    1055                1060                1065

Ser Val  Val Ser Leu Thr Phe  Leu Leu Gly Met Thr  Trp Gly Phe
    1070                1075                1080

Ala Phe  Phe Ala Trp Gly Pro  Leu Asn Ile Pro Phe  Met Tyr Leu
    1085                1090                1095

Phe Ser  Ile Phe Asn Ser Leu  Gln Gly Leu Phe Ile  Phe Ile Phe
    1100                1105                1110

His Cys  Ala Met Lys Glu Asn  Val Gln Lys Gln Trp  Arg Gln His
    1115                1120                1125
```

```
Leu Cys  Cys Gly Arg Phe Arg  Leu Ala Asp Asn Ser  Asp Trp Ser
    1130                1135                1140

Lys Thr  Ala Thr Asn Ile Ile  Lys Lys Ser Ser Asp  Asn Leu Gly
    1145                1150                1155

Lys Ser  Leu Ser Ser Ser Ser  Ile Gly Ser Asn Ser  Thr Tyr Leu
    1160                1165                1170

Thr Ser  Lys Ser Lys Ser Ser  Ser Thr Thr Tyr Phe  Lys Arg Asn
    1175                1180                1185

Ser His  Thr Asp Ser Ala Ser  Met Asp Lys Ser Leu  Ser Lys Leu
    1190                1195                1200

Ala His  Ala Asp Gly Asp Gln  Thr Ser Ile Ile Pro  Val His Gln
    1205                1210                1215

Val Ile  Asp Lys Val Lys Gly  Tyr Cys Asn Ala His  Ser Asp Asn
    1220                1225                1230

Phe Tyr  Lys Asn Ile Ile Met  Ser Asp Thr Phe Ser  His Ser Thr
    1235                1240                1245

Lys Phe
    1250


<210> 3094
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 693; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG6; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor G6; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000438366"

<400> 3094
Met Phe Arg Ser Asp Arg Met Trp Ser Cys His Trp Lys Trp Lys Pro
1   5   10   15

Ser Pro Leu Leu Phe Leu Phe Ala Leu Tyr Ile Met Cys Val Pro His
            20   25   30

Ser Ala Val Trp Gly Cys Ala Asn Cys Arg Val Val Leu Ser Asn Pro
        35   40   45

Ser Gly Thr Phe Thr Ser Pro Cys Tyr Pro Asn Asp Tyr Pro Asn Ser
    50   55   60

Gln Ala Cys Met Trp Thr Leu Arg Ala Pro Thr Gly Tyr Ile Ile Gln
65   70   75   80

Ile Thr Phe Asn Asp Phe Asp Ile Glu Glu Ala Pro Asn Cys Ile Tyr
                85   90   95

Asp Ser Leu Ser Leu Asp Asn Gly Glu Ser Gln Thr Lys Phe Cys Gly
            100   105   110

Ala Thr Ala Lys Gly Leu Ser Phe Asn Ser Ser Ala Asn Glu Met His
        115   120   125

Val Ser Phe Ser Ser Asp Phe Ser Ile Gln Lys Lys Gly
    130   135   140

<210> 3095
<211> 103
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 693; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG6; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor G6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439371"

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

<400> 3095
Xaa Leu Gly Ser Thr Leu Met Asn Ile Phe Ser Asn Ile Leu Ser Ser
1 5 10 15

Ser Asp Ser Asp Leu Leu Glu Ser Ser Ser Glu Ala Leu Lys Thr Ile
20 25 30

Asp Glu Leu Ala Phe Lys Ile Asp Leu Asn Ser Thr Ser His Val Asn
35 40 45

Ile Thr Thr Arg Asn Leu Ala Leu Ser Val Ser Ser Leu Leu Pro Gly
50 55 60

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

Ser Tyr Phe Gln Leu Leu Ser Phe Thr Thr Cys Phe Glu Lys Thr Ser
85 90 95

Lys Ser Ala Ala Asp Gly Phe
100

<210> 3096
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 693; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG6; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000444123"

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

<400> 3096
Xaa Val Lys Val Gln Ser Lys Val Ala Glu Trp Leu Asn Ser Thr Phe
1 5 10 15

Gln Asn Trp Asn Tyr Thr Val Tyr Val Val Asn Ile Ser Phe His Leu
20 25 30

Ser Ala Gly Glu Asp Lys Ile Lys Val Lys Arg Ser Leu Glu Asp Glu
35 40 45

Pro Arg Leu Val Leu Trp Ala Leu Leu Val Tyr Asn Ala Thr Asn Asn
50 55 60

Thr Asn Leu Glu Gly Lys Ile Ile Gln Gln Lys Leu Leu Lys Asn Asn
65 70 75 80

Glu Ser Leu Asp Glu Gly Leu Arg Leu His Thr Val Asn Val Arg Gln
85 90 95

Leu Gly His Cys Leu Ala Met Glu Glu Pro Lys Gly Tyr Tyr Trp Pro
100 105 110

Ser Ile Gln Pro Ser Glu Tyr Val Leu Pro Cys Pro Asp Lys Pro Gly
115 120 125

Phe Ser Ala Ser Arg Ile Trp
130 135

<210> 3097
<211> 241
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 693; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG6; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446287"

<400> 3097

```
Met Phe Arg Ser Asp Arg Met Trp Ser Cys His Trp Lys Trp Lys Pro
1               5                  10                  15

Ser Pro Leu Leu Phe Leu Phe Ala Leu Tyr Ile Met Cys Val Pro His
            20                  25                  30

Ser Val Trp Gly Cys Ala Asn Cys Arg Val Val Leu Ser Asn Pro Ser
        35                  40                  45

Gly Thr Phe Thr Ser Pro Cys Tyr Pro Asn Asp Tyr Pro Asn Ser Gln
    50                  55                  60

Ala Cys Met Trp Thr Leu Arg Ala Pro Thr Gly Tyr Ile Ile Gln Ile
65                  70                  75                  80

Thr Phe Asn Asp Phe Asp Ile Glu Glu Ala Pro Asn Cys Ile Tyr Asp
                85                  90                  95

Ser Leu Ser Leu Asp Asn Gly Glu Ser Gln Thr Lys Phe Cys Gly Ala
            100                 105                 110

Thr Ala Lys Gly Leu Ser Phe Asn Ser Ser Ala Asn Glu Met His Val
        115                 120                 125

Ser Phe Ser Ser Asp Phe Ser Ile Gln Lys Lys Gly Phe Asn Ala Ser
    130                 135                 140

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

Gln Thr Ser Asp Ala Tyr Gln Val Ser Val Ala Lys Ser Ile Ser Ile
                165                 170                 175
```

```
Pro Glu Leu Ser Ala Phe Thr Leu Cys Phe Glu Ala Thr Lys Val Gly
            180                 185                 190

His Glu Asp Ser Asp Trp Thr Ala Phe Ser Tyr Ser Asn Ala Ser Phe
        195                 200                 205

Thr Gln Leu Leu Ser Phe Gly Lys Ala Lys Ser Gly Tyr Phe Leu Ser
    210                 215                 220

Ile Ser Asp Ser Lys Cys Leu Leu Asn Asn Ala Leu Pro Val Lys Glu
225                 230                 235                 240

Lys
```

<210> 3098
<211> 797
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 694; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRG7; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor G7; "

<220>
<221> source
<223> /note="Uniprot ID: Q96K78; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000273352"

<400> 3098

```
Met Ala Ser Cys Arg Ala Trp Asn Leu Arg Val Leu Val Ala Val Val
1               5                   10                  15

Cys Gly Leu Leu Thr Gly Ile Ile Leu Gly Leu Gly Ile Trp Arg Ile
            20                  25                  30

Val Ile Arg Ile Gln Arg Gly Lys Ser Thr Ser Ser Ser Ser Thr Pro
```

```
        35                  40                  45

Thr Glu Phe Cys Arg Asn Gly Gly Thr Trp Glu Asn Gly Arg Cys Ile
    50                  55                  60

Cys Thr Glu Glu Trp Lys Gly Leu Arg Cys Thr Ile Ala Asn Phe Cys
65                  70                  75                  80

Glu Asn Ser Thr Tyr Met Gly Phe Thr Phe Ala Arg Ile Pro Val Gly
                85                  90                  95

Arg Tyr Gly Pro Ser Leu Gln Thr Cys Gly Lys Asp Thr Pro Asn Ala
            100                 105                 110

Gly Asn Pro Met Ala Val Arg Leu Cys Ser Leu Ser Leu Tyr Gly Glu
        115                 120                 125

Ile Glu Leu Gln Lys Val Thr Ile Gly Asn Cys Asn Glu Asn Leu Glu
    130                 135                 140

Thr Leu Glu Lys Gln Val Lys Asp Val Thr Ala Pro Leu Asn Asn Ile
145                 150                 155                 160

Ser Ser Glu Val Gln Ile Leu Thr Ser Asp Ala Asn Lys Leu Thr Ala
                165                 170                 175

Glu Asn Ile Thr Ser Ala Thr Arg Val Val Gly Gln Ile Phe Asn Thr
            180                 185                 190

Ser Arg Asn Ala Ser Pro Glu Ala Lys Lys Val Ala Ile Val Thr Val
        195                 200                 205

Ser Gln Leu Leu Asp Ala Ser Glu Asp Ala Phe Gln Arg Val Ala Ala
    210                 215                 220

Thr Ala Asn Asp Asp Ala Leu Thr Thr Leu Ile Glu Gln Met Glu Thr
225                 230                 235                 240

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

Ile Gln Ser Ala Asn Phe Ser Ser Glu Asn Ala Val Gly Pro Ser Asn
            260                 265                 270
```

```
Val Arg Phe Ser Val Gln Lys Gly Ala Ser Ser Ser Leu Val Ser Ser
        275                 280                 285

Ser Thr Phe Ile His Thr Asn Val Asp Gly Leu Asn Pro Asp Ala Gln
    290                 295                 300

Thr Glu Leu Gln Val Leu Leu Asn Met Thr Lys Asn Tyr Thr Lys Thr
305                 310                 315                 320

Cys Gly Phe Val Val Tyr Gln Asn Asp Lys Leu Phe Gln Ser Lys Thr
                325                 330                 335

Phe Thr Ala Lys Ser Asp Phe Ser Gln Lys Ile Ile Ser Ser Lys Thr
            340                 345                 350

Asp Glu Asn Glu Gln Asp Gln Ser Ala Ser Val Asp Met Val Phe Ser
        355                 360                 365

Pro Lys Tyr Asn Gln Lys Glu Phe Gln Leu Tyr Ser Tyr Ala Cys Val
    370                 375                 380

Tyr Trp Asn Leu Ser Ala Lys Asp Trp Asp Thr Tyr Gly Cys Gln Lys
385                 390                 395                 400

Asp Lys Gly Thr Asp Gly Phe Leu Arg Cys Arg Cys Asn His Thr Thr
                405                 410                 415

Asn Phe Ala Val Leu Met Thr Phe Lys Lys Asp Tyr Gln Tyr Pro Lys
            420                 425                 430

Ser Leu Asp Ile Leu Ser Asn Val Gly Cys Ala Leu Ser Val Thr Gly
        435                 440                 445

Leu Ala Leu Thr Val Ile Phe Gln Ile Val Thr Arg Lys Val Arg Lys
    450                 455                 460

Thr Ser Val Thr Trp Val Leu Val Asn Leu Cys Ile Ser Met Leu Ile
465                 470                 475                 480

Phe Asn Leu Leu Phe Val Phe Gly Ile Glu Asn Ser Asn Lys Asn Leu
                485                 490                 495
```

```
Gln Thr Ser Asp Gly Asp Ile Asn Asn Ile Asp Phe Asp Asn Asn Asp
            500                 505                 510

Ile Pro Arg Thr Asp Thr Ile Asn Ile Pro Asn Pro Met Cys Thr Ala
        515                 520                 525

Ile Ala Ala Leu Leu His Tyr Phe Leu Leu Val Thr Phe Thr Trp Asn
    530                 535                 540

Ala Leu Ser Ala Ala Gln Leu Tyr Tyr Leu Leu Ile Arg Thr Met Lys
545                 550                 555                 560

Pro Leu Pro Arg His Phe Ile Leu Phe Ile Ser Leu Ile Gly Trp Gly
                565                 570                 575

Val Pro Ala Ile Val Val Ala Ile Thr Val Gly Val Ile Tyr Ser Gln
            580                 585                 590

Asn Gly Asn Asn Pro Gln Trp Glu Leu Asp Tyr Arg Gln Glu Lys Ile
        595                 600                 605

Cys Trp Leu Ala Ile Pro Glu Pro Asn Gly Val Ile Lys Ser Pro Leu
    610                 615                 620

Leu Trp Ser Phe Ile Val Pro Val Thr Ile Ile Leu Ile Ser Asn Val
625                 630                 635                 640

Val Met Phe Ile Thr Ile Ser Ile Lys Val Leu Trp Lys Asn Asn Gln
                645                 650                 655

Asn Leu Thr Ser Thr Lys Lys Val Ser Ser Met Lys Lys Ile Val Ser
            660                 665                 670

Thr Leu Ser Val Ala Val Val Phe Gly Ile Thr Trp Ile Leu Ala Tyr
        675                 680                 685

Leu Met Leu Val Asn Asp Asp Ser Ile Arg Ile Val Phe Ser Tyr Ile
    690                 695                 700

Phe Cys Leu Phe Asn Thr Thr Gln Gly Leu Gln Ile Phe Ile Leu Tyr
705                 710                 715                 720
```

Thr Val Arg Thr Lys Val Phe Gln Ser Glu Ala Ser Lys Val Leu Met
725 730 735

Leu Leu Ser Ser Ile Gly Arg Arg Lys Ser Leu Pro Ser Val Thr Arg
740 745 750

Pro Arg Leu Arg Val Lys Met Tyr Asn Phe Leu Arg Ser Leu Pro Thr
755 760 765

Leu His Glu Arg Phe Arg Leu Leu Glu Thr Ser Pro Ser Thr Glu Glu
770 775 780

Ile Thr Leu Ser Glu Ser Asp Asn Ala Lys Glu Ser Ile
785 790 795

<210> 3099
<211> 502
<212> PRT
<213> Homo sapiens

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<220>
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adhesion G prt-coupled receptor G7; "

<220>
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<400> 3099
Met Pro Val Lys Met Leu Phe Lys Glu Leu Leu Leu Leu Leu Met Met
1 5 10 15

Met Pro Leu Gln His Tyr Thr Lys Thr Cys Gly Phe Val Val Tyr Gln
20 25 30

Asn Asp Lys Leu Phe Gln Ser Lys Thr Phe Thr Ala Lys Ser Asp Phe
35 40 45

Ser Gln Lys Ile Ile Ser Ser Lys Thr Asp Glu Asn Glu Gln Asp Gln
50 55 60

```
Ser Ala Ser Val Asp Met Val Phe Ser Pro Lys Tyr Asn Gln Lys Glu
65                  70                  75                  80

Phe Gln Leu Tyr Ser Tyr Ala Cys Val Tyr Trp Asn Leu Ser Ala Lys
                85                  90                  95

Asp Trp Asp Thr Tyr Gly Cys Gln Lys Asp Lys Gly Thr Asp Gly Phe
            100                 105                 110

Leu Arg Cys Arg Cys Asn His Thr Thr Asn Phe Ala Val Leu Met Thr
        115                 120                 125

Phe Lys Lys Asp Tyr Gln Tyr Pro Lys Ser Leu Asp Ile Leu Ser Asn
    130                 135                 140

Val Gly Cys Ala Leu Ser Val Thr Gly Leu Ala Leu Thr Val Ile Phe
145                 150                 155                 160

Gln Ile Val Thr Arg Lys Val Arg Lys Thr Ser Val Thr Trp Val Leu
                165                 170                 175

Val Asn Leu Cys Ile Ser Met Leu Ile Phe Asn Leu Leu Phe Val Phe
            180                 185                 190

Gly Ile Glu Asn Ser Asn Lys Asn Leu Gln Thr Ser Asp Gly Asp Ile
        195                 200                 205

Asn Asn Ile Asp Phe Asp Asn Asn Asp Ile Pro Arg Thr Asp Thr Ile
    210                 215                 220

Asn Ile Pro Asn Pro Met Cys Thr Ala Ile Ala Ala Leu Leu His Tyr
225                 230                 235                 240

Phe Leu Leu Val Thr Phe Thr Trp Asn Ala Leu Ser Ala Ala Gln Leu
                245                 250                 255

Tyr Tyr Leu Leu Ile Arg Thr Met Lys Pro Leu Pro Arg His Phe Ile
            260                 265                 270

Leu Phe Ile Ser Leu Ile Gly Trp Gly Val Pro Ala Ile Val Val Ala
        275                 280                 285
```

```
Ile Thr Val Gly Val Ile Tyr Ser Gln Asn Gly Asn Asn Pro Gln Trp
    290                 295                 300

Glu Leu Asp Tyr Arg Gln Glu Lys Ile Cys Trp Leu Ala Ile Pro Glu
305                 310                 315                 320

Pro Asn Gly Val Ile Lys Ser Pro Leu Leu Trp Ser Phe Ile Val Pro
                325                 330                 335

Val Thr Ile Ile Leu Ile Ser Asn Val Val Met Phe Ile Thr Ile Ser
            340                 345                 350

Ile Lys Val Leu Trp Lys Asn Asn Gln Asn Leu Thr Ser Thr Lys Lys
        355                 360                 365

Val Ser Ser Met Lys Lys Ile Val Ser Thr Leu Ser Val Ala Val Val
    370                 375                 380

Phe Gly Ile Thr Trp Ile Leu Ala Tyr Leu Met Leu Val Asn Asp Asp
385                 390                 395                 400

Ser Ile Arg Ile Val Phe Ser Tyr Ile Phe Cys Leu Phe Asn Thr Thr
                405                 410                 415

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

Gln Ser Glu Ala Ser Lys Val Leu Met Leu Leu Ser Ser Ile Gly Arg
        435                 440                 445

Arg Lys Ser Leu Pro Ser Val Thr Arg Pro Arg Leu Arg Val Lys Met
    450                 455                 460

Tyr Asn Phe Leu Arg Ser Leu Pro Thr Leu His Glu Arg Phe Arg Leu
465                 470                 475                 480

Leu Glu Thr Ser Pro Ser Thr Glu Glu Ile Thr Leu Ser Glu Ser Asp
                485                 490                 495

Asn Ala Lys Glu Ser Ile
            500
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<210> 3100
<211> 1474
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor L1; "

<220>
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<220>
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Met Ala Arg Leu Ala Ala Val Leu Trp Asn Leu Cys Val Thr Ala Val
1   5   10   15

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

Gly Leu Met Arg Arg Glu Leu Ala Cys Glu Gly Tyr Pro Ile Glu Leu
        35   40   45

Arg Cys Pro Gly Ser Asp Val Ile Met Val Glu Asn Ala Asn Tyr Gly
    50   55   60

Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu Asn
65   70   75   80

Val Gln Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Ser Gln Arg Cys
                85   90   95

Asn Asn Arg Thr Gln Cys Val Val Val Ala Gly Ser Asp Ala Phe Pro
            100   105   110

Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Asp Cys
        115   120   125

```
Val Pro Tyr Lys Val Glu Gln Lys Val Phe Val Cys Pro Gly Thr Leu
    130                 135                 140

Gln Lys Val Leu Glu Pro Thr Ser Thr His Glu Ser Glu His Gln Ser
145                 150                 155                 160

Gly Ala Trp Cys Lys Asp Pro Leu Gln Ala Gly Asp Arg Ile Tyr Val
                165                 170                 175

Met Pro Trp Ile Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ala Ser
            180                 185                 190

Trp Glu Asp Tyr Val Ala Ala Arg His Thr Thr Thr Tyr Arg Leu Pro
        195                 200                 205

Asn Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe
    210                 215                 220

Tyr Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Tyr Asp Leu Arg Thr
225                 230                 235                 240

Arg Ile Lys Ser Gly Glu Thr Val Ile Asn Thr Ala Asn Tyr His Asp
                245                 250                 255

Thr Ser Pro Tyr Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val
            260                 265                 270

Asp Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gly Asn Asn Gly
        275                 280                 285

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

Thr Trp Glu Thr Gly Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met
305                 310                 315                 320

Val Cys Gly Val Leu Tyr Val Leu Arg Ser Val Tyr Val Asp Asp Asp
                325                 330                 335

Ser Glu Ala Ala Gly Asn Arg Val Asp Tyr Ala Phe Asn Thr Asn Ala
            340                 345                 350
```

```
Asn Arg Glu Glu Pro Val Ser Leu Thr Phe Pro Asn Pro Tyr Gln Phe
        355                 360                 365

Ile Ser Ser Val Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp
    370                 375                 380

Asn Asn Tyr Phe Val Val Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp
385                 390                 395                 400

Pro Ser Ala Gly Pro Ala Thr Ser Pro Pro Leu Ser Thr Thr Thr Thr
                405                 410                 415

Ala Arg Pro Thr Pro Leu Thr Ser Thr Ala Ser Pro Ala Ala Thr Thr
            420                 425                 430

Pro Leu Arg Arg Ala Pro Leu Thr Thr His Pro Val Gly Ala Ile Asn
        435                 440                 445

Gln Leu Gly Pro Asp Leu Pro Pro Ala Thr Ala Pro Val Pro Ser Thr
    450                 455                 460

Arg Arg Pro Pro Ala Pro Asn Leu His Val Ser Pro Glu Leu Phe Cys
465                 470                 475                 480

Glu Pro Arg Glu Val Arg Arg Val Gln Trp Pro Ala Thr Gln Gln Gly
                485                 490                 495

Met Leu Val Glu Arg Pro Cys Pro Lys Gly Thr Arg Gly Ile Ala Ser
            500                 505                 510

Phe Gln Cys Leu Pro Ala Leu Gly Leu Trp Asn Pro Arg Gly Pro Asp
        515                 520                 525

Leu Ser Asn Cys Thr Ser Pro Trp Val Asn Gln Val Ala Gln Lys Ile
    530                 535                 540

Lys Ser Gly Glu Asn Ala Ala Asn Ile Ala Ser Glu Leu Ala Arg His
545                 550                 555                 560

Thr Arg Gly Ser Ile Tyr Ala Gly Asp Val Ser Ser Ser Val Lys Leu
                565                 570                 575
```

```
Met Glu Gln Leu Leu Asp Ile Leu Asp Ala Gln Leu Gln Ala Leu Arg
            580                 585                 590

Pro Ile Glu Arg Glu Ser Ala Gly Lys Asn Tyr Asn Lys Met His Lys
        595                 600                 605

Arg Glu Arg Thr Cys Lys Asp Tyr Ile Lys Ala Val Val Glu Thr Val
    610                 615                 620

Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser Trp Lys Asp Met Asn
625                 630                 635                 640

Ala Thr Glu Gln Val His Thr Ala Thr Met Leu Leu Asp Val Leu Glu
                645                 650                 655

Glu Gly Ala Phe Leu Leu Ala Asp Asn Val Arg Glu Pro Ala Arg Phe
            660                 665                 670

Leu Ala Ala Lys Glu Asn Val Val Leu Glu Val Thr Val Leu Asn Thr
        675                 680                 685

Glu Gly Gln Val Gln Glu Leu Val Phe Pro Gln Glu Glu Tyr Pro Arg
    690                 695                 700

Lys Asn Ser Ile Gln Leu Ser Ala Lys Thr Ile Lys Gln Asn Ser Arg
705                 710                 715                 720

Asn Gly Val Val Lys Val Val Phe Ile Leu Tyr Asn Asn Leu Gly Leu
                725                 730                 735

Phe Leu Ser Thr Glu Asn Ala Thr Val Lys Leu Ala Gly Glu Ala Gly
            740                 745                 750

Pro Gly Gly Pro Gly Gly Ala Ser Leu Val Val Asn Ser Gln Val Ile
        755                 760                 765

Ala Ala Ser Ile Asn Lys Glu Ser Ser Arg Val Phe Leu Met Asp Pro
    770                 775                 780

Val Ile Phe Thr Val Ala His Leu Glu Asp Lys Asn His Phe Asn Ala
785                 790                 795                 800

Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Ser Met Leu Gly Tyr Trp
```

805 810 815

Ser Thr Gln Gly Cys Arg Leu Val Glu Ser Asn Lys Thr His Thr Thr
820 825 830

Cys Ala Cys Ser His Leu Thr Asn Phe Ala Val Leu Met Ala His Arg
835 840 845

Glu Ile Tyr Gln Gly Arg Ile Asn Glu Leu Leu Leu Ser Val Ile Thr
850 855 860

Trp Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile Cys Ile Ser
865 870 875 880

Thr Phe Cys Phe Leu Arg Gly Leu Gln Thr Asp Arg Asn Thr Ile His
885 890 895

Lys Asn Leu Cys Ile Asn Leu Phe Leu Ala Glu Leu Leu Phe Leu Val
900 905 910

Gly Ile Asp Lys Thr Gln Tyr Glu Ile Ala Cys Pro Ile Phe Ala Gly
915 920 925

Leu Leu His Tyr Phe Phe Leu Ala Ala Phe Ser Trp Leu Cys Leu Glu
930 935 940

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

Ser Arg Thr Lys Tyr Tyr Tyr Leu Gly Gly Tyr Cys Phe Pro Ala Leu
965 970 975

Val Val Gly Ile Ala Ala Ala Ile Asp Tyr Arg Ser Tyr Gly Thr Glu
980 985 990

Lys Ala Cys Trp Leu Arg Val Asp Asn Tyr Phe Ile Trp Ser Phe
Ile
995 1000 1005

Gly Pro Val Ser Phe Val Ile Val Val Asn Leu Val Phe Leu Met
1010 1015 1020

Val Thr Leu His Lys Met Ile Arg Ser Ser Ser Val Leu Lys Pro

1025 1030 1035

Asp Ser Ser Arg Leu Asp Asn Ile Lys Ser Trp Ala Leu Gly Ala
1040 1045 1050

Ile Ala Leu Leu Phe Leu Leu Gly Leu Thr Trp Ala Phe Gly Leu
1055 1060 1065

Leu Phe Ile Asn Lys Glu Ser Val Val Met Ala Tyr Leu Phe Thr
1070 1075 1080

Thr Phe Asn Ala Phe Gln Gly Val Phe Ile Phe Val Phe His Cys
1085 1090 1095

Ala Leu Gln Lys Lys Val His Lys Glu Tyr Ser Lys Cys Leu Arg
1100 1105 1110

His Ser Tyr Cys Cys Ile Arg Ser Pro Pro Gly Gly Thr His Gly
1115 1120 1125

Ser Leu Lys Thr Ser Ala Met Arg Ser Asn Thr Arg Tyr Tyr Thr
1130 1135 1140

Gly Thr Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr Val Arg
1145 1150 1155

Lys Gln Thr Glu Ser Ser Phe Met Ala Gly Asp Ile Asn Ser Thr
1160 1165 1170

Pro Thr Leu Asn Arg Gly Thr Met Gly Asn His Leu Leu Thr Asn
1175 1180 1185

Pro Val Leu Gln Pro Arg Gly Gly Thr Ser Pro Tyr Asn Thr Leu
1190 1195 1200

Ile Ala Glu Ser Val Gly Phe Asn Pro Ser Ser Pro Pro Val Phe
1205 1210 1215

Asn Ser Pro Gly Ser Tyr Arg Glu Pro Lys His Pro Leu Gly Gly
1220 1225 1230

Arg Glu Ala Cys Gly Met Asp Thr Leu Pro Leu Asn Gly Asn Phe
1235 1240 1245

```
Asn Asn  Ser Tyr Ser Leu Arg  Ser Gly Asp Phe Pro  Pro Gly Asp
    1250                 1255                 1260

Gly Gly  Pro Glu Pro Pro Arg  Gly Arg Asn Leu Ala  Asp Ala Ala
    1265                 1270                 1275

Ala Phe  Glu Lys Met Ile Ile  Ser Glu Leu Val His  Asn Asn Leu
    1280                 1285                 1290

Arg Gly  Ser Ser Ser Ala Ala  Lys Gly Pro Pro Pro  Pro Glu Pro
    1295                 1300                 1305

Pro Val  Pro Pro Val Pro Gly  Gly Gly Gly Glu Glu  Glu Ala Gly
    1310                 1315                 1320

Gly Pro  Gly Gly Ala Asp Arg  Ala Glu Ile Glu Leu  Leu Tyr Lys
    1325                 1330                 1335

Ala Leu  Glu Glu Pro Leu Leu  Leu Pro Arg Ala Gln  Ser Val Leu
    1340                 1345                 1350

Tyr Gln  Ser Asp Leu Asp Glu  Ser Glu Ser Cys Thr  Ala Glu Asp
    1355                 1360                 1365

Gly Ala  Thr Ser Arg Pro Leu  Ser Ser Pro Pro Gly  Arg Asp Ser
    1370                 1375                 1380

Leu Tyr  Ala Ser Gly Ala Asn  Leu Arg Asp Ser Pro  Ser Tyr Pro
    1385                 1390                 1395

Asp Ser  Ser Pro Glu Gly Pro  Ser Glu Ala Leu Pro  Pro Pro Pro
    1400                 1405                 1410

Pro Ala  Pro Pro Gly Pro Pro  Glu Ile Tyr Tyr Thr  Ser Arg Pro
    1415                 1420                 1425

Pro Ala  Leu Val Ala Arg Asn  Pro Leu Gln Gly Tyr  Tyr Gln Val
    1430                 1435                 1440

Arg Arg  Pro Ser His Glu Gly  Tyr Leu Ala Ala Pro  Gly Leu Glu
    1445                 1450                 1455
```

Gly Pro Gly Pro Asp Gly Asp Gly Gln Met Gln Leu Val Thr Ser
    1460   1465   1470

Leu

<210> 3101
<211> 1469
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Symbol: ADGRL1; "

<220>
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      adhesion G prt-coupled receptor L1; "

<220>
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<223> /note="Uniprot ID: O94910; "

<220>
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Met Ala Arg Leu Ala Ala Val Leu Trp Asn Leu Cys Val Thr Ala Val
1   5   10   15

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

Gly Leu Met Arg Arg Glu Leu Ala Cys Glu Gly Tyr Pro Ile Glu Leu
        35   40   45

Arg Cys Pro Gly Ser Asp Val Ile Met Val Glu Asn Ala Asn Tyr Gly
    50   55   60

Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu Asn
65   70   75   80

Val Gln Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Ser Gln Arg Cys

```
                85                  90                  95

Asn Asn Arg Thr Gln Cys Val Val Val Ala Gly Ser Asp Ala Phe Pro
            100                 105                 110

Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Asp Cys
        115                 120                 125

Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Gln Lys Val Leu Glu
    130                 135                 140

Pro Thr Ser Thr His Glu Ser Glu His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Gly Asp Arg Ile Tyr Val Met Pro Trp Ile Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ala Ser Trp Glu Asp Tyr Val
            180                 185                 190

Ala Ala Arg His Thr Thr Thr Tyr Arg Leu Pro Asn Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Tyr Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Tyr Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Thr Val Ile Asn Thr Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255

Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
            260                 265                 270

Trp Val Ile Tyr Ala Thr Glu Gly Asn Asn Gly Arg Leu Val Val Ser
        275                 280                 285

Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Gly Thr Trp Glu Thr Gly
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Val Cys Gly Val Leu
305                 310                 315                 320
```

```
Tyr Val Leu Arg Ser Val Tyr Val Asp Asp Asp Ser Glu Ala Ala Gly
                325                 330                 335

Asn Arg Val Asp Tyr Ala Phe Asn Thr Asn Ala Asn Arg Glu Glu Pro
            340                 345                 350

Val Ser Leu Thr Phe Pro Asn Pro Tyr Gln Phe Ile Ser Ser Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Tyr Phe Val
    370                 375                 380

Val Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ser Ala Gly Pro
385                 390                 395                 400

Ala Thr Ser Pro Pro Leu Ser Thr Thr Thr Thr Ala Arg Pro Thr Pro
                405                 410                 415

Leu Thr Ser Thr Ala Ser Pro Ala Ala Thr Thr Pro Leu Arg Arg Ala
            420                 425                 430

Pro Leu Thr Thr His Pro Val Gly Ala Ile Asn Gln Leu Gly Pro Asp
        435                 440                 445

Leu Pro Pro Ala Thr Ala Pro Val Pro Ser Thr Arg Arg Pro Pro Ala
    450                 455                 460

Pro Asn Leu His Val Ser Pro Glu Leu Phe Cys Glu Pro Arg Glu Val
465                 470                 475                 480

Arg Arg Val Gln Trp Pro Ala Thr Gln Gln Gly Met Leu Val Glu Arg
                485                 490                 495

Pro Cys Pro Lys Gly Thr Arg Gly Ile Ala Ser Phe Gln Cys Leu Pro
            500                 505                 510

Ala Leu Gly Leu Trp Asn Pro Arg Gly Pro Asp Leu Ser Asn Cys Thr
        515                 520                 525

Ser Pro Trp Val Asn Gln Val Ala Gln Lys Ile Lys Ser Gly Glu Asn
    530                 535                 540
```

Ala Ala Asn Ile Ala Ser Glu Leu Ala Arg His Thr Arg Gly Ser Ile
545 550 555 560

Tyr Ala Gly Asp Val Ser Ser Ser Val Lys Leu Met Glu Gln Leu Leu
565 570 575

Asp Ile Leu Asp Ala Gln Leu Gln Ala Leu Arg Pro Ile Glu Arg Glu
580 585 590

Ser Ala Gly Lys Asn Tyr Asn Lys Met His Lys Arg Glu Arg Thr Cys
595 600 605

Lys Asp Tyr Ile Lys Ala Val Val Glu Thr Val Asp Asn Leu Leu Arg
610 615 620

Pro Glu Ala Leu Glu Ser Trp Lys Asp Met Asn Ala Thr Glu Gln Val
625 630 635 640

His Thr Ala Thr Met Leu Leu Asp Val Leu Glu Glu Gly Ala Phe Leu
645 650 655

Leu Ala Asp Asn Val Arg Glu Pro Ala Arg Phe Leu Ala Ala Lys Glu
660 665 670

Asn Val Val Leu Glu Val Thr Val Leu Asn Thr Glu Gly Gln Val Gln
675 680 685

Glu Leu Val Phe Pro Gln Glu Glu Tyr Pro Arg Lys Asn Ser Ile Gln
690 695 700

Leu Ser Ala Lys Thr Ile Lys Gln Asn Ser Arg Asn Gly Val Val Lys
705 710 715 720

Val Val Phe Ile Leu Tyr Asn Asn Leu Gly Leu Phe Leu Ser Thr Glu
725 730 735

Asn Ala Thr Val Lys Leu Ala Gly Glu Ala Gly Pro Gly Gly Pro Gly
740 745 750

Gly Ala Ser Leu Val Val Asn Ser Gln Val Ile Ala Ala Ser Ile Asn
755 760 765

```
Lys Glu Ser Ser Arg Val Phe Leu Met Asp Pro Val Ile Phe Thr Val
    770                 775                 780

Ala His Leu Glu Asp Lys Asn His Phe Asn Ala Asn Cys Ser Phe Trp
785                 790                 795                 800

Asn Tyr Ser Glu Arg Ser Met Leu Gly Tyr Trp Ser Thr Gln Gly Cys
                805                 810                 815

Arg Leu Val Glu Ser Asn Lys Thr His Thr Thr Cys Ala Cys Ser His
            820                 825                 830

Leu Thr Asn Phe Ala Val Leu Met Ala His Arg Glu Ile Tyr Gln Gly
        835                 840                 845

Arg Ile Asn Glu Leu Leu Leu Ser Val Ile Thr Trp Val Gly Ile Val
    850                 855                 860

Ile Ser Leu Val Cys Leu Ala Ile Cys Ile Ser Thr Phe Cys Phe Leu
865                 870                 875                 880

Arg Gly Leu Gln Thr Asp Arg Asn Thr Ile His Lys Asn Leu Cys Ile
                885                 890                 895

Asn Leu Phe Leu Ala Glu Leu Leu Phe Leu Val Gly Ile Asp Lys Thr
            900                 905                 910

Gln Tyr Glu Ile Ala Cys Pro Ile Phe Ala Gly Leu Leu His Tyr Phe
        915                 920                 925

Phe Leu Ala Ala Phe Ser Trp Leu Cys Leu Glu Gly Val His Leu Tyr
    930                 935                 940

Leu Leu Leu Val Glu Val Phe Glu Ser Glu Tyr Ser Arg Thr Lys Tyr
945                 950                 955                 960

Tyr Tyr Leu Gly Gly Tyr Cys Phe Pro Ala Leu Val Val Gly Ile Ala
                965                 970                 975

Ala Ala Ile Asp Tyr Arg Ser Tyr Gly Thr Glu Lys Ala Cys Trp Leu
            980                 985                 990

Arg Val Asp Asn Tyr Phe Ile Trp  Ser Phe Ile Gly Pro  Val Ser
```

Phe
995 1000 1005

Val Ile Val Val Asn Leu Val Phe Leu Met Val Thr Leu His Lys
1010 1015 1020

Met Ile Arg Ser Ser Ser Val Leu Lys Pro Asp Ser Ser Arg Leu
1025 1030 1035

Asp Asn Ile Lys Ser Trp Ala Leu Gly Ala Ile Ala Leu Leu Phe
1040 1045 1050

Leu Leu Gly Leu Thr Trp Ala Phe Gly Leu Leu Phe Ile Asn Lys
1055 1060 1065

Glu Ser Val Val Met Ala Tyr Leu Phe Thr Thr Phe Asn Ala Phe
1070 1075 1080

Gln Gly Val Phe Ile Phe Val Phe His Cys Ala Leu Gln Lys Lys
1085 1090 1095

Val His Lys Glu Tyr Ser Lys Cys Leu Arg His Ser Tyr Cys Cys
1100 1105 1110

Ile Arg Ser Pro Pro Gly Gly Thr His Gly Ser Leu Lys Thr Ser
1115 1120 1125

Ala Met Arg Ser Asn Thr Arg Tyr Tyr Thr Gly Thr Gln Ser Arg
1130 1135 1140

Ile Arg Arg Met Trp Asn Asp Thr Val Arg Lys Gln Thr Glu Ser
1145 1150 1155

Ser Phe Met Ala Gly Asp Ile Asn Ser Thr Pro Thr Leu Asn Arg
1160 1165 1170

Gly Thr Met Gly Asn His Leu Leu Thr Asn Pro Val Leu Gln Pro
1175 1180 1185

Arg Gly Gly Thr Ser Pro Tyr Asn Thr Leu Ile Ala Glu Ser Val
1190 1195 1200

Gly Phe Asn Pro Ser Ser Pro Pro Val Phe Asn Ser Pro Gly Ser

```
    1205                1210                1215

Tyr Arg  Glu Pro Lys His Pro  Leu Gly Gly Arg Glu  Ala Cys Gly
    1220                1225                1230

Met Asp  Thr Leu Pro Leu Asn  Gly Asn Phe Asn Asn  Ser Tyr Ser
    1235                1240                1245

Leu Arg  Ser Gly Asp Phe Pro  Pro Gly Asp Gly Gly  Pro Glu Pro
    1250                1255                1260

Pro Arg  Gly Arg Asn Leu Ala  Asp Ala Ala Ala Phe  Glu Lys Met
    1265                1270                1275

Ile Ile  Ser Glu Leu Val His  Asn Asn Leu Arg Gly  Ser Ser Ser
    1280                1285                1290

Ala Ala  Lys Gly Pro Pro Pro  Pro Glu Pro Pro Val  Pro Pro Val
    1295                1300                1305

Pro Gly  Gly Gly Gly Glu Glu  Glu Ala Gly Gly Pro  Gly Gly Ala
    1310                1315                1320

Asp Arg  Ala Glu Ile Glu Leu  Leu Tyr Lys Ala Leu  Glu Glu Pro
    1325                1330                1335

Leu Leu  Leu Pro Arg Ala Gln  Ser Val Leu Tyr Gln  Ser Asp Leu
    1340                1345                1350

Asp Glu  Ser Glu Ser Cys Thr  Ala Glu Asp Gly Ala  Thr Ser Arg
    1355                1360                1365

Pro Leu  Ser Ser Pro Pro Gly  Arg Asp Ser Leu Tyr  Ala Ser Gly
    1370                1375                1380

Ala Asn  Leu Arg Asp Ser Pro  Ser Tyr Pro Asp Ser  Ser Pro Glu
    1385                1390                1395

Gly Pro  Ser Glu Ala Leu Pro  Pro Pro Pro Pro Ala  Pro Pro Gly
    1400                1405                1410

Pro Pro  Glu Ile Tyr Tyr Thr  Ser Arg Pro Pro Ala  Leu Val Ala
    1415                1420                1425
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Arg Asn  Pro Leu Gln Gly Tyr  Tyr Gln Val Arg Arg  Pro Ser His
    1430                1435                1440


Glu Gly  Tyr Leu Ala Ala Pro  Gly Leu Glu Gly Pro  Gly Pro Asp
    1445                1450                1455


Gly Asp  Gly Gln Met Gln Leu  Val Thr Ser Leu
    1460                1465


<210> 3102
<211> 264
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 695; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRL1; "

<220>
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      adhesion G prt-coupled receptor L1; "

<220>
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<223> /note="ENSP ID: ENSP00000465453"


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

<400> 3102
Xaa Gly Thr His Gly Ser Leu Lys Thr Ser Ala Met Arg Ser Asn Thr
1               5                  10                  15


Arg Tyr Tyr Thr Gly Thr Gln Ser Arg Ile Arg Arg Met Trp Asn Asp
            20                  25                  30


Thr Val Arg Lys Gln Thr Glu Ser Ser Phe Met Ala Gly Asp Ile Asn
        35                  40                  45


Ser Thr Pro Thr Leu Asn Arg Gly Thr Met Gly Asn His Leu Leu Thr
    50                  55                  60
```

```
Asn Pro Val Leu Gln Pro Arg Gly Gly Thr Ser Pro Tyr Asn Thr Leu
65                  70                  75                  80

Ile Ala Glu Ser Val Gly Phe Asn Pro Ser Ser Pro Pro Val Phe Asn
                85                  90                  95

Ser Pro Glu Leu Glu Pro Gly Leu Ala Phe Arg Ala His Pro Cys Leu
            100                 105                 110

Phe Ser Ser Leu Phe Trp Leu Pro Pro Ala Gly Ser Tyr Arg Glu Pro
        115                 120                 125

Lys His Pro Leu Gly Gly Arg Glu Ala Cys Gly Met Asp Thr Leu Pro
    130                 135                 140

Leu Asn Gly Asn Phe Asn Asn Ser Tyr Ser Leu Arg Ser Gly Asp Phe
145                 150                 155                 160

Pro Pro Gly Asp Gly Gly Pro Glu Pro Pro Arg Gly Arg Asn Leu Ala
                165                 170                 175

Asp Ala Ala Ala Phe Glu Lys Met Ile Ile Ser Glu Leu Val His Asn
            180                 185                 190

Asn Leu Arg Gly Ser Ser Ser Ala Ala Lys Gly Pro Pro Pro Pro Glu
        195                 200                 205

Pro Pro Val Pro Pro Val Pro Gly Gly Gly Gly Glu Glu Glu Ala Gly
    210                 215                 220

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

Leu Glu Glu Pro Leu Leu Leu Pro Arg Ala Gln Ser Val Leu Tyr Gln
                245                 250                 255

Ser Asp Leu Asp Glu Ser Glu Ser
            260
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<210> 3103
<211> 243
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADGRL1; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468197"

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

<400> 3103

```
Xaa Ser Leu Lys Thr Ser Ala Met Arg Ser Asn Thr Arg Tyr Tyr Thr
1               5                  10                  15

Gly Thr Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr Val Arg Lys
            20                  25                  30

Gln Thr Glu Ser Ser Phe Met Ala Gly Asp Ile Asn Ser Thr Pro Thr
        35                  40                  45

Leu Asn Arg Gly Thr Met Gly Asn His Leu Leu Thr Asn Pro Val Leu
    50                  55                  60

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

Val Gly Phe Asn Pro Ser Ser Pro Pro Val Phe Asn Ser Pro Glu His
                85                  90                  95

Pro Leu Gly Gly Arg Glu Ala Cys Gly Met Asp Thr Leu Pro Leu Asn
            100                 105                 110

Gly Asn Phe Asn Asn Ser Tyr Ser Leu Arg Ser Gly Asp Phe Pro Pro
        115                 120                 125
```

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

Ala Ala Phe Glu Lys Met Ile Ile Ser Glu Leu Val His Asn Asn Leu
145                 150                 155                 160

Arg Gly Ser Ser Ser Ala Ala Lys Gly Pro Pro Pro Pro Glu Pro Pro
                165                 170                 175

Val Pro Pro Val Pro Gly Gly Gly Gly Glu Glu Glu Ala Gly Gly Pro
            180                 185                 190

Gly Gly Ala Asp Arg Ala Glu Ile Glu Leu Leu Tyr Lys Ala Leu Glu
        195                 200                 205

Glu Pro Leu Leu Leu Pro Arg Ala Gln Ser Val Leu Tyr Gln Ser Asp
    210                 215                 220

Leu Asp Glu Ser Glu Ser Cys Thr Ala Glu Asp Gly Ala Thr Ser Arg
225                 230                 235                 240

Pro Leu Ser
```

<210> 3104
<211> 225
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<213> Homo sapiens

<220>
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<220>
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<220>
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<220>
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<400> 3104
```
Ser Ala Gly His Pro Ser Pro Arg Thr Gln Trp Val Pro Ser Thr Ser
```

```
1               5                   10                  15

Trp Asp Leu Ile Cys Leu Gln Pro Gln Pro Gln Ser Pro Ala Pro Gly
            20                  25                  30

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

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

Trp Trp Arg Gly Pro Ala Pro Arg Gly Leu Glu Ile Lys Ser Gly Glu
65                  70                  75                  80

Asn Ala Ala Asn Ile Ala Ser Glu Leu Ala Arg His Thr Arg Gly Ser
                85                  90                  95

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

Leu Asp Ile Leu Asp Ala Gln Leu Gln Ala Leu Arg Pro Ile Glu Arg
        115                 120                 125

Glu Ser Ala Gly Lys Asn Tyr Asn Lys Met His Lys Arg Glu Arg Thr
    130                 135                 140

Cys Lys Asp Tyr Ile Lys Ala Val Val Glu Thr Val Asp Asn Leu Leu
145                 150                 155                 160

Arg Pro Glu Ala Leu Glu Ser Trp Lys Asp Met Asn Ala Thr Glu Gln
                165                 170                 175

Val His Thr Ala Thr Met Leu Leu Asp Val Leu Glu Glu Gly Ala Phe
            180                 185                 190

Leu Leu Ala Asp Asn Val Arg Glu Pro Ala Arg Phe Leu Ala Ala Lys
        195                 200                 205

Glu Asn Val Val Leu Glu Val Thr Val Leu Asn Thr Glu Gly Gln Val
    210                 215                 220

Gln
225
```

<210> 3105
<211> 1403
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor L2; "

<220>
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<220>
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<400> 3105
Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1   5   10   15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20   25   30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35   40   45

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

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65   70   75   80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85   90   95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100   105   110

```
Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115                 120                 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130                 135                 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145                 150                 155                 160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175

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

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
```

```
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575
```

```
Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
            580                 585                 590

Asn Lys Ala Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala
        595                 600                 605

Leu Glu Ser Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala
    610                 615                 620

Thr Met Leu Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp
625                 630                 635                 640

Asn Leu Leu Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val
                645                 650                 655

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

Phe Pro Leu Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala
        675                 680                 685

Asn Thr Val Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe
    690                 695                 700

Ile Ile Tyr Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr
705                 710                 715                 720

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

Asn Ser His Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val
            740                 745                 750

Tyr Leu Thr Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp
        755                 760                 765

Asn Tyr Phe Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr
    770                 775                 780

Met Met Gly Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn
785                 790                 795                 800
```

```
Lys Thr Arg Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile
                805                 810                 815

Leu Met Ala His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu
            820                 825                 830

Leu Leu Thr Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys
        835                 840                 845

Leu Ala Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser
    850                 855                 860

Asp Arg Asn Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala
865                 870                 875                 880

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

Cys Pro Ile Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe
            900                 905                 910

Ala Trp Met Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu
        915                 920                 925

Val Phe Glu Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly
    930                 935                 940

Tyr Leu Phe Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr
945                 950                 955                 960

Lys Ser Tyr Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr
                965                 970                 975

Phe Ile Trp Ser Phe Ile Gly Pro Val Thr Phe Ile Ile Leu Leu Asn
            980                 985                 990

Ile Ile Phe Leu Val Ile Thr Leu  Cys Lys Met Val Lys  His Ser
Asn
        995                 1000                1005

Thr Leu  Lys Pro Asp Ser Ser  Arg Leu Glu Asn Ile  Lys Ser Trp
    1010                1015                1020
```

Val Leu Gly Ala Phe Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp
1025 1030 1035

Ser Phe Gly Leu Leu Phe Ile Asn Glu Glu Thr Ile Val Met Ala
1040 1045 1050

Tyr Leu Phe Thr Ile Phe Asn Ala Phe Gln Gly Val Phe Ile Phe
1055 1060 1065

Ile Phe His Cys Ala Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly
1070 1075 1080

Lys Cys Phe Arg His Ser Tyr Cys Cys Gly Gly Leu Pro Thr Glu
1085 1090 1095

Ser Pro His Ser Ser Val Lys Ala Ser Thr Thr Arg Thr Ser Ala
1100 1105 1110

Arg Tyr Ser Ser Gly Thr Gln Ser Arg Ile Arg Arg Met Trp Asn
1115 1120 1125

Asp Thr Val Arg Lys Gln Ser Glu Ser Ser Phe Ile Ser Gly Asp
1130 1135 1140

Ile Asn Ser Thr Ser Thr Leu Asn Gln Gly His Ser Leu Asn Asn
1145 1150 1155

Ala Arg Asp Thr Ser Ala Met Asp Thr Leu Pro Leu Asn Gly Asn
1160 1165 1170

Phe Asn Asn Ser Tyr Ser Leu His Lys Gly Asp Tyr Asn Asp Ser
1175 1180 1185

Val Gln Val Val Asp Cys Gly Leu Ser Leu Asn Asp Thr Ala Phe
1190 1195 1200

Glu Lys Met Ile Ile Ser Glu Leu Val His Asn Asn Leu Arg Gly
1205 1210 1215

Ser Ser Lys Thr His Asn Leu Glu Leu Thr Leu Pro Val Lys Pro
1220 1225 1230

```
Val Ile  Gly Gly Ser Ser Ser  Glu Asp Asp Ala Ile  Val Ala Asp
    1235                 1240                 1245

Ala Ser  Ser Leu Met His Ser  Asp Asn Pro Gly Leu  Glu Leu His
    1250                 1255                 1260

His Lys  Glu Leu Glu Ala Pro  Leu Ile Pro Gln Arg  Thr His Ser
    1265                 1270                 1275

Leu Leu  Tyr Gln Pro Gln Lys  Lys Val Lys Ser Glu  Gly Thr Asp
    1280                 1285                 1290

Ser Tyr  Val Ser Gln Leu Thr  Ala Glu Ala Glu Asp  His Leu Gln
    1295                 1300                 1305

Ser Pro  Asn Arg Asp Ser Leu  Tyr Thr Ser Met Pro  Asn Leu Arg
    1310                 1315                 1320

Asp Ser  Pro Tyr Pro Glu Ser  Ser Pro Asp Met Glu  Glu Asp Leu
    1325                 1330                 1335

Ser Pro  Ser Arg Arg Ser Glu  Asn Glu Asp Ile Tyr  Tyr Lys Ser
    1340                 1345                 1350

Met Pro  Asn Leu Gly Ala Gly  His Gln Leu Gln Met  Cys Tyr Gln
    1355                 1360                 1365

Ile Ser  Arg Gly Asn Ser Asp  Gly Tyr Ile Ile Pro  Ile Asn Lys
    1370                 1375                 1380

Glu Gly  Cys Ile Pro Glu Gly  Asp Val Arg Glu Gly  Gln Met Gln
    1385                 1390                 1395

Leu Val  Thr Ser Leu
    1400


<210> 3106
<211> 1403
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 696; "
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor L2; "

<220>
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<223> /note="Uniprot ID: O95490; "

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<400> 3106
Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1 5 10 15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
20 25 30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
35 40 45

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

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65 70 75 80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
85 90 95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
100 105 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
115 120 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
130 135 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145 150 155 160

```
Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175

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

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380
```

```
Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575

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

Asn Lys Ala Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala
        595                 600                 605

Leu Glu Ser Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala
```

610 615 620

Thr Met Leu Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp
625 630 635 640

Asn Leu Leu Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val
645 650 655

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

Phe Pro Leu Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala
675 680 685

Asn Thr Val Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe
690 695 700

Ile Ile Tyr Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr
705 710 715 720

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

Asn Ser His Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val
740 745 750

Tyr Leu Thr Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp
755 760 765

Asn Tyr Phe Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr
770 775 780

Met Met Gly Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn
785 790 795 800

Lys Thr Arg Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile
805 810 815

Leu Met Ala His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu
820 825 830

Leu Leu Thr Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys
835 840 845

```
Leu Ala Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser
    850                 855                 860

Asp Arg Asn Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala
865                 870                 875                 880

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

Cys Pro Ile Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe
            900                 905                 910

Ala Trp Met Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu
        915                 920                 925

Val Phe Glu Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly
    930                 935                 940

Tyr Leu Phe Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr
945                 950                 955                 960

Lys Ser Tyr Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr
                965                 970                 975

Phe Ile Trp Ser Phe Ile Gly Pro Val Thr Phe Ile Ile Leu Leu Asn
            980                 985                 990

Ile Ile Phe Leu Val Ile Thr Leu  Cys Lys Met Val Lys  His Ser
Asn
        995                 1000                1005

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

Val Leu  Gly Ala Phe Ala Leu  Leu Cys Leu Leu Gly  Leu Thr Trp
    1025                1030                1035

Ser Phe  Gly Leu Leu Phe Ile  Asn Glu Glu Thr Ile  Val Met Ala
    1040                1045                1050

Tyr Leu  Phe Thr Ile Phe Asn  Ala Phe Gln Gly Val  Phe Ile Phe
    1055                1060                1065
```

```
Ile Phe  His Cys Ala Leu Gln  Lys Lys Val Arg Lys  Glu Tyr Gly
    1070                1075                1080

Lys Cys  Phe Arg His Ser Tyr  Cys Cys Gly Gly Leu  Pro Thr Glu
    1085                1090                1095

Ser Pro  His Ser Ser Val Lys  Ala Ser Thr Thr Arg  Thr Ser Ala
    1100                1105                1110

Arg Tyr  Ser Ser Gly Thr Gln  Ser Arg Ile Arg Arg  Met Trp Asn
    1115                1120                1125

Asp Thr  Val Arg Lys Gln Ser  Glu Ser Ser Phe Ile  Ser Gly Asp
    1130                1135                1140

Ile Asn  Ser Thr Ser Thr Leu  Asn Gln Gly His Ser  Leu Asn Asn
    1145                1150                1155

Ala Arg  Asp Thr Ser Ala Met  Asp Thr Leu Pro Leu  Asn Gly Asn
    1160                1165                1170

Phe Asn  Asn Ser Tyr Ser Leu  His Lys Gly Asp Tyr  Asn Asp Ser
    1175                1180                1185

Val Gln  Val Val Asp Cys Gly  Leu Ser Leu Asn Asp  Thr Ala Phe
    1190                1195                1200

Glu Lys  Met Ile Ile Ser Glu  Leu Val His Asn Asn  Leu Arg Gly
    1205                1210                1215

Ser Ser  Lys Thr His Asn Leu  Glu Leu Thr Leu Pro  Val Lys Pro
    1220                1225                1230

Val Ile  Gly Gly Ser Ser Ser  Glu Asp Asp Ala Ile  Val Ala Asp
    1235                1240                1245

Ala Ser  Ser Leu Met His Ser  Asp Asn Pro Gly Leu  Glu Leu His
    1250                1255                1260

His Lys  Glu Leu Glu Ala Pro  Leu Ile Pro Gln Arg  Thr His Ser
    1265                1270                1275
```

```
Leu Leu  Tyr Gln Pro Gln Lys  Lys Val Lys Ser Glu  Gly Thr Asp
    1280                1285                1290

Ser Tyr  Val Ser Gln Leu Thr  Ala Glu Ala Glu Asp  His Leu Gln
    1295                1300                1305

Ser Pro  Asn Arg Asp Ser Leu  Tyr Thr Ser Met Pro  Asn Leu Arg
    1310                1315                1320

Asp Ser  Pro Tyr Pro Glu Ser  Ser Pro Asp Met Glu  Glu Asp Leu
    1325                1330                1335

Ser Pro  Ser Arg Arg Ser Glu  Asn Glu Asp Ile Tyr  Tyr Lys Ser
    1340                1345                1350

Met Pro  Asn Leu Gly Ala Gly  His Gln Leu Gln Met  Cys Tyr Gln
    1355                1360                1365

Ile Ser  Arg Gly Asn Ser Asp  Gly Tyr Ile Ile Pro  Ile Asn Lys
    1370                1375                1380

Glu Gly  Cys Ile Pro Glu Gly  Asp Val Arg Glu Gly  Gln Met Gln
    1385                1390                1395

Leu Val  Thr Ser Leu
    1400


<210> 3107
<211> 1123
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 696; "

<220>
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<223> /note="Gene Symbol: ADGRL2; "

<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor L2; "

<220>
<221> source
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<223> /note="Uniprot ID: O95490; "

<220>
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<223> /note="ENSP ID: ENSP00000359748"

<400> 3107
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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1               5                  10                  15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20                  25                  30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35                  40                  45

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

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65                  70                  75                  80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85                  90                  95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100                 105                 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115                 120                 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130                 135                 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145                 150                 155                 160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175

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

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205
```

```
Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430
```

```
Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575

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

Asn Lys Ala Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala
        595                 600                 605

Leu Glu Ser Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala
    610                 615                 620

Thr Met Leu Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp
625                 630                 635                 640

Asn Leu Leu Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val
                645                 650                 655
```

```
Leu Glu Val Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys
            660                 665                 670

Phe Pro Leu Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala
        675                 680                 685

Asn Thr Val Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe
    690                 695                 700

Ile Ile Tyr Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr
705                 710                 715                 720

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

Asn Ser His Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val
            740                 745                 750

Tyr Leu Thr Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp
        755                 760                 765

Asn Tyr Phe Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr
    770                 775                 780

Met Met Gly Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn
785                 790                 795                 800

Lys Thr Arg Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile
                805                 810                 815

Leu Met Ala His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu
            820                 825                 830

Leu Leu Thr Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys
        835                 840                 845

Leu Ala Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser
    850                 855                 860

Asp Arg Asn Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala
865                 870                 875                 880

Glu Phe Ile Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala
```

885 890 895

Cys Pro Ile Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe
900 905 910

Ala Trp Met Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu
915 920 925

Val Phe Glu Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly
930 935 940

Tyr Leu Phe Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr
945 950 955 960

Lys Ser Tyr Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr
965 970 975

Phe Ile Trp Ser Phe Ile Gly Pro Val Thr Phe Ile Ile Leu Leu Asn
980 985 990

Ile Ile Phe Leu Val Ile Thr Leu Cys Lys Met Val Lys His Ser Asn
995 1000 1005

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

Val Leu Gly Ala Phe Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp
1025 1030 1035

Ser Phe Gly Leu Leu Phe Ile Asn Glu Glu Thr Ile Val Met Ala
1040 1045 1050

Tyr Leu Phe Thr Ile Phe Asn Ala Phe Gln Gly Val Phe Ile Phe
1055 1060 1065

Ile Phe His Cys Ala Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly
1070 1075 1080

Lys Cys Phe Arg His Ser Tyr Cys Cys Gly Gly Leu Pro Thr Glu
1085 1090 1095

Ser Pro His Ser Ser Val Lys Ala Ser Thr Thr Arg Thr Ser Ala

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    1100                1105                1110

Arg Tyr  Ser Ser Gly Thr Gln  Asp Ile His
    1115                1120


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Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20                  25                  30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35                  40                  45

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

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65                  70                  75                  80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85                  90                  95
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```
Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100                 105                 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115                 120                 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130                 135                 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145                 150                 155                 160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175

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

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320
```

```
Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
```

545 550 555 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
565 570 575

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

Asn Lys Ala Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala
595 600 605

Leu Glu Ser Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala
610 615 620

Thr Met Leu Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp
625 630 635 640

Asn Leu Leu Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val
645 650 655

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

Phe Pro Leu Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala
675 680 685

Asn Thr Val Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe
690 695 700

Ile Ile Tyr Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr
705 710 715 720

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

Asn Ser His Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val
740 745 750

Tyr Leu Thr Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp
755 760 765

Asn Tyr Phe Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr
770 775 780

```
Met Met Gly Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn
785                 790                 795                 800

Lys Thr Arg Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile
                805                 810                 815

Leu Met Ala His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu
            820                 825                 830

Leu Leu Thr Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys
        835                 840                 845

Leu Ala Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser
    850                 855                 860

Asp Arg Asn Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala
865                 870                 875                 880

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

Cys Pro Ile Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe
            900                 905                 910

Ala Trp Met Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu
        915                 920                 925

Val Phe Glu Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly
    930                 935                 940

Tyr Leu Phe Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr
945                 950                 955                 960

Lys Ser Tyr Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr
                965                 970                 975

Phe Ile Trp Ser Phe Ile Gly Pro Val Thr Phe Ile Ile Leu Leu Asn
            980                 985                 990

Ile Ile Phe Leu Val Ile Thr Leu  Cys Lys Met Val Lys  His Ser
Asn
        995                 1000                1005
```

```
Thr Leu  Lys Pro Asp Ser Ser  Arg Leu Glu Asn Ile  Lys Ser Trp
    1010                1015                1020

Val Leu  Gly Ala Phe Ala Leu  Leu Cys Leu Leu Gly  Leu Thr Trp
    1025                1030                1035

Ser Phe  Gly Leu Leu Phe Ile  Asn Glu Glu Thr Ile  Val Met Ala
    1040                1045                1050

Tyr Leu  Phe Thr Ile Phe Asn  Ala Phe Gln Gly Val  Phe Ile Phe
    1055                1060                1065

Ile Phe  His Cys Ala Leu Gln  Lys Lys Val Arg Lys  Glu Tyr Gly
    1070                1075                1080

Lys Cys  Phe Arg His Ser Tyr  Cys Cys Gly Gly Leu  Pro Thr Glu
    1085                1090                1095

Ser Pro  His Ser Ser Val Lys  Ala Ser Thr Thr Arg  Thr Ser Ala
    1100                1105                1110

Arg Tyr  Ser Ser Gly Thr Gln  Ser Arg Ile Arg Arg  Met Trp Asn
    1115                1120                1125

Asp Thr  Val Arg Lys Gln Ser  Glu Ser Ser Phe Ile  Ser Gly Asp
    1130                1135                1140

Ile Asn  Ser Thr Ser Thr Leu  Asn Gln Gly Leu Thr  Ser His Gly
    1145                1150                1155

Leu Arg  Ala His Leu Gln Asp  Leu Tyr His Leu Glu  Leu Leu Leu
    1160                1165                1170

Gly Gln  Ile Ala
    1175
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<210> 3109
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adhesion G prt-coupled receptor L2; "

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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1               5                  10                  15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20                  25                  30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35                  40                  45

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

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65                  70                  75                  80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85                  90                  95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100                 105                 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115                 120                 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130                 135                 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
```

```
145                 150                 155                 160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175

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

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380
```

```
Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575

Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
            580                 585                 590

Asn Lys Leu Gln Lys Arg Glu Lys Thr Cys Arg Ala Tyr Leu Lys Ala
        595                 600                 605
```

```
Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser
    610                 615                 620

Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala Thr Met Leu
625                 630                 635                 640

Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp Asn Leu Leu
                645                 650                 655

Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val Leu Glu Val
            660                 665                 670

Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys Phe Pro Leu
        675                 680                 685

Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala Asn Thr Val
    690                 695                 700

Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe Ile Ile Tyr
705                 710                 715                 720

Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr Ile Lys Leu
                725                 730                 735

Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile Ala Val Asn Ser His
            740                 745                 750

Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val Tyr Leu Thr
        755                 760                 765

Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp Asn Tyr Phe
    770                 775                 780

Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr Met Met Gly
785                 790                 795                 800

Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn Lys Thr Arg
                805                 810                 815

Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile Leu Met Ala
            820                 825                 830
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```
His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu Leu Leu Thr
        835                 840                 845

Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile
    850                 855                 860

Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn
865                 870                 875                 880

Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala Glu Phe Ile
                885                 890                 895

Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala Cys Pro Ile
            900                 905                 910

Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe Ala Trp Met
        915                 920                 925

Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu Val Phe Glu
    930                 935                 940

Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly Tyr Leu Phe
945                 950                 955                 960

Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr Lys Ser Tyr
                965                 970                 975

Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr Phe Ile Trp
            980                 985                 990

Ser Phe Ile Gly Pro Val Thr Phe  Ile Ile Leu Leu Asn  Ile Ile
Phe
        995                 1000                1005

Leu Val  Ile Thr Leu Cys Lys  Met Val Lys His Ser  Asn Thr Leu
    1010                1015                1020

Lys Pro  Asp Ser Ser Arg Leu  Glu Asn Ile Lys Ser  Trp Val Leu
    1025                1030                1035

Gly Ala  Phe Ala Leu Leu Cys  Leu Leu Gly Leu Thr  Trp Ser Phe
    1040                1045                1050
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Gly Leu Leu Phe Ile Asn Glu Glu Thr Ile Val Met Ala Tyr Leu
1055 1060 1065

Phe Thr Ile Phe Asn Ala Phe Gln Gly Val Phe Ile Phe Ile Phe
1070 1075 1080

His Cys Ala Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly Lys Cys
1085 1090 1095

Phe Arg His Ser Tyr Cys Cys Gly Gly Leu Pro Thr Glu Ser Pro
1100 1105 1110

His Ser Ser Val Lys Ala Ser Thr Thr Arg Thr Ser Ala Arg Tyr
1115 1120 1125

Ser Ser Gly Thr Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr
1130 1135 1140

Val Arg Lys Gln Ser Glu Ser Ser Phe Ile Ser Gly Asp Ile Asn
1145 1150 1155

Ser Thr Ser Thr Leu Asn Gln Gly Met Thr Gly Asn Tyr Leu Leu
1160 1165 1170

Thr Asn Pro Leu Leu Arg Pro His Gly Thr Asn Asn Pro Tyr Asn
1175 1180 1185

Thr Leu Leu Ala Glu Thr Val Val Cys Asn Ala Pro Ser Ala Pro
1190 1195 1200

Val Phe Asn Ser Pro Gly His Ser Leu Asn Asn Ala Arg Asp Thr
1205 1210 1215

Ser Ala Met Asp Thr Leu Pro Leu Asn Gly Asn Phe Asn Asn Ser
1220 1225 1230

Tyr Ser Leu His Lys Gly Asp Tyr Asn Asp Ser Val Gln Val Val
1235 1240 1245

Asp Cys Gly Leu Ser Leu Asn Asp Thr Ala Phe Glu Lys Met Ile
1250 1255 1260

Ile Ser Glu Leu Val His Asn Asn Leu Arg Gly Ser Ser Lys Thr

1265 1270 1275

His Asn Leu Glu Leu Thr Leu Pro Val Lys Pro Val Ile Gly Gly
1280 1285 1290

Ser Ser Ser Glu Asp Asp Ala Ile Val Ala Asp Ala Ser Ser Leu
1295 1300 1305

Met His Ser Asp Asn Pro Gly Leu Glu Leu His His Lys Glu Leu
1310 1315 1320

Glu Ala Pro Leu Ile Pro Gln Arg Thr His Ser Leu Leu Tyr Gln
1325 1330 1335

Pro Gln Lys Lys Val Lys Ser Glu Gly Thr Asp Ser Tyr Val Ser
1340 1345 1350

Gln Leu Thr Ala Glu Ala Glu Asp His Leu Gln Ser Pro Asn Arg
1355 1360 1365

Asp Ser Leu Tyr Thr Ser Met Pro Asn Leu Arg Asp Ser Pro Tyr
1370 1375 1380

Pro Glu Ser Ser Pro Asp Met Glu Glu Asp Leu Ser Pro Ser Arg
1385 1390 1395

Arg Ser Glu Asn Glu Asp Ile Tyr Tyr Lys Ser Met Pro Asn Leu
1400 1405 1410

Gly Ala Gly His Gln Leu Gln Met Cys Tyr Gln Ile Ser Arg Gly
1415 1420 1425

Asn Ser Asp Gly Tyr Ile Ile Pro Ile Asn Lys Glu Gly Cys Ile
1430 1435 1440

Pro Glu Gly Asp Val Arg Glu Gly Gln Met Gln Leu Val Thr Ser
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Leu

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<220>
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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1 5 10 15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
20 25 30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
35 40 45

Leu Arg Cys Pro Gly Ser Asp Val Ile Met Ile Glu Ser Ala Asn Tyr
50 55 60

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65 70 75 80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
85 90 95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
100 105 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
115 120 125

Cys Val Pro Tyr Met Glu Gln Lys Val Phe Val Cys Pro Gly Thr Leu
130 135 140

```
Lys Ala Ile Val Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala
145                 150                 155                 160

Gly Ala Trp Cys Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe
                165                 170                 175

Met Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Ile Glu Tyr Ala Ser
            180                 185                 190

Leu Glu Asp Phe Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro
        195                 200                 205

Asn Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe
    210                 215                 220

Phe Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr
225                 230                 235                 240

Arg Ile Lys Ser Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp
                245                 250                 255

Thr Ser Pro Tyr Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val
            260                 265                 270

Asp Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly
        275                 280                 285

Met Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala
    290                 295                 300

Thr Trp Glu Thr Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met
305                 310                 315                 320

Ile Cys Gly Val Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu
                325                 330                 335

Ser Glu Thr Gly Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu
            340                 345                 350

Asn Arg Gly Glu Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr
        355                 360                 365

Ile Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp
```

370 375 380

Asn Asn Asn Phe Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp
385 390 395 400

Pro Ala Gln Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys
405 410 415

Trp Pro Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys
420 425 430

Gly Thr Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr
435 440 445

Trp Asn Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val
450 455 460

Asn Gln Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu
465 470 475 480

Ala Asn Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp
485 490 495

Val Ser Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp
500 505 510

Ala Gln Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg
515 520 525

Ser Tyr Asn Lys Ala Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro
530 535 540

Glu Ala Leu Glu Ser Trp Lys His Met Asn Ser Ser Glu Gln Ala His
545 550 555 560

Thr Ala Thr Met Leu Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu
565 570 575

Ala Asp Asn Leu Leu Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn
580 585 590

Ile Val Leu Glu Val Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp
595 600 605

```
Phe Lys Phe Pro Leu Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu
    610                 615                 620

Ser Ala Asn Thr Val Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu
625                 630                 635                 640

Val Phe Ile Ile Tyr Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn
                645                 650                 655

Ala Thr Ile Lys Leu Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile
            660                 665                 670

Ala Val Asn Ser His Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser
        675                 680                 685

Arg Val Tyr Leu Thr Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp
    690                 695                 700

Pro Asp Asn Tyr Phe Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu
705                 710                 715                 720

Arg Thr Met Met Gly Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp
                725                 730                 735

Thr Asn Lys Thr Arg Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe
            740                 745                 750

Ala Ile Leu Met Ala His Arg Glu Ile Ala Tyr Lys Asp Gly Val His
        755                 760                 765

Glu Leu Leu Leu Thr Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu
    770                 775                 780

Val Cys Leu Ala Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu
785                 790                 795                 800

Gln Ser Asp Arg Asn Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe
                805                 810                 815

Ile Ala Glu Phe Ile Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala
            820                 825                 830
```

```
Ile Ala Cys Pro Ile Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala
        835                 840                 845

Ala Phe Ala Trp Met Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu
    850                 855                 860

Val Glu Val Phe Glu Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val
865                 870                 875                 880

Ala Gly Tyr Leu Phe Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile
                885                 890                 895

Asp Tyr Lys Ser Tyr Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp
            900                 905                 910

Asn Tyr Phe Ile Trp Ser Phe Ile Gly Pro Val Thr Phe Ile Ile Leu
        915                 920                 925

Leu Asn Ile Ile Phe Leu Val Ile Thr Leu Cys Lys Met Val Lys His
    930                 935                 940

Ser Asn Thr Leu Lys Pro Asp Ser Ser Arg Leu Glu Asn Ile Lys Ser
945                 950                 955                 960

Trp Val Leu Gly Ala Phe Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp
                965                 970                 975

Ser Phe Gly Leu Leu Phe Ile Asn Glu Glu Thr Ile Val Met Ala Tyr
            980                 985                 990

Leu Phe Thr Ile Phe Asn Ala Phe  Gln Gly Val Phe Ile  Phe Ile
Phe
        995                 1000                1005

His Cys  Ala Leu Gln Lys Lys  Val Arg Lys Glu Tyr  Gly Lys Cys
    1010                1015                1020

Phe Arg  His Ser Tyr Cys Cys  Gly Gly Leu Pro Thr  Glu Ser Pro
    1025                1030                1035

His Ser  Ser Val Lys Ala Ser  Thr Thr Arg Thr Ser  Ala Arg Tyr
    1040                1045                1050
```

```
Ser Ser  Gly Thr Gln Ser Arg  Ile Arg Arg Met Trp  Asn Asp Thr
    1055                1060                1065

Val Arg  Lys Gln Ser Glu Ser  Ser Phe Ile Ser Gly  Asp Ile Asn
    1070                1075                1080

Ser Thr  Ser Thr Leu Asn Gln  Gly Met Thr Gly Asn  Tyr Leu Leu
    1085                1090                1095

Thr Asn  Pro Leu Leu Arg Pro  His Gly Thr Asn Asn  Pro Tyr Asn
    1100                1105                1110

Thr Leu  Leu Ala Glu Thr Val  Val Cys Asn Ala Pro  Ser Ala Pro
    1115                1120                1125

Val Phe  Asn Ser Pro Gly His  Ser Leu Asn Asn Ala  Arg Asp Thr
    1130                1135                1140

Ser Ala  Met Asp Thr Leu Pro  Leu Asn Gly Asn Phe  Asn Asn Ser
    1145                1150                1155

Tyr Ser  Leu His Lys Gly Asp  Tyr Asn Asp Ser Val  Gln Val Val
    1160                1165                1170

Asp Cys  Gly Leu Ser Leu Asn  Asp Thr Ala Phe Glu  Lys Met Ile
    1175                1180                1185

Ile Ser  Glu Leu Val His Asn  Asn Leu Arg Gly Ser  Ser Lys Thr
    1190                1195                1200

His Asn  Leu Glu Leu Thr Leu  Pro Val Lys Pro Val  Ile Gly Gly
    1205                1210                1215

Ser Ser  Ser Glu Asp Asp Ala  Ile Val Ala Asp Ala  Ser Ser Leu
    1220                1225                1230

Met His  Ser Asp Asn Pro Gly  Leu Glu Leu His His  Lys Glu Leu
    1235                1240                1245

Glu Ala  Pro Leu Ile Pro Gln  Arg Thr His Ser Leu  Leu Tyr Gln
    1250                1255                1260
```

```
Pro Gln  Lys Lys Val Lys Ser  Glu Gly Thr Asp Ser  Tyr Val Ser
    1265                1270                1275

Gln Leu  Thr Ala Glu Ala Glu  Asp His Leu Gln Ser  Pro Asn Arg
    1280                1285                1290

Asp Ser  Leu Tyr Thr Ser Met  Pro Asn Leu Arg Asp  Ser Pro Tyr
    1295                1300                1305

Pro Glu  Ser Ser Pro Asp Met  Glu Glu Asp Leu Ser  Pro Ser Arg
    1310                1315                1320

Arg Ser  Glu Asn Glu Asp Ile  Tyr Tyr Lys Ser Met  Pro Asn Leu
    1325                1330                1335

Gly Ala  Gly His Gln Leu Gln  Met Cys Tyr Gln Ile  Ser Arg Gly
    1340                1345                1350

Asn Ser  Asp Gly Tyr Ile Ile  Pro Ile Asn Lys Glu  Gly Cys Ile
    1355                1360                1365

Pro Glu  Gly Asp Val Arg Glu  Gly Gln Met Gln Leu  Val Thr Ser
    1370                1375                1380

Leu
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<210> 3111
<211> 1461
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<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADGRL2; "

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<223> /note="Gene Name:
adhesion G prt-coupled receptor L2; "

<220>
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<223> /note="Uniprot ID: O95490; "

<220>
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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1 5 10 15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
20 25 30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
35 40 45

Leu Arg Cys Pro Gly Ser Asp Val Ile Met Ile Glu Ser Ala Asn Tyr
50 55 60

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65 70 75 80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
85 90 95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
100 105 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
115 120 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
130 135 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145 150 155 160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
165 170 175

Pro Tyr Arg Thr Asp Thr Leu Ile Glu Tyr Ala Ser Leu Glu Asp Phe
180 185 190

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
195 200 205

```
Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430
```

```
Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575

Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
            580                 585                 590

Asn Lys Ala Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala
        595                 600                 605

Leu Glu Ser Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala
    610                 615                 620

Thr Met Leu Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp
625                 630                 635                 640

Asn Leu Leu Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val
                645                 650                 655

Leu Glu Val Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys
```

660 665 670

Phe Pro Leu Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala
675 680 685

Asn Thr Val Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe
690 695 700

Ile Ile Tyr Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr
705 710 715 720

Ile Lys Leu Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile Ala Val
725 730 735

Asn Ser His Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val
740 745 750

Tyr Leu Thr Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp
755 760 765

Asn Tyr Phe Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr
770 775 780

Met Met Gly Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn
785 790 795 800

Lys Thr Arg Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile
805 810 815

Leu Met Ala His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu
820 825 830

Leu Leu Thr Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys
835 840 845

Leu Ala Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser
850 855 860

Asp Arg Asn Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala
865 870 875 880

Glu Phe Ile Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala
885 890 895

```
Cys Pro Ile Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe
            900                 905                 910

Ala Trp Met Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu
        915                 920                 925

Val Phe Glu Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly
    930                 935                 940

Tyr Leu Phe Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr
945                 950                 955                 960

Lys Ser Tyr Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr
                965                 970                 975

Phe Ile Trp Ser Phe Ile Gly Pro Val Thr Phe Ile Ile Leu Leu Asn
            980                 985                 990

Ile Ile Phe Leu Val Ile Thr Leu  Cys Lys Met Val Lys  His Ser
Asn
        995                 1000                1005

Thr Leu  Lys Pro Asp Ser Ser  Arg Leu Glu Asn Ile  Asn Asn Tyr
    1010                1015                1020

Arg Val  Cys Asp Gly Tyr Tyr  Asn Thr Asp Leu Pro  Gly Ser Trp
    1025                1030                1035

Val Leu  Gly Ala Phe Ala Leu  Leu Cys Leu Leu Gly  Leu Thr Trp
    1040                1045                1050

Ser Phe  Gly Leu Leu Phe Ile  Asn Glu Glu Thr Ile  Val Met Ala
    1055                1060                1065

Tyr Leu  Phe Thr Ile Phe Asn  Ala Phe Gln Gly Val  Phe Ile Phe
    1070                1075                1080

Ile Phe  His Cys Ala Leu Gln  Lys Lys Val Arg Lys  Glu Tyr Gly
    1085                1090                1095

Lys Cys  Phe Arg His Ser Tyr  Cys Cys Gly Gly Leu  Pro Thr Glu
    1100                1105                1110
```

```
Ser Pro  His Ser Ser Val Lys  Ala Ser Thr Thr Arg  Thr Ser Ala
    1115                1120                1125

Arg Tyr  Ser Ser Gly Thr Gln  Ser Arg Ile Arg Arg  Met Trp Asn
    1130                1135                1140

Asp Thr  Val Arg Lys Gln Ser  Glu Ser Ser Phe Ile  Ser Gly Asp
    1145                1150                1155

Ile Asn  Ser Thr Ser Thr Leu  Asn Gln Gly Met Thr  Gly Asn Tyr
    1160                1165                1170

Leu Leu  Thr Asn Pro Leu Leu  Arg Pro His Gly Thr  Asn Asn Pro
    1175                1180                1185

Tyr Asn  Thr Leu Leu Ala Glu  Thr Val Val Cys Asn  Ala Pro Ser
    1190                1195                1200

Ala Pro  Val Phe Asn Ser Pro  Gly His Ser Leu Asn  Asn Ala Arg
    1205                1210                1215

Asp Thr  Ser Ala Met Asp Thr  Leu Pro Leu Asn Gly  Asn Phe Asn
    1220                1225                1230

Asn Ser  Tyr Ser Leu His Lys  Gly Asp Tyr Asn Asp  Ser Val Gln
    1235                1240                1245

Val Val  Asp Cys Gly Leu Ser  Leu Asn Asp Thr Ala  Phe Glu Lys
    1250                1255                1260

Met Ile  Ile Ser Glu Leu Val  His Asn Asn Leu Arg  Gly Ser Ser
    1265                1270                1275

Lys Thr  His Asn Leu Glu Leu  Thr Leu Pro Val Lys  Pro Val Ile
    1280                1285                1290

Gly Gly  Ser Ser Ser Glu Asp  Asp Ala Ile Val Ala  Asp Ala Ser
    1295                1300                1305

Ser Leu  Met His Ser Asp Asn  Pro Gly Leu Glu Leu  His His Lys
    1310                1315                1320
```

```
Glu Leu  Glu Ala Pro Leu Ile  Pro Gln Arg Thr His  Ser Leu Leu
    1325                1330                1335

Tyr Gln  Pro Gln Lys Lys Val  Lys Ser Glu Gly Thr  Asp Ser Tyr
    1340                1345                1350

Val Ser  Gln Leu Thr Ala Glu  Ala Glu Asp His Leu  Gln Ser Pro
    1355                1360                1365

Asn Arg  Asp Ser Leu Tyr Thr  Ser Met Pro Asn Leu  Arg Asp Ser
    1370                1375                1380

Pro Tyr  Pro Glu Ser Ser Pro  Asp Met Glu Glu Asp  Leu Ser Pro
    1385                1390                1395

Ser Arg  Arg Ser Glu Asn Glu  Asp Ile Tyr Tyr Lys  Ser Met Pro
    1400                1405                1410

Asn Leu  Gly Ala Gly His Gln  Leu Gln Met Cys Tyr  Gln Ile Ser
    1415                1420                1425

Arg Gly  Asn Ser Asp Gly Tyr  Ile Ile Pro Ile Asn  Lys Glu Gly
    1430                1435                1440

Cys Ile  Pro Glu Gly Asp Val  Arg Glu Gly Gln Met  Gln Leu Val
    1445                1450                1455

Thr Ser  Leu
    1460


<210> 3112
<211> 1474
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Symbol: ADGRL2; "

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adhesion G prt-coupled receptor L2; "

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<223> /note="Uniprot ID: O95490; "

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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1   5   10   15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20   25   30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35   40   45

Leu Arg Cys Pro Gly Ser Asp Val Ile Met Ile Glu Ser Ala Asn Tyr
    50   55   60

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65   70   75   80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85   90   95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100   105   110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115   120   125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130   135   140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145   150   155   160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165   170   175

Pro Tyr Arg Thr Asp Thr Leu Ile Glu Tyr Ala Ser Leu Glu Asp Phe
            180   185   190

```
Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415
```

```
Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575

Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
            580                 585                 590

Asn Lys Leu Gln Lys Arg Glu Lys Thr Cys Arg Ala Tyr Leu Lys Ala
        595                 600                 605

Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser
    610                 615                 620

Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala Thr Met Leu
625                 630                 635                 640
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```
Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp Asn Leu Leu
                645                 650                 655

Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val Leu Glu Val
            660                 665                 670

Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys Phe Pro Leu
        675                 680                 685

Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala Asn Thr Val
    690                 695                 700

Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe Ile Ile Tyr
705                 710                 715                 720

Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr Ile Lys Leu
                725                 730                 735

Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile Ala Val Asn Ser His
            740                 745                 750

Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val Tyr Leu Thr
        755                 760                 765

Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp Asn Tyr Phe
    770                 775                 780

Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr Met Met Gly
785                 790                 795                 800

Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn Lys Thr Arg
                805                 810                 815

Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile Leu Met Ala
            820                 825                 830

His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu Leu Leu Thr
        835                 840                 845

Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile
    850                 855                 860

Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn
```

865 870 875 880

Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala Glu Phe Ile
885 890 895

Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala Cys Pro Ile
900 905 910

Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe Ala Trp Met
915 920 925

Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu Val Phe Glu
930 935 940

Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly Tyr Leu Phe
945 950 955 960

Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr Lys Ser Tyr
965 970 975

Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr Phe Ile Trp
980 985 990

Ser Phe Ile Gly Pro Val Thr Phe Ile Ile Leu Leu Asn Ile Ile
Phe
995 1000 1005

Leu Val Ile Thr Leu Cys Lys Met Val Lys His Ser Asn Thr Leu
1010 1015 1020

Lys Pro Asp Ser Ser Arg Leu Glu Asn Ile Asn Asn Tyr Arg Val
1025 1030 1035

Cys Asp Gly Tyr Tyr Asn Thr Asp Leu Pro Gly Ser Trp Val Leu
1040 1045 1050

Gly Ala Phe Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp Ser Phe
1055 1060 1065

Gly Leu Leu Phe Ile Asn Glu Glu Thr Ile Val Met Ala Tyr Leu
1070 1075 1080

Phe Thr Ile Phe Asn Ala Phe Gln Gly Val Phe Ile Phe Ile Phe

1085 1090 1095

His Cys Ala Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly Lys Cys
1100 1105 1110

Phe Arg His Ser Tyr Cys Cys Gly Gly Leu Pro Thr Glu Ser Pro
1115 1120 1125

His Ser Ser Val Lys Ala Ser Thr Thr Arg Thr Ser Ala Arg Tyr
1130 1135 1140

Ser Ser Gly Thr Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr
1145 1150 1155

Val Arg Lys Gln Ser Glu Ser Ser Phe Ile Ser Gly Asp Ile Asn
1160 1165 1170

Ser Thr Ser Thr Leu Asn Gln Gly Met Thr Gly Asn Tyr Leu Leu
1175 1180 1185

Thr Asn Pro Leu Leu Arg Pro His Gly Thr Asn Asn Pro Tyr Asn
1190 1195 1200

Thr Leu Leu Ala Glu Thr Val Val Cys Asn Ala Pro Ser Ala Pro
1205 1210 1215

Val Phe Asn Ser Pro Gly His Ser Leu Asn Asn Ala Arg Asp Thr
1220 1225 1230

Ser Ala Met Asp Thr Leu Pro Leu Asn Gly Asn Phe Asn Asn Ser
1235 1240 1245

Tyr Ser Leu His Lys Gly Asp Tyr Asn Asp Ser Val Gln Val Val
1250 1255 1260

Asp Cys Gly Leu Ser Leu Asn Asp Thr Ala Phe Glu Lys Met Ile
1265 1270 1275

Ile Ser Glu Leu Val His Asn Asn Leu Arg Gly Ser Ser Lys Thr
1280 1285 1290

His Asn Leu Glu Leu Thr Leu Pro Val Lys Pro Val Ile Gly Gly
1295 1300 1305

```
Ser Ser  Ser Glu Asp Asp Ala  Ile Val Ala Asp Ala  Ser Ser Leu
    1310                1315                1320

Met His  Ser Asp Asn Pro Gly  Leu Glu Leu His His  Lys Glu Leu
    1325                1330                1335

Glu Ala  Pro Leu Ile Pro Gln  Arg Thr His Ser Leu  Leu Tyr Gln
    1340                1345                1350

Pro Gln  Lys Lys Val Lys Ser  Glu Gly Thr Asp Ser  Tyr Val Ser
    1355                1360                1365

Gln Leu  Thr Ala Glu Ala Glu  Asp His Leu Gln Ser  Pro Asn Arg
    1370                1375                1380

Asp Ser  Leu Tyr Thr Ser Met  Pro Asn Leu Arg Asp  Ser Pro Tyr
    1385                1390                1395

Pro Glu  Ser Ser Pro Asp Met  Glu Glu Asp Leu Ser  Pro Ser Arg
    1400                1405                1410

Arg Ser  Glu Asn Glu Asp Ile  Tyr Tyr Lys Ser Met  Pro Asn Leu
    1415                1420                1425

Gly Ala  Gly His Gln Leu Gln  Met Cys Tyr Gln Ile  Ser Arg Gly
    1430                1435                1440

Asn Ser  Asp Gly Tyr Ile Ile  Pro Ile Asn Lys Glu  Gly Cys Ile
    1445                1450                1455

Pro Glu  Gly Asp Val Arg Glu  Gly Gln Met Gln Leu  Val Thr Ser
    1460                1465                1470

Leu
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<210> 3113
<211> 1431
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 696; "

<220>
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<223> /note="Gene Symbol: ADGRL2; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor L2; "

<220>
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<400> 3113

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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1               5                  10                  15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20                  25                  30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35                  40                  45

Leu Arg Cys Pro Gly Ser Asp Val Ile Met Ile Glu Ser Ala Asn Tyr
    50                  55                  60

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65                  70                  75                  80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85                  90                  95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100                 105                 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115                 120                 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130                 135                 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145                 150                 155                 160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
```

```
                165                 170                 175

Pro Tyr Arg Thr Asp Thr Leu Ile Glu Tyr Ala Ser Leu Glu Asp Phe
            180                 185                 190

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400
```

```
Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575

Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
            580                 585                 590

Asn Lys Leu Gln Lys Arg Glu Lys Thr Cys Arg Ala Tyr Leu Lys Ala
        595                 600                 605

Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser
    610                 615                 620
```

```
Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala Thr Met Leu
625                 630                 635                 640

Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp Asn Leu Leu
                645                 650                 655

Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val Leu Glu Val
            660                 665                 670

Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys Phe Pro Leu
        675                 680                 685

Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala Asn Thr Val
    690                 695                 700

Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe Ile Ile Tyr
705                 710                 715                 720

Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr Ile Lys Leu
                725                 730                 735

Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile Ala Val Asn Ser His
            740                 745                 750

Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val Tyr Leu Thr
        755                 760                 765

Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp Asn Tyr Phe
    770                 775                 780

Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr Met Met Gly
785                 790                 795                 800

Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn Lys Thr Arg
                805                 810                 815

Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile Leu Met Ala
            820                 825                 830

His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu Leu Leu Thr
        835                 840                 845
```

```
Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile
    850                 855                 860

Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn
865                 870                 875                 880

Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala Glu Phe Ile
                885                 890                 895

Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala Cys Pro Ile
            900                 905                 910

Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe Ala Trp Met
        915                 920                 925

Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu Val Phe Glu
    930                 935                 940

Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly Tyr Leu Phe
945                 950                 955                 960

Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr Lys Ser Tyr
                965                 970                 975

Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr Phe Ile Trp
            980                 985                 990

Ser Phe Ile Gly Pro Val Thr Phe  Ile Ile Leu Leu Asn  Ile Ile
Phe
        995                 1000                1005

Leu Val  Ile Thr Leu Cys Lys  Met Val Lys His Ser  Asn Thr Leu
    1010                1015                1020

Lys Pro  Asp Ser Ser Arg Leu  Glu Asn Ile Asn Asn  Tyr Arg Val
    1025                1030                1035

Cys Asp  Gly Tyr Tyr Asn Thr  Asp Leu Pro Gly Ser  Trp Val Leu
    1040                1045                1050

Gly Ala  Phe Ala Leu Leu Cys  Leu Leu Gly Leu Thr  Trp Ser Phe
    1055                1060                1065
```

Gly Leu Leu Phe Ile Asn Glu Glu Thr Ile Val Met Ala Tyr Leu
1070 1075 1080

Phe Thr Ile Phe Asn Ala Phe Gln Gly Val Phe Ile Phe Ile Phe
1085 1090 1095

His Cys Ala Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly Lys Cys
1100 1105 1110

Phe Arg His Ser Tyr Cys Cys Gly Gly Leu Pro Thr Glu Ser Pro
1115 1120 1125

His Ser Ser Val Lys Ala Ser Thr Thr Arg Thr Ser Ala Arg Tyr
1130 1135 1140

Ser Ser Gly Thr Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr
1145 1150 1155

Val Arg Lys Gln Ser Glu Ser Ser Phe Ile Ser Gly Asp Ile Asn
1160 1165 1170

Ser Thr Ser Thr Leu Asn Gln Gly His Ser Leu Asn Asn Ala Arg
1175 1180 1185

Asp Thr Ser Ala Met Asp Thr Leu Pro Leu Asn Gly Asn Phe Asn
1190 1195 1200

Asn Ser Tyr Ser Leu His Lys Gly Asp Tyr Asn Asp Ser Val Gln
1205 1210 1215

Val Val Asp Cys Gly Leu Ser Leu Asn Asp Thr Ala Phe Glu Lys
1220 1225 1230

Met Ile Ile Ser Glu Leu Val His Asn Asn Leu Arg Gly Ser Ser
1235 1240 1245

Lys Thr His Asn Leu Glu Leu Thr Leu Pro Val Lys Pro Val Ile
1250 1255 1260

Gly Gly Ser Ser Ser Glu Asp Asp Ala Ile Val Ala Asp Ala Ser
1265 1270 1275

Ser Leu Met His Ser Asp Asn Pro Gly Leu Glu Leu His His Lys

```
    1280                1285                1290

Glu Leu  Glu Ala Pro Leu Ile  Pro Gln Arg Thr His  Ser Leu Leu
    1295                1300                1305

Tyr Gln  Pro Gln Lys Lys Val  Lys Ser Glu Gly Thr  Asp Ser Tyr
    1310                1315                1320

Val Ser  Gln Leu Thr Ala Glu  Ala Glu Asp His Leu  Gln Ser Pro
    1325                1330                1335

Asn Arg  Asp Ser Leu Tyr Thr  Ser Met Pro Asn Leu  Arg Asp Ser
    1340                1345                1350

Pro Tyr  Pro Glu Ser Ser Pro  Asp Met Glu Glu Asp  Leu Ser Pro
    1355                1360                1365

Ser Arg  Arg Ser Glu Asn Glu  Asp Ile Tyr Tyr Lys  Ser Met Pro
    1370                1375                1380

Asn Leu  Gly Ala Gly His Gln  Leu Gln Met Cys Tyr  Gln Ile Ser
    1385                1390                1395

Arg Gly  Asn Ser Asp Gly Tyr  Ile Ile Pro Ile Asn  Lys Glu Gly
    1400                1405                1410

Cys Ile  Pro Glu Gly Asp Val  Arg Glu Gly Gln Met  Gln Leu Val
    1415                1420                1425

Thr Ser  Leu
    1430


<210> 3114
<211> 1459
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADGRL2; "

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<221> source
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adhesion G prt-coupled receptor L2; "

<220>
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<223> /note="Uniprot ID: O95490; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359763"

<400> 3114

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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1               5                  10                  15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20                  25                  30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35                  40                  45

Leu Arg Cys Pro Gly Ser Asp Val Ile Met Ile Glu Ser Ala Asn Tyr
    50                  55                  60

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65                  70                  75                  80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85                  90                  95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100                 105                 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115                 120                 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130                 135                 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145                 150                 155                 160

Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175
```

```
Pro Tyr Arg Thr Asp Thr Leu Ile Glu Tyr Ala Ser Leu Glu Asp Phe
            180                 185                 190

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
```

405 410 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
420 425 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
435 440 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
450 455 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465 470 475 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
485 490 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
500 505 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
515 520 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
530 535 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545 550 555 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
565 570 575

Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
580 585 590

Asn Lys Leu Gln Lys Arg Glu Lys Thr Cys Arg Ala Tyr Leu Lys Ala
595 600 605

Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser
610 615 620

Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala Thr Met Leu
625 630 635 640

```
Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp Asn Leu Leu
                645                 650                 655

Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val Leu Glu Val
            660                 665                 670

Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys Phe Pro Leu
        675                 680                 685

Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala Asn Thr Val
    690                 695                 700

Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe Ile Ile Tyr
705                 710                 715                 720

Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr Ile Lys Leu
                725                 730                 735

Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile Ala Val Asn Ser His
            740                 745                 750

Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val Tyr Leu Thr
        755                 760                 765

Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp Asn Tyr Phe
    770                 775                 780

Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr Met Met Gly
785                 790                 795                 800

Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn Lys Thr Arg
                805                 810                 815

Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile Leu Met Ala
            820                 825                 830

His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu Leu Leu Thr
        835                 840                 845

Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile
    850                 855                 860
```

```
Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn
865                 870                 875                 880

Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala Glu Phe Ile
                885                 890                 895

Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala Cys Pro Ile
            900                 905                 910

Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe Ala Trp Met
        915                 920                 925

Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu Val Phe Glu
    930                 935                 940

Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly Tyr Leu Phe
945                 950                 955                 960

Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr Lys Ser Tyr
                965                 970                 975

Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr Phe Ile Trp
            980                 985                 990

Ser Phe Ile Gly Pro Val Thr Phe  Ile Ile Leu Leu Asn  Ile Ile
Phe
        995                 1000                1005

Leu Val  Ile Thr Leu Cys Lys  Met Val Lys His Ser  Asn Thr Leu
    1010                1015                1020

Lys Pro  Asp Ser Ser Arg Leu  Glu Asn Ile Lys Ser  Trp Val Leu
    1025                1030                1035

Gly Ala  Phe Ala Leu Leu Cys  Leu Leu Gly Leu Thr  Trp Ser Phe
    1040                1045                1050

Gly Leu  Leu Phe Ile Asn Glu  Glu Thr Ile Val Met  Ala Tyr Leu
    1055                1060                1065

Phe Thr  Ile Phe Asn Ala Phe  Gln Gly Val Phe Ile  Phe Ile Phe
    1070                1075                1080
```

```
His Cys  Ala Leu Gln Lys Lys  Val Arg Lys Glu Tyr  Gly Lys Cys
    1085                1090                1095

Phe Arg  His Ser Tyr Cys Cys  Gly Gly Leu Pro Thr  Glu Ser Pro
    1100                1105                1110

His Ser  Ser Val Lys Ala Ser  Thr Thr Arg Thr Ser  Ala Arg Tyr
    1115                1120                1125

Ser Ser  Gly Thr Gln Ser Arg  Ile Arg Arg Met Trp  Asn Asp Thr
    1130                1135                1140

Val Arg  Lys Gln Ser Glu Ser  Ser Phe Ile Ser Gly  Asp Ile Asn
    1145                1150                1155

Ser Thr  Ser Thr Leu Asn Gln  Gly Met Thr Gly Asn  Tyr Leu Leu
    1160                1165                1170

Thr Asn  Pro Leu Leu Arg Pro  His Gly Thr Asn Asn  Pro Tyr Asn
    1175                1180                1185

Thr Leu  Leu Ala Glu Thr Val  Val Cys Asn Ala Pro  Ser Ala Pro
    1190                1195                1200

Val Phe  Asn Ser Pro Gly His  Ser Leu Asn Asn Ala  Arg Asp Thr
    1205                1210                1215

Ser Ala  Met Asp Thr Leu Pro  Leu Asn Gly Asn Phe  Asn Asn Ser
    1220                1225                1230

Tyr Ser  Leu His Lys Gly Asp  Tyr Asn Asp Ser Val  Gln Val Val
    1235                1240                1245

Asp Cys  Gly Leu Ser Leu Asn  Asp Thr Ala Phe Glu  Lys Met Ile
    1250                1255                1260

Ile Ser  Glu Leu Val His Asn  Asn Leu Arg Gly Ser  Ser Lys Thr
    1265                1270                1275

His Asn  Leu Glu Leu Thr Leu  Pro Val Lys Pro Val  Ile Gly Gly
    1280                1285                1290
```

```
Ser Ser  Ser Glu Asp Asp Ala  Ile Val Ala Asp Ala  Ser Ser Leu
    1295                1300                1305

Met His  Ser Asp Asn Pro Gly  Leu Glu Leu His His  Lys Glu Leu
    1310                1315                1320

Glu Ala  Pro Leu Ile Pro Gln  Arg Thr His Ser Leu  Leu Tyr Gln
    1325                1330                1335

Pro Gln  Lys Lys Val Lys Ser  Glu Gly Thr Asp Ser  Tyr Val Ser
    1340                1345                1350

Gln Leu  Thr Ala Glu Ala Glu  Asp His Leu Gln Ser  Pro Asn Arg
    1355                1360                1365

Asp Ser  Leu Tyr Thr Ser Met  Pro Asn Leu Arg Asp  Ser Pro Tyr
    1370                1375                1380

Pro Glu  Ser Ser Pro Asp Met  Glu Glu Asp Leu Ser  Pro Ser Arg
    1385                1390                1395

Arg Ser  Glu Asn Glu Asp Ile  Tyr Tyr Lys Ser Met  Pro Asn Leu
    1400                1405                1410

Gly Ala  Gly His Gln Leu Gln  Met Cys Tyr Gln Ile  Ser Arg Gly
    1415                1420                1425

Asn Ser  Asp Gly Tyr Ile Ile  Pro Ile Asn Lys Glu  Gly Cys Ile
    1430                1435                1440

Pro Glu  Gly Asp Val Arg Glu  Gly Gln Met Gln Leu  Val Thr Ser
    1445                1450                1455

Leu
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<210> 3115
<211> 1416
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<220>
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<220>
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adhesion G prt-coupled receptor L2; "

<220>
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<220>
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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1 5 10 15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
20 25 30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
35 40 45

Leu Arg Cys Pro Gly Ser Asp Val Ile Met Ile Glu Ser Ala Asn Tyr
50 55 60

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65 70 75 80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
85 90 95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
100 105 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
115 120 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
130 135 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145 150 155 160

```
Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175

Pro Tyr Arg Thr Asp Thr Leu Ile Glu Tyr Ala Ser Leu Glu Asp Phe
            180                 185                 190

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380
```

```
Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
385                 390                 395                 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
                405                 410                 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
            420                 425                 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
        435                 440                 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
    450                 455                 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465                 470                 475                 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
                485                 490                 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
            500                 505                 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
        515                 520                 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
    530                 535                 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545                 550                 555                 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
                565                 570                 575

Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
            580                 585                 590

Asn Lys Leu Gln Lys Arg Glu Lys Thr Cys Arg Ala Tyr Leu Lys Ala
        595                 600                 605

Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser
```

610 615 620

Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala Thr Met Leu
625 630 635 640

Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp Asn Leu Leu
645 650 655

Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val Leu Glu Val
660 665 670

Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys Phe Pro Leu
675 680 685

Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala Asn Thr Val
690 695 700

Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe Ile Ile Tyr
705 710 715 720

Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr Ile Lys Leu
725 730 735

Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile Ala Val Asn Ser His
740 745 750

Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val Tyr Leu Thr
755 760 765

Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp Asn Tyr Phe
770 775 780

Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr Met Met Gly
785 790 795 800

Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn Lys Thr Arg
805 810 815

Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile Leu Met Ala
820 825 830

His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu Leu Leu Thr
835 840 845

```
Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile
    850                 855                 860

Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn
865                 870                 875                 880

Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala Glu Phe Ile
                885                 890                 895

Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala Cys Pro Ile
            900                 905                 910

Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe Ala Trp Met
        915                 920                 925

Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu Val Phe Glu
    930                 935                 940

Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly Tyr Leu Phe
945                 950                 955                 960

Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr Lys Ser Tyr
                965                 970                 975

Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr Phe Ile Trp
            980                 985                 990

Ser Phe Ile Gly Pro Val Thr Phe  Ile Ile Leu Leu Asn  Ile Ile
Phe
        995                 1000                1005

Leu Val  Ile Thr Leu Cys Lys  Met Val Lys His Ser  Asn Thr Leu
    1010                1015                1020

Lys Pro  Asp Ser Ser Arg Leu  Glu Asn Ile Lys Ser  Trp Val Leu
    1025                1030                1035

Gly Ala  Phe Ala Leu Leu Cys  Leu Leu Gly Leu Thr  Trp Ser Phe
    1040                1045                1050

Gly Leu  Leu Phe Ile Asn Glu  Glu Thr Ile Val Met  Ala Tyr Leu
    1055                1060                1065
```

```
Phe Thr  Ile Phe Asn Ala Phe  Gln Gly Val Phe Ile  Phe Ile Phe
    1070                1075                1080

His Cys  Ala Leu Gln Lys Lys  Val Arg Lys Glu Tyr  Gly Lys Cys
    1085                1090                1095

Phe Arg  His Ser Tyr Cys Cys  Gly Gly Leu Pro Thr  Glu Ser Pro
    1100                1105                1110

His Ser  Ser Val Lys Ala Ser  Thr Thr Arg Thr Ser  Ala Arg Tyr
    1115                1120                1125

Ser Ser  Gly Thr Gln Ser Arg  Ile Arg Arg Met Trp  Asn Asp Thr
    1130                1135                1140

Val Arg  Lys Gln Ser Glu Ser  Ser Phe Ile Ser Gly  Asp Ile Asn
    1145                1150                1155

Ser Thr  Ser Thr Leu Asn Gln  Gly His Ser Leu Asn  Asn Ala Arg
    1160                1165                1170

Asp Thr  Ser Ala Met Asp Thr  Leu Pro Leu Asn Gly  Asn Phe Asn
    1175                1180                1185

Asn Ser  Tyr Ser Leu His Lys  Gly Asp Tyr Asn Asp  Ser Val Gln
    1190                1195                1200

Val Val  Asp Cys Gly Leu Ser  Leu Asn Asp Thr Ala  Phe Glu Lys
    1205                1210                1215

Met Ile  Ile Ser Glu Leu Val  His Asn Asn Leu Arg  Gly Ser Ser
    1220                1225                1230

Lys Thr  His Asn Leu Glu Leu  Thr Leu Pro Val Lys  Pro Val Ile
    1235                1240                1245

Gly Gly  Ser Ser Ser Glu Asp  Asp Ala Ile Val Ala  Asp Ala Ser
    1250                1255                1260

Ser Leu  Met His Ser Asp Asn  Pro Gly Leu Glu Leu  His His Lys
    1265                1270                1275
```

```
Glu Leu  Glu Ala Pro Leu Ile  Pro Gln Arg Thr His  Ser Leu Leu
    1280                1285                1290

Tyr Gln  Pro Gln Lys Lys Val  Lys Ser Glu Gly Thr  Asp Ser Tyr
    1295                1300                1305

Val Ser  Gln Leu Thr Ala Glu  Ala Glu Asp His Leu  Gln Ser Pro
    1310                1315                1320

Asn Arg  Asp Ser Leu Tyr Thr  Ser Met Pro Asn Leu  Arg Asp Ser
    1325                1330                1335

Pro Tyr  Pro Glu Ser Ser Pro  Asp Met Glu Glu Asp  Leu Ser Pro
    1340                1345                1350

Ser Arg  Arg Ser Glu Asn Glu  Asp Ile Tyr Tyr Lys  Ser Met Pro
    1355                1360                1365

Asn Leu  Gly Ala Gly His Gln  Leu Gln Met Cys Tyr  Gln Ile Ser
    1370                1375                1380

Arg Gly  Asn Ser Asp Gly Tyr  Ile Ile Pro Ile Asn  Lys Glu Gly
    1385                1390                1395

Cys Ile  Pro Glu Gly Asp Val  Arg Glu Gly Gln Met  Gln Leu Val
    1400                1405                1410

Thr Ser  Leu
    1415


<210> 3116
<211> 471
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 696; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRL2; "

<220>
<221> source
<223> /note="Gene Name:
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adhesion G prt-coupled receptor L2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000385853"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3116

```
Xaa Ile Thr Leu Cys Lys Met Val Lys His Ser Asn Thr Leu Lys Pro
1               5                  10                  15

Asp Ser Ser Arg Leu Glu Asn Ile Asn Asn Tyr Arg Val Cys Asp Gly
            20                  25                  30

Tyr Tyr Asn Thr Asp Leu Pro Gly Ser Trp Val Leu Gly Ala Phe Ala
        35                  40                  45

Leu Leu Cys Leu Leu Gly Leu Thr Trp Ser Phe Gly Leu Leu Phe Ile
    50                  55                  60

Asn Glu Glu Thr Ile Val Met Ala Tyr Leu Phe Thr Ile Phe Asn Ala
65                  70                  75                  80

Phe Gln Gly Val Phe Ile Phe Ile Phe His Cys Ala Leu Gln Lys Lys
                85                  90                  95

Val Arg Lys Glu Tyr Gly Lys Cys Phe Arg His Ser Tyr Cys Cys Gly
            100                 105                 110

Gly Leu Pro Thr Glu Ser Pro His Ser Ser Val Lys Ala Ser Thr Thr
        115                 120                 125

Arg Thr Ser Ala Arg Tyr Ser Ser Gly Thr Gln Ser Arg Ile Arg Arg
    130                 135                 140

Met Trp Asn Asp Thr Val Arg Lys Gln Ser Glu Ser Ser Phe Ile Ser
145                 150                 155                 160

Gly Asp Ile Asn Ser Thr Ser Thr Leu Asn Gln Gly Met Thr Gly Asn
                165                 170                 175
```

```
Tyr Leu Leu Thr Asn Pro Leu Leu Arg Pro His Gly Thr Asn Asn Pro
            180                 185                 190

Tyr Asn Thr Leu Leu Ala Glu Thr Val Val Cys Asn Ala Pro Ser Ala
        195                 200                 205

Pro Val Phe Asn Ser Pro Ala Thr Tyr Arg Glu Thr Arg His Ser Leu
    210                 215                 220

Asn Asn Ala Arg Asp Thr Ser Ala Met Asp Thr Leu Pro Leu Asn Gly
225                 230                 235                 240

Asn Phe Asn Asn Ser Tyr Ser Leu His Lys Gly Asp Tyr Asn Asp Ser
                245                 250                 255

Val Gln Val Val Asp Cys Gly Leu Ser Leu Asn Asp Thr Ala Phe Glu
            260                 265                 270

Lys Met Ile Ile Ser Glu Leu Val His Asn Asn Leu Arg Gly Ser Ser
        275                 280                 285

Lys Thr His Asn Leu Glu Leu Thr Leu Pro Val Lys Pro Val Ile Gly
    290                 295                 300

Gly Ser Ser Ser Glu Asp Asp Ala Ile Val Ala Asp Ala Ser Ser Leu
305                 310                 315                 320

Met His Ser Asp Asn Pro Gly Leu Glu Leu His His Lys Glu Leu Glu
                325                 330                 335

Ala Pro Leu Ile Pro Gln Arg Thr His Ser Leu Leu Tyr Gln Pro Gln
            340                 345                 350

Lys Lys Val Lys Ser Glu Gly Thr Asp Ser Tyr Val Ser Gln Leu Thr
        355                 360                 365

Ala Glu Ala Glu Asp His Leu Gln Ser Pro Asn Arg Asp Ser Leu Tyr
    370                 375                 380

Thr Ser Met Pro Asn Leu Arg Asp Ser Pro Tyr Pro Glu Ser Ser Pro
385                 390                 395                 400

Asp Met Glu Glu Asp Leu Ser Pro Ser Arg Arg Ser Glu Asn Glu Asp
```

405 410 415

Ile Tyr Tyr Lys Ser Met Pro Asn Leu Gly Ala Gly His Gln Leu Gln
420 425 430

Met Cys Tyr Gln Ile Ser Arg Gly Asn Ser Asp Gly Tyr Ile Ile Pro
435 440 445

Ile Asn Lys Glu Gly Cys Ile Pro Glu Gly Asp Val Arg Glu Gly Gln
450 455 460

Met Gln Leu Val Thr Ser Leu
465 470

<210> 3117
<211> 1351
<212> PRT
<213> Homo sapiens

<220>
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<220>
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adhesion G prt-coupled receptor L2; "

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3117
Xaa Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val Asp Ser Pro Cys
1 5 10 15

Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys Lys Asp Pro Leu
20 25 30

Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr Pro Tyr Arg Thr

```
        35                  40                  45

Asp Thr Leu Ile Glu Tyr Ala Ser Leu Glu Asp Phe Gln Asn Ser Arg
    50                  55                  60

Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp Gly Thr Gly Phe
65                  70                  75                  80

Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu Arg Thr Arg Asn
                85                  90                  95

Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly Glu Ala Ile
            100                 105                 110

Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg Trp Gly Gly
        115                 120                 125

Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu Trp Val Ile
    130                 135                 140

Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile Ser Gln Leu Asn
145                 150                 155                 160

Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr Val Tyr Asp Lys
                165                 170                 175

Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val Leu Tyr Val Val
            180                 185                 190

Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly Lys Asn Ser Ile
        195                 200                 205

Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu Tyr Val Asp Val
    210                 215                 220

Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val Asp Tyr Asn Pro
225                 230                 235                 240

Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe Ile Leu Arg Tyr
                245                 250                 255

Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val Pro Thr Thr Ala
            260                 265                 270
```

```
Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr Ile Ile Ser Thr
        275                 280                 285

Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr Thr Val Ala Gly
    290                 295                 300

Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro Ala Val Ser Thr
305                 310                 315                 320

Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu Pro Glu Arg Phe
                325                 330                 335

Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro Gln Thr Gln Arg
            340                 345                 350

Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr Arg Gly Thr Ala
        355                 360                 365

Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn Pro Lys Gly Pro
    370                 375                 380

Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln Leu Ala Gln Lys
385                 390                 395                 400

Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn Glu Leu Ala Lys
                405                 410                 415

His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser Ser Ser Val Arg
            420                 425                 430

Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln Leu Gln Glu Leu
        435                 440                 445

Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr Asn Lys Leu Gln
    450                 455                 460

Lys Arg Glu Lys Thr Cys Arg Ala Tyr Leu Lys Ala Ile Val Asp Thr
465                 470                 475                 480

Val Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser Trp Lys His Met
                485                 490                 495
```

```
Asn Ser Ser Glu Gln Ala His Thr Ala Thr Met Leu Leu Asp Thr Leu
            500                 505                 510

Glu Glu Gly Ala Phe Val Leu Ala Asp Asn Leu Leu Glu Pro Thr Arg
        515                 520                 525

Val Ser Met Pro Thr Glu Asn Ile Val Leu Glu Val Ala Val Leu Ser
    530                 535                 540

Thr Glu Gly Gln Ile Gln Asp Phe Lys Phe Pro Leu Gly Ile Lys Gly
545                 550                 555                 560

Ala Gly Ser Ser Ile Gln Leu Ser Ala Asn Thr Val Lys Gln Asn Ser
                565                 570                 575

Arg Asn Gly Leu Ala Lys Leu Val Phe Ile Ile Tyr Arg Ser Leu Gly
            580                 585                 590

Gln Phe Leu Ser Thr Glu Asn Ala Thr Ile Lys Leu Gly Ala Asp Phe
        595                 600                 605

Ile Gly Arg Asn Ser Thr Ile Ala Val Asn Ser His Val Ile Ser Val
    610                 615                 620

Ser Ile Asn Lys Glu Ser Ser Arg Val Tyr Leu Thr Asp Pro Val Leu
625                 630                 635                 640

Phe Thr Leu Pro His Ile Asp Pro Asp Asn Tyr Phe Asn Ala Asn Cys
                645                 650                 655

Ser Phe Trp Asn Tyr Ser Glu Arg Thr Met Met Gly Tyr Trp Ser Thr
            660                 665                 670

Gln Gly Cys Lys Leu Val Asp Thr Asn Lys Thr Arg Thr Thr Cys Ala
        675                 680                 685

Cys Ser His Leu Thr Asn Phe Ala Ile Leu Met Ala His Arg Glu Ile
    690                 695                 700

Ala Tyr Lys Asp Gly Val His Glu Leu Leu Leu Thr Val Ile Thr Trp
705                 710                 715                 720
```

```
Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile Cys Ile Phe Thr
                725                 730                 735

Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile His Lys
            740                 745                 750

Asn Leu Cys Ile Asn Leu Phe Ile Ala Glu Phe Ile Phe Leu Ile Gly
        755                 760                 765

Ile Asp Lys Thr Lys Tyr Ala Ile Ala Cys Pro Ile Phe Ala Gly Leu
    770                 775                 780

Leu His Phe Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Leu Glu Gly
785                 790                 795                 800

Val Gln Leu Tyr Leu Met Leu Val Glu Val Phe Glu Ser Glu Tyr Ser
                805                 810                 815

Arg Lys Lys Tyr Tyr Tyr Val Ala Gly Tyr Leu Phe Pro Ala Thr Val
            820                 825                 830

Val Gly Val Ser Ala Ala Ile Asp Tyr Lys Ser Tyr Gly Thr Glu Lys
        835                 840                 845

Ala Cys Trp Leu His Val Asp Asn Tyr Phe Ile Trp Ser Phe Ile Gly
    850                 855                 860

Pro Val Thr Phe Ile Ile Leu Leu Asn Ile Ile Phe Leu Val Ile Thr
865                 870                 875                 880

Leu Cys Lys Met Val Lys His Ser Asn Thr Leu Lys Pro Asp Ser Ser
                885                 890                 895

Arg Leu Glu Asn Ile Asn Asn Tyr Arg Val Cys Asp Gly Tyr Tyr Asn
            900                 905                 910

Thr Asp Leu Pro Gly Tyr Glu Asp Asn Lys Pro Phe Ile Lys Ser Trp
        915                 920                 925

Val Leu Gly Ala Phe Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp Ser
    930                 935                 940

Phe Gly Leu Leu Phe Ile Asn Glu Glu Thr Ile Val Met Ala Tyr Leu
```

945 950 955 960

Phe Thr Ile Phe Asn Ala Phe Gln Gly Val Phe Ile Phe Ile Phe His
965 970 975

Cys Ala Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly Lys Cys Phe Arg
980 985 990

His Ser Tyr Cys Cys Gly Gly Leu Pro Thr Glu Ser Pro His Ser Ser
995 1000 1005

Val Lys Ala Ser Thr Thr Arg Thr Ser Ala Arg Tyr Ser Ser Gly
1010 1015 1020

Thr Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr Val Arg Lys
1025 1030 1035

Gln Ser Glu Ser Ser Phe Ile Ser Gly Asp Ile Asn Ser Thr Ser
1040 1045 1050

Thr Leu Asn Gln Gly Met Thr Gly Asn Tyr Leu Leu Thr Asn Pro
1055 1060 1065

Leu Leu Arg Pro His Gly Thr Asn Asn Pro Tyr Asn Thr Leu Leu
1070 1075 1080

Ala Glu Thr Val Val Cys Asn Ala Pro Ser Ala Pro Val Phe Asn
1085 1090 1095

Ser Pro Gly His Ser Leu Asn Asn Ala Arg Asp Thr Ser Ala Met
1100 1105 1110

Asp Thr Leu Pro Leu Asn Gly Asn Phe Asn Asn Ser Tyr Ser Leu
1115 1120 1125

His Lys Gly Asp Tyr Asn Asp Ser Val Gln Val Val Asp Cys Gly
1130 1135 1140

Leu Ser Leu Asn Asp Thr Ala Phe Glu Lys Met Ile Ile Ser Glu
1145 1150 1155

Leu Val His Asn Asn Leu Arg Gly Ser Ser Lys Thr His Asn Leu

1160 1165 1170

Glu Leu Thr Leu Pro Val Lys Pro Val Ile Gly Gly Ser Ser Ser
1175 1180 1185

Glu Asp Asp Ala Ile Val Ala Asp Ala Ser Ser Leu Met His Ser
1190 1195 1200

Asp Asn Pro Gly Leu Glu Leu His His Lys Glu Leu Glu Ala Pro
1205 1210 1215

Leu Ile Pro Gln Arg Thr His Ser Leu Leu Tyr Gln Pro Gln Lys
1220 1225 1230

Lys Val Lys Ser Glu Gly Thr Asp Ser Tyr Val Ser Gln Leu Thr
1235 1240 1245

Ala Glu Ala Glu Asp His Leu Gln Ser Pro Asn Arg Asp Ser Leu
1250 1255 1260

Tyr Thr Ser Met Pro Asn Leu Arg Asp Ser Pro Tyr Pro Glu Ser
1265 1270 1275

Ser Pro Asp Met Glu Glu Asp Leu Ser Pro Ser Arg Arg Ser Glu
1280 1285 1290

Asn Glu Asp Ile Tyr Tyr Lys Ser Met Pro Asn Leu Gly Ala Gly
1295 1300 1305

His Gln Leu Gln Met Cys Tyr Gln Ile Ser Arg Gly Asn Ser Asp
1310 1315 1320

Gly Tyr Ile Ile Pro Ile Asn Lys Glu Gly Cys Ile Pro Glu Gly
1325 1330 1335

Asp Val Arg Glu Gly Gln Met Gln Leu Val Thr Ser Leu
1340 1345 1350

<210> 3118
<211> 1431
<212> PRT
<213> Homo sapiens

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<220>
<221> source
<223> /note="Gene Symbol: ADGRL2; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor L2; "

<220>
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<223> /note="ENSP ID: ENSP00000485786"

<400> 3118

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Met Val Ser Ser Gly Cys Arg Met Arg Ser Leu Trp Phe Ile Ile Val
1               5                  10                  15

Ile Ser Phe Leu Pro Asn Thr Glu Gly Phe Ser Arg Ala Ala Leu Pro
            20                  25                  30

Phe Gly Leu Val Arg Arg Glu Leu Ser Cys Glu Gly Tyr Ser Ile Asp
        35                  40                  45

Leu Arg Cys Pro Gly Ser Asp Val Ile Met Ile Glu Ser Ala Asn Tyr
    50                  55                  60

Gly Arg Thr Asp Asp Lys Ile Cys Asp Ala Asp Pro Phe Gln Met Glu
65                  70                  75                  80

Asn Thr Asp Cys Tyr Leu Pro Asp Ala Phe Lys Ile Met Thr Gln Arg
                85                  90                  95

Cys Asn Asn Arg Thr Gln Cys Ile Val Val Thr Gly Ser Asp Val Phe
            100                 105                 110

Pro Asp Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu
        115                 120                 125

Cys Val Pro Tyr Ile Phe Val Cys Pro Gly Thr Leu Lys Ala Ile Val
    130                 135                 140

Asp Ser Pro Cys Ile Tyr Glu Ala Glu Gln Lys Ala Gly Ala Trp Cys
145                 150                 155                 160
```

```
Lys Asp Pro Leu Gln Ala Ala Asp Lys Ile Tyr Phe Met Pro Trp Thr
                165                 170                 175

Pro Tyr Arg Thr Asp Thr Leu Ile Glu Tyr Ala Ser Leu Glu Asp Phe
            180                 185                 190

Gln Asn Ser Arg Gln Thr Thr Thr Tyr Lys Leu Pro Asn Arg Val Asp
        195                 200                 205

Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Val Phe Phe Asn Lys Glu
    210                 215                 220

Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser
225                 230                 235                 240

Gly Glu Ala Ile Ile Asn Tyr Ala Asn Tyr His Asp Thr Ser Pro Tyr
                245                 250                 255

Arg Trp Gly Gly Lys Thr Asp Ile Asp Leu Ala Val Asp Glu Asn Gly
            260                 265                 270

Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Met Ile Val Ile
        275                 280                 285

Ser Gln Leu Asn Pro Tyr Thr Leu Arg Phe Glu Ala Thr Trp Glu Thr
    290                 295                 300

Val Tyr Asp Lys Arg Ala Ala Ser Asn Ala Phe Met Ile Cys Gly Val
305                 310                 315                 320

Leu Tyr Val Val Arg Ser Val Tyr Gln Asp Asn Glu Ser Glu Thr Gly
                325                 330                 335

Lys Asn Ser Ile Asp Tyr Ile Tyr Asn Thr Arg Leu Asn Arg Gly Glu
            340                 345                 350

Tyr Val Asp Val Pro Phe Pro Asn Gln Tyr Gln Tyr Ile Ala Ala Val
        355                 360                 365

Asp Tyr Asn Pro Arg Asp Asn Gln Leu Tyr Val Trp Asn Asn Asn Phe
    370                 375                 380

Ile Leu Arg Tyr Ser Leu Glu Phe Gly Pro Pro Asp Pro Ala Gln Val
```

385 390 395 400

Pro Thr Thr Ala Val Thr Ile Thr Ser Ser Ala Glu Leu Phe Lys Thr
405 410 415

Ile Ile Ser Thr Thr Ser Thr Thr Ser Gln Lys Gly Pro Met Ser Thr
420 425 430

Thr Val Ala Gly Ser Gln Glu Gly Ser Lys Gly Thr Lys Pro Pro Pro
435 440 445

Ala Val Ser Thr Thr Lys Ile Pro Pro Ile Thr Asn Ile Phe Pro Leu
450 455 460

Pro Glu Arg Phe Cys Glu Ala Leu Asp Ser Lys Gly Ile Lys Trp Pro
465 470 475 480

Gln Thr Gln Arg Gly Met Met Val Glu Arg Pro Cys Pro Lys Gly Thr
485 490 495

Arg Gly Thr Ala Ser Tyr Leu Cys Met Ile Ser Thr Gly Thr Trp Asn
500 505 510

Pro Lys Gly Pro Asp Leu Ser Asn Cys Thr Ser His Trp Val Asn Gln
515 520 525

Leu Ala Gln Lys Ile Arg Ser Gly Glu Asn Ala Ala Ser Leu Ala Asn
530 535 540

Glu Leu Ala Lys His Thr Lys Gly Pro Val Phe Ala Gly Asp Val Ser
545 550 555 560

Ser Ser Val Arg Leu Met Glu Gln Leu Val Asp Ile Leu Asp Ala Gln
565 570 575

Leu Gln Glu Leu Lys Pro Ser Glu Lys Asp Ser Ala Gly Arg Ser Tyr
580 585 590

Asn Lys Leu Gln Lys Arg Glu Lys Thr Cys Arg Ala Tyr Leu Lys Ala
595 600 605

Ile Val Asp Thr Val Asp Asn Leu Leu Arg Pro Glu Ala Leu Glu Ser
610 615 620

```
Trp Lys His Met Asn Ser Ser Glu Gln Ala His Thr Ala Thr Met Leu
625                 630                 635                 640

Leu Asp Thr Leu Glu Glu Gly Ala Phe Val Leu Ala Asp Asn Leu Leu
                645                 650                 655

Glu Pro Thr Arg Val Ser Met Pro Thr Glu Asn Ile Val Leu Glu Val
            660                 665                 670

Ala Val Leu Ser Thr Glu Gly Gln Ile Gln Asp Phe Lys Phe Pro Leu
        675                 680                 685

Gly Ile Lys Gly Ala Gly Ser Ser Ile Gln Leu Ser Ala Asn Thr Val
    690                 695                 700

Lys Gln Asn Ser Arg Asn Gly Leu Ala Lys Leu Val Phe Ile Ile Tyr
705                 710                 715                 720

Arg Ser Leu Gly Gln Phe Leu Ser Thr Glu Asn Ala Thr Ile Lys Leu
                725                 730                 735

Gly Ala Asp Phe Ile Gly Arg Asn Ser Thr Ile Ala Val Asn Ser His
            740                 745                 750

Val Ile Ser Val Ser Ile Asn Lys Glu Ser Ser Arg Val Tyr Leu Thr
        755                 760                 765

Asp Pro Val Leu Phe Thr Leu Pro His Ile Asp Pro Asp Asn Tyr Phe
    770                 775                 780

Asn Ala Asn Cys Ser Phe Trp Asn Tyr Ser Glu Arg Thr Met Met Gly
785                 790                 795                 800

Tyr Trp Ser Thr Gln Gly Cys Lys Leu Val Asp Thr Asn Lys Thr Arg
                805                 810                 815

Thr Thr Cys Ala Cys Ser His Leu Thr Asn Phe Ala Ile Leu Met Ala
            820                 825                 830

His Arg Glu Ile Ala Tyr Lys Asp Gly Val His Glu Leu Leu Leu Thr
        835                 840                 845
```

```
Val Ile Thr Trp Val Gly Ile Val Ile Ser Leu Val Cys Leu Ala Ile
    850                 855                 860

Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn
865                 870                 875                 880

Thr Ile His Lys Asn Leu Cys Ile Asn Leu Phe Ile Ala Glu Phe Ile
                885                 890                 895

Phe Leu Ile Gly Ile Asp Lys Thr Lys Tyr Ala Ile Ala Cys Pro Ile
            900                 905                 910

Phe Ala Gly Leu Leu His Phe Phe Phe Leu Ala Ala Phe Ala Trp Met
        915                 920                 925

Cys Leu Glu Gly Val Gln Leu Tyr Leu Met Leu Val Glu Val Phe Glu
    930                 935                 940

Ser Glu Tyr Ser Arg Lys Lys Tyr Tyr Tyr Val Ala Gly Tyr Leu Phe
945                 950                 955                 960

Pro Ala Thr Val Val Gly Val Ser Ala Ala Ile Asp Tyr Lys Ser Tyr
                965                 970                 975

Gly Thr Glu Lys Ala Cys Trp Leu His Val Asp Asn Tyr Phe Ile Trp
            980                 985                 990

Ser Phe Ile Gly Pro Val Thr Phe  Ile Ile Leu Leu Asn  Ile Ile
Phe
        995                 1000                1005

Leu Val  Ile Thr Leu Cys Lys  Met Val Lys His Ser  Asn Thr Leu
    1010                1015                1020

Lys Pro  Asp Ser Ser Arg Leu  Glu Asn Ile Asn Asn  Tyr Arg Val
    1025                1030                1035

Cys Asp  Gly Tyr Tyr Asn Thr  Asp Leu Pro Gly Ser  Trp Val Leu
    1040                1045                1050

Gly Ala  Phe Ala Leu Leu Cys  Leu Leu Gly Leu Thr  Trp Ser Phe
    1055                1060                1065
```

```
Gly Leu  Leu Phe Ile Asn Glu  Glu Thr Ile Val Met  Ala Tyr Leu
    1070                1075                1080

Phe Thr  Ile Phe Asn Ala Phe  Gln Gly Val Phe Ile  Phe Ile Phe
    1085                1090                1095

His Cys  Ala Leu Gln Lys Lys  Val Arg Lys Glu Tyr  Gly Lys Cys
    1100                1105                1110

Phe Arg  His Ser Tyr Cys Cys  Gly Gly Leu Pro Thr  Glu Ser Pro
    1115                1120                1125

His Ser  Ser Val Lys Ala Ser  Thr Thr Arg Thr Ser  Ala Arg Tyr
    1130                1135                1140

Ser Ser  Gly Thr Gln Ser Arg  Ile Arg Arg Met Trp  Asn Asp Thr
    1145                1150                1155

Val Arg  Lys Gln Ser Glu Ser  Ser Phe Ile Ser Gly  Asp Ile Asn
    1160                1165                1170

Ser Thr  Ser Thr Leu Asn Gln  Gly His Ser Leu Asn  Asn Ala Arg
    1175                1180                1185

Asp Thr  Ser Ala Met Asp Thr  Leu Pro Leu Asn Gly  Asn Phe Asn
    1190                1195                1200

Asn Ser  Tyr Ser Leu His Lys  Gly Asp Tyr Asn Asp  Ser Val Gln
    1205                1210                1215

Val Val  Asp Cys Gly Leu Ser  Leu Asn Asp Thr Ala  Phe Glu Lys
    1220                1225                1230

Met Ile  Ile Ser Glu Leu Val  His Asn Asn Leu Arg  Gly Ser Ser
    1235                1240                1245

Lys Thr  His Asn Leu Glu Leu  Thr Leu Pro Val Lys  Pro Val Ile
    1250                1255                1260

Gly Gly  Ser Ser Ser Glu Asp  Asp Ala Ile Val Ala  Asp Ala Ser
    1265                1270                1275
```

```
Ser Leu  Met His Ser Asp Asn  Pro Gly Leu Glu Leu  His His Lys
    1280                 1285                 1290

Glu Leu  Glu Ala Pro Leu Ile  Pro Gln Arg Thr His  Ser Leu Leu
    1295                 1300                 1305

Tyr Gln  Pro Gln Lys Lys Val  Lys Ser Glu Gly Thr  Asp Ser Tyr
    1310                 1315                 1320

Val Ser  Gln Leu Thr Ala Glu  Ala Glu Asp His Leu  Gln Ser Pro
    1325                 1330                 1335

Asn Arg  Asp Ser Leu Tyr Thr  Ser Met Pro Asn Leu  Arg Asp Ser
    1340                 1345                 1350

Pro Tyr  Pro Glu Ser Ser Pro  Asp Met Glu Glu Asp  Leu Ser Pro
    1355                 1360                 1365

Ser Arg  Arg Ser Glu Asn Glu  Asp Ile Tyr Tyr Lys  Ser Met Pro
    1370                 1375                 1380

Asn Leu  Gly Ala Gly His Gln  Leu Gln Met Cys Tyr  Gln Ile Ser
    1385                 1390                 1395

Arg Gly  Asn Ser Asp Gly Tyr  Ile Ile Pro Ile Asn  Lys Glu Gly
    1400                 1405                 1410

Cys Ile  Pro Glu Gly Asp Val  Arg Glu Gly Gln Met  Gln Leu Val
    1415                 1420                 1425

Thr Ser  Leu
    1430


<210> 3119
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<213> Homo sapiens

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<221> source
<223> /note="Gene Symbol: ADGRL3; "
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<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor L3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420931"

<400> 3119
Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1 5 10 15

Ile His Gly Gly Lys His Ser Glu Arg His Pro Ala Leu Ala Ala Pro
20 25 30

Leu Arg His Ala Glu Arg Ser Pro Gly Gly Ala Leu Pro Pro Arg His
35 40 45

Leu Leu Gln Gln Pro Ala Ala Glu Arg Thr Ala Ala His Arg Gly Gln
50 55 60

Gly Pro Arg Gly Ala Thr Arg Gly Val Arg Gly Pro Gly Ala Gln Gly
65 70 75 80

Ala Gln Ile Ala Ala Gln Ala Phe Ser Arg Ala Pro Ile Pro Met Ala
85 90 95

Val Val Arg Arg Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg
100 105 110

Cys Pro Gly Thr Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg
115 120 125

Thr Asp Asp Lys Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile
130 135 140

Arg Cys Tyr Leu Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn
145 150 155 160

Asn Arg Thr Gln Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp
165 170 175

Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val
180 185 190

```
Pro Tyr Lys Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
        195                 200                 205

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
    210                 215                 220

Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
225                 230                 235                 240

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
                245                 250                 255

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
            260                 265                 270

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
        275                 280                 285

Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
    290                 295                 300

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
305                 310                 315                 320

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
                325                 330                 335

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
            340                 345                 350

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
        355                 360                 365

Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
    370                 375                 380

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
385                 390                 395                 400

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
                405                 410                 415
```

```
Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
            420                 425                 430

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
        435                 440                 445

Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
    450                 455                 460

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
465                 470                 475                 480

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
                485                 490                 495

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
            500                 505                 510

Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
        515                 520                 525

Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
    530                 535                 540

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
545                 550                 555                 560

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
                565                 570                 575

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
            580                 585                 590

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
        595                 600                 605

Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
    610                 615                 620

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
625                 630                 635                 640

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
```

645 650 655

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
660 665 670

Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
675 680 685

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
690 695 700

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
705 710 715 720

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
725 730 735

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
740 745 750

Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
755 760 765

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
770 775 780

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
785 790 795 800

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
805 810 815

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
820 825 830

Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
835 840 845

Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
850 855 860

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
865 870 875 880

```
Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
                885                 890                 895

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
            900                 905                 910

Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
        915                 920                 925

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
    930                 935                 940

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
945                 950                 955                 960

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
                965                 970                 975

Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
            980                 985                 990

Leu Leu Phe Leu Ile Gly Ile Asn  Arg Thr Asp Gln Pro  Ile Ala
Cys
        995                 1000                1005

Ala Val  Phe Ala Ala Leu Leu  His Phe Phe Phe Leu  Ala Ala Phe
    1010                1015                1020

Thr Trp  Met Phe Leu Glu Gly  Val Gln Leu Tyr Ile  Met Leu Val
    1025                1030                1035

Glu Val  Phe Glu Ser Glu His  Ser Arg Arg Lys Tyr  Phe Tyr Leu
    1040                1045                1050

Val Gly  Tyr Gly Met Pro Ala  Leu Ile Val Ala Val  Ser Ala Ala
    1055                1060                1065

Val Asp  Tyr Arg Ser Tyr Gly  Thr Asp Lys Val Cys  Trp Leu Arg
    1070                1075                1080

Leu Asp  Thr Tyr Phe Ile Trp  Ser Phe Ile Gly Pro  Ala Thr Leu
    1085                1090                1095
```

```
Ile Ile  Met Leu Asn Val Ile  Phe Leu Gly Ile Ala  Leu Tyr Lys
    1100                1105                1110

Met Phe  His His Thr Ala Ile  Leu Lys Pro Glu Ser  Gly Cys Leu
    1115                1120                1125

Asp Asn  Ile Asn Tyr Glu Asp  Asn Arg Pro Phe Ile  Lys Ser Trp
    1130                1135                1140

Val Ile  Gly Ala Ile Ala Leu  Leu Cys Leu Leu Gly  Leu Thr Trp
    1145                1150                1155

Ala Phe  Gly Leu Met Tyr Ile  Asn Glu Ser Thr Val  Ile Met Ala
    1160                1165                1170

Tyr Leu  Phe Thr Ile Phe Asn  Ser Leu Gln Gly Met  Phe Ile Phe
    1175                1180                1185

Ile Phe  His Cys Val Leu Gln  Lys Lys Val Arg Lys  Glu Tyr Gly
    1190                1195                1200

Lys Cys  Leu Arg Thr His Cys  Cys Ser Gly Lys Ser  Thr Glu Ser
    1205                1210                1215

Ser Ile  Gly Ser Gly Lys Thr  Ser Gly Ser Arg Thr  Pro Gly Arg
    1220                1225                1230

Tyr Ser  Thr Gly Ser Gln Ser  Arg Ile Arg Arg Met  Trp Asn Asp
    1235                1240                1245

Thr Val  Arg Lys Gln Ser Glu  Ser Ser Phe Ile Thr  Gly Asp Ile
    1250                1255                1260

Asn Ser  Ser Ala Ser Leu Asn  Arg Gly Ala Met Ala  Asn His Leu
    1265                1270                1275

Ile Ser  Asn Ala Leu Leu Arg  Pro His Gly Thr Asn  Asn Pro Tyr
    1280                1285                1290

Asn Thr  Leu Leu Gly Glu Pro  Ala Val Cys Asn Asn  Pro Ser Val
    1295                1300                1305
```

```
Ser Met  Tyr Asn Ala Gln Glu  Gly Leu Leu Asn Asn  Ala Arg Asp
    1310                1315                1320

Thr Ser  Val Met Asp Thr Leu  Pro Leu Asn Gly Asn  His Gly Asn
    1325                1330                1335

Ser Tyr  Ser Ile Ala Ser Gly  Glu Tyr Leu Ser Asn  Cys Val Gln
    1340                1345                1350

Ile Ile  Asp Arg Gly Tyr Asn  His Asn Glu Thr Ala  Leu Glu Lys
    1355                1360                1365

Lys Ile  Leu Lys Glu Leu Thr  Ser Asn Tyr Ile Pro  Ser Tyr Leu
    1370                1375                1380

Asn Asn  His Glu Arg Ser Ser  Glu Gln Asn Arg Asn  Leu Met Asn
    1385                1390                1395

Lys Leu  Val Asn Asn Leu Gly  Ser Gly Arg Glu Asp  Asp Ala Ile
    1400                1405                1410

Val Leu  Asp Asp Ala Thr Ser  Phe Asn His Glu Glu  Ser Leu Gly
    1415                1420                1425

Leu Glu  Leu Ile His Glu Glu  Ser Asp Ala Pro Leu  Leu Pro Pro
    1430                1435                1440

Arg Val  Tyr Ser Thr Glu Asn  His Gln Pro His His  Tyr Thr Arg
    1445                1450                1455

Arg Arg  Ile Pro Gln Asp His  Ser Glu Ser Phe Phe  Pro Leu Leu
    1460                1465                1470

Thr Asn  Glu His Thr Glu Asp  Leu Gln Ser Pro His  Arg Asp Ser
    1475                1480                1485

Leu Tyr  Thr Ser Met Pro Thr  Leu Ala Gly Val Ala  Ala Thr Glu
    1490                1495                1500

Ser Val  Thr Thr Ser Thr Gln  Thr Glu Pro Pro Pro  Ala Lys Cys
    1505                1510                1515
```

```
Gly Asp  Ala Glu Asp Val Tyr  Tyr Lys Ser Met Pro  Asn Leu Gly
    1520                1525                1530

Ser Arg  Asn His Val His Gln  Leu His Thr Tyr Tyr  Gln Leu Gly
    1535                1540                1545

Arg Gly  Ser Ser Asp Gly Phe  Ile Val Pro Pro Asn  Lys Asp Gly
    1550                1555                1560

Thr Pro  Pro Glu Gly Ser Ser  Lys Gly Pro Ala His  Leu Val Thr
    1565                1570                1575

Ser Leu
    1580


<210> 3120
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<212> PRT
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<223> /note="Gene Symbol: ADGRL3; "

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Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15

Ile His Gly Gly Lys His Ser Glu Arg His Pro Ala Leu Ala Ala Pro
            20                  25                  30

Leu Arg His Ala Glu Arg Ser Pro Gly Gly Ala Leu Pro Pro Arg His
        35                  40                  45

Leu Leu Gln Gln Pro Ala Ala Glu Arg Thr Ala Ala His Arg Gly Gln
    50                  55                  60
```

```
Gly Pro Arg Gly Ala Thr Arg Gly Val Arg Gly Pro Gly Ala Gln Gly
65                  70                  75                  80

Ala Gln Ile Ala Ala Gln Ala Phe Ser Arg Ala Pro Ile Pro Met Ala
                85                  90                  95

Val Val Arg Arg Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg
            100                 105                 110

Cys Pro Gly Thr Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg
        115                 120                 125

Thr Asp Asp Lys Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile
    130                 135                 140

Arg Cys Tyr Leu Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn
145                 150                 155                 160

Asn Arg Thr Gln Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp
                165                 170                 175

Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val
            180                 185                 190

Pro Tyr Lys Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
        195                 200                 205

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
    210                 215                 220

Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
225                 230                 235                 240

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
                245                 250                 255

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
            260                 265                 270

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
        275                 280                 285
```

```
Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
    290                 295                 300

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
305                 310                 315                 320

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
                325                 330                 335

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
            340                 345                 350

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
        355                 360                 365

Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
    370                 375                 380

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
385                 390                 395                 400

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
                405                 410                 415

Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
            420                 425                 430

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
        435                 440                 445

Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
    450                 455                 460

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
465                 470                 475                 480

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
                485                 490                 495

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
            500                 505                 510
```

```
Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
        515                 520                 525

Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
    530                 535                 540

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
545                 550                 555                 560

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
                565                 570                 575

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
            580                 585                 590

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
        595                 600                 605

Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
    610                 615                 620

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
625                 630                 635                 640

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
                645                 650                 655

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
            660                 665                 670

Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
        675                 680                 685

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
    690                 695                 700

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
705                 710                 715                 720

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
                725                 730                 735

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
```

740 745 750

Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
755 760 765

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
770 775 780

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
785 790 795 800

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
805 810 815

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
820 825 830

Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
835 840 845

Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
850 855 860

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
865 870 875 880

Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
885 890 895

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
900 905 910

Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
915 920 925

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
930 935 940

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
945 950 955 960

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
965 970 975

```
Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
            980                 985                 990

Leu Leu Phe Leu Ile Gly Ile Asn  Arg Thr Asp Gln Pro  Ile Ala
Cys
        995                1000                1005

Ala Val  Phe Ala Ala Leu Leu  His Phe Phe Phe Leu  Ala Ala Phe
    1010                1015                1020

Thr Trp  Met Phe Leu Glu Gly  Val Gln Leu Tyr Ile  Met Leu Val
    1025                1030                1035

Glu Val  Phe Glu Ser Glu His  Ser Arg Arg Lys Tyr  Phe Tyr Leu
    1040                1045                1050

Val Gly  Tyr Gly Met Pro Ala  Leu Ile Val Ala Val  Ser Ala Ala
    1055                1060                1065

Val Asp  Tyr Arg Ser Tyr Gly  Thr Asp Lys Val Cys  Trp Leu Arg
    1070                1075                1080

Leu Asp  Thr Tyr Phe Ile Trp  Ser Phe Ile Gly Pro  Ala Thr Leu
    1085                1090                1095

Ile Ile  Met Leu Asn Val Ile  Phe Leu Gly Ile Ala  Leu Tyr Lys
    1100                1105                1110

Met Phe  His His Thr Ala Ile  Leu Lys Pro Glu Ser  Gly Cys Leu
    1115                1120                1125

Asp Asn  Ile Lys Ser Trp Val  Ile Gly Ala Ile Ala  Leu Leu Cys
    1130                1135                1140

Leu Leu  Gly Leu Thr Trp Ala  Phe Gly Leu Met Tyr  Ile Asn Glu
    1145                1150                1155

Ser Thr  Val Ile Met Ala Tyr  Leu Phe Thr Ile Phe  Asn Ser Leu
    1160                1165                1170

Gln Gly  Met Phe Ile Phe Ile  Phe His Cys Val Leu  Gln Lys Lys
    1175                1180                1185
```

```
Val Arg  Lys Glu Tyr Gly Lys  Cys Leu Arg Thr His  Cys Cys Ser
    1190                1195                1200

Gly Lys  Ser Thr Glu Ser Ser  Ile Gly Ser Gly Lys  Thr Ser Gly
    1205                1210                1215

Ser Arg  Thr Pro Gly Arg Tyr  Ser Thr Gly Ser Gln  Ser Arg Ile
    1220                1225                1230

Arg Arg  Met Trp Asn Asp Thr  Val Arg Lys Gln Ser  Glu Ser Ser
    1235                1240                1245

Phe Ile  Thr Gly Asp Ile Asn  Ser Ser Ala Ser Leu  Asn Arg Glu
    1250                1255                1260

Gly Leu  Leu Asn Asn Ala Arg  Asp Thr Ser Val Met  Asp Thr Leu
    1265                1270                1275

Pro Leu  Asn Gly Asn His Gly  Asn Ser Tyr Ser Ile  Ala Ser Gly
    1280                1285                1290

Glu Tyr  Leu Ser Asn Cys Val  Gln Ile Ile Asp Arg  Gly Tyr Asn
    1295                1300                1305

His Asn  Glu Thr Ala Leu Glu  Lys Lys Ile Leu Lys  Glu Leu Thr
    1310                1315                1320

Ser Asn  Tyr Ile Pro Ser Tyr  Leu Asn Asn His Glu  Arg Ser Ser
    1325                1330                1335

Glu Gln  Asn Arg Asn Leu Met  Asn Lys Leu Val Asn  Asn Leu Gly
    1340                1345                1350

Ser Gly  Arg Glu Asp Asp Ala  Ile Val Leu Asp Asp  Ala Thr Ser
    1355                1360                1365

Phe Asn  His Glu Glu Ser Leu  Gly Leu Glu Leu Ile  His Glu Glu
    1370                1375                1380

Ser Asp  Ala Pro Leu Leu Pro  Pro Arg Val Tyr Ser  Thr Glu Asn
    1385                1390                1395
```

```
His Gln  Pro His His Tyr Thr  Arg Arg Arg Ile Pro  Gln Asp His
    1400                1405                1410

Ser Glu  Ser Phe Phe Pro Leu  Leu Thr Asn Glu His  Thr Glu Asp
    1415                1420                1425

Leu Gln  Ser Pro His Arg Asp  Ser Leu Tyr Thr Ser  Met Pro Thr
    1430                1435                1440

Leu Ala  Gly Val Ala Ala Thr  Glu Ser Val Thr Thr  Ser Thr Gln
    1445                1450                1455

Thr Glu  Pro Pro Pro Ala Lys  Cys Gly Asp Ala Glu  Asp Val Tyr
    1460                1465                1470

Tyr Lys  Ser Met Pro Asn Leu  Gly Ser Arg Asn His  Val His Gln
    1475                1480                1485

Leu His  Thr Tyr Tyr Gln Leu  Gly Arg Gly Ser Ser  Asp Gly Phe
    1490                1495                1500

Ile Val  Pro Pro Asn Lys Asp  Gly Thr Pro Pro Glu  Gly Ser Ser
    1505                1510                1515

Lys Gly  Pro Ala His Leu Val  Thr Ser Leu
    1520                1525


<210> 3121
<211> 1342
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<223> /note="ENSP ID: ENSP00000421476"

<400> 3121

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Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15

Ile His Gly Gly Lys His Ser Glu Arg His Pro Ala Leu Ala Ala Pro
            20                  25                  30

Leu Arg His Ala Glu Arg Ser Pro Gly Gly Ala Leu Pro Pro Arg His
        35                  40                  45

Leu Leu Gln Gln Pro Ala Ala Glu Arg Thr Ala Ala His Arg Gly Gln
    50                  55                  60

Gly Pro Arg Gly Ala Thr Arg Gly Val Arg Gly Pro Gly Ala Gln Gly
65                  70                  75                  80

Ala Gln Ile Ala Ala Gln Ala Phe Ser Arg Ala Pro Ile Pro Met Ala
                85                  90                  95

Val Val Arg Arg Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg
            100                 105                 110

Cys Pro Gly Thr Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg
        115                 120                 125

Thr Asp Asp Lys Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile
    130                 135                 140

Arg Cys Tyr Leu Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn
145                 150                 155                 160

Asn Arg Thr Gln Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp
                165                 170                 175

Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val
            180                 185                 190

Pro Tyr Lys Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
        195                 200                 205

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
    210                 215                 220
```

```
Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
225                 230                 235                 240

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
                245                 250                 255

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
            260                 265                 270

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
        275                 280                 285

Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
    290                 295                 300

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
305                 310                 315                 320

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
                325                 330                 335

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
            340                 345                 350

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
        355                 360                 365

Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
    370                 375                 380

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
385                 390                 395                 400

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
                405                 410                 415

Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
            420                 425                 430

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
        435                 440                 445
```

```
Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
    450                 455                 460

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
465                 470                 475                 480

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
                485                 490                 495

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
            500                 505                 510

Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
        515                 520                 525

Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
    530                 535                 540

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
545                 550                 555                 560

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
                565                 570                 575

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
            580                 585                 590

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
        595                 600                 605

Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
    610                 615                 620

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
625                 630                 635                 640

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
                645                 650                 655

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
            660                 665                 670
```

```
Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
        675                 680                 685

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
    690                 695                 700

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
705                 710                 715                 720

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
                725                 730                 735

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
            740                 745                 750

Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
        755                 760                 765

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
    770                 775                 780

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
785                 790                 795                 800

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
                805                 810                 815

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
            820                 825                 830

Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
        835                 840                 845

Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
    850                 855                 860

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
865                 870                 875                 880

Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
                885                 890                 895

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
```

900 905 910

Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
915 920 925

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
930 935 940

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
945 950 955 960

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
965 970 975

Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
980 985 990

Leu Leu Phe Leu Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala
Cys
995 1000 1005

Ala Val Phe Ala Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe
1010 1015 1020

Thr Trp Met Phe Leu Glu Gly Val Gln Leu Tyr Ile Met Leu Val
1025 1030 1035

Glu Val Phe Glu Ser Glu His Ser Arg Arg Lys Tyr Phe Tyr Leu
1040 1045 1050

Val Gly Tyr Gly Met Pro Ala Leu Ile Val Ala Val Ser Ala Ala
1055 1060 1065

Val Asp Tyr Arg Ser Tyr Gly Thr Asp Lys Val Cys Trp Leu Arg
1070 1075 1080

Leu Asp Thr Tyr Phe Ile Trp Ser Phe Ile Gly Pro Ala Thr Leu
1085 1090 1095

Ile Ile Met Leu Asn Val Ile Phe Leu Gly Ile Ala Leu Tyr Lys
1100 1105 1110

Met Phe His His Thr Ala Ile Leu Lys Pro Glu Ser Gly Cys Leu

1115 1120 1125

Asp Asn Ile Lys Ser Trp Val Ile Gly Ala Ile Ala Leu Leu Cys
1130 1135 1140

Leu Leu Gly Leu Thr Trp Ala Phe Gly Leu Met Tyr Ile Asn Glu
1145 1150 1155

Ser Thr Val Ile Met Ala Tyr Leu Phe Thr Ile Phe Asn Ser Leu
1160 1165 1170

Gln Gly Met Phe Ile Phe Ile Phe His Cys Val Leu Gln Lys Lys
1175 1180 1185

Val Arg Lys Glu Tyr Gly Lys Cys Leu Arg Thr His Cys Cys Ser
1190 1195 1200

Gly Lys Ser Thr Glu Ser Ser Ile Gly Ser Gly Lys Thr Ser Gly
1205 1210 1215

Ser Arg Thr Pro Gly Arg Tyr Ser Thr Gly Ser Gln Ser Arg Ile
1220 1225 1230

Arg Arg Met Trp Asn Asp Thr Val Arg Lys Gln Ser Glu Ser Ser
1235 1240 1245

Phe Ile Thr Gly Asp Ile Asn Ser Ser Ala Ser Leu Asn Arg Gly
1250 1255 1260

Ala Met Ala Asn His Leu Ile Ser Asn Ala Leu Leu Arg Pro His
1265 1270 1275

Gly Thr Asn Asn Pro Tyr Asn Thr Leu Leu Gly Glu Pro Ala Val
1280 1285 1290

Cys Asn Asn Pro Ser Val Ser Met Tyr Asn Ala Gln Glu Pro Tyr
1295 1300 1305

Arg Glu Thr Ser Met Gly Val Lys Leu Asn Ile Ala Tyr Gln Ile
1310 1315 1320

Gly Ala Ser Glu Gln Cys Gln Gly Tyr Lys Cys His Gly Tyr Ser
1325 1330 1335

Thr Thr Glu Trp
    1340

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<220>
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<400> 3122
Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1   5   10   15

Ile His Ala Phe Ser Arg Ala Pro Ile Pro Met Ala Val Val Arg Arg
            20   25   30

Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg Cys Pro Gly Thr
        35   40   45

Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg Thr Asp Asp Lys
    50   55   60

Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile Arg Cys Tyr Leu
65   70   75   80

Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn Asn Arg Thr Gln
                85   90   95

Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp Pro Cys Pro Gly
            100   105   110

```
Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val Pro Tyr Lys Val
        115                 120                 125

Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys Gly Val Tyr Gln
    130                 135                 140

Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met Pro Trp Thr Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys Asp Asp Phe Ile
            180                 185                 190

Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255

Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
            260                 265                 270

Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys Ile Val Ile Ser
        275                 280                 285

Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr Trp Asp Thr Ala
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile Cys Gly Ile Leu
305                 310                 315                 320

Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn Glu Ala Thr Gly
                325                 330                 335

Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser Lys Asp Ser Leu
```

```
            340                 345                 350

Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile Ala Ala Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn Asn Tyr His Val
    370                 375                 380

Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser Arg Ser Gly Gln
385                 390                 395                 400

Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro Ile His Leu Asp
                405                 410                 415

Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser Thr Thr Gly Pro
            420                 425                 430

Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu Arg Thr Thr Thr
        435                 440                 445

Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser Gly Arg Arg Asn
    450                 455                 460

Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val Leu Asp Asp Met
465                 470                 475                 480

Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro Ala Leu Glu Glu
                485                 490                 495

Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp Phe Lys Thr Arg
            500                 505                 510

Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly Thr Ile Gly Val
        515                 520                 525

Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly
    530                 535                 540

Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln
545                 550                 555                 560

Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala
                565                 570                 575
```

```
Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val
            580                 585                 590

Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn
        595                 600                 605

Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Leu
    610                 615                 620

Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln Ala Met Val Glu
625                 630                 635                 640

Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp Arg Asp
                645                 650                 655

Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu His Thr
            660                 665                 670

Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys Thr Asp
        675                 680                 685

Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala Arg Leu
    690                 695                 700

Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn Met Gly
705                 710                 715                 720

His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln Asn Gly
                725                 730                 735

Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn Leu Gly
            740                 745                 750

Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr Glu Ala
        755                 760                 765

Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile Thr Ala
    770                 775                 780

Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp Pro Val
785                 790                 795                 800
```

```
Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe Asn Pro
                805                 810                 815

Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly Tyr Trp
            820                 825                 830

Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His Thr Thr
        835                 840                 845

Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala His Val
    850                 855                 860

Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp Val Ile
865                 870                 875                 880

Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile Cys Ile
                885                 890                 895

Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile
            900                 905                 910

His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu Phe Leu
        915                 920                 925

Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val Phe Ala
    930                 935                 940

Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met Phe Leu
945                 950                 955                 960

Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu Ser Glu
                965                 970                 975

His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met Pro Ala
            980                 985                 990

Leu Ile Val Ala Val Ser Ala Ala  Val Asp Tyr Arg Ser  Tyr Gly
Thr
        995                 1000                1005

Asp Lys  Val Cys Trp Leu Arg  Leu Asp Thr Tyr Phe  Ile Trp Ser
    1010                1015                1020
```

```
Phe Ile  Gly Pro Ala Thr Leu  Ile Ile Met Leu Asn  Val Ile Phe
    1025                1030                1035

Leu Gly  Ile Ala Leu Tyr Lys  Met Phe His His Thr  Ala Ile Leu
    1040                1045                1050

Lys Pro  Glu Ser Gly Cys Leu  Asp Asn Ile Asn Tyr  Glu Asp Asn
    1055                1060                1065

Arg Pro  Phe Ile Lys Ser Trp  Val Ile Gly Ala Ile  Ala Leu Leu
    1070                1075                1080

Cys Leu  Leu Gly Leu Thr Trp  Ala Phe Gly Leu Met  Tyr Ile Asn
    1085                1090                1095

Glu Ser  Thr Val Ile Met Ala  Tyr Leu Phe Thr Ile  Phe Asn Ser
    1100                1105                1110

Leu Gln  Gly Met Phe Ile Phe  Ile Phe His Cys Val  Leu Gln Lys
    1115                1120                1125

Lys Val  Arg Lys Glu Tyr Gly  Lys Cys Leu Arg Thr  His Cys Cys
    1130                1135                1140

Ser Gly  Lys Ser Thr Glu Ser  Ser Ile Gly Ser Gly  Lys Thr Ser
    1145                1150                1155

Gly Ser  Arg Thr Pro Gly Arg  Tyr Ser Thr Gly Ser  Gln Ser Arg
    1160                1165                1170

Ile Arg  Arg Met Trp Asn Asp  Thr Val Arg Lys Gln  Ser Glu Ser
    1175                1180                1185

Ser Phe  Ile Thr Gly Asp Ile  Asn Ser Ser Ala Ser  Leu Asn Arg
    1190                1195                1200

Gly Ala  Met Ala Asn His Leu  Ile Ser Asn Ala Leu  Leu Arg Pro
    1205                1210                1215

His Gly  Thr Asn Asn Pro Tyr  Asn Thr Leu Leu Gly  Glu Pro Ala
    1220                1225                1230
```

Val Cys Asn Asn Pro Ser Val Ser Met Tyr Asn Ala Gln Glu Gly
1235 1240 1245

Leu Leu Asn Asn Ala Arg Asp Thr Ser Val Met Asp Thr Leu Pro
1250 1255 1260

Leu Asn Gly Asn His Gly Asn Ser Tyr Ser Ile Ala Ser Gly Glu
1265 1270 1275

Tyr Leu Ser Asn Cys Val Gln Ile Ile Asp Arg Gly Tyr Asn His
1280 1285 1290

Asn Glu Thr Ala Leu Glu Lys Lys Ile Leu Lys Glu Leu Thr Ser
1295 1300 1305

Asn Tyr Ile Pro Ser Tyr Leu Asn Asn His Glu Arg Ser Ser Glu
1310 1315 1320

Gln Asn Arg Asn Leu Met Asn Lys Leu Val Asn Asn Leu Gly Ser
1325 1330 1335

Gly Arg Glu Asp Asp Ala Ile Val Leu Asp Asp Ala Thr Ser Phe
1340 1345 1350

Asn His Glu Glu Ser Leu Gly Leu Glu Leu Ile His Glu Glu Ser
1355 1360 1365

Asp Ala Pro Leu Leu Pro Pro Arg Val Tyr Ser Thr Glu Asn His
1370 1375 1380

Gln Pro His His Tyr Thr Arg Arg Arg Ile Pro Gln Asp His Ser
1385 1390 1395

Glu Ser Phe Phe Pro Leu Leu Thr Asn Glu His Thr Glu Asp Leu
1400 1405 1410

Gln Ser Pro His Arg Asp Ser Leu Tyr Thr Ser Met Pro Thr Leu
1415 1420 1425

Ala Gly Val Ala Ala Thr Glu Ser Val Thr Thr Ser Thr Gln Thr
1430 1435 1440

Glu Pro Pro Pro Ala Lys Cys Gly Asp Ala Glu Asp Val Tyr Tyr

```
    1445                1450                1455

Lys Ser  Met Pro Asn Leu Gly  Ser Arg Asn His Val  His Gln Leu
    1460                1465                1470

His Thr  Tyr Tyr Gln Leu Gly  Arg Gly Ser Ser Asp  Gly Phe Ile
    1475                1480                1485

Val Pro  Pro Asn Lys Asp Gly  Thr Pro Pro Glu Gly  Ser Ser Lys
    1490                1495                1500

Gly Pro  Ala His Leu Val Thr  Ser Leu
    1505                1510


<210> 3123
<211> 1469
<212> PRT
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<220>
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      adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="Uniprot ID:  Q9HAR2; "

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<223> /note="ENSP ID: ENSP00000422533"

<400> 3123
Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15

Ile His Ala Phe Ser Arg Ala Pro Ile Pro Met Ala Val Val Arg Arg
            20                  25                  30

Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg Cys Pro Gly Thr
        35                  40                  45
```

```
Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg Thr Asp Asp Lys
    50                  55                  60

Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile Arg Cys Tyr Leu
65                  70                  75                  80

Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn Asn Arg Thr Gln
                85                  90                  95

Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp Pro Cys Pro Gly
            100                 105                 110

Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val Pro Tyr Lys Val
        115                 120                 125

Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys Gly Val Tyr Gln
    130                 135                 140

Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met Pro Trp Thr Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys Asp Asp Phe Ile
            180                 185                 190

Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255

Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
            260                 265                 270
```

```
Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys Ile Val Ile Ser
        275                 280                 285

Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr Trp Asp Thr Ala
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile Cys Gly Ile Leu
305                 310                 315                 320

Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn Glu Ala Thr Gly
                325                 330                 335

Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser Lys Asp Ser Leu
            340                 345                 350

Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile Ala Ala Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn Asn Tyr His Val
    370                 375                 380

Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser Arg Ser Gly Gln
385                 390                 395                 400

Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro Ile His Leu Asp
                405                 410                 415

Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser Thr Thr Gly Pro
            420                 425                 430

Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu Arg Thr Thr Thr
        435                 440                 445

Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser Gly Arg Arg Asn
    450                 455                 460

Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val Leu Asp Asp Met
465                 470                 475                 480

Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro Ala Leu Glu Glu
                485                 490                 495

Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp Phe Lys Thr Arg
```

```
            500                 505                 510

Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly Thr Ile Gly Val
        515                 520                 525

Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly
    530                 535                 540

Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln
545                 550                 555                 560

Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala
                565                 570                 575

Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val
            580                 585                 590

Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn
        595                 600                 605

Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Leu
    610                 615                 620

Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln Ala Met Val Glu
625                 630                 635                 640

Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp Arg Asp
                645                 650                 655

Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu His Thr
            660                 665                 670

Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys Thr Asp
        675                 680                 685

Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala Arg Leu
    690                 695                 700

Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn Met Gly
705                 710                 715                 720

His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln Asn Gly
                725                 730                 735
```

```
Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn Leu Gly
            740                 745                 750

Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr Glu Ala
        755                 760                 765

Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile Thr Ala
    770                 775                 780

Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp Pro Val
785                 790                 795                 800

Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe Asn Pro
                805                 810                 815

Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly Tyr Trp
            820                 825                 830

Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His Thr Thr
        835                 840                 845

Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala His Val
    850                 855                 860

Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp Val Ile
865                 870                 875                 880

Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile Cys Ile
                885                 890                 895

Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile
            900                 905                 910

His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu Phe Leu
        915                 920                 925

Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val Phe Ala
    930                 935                 940

Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met Phe Leu
945                 950                 955                 960
```

```
Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu Ser Glu
                965                 970                 975

His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met Pro Ala
            980                 985                 990

Leu Ile Val Ala Val Ser Ala Ala  Val Asp Tyr Arg Ser  Tyr Gly
Thr
        995                 1000                1005

Asp Lys  Val Cys Trp Leu Arg  Leu Asp Thr Tyr Phe  Ile Trp Ser
    1010                1015                1020

Phe Ile  Gly Pro Ala Thr Leu  Ile Ile Met Leu Asn  Val Ile Phe
    1025                1030                1035

Leu Gly  Ile Ala Leu Tyr Lys  Met Phe His His Thr  Ala Ile Leu
    1040                1045                1050

Lys Pro  Glu Ser Gly Cys Leu  Asp Asn Ile Asn Tyr  Glu Asp Asn
    1055                1060                1065

Arg Pro  Phe Ile Lys Ser Trp  Val Ile Gly Ala Ile  Ala Leu Leu
    1070                1075                1080

Cys Leu  Leu Gly Leu Thr Trp  Ala Phe Gly Leu Met  Tyr Ile Asn
    1085                1090                1095

Glu Ser  Thr Val Ile Met Ala  Tyr Leu Phe Thr Ile  Phe Asn Ser
    1100                1105                1110

Leu Gln  Gly Met Phe Ile Phe  Ile Phe His Cys Val  Leu Gln Lys
    1115                1120                1125

Lys Val  Arg Lys Glu Tyr Gly  Lys Cys Leu Arg Thr  His Cys Cys
    1130                1135                1140

Ser Gly  Lys Ser Thr Glu Ser  Ser Ile Gly Ser Gly  Lys Thr Ser
    1145                1150                1155

Gly Ser  Arg Thr Pro Gly Arg  Tyr Ser Thr Gly Ser  Gln Ser Arg
    1160                1165                1170
```

```
Ile Arg  Arg Met Trp Asn Asp  Thr Val Arg Lys Gln  Ser Glu Ser
    1175                1180                1185

Ser Phe  Ile Thr Gly Asp Ile  Asn Ser Ser Ala Ser  Leu Asn Arg
    1190                1195                1200

Glu Gly  Leu Leu Asn Asn Ala  Arg Asp Thr Ser Val  Met Asp Thr
    1205                1210                1215

Leu Pro  Leu Asn Gly Asn His  Gly Asn Ser Tyr Ser  Ile Ala Ser
    1220                1225                1230

Gly Glu  Tyr Leu Ser Asn Cys  Val Gln Ile Ile Asp  Arg Gly Tyr
    1235                1240                1245

Asn His  Asn Glu Thr Ala Leu  Glu Lys Lys Ile Leu  Lys Glu Leu
    1250                1255                1260

Thr Ser  Asn Tyr Ile Pro Ser  Tyr Leu Asn Asn His  Glu Arg Ser
    1265                1270                1275

Ser Glu  Gln Asn Arg Asn Leu  Met Asn Lys Leu Val  Asn Asn Leu
    1280                1285                1290

Gly Ser  Gly Arg Glu Asp Asp  Ala Ile Val Leu Asp  Asp Ala Thr
    1295                1300                1305

Ser Phe  Asn His Glu Glu Ser  Leu Gly Leu Glu Leu  Ile His Glu
    1310                1315                1320

Glu Ser  Asp Ala Pro Leu Leu  Pro Pro Arg Val Tyr  Ser Thr Glu
    1325                1330                1335

Asn His  Gln Pro His His Tyr  Thr Arg Arg Arg Ile  Pro Gln Asp
    1340                1345                1350

His Ser  Glu Ser Phe Phe Pro  Leu Leu Thr Asn Glu  His Thr Glu
    1355                1360                1365

Asp Leu  Gln Ser Pro His Arg  Asp Ser Leu Tyr Thr  Ser Met Pro
    1370                1375                1380
```

```
Thr Leu  Ala Gly Val Ala Ala  Thr Glu Ser Val Thr  Thr Ser Thr
    1385                1390                1395


Gln Thr  Glu Pro Pro Pro Ala  Lys Cys Gly Asp Ala  Glu Asp Val
    1400                1405                1410


Tyr Tyr  Lys Ser Met Pro Asn  Leu Gly Ser Arg Asn  His Val His
    1415                1420                1425


Gln Leu  His Thr Tyr Tyr Gln  Leu Gly Arg Gly Ser  Ser Asp Gly
    1430                1435                1440


Phe Ile  Val Pro Pro Asn Lys  Asp Gly Thr Pro Pro  Glu Gly Ser
    1445                1450                1455


Ser Lys  Gly Pro Ala His Leu  Val Thr Ser Leu
    1460                1465


<210> 3124
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<213> Homo sapiens

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<223> /note="Payload ID: 697; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRL3; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="Uniprot ID:  Q9HAR2; "

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<400> 3124
Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15


Ile His Ala Phe Ser Arg Ala Pro Ile Pro Met Ala Val Val Arg Arg
            20                  25                  30
```

```
Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg Cys Pro Gly Thr
        35                  40                  45

Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg Thr Asp Asp Lys
    50                  55                  60

Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile Arg Cys Tyr Leu
65                  70                  75                  80

Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn Asn Arg Thr Gln
                85                  90                  95

Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp Pro Cys Pro Gly
            100                 105                 110

Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val Pro Tyr Lys Val
        115                 120                 125

Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys Gly Val Tyr Gln
    130                 135                 140

Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met Pro Trp Thr Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys Asp Asp Phe Ile
            180                 185                 190

Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255
```

```
Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
            260                 265                 270

Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys Ile Val Ile Ser
        275                 280                 285

Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr Trp Asp Thr Ala
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile Cys Gly Ile Leu
305                 310                 315                 320

Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn Glu Ala Thr Gly
                325                 330                 335

Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser Lys Asp Ser Leu
            340                 345                 350

Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile Ala Ala Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn Asn Tyr His Val
    370                 375                 380

Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser Arg Ser Gly Gln
385                 390                 395                 400

Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro Ile His Leu Asp
                405                 410                 415

Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser Thr Thr Gly Pro
            420                 425                 430

Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu Arg Thr Thr Thr
        435                 440                 445

Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser Gly Arg Arg Asn
    450                 455                 460

Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val Leu Asp Asp Met
465                 470                 475                 480
```

```
Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro Ala Leu Glu Glu
                485                 490                 495

Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp Phe Lys Thr Arg
            500                 505                 510

Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly Thr Ile Gly Val
        515                 520                 525

Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly
    530                 535                 540

Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln
545                 550                 555                 560

Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala
                565                 570                 575

Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val
            580                 585                 590

Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn
        595                 600                 605

Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Leu
    610                 615                 620

Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln Ala Met Val Glu
625                 630                 635                 640

Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp Arg Asp
                645                 650                 655

Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu His Thr
            660                 665                 670

Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys Thr Asp
        675                 680                 685

Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala Arg Leu
    690                 695                 700

Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn Met Gly
```

705 710 715 720

His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln Asn Gly
725 730 735

Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn Leu Gly
740 745 750

Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr Glu Ala
755 760 765

Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile Thr Ala
770 775 780

Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp Pro Val
785 790 795 800

Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe Asn Pro
805 810 815

Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly Tyr Trp
820 825 830

Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His Thr Thr
835 840 845

Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala His Val
850 855 860

Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp Val Ile
865 870 875 880

Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile Cys Ile
885 890 895

Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile
900 905 910

His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu Phe Leu
915 920 925

Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val Phe Ala
930 935 940

```
Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met Phe Leu
945                 950                 955                 960

Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu Ser Glu
                965                 970                 975

His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met Pro Ala
            980                 985                 990

Leu Ile Val Ala Val Ser Ala Ala  Val Asp Tyr Arg Ser  Tyr Gly
Thr
        995                 1000                1005

Asp Lys  Val Cys Trp Leu Arg  Leu Asp Thr Tyr Phe  Ile Trp Ser
    1010                1015                1020

Phe Ile  Gly Pro Ala Thr Leu  Ile Ile Met Leu Asn  Val Ile Phe
    1025                1030                1035

Leu Gly  Ile Ala Leu Tyr Lys  Met Phe His His Thr  Ala Ile Leu
    1040                1045                1050

Lys Pro  Glu Ser Gly Cys Leu  Asp Asn Ile Asn Tyr  Glu Asp Asn
    1055                1060                1065

Arg Pro  Phe Ile Lys Ser Trp  Val Ile Gly Ala Ile  Ala Leu Leu
    1070                1075                1080

Cys Leu  Leu Gly Leu Thr Trp  Ala Phe Gly Leu Met  Tyr Ile Asn
    1085                1090                1095

Glu Ser  Thr Val Ile Met Ala  Tyr Leu Phe Thr Ile  Phe Asn Ser
    1100                1105                1110

Leu Gln  Gly Met Phe Ile Phe  Ile Phe His Cys Val  Leu Gln Lys
    1115                1120                1125

Lys Val  Arg Lys Glu Tyr Gly  Lys Cys Leu Arg Thr  His Cys Cys
    1130                1135                1140

Ser Gly  Lys Ser Thr Glu Ser  Ser Ile Gly Ser Gly  Lys Thr Ser
    1145                1150                1155
```

```
Gly Ser  Arg Thr Pro Gly Arg  Tyr Ser Thr Gly Ser  Gln Ser Arg
    1160                1165                1170

Ile Arg  Arg Met Trp Asn Asp  Thr Val Arg Lys Gln  Ser Glu Ser
    1175                1180                1185

Ser Phe  Ile Thr Gly Asp Ile  Asn Ser Ser Ala Ser  Leu Asn Arg
    1190                1195                1200

Glu Pro  Tyr Arg Glu Thr Ser  Met Gly Val Lys Leu  Asn Ile Ala
    1205                1210                1215

Tyr Gln  Ile Gly Ala Ser Glu  Gln Cys Gln Gly Tyr  Lys Cys His
    1220                1225                1230

Gly Tyr  Ser Thr Thr Glu Trp
    1235                1240


<210> 3125
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      adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="ENSP ID: ENSP00000423434"

<400> 3125
Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15

Ile His Ala Phe Ser Arg Ala Pro Ile Pro Met Ala Val Val Arg Arg
            20                  25                  30
```

```
Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg Cys Pro Gly Thr
        35                  40                  45

Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg Thr Asp Asp Lys
    50                  55                  60

Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile Arg Cys Tyr Leu
65                  70                  75                  80

Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn Asn Arg Thr Gln
                85                  90                  95

Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp Pro Cys Pro Gly
            100                 105                 110

Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val Pro Tyr Lys Val
        115                 120                 125

Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys Gly Val Tyr Gln
    130                 135                 140

Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met Pro Trp Thr Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys Asp Asp Phe Ile
            180                 185                 190

Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255

Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
```

```
            260                 265                 270

Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys Ile Val Ile Ser
        275                 280                 285

Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr Trp Asp Thr Ala
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile Cys Gly Ile Leu
305                 310                 315                 320

Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn Glu Ala Thr Gly
                325                 330                 335

Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser Lys Asp Ser Leu
            340                 345                 350

Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile Ala Ala Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn Asn Tyr His Val
    370                 375                 380

Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser Arg Ser Gly Gln
385                 390                 395                 400

Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro Ile His Leu Asp
                405                 410                 415

Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser Thr Thr Gly Pro
            420                 425                 430

Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu Arg Thr Thr Thr
        435                 440                 445

Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser Gly Arg Arg Asn
    450                 455                 460

Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val Leu Asp Asp Met
465                 470                 475                 480

Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro Ala Leu Glu Glu
                485                 490                 495
```

```
Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp Phe Lys Thr Arg
            500                 505                 510

Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly Thr Ile Gly Val
        515                 520                 525

Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly
    530                 535                 540

Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln
545                 550                 555                 560

Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala
                565                 570                 575

Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val
            580                 585                 590

Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn
        595                 600                 605

Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Leu
    610                 615                 620

Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln Ala Met Val Glu
625                 630                 635                 640

Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp Arg Asp
                645                 650                 655

Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu His Thr
            660                 665                 670

Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys Thr Asp
        675                 680                 685

Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala Arg Leu
    690                 695                 700

Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn Met Gly
705                 710                 715                 720
```

```
His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln Asn Gly
                725                 730                 735

Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn Leu Gly
            740                 745                 750

Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr Glu Ala
        755                 760                 765

Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile Thr Ala
    770                 775                 780

Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp Pro Val
785                 790                 795                 800

Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe Asn Pro
                805                 810                 815

Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly Tyr Trp
            820                 825                 830

Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His Thr Thr
        835                 840                 845

Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala His Val
    850                 855                 860

Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp Val Ile
865                 870                 875                 880

Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile Cys Ile
                885                 890                 895

Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile
            900                 905                 910

His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu Phe Leu
        915                 920                 925

Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val Phe Ala
    930                 935                 940
```

```
Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met Phe Leu
945                 950                 955                 960

Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu Ser Glu
                965                 970                 975

His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met Pro Ala
            980                 985                 990

Leu Ile Val Ala Val Ser Ala Ala  Val Asp Tyr Arg Ser  Tyr Gly
Thr
        995                 1000                1005

Asp Lys  Val Cys Trp Leu Arg  Leu Asp Thr Tyr Phe  Ile Trp Ser
    1010                1015                1020

Phe Ile  Gly Pro Ala Thr Leu  Ile Ile Met Leu Asn  Val Ile Phe
    1025                1030                1035

Leu Gly  Ile Ala Leu Tyr Lys  Met Phe His His Thr  Ala Ile Leu
    1040                1045                1050

Lys Pro  Glu Ser Gly Cys Leu  Asp Asn Ile Asn Tyr  Glu Asp Asn
    1055                1060                1065

Arg Pro  Phe Ile Lys Ser Trp  Val Ile Gly Ala Ile  Ala Leu Leu
    1070                1075                1080

Cys Leu  Leu Gly Leu Thr Trp  Ala Phe Gly Leu Met  Tyr Ile Asn
    1085                1090                1095

Glu Ser  Thr Val Ile Met Ala  Tyr Leu Phe Thr Ile  Phe Asn Ser
    1100                1105                1110

Leu Gln  Gly Met Phe Ile Phe  Ile Phe His Cys Val  Leu Gln Lys
    1115                1120                1125

Lys Val  Arg Lys Glu Tyr Gly  Lys Cys Leu Arg Thr  His Cys Cys
    1130                1135                1140

Ser Gly  Lys Ser Thr Glu Ser  Ser Ile Gly Ser Gly  Lys Thr Ser
    1145                1150                1155
```

```
Gly Ser  Arg Thr Pro Gly Arg  Tyr Ser Thr Gly Ser  Gln Ser Arg
    1160                1165                1170

Ile Arg  Arg Met Trp Asn Asp  Thr Val Arg Lys Gln  Ser Glu Ser
    1175                1180                1185

Ser Phe  Ile Thr Gly Asp Ile  Asn Ser Ser Ala Ser  Leu Asn Arg
    1190                1195                1200

Gly Ala  Met Ala Asn His Leu  Ile Ser Asn Ala Leu  Leu Arg Pro
    1205                1210                1215

His Gly  Thr Asn Asn Pro Tyr  Asn Thr Leu Leu Gly  Glu Pro Ala
    1220                1225                1230

Val Cys  Asn Asn Pro Ser Val  Ser Met Tyr Asn Ala  Gln Glu Pro
    1235                1240                1245

Tyr Arg  Glu Thr Ser Met Gly  Val Lys Leu Asn Ile  Ala Tyr Gln
    1250                1255                1260

Ile Gly  Ala Ser Glu Gln Cys  Gln Gly Tyr Lys Cys  His Gly Tyr
    1265                1270                1275

Ser Thr  Thr Glu Trp
    1280


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<212> PRT
<213> Homo sapiens

<220>
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      adhesion G prt-coupled receptor L3; "

<220>
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Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1 5 10 15

Ile His Gly Gly Lys His Ser Glu Arg His Pro Ala Leu Ala Ala Pro
20 25 30

Leu Arg His Ala Glu Arg Ser Pro Gly Gly Ala Leu Pro Pro Arg His
35 40 45

Leu Leu Gln Gln Pro Ala Ala Glu Arg Thr Ala Ala His Arg Gly Gln
50 55 60

Gly Pro Arg Gly Ala Thr Arg Gly Val Arg Gly Pro Gly Ala Gln Gly
65 70 75 80

Ala Gln Ile Ala Ala Gln Ala Phe Ser Arg Ala Pro Ile Pro Met Ala
85 90 95

Val Val Arg Arg Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg
100 105 110

Cys Pro Gly Thr Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg
115 120 125

Thr Asp Asp Lys Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile
130 135 140

Arg Cys Tyr Leu Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn
145 150 155 160

Asn Arg Thr Gln Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp
165 170 175

Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val
180 185 190

Pro Tyr Lys Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
195 200 205

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
210 215 220

```
Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
225                 230                 235                 240

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
                245                 250                 255

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
            260                 265                 270

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
        275                 280                 285

Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
    290                 295                 300

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
305                 310                 315                 320

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
                325                 330                 335

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
            340                 345                 350

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
        355                 360                 365

Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
    370                 375                 380

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
385                 390                 395                 400

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
                405                 410                 415

Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
            420                 425                 430

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
        435                 440                 445
```

```
Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
    450                 455                 460

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
465                 470                 475                 480

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
                485                 490                 495

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
            500                 505                 510

Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
        515                 520                 525

Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
    530                 535                 540

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
545                 550                 555                 560

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
                565                 570                 575

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
            580                 585                 590

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
        595                 600                 605

Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
    610                 615                 620

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
625                 630                 635                 640

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
                645                 650                 655

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
            660                 665                 670

Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
```

675 680 685

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
690 695 700

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
705 710 715 720

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
725 730 735

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
740 745 750

Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
755 760 765

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
770 775 780

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
785 790 795 800

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
805 810 815

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
820 825 830

Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
835 840 845

Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
850 855 860

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
865 870 875 880

Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
885 890 895

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
900 905 910

```
Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
        915                 920                 925

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
    930                 935                 940

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
945                 950                 955                 960

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
                965                 970                 975

Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
            980                 985                 990

Leu Leu Phe Leu Ile Gly Ile Asn  Arg Thr Asp Gln Pro  Ile Ala
Cys
        995                 1000                1005

Ala Val  Phe Ala Ala Leu Leu  His Phe Phe Phe Leu  Ala Ala Phe
    1010                1015                1020

Thr Trp  Met Phe Leu Glu Gly  Val Gln Leu Tyr Ile  Met Leu Val
    1025                1030                1035

Glu Val  Phe Glu Ser Glu His  Ser Arg Arg Lys Tyr  Phe Tyr Leu
    1040                1045                1050

Val Gly  Tyr Gly Met Pro Ala  Leu Ile Val Ala Val  Ser Ala Ala
    1055                1060                1065

Val Asp  Tyr Arg Ser Tyr Gly  Thr Asp Lys Val Cys  Trp Leu Arg
    1070                1075                1080

Leu Asp  Thr Tyr Phe Ile Trp  Ser Phe Ile Gly Pro  Ala Thr Leu
    1085                1090                1095

Ile Ile  Met Leu Asn Val Ile  Phe Leu Gly Ile Ala  Leu Tyr Lys
    1100                1105                1110

Met Phe  His His Thr Ala Ile  Leu Lys Pro Glu Ser  Gly Cys Leu
    1115                1120                1125
```

```
Asp Asn  Ile Asn Tyr Glu Asp  Asn Arg Pro Phe Ile  Lys Ser Trp
    1130                1135                1140

Val Ile  Gly Ala Ile Ala Leu  Leu Cys Leu Leu Gly  Leu Thr Trp
    1145                1150                1155

Ala Phe  Gly Leu Met Tyr Ile  Asn Glu Ser Thr Val  Ile Met Ala
    1160                1165                1170

Tyr Leu  Phe Thr Ile Phe Asn  Ser Leu Gln Gly Met  Phe Ile Phe
    1175                1180                1185

Ile Phe  His Cys Val Leu Gln  Lys Lys Val Arg Lys  Glu Tyr Gly
    1190                1195                1200

Lys Cys  Leu Arg Thr His Cys  Cys Ser Gly Lys Ser  Thr Glu Ser
    1205                1210                1215

Ser Ile  Gly Ser Gly Lys Thr  Ser Gly Ser Arg Thr  Pro Gly Arg
    1220                1225                1230

Tyr Ser  Thr Gly Ser Gln Ser  Arg Ile Arg Arg Met  Trp Asn Asp
    1235                1240                1245

Thr Val  Arg Lys Gln Ser Glu  Ser Ser Phe Ile Thr  Gly Asp Ile
    1250                1255                1260

Asn Ser  Ser Ala Ser Leu Asn  Arg Glu Pro Tyr Arg  Glu Thr Ser
    1265                1270                1275

Met Gly  Val Lys Leu Asn Ile  Ala Tyr Gln Ile Gly  Ala Ser Glu
    1280                1285                1290

Gln Cys  Gln Gly Tyr Lys Cys  His Gly Tyr Ser Thr  Thr Glu Trp
    1295                1300                1305
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<210> 3127
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<223> /note="Gene Symbol: ADGRL3; "

<220>
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adhesion G prt-coupled receptor L3; "

<220>
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<400> 3127

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Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15

Ile His Gly Gly Lys His Ser Glu Arg His Pro Ala Leu Ala Ala Pro
            20                  25                  30

Leu Arg His Ala Glu Arg Ser Pro Gly Gly Ala Leu Pro Pro Arg His
        35                  40                  45

Leu Leu Gln Gln Pro Ala Ala Glu Arg Thr Ala Ala His Arg Gly Gln
    50                  55                  60

Gly Pro Arg Gly Ala Thr Arg Gly Val Arg Gly Pro Gly Ala Gln Gly
65                  70                  75                  80

Ala Gln Ile Ala Ala Gln Ala Phe Ser Arg Ala Pro Ile Pro Met Ala
                85                  90                  95

Val Val Arg Arg Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg
            100                 105                 110

Cys Pro Gly Thr Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg
        115                 120                 125

Thr Asp Asp Lys Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile
    130                 135                 140

Arg Cys Tyr Leu Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn
145                 150                 155                 160

Asn Arg Thr Gln Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp
```

```
                165                 170                 175

Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val
            180                 185                 190

Pro Tyr Lys Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
        195                 200                 205

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
    210                 215                 220

Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
225                 230                 235                 240

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
                245                 250                 255

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
            260                 265                 270

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
        275                 280                 285

Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
    290                 295                 300

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
305                 310                 315                 320

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
                325                 330                 335

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
            340                 345                 350

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
        355                 360                 365

Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
    370                 375                 380

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
385                 390                 395                 400
```

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
405 410 415

Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
420 425 430

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
435 440 445

Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
450 455 460

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
465 470 475 480

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
485 490 495

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
500 505 510

Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
515 520 525

Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
530 535 540

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
545 550 555 560

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
565 570 575

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
580 585 590

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
595 600 605

Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
610 615 620

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
625 630 635 640

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
645 650 655

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
660 665 670

Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
675 680 685

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
690 695 700

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
705 710 715 720

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
725 730 735

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
740 745 750

Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
755 760 765

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
770 775 780

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
785 790 795 800

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
805 810 815

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
820 825 830

Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
835 840 845

```
Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
    850                 855                 860

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
865                 870                 875                 880

Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
                885                 890                 895

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
            900                 905                 910

Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
        915                 920                 925

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
    930                 935                 940

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
945                 950                 955                 960

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
                965                 970                 975

Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
            980                 985                 990

Leu Leu Phe Leu Ile Gly Ile Asn  Arg Thr Asp Gln Pro  Ile Ala
Cys
        995                 1000                1005

Ala Val  Phe Ala Ala Leu Leu  His Phe Phe Phe Leu  Ala Ala Phe
    1010                1015                1020

Thr Trp  Met Phe Leu Glu Gly  Val Gln Leu Tyr Ile  Met Leu Val
    1025                1030                1035

Glu Val  Phe Glu Ser Glu His  Ser Arg Arg Lys Tyr  Phe Tyr Leu
    1040                1045                1050

Val Gly  Tyr Gly Met Pro Ala  Leu Ile Val Ala Val  Ser Ala Ala
    1055                1060                1065
```

```
Val Asp  Tyr Arg Ser Tyr Gly  Thr Asp Lys Val Cys  Trp Leu Arg
    1070                1075                1080

Leu Asp  Thr Tyr Phe Ile Trp  Ser Phe Ile Gly Pro  Ala Thr Leu
    1085                1090                1095

Ile Ile  Met Leu Asn Val Ile  Phe Leu Gly Ile Ala  Leu Tyr Lys
    1100                1105                1110

Met Phe  His His Thr Ala Ile  Leu Lys Pro Glu Ser  Gly Cys Leu
    1115                1120                1125

Asp Asn  Ile Asn Tyr Glu Asp  Asn Arg Pro Phe Ile  Lys Ser Trp
    1130                1135                1140

Val Ile  Gly Ala Ile Ala Leu  Leu Cys Leu Leu Gly  Leu Thr Trp
    1145                1150                1155

Ala Phe  Gly Leu Met Tyr Ile  Asn Glu Ser Thr Val  Ile Met Ala
    1160                1165                1170

Tyr Leu  Phe Thr Ile Phe Asn  Ser Leu Gln Gly Met  Phe Ile Phe
    1175                1180                1185

Ile Phe  His Cys Val Leu Gln  Lys Lys Val Arg Lys  Glu Tyr Gly
    1190                1195                1200

Lys Cys  Leu Arg Thr His Cys  Cys Ser Gly Lys Ser  Thr Glu Ser
    1205                1210                1215

Ser Ile  Gly Ser Gly Lys Thr  Ser Gly Ser Arg Thr  Pro Gly Arg
    1220                1225                1230

Tyr Ser  Thr Gly Ser Gln Ser  Arg Ile Arg Arg Met  Trp Asn Asp
    1235                1240                1245

Thr Val  Arg Lys Gln Ser Glu  Ser Ser Phe Ile Thr  Gly Asp Ile
    1250                1255                1260

Asn Ser  Ser Ala Ser Leu Asn  Arg Gly Ala Met Ala  Asn His Leu
    1265                1270                1275

Ile Ser  Asn Ala Leu Leu Arg  Pro His Gly Thr Asn  Asn Pro Tyr
```

```
    1280                1285                1290

Asn Thr  Leu Leu Gly Glu Pro  Ala Val Cys Asn Asn  Pro Ser Val
    1295                1300                1305

Ser Met  Tyr Asn Ala Gln Glu  Pro Tyr Arg Glu Thr  Ser Met Gly
    1310                1315                1320

Val Lys  Leu Asn Ile Ala Tyr  Gln Ile Gly Ala Ser  Glu Gln Cys
    1325                1330                1335

Gln Gly  Tyr Lys Cys His Gly  Tyr Ser Thr Thr Glu  Trp
    1340                1345                1350


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<220>
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<223> /note="Payload ID: 697; "

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<221> source
<223> /note="Gene Symbol: ADGRL3; "

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<223> /note="Gene Name:
      adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="ENSP ID: ENSP00000424120"

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Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15

Ile His Ala Phe Ser Arg Ala Pro Ile Pro Met Ala Val Val Arg Arg
            20                  25                  30

Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg Cys Pro Gly Thr
        35                  40                  45

Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg Thr Asp Asp Lys
    50                  55                  60
```

```
Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile Arg Cys Tyr Leu
65                  70                  75                  80

Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn Asn Arg Thr Gln
                85                  90                  95

Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp Pro Cys Pro Gly
            100                 105                 110

Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val Pro Tyr Lys Val
        115                 120                 125

Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys Gly Val Tyr Gln
    130                 135                 140

Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met Pro Trp Thr Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys Asp Asp Phe Ile
            180                 185                 190

Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255

Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
            260                 265                 270

Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys Ile Val Ile Ser
        275                 280                 285
```

```
Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr Trp Asp Thr Ala
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile Cys Gly Ile Leu
305                 310                 315                 320

Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn Glu Ala Thr Gly
                325                 330                 335

Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser Lys Asp Ser Leu
            340                 345                 350

Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile Ala Ala Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn Asn Tyr His Val
    370                 375                 380

Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser Arg Ser Gly Gln
385                 390                 395                 400

Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro Ile His Leu Asp
                405                 410                 415

Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser Thr Thr Gly Pro
            420                 425                 430

Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu Arg Thr Thr Thr
        435                 440                 445

Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser Gly Arg Arg Asn
    450                 455                 460

Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val Leu Asp Asp Met
465                 470                 475                 480

Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro Ala Leu Glu Glu
                485                 490                 495

Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp Phe Lys Thr Arg
            500                 505                 510

Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly Thr Ile Gly Val
```

```
        515                 520                 525

Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly
    530                 535                 540

Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln
545                 550                 555                 560

Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala
                565                 570                 575

Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val
            580                 585                 590

Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn
        595                 600                 605

Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Leu
    610                 615                 620

Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln Ala Met Val Glu
625                 630                 635                 640

Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp Arg Asp
                645                 650                 655

Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu His Thr
            660                 665                 670

Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys Thr Asp
        675                 680                 685

Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala Arg Leu
    690                 695                 700

Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn Met Gly
705                 710                 715                 720

His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln Asn Gly
                725                 730                 735

Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn Leu Gly
            740                 745                 750
```

```
Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr Glu Ala
        755                 760                 765

Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile Thr Ala
    770                 775                 780

Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp Pro Val
785                 790                 795                 800

Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe Asn Pro
                805                 810                 815

Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly Tyr Trp
            820                 825                 830

Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His Thr Thr
        835                 840                 845

Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala His Val
    850                 855                 860

Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp Val Ile
865                 870                 875                 880

Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile Cys Ile
                885                 890                 895

Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile
            900                 905                 910

His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu Phe Leu
        915                 920                 925

Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val Phe Ala
    930                 935                 940

Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met Phe Leu
945                 950                 955                 960

Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu Ser Glu
                965                 970                 975
```

```
His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met Pro Ala
            980                 985                 990

Leu Ile Val Ala Val Ser Ala Ala  Val Asp Tyr Arg Ser  Tyr Gly
Thr
        995                 1000                1005

Asp Lys  Val Cys Trp Leu Arg  Leu Asp Thr Tyr Phe  Ile Trp Ser
    1010                1015                1020

Phe Ile  Gly Pro Ala Thr Leu  Ile Ile Met Leu Asn  Val Ile Phe
    1025                1030                1035

Leu Gly  Ile Ala Leu Tyr Lys  Met Phe His His Thr  Ala Ile Leu
    1040                1045                1050

Lys Pro  Glu Ser Gly Cys Leu  Asp Asn Ile Lys Ser  Trp Val Ile
    1055                1060                1065

Gly Ala  Ile Ala Leu Leu Cys  Leu Leu Gly Leu Thr  Trp Ala Phe
    1070                1075                1080

Gly Leu  Met Tyr Ile Asn Glu  Ser Thr Val Ile Met  Ala Tyr Leu
    1085                1090                1095

Phe Thr  Ile Phe Asn Ser Leu  Gln Gly Met Phe Ile  Phe Ile Phe
    1100                1105                1110

His Cys  Val Leu Gln Lys Lys  Val Arg Lys Glu Tyr  Gly Lys Cys
    1115                1120                1125

Leu Arg  Thr His Cys Cys Ser  Gly Lys Ser Thr Glu  Ser Ser Ile
    1130                1135                1140

Gly Ser  Gly Lys Thr Ser Gly  Ser Arg Thr Pro Gly  Arg Tyr Ser
    1145                1150                1155

Thr Gly  Ser Gln Ser Arg Ile  Arg Arg Met Trp Asn  Asp Thr Val
    1160                1165                1170

Arg Lys  Gln Ser Glu Ser Ser  Phe Ile Thr Gly Asp  Ile Asn Ser
    1175                1180                1185
```

```
Ser Ala  Ser Leu Asn Arg Glu  Pro Tyr Arg Glu Thr  Ser Met Gly
    1190                1195                1200


Val Lys  Leu Asn Ile Ala Tyr  Gln Ile Gly Ala Ser  Glu Gln Cys
    1205                1210                1215


Gln Gly  Tyr Lys Cys His Gly  Tyr Ser Thr Thr Glu  Trp
    1220                1225                1230


<210> 3129
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      adhesion G prt-coupled receptor L3; "

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Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15


Ile His Ala Phe Ser Arg Ala Pro Ile Pro Met Ala Val Val Arg Arg
            20                  25                  30


Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg Cys Pro Gly Thr
        35                  40                  45


Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg Thr Asp Asp Lys
    50                  55                  60


Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile Arg Cys Tyr Leu
65                  70                  75                  80


Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn Asn Arg Thr Gln
```

```
                85                  90                  95

Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp Pro Cys Pro Gly
            100                 105                 110

Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val Pro Tyr Lys Val
        115                 120                 125

Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys Gly Val Tyr Gln
    130                 135                 140

Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met Pro Trp Thr Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys Asp Asp Phe Ile
            180                 185                 190

Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255

Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
            260                 265                 270

Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys Ile Val Ile Ser
        275                 280                 285

Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr Trp Asp Thr Ala
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile Cys Gly Ile Leu
305                 310                 315                 320
```

```
Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn Glu Ala Thr Gly
                325                 330                 335

Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser Lys Asp Ser Leu
            340                 345                 350

Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile Ala Ala Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn Asn Tyr His Val
    370                 375                 380

Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser Arg Ser Gly Gln
385                 390                 395                 400

Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro Ile His Leu Asp
                405                 410                 415

Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser Thr Thr Gly Pro
            420                 425                 430

Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu Arg Thr Thr Thr
        435                 440                 445

Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser Gly Arg Arg Asn
    450                 455                 460

Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val Leu Asp Asp Met
465                 470                 475                 480

Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro Ala Leu Glu Glu
                485                 490                 495

Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp Phe Lys Thr Arg
            500                 505                 510

Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly Thr Ile Gly Val
        515                 520                 525

Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly
    530                 535                 540
```

```
Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln
545                 550                 555                 560

Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala
                565                 570                 575

Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val
            580                 585                 590

Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn
        595                 600                 605

Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Leu
    610                 615                 620

Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln Ala Met Val Glu
625                 630                 635                 640

Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp Arg Asp
                645                 650                 655

Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu His Thr
            660                 665                 670

Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys Thr Asp
        675                 680                 685

Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala Arg Leu
    690                 695                 700

Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn Met Gly
705                 710                 715                 720

His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln Asn Gly
                725                 730                 735

Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn Leu Gly
            740                 745                 750

Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr Glu Ala
        755                 760                 765
```

```
Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile Thr Ala
    770                 775                 780

Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp Pro Val
785                 790                 795                 800

Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe Asn Pro
                805                 810                 815

Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly Tyr Trp
            820                 825                 830

Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His Thr Thr
        835                 840                 845

Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala His Val
    850                 855                 860

Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp Val Ile
865                 870                 875                 880

Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile Cys Ile
                885                 890                 895

Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile
            900                 905                 910

His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu Phe Leu
        915                 920                 925

Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val Phe Ala
    930                 935                 940

Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met Phe Leu
945                 950                 955                 960

Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu Ser Glu
                965                 970                 975

His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met Pro Ala
            980                 985                 990

Leu Ile Val Ala Val Ser Ala Ala  Val Asp Tyr Arg Ser  Tyr Gly
```

Thr
995 1000 1005

Asp Lys Val Cys Trp Leu Arg Leu Asp Thr Tyr Phe Ile Trp Ser
1010 1015 1020

Phe Ile Gly Pro Ala Thr Leu Ile Ile Met Leu Asn Val Ile Phe
1025 1030 1035

Leu Gly Ile Ala Leu Tyr Lys Met Phe His His Thr Ala Ile Leu
1040 1045 1050

Lys Pro Glu Ser Gly Cys Leu Asp Asn Ile Lys Ser Trp Val Ile
1055 1060 1065

Gly Ala Ile Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp Ala Phe
1070 1075 1080

Gly Leu Met Tyr Ile Asn Glu Ser Thr Val Ile Met Ala Tyr Leu
1085 1090 1095

Phe Thr Ile Phe Asn Ser Leu Gln Gly Met Phe Ile Phe Ile Phe
1100 1105 1110

His Cys Val Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly Lys Cys
1115 1120 1125

Leu Arg Thr His Cys Cys Ser Gly Lys Ser Thr Glu Ser Ser Ile
1130 1135 1140

Gly Ser Gly Lys Thr Ser Gly Ser Arg Thr Pro Gly Arg Tyr Ser
1145 1150 1155

Thr Gly Ser Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr Val
1160 1165 1170

Arg Lys Gln Ser Glu Ser Ser Phe Ile Thr Gly Asp Ile Asn Ser
1175 1180 1185

Ser Ala Ser Leu Asn Arg Gly Ala Met Ala Asn His Leu Ile Ser
1190 1195 1200

Asn Ala Leu Leu Arg Pro His Gly Thr Asn Asn Pro Tyr Asn Thr

1205 1210 1215

Leu Leu Gly Glu Pro Ala Val Cys Asn Asn Pro Ser Val Ser Met
1220 1225 1230

Tyr Asn Ala Gln Glu Gly Leu Leu Asn Asn Ala Arg Asp Thr Ser
1235 1240 1245

Val Met Asp Thr Leu Pro Leu Asn Gly Asn His Gly Asn Ser Tyr
1250 1255 1260

Ser Ile Ala Ser Gly Glu Tyr Leu Ser Asn Cys Val Gln Ile Ile
1265 1270 1275

Asp Arg Gly Tyr Asn His Asn Glu Thr Ala Leu Glu Lys Lys Ile
1280 1285 1290

Leu Lys Glu Leu Thr Ser Asn Tyr Ile Pro Ser Tyr Leu Asn Asn
1295 1300 1305

His Glu Arg Ser Ser Glu Gln Asn Arg Asn Leu Met Asn Lys Leu
1310 1315 1320

Val Asn Asn Leu Gly Ser Gly Arg Glu Asp Asp Ala Ile Val Leu
1325 1330 1335

Asp Asp Ala Thr Ser Phe Asn His Glu Glu Ser Leu Gly Leu Glu
1340 1345 1350

Leu Ile His Glu Glu Ser Asp Ala Pro Leu Leu Pro Pro Arg Val
1355 1360 1365

Tyr Ser Thr Glu Asn His Gln Pro His His Tyr Thr Arg Arg Arg
1370 1375 1380

Ile Pro Gln Asp His Ser Glu Ser Phe Phe Pro Leu Leu Thr Asn
1385 1390 1395

Glu His Thr Glu Asp Leu Gln Ser Pro His Arg Asp Ser Leu Tyr
1400 1405 1410

Thr Ser Met Pro Thr Leu Ala Gly Val Ala Ala Thr Glu Ser Val
1415 1420 1425

```
Thr Thr  Ser Thr Gln Thr Glu  Pro Pro Pro Ala Lys  Cys Gly Asp
    1430                1435                1440

Ala Glu  Asp Val Tyr Tyr Lys  Ser Met Pro Asn Leu  Gly Ser Arg
    1445                1450                1455

Asn His  Val His Gln Leu His  Thr Tyr Tyr Gln Leu  Gly Arg Gly
    1460                1465                1470

Ser Ser  Asp Gly Phe Ile Val  Pro Pro Asn Lys Asp  Gly Thr Pro
    1475                1480                1485

Pro Glu  Gly Ser Ser Lys Gly  Pro Ala His Leu Val  Thr Ser Leu
    1490                1495                1500
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<210> 3130
<211> 918
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<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADGRL3; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="ENSP ID: ENSP00000424402"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3130

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Xaa Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly Pro
1               5                  10                  15

Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln Lys
            20                  25                  30
```

```
Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala Glu
        35                  40                  45

Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val Arg
    50                  55                  60

Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn Leu
65                  70                  75                  80

Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Ala Met
                85                  90                  95

Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp
            100                 105                 110

Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu
        115                 120                 125

His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys
    130                 135                 140

Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala
145                 150                 155                 160

Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn
                165                 170                 175

Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln
            180                 185                 190

Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn
        195                 200                 205

Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr
    210                 215                 220

Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile
225                 230                 235                 240

Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp
                245                 250                 255
```

```
Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe
            260                 265                 270

Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly
        275                 280                 285

Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His
    290                 295                 300

Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala
305                 310                 315                 320

His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp
                325                 330                 335

Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile
            340                 345                 350

Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn
        355                 360                 365

Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu
    370                 375                 380

Phe Leu Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val
385                 390                 395                 400

Phe Ala Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met
                405                 410                 415

Phe Leu Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu
            420                 425                 430

Ser Glu His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met
        435                 440                 445

Pro Ala Leu Ile Val Ala Val Ser Ala Ala Val Asp Tyr Arg Ser Tyr
    450                 455                 460

Gly Thr Asp Lys Val Cys Trp Leu Arg Leu Asp Thr Tyr Phe Ile Trp
465                 470                 475                 480
```

Ser Phe Ile Gly Pro Ala Thr Leu Ile Ile Met Leu Asn Val Ile Phe
485 490 495

Leu Gly Ile Ala Leu Tyr Lys Met Phe His His Thr Ala Ile Leu Lys
500 505 510

Pro Glu Ser Gly Cys Leu Asp Asn Ile Lys Ser Trp Val Ile Gly Ala
515 520 525

Ile Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp Ala Phe Gly Leu Met
530 535 540

Tyr Ile Asn Glu Ser Thr Val Ile Met Ala Tyr Leu Phe Thr Ile Phe
545 550 555 560

Asn Ser Leu Gln Gly Met Phe Ile Phe Ile Phe His Cys Val Leu Gln
565 570 575

Lys Lys Val Arg Lys Glu Tyr Gly Lys Cys Leu Arg Thr His Cys Cys
580 585 590

Ser Gly Lys Ser Thr Glu Ser Ser Ile Gly Ser Gly Lys Thr Ser Gly
595 600 605

Ser Arg Thr Pro Gly Arg Tyr Ser Thr Gly Ser Gln Ser Arg Ile Arg
610 615 620

Arg Met Trp Asn Asp Thr Val Arg Lys Gln Ser Glu Ser Ser Phe Ile
625 630 635 640

Thr Gly Asp Ile Asn Ser Ser Ala Ser Leu Asn Arg Glu Gly Leu Leu
645 650 655

Asn Asn Ala Arg Asp Thr Ser Val Met Asp Thr Leu Pro Leu Asn Gly
660 665 670

Asn His Gly Asn Ser Tyr Ser Ile Ala Ser Gly Glu Tyr Leu Ser Asn
675 680 685

Cys Val Gln Ile Ile Asp Arg Gly Tyr Asn His Asn Glu Thr Ala Leu
690 695 700

Glu Lys Lys Ile Leu Lys Glu Leu Thr Ser Asn Tyr Ile Pro Ser Tyr

705 710 715 720

Leu Asn Asn His Glu Arg Ser Ser Glu Gln Asn Arg Asn Leu Met Asn
725 730 735

Lys Leu Val Asn Asn Leu Gly Ser Gly Arg Glu Asp Asp Ala Ile Val
740 745 750

Leu Asp Asp Ala Thr Ser Phe Asn His Glu Glu Ser Leu Gly Leu Glu
755 760 765

Leu Ile His Glu Glu Ser Asp Ala Pro Leu Leu Pro Pro Arg Val Tyr
770 775 780

Ser Thr Glu Asn His Gln Pro His His Tyr Thr Arg Arg Arg Ile Pro
785 790 795 800

Gln Asp His Ser Glu Ser Phe Phe Pro Leu Leu Thr Asn Glu His Thr
805 810 815

Glu Asp Leu Gln Ser Pro His Arg Asp Ser Leu Tyr Thr Ser Met Pro
820 825 830

Thr Leu Ala Gly Val Ala Ala Thr Glu Ser Val Thr Thr Ser Thr Gln
835 840 845

Thr Glu Pro Pro Pro Ala Lys Cys Gly Asp Ala Glu Asp Val Tyr Tyr
850 855 860

Lys Ser Met Pro Asn Leu Gly Ser Arg Asn His Val His Gln Leu His
865 870 875 880

Thr Tyr Tyr Gln Leu Gly Arg Gly Ser Ser Asp Gly Phe Ile Val Pro
885 890 895

Pro Asn Lys Asp Gly Thr Pro Pro Glu Gly Ser Ser Lys Gly Pro Ala
900 905 910

His Leu Val Thr Ser Leu
915

<210> 3131
<211> 1299

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 697; "

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<223> /note="Gene Symbol: ADGRL3; "

<220>
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<223> /note="Gene Name:
adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="ENSP ID: ENSP00000425033"

<400> 3131
Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1 5 10 15

Ile His Gly Gly Lys His Ser Glu Arg His Pro Ala Leu Ala Ala Pro
20 25 30

Leu Arg His Ala Glu Arg Ser Pro Gly Gly Ala Leu Pro Pro Arg His
35 40 45

Leu Leu Gln Gln Pro Ala Ala Glu Arg Thr Ala Ala His Arg Gly Gln
50 55 60

Gly Pro Arg Gly Ala Thr Arg Gly Val Arg Gly Pro Gly Ala Gln Gly
65 70 75 80

Ala Gln Ile Ala Ala Gln Ala Phe Ser Arg Ala Pro Ile Pro Met Ala
85 90 95

Val Val Arg Arg Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg
100 105 110

Cys Pro Gly Thr Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg
115 120 125

Thr Asp Asp Lys Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile
130 135 140

```
Arg Cys Tyr Leu Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn
145                 150                 155                 160

Asn Arg Thr Gln Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp
                165                 170                 175

Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val
            180                 185                 190

Pro Tyr Lys Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
        195                 200                 205

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
    210                 215                 220

Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
225                 230                 235                 240

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
                245                 250                 255

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
            260                 265                 270

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
        275                 280                 285

Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
    290                 295                 300

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
305                 310                 315                 320

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
                325                 330                 335

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
            340                 345                 350

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
        355                 360                 365

Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
```

```
    370                 375                 380

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
385                 390                 395                 400

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
                405                 410                 415

Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
            420                 425                 430

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
        435                 440                 445

Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
    450                 455                 460

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
465                 470                 475                 480

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
                485                 490                 495

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
            500                 505                 510

Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
        515                 520                 525

Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
    530                 535                 540

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
545                 550                 555                 560

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
                565                 570                 575

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
            580                 585                 590

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
        595                 600                 605
```

```
Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
    610                 615                 620

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
625                 630                 635                 640

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
                645                 650                 655

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
            660                 665                 670

Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
        675                 680                 685

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
    690                 695                 700

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
705                 710                 715                 720

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
                725                 730                 735

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
            740                 745                 750

Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
        755                 760                 765

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
    770                 775                 780

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
785                 790                 795                 800

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
                805                 810                 815

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
            820                 825                 830
```

```
Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
        835                 840                 845

Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
    850                 855                 860

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
865                 870                 875                 880

Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
                885                 890                 895

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
            900                 905                 910

Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
        915                 920                 925

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
    930                 935                 940

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
945                 950                 955                 960

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
                965                 970                 975

Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
            980                 985                 990

Leu Leu Phe Leu Ile Gly Ile Asn  Arg Thr Asp Gln Pro  Ile Ala
Cys
        995                 1000                1005

Ala Val  Phe Ala Ala Leu Leu  His Phe Phe Phe Leu  Ala Ala Phe
    1010                1015                1020

Thr Trp  Met Phe Leu Glu Gly  Val Gln Leu Tyr Ile  Met Leu Val
    1025                1030                1035

Glu Val  Phe Glu Ser Glu His  Ser Arg Arg Lys Tyr  Phe Tyr Leu
    1040                1045                1050
```

```
Val Gly  Tyr Gly Met Pro Ala  Leu Ile Val Ala Val  Ser Ala Ala
    1055                1060                1065

Val Asp  Tyr Arg Ser Tyr Gly  Thr Asp Lys Val Cys  Trp Leu Arg
    1070                1075                1080

Leu Asp  Thr Tyr Phe Ile Trp  Ser Phe Ile Gly Pro  Ala Thr Leu
    1085                1090                1095

Ile Ile  Met Leu Asn Val Ile  Phe Leu Gly Ile Ala  Leu Tyr Lys
    1100                1105                1110

Met Phe  His His Thr Ala Ile  Leu Lys Pro Glu Ser  Gly Cys Leu
    1115                1120                1125

Asp Asn  Ile Lys Ser Trp Val  Ile Gly Ala Ile Ala  Leu Leu Cys
    1130                1135                1140

Leu Leu  Gly Leu Thr Trp Ala  Phe Gly Leu Met Tyr  Ile Asn Glu
    1145                1150                1155

Ser Thr  Val Ile Met Ala Tyr  Leu Phe Thr Ile Phe  Asn Ser Leu
    1160                1165                1170

Gln Gly  Met Phe Ile Phe Ile  Phe His Cys Val Leu  Gln Lys Lys
    1175                1180                1185

Val Arg  Lys Glu Tyr Gly Lys  Cys Leu Arg Thr His  Cys Cys Ser
    1190                1195                1200

Gly Lys  Ser Thr Glu Ser Ser  Ile Gly Ser Gly Lys  Thr Ser Gly
    1205                1210                1215

Ser Arg  Thr Pro Gly Arg Tyr  Ser Thr Gly Ser Gln  Ser Arg Ile
    1220                1225                1230

Arg Arg  Met Trp Asn Asp Thr  Val Arg Lys Gln Ser  Glu Ser Ser
    1235                1240                1245

Phe Ile  Thr Gly Asp Ile Asn  Ser Ser Ala Ser Leu  Asn Arg Glu
    1250                1255                1260
```

```
Pro Tyr  Arg Glu Thr Ser Met  Gly Val Lys Leu Asn  Ile Ala Tyr
    1265                1270                1275


Gln Ile  Gly Ala Ser Glu Gln  Cys Gln Gly Tyr Lys  Cys His Gly
    1280                1285                1290


Tyr Ser  Thr Thr Glu Trp
    1295


<210> 3132
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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:
      adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="ENSP ID: ENSP00000425201"

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Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15


Ile His Ala Phe Ser Arg Ala Pro Ile Pro Met Ala Val Val Arg Arg
            20                  25                  30


Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg Cys Pro Gly Thr
        35                  40                  45


Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg Thr Asp Asp Lys
    50                  55                  60


Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile Arg Cys Tyr Leu
65                  70                  75                  80


Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn Asn Arg Thr Gln
                85                  90                  95
```

```
Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp Pro Cys Pro Gly
            100                 105                 110

Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val Pro Tyr Lys Val
        115                 120                 125

Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys Gly Val Tyr Gln
    130                 135                 140

Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly Ala Trp Cys Lys
145                 150                 155                 160

Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met Pro Trp Thr Pro
                165                 170                 175

Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys Asp Asp Phe Ile
            180                 185                 190

Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His Arg Val Asp Gly
        195                 200                 205

Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe Asn Lys Glu Arg
    210                 215                 220

Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg Ile Lys Ser Gly
225                 230                 235                 240

Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr Ser Pro Tyr Arg
                245                 250                 255

Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp Glu Asn Gly Leu
            260                 265                 270

Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys Ile Val Ile Ser
        275                 280                 285

Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr Trp Asp Thr Ala
    290                 295                 300

Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile Cys Gly Ile Leu
305                 310                 315                 320
```

```
Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn Glu Ala Thr Gly
                325                 330                 335

Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser Lys Asp Ser Leu
            340                 345                 350

Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile Ala Ala Val Asp
        355                 360                 365

Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn Asn Tyr His Val
    370                 375                 380

Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser Arg Ser Gly Gln
385                 390                 395                 400

Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro Ile His Leu Asp
                405                 410                 415

Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser Thr Thr Gly Pro
            420                 425                 430

Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu Arg Thr Thr Thr
        435                 440                 445

Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser Gly Arg Arg Asn
    450                 455                 460

Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val Leu Asp Asp Met
465                 470                 475                 480

Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro Ala Leu Glu Glu
                485                 490                 495

Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp Phe Lys Thr Arg
            500                 505                 510

Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly Thr Ile Gly Val
        515                 520                 525

Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp Asp Pro Gln Gly
    530                 535                 540
```

```
Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn His Ile Thr Gln
545                 550                 555                 560

Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala Arg Glu Leu Ala
                565                 570                 575

Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile Thr Tyr Ser Val
            580                 585                 590

Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val Gln Leu Arg Asn
        595                 600                 605

Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser Leu Asn Lys Leu
    610                 615                 620

Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln Ala Met Val Glu
625                 630                 635                 640

Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn Ala Trp Arg Asp
                645                 650                 655

Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met Leu Leu His Thr
            660                 665                 670

Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu Leu Lys Thr Asp
        675                 680                 685

Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu Val Ala Arg Leu
    690                 695                 700

Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro Glu Asn Met Gly
705                 710                 715                 720

His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu Lys Gln Asn Gly
                725                 730                 735

Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr Asn Asn Leu Gly
            740                 745                 750

Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu Gly Thr Glu Ala
        755                 760                 765

Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro Val Ile Thr Ala
```

770 775 780

Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu Ala Asp Pro Val
785 790 795 800

Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu Asn Phe Asn Pro
805 810 815

Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met Thr Gly Tyr Trp
820 825 830

Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys Thr His Thr Thr
835 840 845

Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu Met Ala His Val
850 855 860

Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu Leu Asp Val Ile
865 870 875 880

Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu Leu Ile Cys Ile
885 890 895

Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp Arg Asn Thr Ile
900 905 910

His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu Leu Leu Phe Leu
915 920 925

Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys Ala Val Phe Ala
930 935 940

Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr Trp Met Phe Leu
945 950 955 960

Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val Phe Glu Ser Glu
965 970 975

His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr Gly Met Pro Ala
980 985 990

Leu Ile Val Ala Val Ser Ala Ala Val Asp Tyr Arg Ser Tyr Gly
Thr

995 1000 1005

Asp Lys Val Cys Trp Leu Arg Leu Asp Thr Tyr Phe Ile Trp Ser
1010 1015 1020

Phe Ile Gly Pro Ala Thr Leu Ile Ile Met Leu Asn Val Ile Phe
1025 1030 1035

Leu Gly Ile Ala Leu Tyr Lys Met Phe His His Thr Ala Ile Leu
1040 1045 1050

Lys Pro Glu Ser Gly Cys Leu Asp Asn Ile Lys Ser Trp Val Ile
1055 1060 1065

Gly Ala Ile Ala Leu Leu Cys Leu Leu Gly Leu Thr Trp Ala Phe
1070 1075 1080

Gly Leu Met Tyr Ile Asn Glu Ser Thr Val Ile Met Ala Tyr Leu
1085 1090 1095

Phe Thr Ile Phe Asn Ser Leu Gln Gly Met Phe Ile Phe Ile Phe
1100 1105 1110

His Cys Val Leu Gln Lys Lys Val Arg Lys Glu Tyr Gly Lys Cys
1115 1120 1125

Leu Arg Thr His Cys Cys Ser Gly Lys Ser Thr Glu Ser Ser Ile
1130 1135 1140

Gly Ser Gly Lys Thr Ser Gly Ser Arg Thr Pro Gly Arg Tyr Ser
1145 1150 1155

Thr Gly Ser Gln Ser Arg Ile Arg Arg Met Trp Asn Asp Thr Val
1160 1165 1170

Arg Lys Gln Ser Glu Ser Ser Phe Ile Thr Gly Asp Ile Asn Ser
1175 1180 1185

Ser Ala Ser Leu Asn Arg Gly Ala Met Ala Asn His Leu Ile Ser
1190 1195 1200

Asn Ala Leu Leu Arg Pro His Gly Thr Asn Asn Pro Tyr Asn Thr
1205 1210 1215

```
Leu Leu  Gly Glu Pro Ala Val  Cys Asn Asn Pro Ser  Val Ser Met
    1220                1225                1230


Tyr Asn  Ala Gln Glu Pro Tyr  Arg Glu Thr Ser Met  Gly Val Lys
    1235                1240                1245


Leu Asn  Ile Ala Tyr Gln Ile  Gly Ala Ser Glu Gln  Cys Gln Gly
    1250                1255                1260


Tyr Lys  Cys His Gly Tyr Ser  Thr Thr Glu Trp
    1265                1270


<210> 3133
<211> 1571
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 697; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRL3; "

<220>
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<223> /note="Gene Name:
      adhesion G prt-coupled receptor L3; "

<220>
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<223> /note="ENSP ID: ENSP00000425884"

<400> 3133
Met Trp Pro Ser Gln Leu Leu Ile Phe Met Met Leu Leu Ala Pro Ile
1               5                  10                  15


Ile His Gly Gly Lys His Ser Glu Arg His Pro Ala Leu Ala Ala Pro
            20                  25                  30


Leu Arg His Ala Glu Arg Ser Pro Gly Gly Ala Leu Pro Pro Arg His
        35                  40                  45


Leu Leu Gln Gln Pro Ala Ala Glu Arg Thr Ala Ala His Arg Gly Gln
    50                  55                  60
```

```
Gly Pro Arg Gly Ala Thr Arg Gly Val Arg Gly Pro Gly Ala Gln Gly
65                  70                  75                  80

Ala Gln Ile Ala Ala Gln Ala Phe Ser Arg Ala Pro Ile Pro Met Ala
                85                  90                  95

Val Val Arg Arg Glu Leu Ser Cys Glu Ser Tyr Pro Ile Glu Leu Arg
            100                 105                 110

Cys Pro Gly Thr Asp Val Ile Met Ile Glu Ser Ala Asn Tyr Gly Arg
        115                 120                 125

Thr Asp Asp Lys Ile Cys Asp Ser Asp Pro Ala Gln Met Glu Asn Ile
    130                 135                 140

Arg Cys Tyr Leu Pro Asp Ala Tyr Lys Ile Met Ser Gln Arg Cys Asn
145                 150                 155                 160

Asn Arg Thr Gln Cys Ala Val Val Ala Gly Pro Asp Val Phe Pro Asp
                165                 170                 175

Pro Cys Pro Gly Thr Tyr Lys Tyr Leu Glu Val Gln Tyr Glu Cys Val
            180                 185                 190

Pro Tyr Lys Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
        195                 200                 205

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
    210                 215                 220

Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
225                 230                 235                 240

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
                245                 250                 255

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
            260                 265                 270

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
        275                 280                 285

Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
```

290 295 300

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
305 310 315 320

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
325 330 335

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
340 345 350

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
355 360 365

Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
370 375 380

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
385 390 395 400

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
405 410 415

Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
420 425 430

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
435 440 445

Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
450 455 460

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
465 470 475 480

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
485 490 495

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
500 505 510

Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
515 520 525

```
Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
    530                 535                 540

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
545                 550                 555                 560

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
                565                 570                 575

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
            580                 585                 590

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
        595                 600                 605

Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
    610                 615                 620

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
625                 630                 635                 640

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
                645                 650                 655

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
            660                 665                 670

Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
        675                 680                 685

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
    690                 695                 700

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
705                 710                 715                 720

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
                725                 730                 735

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
            740                 745                 750
```

```
Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
        755                 760                 765

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
    770                 775                 780

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
785                 790                 795                 800

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
                805                 810                 815

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
            820                 825                 830

Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
        835                 840                 845

Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
    850                 855                 860

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
865                 870                 875                 880

Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
                885                 890                 895

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
            900                 905                 910

Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
        915                 920                 925

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
    930                 935                 940

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
945                 950                 955                 960

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
                965                 970                 975
```

```
Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
            980                 985                 990

Leu Leu Phe Leu Ile Gly Ile Asn  Arg Thr Asp Gln Pro  Ile Ala
Cys
        995                1000                1005

Ala Val  Phe Ala Ala Leu Leu  His Phe Phe Phe Leu  Ala Ala Phe
    1010                1015                1020

Thr Trp  Met Phe Leu Glu Gly  Val Gln Leu Tyr Ile  Met Leu Val
    1025                1030                1035

Glu Val  Phe Glu Ser Glu His  Ser Arg Arg Lys Tyr  Phe Tyr Leu
    1040                1045                1050

Val Gly  Tyr Gly Met Pro Ala  Leu Ile Val Ala Val  Ser Ala Ala
    1055                1060                1065

Val Asp  Tyr Arg Ser Tyr Gly  Thr Asp Lys Val Cys  Trp Leu Arg
    1070                1075                1080

Leu Asp  Thr Tyr Phe Ile Trp  Ser Phe Ile Gly Pro  Ala Thr Leu
    1085                1090                1095

Ile Ile  Met Leu Asn Val Ile  Phe Leu Gly Ile Ala  Leu Tyr Lys
    1100                1105                1110

Met Phe  His His Thr Ala Ile  Leu Lys Pro Glu Ser  Gly Cys Leu
    1115                1120                1125

Asp Asn  Ile Lys Ser Trp Val  Ile Gly Ala Ile Ala  Leu Leu Cys
    1130                1135                1140

Leu Leu  Gly Leu Thr Trp Ala  Phe Gly Leu Met Tyr  Ile Asn Glu
    1145                1150                1155

Ser Thr  Val Ile Met Ala Tyr  Leu Phe Thr Ile Phe  Asn Ser Leu
    1160                1165                1170

Gln Gly  Met Phe Ile Phe Ile  Phe His Cys Val Leu  Gln Lys Lys
    1175                1180                1185
```

```
Val Arg  Lys Glu Tyr Gly Lys  Cys Leu Arg Thr His  Cys Cys Ser
    1190                1195                1200

Gly Lys  Ser Thr Glu Ser Ser  Ile Gly Ser Gly Lys  Thr Ser Gly
    1205                1210                1215

Ser Arg  Thr Pro Gly Arg Tyr  Ser Thr Gly Ser Gln  Ser Arg Ile
    1220                1225                1230

Arg Arg  Met Trp Asn Asp Thr  Val Arg Lys Gln Ser  Glu Ser Ser
    1235                1240                1245

Phe Ile  Thr Gly Asp Ile Asn  Ser Ser Ala Ser Leu  Asn Arg Gly
    1250                1255                1260

Ala Met  Ala Asn His Leu Ile  Ser Asn Ala Leu Leu  Arg Pro His
    1265                1270                1275

Gly Thr  Asn Asn Pro Tyr Asn  Thr Leu Leu Gly Glu  Pro Ala Val
    1280                1285                1290

Cys Asn  Asn Pro Ser Val Ser  Met Tyr Asn Ala Gln  Glu Gly Leu
    1295                1300                1305

Leu Asn  Asn Ala Arg Asp Thr  Ser Val Met Asp Thr  Leu Pro Leu
    1310                1315                1320

Asn Gly  Asn His Gly Asn Ser  Tyr Ser Ile Ala Ser  Gly Glu Tyr
    1325                1330                1335

Leu Ser  Asn Cys Val Gln Ile  Ile Asp Arg Gly Tyr  Asn His Asn
    1340                1345                1350

Glu Thr  Ala Leu Glu Lys Lys  Ile Leu Lys Glu Leu  Thr Ser Asn
    1355                1360                1365

Tyr Ile  Pro Ser Tyr Leu Asn  Asn His Glu Arg Ser  Ser Glu Gln
    1370                1375                1380

Asn Arg  Asn Leu Met Asn Lys  Leu Val Asn Asn Leu  Gly Ser Gly
    1385                1390                1395

Arg Glu  Asp Asp Ala Ile Val  Leu Asp Asp Ala Thr  Ser Phe Asn
```

```
    1400                1405                1410

His Glu  Glu Ser Leu Gly Leu  Glu Leu Ile His Glu  Glu Ser Asp
    1415                1420                1425

Ala Pro  Leu Leu Pro Pro Arg  Val Tyr Ser Thr Glu  Asn His Gln
    1430                1435                1440

Pro His  His Tyr Thr Arg Arg  Arg Ile Pro Gln Asp  His Ser Glu
    1445                1450                1455

Ser Phe  Phe Pro Leu Leu Thr  Asn Glu His Thr Glu  Asp Leu Gln
    1460                1465                1470

Ser Pro  His Arg Asp Ser Leu  Tyr Thr Ser Met Pro  Thr Leu Ala
    1475                1480                1485

Gly Val  Ala Ala Thr Glu Ser  Val Thr Thr Ser Thr  Gln Thr Glu
    1490                1495                1500

Pro Pro  Pro Ala Lys Cys Gly  Asp Ala Glu Asp Val  Tyr Tyr Lys
    1505                1510                1515

Ser Met  Pro Asn Leu Gly Ser  Arg Asn His Val His  Gln Leu His
    1520                1525                1530

Thr Tyr  Tyr Gln Leu Gly Arg  Gly Ser Ser Asp Gly  Phe Ile Val
    1535                1540                1545

Pro Pro  Asn Lys Asp Gly Thr  Pro Pro Glu Gly Ser  Ser Lys Gly
    1550                1555                1560

Pro Ala  His Leu Val Thr Ser  Leu
    1565                1570


<210> 3134
<211> 1345
<212> PRT
<213> Homo sapiens

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adhesion G prt-coupled receptor L3; "

<220>
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<400> 3134

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Pro Ile Glu Val Glu Gln Lys Val Phe Leu Cys Pro Gly Leu Leu Lys
1               5                  10                  15

Gly Val Tyr Gln Ser Glu His Leu Phe Glu Ser Asp His Gln Ser Gly
            20                  25                  30

Ala Trp Cys Lys Asp Pro Leu Gln Ala Ser Asp Lys Ile Tyr Tyr Met
        35                  40                  45

Pro Trp Thr Pro Tyr Arg Thr Asp Thr Leu Thr Glu Tyr Ser Ser Lys
    50                  55                  60

Asp Asp Phe Ile Ala Gly Arg Pro Thr Thr Thr Tyr Lys Leu Pro His
65                  70                  75                  80

Arg Val Asp Gly Thr Gly Phe Val Val Tyr Asp Gly Ala Leu Phe Phe
                85                  90                  95

Asn Lys Glu Arg Thr Arg Asn Ile Val Lys Phe Asp Leu Arg Thr Arg
            100                 105                 110

Ile Lys Ser Gly Glu Ala Ile Ile Ala Asn Ala Asn Tyr His Asp Thr
        115                 120                 125

Ser Pro Tyr Arg Trp Gly Gly Lys Ser Asp Ile Asp Leu Ala Val Asp
    130                 135                 140

Glu Asn Gly Leu Trp Val Ile Tyr Ala Thr Glu Gln Asn Asn Gly Lys
145                 150                 155                 160

Ile Val Ile Ser Gln Leu Asn Pro Tyr Thr Leu Arg Ile Glu Gly Thr
                165                 170                 175
```

```
Trp Asp Thr Ala Tyr Asp Lys Arg Ser Ala Ser Asn Ala Phe Met Ile
            180                 185                 190

Cys Gly Ile Leu Tyr Val Val Lys Ser Val Tyr Glu Asp Asp Asp Asn
        195                 200                 205

Glu Ala Thr Gly Asn Lys Ile Asp Tyr Ile Tyr Asn Thr Asp Gln Ser
    210                 215                 220

Lys Asp Ser Leu Val Asp Val Pro Phe Pro Asn Ser Tyr Gln Tyr Ile
225                 230                 235                 240

Ala Ala Val Asp Tyr Asn Pro Arg Asp Asn Leu Leu Tyr Val Trp Asn
                245                 250                 255

Asn Tyr His Val Val Lys Tyr Ser Leu Asp Phe Gly Pro Leu Asp Ser
            260                 265                 270

Arg Ser Gly Gln Ala His His Gly Gln Val Ser Tyr Ile Ser Pro Pro
        275                 280                 285

Ile His Leu Asp Ser Glu Leu Glu Arg Pro Ser Val Lys Asp Ile Ser
    290                 295                 300

Thr Thr Gly Pro Leu Gly Met Gly Ser Thr Thr Thr Ser Thr Thr Leu
305                 310                 315                 320

Arg Thr Thr Thr Leu Ser Pro Gly Arg Ser Thr Thr Pro Ser Val Ser
                325                 330                 335

Gly Arg Arg Asn Arg Ser Thr Ser Thr Pro Ser Pro Ala Val Glu Val
            340                 345                 350

Leu Asp Asp Met Thr Thr His Leu Pro Ser Ala Ser Ser Gln Ile Pro
        355                 360                 365

Ala Leu Glu Glu Ser Cys Glu Ala Val Glu Ala Arg Glu Ile Met Trp
    370                 375                 380

Phe Lys Thr Arg Gln Gly Gln Ile Ala Lys Gln Pro Cys Pro Ala Gly
385                 390                 395                 400

Thr Ile Gly Val Ser Thr Tyr Leu Cys Leu Ala Pro Asp Gly Ile Trp
```

```
                405                 410                 415

Asp Pro Gln Gly Pro Asp Leu Ser Asn Cys Ser Ser Pro Trp Val Asn
            420                 425                 430

His Ile Thr Gln Lys Leu Lys Ser Gly Glu Thr Ala Ala Asn Ile Ala
        435                 440                 445

Arg Glu Leu Ala Glu Gln Thr Arg Asn His Leu Asn Ala Gly Asp Ile
    450                 455                 460

Thr Tyr Ser Val Arg Ala Met Asp Gln Leu Val Gly Leu Leu Asp Val
465                 470                 475                 480

Gln Leu Arg Asn Leu Thr Pro Gly Gly Lys Asp Ser Ala Ala Arg Ser
                485                 490                 495

Leu Asn Lys Leu Gln Lys Arg Glu Arg Ser Cys Arg Ala Tyr Val Gln
            500                 505                 510

Ala Met Val Glu Thr Val Asn Asn Leu Leu Gln Pro Gln Ala Leu Asn
        515                 520                 525

Ala Trp Arg Asp Leu Thr Thr Ser Asp Gln Leu Arg Ala Ala Thr Met
    530                 535                 540

Leu Leu His Thr Val Glu Glu Ser Ala Phe Val Leu Ala Asp Asn Leu
545                 550                 555                 560

Leu Lys Thr Asp Ile Val Arg Glu Asn Thr Asp Asn Ile Lys Leu Glu
                565                 570                 575

Val Ala Arg Leu Ser Thr Glu Gly Asn Leu Glu Asp Leu Lys Phe Pro
            580                 585                 590

Glu Asn Met Gly His Gly Ser Thr Ile Gln Leu Ser Ala Asn Thr Leu
        595                 600                 605

Lys Gln Asn Gly Arg Asn Gly Glu Ile Arg Val Ala Phe Val Leu Tyr
    610                 615                 620

Asn Asn Leu Gly Pro Tyr Leu Ser Thr Glu Asn Ala Ser Met Lys Leu
625                 630                 635                 640
```

```
Gly Thr Glu Ala Leu Ser Thr Asn His Ser Val Ile Val Asn Ser Pro
                645                 650                 655

Val Ile Thr Ala Ala Ile Asn Lys Glu Phe Ser Asn Lys Val Tyr Leu
            660                 665                 670

Ala Asp Pro Val Val Phe Thr Val Lys His Ile Lys Gln Ser Glu Glu
        675                 680                 685

Asn Phe Asn Pro Asn Cys Ser Phe Trp Ser Tyr Ser Lys Arg Thr Met
    690                 695                 700

Thr Gly Tyr Trp Ser Thr Gln Gly Cys Arg Leu Leu Thr Thr Asn Lys
705                 710                 715                 720

Thr His Thr Thr Cys Ser Cys Asn His Leu Thr Asn Phe Ala Val Leu
                725                 730                 735

Met Ala His Val Glu Val Lys His Ser Asp Ala Val His Asp Leu Leu
            740                 745                 750

Leu Asp Val Ile Thr Trp Val Gly Ile Leu Leu Ser Leu Val Cys Leu
        755                 760                 765

Leu Ile Cys Ile Phe Thr Phe Cys Phe Phe Arg Gly Leu Gln Ser Asp
    770                 775                 780

Arg Asn Thr Ile His Lys Asn Leu Cys Ile Ser Leu Phe Val Ala Glu
785                 790                 795                 800

Leu Leu Phe Leu Ile Gly Ile Asn Arg Thr Asp Gln Pro Ile Ala Cys
                805                 810                 815

Ala Val Phe Ala Ala Leu Leu His Phe Phe Phe Leu Ala Ala Phe Thr
            820                 825                 830

Trp Met Phe Leu Glu Gly Val Gln Leu Tyr Ile Met Leu Val Glu Val
        835                 840                 845

Phe Glu Ser Glu His Ser Arg Arg Lys Tyr Phe Tyr Leu Val Gly Tyr
    850                 855                 860
```

```
Gly Met Pro Ala Leu Ile Val Ala Val Ser Ala Ala Val Asp Tyr Arg
865                 870                 875                 880

Ser Tyr Gly Thr Asp Lys Val Cys Trp Leu Arg Leu Asp Thr Tyr Phe
                885                 890                 895

Ile Trp Ser Phe Ile Gly Pro Ala Thr Leu Ile Ile Met Leu Asn Val
            900                 905                 910

Ile Phe Leu Gly Ile Ala Leu Tyr Lys Met Phe His His Thr Ala Ile
        915                 920                 925

Leu Lys Pro Glu Ser Gly Cys Leu Asp Asn Ile Asn Tyr Glu Asp Asn
    930                 935                 940

Arg Pro Phe Ile Lys Ser Trp Val Ile Gly Ala Ile Ala Leu Leu Cys
945                 950                 955                 960

Leu Leu Gly Leu Thr Trp Ala Phe Gly Leu Met Tyr Ile Asn Glu Ser
                965                 970                 975

Thr Val Ile Met Ala Tyr Leu Phe Thr Ile Phe Asn Ser Leu Gln Gly
            980                 985                 990

Met Phe Ile Phe Ile Phe His Cys  Val Leu Gln Lys Lys  Val Arg
Lys
        995                 1000                1005

Glu Tyr  Gly Lys Cys Leu Arg  Thr His Cys Cys Ser  Gly Lys Ser
    1010                1015                1020

Thr Glu  Ser Ser Ile Gly Ser  Gly Lys Thr Ser Gly  Ser Arg Thr
    1025                1030                1035

Pro Gly  Arg Tyr Ser Thr Gly  Ser Gln Ser Arg Ile  Arg Arg Met
    1040                1045                1050

Trp Asn  Asp Thr Val Arg Lys  Gln Ser Glu Ser Ser  Phe Ile Thr
    1055                1060                1065

Gly Asp  Ile Asn Ser Ser Ala  Ser Leu Asn Arg Glu  Gly Leu Leu
    1070                1075                1080
```

```
Asn Asn  Ala Arg Asp Thr Ser  Val Met Asp Thr Leu  Pro Leu Asn
    1085                1090                1095

Gly Asn  His Gly Asn Ser Tyr  Ser Ile Ala Ser Gly  Glu Tyr Leu
    1100                1105                1110

Ser Asn  Cys Val Gln Ile Ile  Asp Arg Gly Tyr Asn  His Asn Glu
    1115                1120                1125

Thr Ala  Leu Glu Lys Lys Ile  Leu Lys Glu Leu Thr  Ser Asn Tyr
    1130                1135                1140

Ile Pro  Ser Tyr Leu Asn Asn  His Glu Arg Ser Ser  Glu Gln Asn
    1145                1150                1155

Arg Asn  Leu Met Asn Lys Leu  Val Asn Asn Leu Gly  Ser Gly Arg
    1160                1165                1170

Glu Asp  Asp Ala Ile Val Leu  Asp Asp Ala Thr Ser  Phe Asn His
    1175                1180                1185

Glu Glu  Ser Leu Gly Leu Glu  Leu Ile His Glu Glu  Ser Asp Ala
    1190                1195                1200

Pro Leu  Leu Pro Pro Arg Val  Tyr Ser Thr Glu Asn  His Gln Pro
    1205                1210                1215

His His  Tyr Thr Arg Arg Arg  Ile Pro Gln Asp His  Ser Glu Ser
    1220                1225                1230

Phe Phe  Pro Leu Leu Thr Asn  Glu His Thr Glu Asp  Leu Gln Ser
    1235                1240                1245

Pro His  Arg Asp Ser Leu Tyr  Thr Ser Met Pro Thr  Leu Ala Gly
    1250                1255                1260

Val Ala  Ala Thr Glu Ser Val  Thr Thr Ser Thr Gln  Thr Glu Pro
    1265                1270                1275

Pro Pro  Ala Lys Cys Gly Asp  Ala Glu Asp Val Tyr  Tyr Lys Ser
    1280                1285                1290
```

```
Met Pro  Asn Leu Gly Ser Arg  Asn His Val His Gln  Leu His Thr
    1295                1300                1305

Tyr Tyr  Gln Leu Gly Arg Gly  Ser Ser Asp Gly Phe  Ile Val Pro
    1310                1315                1320

Pro Asn  Lys Asp Gly Thr Pro  Pro Glu Gly Ser Ser  Lys Gly Pro
    1325                1330                1335

Ala His  Leu Val Thr Ser Leu
    1340                1345
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<210> 3135
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<212> PRT
<213> Homo sapiens

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<220>
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adhesion G prt-coupled receptor L4; "

<220>
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<223> /note="Uniprot ID: Q9HBW9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359778"

<400> 3135

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Met Lys Arg Leu Pro Leu Leu Val Val Phe Ser Thr Leu Leu Asn Cys
1               5                  10                  15

Ser Tyr Thr Gln Asn Cys Thr Lys Thr Pro Cys Leu Pro Asn Ala Lys
            20                  25                  30

Cys Glu Ile Arg Asn Gly Ile Glu Ala Cys Tyr Cys Asn Met Gly Phe
        35                  40                  45

Ser Gly Asn Gly Val Thr Ile Cys Glu Asp Asp Asn Glu Cys Gly Asn
    50                  55                  60
```

```
Leu Thr Gln Ser Cys Gly Glu Asn Ala Asn Cys Thr Asn Thr Glu Gly
65                  70                  75                  80

Ser Tyr Tyr Cys Met Cys Val Pro Gly Phe Arg Ser Ser Ser Asn Gln
                85                  90                  95

Asp Arg Phe Ile Thr Asn Asp Gly Thr Val Cys Ile Glu Asn Val Asn
            100                 105                 110

Ala Asn Cys His Leu Asp Asn Val Cys Ile Ala Ala Asn Ile Asn Lys
        115                 120                 125

Thr Leu Thr Lys Ile Arg Ser Ile Lys Glu Pro Val Ala Leu Leu Gln
    130                 135                 140

Glu Val Tyr Arg Asn Ser Val Thr Asp Leu Ser Pro Thr Asp Ile Ile
145                 150                 155                 160

Thr Tyr Ile Glu Ile Leu Ala Glu Ser Ser Ser Leu Leu Gly Tyr Lys
                165                 170                 175

Asn Asn Thr Ile Ser Ala Lys Asp Thr Leu Ser Asn Ser Thr Leu Thr
            180                 185                 190

Glu Phe Val Lys Thr Val Asn Asn Phe Val Gln Arg Asp Thr Phe Val
        195                 200                 205

Val Trp Asp Lys Leu Ser Val Asn His Arg Arg Thr His Leu Thr Lys
    210                 215                 220

Leu Met His Thr Val Glu Gln Ala Thr Leu Arg Ile Ser Gln Ser Phe
225                 230                 235                 240

Gln Lys Thr Thr Glu Phe Asp Thr Asn Ser Thr Asp Ile Ala Leu Lys
                245                 250                 255

Val Phe Phe Phe Asp Ser Tyr Asn Met Lys His Ile His Pro His Met
            260                 265                 270

Asn Met Asp Gly Asp Tyr Ile Asn Ile Phe Pro Lys Arg Lys Ala Ala
        275                 280                 285
```

```
Tyr Asp Ser Asn Gly Asn Val Ala Val Ala Phe Val Tyr Tyr Lys Ser
    290                 295                 300

Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu Lys Pro Gln
305                 310                 315                 320

Asn Tyr Asp Asn Ser Glu Glu Glu Glu Arg Val Ile Ser Ser Val Ile
                325                 330                 335

Ser Val Ser Met Ser Ser Asn Pro Pro Thr Leu Tyr Glu Leu Glu Lys
            340                 345                 350

Ile Thr Phe Thr Leu Ser His Arg Lys Val Thr Asp Arg Tyr Arg Ser
        355                 360                 365

Leu Cys Ala Phe Trp Asn Tyr Ser Pro Asp Thr Met Asn Gly Ser Trp
    370                 375                 380

Ser Ser Glu Gly Cys Glu Leu Thr Tyr Ser Asn Glu Thr His Thr Ser
385                 390                 395                 400

Cys Arg Cys Asn His Leu Thr His Phe Ala Ile Leu Met Ser Ser Gly
                405                 410                 415

Pro Ser Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg Ile Thr Gln
            420                 425                 430

Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Cys Ile Phe Thr
        435                 440                 445

Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr Ile His Lys
    450                 455                 460

Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe Leu Val Gly
465                 470                 475                 480

Ile Asn Thr Asn Thr Asn Lys Leu Phe Cys Ser Ile Ile Ala Gly Leu
                485                 490                 495

Leu His Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Ile Glu Gly
            500                 505                 510
```

```
Ile His Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn Lys Gly Phe
        515                 520                 525

Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro Ala Val Val
    530                 535                 540

Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly Thr Thr Lys
545                 550                 555                 560

Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe Ile Gly
                565                 570                 575

Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly Val Ile
            580                 585                 590

Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu Val Ser
        595                 600                 605

Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala Leu Leu
    610                 615                 620

Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val Val His
625                 630                 635                 640

Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala Phe Gln
                645                 650                 655

Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys Ile Gln
            660                 665                 670

Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe Gly Cys
        675                 680                 685

Leu Arg
    690


<210> 3136
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 698; "
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<220>
<221> source
<223> /note="Gene Symbol: ADGRL4; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor L4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000383813"

<400> 3136
Val Val Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly Thr
1 5 10 15

Thr Lys Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe
20 25 30

Ile Gly Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly
35 40 45

Val Ile Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu
50 55 60

Val Ser Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala
65 70 75 80

Leu Leu Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val
85 90 95

Val His Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala
100 105 110

Phe Gln Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys
115 120 125

Ile Gln Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe
130 135 140

Gly Cys Leu Ser Cys
145

<210> 3137
<211> 6306
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<220>
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adhesion G prt-coupled receptor V1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WXG9; "

<220>
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<223> /note="ENSP ID: ENSP00000384582"

<400> 3137

Met	Ser	Val	Phe	Leu	Gly	Pro	Gly	Met	Pro	Ser	Ala	Ser	Leu	Leu	Val
1				5				10					15		
Asn	Leu	Leu	Ser	Ala	Leu	Leu	Ile	Leu	Phe	Val	Phe	Gly	Glu	Thr	Glu
			20					25					30		
Ile	Arg	Phe	Thr	Gly	Gln	Thr	Glu	Phe	Val	Val	Asn	Glu	Thr	Ser	Thr
		35					40					45			
Thr	Val	Ile	Arg	Leu	Ile	Ile	Glu	Arg	Ile	Gly	Glu	Pro	Ala	Asn	Val
	50					55					60				
Thr	Ala	Ile	Val	Ser	Leu	Tyr	Gly	Glu	Asp	Ala	Gly	Asp	Phe	Phe	Asp
65					70					75					80
Thr	Tyr	Ala	Ala	Ala	Phe	Ile	Pro	Ala	Gly	Glu	Thr	Asn	Arg	Thr	Val
				85					90					95	
Tyr	Ile	Ala	Val	Cys	Asp	Asp	Asp	Leu	Pro	Glu	Pro	Asp	Glu	Thr	Phe
			100					105					110		
Ile	Phe	His	Leu	Thr	Leu	Gln	Lys	Pro	Ser	Ala	Asn	Val	Lys	Leu	Gly
		115					120					125			
Trp	Pro	Arg	Thr	Val	Thr	Val	Thr	Ile	Leu	Ser	Asn	Asp	Asn	Ala	Phe

```
    130                 135                 140

Gly Ile Ile Ser Phe Asn Met Leu Pro Ser Ile Ala Val Ser Glu Pro
145                 150                 155                 160

Lys Gly Arg Asn Glu Ser Met Pro Leu Thr Leu Ile Arg Glu Lys Gly
                165                 170                 175

Thr Tyr Gly Met Val Met Val Thr Phe Glu Val Glu Gly Gly Pro Asn
            180                 185                 190

Pro Pro Asp Glu Asp Leu Ser Pro Val Lys Gly Asn Ile Thr Phe Pro
        195                 200                 205

Pro Gly Arg Ala Thr Val Ile Tyr Asn Leu Thr Val Leu Asp Asp Glu
    210                 215                 220

Val Pro Glu Asn Asp Glu Ile Phe Leu Ile Gln Leu Lys Ser Val Glu
225                 230                 235                 240

Gly Gly Ala Glu Ile Asn Thr Ser Arg Asn Ser Ile Glu Ile Ile Ile
                245                 250                 255

Lys Lys Asn Asp Ser Pro Val Arg Phe Leu Gln Ser Ile Tyr Leu Val
            260                 265                 270

Pro Glu Glu Asp His Ile Leu Ile Ile Pro Val Val Arg Gly Lys Asp
        275                 280                 285

Asn Asn Gly Asn Leu Ile Gly Ser Asp Glu Tyr Glu Val Ser Ile Ser
    290                 295                 300

Tyr Ala Val Thr Thr Gly Asn Ser Thr Ala His Ala Gln Gln Asn Leu
305                 310                 315                 320

Asp Phe Ile Asp Leu Gln Pro Asn Thr Thr Val Val Phe Pro Pro Phe
                325                 330                 335

Ile His Glu Ser His Leu Lys Phe Gln Ile Val Asp Asp Thr Ile Pro
            340                 345                 350

Glu Ile Ala Glu Ser Phe His Ile Met Leu Leu Lys Asp Thr Leu Gln
        355                 360                 365
```

```
Gly Asp Ala Val Leu Ile Ser Pro Ser Val Val Gln Val Thr Ile Lys
    370                 375                 380

Pro Asn Asp Lys Pro Tyr Gly Val Leu Ser Phe Asn Ser Val Leu Phe
385                 390                 395                 400

Glu Arg Thr Val Ile Ile Asp Glu Asp Arg Ile Ser Arg Tyr Glu Glu
                405                 410                 415

Ile Thr Val Val Arg Asn Gly Gly Thr His Gly Asn Val Ser Ala Asn
            420                 425                 430

Trp Val Leu Thr Arg Asn Ser Thr Asp Pro Ser Pro Val Thr Ala Asp
        435                 440                 445

Ile Arg Pro Ser Ser Gly Val Leu His Phe Ala Gln Gly Gln Met Leu
    450                 455                 460

Ala Thr Ile Pro Leu Thr Val Val Asp Asp Asp Leu Pro Glu Glu Ala
465                 470                 475                 480

Glu Ala Tyr Leu Leu Gln Ile Leu Pro His Thr Ile Arg Gly Gly Ala
                485                 490                 495

Glu Val Ser Glu Pro Ala Glu Leu Leu Phe Tyr Ile Gln Asp Ser Asp
            500                 505                 510

Asp Val Tyr Gly Leu Ile Thr Phe Phe Pro Met Glu Asn Gln Lys Ile
        515                 520                 525

Glu Ser Ser Pro Gly Glu Arg Tyr Leu Ser Leu Ser Phe Thr Arg Leu
    530                 535                 540

Gly Gly Thr Lys Gly Asp Val Arg Leu Leu Tyr Ser Val Leu Tyr Ile
545                 550                 555                 560

Pro Ala Gly Ala Val Asp Pro Leu Gln Ala Lys Glu Gly Ile Leu Asn
                565                 570                 575

Ile Ser Arg Arg Asn Asp Leu Ile Phe Pro Glu Gln Lys Thr Gln Val
            580                 585                 590
```

```
Thr Thr Lys Leu Pro Ile Arg Asn Asp Ala Phe Leu Gln Asn Gly Ala
        595                 600                 605

His Phe Leu Val Gln Leu Glu Thr Val Glu Leu Leu Asn Ile Ile Pro
    610                 615                 620

Leu Ile Pro Pro Ile Ser Pro Arg Phe Gly Glu Ile Cys Asn Ile Ser
625                 630                 635                 640

Leu Leu Val Thr Pro Ala Ile Ala Asn Gly Glu Ile Gly Phe Leu Ser
                645                 650                 655

Asn Leu Pro Ile Ile Leu His Glu Pro Glu Asp Phe Ala Ala Glu Val
            660                 665                 670

Val Tyr Ile Pro Leu His Arg Asp Gly Thr Asp Gly Gln Ala Thr Val
        675                 680                 685

Tyr Trp Ser Leu Lys Pro Ser Gly Phe Asn Ser Lys Ala Val Thr Pro
    690                 695                 700

Asp Asp Ile Gly Pro Phe Asn Gly Ser Val Leu Phe Leu Ser Gly Gln
705                 710                 715                 720

Ser Asp Thr Thr Ile Asn Ile Thr Ile Lys Gly Asp Asp Ile Pro Glu
                725                 730                 735

Met Asn Glu Thr Val Thr Leu Ser Leu Asp Arg Val Asn Val Glu Asn
            740                 745                 750

Gln Val Leu Lys Ser Gly Tyr Thr Ser Arg Asp Leu Ile Ile Leu Glu
        755                 760                 765

Asn Asp Asp Pro Gly Gly Val Phe Glu Phe Ser Pro Ala Ser Arg Gly
    770                 775                 780

Pro Tyr Val Ile Lys Glu Gly Glu Ser Val Glu Leu His Ile Ile Arg
785                 790                 795                 800

Ser Arg Gly Ser Leu Val Lys Gln Phe Leu His Tyr Arg Val Glu Pro
                805                 810                 815
```

```
Arg Asp Ser Asn Glu Phe Tyr Gly Asn Thr Gly Val Leu Glu Phe Lys
            820                 825                 830

Pro Gly Glu Arg Glu Ile Val Ile Thr Leu Leu Ala Arg Leu Asp Gly
        835                 840                 845

Ile Pro Glu Leu Asp Glu His Tyr Trp Val Val Leu Ser Ser His Gly
    850                 855                 860

Glu Arg Glu Ser Lys Leu Gly Ser Ala Thr Ile Val Asn Ile Thr Ile
865                 870                 875                 880

Leu Lys Asn Asp Asp Pro His Gly Ile Ile Glu Phe Val Ser Asp Gly
                885                 890                 895

Leu Ile Val Met Ile Asn Glu Ser Lys Gly Asp Ala Ile Tyr Ser Ala
            900                 905                 910

Val Tyr Asp Val Val Arg Asn Arg Gly Asn Phe Gly Asp Val Ser Val
        915                 920                 925

Ser Trp Val Val Ser Pro Asp Phe Thr Gln Asp Val Phe Pro Val Gln
    930                 935                 940

Gly Thr Val Val Phe Gly Asp Gln Glu Phe Ser Lys Asn Ile Thr Ile
945                 950                 955                 960

Tyr Ser Leu Pro Asp Glu Ile Pro Glu Glu Met Glu Glu Phe Thr Val
                965                 970                 975

Ile Leu Leu Asn Gly Thr Gly Gly Ala Lys Val Gly Asn Arg Thr Thr
            980                 985                 990

Ala Thr Leu Arg Ile Arg Arg Asn  Asp Asp Pro Ile Tyr  Phe Ala
Glu
        995                 1000                1005

Pro Arg  Val Val Arg Val Gln  Glu Gly Glu Thr Ala  Asn Phe Thr
    1010                1015                1020

Val Leu  Arg Asn Gly Ser Val  Asp Val Thr Cys Met  Val Gln Tyr
    1025                1030                1035
```

```
Ala Thr  Lys Asp Gly Lys Ala  Thr Ala Arg Glu Arg  Asp Phe Ile
    1040                1045                1050

Pro Val  Glu Lys Gly Glu Thr  Leu Ile Phe Glu Val  Gly Ser Arg
    1055                1060                1065

Gln Gln  Ser Ile Ser Ile Phe  Val Asn Glu Asp Gly  Ile Pro Glu
    1070                1075                1080

Thr Asp  Glu Pro Phe Tyr Ile  Ile Leu Leu Asn Ser  Thr Gly Asp
    1085                1090                1095

Thr Val  Val Tyr Gln Tyr Gly  Val Ala Thr Val Ile  Ile Glu Ala
    1100                1105                1110

Asn Asp  Asp Pro Asn Gly Ile  Phe Ser Leu Glu Pro  Ile Asp Lys
    1115                1120                1125

Ala Val  Glu Glu Gly Lys Thr  Asn Ala Phe Trp Ile  Leu Arg His
    1130                1135                1140

Arg Gly  Tyr Phe Gly Ser Val  Ser Val Ser Trp Gln  Leu Phe Gln
    1145                1150                1155

Asn Asp  Ser Ala Leu Gln Pro  Gly Gln Glu Phe Tyr  Glu Thr Ser
    1160                1165                1170

Gly Thr  Val Asn Phe Met Asp  Gly Glu Glu Ala Lys  Pro Ile Ile
    1175                1180                1185

Leu His  Ala Phe Pro Asp Lys  Ile Pro Glu Phe Asn  Glu Phe Tyr
    1190                1195                1200

Phe Leu  Lys Leu Val Asn Ile  Ser Gly Gly Ser Pro  Gly Pro Gly
    1205                1210                1215

Gly Gln  Leu Ala Glu Thr Asn  Leu Gln Val Thr Val  Met Val Pro
    1220                1225                1230

Phe Asn  Asp Asp Pro Phe Gly  Val Phe Ile Leu Asp  Pro Glu Cys
    1235                1240                1245

Leu Glu  Arg Glu Val Ala Glu  Asp Val Leu Ser Glu  Asp Asp Met
```

1250 1255 1260

Ser Tyr Ile Thr Asn Phe Thr Ile Leu Arg Gln Gln Gly Val Phe
1265 1270 1275

Gly Asp Val Gln Leu Gly Trp Glu Ile Leu Ser Ser Glu Phe Pro
1280 1285 1290

Ala Gly Leu Pro Pro Met Ile Asp Phe Leu Leu Val Gly Ile Phe
1295 1300 1305

Pro Thr Thr Val His Leu Gln Gln His Met Arg Arg His His Ser
1310 1315 1320

Gly Thr Asp Ala Leu Tyr Phe Thr Gly Leu Glu Gly Ala Phe Gly
1325 1330 1335

Thr Val Asn Pro Lys Tyr His Pro Ser Arg Asn Asn Thr Ile Ala
1340 1345 1350

Asn Phe Thr Phe Ser Ala Trp Val Met Pro Asn Ala Asn Thr Asn
1355 1360 1365

Gly Phe Ile Ile Ala Lys Asp Asp Gly Asn Gly Ser Ile Tyr Tyr
1370 1375 1380

Gly Val Lys Ile Gln Thr Asn Glu Ser His Val Thr Leu Ser Leu
1385 1390 1395

His Tyr Lys Thr Leu Gly Ser Asn Ala Thr Tyr Ile Ala Lys Thr
1400 1405 1410

Thr Val Met Lys Tyr Leu Glu Glu Ser Val Trp Leu His Leu Leu
1415 1420 1425

Ile Ile Leu Glu Asp Gly Ile Ile Glu Phe Tyr Leu Asp Gly Asn
1430 1435 1440

Ala Met Pro Arg Gly Ile Lys Ser Leu Lys Gly Glu Ala Ile Thr
1445 1450 1455

Asp Gly Pro Gly Ile Leu Arg Ile Gly Ala Gly Ile Asn Gly Asn
1460 1465 1470

```
Asp Arg  Phe Thr Gly Leu Met  Gln Asp Val Arg Ser  Tyr Glu Arg
    1475                1480                1485

Lys Leu  Thr Leu Glu Glu Ile  Tyr Glu Leu His Ala  Met Pro Ala
    1490                1495                1500

Lys Ser  Asp Leu His Pro Ile  Ser Gly Tyr Leu Glu  Phe Arg Gln
    1505                1510                1515

Gly Glu  Thr Asn Lys Ser Phe  Ile Ile Ser Ala Arg  Asp Asp Asn
    1520                1525                1530

Asp Glu  Glu Gly Glu Glu Leu  Phe Ile Leu Lys Leu  Val Ser Val
    1535                1540                1545

Tyr Gly  Gly Ala Arg Ile Ser  Glu Glu Asn Thr Thr  Ala Arg Leu
    1550                1555                1560

Thr Ile  Gln Lys Ser Asp Asn  Ala Asn Gly Leu Phe  Gly Phe Thr
    1565                1570                1575

Gly Ala  Cys Ile Pro Glu Ile  Ala Glu Glu Gly Ser  Thr Ile Ser
    1580                1585                1590

Cys Val  Val Glu Arg Thr Arg  Gly Ala Leu Asp Tyr  Val His Val
    1595                1600                1605

Phe Tyr  Thr Ile Ser Gln Ile  Glu Thr Asp Gly Ile  Asn Tyr Leu
    1610                1615                1620

Val Asp  Asp Phe Ala Asn Ala  Ser Gly Thr Ile Thr  Phe Leu Pro
    1625                1630                1635

Trp Gln  Arg Ser Glu Val Leu  Asn Ile Tyr Val Leu  Asp Asp Asp
    1640                1645                1650

Ile Pro  Glu Leu Asn Glu Tyr  Phe Arg Val Thr Leu  Val Ser Ala
    1655                1660                1665

Ile Pro  Gly Asp Gly Lys Leu  Gly Ser Thr Pro Thr  Ser Gly Ala
    1670                1675                1680
```

Ser Ile Asp Pro Glu Lys Glu Thr Thr Asp Ile Thr Ile Lys Ala
1685 1690 1695

Ser Asp His Pro Tyr Gly Leu Leu Gln Phe Ser Thr Gly Leu Pro
1700 1705 1710

Pro Gln Pro Lys Asp Ala Met Thr Leu Pro Ala Ser Ser Val Pro
1715 1720 1725

His Ile Thr Val Glu Glu Glu Asp Gly Glu Ile Arg Leu Leu Val
1730 1735 1740

Ile Arg Ala Gln Gly Leu Leu Gly Arg Val Thr Ala Glu Phe Arg
1745 1750 1755

Thr Val Ser Leu Thr Ala Phe Ser Pro Glu Asp Tyr Gln Asn Val
1760 1765 1770

Ala Gly Thr Leu Glu Phe Gln Pro Gly Glu Arg Tyr Lys Tyr Ile
1775 1780 1785

Phe Ile Asn Ile Thr Asp Asn Ser Ile Pro Glu Leu Glu Lys Ser
1790 1795 1800

Phe Lys Val Glu Leu Leu Asn Leu Glu Gly Gly Val Ala Glu Leu
1805 1810 1815

Phe Arg Val Asp Gly Ser Gly Ser Gly Asp Gly Asp Met Glu Phe
1820 1825 1830

Phe Leu Pro Thr Ile His Lys Arg Ala Ser Leu Gly Val Ala Ser
1835 1840 1845

Gln Ile Leu Val Thr Ile Ala Ala Ser Asp His Ala His Gly Val
1850 1855 1860

Phe Glu Phe Ser Pro Glu Ser Leu Phe Val Ser Gly Thr Glu Pro
1865 1870 1875

Glu Asp Gly Tyr Ser Thr Val Thr Leu Asn Val Ile Arg His His
1880 1885 1890

```
Gly Thr  Leu Ser Pro Val Thr  Leu His Trp Asn Ile  Asp Ser Asp
    1895                 1900                 1905

Pro Asp  Gly Asp Leu Ala Phe  Thr Ser Gly Asn Ile  Thr Phe Glu
    1910                 1915                 1920

Ile Gly  Gln Thr Ser Ala Asn  Ile Thr Val Glu Ile  Leu Pro Asp
    1925                 1930                 1935

Glu Asp  Pro Glu Leu Asp Lys  Ala Phe Ser Val Ser  Val Leu Ser
    1940                 1945                 1950

Val Ser  Ser Gly Ser Leu Gly  Ala His Ile Asn Ala  Thr Leu Thr
    1955                 1960                 1965

Val Leu  Ala Ser Asp Asp Pro  Tyr Gly Ile Phe Ile  Phe Ser Glu
    1970                 1975                 1980

Lys Asn  Arg Pro Val Lys Val  Glu Glu Ala Thr Gln  Asn Ile Thr
    1985                 1990                 1995

Leu Ser  Ile Ile Arg Leu Lys  Gly Leu Met Gly Lys  Val Leu Val
    2000                 2005                 2010

Ser Tyr  Ala Thr Leu Asp Asp  Met Glu Lys Pro Pro  Tyr Phe Pro
    2015                 2020                 2025

Pro Asn  Leu Ala Arg Ala Thr  Gln Gly Arg Asp Tyr  Ile Pro Ala
    2030                 2035                 2040

Ser Gly  Phe Ala Leu Phe Gly  Ala Asn Gln Ser Glu  Ala Thr Ile
    2045                 2050                 2055

Ala Ile  Ser Ile Leu Asp Asp  Asp Glu Pro Glu Arg  Ser Glu Ser
    2060                 2065                 2070

Val Phe  Ile Glu Leu Leu Asn  Ser Thr Leu Val Ala  Lys Val Gln
    2075                 2080                 2085

Ser Arg  Ser Ile Pro Asn Ser  Pro Arg Leu Gly Pro  Lys Val Glu
    2090                 2095                 2100

Thr Ile  Ala Gln Leu Ile Ile  Ile Ala Asn Asp Asp  Ala Phe Gly
```

2105 2110 2115

Thr Leu Gln Leu Ser Ala Pro Ile Val Arg Val Ala Glu Asn His
2120 2125 2130

Val Gly Pro Ile Ile Asn Val Thr Arg Thr Gly Gly Ala Phe Ala
2135 2140 2145

Asp Val Ser Val Lys Phe Lys Ala Val Pro Ile Thr Ala Ile Ala
2150 2155 2160

Gly Glu Asp Tyr Ser Ile Ala Ser Ser Asp Val Val Leu Leu Glu
2165 2170 2175

Gly Glu Thr Ser Lys Ala Val Pro Ile Tyr Val Ile Asn Asp Ile
2180 2185 2190

Tyr Pro Glu Leu Glu Glu Ser Phe Leu Val Gln Leu Met Asn Glu
2195 2200 2205

Thr Thr Gly Gly Ala Arg Leu Gly Ala Leu Thr Glu Ala Val Ile
2210 2215 2220

Ile Ile Glu Ala Ser Asp Asp Pro Tyr Gly Leu Phe Gly Phe Gln
2225 2230 2235

Ile Thr Lys Leu Ile Val Glu Glu Pro Glu Phe Asn Ser Val Lys
2240 2245 2250

Val Asn Leu Pro Ile Ile Arg Asn Ser Gly Thr Leu Gly Asn Val
2255 2260 2265

Thr Val Gln Trp Val Ala Thr Ile Asn Gly Gln Leu Ala Thr Gly
2270 2275 2280

Asp Leu Arg Val Val Ser Gly Asn Val Thr Phe Ala Pro Gly Glu
2285 2290 2295

Thr Ile Gln Thr Leu Leu Leu Glu Val Leu Ala Asp Asp Val Pro
2300 2305 2310

Glu Ile Glu Glu Val Ile Gln Val Gln Leu Thr Asp Ala Ser Gly
2315 2320 2325

```
Gly Gly  Thr Ile Gly Leu Asp  Arg Ile Ala Asn Ile  Ile Ile Pro
    2330                2335                2340

Ala Asn  Asp Asp Pro Tyr Gly  Thr Val Ala Phe Ala  Gln Met Val
    2345                2350                2355

Tyr Arg  Val Gln Glu Pro Leu  Glu Arg Ser Ser Cys  Ala Asn Ile
    2360                2365                2370

Thr Val  Arg Arg Ser Gly Gly  His Phe Gly Arg Leu  Leu Leu Phe
    2375                2380                2385

Tyr Ser  Thr Ser Asp Ile Asp  Val Val Ala Leu Ala  Met Glu Glu
    2390                2395                2400

Gly Gln  Asp Leu Leu Ser Tyr  Tyr Glu Ser Pro Ile  Gln Gly Val
    2405                2410                2415

Pro Asp  Pro Leu Trp Arg Thr  Trp Met Asn Val Ser  Ala Val Gly
    2420                2425                2430

Glu Pro  Leu Tyr Thr Cys Ala  Thr Leu Cys Leu Lys  Glu Gln Ala
    2435                2440                2445

Cys Ser  Ala Phe Ser Phe Phe  Ser Ala Ser Glu Gly  Pro Gln Cys
    2450                2455                2460

Phe Trp  Met Thr Ser Trp Ile  Ser Pro Ala Val Asn  Asn Ser Asp
    2465                2470                2475

Phe Trp  Thr Tyr Arg Lys Asn  Met Thr Arg Val Ala  Ser Leu Phe
    2480                2485                2490

Ser Gly  Gln Ala Val Ala Gly  Ser Asp Tyr Glu Pro  Val Thr Arg
    2495                2500                2505

Gln Trp  Ala Ile Met Gln Glu  Gly Asp Glu Phe Ala  Asn Leu Thr
    2510                2515                2520

Val Ser  Ile Leu Pro Asp Asp  Phe Pro Glu Met Asp  Glu Ser Phe
    2525                2530                2535
```

```
Leu Ile  Ser Leu Leu Glu Val  His Leu Met Asn Ile  Ser Ala Ser
    2540                2545                2550

Leu Lys  Asn Gln Pro Thr Ile  Gly Gln Pro Asn Ile  Ser Thr Val
    2555                2560                2565

Val Ile  Ala Leu Asn Gly Asp  Ala Phe Gly Val Phe  Val Ile Tyr
    2570                2575                2580

Asn Ile  Ser Pro Asn Thr Ser  Glu Asp Gly Leu Phe  Val Glu Val
    2585                2590                2595

Gln Glu  Gln Pro Gln Thr Leu  Val Glu Leu Met Ile  His Arg Thr
    2600                2605                2610

Gly Gly  Ser Leu Gly Gln Val  Ala Val Glu Trp Arg  Val Val Gly
    2615                2620                2625

Gly Thr  Ala Thr Glu Gly Leu  Asp Phe Ile Gly Ala  Gly Glu Ile
    2630                2635                2640

Leu Thr  Phe Ala Glu Gly Glu  Thr Lys Lys Thr Val  Ile Leu Thr
    2645                2650                2655

Ile Leu  Asp Asp Ser Glu Pro  Glu Asp Asp Glu Ser  Ile Ile Val
    2660                2665                2670

Ser Leu  Val Tyr Thr Glu Gly  Gly Ser Arg Ile Leu  Pro Ser Ser
    2675                2680                2685

Asp Thr  Val Arg Val Asn Ile  Leu Ala Asn Asp Asn  Val Ala Gly
    2690                2695                2700

Ile Val  Ser Phe Gln Thr Ala  Ser Arg Ser Val Ile  Gly His Glu
    2705                2710                2715

Gly Glu  Ile Leu Gln Phe His  Val Ile Arg Thr Phe  Pro Gly Arg
    2720                2725                2730

Gly Asn  Val Thr Val Asn Trp  Lys Ile Ile Gly Gln  Asn Leu Glu
    2735                2740                2745
```

Leu Asn Phe Ala Asn Phe Ser Gly Gln Leu Phe Phe Pro Glu Gly
2750 2755 2760

Ser Leu Asn Thr Thr Leu Phe Val His Leu Leu Asp Asp Asn Ile
2765 2770 2775

Pro Glu Glu Lys Glu Val Tyr Gln Val Ile Leu Tyr Asp Val Arg
2780 2785 2790

Thr Gln Gly Val Pro Pro Ala Gly Ile Ala Leu Leu Asp Ala Gln
2795 2800 2805

Gly Tyr Ala Ala Val Leu Thr Val Glu Ala Ser Asp Glu Pro His
2810 2815 2820

Gly Val Leu Asn Phe Ala Leu Ser Ser Arg Phe Val Leu Leu Gln
2825 2830 2835

Glu Ala Asn Ile Thr Ile Gln Leu Phe Ile Asn Arg Glu Phe Gly
2840 2845 2850

Ser Leu Gly Ala Ile Asn Val Thr Tyr Thr Thr Val Pro Gly Met
2855 2860 2865

Leu Ser Leu Lys Asn Gln Thr Val Gly Asn Leu Ala Glu Pro Glu
2870 2875 2880

Val Asp Phe Val Pro Ile Ile Gly Phe Leu Ile Leu Glu Glu Gly
2885 2890 2895

Glu Thr Ala Ala Ala Ile Asn Ile Thr Ile Leu Glu Asp Asp Val
2900 2905 2910

Pro Glu Leu Glu Glu Tyr Phe Leu Val Asn Leu Thr Tyr Val Gly
2915 2920 2925

Leu Thr Met Ala Ala Ser Thr Ser Phe Pro Pro Arg Leu Asp Ser
2930 2935 2940

Glu Gly Leu Thr Ala Gln Val Ile Ile Asp Ala Asn Asp Gly Ala
2945 2950 2955

Arg Gly Val Ile Glu Trp Gln Gln Ser Arg Phe Glu Val Asn Glu

2960 2965 2970

Thr His Gly Ser Leu Thr Leu Val Ala Gln Arg Ser Arg Glu Pro
2975 2980 2985

Leu Gly His Val Ser Leu Phe Val Tyr Ala Gln Asn Leu Glu Ala
2990 2995 3000

Gln Val Gly Leu Asp Tyr Ile Phe Thr Pro Met Ile Leu His Phe
3005 3010 3015

Ala Asp Gly Glu Arg Tyr Lys Asn Val Asn Ile Met Ile Leu Asp
3020 3025 3030

Asp Asp Ile Pro Glu Gly Asp Glu Lys Phe Gln Leu Ile Leu Thr
3035 3040 3045

Asn Pro Ser Pro Gly Leu Glu Leu Gly Lys Asn Thr Ile Ala Leu
3050 3055 3060

Ile Ile Val Leu Ala Asn Asp Asp Gly Pro Gly Val Leu Ser Phe
3065 3070 3075

Asn Asn Ser Glu His Phe Phe Leu Arg Glu Pro Thr Ala Leu Tyr
3080 3085 3090

Val Gln Glu Ser Val Ala Val Leu Tyr Ile Val Arg Glu Pro Ala
3095 3100 3105

Gln Gly Leu Phe Gly Thr Val Thr Val Gln Phe Ile Val Thr Glu
3110 3115 3120

Val Asn Ser Ser Asn Glu Ser Lys Asp Leu Thr Pro Ser Lys Gly
3125 3130 3135

Tyr Ile Val Leu Glu Glu Gly Val Arg Phe Lys Ala Leu Gln Ile
3140 3145 3150

Ser Ala Ile Leu Asp Thr Glu Pro Glu Met Asp Glu Tyr Phe Val
3155 3160 3165

Cys Thr Leu Phe Asn Pro Thr Gly Gly Ala Arg Leu Gly Val His
3170 3175 3180

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Val Gln  Thr Leu Ile Thr Val  Leu Gln Asn Gln Ala  Pro Leu Gly
    3185                3190                3195

Leu Phe  Ser Ile Ser Ala Val  Glu Asn Arg Ala Thr  Ser Ile Asp
    3200                3205                3210

Ile Glu  Glu Ala Asn Arg Thr  Val Tyr Leu Asn Val  Ser Arg Thr
    3215                3220                3225

Asn Gly  Ile Asp Leu Ala Val  Ser Val Gln Trp Glu  Thr Val Ser
    3230                3235                3240

Glu Thr  Ala Phe Gly Met Arg  Gly Met Asp Val Val  Phe Ser Val
    3245                3250                3255

Phe Gln  Ser Phe Leu Asp Glu  Ser Ala Ser Gly Trp  Cys Phe Phe
    3260                3265                3270

Thr Leu  Glu Asn Leu Ile Tyr  Gly Ile Met Leu Arg  Lys Ser Ser
    3275                3280                3285

Val Thr  Val Tyr Arg Trp Gln  Gly Ile Phe Ile Pro  Val Glu Asp
    3290                3295                3300

Leu Asn  Ile Glu Asn Pro Lys  Thr Cys Glu Ala Phe  Asn Ile Gly
    3305                3310                3315

Phe Ser  Pro Tyr Phe Val Ile  Thr His Glu Glu Arg  Asn Glu Glu
    3320                3325                3330

Lys Pro  Ser Leu Asn Ser Val  Phe Thr Phe Thr Ser  Gly Phe Lys
    3335                3340                3345

Leu Phe  Leu Val Gln Thr Ile  Ile Ile Leu Glu Ser  Ser Gln Val
    3350                3355                3360

Arg Tyr  Phe Thr Ser Asp Ser  Gln Asp Tyr Leu Ile  Ile Ala Ser
    3365                3370                3375

Gln Arg  Asp Asp Ser Glu Leu  Thr Gln Val Phe Arg  Trp Asn Gly
    3380                3385                3390
```

```
Gly Ser  Phe Val Leu His Gln  Lys Leu Pro Val Arg  Gly Val Leu
    3395                 3400                 3405

Thr Val  Ala Leu Phe Asn Lys  Gly Gly Ser Val Phe  Leu Ala Ile
    3410                 3415                 3420

Ser Gln  Ala Asn Ala Arg Leu  Asn Ser Leu Leu Phe  Arg Trp Ser
    3425                 3430                 3435

Gly Ser  Gly Phe Ile Asn Phe  Gln Glu Val Pro Val  Ser Gly Thr
    3440                 3445                 3450

Thr Glu  Val Glu Ala Leu Ser  Ser Ala Asn Asp Ile  Tyr Leu Ile
    3455                 3460                 3465

Phe Ala  Glu Asn Val Phe Leu  Gly Asp Gln Asn Ser  Ile Asp Ile
    3470                 3475                 3480

Phe Ile  Trp Glu Met Gly Gln  Ser Ser Phe Arg Tyr  Phe Gln Ser
    3485                 3490                 3495

Val Asp  Phe Ala Ala Val Asn  Arg Ile His Ser Phe  Thr Pro Ala
    3500                 3505                 3510

Ser Gly  Ile Ala His Ile Leu  Leu Ile Gly Gln Asp  Met Ser Ala
    3515                 3520                 3525

Leu Tyr  Cys Trp Asn Ser Glu  Arg Asn Gln Phe Ser  Phe Val Leu
    3530                 3535                 3540

Glu Val  Pro Ser Ala Tyr Asp  Val Ala Ser Val Thr  Val Lys Ser
    3545                 3550                 3555

Leu Asn  Ser Ser Lys Asn Leu  Ile Ala Leu Val Gly  Ala His Ser
    3560                 3565                 3570

His Ile  Tyr Glu Leu Ala Tyr  Ile Ser Ser His Ser  Asp Phe Ile
    3575                 3580                 3585

Pro Ser  Ser Gly Glu Leu Ile  Phe Glu Pro Gly Glu  Arg Glu Ala
    3590                 3595                 3600
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Thr Ile Ala Val Asn Ile Leu Asp Asp Thr Val Pro Glu Lys Glu
3605 3610 3615

Glu Ser Phe Lys Val Gln Leu Lys Asn Pro Lys Gly Gly Ala Glu
3620 3625 3630

Ile Gly Ile Asn Asp Ser Val Thr Ile Thr Ile Leu Ser Asn Asp
3635 3640 3645

Asp Ala Tyr Gly Ile Val Ala Phe Ala Gln Asn Ser Leu Tyr Lys
3650 3655 3660

Gln Val Glu Glu Met Glu Gln Asp Ser Leu Val Thr Leu Asn Val
3665 3670 3675

Glu Arg Leu Lys Gly Thr Tyr Gly Arg Ile Thr Ile Ala Trp Glu
3680 3685 3690

Ala Asp Gly Ser Ile Ser Asp Ile Phe Pro Thr Ser Gly Val Ile
3695 3700 3705

Leu Phe Thr Glu Gly Gln Val Leu Ser Thr Ile Thr Leu Thr Ile
3710 3715 3720

Leu Ala Asp Asn Ile Pro Glu Leu Ser Glu Val Val Ile Val Thr
3725 3730 3735

Leu Thr Arg Ile Thr Thr Glu Gly Val Glu Asp Ser Tyr Lys Gly
3740 3745 3750

Ala Thr Ile Asp Gln Asp Arg Ser Lys Ser Val Ile Thr Thr Leu
3755 3760 3765

Pro Asn Asp Ser Pro Phe Gly Leu Val Gly Trp Arg Ala Ala Ser
3770 3775 3780

Val Phe Ile Arg Val Ala Glu Pro Lys Glu Asn Thr Thr Thr Leu
3785 3790 3795

Gln Leu Gln Ile Ala Arg Asp Lys Gly Leu Leu Gly Asp Ile Ala
3800 3805 3810

Ile His Leu Arg Ala Gln Pro Asn Phe Leu Leu His Val Asp Asn

```
    3815                3820                3825

Gln Ala  Thr Glu Asn Glu Asp  Tyr Val Leu Gln Glu  Thr Ile Ile
    3830                3835                3840

Ile Met  Lys Glu Asn Ile Lys  Glu Ala His Ala Glu  Val Ser Ile
    3845                3850                3855

Leu Pro  Asp Asp Leu Pro Glu  Leu Glu Glu Gly Phe  Ile Val Thr
    3860                3865                3870

Ile Thr  Glu Val Asn Leu Val  Asn Ser Asp Phe Ser  Thr Gly Gln
    3875                3880                3885

Pro Ser  Val Arg Arg Pro Gly  Met Glu Ile Ala Glu  Ile Met Ile
    3890                3895                3900

Glu Glu  Asn Asp Asp Pro Arg  Gly Ile Phe Met Phe  His Val Thr
    3905                3910                3915

Arg Gly  Ala Gly Glu Val Ile  Thr Ala Tyr Glu Val  Pro Pro Pro
    3920                3925                3930

Leu Asn  Val Leu Gln Val Pro  Val Val Arg Leu Ala  Gly Ser Phe
    3935                3940                3945

Gly Ala  Val Asn Val Tyr Trp  Lys Ala Ser Pro Asp  Ser Ala Gly
    3950                3955                3960

Leu Glu  Asp Phe Lys Pro Ser  His Gly Ile Leu Glu  Phe Ala Asp
    3965                3970                3975

Lys Gln  Val Thr Ala Met Ile  Glu Ile Thr Ile Ile  Asp Asp Ala
    3980                3985                3990

Glu Phe  Glu Leu Thr Glu Thr  Phe Asn Ile Ser Leu  Ile Ser Val
    3995                4000                4005

Ala Gly  Gly Gly Arg Leu Gly  Asp Asp Val Val Val  Thr Val Val
    4010                4015                4020

Ile Pro  Gln Asn Asp Ser Pro  Phe Gly Val Phe Gly  Phe Glu Glu
    4025                4030                4035
```

```
Lys Thr  Val Met Ile Asp Glu  Ser Leu Ser Ser Asp  Asp Pro Asp
    4040                4045                4050

Ser Tyr  Val Thr Leu Thr Val  Val Arg Ser Pro Gly  Gly Lys Gly
    4055                4060                4065

Thr Val  Arg Leu Glu Trp Thr  Ile Asp Glu Lys Ala  Lys His Asn
    4070                4075                4080

Leu Ser  Pro Leu Asn Gly Thr  Leu His Phe Asp Glu  Thr Glu Ser
    4085                4090                4095

Gln Lys  Thr Ile Val Leu His  Thr Leu Gln Asp Thr  Val Leu Glu
    4100                4105                4110

Glu Asp  Arg Arg Phe Thr Ile  Gln Leu Ile Ser Ile  Asp Glu Val
    4115                4120                4125

Glu Ile  Ser Pro Val Lys Gly  Ser Ala Ser Ile Ile  Ile Arg Gly
    4130                4135                4140

Asp Lys  Arg Ala Ser Gly Glu  Val Gly Ile Ala Pro  Ser Ser Arg
    4145                4150                4155

His Ile  Leu Ile Gly Glu Pro  Ser Ala Lys Tyr Asn  Gly Thr Ala
    4160                4165                4170

Ile Ile  Ser Leu Val Arg Gly  Pro Gly Ile Leu Gly  Glu Val Thr
    4175                4180                4185

Val Phe  Trp Arg Ile Phe Pro  Pro Ser Val Gly Glu  Phe Ala Glu
    4190                4195                4200

Thr Ser  Gly Lys Leu Thr Met  Arg Asp Glu Gln Ser  Ala Val Ile
    4205                4210                4215

Val Val  Ile Gln Ala Leu Asn  Asp Asp Ile Pro Glu  Glu Lys Ser
    4220                4225                4230

Phe Tyr  Glu Phe Gln Leu Thr  Ala Val Ser Glu Gly  Gly Val Leu
    4235                4240                4245
```

Ser Glu Ser Ser Ser Thr Ala Asn Ile Thr Val Val Ala Ser Asp
4250 4255 4260

Ser Pro Tyr Gly Arg Phe Ala Phe Ser His Glu Gln Leu Arg Val
4265 4270 4275

Ser Glu Ala Gln Arg Val Asn Ile Thr Ile Ile Arg Ser Ser Gly
4280 4285 4290

Asp Phe Gly His Val Arg Leu Trp Tyr Lys Thr Met Ser Gly Thr
4295 4300 4305

Ala Glu Ala Gly Leu Asp Phe Val Pro Ala Ala Gly Glu Leu Leu
4310 4315 4320

Phe Glu Ala Gly Glu Met Arg Lys Ser Leu His Val Glu Ile Leu
4325 4330 4335

Asp Asp Asp Tyr Pro Glu Gly Pro Glu Glu Phe Ser Leu Thr Ile
4340 4345 4350

Thr Lys Val Glu Leu Gln Gly Arg Gly Tyr Asp Phe Thr Ile Gln
4355 4360 4365

Glu Asn Gly Leu Gln Ile Asp Gln Pro Pro Glu Ile Gly Asn Ile
4370 4375 4380

Ser Ile Val Arg Ile Ile Ile Met Lys Asn Asp Asn Ala Glu Gly
4385 4390 4395

Ile Ile Glu Phe Asp Pro Lys Tyr Thr Ala Phe Glu Val Glu Glu
4400 4405 4410

Asp Val Gly Leu Ile Met Ile Pro Val Val Arg Leu His Gly Thr
4415 4420 4425

Tyr Gly Tyr Val Thr Ala Asp Phe Ile Ser Gln Ser Ser Ser Ala
4430 4435 4440

Ser Pro Gly Gly Val Asp Tyr Ile Leu His Gly Ser Thr Val Thr
4445 4450 4455

Phe Gln His Gly Gln Asn Leu Ser Phe Ile Asn Ile Ser Ile Ile
4460 4465 4470

Asp Asp Asn Glu Ser Glu Phe Glu Glu Pro Ile Glu Ile Leu Leu
4475 4480 4485

Thr Gly Ala Thr Gly Gly Ala Val Leu Gly Arg His Leu Val Ser
4490 4495 4500

Arg Ile Ile Ile Ala Lys Ser Asp Ser Pro Phe Gly Val Ile Arg
4505 4510 4515

Phe Leu Asn Gln Ser Lys Ile Ser Ile Ala Asn Pro Asn Ser Thr
4520 4525 4530

Met Ile Leu Ser Leu Val Leu Glu Arg Thr Gly Gly Leu Leu Gly
4535 4540 4545

Glu Ile Gln Val Asn Trp Glu Thr Val Gly Pro Asn Ser Gln Glu
4550 4555 4560

Ala Leu Leu Pro Gln Asn Arg Asp Ile Ala Asp Pro Val Ser Gly
4565 4570 4575

Leu Phe Tyr Phe Gly Glu Gly Glu Gly Gly Val Arg Thr Ile Ile
4580 4585 4590

Leu Thr Ile Tyr Pro His Glu Glu Ile Glu Val Glu Glu Thr Phe
4595 4600 4605

Ile Ile Lys Leu His Leu Val Lys Gly Glu Ala Lys Leu Asp Ser
4610 4615 4620

Arg Ala Lys Asp Val Thr Leu Thr Ile Gln Glu Phe Gly Asp Pro
4625 4630 4635

Asn Gly Val Val Gln Phe Ala Pro Glu Thr Leu Ser Lys Lys Thr
4640 4645 4650

Tyr Ser Glu Pro Leu Ala Leu Glu Gly Pro Leu Leu Ile Thr Phe
4655 4660 4665

Phe Val Arg Arg Val Lys Gly Thr Phe Gly Glu Ile Met Val Tyr

4670 4675 4680

Trp Glu Leu Ser Ser Glu Phe Asp Ile Thr Glu Asp Phe Leu Ser
4685 4690 4695

Thr Ser Gly Phe Phe Thr Ile Ala Asp Gly Glu Ser Glu Ala Ser
4700 4705 4710

Phe Asp Val His Leu Leu Pro Asp Glu Val Pro Glu Ile Glu Glu
4715 4720 4725

Asp Tyr Val Ile Gln Leu Val Ser Val Glu Gly Gly Ala Glu Leu
4730 4735 4740

Asp Leu Glu Lys Ser Ile Thr Trp Phe Ser Val Tyr Ala Asn Asp
4745 4750 4755

Asp Pro His Gly Val Phe Ala Leu Tyr Ser Asp Arg Gln Ser Ile
4760 4765 4770

Leu Ile Gly Gln Asn Leu Ile Arg Ser Ile Gln Ile Asn Ile Thr
4775 4780 4785

Arg Leu Ala Gly Thr Phe Gly Asp Val Ala Val Gly Leu Arg Ile
4790 4795 4800

Ser Ser Asp His Lys Glu Gln Pro Ile Val Thr Glu Asn Ala Glu
4805 4810 4815

Arg Gln Leu Val Val Lys Asp Gly Ala Thr Tyr Lys Val Asp Val
4820 4825 4830

Val Pro Ile Lys Asn Gln Val Phe Leu Ser Leu Gly Ser Asn Phe
4835 4840 4845

Thr Leu Gln Leu Val Thr Val Met Leu Val Gly Gly Arg Phe Tyr
4850 4855 4860

Gly Met Pro Thr Ile Leu Gln Glu Ala Lys Ser Ala Val Leu Pro
4865 4870 4875

Val Ser Glu Lys Ala Ala Asn Ser Gln Val Gly Phe Glu Ser Thr
4880 4885 4890

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Ala Phe  Gln Leu Met Asn Ile  Thr Ala Gly Thr Ser  His Val Met
    4895                4900                4905

Ile Ser  Arg Arg Gly Thr Tyr  Gly Ala Leu Ser Val  Ala Trp Thr
    4910                4915                4920

Thr Gly  Tyr Ala Pro Gly Leu  Glu Ile Pro Glu Phe  Ile Val Val
    4925                4930                4935

Gly Asn  Met Thr Pro Thr Leu  Gly Ser Leu Ser Phe  Ser His Gly
    4940                4945                4950

Glu Gln  Arg Lys Gly Val Phe  Leu Trp Thr Phe Pro  Ser Pro Gly
    4955                4960                4965

Trp Pro  Glu Ala Phe Val Leu  His Leu Ser Gly Val  Gln Ser Ser
    4970                4975                4980

Ala Pro  Gly Gly Ala Gln Leu  Arg Ser Gly Phe Ile  Val Ala Glu
    4985                4990                4995

Ile Glu  Pro Met Gly Val Phe  Gln Phe Ser Thr Ser  Ser Arg Asn
    5000                5005                5010

Ile Ile  Val Ser Glu Asp Thr  Gln Met Ile Arg Leu  His Val Gln
    5015                5020                5025

Arg Leu  Phe Gly Phe His Ser  Asp Leu Ile Lys Val  Ser Tyr Gln
    5030                5035                5040

Thr Thr  Ala Gly Ser Ala Lys  Pro Leu Glu Asp Phe  Glu Pro Val
    5045                5050                5055

Gln Asn  Gly Glu Leu Phe Phe  Gln Lys Phe Gln Thr  Glu Val Asp
    5060                5065                5070

Phe Glu  Ile Thr Ile Ile Asn  Asp Gln Leu Ser Glu  Ile Glu Glu
    5075                5080                5085

Phe Phe  Tyr Ile Asn Leu Thr  Ser Val Glu Ile Arg  Gly Leu Gln
    5090                5095                5100
```

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Lys Phe  Asp Val Asn Trp Ser  Pro Arg Leu Asn Leu  Asp Phe Ser
    5105                 5110                 5115

Val Ala  Val Ile Thr Ile Leu  Asp Asn Asp Asp Leu  Ala Gly Met
    5120                 5125                 5130

Asp Ile  Ser Phe Pro Glu Thr  Thr Val Ala Val Ala  Val Asp Thr
    5135                 5140                 5145

Thr Leu  Ile Pro Val Glu Thr  Glu Ser Thr Thr Tyr  Leu Ser Thr
    5150                 5155                 5160

Ser Lys  Thr Thr Thr Ile Leu  Gln Pro Thr Asn Val  Val Ala Ile
    5165                 5170                 5175

Val Thr  Glu Ala Thr Gly Val  Ser Ala Ile Pro Glu  Lys Leu Val
    5180                 5185                 5190

Thr Leu  His Gly Thr Pro Ala  Val Ser Glu Lys Pro  Asp Val Ala
    5195                 5200                 5205

Thr Val  Thr Ala Asn Val Ser  Ile His Gly Thr Phe  Ser Leu Gly
    5210                 5215                 5220

Pro Ser  Ile Val Tyr Ile Glu  Glu Glu Met Lys Asn  Gly Thr Phe
    5225                 5230                 5235

Asn Thr  Ala Glu Val Leu Ile  Arg Arg Thr Gly Gly  Phe Thr Gly
    5240                 5245                 5250

Asn Val  Ser Ile Thr Val Lys  Thr Phe Gly Glu Arg  Cys Ala Gln
    5255                 5260                 5265

Met Glu  Pro Asn Ala Leu Pro  Phe Arg Gly Ile Tyr  Gly Ile Ser
    5270                 5275                 5280

Asn Leu  Thr Trp Ala Val Glu  Glu Glu Asp Phe Glu  Glu Gln Thr
    5285                 5290                 5295

Leu Thr  Leu Ile Phe Leu Asp  Gly Glu Arg Glu Arg  Lys Val Ser
    5300                 5305                 5310
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Val Gln Ile Leu Asp Asp Asp Glu Pro Glu Gly Gln Glu Phe Phe
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Tyr Val Phe Leu Thr Asn Pro Gln Gly Gly Ala Gln Ile Val Glu
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Glu Lys Asp Asp Thr Gly Phe Ala Ala Phe Ala Met Val Ile Ile
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Thr Gly Ser Asp Leu His Asn Gly Ile Ile Gly Phe Ser Glu Glu
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Ser Gln Ser Gly Leu Glu Leu Arg Glu Gly Ala Val Met Arg Arg
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Leu His Leu Ile Val Thr Arg Gln Pro Asn Arg Ala Phe Glu Asp
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Val Lys Val Phe Trp Arg Val Thr Leu Asn Lys Thr Val Val Val
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Leu Gln Lys Asp Gly Val Asn Leu Val Glu Glu Leu Gln Ser Val
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Ser Gly Thr Thr Thr Cys Thr Met Gly Gln Thr Lys Cys Phe Ile
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Ser Ile Glu Leu Lys Pro Glu Lys Val Pro Gln Val Glu Val Tyr
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Phe Phe Val Glu Leu Tyr Glu Ala Thr Ala Gly Ala Ala Ile Asn
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Asn Ser Ala Arg Phe Ala Gln Ile Lys Ile Leu Glu Ser Asp Glu
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Ser Gln Ser Leu Val Tyr Phe Ser Val Gly Ser Arg Leu Ala Val
5495 5500 5505

Ala His Lys Lys Ala Thr Leu Ile Ser Leu Gln Val Ala Arg Asp
5510 5515 5520

Ser Gly Thr Gly Leu Met Met Ser Val Asn Phe Ser Thr Gln Glu

5525 5530 5535

Leu Arg Ser Ala Glu Thr Ile Gly Arg Thr Ile Ile Ser Pro Ala
5540 5545 5550

Ile Ser Gly Lys Asp Phe Val Ile Thr Glu Gly Thr Leu Val Phe
5555 5560 5565

Glu Pro Gly Gln Arg Ser Thr Val Leu Asp Val Ile Leu Thr Pro
5570 5575 5580

Glu Thr Gly Ser Leu Asn Ser Phe Pro Lys Arg Phe Gln Ile Val
5585 5590 5595

Leu Phe Asp Pro Lys Gly Gly Ala Arg Ile Asp Lys Val Tyr Gly
5600 5605 5610

Thr Ala Asn Ile Thr Leu Val Ser Asp Ala Asp Ser Gln Ala Ile
5615 5620 5625

Trp Gly Leu Ala Asp Gln Leu His Gln Pro Val Asn Asp Asp Ile
5630 5635 5640

Leu Asn Arg Val Leu His Thr Ile Ser Met Lys Val Ala Thr Glu
5645 5650 5655

Asn Thr Asp Glu Gln Leu Ser Ala Met Met His Leu Ile Glu Lys
5660 5665 5670

Ile Thr Thr Glu Gly Lys Ile Gln Ala Phe Ser Val Ala Ser Arg
5675 5680 5685

Thr Leu Phe Tyr Glu Ile Leu Cys Ser Leu Ile Asn Pro Lys Arg
5690 5695 5700

Lys Asp Thr Arg Gly Phe Ser His Phe Ala Glu Val Thr Glu Asn
5705 5710 5715

Phe Ala Phe Ser Leu Leu Thr Asn Val Thr Cys Gly Ser Pro Gly
5720 5725 5730

Glu Lys Ser Lys Thr Ile Leu Asp Ser Cys Pro Tyr Leu Ser Ile
5735 5740 5745

```
Leu Ala  Leu His Trp Tyr Pro  Gln Gln Ile Asn Gly  His Lys Phe
    5750                5755                5760

Glu Gly  Lys Glu Gly Asp Tyr  Ile Arg Ile Pro Glu  Arg Leu Leu
    5765                5770                5775

Asp Val  Gln Asp Ala Glu Ile  Met Ala Gly Lys Ser  Thr Cys Lys
    5780                5785                5790

Leu Val  Gln Phe Thr Glu Tyr  Ser Ser Gln Gln Trp  Phe Ile Ser
    5795                5800                5805

Gly Asn  Asn Leu Pro Thr Leu  Lys Asn Lys Val Leu  Ser Leu Ser
    5810                5815                5820

Val Lys  Gly Gln Ser Ser Gln  Leu Leu Thr Asn Asp  Asn Glu Val
    5825                5830                5835

Leu Tyr  Arg Ile Tyr Ala Ala  Glu Pro Arg Ile Ile  Pro Gln Thr
    5840                5845                5850

Ser Leu  Cys Leu Leu Trp Asn  Gln Ala Ala Ala Ser  Trp Leu Ser
    5855                5860                5865

Asp Ser  Gln Phe Cys Lys Val  Val Glu Glu Thr Ala  Asp Tyr Val
    5870                5875                5880

Glu Cys  Ala Cys Ser His Met  Ser Val Tyr Ala Val  Tyr Ala Arg
    5885                5890                5895

Thr Asp  Asn Leu Ser Ser Tyr  Asn Glu Ala Phe Phe  Thr Ser Gly
    5900                5905                5910

Phe Ile  Cys Ile Ser Gly Leu  Cys Leu Ala Val Leu  Ser His Ile
    5915                5920                5925

Phe Cys  Ala Arg Tyr Ser Met  Phe Ala Ala Lys Leu  Leu Thr His
    5930                5935                5940

Met Met  Ala Ala Ser Leu Gly  Thr Gln Ile Leu Phe  Leu Ala Ser
    5945                5950                5955
```

```
Ala Tyr  Ala Ser Pro Gln Leu  Ala Glu Glu Ser Cys  Ser Ala Met
    5960                5965                5970

Ala Ala  Val Thr His Tyr Leu  Tyr Leu Cys Gln Phe  Ser Trp Met
    5975                5980                5985

Leu Ile  Gln Ser Val Asn Phe  Trp Tyr Val Leu Val  Met Asn Asp
    5990                5995                6000

Glu His  Thr Glu Arg Arg Tyr  Leu Leu Phe Phe Leu  Leu Ser Trp
    6005                6010                6015

Gly Leu  Pro Ala Phe Val Val  Ile Leu Leu Ile Val  Ile Leu Lys
    6020                6025                6030

Gly Ile  Tyr His Gln Ser Met  Ser Gln Ile Tyr Gly  Leu Ile His
    6035                6040                6045

Gly Asp  Leu Cys Phe Ile Pro  Asn Val Tyr Ala Ala  Leu Phe Thr
    6050                6055                6060

Ala Ala  Leu Val Pro Leu Thr  Cys Leu Val Val Val  Phe Val Val
    6065                6070                6075

Phe Ile  His Ala Tyr Gln Val  Lys Pro Gln Trp Lys  Ala Tyr Asp
    6080                6085                6090

Asp Val  Phe Arg Gly Arg Thr  Asn Ala Ala Glu Ile  Pro Leu Ile
    6095                6100                6105

Leu Tyr  Leu Phe Ala Leu Ile  Ser Val Thr Trp Leu  Trp Gly Gly
    6110                6115                6120

Leu His  Met Ala Tyr Arg His  Phe Trp Met Leu Val  Leu Phe Val
    6125                6130                6135

Ile Phe  Asn Ser Leu Gln Gly  Leu Tyr Val Phe Met  Val Tyr Phe
    6140                6145                6150

Ile Leu  His Asn Gln Met Cys  Cys Pro Met Lys Ala  Ser Tyr Thr
    6155                6160                6165
```

```
Val Glu  Met Asn Gly His Pro  Gly Pro Ser Thr Ala  Phe Phe Thr
    6170                 6175                 6180

Pro Gly  Ser Gly Met Pro Pro  Ala Gly Gly Glu Ile  Ser Lys Ser
    6185                 6190                 6195

Thr Gln  Asn Leu Ile Gly Ala  Met Glu Glu Val Pro  Pro Asp Trp
    6200                 6205                 6210

Glu Arg  Ala Ser Phe Gln Gln  Gly Ser Gln Ala Ser  Pro Asp Leu
    6215                 6220                 6225

Lys Pro  Ser Pro Gln Asn Gly  Ala Thr Phe Pro Ser  Ser Gly Gly
    6230                 6235                 6240

Tyr Gly  Gln Gly Ser Leu Ile  Ala Asp Glu Glu Ser  Gln Glu Phe
    6245                 6250                 6255

Asp Asp  Leu Ile Phe Ala Leu  Lys Thr Gly Ala Gly  Leu Ser Val
    6260                 6265                 6270

Ser Asp  Asn Glu Ser Gly Gln  Gly Ser Gln Glu Gly  Gly Thr Leu
    6275                 6280                 6285

Thr Asp  Ser Gln Ile Val Glu  Leu Arg Arg Ile Pro  Ile Ala Asp
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Thr His  Leu
    6305


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Met Gln Leu Cys Ile Phe Cys Cys Cys Cys Ile Leu Phe Tyr Phe Asp
1   5   10   15

Leu Tyr Asp Phe Gly Arg Gly Tyr Asp Phe Thr Ile Gln Glu Asn Gly
            20   25   30

Leu Gln Ile Asp Gln Pro Pro Glu Ile Gly Asn Ile Ser Ile Val Arg
        35   40   45

Ile Ile Ile Met Lys Asn Asp Asn Ala Glu Gly Ile Ile Glu Phe Asp
    50   55   60

Pro Lys Tyr Thr Ala Phe Glu Val Glu Glu Asp Val Gly Leu Ile Met
65   70   75   80

Ile Pro Val Val Arg Leu His Gly Thr Tyr Gly Tyr Val Thr Ala Asp
                85   90   95

Phe Ile Ser Gln Ser Ser Ser Ala Ser Pro Gly Gly Val Asp Tyr Ile
            100   105   110

Leu His Gly Ser Thr Val Thr Phe Gln His Gly Gln Asn Leu Ser Phe
        115   120   125

Ile Asn Ile Ser Ile Ile Asp Asp Asn Glu Ser Glu Phe Glu Glu Pro
    130   135   140

Ile Glu Ile Leu Leu Thr Gly Ala Thr Gly Gly Ala Val Leu Gly Arg
145   150   155   160

His Leu Val Ser Arg Ile Ile Ile Ala Lys Ser Asp Ser Pro Phe Gly
                165   170   175

Val Ile Arg Phe Leu Asn Gln Ser Lys Ile Ser Ile Ala Asn Pro Asn
            180   185   190

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Ser Thr Met Ile Leu Ser Leu Val Leu Glu Arg Thr Gly Gly Leu Leu
        195                 200                 205

Gly Glu Ile Gln Val Asn Trp Glu Thr Val Gly Pro Asn Ser Gln Glu
    210                 215                 220

Ala Leu Leu Pro Gln Asn Arg Asp Ile Ala Asp Pro Val Ser Gly Leu
225                 230                 235                 240

Phe Tyr Phe Gly Glu Gly Glu Gly Gly Val Arg Thr Ile Ile Leu Thr
                245                 250                 255

Ile Tyr Pro His Glu Glu Ile Glu Val Glu Glu Thr Phe Ile Ile Lys
            260                 265                 270

Leu His Leu Val Lys Gly Glu Ala Lys Leu Asp Ser Arg Ala Lys Asp
        275                 280                 285

Val Thr Leu Thr Ile Gln Glu Phe Gly Asp Pro Asn Gly Val Val Gln
    290                 295                 300

Phe Ala Pro Glu Thr Leu Ser Lys Lys Thr Tyr Ser Glu Pro Leu Ala
305                 310                 315                 320

Leu Glu Gly Pro Leu Leu Ile Thr Phe Phe Val Arg Arg Val Lys Gly
                325                 330                 335

Thr Phe Gly Glu Ile Met Val Tyr Trp Glu Leu Ser Ser Glu Phe Asp
            340                 345                 350

Ile Thr Glu Asp Phe Leu Ser Thr Ser Gly Phe Phe Thr Ile Ala Asp
        355                 360                 365

Gly Glu Ser Glu Ala Ser Phe Asp Val His Leu Leu Pro Asp Glu Val
    370                 375                 380

Pro Glu Ile Glu Glu Asp Tyr Val Ile Gln Leu Val Ser Val Glu Gly
385                 390                 395                 400

Gly Ala Glu Leu Asp Leu Glu Lys Ser Ile Thr Trp Phe Ser Val Tyr
                405                 410                 415
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```
Ala Asn Asp Asp Pro His Gly Val Phe Ala Leu Tyr Ser Asp Arg Gln
            420                 425                 430

Ser Ile Leu Ile Gly Gln Asn Leu Ile Arg Ser Ile Gln Ile Asn Ile
        435                 440                 445

Thr Arg Leu Ala Gly Thr Phe Gly Asp Val Ala Val Gly Leu Arg Ile
    450                 455                 460

Ser Ser Asp His Lys Glu Gln Pro Ile Val Thr Glu Asn Ala Glu Arg
465                 470                 475                 480

Gln Leu Val Val Lys Asp Gly Ala Thr Tyr Lys Val Asp Val Val Pro
                485                 490                 495

Ile Lys Asn Gln Val Phe Leu Ser Leu Gly Ser Asn Phe Thr Leu Gln
            500                 505                 510

Leu Val Thr Val Met Leu Val Gly Gly Arg Phe Tyr Gly Met Pro Thr
        515                 520                 525

Ile Leu Gln Glu Ala Lys Ser Ala Val Leu Pro Val Ser Glu Lys Ala
    530                 535                 540

Ala Asn Ser Gln Val Gly Phe Glu Ser Thr Ala Phe Gln Leu Met Asn
545                 550                 555                 560

Ile Thr Ala Gly Thr Ser His Val Met Ile Ser Arg Arg Gly Thr Tyr
                565                 570                 575

Gly Ala Leu Ser Val Ala Trp Thr Thr Gly Tyr Ala Pro Gly Leu Glu
            580                 585                 590

Ile Pro Glu Phe Ile Val Val Gly Asn Met Thr Pro Thr Leu Gly Ser
        595                 600                 605

Leu Ser Phe Ser His Gly Glu Gln Arg Lys Gly Val Phe Leu Trp Thr
    610                 615                 620

Phe Pro Ser Pro Gly Trp Pro Glu Ala Phe Val Leu His Leu Ser Gly
625                 630                 635                 640

Val Gln Ser Ser Ala Pro Gly Gly Ala Gln Leu Arg Ser Gly Phe Ile
```

645 650 655

Val Ala Glu Ile Glu Pro Met Gly Val Phe Gln Phe Ser Thr Ser Ser
660 665 670

Arg Asn Ile Ile Val Ser Glu Asp Thr Gln Met Ile Arg Leu His Val
675 680 685

Gln Arg Leu Phe Gly Phe His Ser Asp Leu Ile Lys Val Ser Tyr Gln
690 695 700

Thr Thr Ala Gly Ser Ala Lys Pro Leu Glu Asp Phe Glu Pro Val Gln
705 710 715 720

Asn Gly Glu Leu Phe Phe Gln Lys Phe Gln Thr Glu Val Asp Phe Glu
725 730 735

Ile Thr Ile Ile Asn Asp Gln Leu Ser Glu Ile Glu Glu Phe Phe Tyr
740 745 750

Ile Asn Leu Thr Ser Val Glu Ile Arg Gly Leu Gln Lys Phe Asp Val
755 760 765

Asn Trp Ser Pro Arg Leu Asn Leu Asp Phe Ser Val Ala Val Ile Thr
770 775 780

Ile Leu Asp Asn Asp Asp Leu Ala Gly Met Asp Ile Ser Phe Pro Glu
785 790 795 800

Thr Thr Val Ala Val Ala Val Asp Thr Thr Leu Ile Pro Val Glu Thr
805 810 815

Glu Ser Thr Thr Tyr Leu Ser Thr Ser Lys Thr Thr Thr Ile Leu Gln
820 825 830

Pro Thr Asn Val Val Ala Ile Val Thr Glu Ala Thr Gly Val Ser Ala
835 840 845

Ile Pro Glu Lys Leu Val Thr Leu His Gly Thr Pro Ala Val Ser Glu
850 855 860

Lys Pro Asp Val Ala Thr Val Thr Ala Asn Val Ser Ile His Gly Thr
865 870 875 880

```
Phe Ser Leu Gly Pro Ser Ile Val Tyr Ile Glu Glu Glu Met Lys Asn
                885                 890                 895

Gly Thr Phe Asn Thr Ala Glu Val Leu Ile Arg Arg Thr Gly Gly Phe
            900                 905                 910

Thr Gly Asn Val Ser Ile Thr Val Lys Thr Phe Gly Glu Arg Cys Ala
        915                 920                 925

Gln Met Glu Pro Asn Ala Leu Pro Phe Arg Gly Ile Tyr Gly Ile Ser
    930                 935                 940

Asn Leu Thr Trp Ala Val Glu Glu Glu Asp Phe Glu Glu Gln Thr Leu
945                 950                 955                 960

Thr Leu Ile Phe Leu Asp Gly Glu Arg Glu Arg Lys Val Ser Val Gln
                965                 970                 975

Ile Leu Asp Asp Asp Glu Pro Glu Gly Gln Glu Phe Phe Tyr Val Phe
            980                 985                 990

Leu Thr Asn Pro Gln Gly Gly Ala  Gln Ile Val Glu Glu  Lys Asp
Asp
        995                 1000                1005

Thr Gly  Phe Ala Ala Phe Ala  Met Val Ile Ile Thr  Gly Ser Asp
    1010                1015                1020

Leu His  Asn Gly Ile Ile Gly  Phe Ser Glu Glu Ser  Gln Ser Gly
    1025                1030                1035

Leu Glu  Leu Arg Glu Gly Ala  Val Met Arg Arg Leu  His Leu Ile
    1040                1045                1050

Val Thr  Arg Gln Pro Asn Arg  Ala Phe Glu Asp Val  Lys Val Phe
    1055                1060                1065

Trp Arg  Val Thr Leu Asn Lys  Thr Val Val Val Leu  Gln Lys Asp
    1070                1075                1080

Gly Val  Asn Leu Val Glu Glu  Leu Gln Ser Val Ser  Gly Thr Thr
    1085                1090                1095
```

```
Thr Cys  Thr Met Gly Gln Thr  Lys Cys Phe Ile Ser  Ile Glu Leu
    1100                1105                1110

Lys Pro  Glu Lys Val Pro Gln  Val Glu Val Tyr Phe  Phe Val Glu
    1115                1120                1125

Leu Tyr  Glu Ala Thr Ala Gly  Ala Ala Ile Asn Asn  Ser Ala Arg
    1130                1135                1140

Phe Ala  Gln Ile Lys Ile Leu  Glu Ser Asp Glu Ser  Gln Ser Leu
    1145                1150                1155

Val Tyr  Phe Ser Val Gly Ser  Arg Leu Ala Val Ala  His Lys Lys
    1160                1165                1170

Ala Thr  Leu Ile Ser Leu Gln  Val Ala Arg Asp Ser  Gly Thr Gly
    1175                1180                1185

Leu Met  Met Ser Val Asn Phe  Ser Thr Gln Glu Leu  Arg Ser Ala
    1190                1195                1200

Glu Thr  Ile Gly Arg Thr Ile  Ile Ser Pro Ala Ile  Ser Gly Lys
    1205                1210                1215

Asp Phe  Val Ile Thr Glu Gly  Thr Leu Val Phe Glu  Pro Gly Gln
    1220                1225                1230

Arg Ser  Thr Val Leu Asp Val  Ile Leu Thr Pro Glu  Thr Gly Ser
    1235                1240                1245

Leu Asn  Ser Phe Pro Lys Arg  Phe Gln Ile Val Leu  Phe Asp Pro
    1250                1255                1260

Lys Gly  Gly Ala Arg Ile Asp  Lys Val Tyr Gly Thr  Ala Asn Ile
    1265                1270                1275

Thr Leu  Val Ser Asp Ala Asp  Ser Gln Ala Ile Trp  Gly Leu Ala
    1280                1285                1290

Asp Gln  Leu His Gln Pro Val  Asn Asp Asp Ile Leu  Asn Arg Val
    1295                1300                1305
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```
Leu His  Thr Ile Ser Met Lys  Val Ala Thr Glu Asn  Thr Asp Glu
    1310                1315                1320

Gln Leu  Ser Ala Met Met His  Leu Ile Glu Lys Ile  Thr Thr Glu
    1325                1330                1335

Gly Lys  Ile Gln Ala Phe Ser  Val Ala Ser Arg Thr  Leu Phe Tyr
    1340                1345                1350

Glu Ile  Leu Cys Ser Leu Ile  Asn Pro Lys Arg Lys  Asp Thr Arg
    1355                1360                1365

Gly Phe  Ser His Phe Ala Glu  Val Thr Glu Asn Phe  Ala Phe Ser
    1370                1375                1380

Leu Leu  Thr Asn Val Thr Cys  Gly Ser Pro Gly Glu  Lys Ser Lys
    1385                1390                1395

Thr Ile  Leu Asp Ser Cys Pro  Tyr Leu Ser Ile Leu  Ala Leu His
    1400                1405                1410

Trp Tyr  Pro Gln Gln Ile Asn  Gly His Lys Phe Glu  Gly Lys Glu
    1415                1420                1425

Gly Asp  Tyr Ile Arg Ile Pro  Glu Arg Leu Leu Asp  Val Gln Asp
    1430                1435                1440

Ala Glu  Ile Met Ala Gly Lys  Ser Thr Cys Lys Leu  Val Gln Phe
    1445                1450                1455

Thr Glu  Tyr Ser Ser Gln Gln  Trp Phe Ile Ser Gly  Asn Asn Leu
    1460                1465                1470

Pro Thr  Leu Lys Asn Lys Val  Leu Ser Leu Ser Val  Lys Gly Gln
    1475                1480                1485

Ser Ser  Gln Leu Leu Thr Asn  Asp Asn Glu Val Leu  Tyr Arg Ile
    1490                1495                1500

Tyr Ala  Ala Glu Pro Arg Ile  Ile Pro Gln Thr Ser  Leu Cys Leu
    1505                1510                1515
```

Leu Trp Asn Gln Ala Ala Ala Ser Trp Leu Ser Asp Ser Gln Phe
1520 1525 1530

Cys Lys Val Val Glu Glu Thr Ala Asp Tyr Val Glu Cys Ala Cys
1535 1540 1545

Ser His Met Ser Val Tyr Ala Val Tyr Ala Arg Thr Asp Asn Leu
1550 1555 1560

Ser Ser Tyr Asn Glu Ala Phe Phe Thr Ser Gly Phe Ile Cys Ile
1565 1570 1575

Ser Gly Leu Cys Leu Ala Val Leu Ser His Ile Phe Cys Ala Arg
1580 1585 1590

Tyr Ser Met Phe Ala Ala Lys Leu Leu Thr His Met Met Ala Ala
1595 1600 1605

Ser Leu Gly Thr Gln Ile Leu Phe Leu Ala Ser Ala Tyr Ala Ser
1610 1615 1620

Pro Gln Leu Ala Glu Glu Ser Cys Ser Ala Met Ala Ala Val Thr
1625 1630 1635

His Tyr Leu Tyr Leu Cys Gln Phe Ser Trp Met Leu Ile Gln Ser
1640 1645 1650

Val Asn Phe Trp Tyr Val Leu Val Met Asn Asp Glu His Thr Glu
1655 1660 1665

Arg Arg Tyr Leu Leu Phe Phe Leu Leu Ser Trp Gly Leu Pro Ala
1670 1675 1680

Phe Val Val Ile Leu Leu Ile Val Ile Leu Lys Gly Ile Tyr His
1685 1690 1695

Gln Ser Met Ser Gln Ile Tyr Gly Leu Ile His Gly Asp Leu Cys
1700 1705 1710

Phe Ile Pro Asn Val Tyr Ala Ala Leu Phe Thr Ala Ala Leu Val
1715 1720 1725

Pro Leu Thr Cys Leu Val Val Val Phe Val Val Phe Ile His Ala

1730 1735 1740

Tyr Gln Val Lys Pro Gln Trp Lys Ala Tyr Asp Asp Val Phe Arg
1745 1750 1755

Gly Arg Thr Asn Ala Ala Glu Ile Pro Leu Ile Leu Tyr Leu Phe
1760 1765 1770

Ala Leu Ile Ser Val Thr Trp Leu Trp Gly Gly Leu His Met Ala
1775 1780 1785

Tyr Arg His Phe Trp Met Leu Val Leu Phe Val Ile Phe Asn Ser
1790 1795 1800

Leu Gln Gly Leu Tyr Val Phe Met Val Tyr Phe Ile Leu His Asn
1805 1810 1815

Gln Met Cys Cys Pro Met Lys Ala Ser Tyr Thr Val Glu Met Asn
1820 1825 1830

Gly His Pro Gly Pro Ser Thr Ala Phe Phe Thr Pro Gly Ser Gly
1835 1840 1845

Met Pro Pro Ala Gly Gly Glu Ile Ser Lys Ser Thr Gln Asn Leu
1850 1855 1860

Ile Gly Ala Met Glu Glu Val Pro Pro Asp Trp Glu Arg Ala Ser
1865 1870 1875

Phe Gln Gln Gly Ser Gln Ala Ser Pro Asp Leu Lys Pro Ser Pro
1880 1885 1890

Gln Asn Gly Ala Thr Phe Pro Ser Ser Gly Gly Tyr Gly Gln Gly
1895 1900 1905

Ser Leu Ile Ala Asp Glu Glu Ser Gln Glu Phe Asp Asp Leu Ile
1910 1915 1920

Phe Ala Leu Lys Thr Gly Ala Gly Leu Ser Val Ser Asp Asn Glu
1925 1930 1935

Ser Gly Gln Gly Ser Gln Glu Gly Gly Thr Leu Thr Asp Ser Gln
1940 1945 1950

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Ile Val  Glu Leu Arg Arg Ile  Pro Ile Ala Asp Thr  His Leu
    1955                 1960                 1965


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<213> Homo sapiens

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<223> Any amino acid

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Xaa Leu Tyr Thr Cys Ala Thr Leu Cys Leu Lys Glu Gln Ala Cys Ser
1               5                  10                  15


Ala Phe Ser Phe Phe Ser Ala Ser Glu Gly Pro Gln Cys Phe Trp Met
            20                  25                  30


Thr Ser Trp Ile Ser Pro Ala Val Asn Asn Ser Asp Phe Trp Thr Tyr
        35                  40                  45


Arg Lys Asn Met Thr Arg Val Ala Ser Leu Phe Ser Gly Gln Ala Val
    50                  55                  60


Ala Gly Ser Asp Tyr Glu Pro Val Thr Arg Gln Trp Ala Ile Met Gln
65                  70                  75                  80


Glu Gly Asp Glu Phe Ala Asn Leu Thr Val Ser Ile Leu Pro Asp Asp
                85                  90                  95
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```
Phe Pro Glu Met Asp Glu Ser Phe Leu Ile Ser Leu Leu Glu Val His
            100                 105                 110

Leu Met Asn Ile Ser Ala Ser Leu Lys Asn Gln Pro Thr Ile Gly Gln
        115                 120                 125

Pro Asn Ile Ser Thr Val Val Ile Ala Leu Asn Gly Asp Ala Phe Gly
    130                 135                 140

Val Phe Val Ile Tyr Asn Ile Ser Pro Asn Thr Ser Glu Asp Gly Leu
145                 150                 155                 160

Phe Val Glu Val Gln Glu Gln Pro Gln Thr Leu Val Glu Leu Met Ile
                165                 170                 175

His Arg Thr Gly Gly Ser Leu Gly Gln Val Ala Val Glu Trp Arg Val
            180                 185                 190

Val Gly Gly Thr Ala Thr Glu Gly Leu Asp Phe Ile Gly Ala Gly Glu
        195                 200                 205

Ile Leu Thr Phe Ala Glu Gly Glu Thr Lys Lys Thr Val Ile Leu Thr
    210                 215                 220

Ile Leu Asp Asp Ser Glu Pro Glu Asp Asp Glu Ser Ile Ile Val Ser
225                 230                 235                 240

Leu Val Tyr Thr Glu Gly Gly Ser Arg Ile Leu Pro Ser Ser Asp Thr
                245                 250                 255

Val Arg Val Asn Ile Leu Ala Asn Asp Asn Val Ala Gly Ile Val Ser
            260                 265                 270

Phe Gln Thr Ala Ser Arg Ser Val Ile Gly His Glu Gly Glu Ile Leu
        275                 280                 285

Gln Phe His Val Ile Arg Thr Phe Pro Gly Arg Gly Asn Val Thr Val
    290                 295                 300

Asn Trp Lys Ile Ile Gly Gln Asn Leu Glu Leu Asn Phe Ala Asn Phe
305                 310                 315                 320
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Ser Gly Gln Leu Phe Phe Pro Glu Gly Ser Leu Asn Thr Thr Leu Phe
                325                 330                 335

Val His Leu Leu Asp Asp Asn Ile Pro Glu Glu Lys Glu Val Tyr Gln
            340                 345                 350

Val Ile Leu Tyr Asp Val Arg Thr Gln Gly Val Pro Pro Ala Gly Ile
        355                 360                 365

Ala Leu Leu Asp Ala Gln Gly Tyr Ala Ala Val Leu Thr Val Glu Ala
    370                 375                 380

Ser Asp Glu Pro His Gly Val Leu Asn Phe Ala Leu Ser Ser Arg Phe
385                 390                 395                 400

Val Leu Leu Gln Glu Ala Asn Ile Thr Ile Gln Leu Phe Ile Asn Arg
                405                 410                 415

Glu Phe Gly Ser Leu Gly Ala Ile Asn Val Thr Tyr Thr Thr Val Pro
            420                 425                 430

Gly Met Leu Ser Leu Lys Asn Gln Thr Val Gly Asn Leu Ala Glu Pro
        435                 440                 445

Glu Val Asp Phe Val Pro Ile Ile Gly Phe Leu Ile Leu Glu Glu Gly
    450                 455                 460

Glu Thr Ala Ala Ala Ile Asn Ile Thr Ile Leu Glu Asp Asp Val Pro
465                 470                 475                 480

Glu Leu Glu Glu Tyr Phe Leu Val Asn Leu Thr Tyr Val Gly Leu Thr
                485                 490                 495

Met Ala Ala Ser Thr Ser Phe Pro Pro Arg Leu Asp Ser Glu Gly Leu
            500                 505                 510

Thr Ala Gln Val Ile Ile Asp Ala Asn Asp Gly Ala Arg Gly Val Ile
        515                 520                 525

Glu Trp Gln Gln Ser Arg Phe Glu Val Asn Glu Thr His Gly Ser Leu
    530                 535                 540
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```
Thr Leu Val Ala Gln Arg Ser Arg Glu Pro Leu Gly His Val Ser Leu
545                 550                 555                 560

Phe Val Tyr Ala Gln Asn Leu Glu Ala Gln Val Gly Leu Asp Tyr Ile
                565                 570                 575

Phe Thr Pro Met Ile Leu His Phe Ala Asp Gly Glu Arg Tyr Lys Asn
            580                 585                 590

Val Asn Ile Met Ile Leu Asp Asp Asp Ile Pro Glu Gly Asp Glu Lys
        595                 600                 605

Phe Gln Leu Ile Leu Thr Asn Pro Ser Pro Gly Leu Glu Leu Gly Lys
    610                 615                 620

Asn Thr Ile Ala Leu Ile Ile Val Leu Ala Asn Asp Asp Gly Pro Gly
625                 630                 635                 640

Val Leu Ser Phe Asn Asn Ser Glu His Phe Phe Leu Arg Glu Pro Thr
                645                 650                 655

Ala Leu Tyr Val Gln Glu Ser Val Ala Val Leu Tyr Ile Val Arg Glu
            660                 665                 670

Pro Ala Gln Gly Leu Phe Gly Thr Val Thr Val Gln Phe Ile Val Thr
        675                 680                 685

Glu Val Asn Ser Ser Asn Glu Ser Lys Asp Leu Thr Pro Ser Lys Gly
    690                 695                 700

Tyr Ile Val Leu Glu Glu Gly Val Arg Phe Lys Ala Leu Gln Ile Ser
705                 710                 715                 720

Ala Ile Leu Asp Thr Glu Pro Glu Met Asp Glu Tyr Phe Val Cys Thr
                725                 730                 735

Leu Phe Asn Pro Thr Gly Gly Ala Arg Leu Gly Val His Val Gln Thr
            740                 745                 750

Leu Ile Thr Val Leu Gln Asn Gln Ala Pro Leu Gly Leu Phe Ser Ile
        755                 760                 765

Ser Ala Val Glu Asn Arg Ala Thr Ser Ile Asp Ile Glu Glu Ala Asn
```

770 775 780

Arg Thr Val Tyr Leu Asn Val Ser Arg Thr Asn Gly Ile Asp Leu Ala
785 790 795 800

Val Ser Val Gln Trp Glu Thr Val Ser Glu Thr Ala Phe Gly Met Arg
805 810 815

Gly Met Asp Val Val Phe Ser Val Phe Gln Ser Phe Leu Asp Glu Ser
820 825 830

Ala Ser Gly Trp Cys Phe Phe Thr Leu Glu Asn Leu Ile Tyr Gly Ile
835 840 845

Met Leu Arg Lys Ser Ser Val Thr Val Tyr Arg Trp Gln Gly Ile Phe
850 855 860

Ile Pro Val Glu Asp Leu Asn Ile Glu Asn Pro Lys Thr Cys Glu Ala
865 870 875 880

Phe Asn Ile Gly Phe Ser Pro Tyr Phe Val Ile Thr His Glu Glu Arg
885 890 895

Asn Glu Glu Lys Pro Ser Leu Asn Ser Val Phe Thr Phe Thr Ser Gly
900 905 910

Phe Lys Leu Phe Leu Val Gln Thr Ile Ile Ile Leu Glu Ser Ser Gln
915 920 925

Val Arg Tyr Phe Thr Ser Asp Ser Gln Asp Tyr Leu Ile Ile Ala Ser
930 935 940

Gln Arg Asp Asp Ser Glu Leu Thr Gln Val Phe Arg Trp Asn Gly Gly
945 950 955 960

Ser Phe Val Leu His Gln Lys Leu Pro Val Arg Gly Val Leu Thr Val
965 970 975

Ala Leu Phe Asn Lys Gly Gly Ser Val Phe Leu Ala Ile Ser Gln Ala
980 985 990

Asn Ala Arg Leu Asn Ser Leu Leu Phe Arg Trp Ser Gly Ser Gly
Phe

995 1000 1005

Ile Asn Phe Gln Glu Val Pro Val Ser Gly Thr Thr Glu Val Glu
1010 1015 1020

Ala Leu Ser Ser Ala Asn Asp Ile Tyr Leu Ile Phe Ala Glu Asn
1025 1030 1035

Val Phe Leu Gly Asp Gln Asn Ser Ile Asp Ile Phe Ile Trp Glu
1040 1045 1050

Met Gly Gln Ser Ser Phe Arg Tyr Phe Gln Ser Val Asp Phe Ala
1055 1060 1065

Ala Val Asn Arg Ile His Ser Phe Thr Pro Ala Ser Gly Ile Ala
1070 1075 1080

His Ile Leu Leu Ile Gly Gln Asp Met Ser Ala Leu Tyr Cys Trp
1085 1090 1095

Asn Ser Glu Arg Asn Gln Phe Ser Phe Val Leu Glu Val Pro Ser
1100 1105 1110

Ala Tyr Asp Val Ala Ser Val Thr Val Lys Ser Leu Asn Ser Ser
1115 1120 1125

Lys Asn Leu Ile Ala Leu Val Gly Ala His Ser His Ile Tyr Glu
1130 1135 1140

Leu Ala Tyr Ile Ser Ser His Ser Asp Phe Ile Pro Ser Ser Gly
1145 1150 1155

Glu Leu Ile Phe Glu Pro Gly Glu Arg Glu Ala Thr Ile Ala Val
1160 1165 1170

Asn Ile Leu Asp Asp Thr Val Pro Glu Lys Glu Glu Ser Phe Lys
1175 1180 1185

Val Gln Leu Lys Asn Pro Lys Gly Gly Ala Glu Ile Gly Ile Asn
1190 1195 1200

Asp Ser Val Thr Ile Thr Ile Leu Ser Asn Asp Asp Ala Tyr Gly
1205 1210 1215

```
Ile Val  Ala Phe Ala Gln Asn  Ser Leu Tyr Lys Gln  Val Glu Glu
    1220                1225                1230

Met Glu  Gln Asp Ser Leu Val  Thr Leu Asn Val Glu  Arg Leu Lys
    1235                1240                1245

Gly Thr  Tyr Gly Arg Ile Thr  Ile Ala Trp Glu Ala  Asp Gly Ser
    1250                1255                1260

Ile Ser  Asp Ile Phe Pro Thr  Ser Gly Val Ile Leu  Phe Thr Glu
    1265                1270                1275

Gly Gln  Val Leu Ser Thr Ile  Thr Leu Thr Ile Leu  Ala Asp Asn
    1280                1285                1290

Ile Pro  Glu Leu Ser Glu Val  Val Ile Val Thr Leu  Thr Arg Ile
    1295                1300                1305

Thr Thr  Glu Gly Val Glu Asp  Ser Tyr Lys Gly Ala  Thr Ile Asp
    1310                1315                1320

Gln Asp  Arg Ser Lys Ser Val  Ile Thr Thr Leu Pro  Asn Asp Ser
    1325                1330                1335

Pro Phe  Gly Leu Val Gly Trp  Arg Ala Ala Ser Val  Phe Ile Arg
    1340                1345                1350

Val Ala  Glu Pro Lys Glu Asn  Thr Thr Thr Leu Gln  Leu Gln Ile
    1355                1360                1365

Ala Arg  Asp Lys Gly Leu Leu  Gly Asp Ile Ala Ile  His Leu Arg
    1370                1375                1380

Ala Gln  Pro Asn Phe Leu Leu  His Val Asp Asn Gln  Ala Thr Glu
    1385                1390                1395

Asn Glu  Asp Tyr Val Leu Gln  Glu Thr Ile Ile Ile  Met Lys Glu
    1400                1405                1410

Asn Ile  Lys Glu Ala His Ala  Glu Val Ser Ile Leu  Pro Asp Asp
    1415                1420                1425
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```
Leu Pro  Glu Leu Glu Glu Gly  Phe Ile Val Thr Ile  Thr Glu Val
    1430                1435                1440

Asn Leu  Val Asn Ser Asp Phe  Ser Thr Gly Gln Pro  Ser Val Arg
    1445                1450                1455

Arg Pro  Gly Met Glu Ile Ala  Glu Ile Met Ile Glu  Glu Asn Asp
    1460                1465                1470

Asp Pro  Arg Gly Ile Phe Met  Phe His Val Thr Arg  Gly Ala Gly
    1475                1480                1485

Glu Val  Ile Thr Ala Tyr Glu  Val Pro Pro Pro Leu  Asn Val Leu
    1490                1495                1500

Gln Val  Pro Val Val Arg Leu  Ala Gly Ser Phe Gly  Ala Val Asn
    1505                1510                1515

Val Tyr  Trp Lys Ala Ser Pro  Asp Ser Ala Gly Leu  Glu Asp Phe
    1520                1525                1530

Lys Pro  Ser His Gly Ile Leu  Glu Phe Ala Asp Lys  Gln Val Thr
    1535                1540                1545

Ala Met  Ile Glu Ile Thr Ile  Ile Asp Asp Ala Glu  Phe Glu Leu
    1550                1555                1560

Thr Glu  Thr Phe Asn Ile Ser  Leu Ile Ser Val Ala  Gly Gly Gly
    1565                1570                1575

Arg Leu  Gly Asp Asp Val Val  Val Thr Val Val Ile  Pro Gln Asn
    1580                1585                1590

Asp Ser  Pro Phe Gly Val Phe  Gly Phe Glu Glu Lys  Thr Val Ser
    1595                1600                1605


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Xaa Arg Tyr Glu Glu Ile Thr Val Val Arg Asn Gly Gly Thr His Gly
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Asn Val Ser Ala Asn Trp Val Leu Thr Arg Asn Ser Thr Asp Pro Ser
20 25 30

Pro Val Thr Ala Asp Ile Arg Pro Ser Ser Gly Val Leu His Phe Ala
35 40 45

Gln Gly Gln Met Leu Ala Thr Ile Pro Leu Thr Val Val Asp Asp Asp
50 55 60

Leu Pro Glu Glu Ala Glu Ala Tyr Leu Leu Gln Ile Leu Pro His Thr
65 70 75 80

Ile Arg Gly Gly Ala Glu Val Ser Glu Pro Ala Glu Leu Leu Phe Tyr
85 90 95

Ile Gln Asp Ser Asp Asp Val Tyr Gly Leu Ile Thr Phe Phe Pro Met
100 105 110

Glu Asn Gln Lys Ile Glu Ser Ser Pro Gly Glu Arg Tyr Leu Ser Leu
115 120 125

Ser Phe Thr Arg Leu Gly Gly Thr Lys Gly Asp Val Arg Leu Leu Tyr
130 135 140

```
Ser Val Leu Tyr Ile Pro Ala Gly Ala Val Asp Pro Leu Gln Ala Lys
145                 150                 155                 160

Glu Gly Ile Leu Asn Ile Ser Arg Arg Asn Asp Leu Ile Phe Pro Glu
                165                 170                 175

Gln Lys Thr Gln Val Thr Thr Lys Leu Pro Ile Arg Asn Asp Ala Phe
            180                 185                 190

Leu Gln Asn Gly Ala His Phe Leu Val Gln Leu Glu Thr Val Glu Leu
        195                 200                 205

Leu Asn Ile Ile Pro Leu Ile Pro Pro Ile Ser Pro Arg Phe Gly Glu
    210                 215                 220

Ile Cys Asn Ile Ser Leu Leu Val Thr Pro Ala Ile Ala Asn Gly Glu
225                 230                 235                 240

Ile Gly Phe Leu Ser Asn Leu Pro Ile Ile Leu His Glu Pro Glu Asp
                245                 250                 255

Phe Ala Ala Glu Val Val Tyr Ile Pro Leu His Arg Asp Gly Thr Asp
            260                 265                 270

Gly Gln Ala Thr Val Tyr Trp Ser Leu Lys Pro Ser Gly Phe Asn Ser
        275                 280                 285

Lys Ala Val Thr Pro Asp Asp Ile Gly Pro Phe Asn Gly Ser Val Leu
    290                 295                 300

Phe Leu Ser Gly Gln Ser Asp Thr Thr Ile Asn Ile Thr Ile Lys Gly
305                 310                 315                 320

Asp Asp Ile Pro Glu Met Asn Glu Thr Val Thr Leu Ser Leu Asp Arg
                325                 330                 335

Val Asn Val Glu Asn Gln Val Leu Lys Ser Gly Tyr Thr Ser Arg Asp
            340                 345                 350

Leu Ile Ile Leu Glu Asn Asp Asp Pro Gly Gly Val Phe Glu Phe Ser
        355                 360                 365

Pro Ala Ser Arg Gly Pro Tyr Val Ile Lys Glu Gly Glu Ser Val Glu
```

370 375 380

Leu His Ile Ile Arg Ser Arg Gly Ser Leu Val Lys Gln Phe Leu His
385 390 395 400

Tyr Arg Val Glu Pro Arg Asp Ser Asn Glu Phe Tyr Gly Asn Thr Gly
405 410 415

Val Leu Glu Phe Lys Pro Gly Glu Arg Glu Ile Val Ile Thr Leu Leu
420 425 430

Ala Arg Leu Asp Gly Ile Pro Glu Leu Asp Glu His Tyr Trp Val Val
435 440 445

Leu Ser Ser His Gly Glu Arg Glu Ser Lys Leu Gly Ser Ala Thr Ile
450 455 460

Val Asn Ile Thr Ile Leu Lys Asn Asp Asp Pro His Gly Ile Ile Glu
465 470 475 480

Phe Val Ser Asp Gly Leu Ile Val Met Ile Asn Glu Ser Lys Gly Asp
485 490 495

Ala Ile Tyr Ser Ala Val Tyr Asp Val Val Arg Asn Arg Gly Asn Phe
500 505 510

Gly Asp Val Ser Val Ser Trp Val Val Ser Pro Asp Phe Thr Gln Asp
515 520 525

Val Phe Pro Val Gln Gly Thr Val Val Phe Gly Asp Gln Glu Phe Ser
530 535 540

Lys Asn Ile Thr Ile Tyr Ser Leu Pro Asp Glu Ile Pro Glu Glu Met
545 550 555 560

Glu Glu Phe Thr Val Ile Leu Leu Asn Gly Thr Gly Gly Ala Lys Val
565 570 575

Gly Asn Arg Thr Thr Ala Thr Leu Arg Ile Arg Arg Asn Asp Asp Pro
580 585 590

Ile Tyr Phe Ala Glu Pro Arg Val Val Arg Val Gln Glu Gly Glu Thr
595 600 605

```
Ala Asn Phe Thr Val Leu Arg Asn Gly Ser Val Asp Val Thr Cys Met
    610                 615                 620

Val Gln Tyr Ala Thr Lys Asp Gly Lys Ala Thr Ala Arg Glu Arg Asp
625                 630                 635                 640

Phe Ile Pro Val Glu Lys Gly Glu Thr Leu Ile Phe Glu Val Gly Ser
                645                 650                 655

Arg Gln Gln Ser Ile Ser Ile Phe Val Asn Glu Asp Gly Ile Pro Glu
            660                 665                 670

Thr Asp Glu Pro Phe Tyr Ile Ile Leu Leu Asn Ser Thr Gly Asp Thr
        675                 680                 685

Val Val Tyr Gln Tyr Gly Val Ala Thr Val Ile Ile Glu Ala Asn Asp
    690                 695                 700

Asp Pro Asn Gly Ile Phe Ser Leu Glu Pro Ile Asp Lys Ala Val Glu
705                 710                 715                 720

Glu Gly Lys Thr Asn Ala Phe Trp Ile Leu Arg His Arg Gly Tyr Phe
                725                 730                 735

Gly Ser Val Ser Val Ser Trp Gln Leu Phe Gln Asn Asp Ser Ala Leu
            740                 745                 750

Gln Pro Gly Gln Glu Phe Tyr Glu Thr Ser Gly Thr Val Asn Phe Met
        755                 760                 765

Asp Gly Glu Glu Ala Lys Pro Ile Ile Leu His Ala Phe Pro Asp Lys
    770                 775                 780

Ile Pro Glu Phe Asn Glu Phe Tyr Phe Leu Lys Leu Val Asn Ile Ser
785                 790                 795                 800

Gly Gly Ser Pro Gly Pro Gly Gly Gln Leu Ala Glu Thr Asn Leu Gln
                805                 810                 815

Val Thr Val Met Val Pro Phe Asn Asp Asp Pro Phe Gly Val Phe Ile
            820                 825                 830
```

```
Leu Asp Pro Glu Cys Leu Glu Arg Glu Val Ala Glu Asp Val Leu Ser
        835                 840                 845

Glu Asp Asp Met Ser Tyr Ile Thr Asn Phe Thr Ile Leu Arg Gln Gln
    850                 855                 860

Gly Val Phe Gly Asp Val Gln Leu Gly Trp Glu Ile Leu Ser Ser Glu
865                 870                 875                 880

Phe Pro Ala Gly Leu Pro Pro Met Ile Asp Phe Leu Leu Val Gly Ile
                885                 890                 895

Phe Pro Thr Thr Val His Leu Gln Gln His Met Arg Arg His His Ser
            900                 905                 910

Gly Thr Asp Ala Leu Tyr Phe Thr Gly Leu Glu Gly Ala Phe Gly Thr
        915                 920                 925

Val Asn Pro Lys Tyr His Pro Ser Arg Asn Asn Thr Ile Ala Asn Phe
    930                 935                 940

Thr Phe Ser Ala Trp Val Met Pro Asn Ala Asn Thr Asn Gly Phe Ile
945                 950                 955                 960

Ile Ala Lys Asp Asp Gly Asn Gly Ser Ile Tyr Tyr Gly Val Lys Ile
                965                 970                 975

Gln Thr Asn Glu Ser His Val Thr Leu Ser Leu His Tyr Lys Thr Leu
            980                 985                 990

Gly Ser Asn Ala Thr Tyr Ile Ala  Lys Thr Thr Val Met  Lys Tyr
Leu
        995                 1000                1005

Glu Glu  Ser Val Trp Leu His  Leu Leu Ile Ile Leu  Glu Asp Gly
    1010                1015                1020

Ile Ile  Glu Phe Tyr Leu Asp  Gly Asn Ala Met Pro  Arg Gly Ile
    1025                1030                1035

Lys Ser  Leu Lys Gly Glu Ala  Ile Thr Asp Gly Glu  Gly His His
    1040                1045                1050
```

His Asn
1055

<210> 3141
<211> 148
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 699; "

<220>
<221> source
<223> /note="Gene Symbol: ADGRV1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion G prt-coupled receptor V1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425936"

<400> 3141
Met Ala Lys Arg Ser Ala Ala Ala Ala Val Pro Gly Met Pro Ser Ala
1 5 10 15

Ser Leu Leu Val Asn Leu Leu Ser Ala Leu Leu Ile Leu Phe Val Phe
20 25 30

Gly Glu Thr Glu Ile Arg Phe Thr Gly Gln Thr Glu Phe Val Val Asn
35 40 45

Glu Thr Ser Thr Thr Val Ile Arg Leu Ile Ile Glu Arg Ile Gly Glu
50 55 60

Pro Ala Asn Val Thr Ala Ile Val Ser Leu Tyr Gly Glu Asp Ala Gly
65 70 75 80

Asp Phe Phe Asp Thr Tyr Ala Ala Ala Phe Ile Pro Ala Gly Glu Thr
85 90 95

Asn Arg Thr Val Tyr Ile Ala Val Cys Asp Asp Asp Leu Pro Glu Pro
100 105 110

Asp Glu Thr Phe Ile Phe His Leu Thr Leu Gln Leu Pro Ser Ile Ala

```
        115                 120                 125

Val Ser Glu Pro Lys Gly Arg Asn Glu Ser Met Pro Leu Thr Leu Ile
    130                 135                 140

Arg Glu Lys Gly
145
```

<210> 3142
<211> 493
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 700; "

<220>
<221> source
<223> /note="Gene Symbol: AMIGO1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule with Ig-like domain 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q86WK6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358878"

<400> 3142

```
Met His Pro His Arg Asp Pro Arg Gly Leu Trp Leu Leu Leu Pro Ser
1               5                   10                  15

Leu Ser Leu Leu Leu Phe Glu Val Ala Arg Ala Gly Arg Ala Val Val
            20                  25                  30

Ser Cys Pro Ala Ala Cys Leu Cys Ala Ser Asn Ile Leu Ser Cys Ser
        35                  40                  45

Lys Gln Gln Leu Pro Asn Val Pro His Ser Leu Pro Ser Tyr Thr Ala
    50                  55                  60

Leu Leu Asp Leu Ser His Asn Asn Leu Ser Arg Leu Arg Ala Glu Trp
65                  70                  75                  80
```

```
Thr Pro Thr Arg Leu Thr Gln Leu His Ser Leu Leu Leu Ser His Asn
                85                  90                  95

His Leu Asn Phe Ile Ser Ser Glu Ala Phe Ser Pro Val Pro Asn Leu
            100                 105                 110

Arg Tyr Leu Asp Leu Ser Ser Asn Gln Leu Arg Thr Leu Asp Glu Phe
        115                 120                 125

Leu Phe Ser Asp Leu Gln Val Leu Glu Val Leu Leu Leu Tyr Asn Asn
    130                 135                 140

His Ile Met Ala Val Asp Arg Cys Ala Phe Asp Asp Met Ala Gln Leu
145                 150                 155                 160

Gln Lys Leu Tyr Leu Ser Gln Asn Gln Ile Ser Arg Phe Pro Leu Glu
                165                 170                 175

Leu Val Lys Glu Gly Ala Lys Leu Pro Lys Leu Thr Leu Leu Asp Leu
            180                 185                 190

Ser Ser Asn Lys Leu Lys Asn Leu Pro Leu Pro Asp Leu Gln Lys Leu
        195                 200                 205

Pro Ala Trp Ile Lys Asn Gly Leu Tyr Leu His Asn Asn Pro Leu Asn
    210                 215                 220

Cys Asp Cys Glu Leu Tyr Gln Leu Phe Ser His Trp Gln Tyr Arg Gln
225                 230                 235                 240

Leu Ser Ser Val Met Asp Phe Gln Glu Asp Leu Tyr Cys Met Asn Ser
                245                 250                 255

Lys Lys Leu His Asn Val Phe Asn Leu Ser Phe Leu Asn Cys Gly Glu
            260                 265                 270

Tyr Lys Glu Arg Ala Trp Glu Ala His Leu Gly Asp Thr Leu Ile Ile
        275                 280                 285

Lys Cys Asp Thr Lys Gln Gln Gly Met Thr Lys Val Trp Val Thr Pro
    290                 295                 300
```

```
Ser Asn Glu Arg Val Leu Asp Glu Val Thr Asn Gly Thr Val Ser Val
305                 310                 315                 320

Ser Lys Asp Gly Ser Leu Leu Phe Gln Gln Val Gln Val Glu Asp Gly
                325                 330                 335

Gly Val Tyr Thr Cys Tyr Ala Met Gly Glu Thr Phe Asn Glu Thr Leu
            340                 345                 350

Ser Val Glu Leu Lys Val His Asn Phe Thr Leu His Gly His His Asp
        355                 360                 365

Thr Leu Asn Thr Ala Tyr Thr Thr Leu Val Gly Cys Ile Leu Ser Val
    370                 375                 380

Val Leu Val Leu Ile Tyr Leu Tyr Leu Thr Pro Cys Arg Cys Trp Cys
385                 390                 395                 400

Arg Gly Val Glu Lys Pro Ser Ser His Gln Gly Asp Ser Leu Ser Ser
                405                 410                 415

Ser Met Leu Ser Thr Thr Pro Asn His Asp Pro Met Ala Gly Gly Asp
            420                 425                 430

Lys Asp Asp Gly Phe Asp Arg Arg Val Ala Phe Leu Glu Pro Ala Gly
        435                 440                 445

Pro Gly Gln Gly Gln Asn Gly Lys Leu Lys Pro Gly Asn Thr Leu Pro
    450                 455                 460

Val Pro Glu Ala Thr Gly Lys Gly Gln Arg Arg Met Ser Asp Pro Glu
465                 470                 475                 480

Ser Val Ser Ser Val Phe Ser Asp Thr Pro Ile Val Val
                485                 490


<210> 3143
<211> 493
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 700; "
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<220>
<221> source
<223> /note="Gene Symbol: AMIGO1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule with Ig-like domain 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q86WK6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358880"

<400> 3143

Met	His	Pro	His	Arg	Asp	Pro	Arg	Gly	Leu	Trp	Leu	Leu	Leu	Pro	Ser
1				5				10						15	

Leu	Ser	Leu	Leu	Leu	Phe	Glu	Val	Ala	Arg	Ala	Gly	Arg	Ala	Val	Val
			20					25					30		

Ser	Cys	Pro	Ala	Ala	Cys	Leu	Cys	Ala	Ser	Asn	Ile	Leu	Ser	Cys	Ser
		35					40					45			

Lys	Gln	Gln	Leu	Pro	Asn	Val	Pro	His	Ser	Leu	Pro	Ser	Tyr	Thr	Ala
	50					55					60				

Leu	Leu	Asp	Leu	Ser	His	Asn	Asn	Leu	Ser	Arg	Leu	Arg	Ala	Glu	Trp
65				70					75						80

Thr	Pro	Thr	Arg	Leu	Thr	Gln	Leu	His	Ser	Leu	Leu	Leu	Ser	His	Asn
				85					90					95	

His	Leu	Asn	Phe	Ile	Ser	Ser	Glu	Ala	Phe	Ser	Pro	Val	Pro	Asn	Leu
			100					105					110		

Arg	Tyr	Leu	Asp	Leu	Ser	Ser	Asn	Gln	Leu	Arg	Thr	Leu	Asp	Glu	Phe
		115					120					125			

Leu	Phe	Ser	Asp	Leu	Gln	Val	Leu	Glu	Val	Leu	Leu	Leu	Tyr	Asn	Asn
	130					135					140				

His	Ile	Met	Ala	Val	Asp	Arg	Cys	Ala	Phe	Asp	Asp	Met	Ala	Gln	Leu
145				150					155						160

```
Gln Lys Leu Tyr Leu Ser Gln Asn Gln Ile Ser Arg Phe Pro Leu Glu
                165                 170                 175

Leu Val Lys Glu Gly Ala Lys Leu Pro Lys Leu Thr Leu Leu Asp Leu
            180                 185                 190

Ser Ser Asn Lys Leu Lys Asn Leu Pro Leu Pro Asp Leu Gln Lys Leu
        195                 200                 205

Pro Ala Trp Ile Lys Asn Gly Leu Tyr Leu His Asn Asn Pro Leu Asn
    210                 215                 220

Cys Asp Cys Glu Leu Tyr Gln Leu Phe Ser His Trp Gln Tyr Arg Gln
225                 230                 235                 240

Leu Ser Ser Val Met Asp Phe Gln Glu Asp Leu Tyr Cys Met Asn Ser
                245                 250                 255

Lys Lys Leu His Asn Val Phe Asn Leu Ser Phe Leu Asn Cys Gly Glu
            260                 265                 270

Tyr Lys Glu Arg Ala Trp Glu Ala His Leu Gly Asp Thr Leu Ile Ile
        275                 280                 285

Lys Cys Asp Thr Lys Gln Gln Gly Met Thr Lys Val Trp Val Thr Pro
    290                 295                 300

Ser Asn Glu Arg Val Leu Asp Glu Val Thr Asn Gly Thr Val Ser Val
305                 310                 315                 320

Ser Lys Asp Gly Ser Leu Leu Phe Gln Gln Val Gln Val Glu Asp Gly
                325                 330                 335

Gly Val Tyr Thr Cys Tyr Ala Met Gly Glu Thr Phe Asn Glu Thr Leu
            340                 345                 350

Ser Val Glu Leu Lys Val His Asn Phe Thr Leu His Gly His His Asp
        355                 360                 365

Thr Leu Asn Thr Ala Tyr Thr Thr Leu Val Gly Cys Ile Leu Ser Val
    370                 375                 380
```

```
Val Leu Val Leu Ile Tyr Leu Tyr Leu Thr Pro Cys Arg Cys Trp Cys
385                 390                 395                 400

Arg Gly Val Glu Lys Pro Ser Ser His Gln Gly Asp Ser Leu Ser Ser
                405                 410                 415

Ser Met Leu Ser Thr Thr Pro Asn His Asp Pro Met Ala Gly Gly Asp
            420                 425                 430

Lys Asp Asp Gly Phe Asp Arg Arg Val Ala Phe Leu Glu Pro Ala Gly
        435                 440                 445

Pro Gly Gln Gly Gln Asn Gly Lys Leu Lys Pro Gly Asn Thr Leu Pro
    450                 455                 460

Val Pro Glu Ala Thr Gly Lys Gly Gln Arg Arg Met Ser Asp Pro Glu
465                 470                 475                 480

Ser Val Ser Ser Val Phe Ser Asp Thr Pro Ile Val Val
                485                 490


<210> 3144
<211> 522
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 701; "

<220>
<221> source
<223> /note="Gene Symbol: AMIGO2; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion molecule with Ig-like domain 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q86SJ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000266581"

<400> 3144
Met Ser Leu Arg Val His Thr Leu Pro Thr Leu Leu Gly Ala Val Val
1               5                   10                  15
```

```
Arg Pro Gly Cys Arg Glu Leu Leu Cys Leu Leu Met Ile Thr Val Thr
            20                  25                  30

Val Gly Pro Gly Ala Ser Gly Val Cys Pro Thr Ala Cys Ile Cys Ala
        35                  40                  45

Thr Asp Ile Val Ser Cys Thr Asn Lys Asn Leu Ser Lys Val Pro Gly
    50                  55                  60

Asn Leu Phe Arg Leu Ile Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile
65                  70                  75                  80

Gly Leu Leu Asp Ser Glu Trp Ile Pro Val Ser Phe Ala Lys Leu Asn
                85                  90                  95

Thr Leu Ile Leu Arg His Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser
            100                 105                 110

Phe Ser Thr Thr Pro Asn Leu Lys Cys Leu Asp Leu Ser Ser Asn Lys
        115                 120                 125

Leu Lys Thr Val Lys Asn Ala Val Phe Gln Glu Leu Lys Val Leu Glu
    130                 135                 140

Val Leu Leu Leu Tyr Asn Asn His Ile Ser Tyr Leu Asp Pro Ser Ala
145                 150                 155                 160

Phe Gly Gly Leu Ser Gln Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe
                165                 170                 175

Leu Thr Gln Phe Pro Met Asp Leu Tyr Val Gly Arg Phe Lys Leu Ala
            180                 185                 190

Glu Leu Met Phe Leu Asp Val Ser Tyr Asn Arg Ile Pro Ser Met Pro
        195                 200                 205

Met His His Ile Asn Leu Val Pro Gly Lys Gln Leu Arg Gly Ile Tyr
    210                 215                 220

Leu His Gly Asn Pro Phe Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu
225                 230                 235                 240
```

```
Val Phe Trp Tyr Arg Arg His Phe Ser Ser Val Met Asp Phe Lys Asn
                245                 250                 255

Asp Tyr Thr Cys Arg Leu Trp Ser Asp Ser Arg His Ser Arg Gln Val
            260                 265                 270

Leu Leu Leu Gln Asp Ser Phe Met Asn Cys Ser Asp Ser Ile Ile Asn
        275                 280                 285

Gly Ser Phe Arg Ala Leu Gly Phe Ile His Glu Ala Gln Val Gly Glu
    290                 295                 300

Arg Leu Met Val His Cys Asp Ser Lys Thr Gly Asn Ala Asn Thr Asp
305                 310                 315                 320

Phe Ile Trp Val Gly Pro Asp Asn Arg Leu Leu Glu Pro Asp Lys Glu
                325                 330                 335

Met Glu Asn Phe Tyr Val Phe His Asn Gly Ser Leu Val Ile Glu Ser
            340                 345                 350

Pro Arg Phe Glu Asp Ala Gly Val Tyr Ser Cys Ile Ala Met Asn Lys
        355                 360                 365

Gln Arg Leu Leu Asn Glu Thr Val Asp Val Thr Ile Asn Val Ser Asn
    370                 375                 380

Phe Thr Val Ser Arg Ser His Ala His Glu Ala Phe Asn Thr Ala Phe
385                 390                 395                 400

Thr Thr Leu Ala Ala Cys Val Ala Ser Ile Val Leu Val Leu Leu Tyr
                405                 410                 415

Leu Tyr Leu Thr Pro Cys Pro Cys Lys Cys Lys Thr Lys Arg Gln Lys
            420                 425                 430

Asn Met Leu His Gln Ser Asn Ala His Ser Ser Ile Leu Ser Pro Gly
        435                 440                 445

Pro Ala Ser Asp Ala Ser Ala Asp Glu Arg Lys Ala Gly Ala Gly Lys
    450                 455                 460
```

```
Arg Val Val Phe Leu Glu Pro Leu Lys Asp Thr Ala Ala Gly Gln Asn
465                 470                 475                 480

Gly Lys Val Arg Leu Phe Pro Ser Glu Ala Val Ile Ala Glu Gly Ile
                485                 490                 495

Leu Lys Ser Thr Arg Gly Lys Ser Asp Ser Asp Ser Val Asn Ser Val
            500                 505                 510

Phe Ser Asp Thr Pro Phe Val Ala Ser Thr
        515                 520
```

<210> 3145
<211> 522
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 701; "

<220>
<221> source
<223> /note="Gene Symbol: AMIGO2; "

<220>
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<223> /note="Gene Name:
adhesion molecule with Ig-like domain 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86SJ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406020"

<400> 3145

```
Met Ser Leu Arg Val His Thr Leu Pro Thr Leu Leu Gly Ala Val Val
1               5                   10                  15

Arg Pro Gly Cys Arg Glu Leu Leu Cys Leu Leu Met Ile Thr Val Thr
            20                  25                  30

Val Gly Pro Gly Ala Ser Gly Val Cys Pro Thr Ala Cys Ile Cys Ala
        35                  40                  45

Thr Asp Ile Val Ser Cys Thr Asn Lys Asn Leu Ser Lys Val Pro Gly
    50                  55                  60
```

```
Asn Leu Phe Arg Leu Ile Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile
65                  70                  75                  80

Gly Leu Leu Asp Ser Glu Trp Ile Pro Val Ser Phe Ala Lys Leu Asn
                85                  90                  95

Thr Leu Ile Leu Arg His Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser
            100                 105                 110

Phe Ser Thr Thr Pro Asn Leu Lys Cys Leu Asp Leu Ser Ser Asn Lys
        115                 120                 125

Leu Lys Thr Val Lys Asn Ala Val Phe Gln Glu Leu Lys Val Leu Glu
    130                 135                 140

Val Leu Leu Leu Tyr Asn Asn His Ile Ser Tyr Leu Asp Pro Ser Ala
145                 150                 155                 160

Phe Gly Gly Leu Ser Gln Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe
                165                 170                 175

Leu Thr Gln Phe Pro Met Asp Leu Tyr Val Gly Arg Phe Lys Leu Ala
            180                 185                 190

Glu Leu Met Phe Leu Asp Val Ser Tyr Asn Arg Ile Pro Ser Met Pro
        195                 200                 205

Met His His Ile Asn Leu Val Pro Gly Lys Gln Leu Arg Gly Ile Tyr
    210                 215                 220

Leu His Gly Asn Pro Phe Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu
225                 230                 235                 240

Val Phe Trp Tyr Arg Arg His Phe Ser Ser Val Met Asp Phe Lys Asn
                245                 250                 255

Asp Tyr Thr Cys Arg Leu Trp Ser Asp Ser Arg His Ser Arg Gln Val
            260                 265                 270

Leu Leu Leu Gln Asp Ser Phe Met Asn Cys Ser Asp Ser Ile Ile Asn
        275                 280                 285
```

```
Gly Ser Phe Arg Ala Leu Gly Phe Ile His Glu Ala Gln Val Gly Glu
    290                 295                 300

Arg Leu Met Val His Cys Asp Ser Lys Thr Gly Asn Ala Asn Thr Asp
305                 310                 315                 320

Phe Ile Trp Val Gly Pro Asp Asn Arg Leu Leu Glu Pro Asp Lys Glu
                325                 330                 335

Met Glu Asn Phe Tyr Val Phe His Asn Gly Ser Leu Val Ile Glu Ser
            340                 345                 350

Pro Arg Phe Glu Asp Ala Gly Val Tyr Ser Cys Ile Ala Met Asn Lys
        355                 360                 365

Gln Arg Leu Leu Asn Glu Thr Val Asp Val Thr Ile Asn Val Ser Asn
    370                 375                 380

Phe Thr Val Ser Arg Ser His Ala His Glu Ala Phe Asn Thr Ala Phe
385                 390                 395                 400

Thr Thr Leu Ala Ala Cys Val Ala Ser Ile Val Leu Val Leu Leu Tyr
                405                 410                 415

Leu Tyr Leu Thr Pro Cys Pro Cys Lys Cys Lys Thr Lys Arg Gln Lys
            420                 425                 430

Asn Met Leu His Gln Ser Asn Ala His Ser Ser Ile Leu Ser Pro Gly
        435                 440                 445

Pro Ala Ser Asp Ala Ser Ala Asp Glu Arg Lys Ala Gly Ala Gly Lys
    450                 455                 460

Arg Val Val Phe Leu Glu Pro Leu Lys Asp Thr Ala Ala Gly Gln Asn
465                 470                 475                 480

Gly Lys Val Arg Leu Phe Pro Ser Glu Ala Val Ile Ala Glu Gly Ile
                485                 490                 495

Leu Lys Ser Thr Arg Gly Lys Ser Asp Ser Asp Ser Val Asn Ser Val
            500                 505                 510
```

Phe Ser Asp Thr Pro Phe Val Ala Ser Thr
515 520

<210> 3146
<211> 522
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 701; "

<220>
<221> source
<223> /note="Gene Symbol: AMIGO2; "

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<223> /note="Gene Name:
adhesion molecule with Ig-like domain 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86SJ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449034"

<400> 3146
Met Ser Leu Arg Val His Thr Leu Pro Thr Leu Leu Gly Ala Val Val
1 5 10 15

Arg Pro Gly Cys Arg Glu Leu Leu Cys Leu Leu Met Ile Thr Val Thr
20 25 30

Val Gly Pro Gly Ala Ser Gly Val Cys Pro Thr Ala Cys Ile Cys Ala
35 40 45

Thr Asp Ile Val Ser Cys Thr Asn Lys Asn Leu Ser Lys Val Pro Gly
50 55 60

Asn Leu Phe Arg Leu Ile Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile
65 70 75 80

Gly Leu Leu Asp Ser Glu Trp Ile Pro Val Ser Phe Ala Lys Leu Asn
85 90 95

Thr Leu Ile Leu Arg His Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser
100 105 110

```
Phe Ser Thr Thr Pro Asn Leu Lys Cys Leu Asp Leu Ser Ser Asn Lys
        115                 120                 125

Leu Lys Thr Val Lys Asn Ala Val Phe Gln Glu Leu Lys Val Leu Glu
    130                 135                 140

Val Leu Leu Leu Tyr Asn Asn His Ile Ser Tyr Leu Asp Pro Ser Ala
145                 150                 155                 160

Phe Gly Gly Leu Ser Gln Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe
                165                 170                 175

Leu Thr Gln Phe Pro Met Asp Leu Tyr Val Gly Arg Phe Lys Leu Ala
            180                 185                 190

Glu Leu Met Phe Leu Asp Val Ser Tyr Asn Arg Ile Pro Ser Met Pro
        195                 200                 205

Met His His Ile Asn Leu Val Pro Gly Lys Gln Leu Arg Gly Ile Tyr
    210                 215                 220

Leu His Gly Asn Pro Phe Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu
225                 230                 235                 240

Val Phe Trp Tyr Arg Arg His Phe Ser Ser Val Met Asp Phe Lys Asn
                245                 250                 255

Asp Tyr Thr Cys Arg Leu Trp Ser Asp Ser Arg His Ser Arg Gln Val
            260                 265                 270

Leu Leu Leu Gln Asp Ser Phe Met Asn Cys Ser Asp Ser Ile Ile Asn
        275                 280                 285

Gly Ser Phe Arg Ala Leu Gly Phe Ile His Glu Ala Gln Val Gly Glu
    290                 295                 300

Arg Leu Met Val His Cys Asp Ser Lys Thr Gly Asn Ala Asn Thr Asp
305                 310                 315                 320

Phe Ile Trp Val Gly Pro Asp Asn Arg Leu Leu Glu Pro Asp Lys Glu
                325                 330                 335
```

```
Met Glu Asn Phe Tyr Val Phe His Asn Gly Ser Leu Val Ile Glu Ser
            340                 345                 350

Pro Arg Phe Glu Asp Ala Gly Val Tyr Ser Cys Ile Ala Met Asn Lys
        355                 360                 365

Gln Arg Leu Leu Asn Glu Thr Val Asp Val Thr Ile Asn Val Ser Asn
    370                 375                 380

Phe Thr Val Ser Arg Ser His Ala His Glu Ala Phe Asn Thr Ala Phe
385                 390                 395                 400

Thr Thr Leu Ala Ala Cys Val Ala Ser Ile Val Leu Val Leu Leu Tyr
                405                 410                 415

Leu Tyr Leu Thr Pro Cys Pro Cys Lys Cys Lys Thr Lys Arg Gln Lys
            420                 425                 430

Asn Met Leu His Gln Ser Asn Ala His Ser Ser Ile Leu Ser Pro Gly
        435                 440                 445

Pro Ala Ser Asp Ala Ser Ala Asp Glu Arg Lys Ala Gly Ala Gly Lys
    450                 455                 460

Arg Val Val Phe Leu Glu Pro Leu Lys Asp Thr Ala Ala Gly Gln Asn
465                 470                 475                 480

Gly Lys Val Arg Leu Phe Pro Ser Glu Ala Val Ile Ala Glu Gly Ile
                485                 490                 495

Leu Lys Ser Thr Arg Gly Lys Ser Asp Ser Asp Ser Val Asn Ser Val
            500                 505                 510

Phe Ser Asp Thr Pro Phe Val Ala Ser Thr
        515                 520


<210> 3147
<211> 504
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 702; "
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<220>
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<223> /note="Gene Symbol: AMIGO3; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule with Ig-like domain 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q86WK7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000323096"

<400> 3147
Met Thr Trp Leu Val Leu Leu Gly Thr Leu Leu Cys Met Leu Arg Val
1 5 10 15

Gly Leu Gly Thr Pro Asp Ser Glu Gly Phe Pro Pro Arg Ala Leu His
20 25 30

Asn Cys Pro Tyr Lys Cys Ile Cys Ala Ala Asp Leu Leu Ser Cys Thr
35 40 45

Gly Leu Gly Leu Gln Asp Val Pro Ala Glu Leu Pro Ala Ala Thr Ala
50 55 60

Asp Leu Asp Leu Ser His Asn Ala Leu Gln Arg Leu Arg Pro Gly Trp
65 70 75 80

Leu Ala Pro Leu Phe Gln Leu Arg Ala Leu His Leu Asp His Asn Glu
85 90 95

Leu Asp Ala Leu Gly Arg Gly Val Phe Val Asn Ala Ser Gly Leu Arg
100 105 110

Leu Leu Asp Leu Ser Ser Asn Thr Leu Arg Ala Leu Gly Arg His Asp
115 120 125

Leu Asp Gly Leu Gly Ala Leu Glu Lys Leu Leu Leu Phe Asn Asn Arg
130 135 140

Leu Val His Leu Asp Glu His Ala Phe His Gly Leu Arg Ala Leu Ser
145 150 155 160

```
His Leu Tyr Leu Gly Cys Asn Glu Leu Ala Ser Phe Ser Phe Asp His
                165                 170                 175

Leu His Gly Leu Ser Ala Thr His Leu Leu Thr Leu Asp Leu Ser Ser
            180                 185                 190

Asn Arg Leu Gly His Ile Ser Val Pro Glu Leu Ala Ala Leu Pro Ala
        195                 200                 205

Phe Leu Lys Asn Gly Leu Tyr Leu His Asn Asn Pro Leu Pro Cys Asp
    210                 215                 220

Cys Arg Leu Tyr His Leu Leu Gln Arg Trp His Gln Arg Gly Leu Ser
225                 230                 235                 240

Ala Val Arg Asp Phe Ala Arg Glu Tyr Val Cys Leu Ala Phe Lys Val
                245                 250                 255

Pro Ala Ser Arg Val Arg Phe Phe Gln His Ser Arg Val Phe Glu Asn
            260                 265                 270

Cys Ser Ser Ala Pro Ala Leu Gly Leu Glu Arg Pro Glu Glu His Leu
        275                 280                 285

Tyr Ala Leu Val Gly Arg Ser Leu Arg Leu Tyr Cys Asn Thr Ser Val
    290                 295                 300

Pro Ala Met Arg Ile Ala Trp Val Ser Pro Gln Gln Glu Leu Leu Arg
305                 310                 315                 320

Ala Pro Gly Ser Arg Asp Gly Ser Ile Ala Val Leu Ala Asp Gly Ser
                325                 330                 335

Leu Ala Ile Gly Asn Val Gln Glu Gln His Ala Gly Leu Phe Val Cys
            340                 345                 350

Leu Ala Thr Gly Pro Arg Leu His His Asn Gln Thr His Glu Tyr Asn
        355                 360                 365

Val Ser Val His Phe Pro Arg Pro Glu Pro Glu Ala Phe Asn Thr Gly
    370                 375                 380
```

```
Phe Thr Thr Leu Leu Gly Cys Ala Val Gly Leu Val Leu Val Leu Leu
385                 390                 395                 400

Tyr Leu Phe Ala Pro Pro Cys Arg Cys Cys Arg Arg Ala Cys Arg Cys
                405                 410                 415

Arg Arg Trp Pro Gln Thr Pro Ser Pro Leu Gln Glu Leu Ser Ala Gln
            420                 425                 430

Ser Ser Val Leu Ser Thr Thr Pro Pro Asp Ala Pro Ser Arg Lys Ala
        435                 440                 445

Ser Val His Lys His Val Val Phe Leu Glu Pro Gly Arg Arg Gly Leu
    450                 455                 460

Asn Gly Arg Val Gln Leu Ala Val Ala Glu Glu Phe Asp Leu Tyr Asn
465                 470                 475                 480

Pro Gly Gly Leu Gln Leu Lys Ala Gly Ser Glu Ser Ala Ser Ser Ile
                485                 490                 495

Gly Ser Glu Gly Pro Met Thr Thr
            500


<210> 3148
<211> 384
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q86YT9; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000292067"

<400> 3148

```
Met Val Ser Gly Asp Tyr Ser Leu Gly Leu Asn Asp Leu Asn Val Ser
1               5                  10                  15

Pro Pro Glu Leu Thr Val His Val Gly Asp Ser Ala Leu Met Gly Cys
            20                  25                  30

Val Phe Gln Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr
        35                  40                  45

Leu Ser Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr
    50                  55                  60

Ser Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg Val His Leu
65                  70                  75                  80

Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Leu Gln Asp Val
                85                  90                  95

Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg Leu Lys Gly
            100                 105                 110

Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val Leu Pro Glu
        115                 120                 125

Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu Ile Gln Met Gly
    130                 135                 140

Cys Val Phe Gln Ser Thr Glu Val Lys His Val Thr Lys Val Glu Trp
145                 150                 155                 160

Ile Phe Ser Gly Arg Arg Ala Lys Glu Glu Ile Val Phe Arg Tyr Tyr
                165                 170                 175

His Lys Leu Arg Met Ser Val Glu Tyr Ser Gln Ser Trp Gly His Phe
            180                 185                 190

Gln Asn Arg Val Asn Leu Val Gly Asp Ile Phe Arg Asn Asp Gly Ser
        195                 200                 205

Ile Met Leu Gln Gly Val Arg Glu Ser Asp Gly Gly Asn Tyr Thr Cys
    210                 215                 220
```

```
Ser Ile His Leu Gly Asn Leu Val Phe Lys Lys Thr Ile Val Leu His
225                 230                 235                 240

Val Ser Pro Glu Glu Pro Arg Thr Leu Val Thr Pro Ala Ala Leu Arg
                245                 250                 255

Pro Leu Val Leu Gly Gly Asn Gln Leu Val Ile Ile Val Gly Ile Val
            260                 265                 270

Cys Ala Thr Ile Leu Leu Leu Pro Val Leu Ile Leu Ile Val Lys Lys
        275                 280                 285

Thr Cys Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu Val Lys Asn
    290                 295                 300

Thr Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys His Phe Glu
305                 310                 315                 320

Arg Cys Glu Gly Glu Lys His Ile Tyr Ser Pro Ile Ile Val Arg Glu
                325                 330                 335

Val Ile Glu Glu Glu Glu Pro Ser Glu Lys Ser Glu Ala Thr Tyr Met
            340                 345                 350

Thr Met His Pro Val Trp Pro Ser Leu Arg Ser Asp Arg Asn Asn Ser
        355                 360                 365

Leu Glu Lys Lys Ser Gly Gly Gly Met Pro Lys Thr Gln Gln Ala Phe
    370                 375                 380


<210> 3149
<211> 394
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
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<223> /note="Gene Name:
adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q86YT9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348635"

<400> 3149

```
Met Phe Cys Pro Leu Lys Leu Ile Leu Leu Pro Val Leu Leu Asp Tyr
1               5                  10                  15

Ser Leu Gly Leu Asn Asp Leu Asn Val Ser Pro Pro Glu Leu Thr Val
            20                  25                  30

His Val Gly Asp Ser Ala Leu Met Gly Cys Val Phe Gln Ser Thr Glu
        35                  40                  45

Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr Leu Ser Pro Gly Glu His
    50                  55                  60

Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr Ser Asn Leu Ser Val Pro
65                  70                  75                  80

Ile Gly Arg Phe Gln Asn Arg Val His Leu Met Gly Asp Ile Leu Cys
                85                  90                  95

Asn Asp Gly Ser Leu Leu Leu Gln Asp Val Gln Glu Ala Asp Gln Gly
            100                 105                 110

Thr Tyr Ile Cys Glu Ile Arg Leu Lys Gly Glu Ser Gln Val Phe Lys
        115                 120                 125

Lys Ala Val Val Leu His Val Leu Pro Glu Glu Pro Lys Glu Leu Met
    130                 135                 140

Val His Val Gly Gly Leu Ile Gln Met Gly Cys Val Phe Gln Ser Thr
145                 150                 155                 160

Glu Val Lys His Val Thr Lys Val Glu Trp Ile Phe Ser Gly Arg Arg
                165                 170                 175

Ala Lys Glu Glu Ile Val Phe Arg Tyr Tyr His Lys Leu Arg Met Ser
```

```
            180                 185                 190

Val Glu Tyr Ser Gln Ser Trp Gly His Phe Gln Asn Arg Val Asn Leu
        195                 200                 205

Val Gly Asp Ile Phe Arg Asn Asp Gly Ser Ile Met Leu Gln Gly Val
    210                 215                 220

Arg Glu Ser Asp Gly Gly Asn Tyr Thr Cys Ser Ile His Leu Gly Asn
225                 230                 235                 240

Leu Val Phe Lys Lys Thr Ile Val Leu His Val Ser Pro Glu Glu Pro
                245                 250                 255

Arg Thr Leu Val Thr Pro Ala Ala Leu Arg Pro Leu Val Leu Gly Gly
            260                 265                 270

Asn Gln Leu Val Ile Ile Val Gly Ile Val Cys Ala Thr Ile Leu Leu
        275                 280                 285

Leu Pro Val Leu Ile Leu Ile Val Lys Lys Thr Cys Gly Asn Lys Ser
    290                 295                 300

Ser Val Asn Ser Thr Val Leu Val Lys Asn Thr Lys Lys Thr Asn Pro
305                 310                 315                 320

Glu Ile Lys Glu Lys Pro Cys His Phe Glu Arg Cys Glu Gly Glu Lys
                325                 330                 335

His Ile Tyr Ser Pro Ile Ile Val Arg Glu Val Ile Glu Glu Glu Glu
            340                 345                 350

Pro Ser Glu Lys Ser Glu Ala Thr Tyr Met Thr Met His Pro Val Trp
        355                 360                 365

Pro Ser Leu Arg Ser Asp Arg Asn Asn Ser Leu Glu Lys Lys Ser Gly
    370                 375                 380

Gly Gly Met Pro Lys Thr Gln Gln Ala Phe
385                 390
```

<210> 3150
<211> 355

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q86YT9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431218"

<400> 3150

```
Met Gly Cys Val Phe Gln Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile
1               5                  10                  15


Asp Trp Thr Leu Ser Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu
            20                  25                  30


Tyr Tyr Tyr Ser Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg
        35                  40                  45


Val His Leu Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Leu
    50                  55                  60


Gln Asp Val Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg
65                  70                  75                  80


Leu Lys Gly Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val
                85                  90                  95


Leu Pro Glu Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu Ile
            100                 105                 110


Gln Met Gly Cys Val Phe Gln Ser Thr Glu Val Lys His Val Thr Lys
        115                 120                 125
```

```
Val Glu Trp Ile Phe Ser Gly Arg Arg Ala Lys Glu Glu Ile Val Phe
    130                 135                 140

Arg Tyr Tyr His Lys Leu Arg Met Ser Val Glu Tyr Ser Gln Ser Trp
145                 150                 155                 160

Gly His Phe Gln Asn Arg Val Asn Leu Val Gly Asp Ile Phe Arg Asn
                165                 170                 175

Asp Gly Ser Ile Met Leu Gln Gly Val Arg Glu Ser Asp Gly Gly Asn
            180                 185                 190

Tyr Thr Cys Ser Ile His Leu Gly Asn Leu Val Phe Lys Lys Thr Ile
        195                 200                 205

Val Leu His Val Ser Pro Glu Glu Pro Arg Thr Leu Val Thr Pro Ala
    210                 215                 220

Ala Leu Arg Pro Leu Val Leu Gly Gly Asn Gln Leu Val Ile Ile Val
225                 230                 235                 240

Gly Ile Val Cys Ala Thr Ile Leu Leu Leu Pro Val Leu Ile Leu Ile
                245                 250                 255

Val Lys Lys Thr Cys Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu
            260                 265                 270

Val Lys Asn Thr Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys
        275                 280                 285

His Phe Glu Arg Cys Glu Gly Glu Lys His Ile Tyr Ser Pro Ile Ile
    290                 295                 300

Val Arg Glu Val Ile Glu Glu Glu Glu Pro Ser Glu Lys Ser Glu Ala
305                 310                 315                 320

Thr Tyr Met Thr Met His Pro Val Trp Pro Ser Leu Arg Ser Asp Arg
                325                 330                 335

Asn Asn Ser Leu Glu Lys Lys Ser Gly Gly Gly Met Pro Lys Thr Gln
            340                 345                 350

Gln Ala Phe
```

355

<210> 3151
<211> 305
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431614"

<400> 3151
Met Gly Cys Val Phe Gln Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile
1 5 10 15

Asp Trp Thr Leu Ser Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu
20 25 30

Tyr Tyr Tyr Ser Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg
35 40 45

Val His Leu Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Leu
50 55 60

Gln Asp Val Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg
65 70 75 80

Leu Lys Gly Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val
85 90 95

Leu Pro Glu Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu Ile
100 105 110

Gln Met Gly Cys Val Phe Gln Ser Thr Glu Val Lys His Val Thr Lys
115 120 125

```
Val Glu Trp Ile Phe Ser Gly Arg Arg Ala Lys Glu Glu Ile Val Phe
    130                 135                 140

Arg Tyr Tyr His Lys Leu Arg Met Ser Val Glu Tyr Ser Gln Ser Trp
145                 150                 155                 160

Gly His Phe Gln Asn Arg Val Asn Leu Val Gly Asp Ile Phe Arg Asn
                165                 170                 175

Asp Gly Ser Ile Met Leu Gln Gly Val Arg Glu Ser Asp Gly Gly Asn
            180                 185                 190

Tyr Thr Cys Ser Ile His Leu Gly Asn Leu Val Phe Lys Lys Thr Ile
        195                 200                 205

Val Leu His Val Ser Pro Glu Glu Pro Arg Thr Leu Val Thr Pro Ala
    210                 215                 220

Ala Leu Arg Pro Leu Val Leu Gly Gly Asn Gln Leu Val Ile Ile Val
225                 230                 235                 240

Gly Ile Val Cys Ala Thr Ile Leu Leu Leu Pro Val Leu Ile Leu Ile
                245                 250                 255

Val Lys Lys Thr Cys Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu
            260                 265                 270

Val Lys Asn Thr Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys
        275                 280                 285

His Phe Glu Arg Cys Glu Gly Glu Val Asn Thr Arg Phe Ser Leu Lys
    290                 295                 300

His
305
```

<210> 3152
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431791"

<400> 3152

Met	Phe	Cys	Pro	Leu	Lys	Leu	Ile	Leu	Leu	Pro	Val	Leu	Leu	Asp	Tyr
1				5				10						15	
Ser	Leu	Gly	Leu	Asn	Asp	Leu	Asn	Val	Ser	Pro	Pro	Glu	Leu	Thr	Val
			20					25					30		
His	Val	Gly	Asp	Ser	Ala	Leu	Met	Gly	Cys	Val	Phe	Gln	Ser	Thr	Glu
		35					40					45			
Asp	Lys	Cys	Ile	Phe	Lys	Ile	Asp	Trp	Thr	Leu	Ser	Pro	Gly	Glu	His
	50					55					60				
Ala	Lys	Asp	Glu	Tyr	Val	Leu	Tyr	Tyr	Tyr	Ser	Asn	Leu	Ser	Val	Pro
65					70					75					80
Ile	Gly	Arg	Phe	Gln	Asn	Arg	Val	His	Leu	Met	Gly	Asp	Ile	Leu	Cys
				85					90					95	
Asn	Asp	Gly	Ser	Leu	Leu	Leu	Gln	Asp	Val	Gln	Glu	Ala	Asp	Gln	Gly
			100					105					110		
Thr	Tyr	Ile	Cys	Glu	Ile	Arg	Leu	Lys	Gly	Glu	Ser	Gln	Val	Phe	Lys
		115					120					125			
Lys	Ala	Val	Val	Leu	His	Val	Leu	Pro	Glu	Glu	Pro	Lys	Glu	Leu	Met
	130					135					140				
Val	His	Val	Gly	Gly	Leu	Ile	Gln	Met	Gly	Cys					
145					150					155					

<210> 3153
<211> 120

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432769"

<400> 3153
Met Gly Cys Val Phe Gln Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile
1 5 10 15

Asp Trp Thr Leu Ser Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu
20 25 30

Tyr Tyr Tyr Ser Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg
35 40 45

Val His Leu Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Leu
50 55 60

Gln Asp Val Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg
65 70 75 80

Leu Lys Gly Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val
85 90 95

Leu Pro Glu Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu Ile
100 105 110

Gln Met Gly Cys Val Phe Gln Ser
115 120

<210> 3154
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435145"

<400> 3154
Met Phe Cys Pro Leu Lys Leu Ile Leu Leu Pro Val Leu Leu Glu His
1 5 10 15

Arg Arg Gln Met Tyr Ile Gln Asp Arg Leu Asp Ser Val Thr Arg Arg
20 25 30

Ala Arg Gln Gly Arg Ile Cys Ala Ile Leu Leu Leu Gln Ser Gln Cys
35 40 45

Ala Tyr Trp Ala Leu Pro Glu Pro Arg Thr Leu Asp Gly Gly His Leu
50 55 60

Met Gln
65

<210> 3155
<211> 383
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 703; "

<220>
<221> source
<223> /note="Gene Symbol: AMICA1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion molecule, interacts with CXADR antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436117"

<400> 3155
Met Phe Cys Pro Leu Lys Leu Ile Leu Leu Pro Val Leu Leu Asp Tyr
1   5   10   15

Ser Leu Gly Leu Asn Asp Leu Asn Val Ser Pro Pro Glu Leu Thr Val
            20   25   30

His Val Gly Asp Ser Ala Leu Met Gly Cys Val Phe Gln Ser Thr Glu
        35   40   45

Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr Leu Ser Pro Gly Glu His
    50   55   60

Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr Ser Asn Leu Ser Val Pro
65   70   75   80

Ile Gly Arg Phe Gln Asn Arg Val His Leu Met Gly Asp Ile Leu Cys
                85   90   95

Asn Asp Gly Ser Leu Leu Leu Gln Asp Val Gln Glu Ala Asp Gln Gly
            100   105   110

Thr Tyr Ile Cys Glu Ile Arg Leu Lys Gly Glu Ser Gln Val Phe Lys
        115   120   125

Lys Ala Val Val Leu His Val Leu Pro Glu Glu Pro Lys Glu Leu Met
    130   135   140

Val His Val Gly Gly Leu Ile Gln Met Gly Cys Val Phe Gln Ser Thr
145   150   155   160

Glu Val Lys His Val Thr Lys Glu Glu Ile Val Phe Arg Tyr Tyr His
                165   170   175

Lys Leu Arg Met Ser Val Glu Tyr Ser Gln Ser Trp Gly His Phe Gln
            180   185   190

Asn Arg Val Asn Leu Val Gly Asp Ile Phe Arg Asn Asp Gly Ser Ile
        195   200   205

```
Met Leu Gln Gly Val Arg Glu Ser Asp Gly Gly Asn Tyr Thr Cys Ser
    210                 215                 220

Ile His Leu Gly Asn Leu Val Phe Lys Lys Thr Ile Val Leu His Val
225                 230                 235                 240

Ser Pro Glu Glu Pro Arg Thr Leu Val Thr Pro Ala Ala Leu Arg Pro
                245                 250                 255

Leu Val Leu Gly Gly Asn Gln Leu Val Ile Ile Val Gly Ile Val Cys
            260                 265                 270

Ala Thr Ile Leu Leu Leu Pro Val Leu Ile Leu Ile Val Lys Lys Thr
        275                 280                 285

Cys Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu Val Lys Asn Thr
    290                 295                 300

Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys His Phe Glu Arg
305                 310                 315                 320

Cys Glu Gly Glu Lys His Ile Tyr Ser Pro Ile Ile Val Arg Glu Val
                325                 330                 335

Ile Glu Glu Glu Glu Pro Ser Glu Lys Ser Glu Ala Thr Tyr Met Thr
            340                 345                 350

Met His Pro Val Trp Pro Ser Leu Arg Ser Asp Arg Asn Asn Ser Leu
        355                 360                 365

Glu Lys Lys Ser Gly Gly Gly Met Pro Lys Thr Gln Gln Ala Phe
    370                 375                 380


<210> 3156
<211> 407
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 704; "

<220>
<221> source
<223> /note="Gene Symbol: ADRM1; "
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<220>
<221> source
<223> /note="Gene Name:
adhesion regulating molecule 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q16186; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000253003"

<400> 3156
Met Thr Thr Ser Gly Ala Leu Phe Pro Ser Leu Val Pro Gly Ser Arg
1   5   10   15

Gly Ala Ser Asn Lys Tyr Leu Val Glu Phe Arg Ala Gly Lys Met Ser
            20   25   30

Leu Lys Gly Thr Thr Val Thr Pro Asp Lys Arg Lys Gly Leu Val Tyr
        35   40   45

Ile Gln Gln Thr Asp Asp Ser Leu Ile His Phe Cys Trp Lys Asp Arg
    50   55   60

Thr Ser Gly Asn Val Glu Asp Asp Leu Ile Ile Phe Pro Asp Asp Cys
65   70   75   80

Glu Phe Lys Arg Val Pro Gln Cys Pro Ser Gly Arg Val Tyr Val Leu
                85   90   95

Lys Phe Lys Ala Gly Ser Lys Arg Leu Phe Phe Trp Met Gln Glu Pro
            100   105   110

Lys Thr Asp Gln Asp Glu Glu His Cys Arg Lys Val Asn Glu Tyr Leu
        115   120   125

Asn Asn Pro Pro Met Pro Gly Ala Leu Gly Ala Ser Gly Ser Ser Gly
    130   135   140

His Glu Leu Ser Ala Leu Gly Gly Glu Gly Gly Leu Gln Ser Leu Leu
145   150   155   160

Gly Asn Met Ser His Ser Gln Leu Met Gln Leu Ile Gly Pro Ala Gly
                165   170   175

```
Leu Gly Gly Leu Gly Gly Leu Gly Ala Leu Thr Gly Pro Gly Leu Ala
            180                 185                 190

Ser Leu Leu Gly Ser Ser Gly Pro Pro Gly Ser Ser Ser Ser Ser Ser
        195                 200                 205

Ser Arg Ser Gln Ser Ala Ala Val Thr Pro Ser Ser Thr Thr Ser Ser
    210                 215                 220

Thr Arg Ala Thr Pro Ala Pro Ser Ala Pro Ala Ala Ala Ser Ala Thr
225                 230                 235                 240

Ser Pro Ser Pro Ala Pro Ser Ser Gly Asn Gly Ala Ser Thr Ala Ala
                245                 250                 255

Ser Pro Thr Gln Pro Ile Gln Leu Ser Asp Leu Gln Ser Ile Leu Ala
            260                 265                 270

Thr Met Asn Val Pro Ala Gly Pro Ala Gly Gly Gln Gln Val Asp Leu
        275                 280                 285

Ala Ser Val Leu Thr Pro Glu Ile Met Ala Pro Ile Leu Ala Asn Ala
    290                 295                 300

Asp Val Gln Glu Arg Leu Leu Pro Tyr Leu Pro Ser Gly Glu Ser Leu
305                 310                 315                 320

Pro Gln Thr Ala Asp Glu Ile Gln Asn Thr Leu Thr Ser Pro Gln Phe
                325                 330                 335

Gln Gln Ala Leu Gly Met Phe Ser Ala Ala Leu Ala Ser Gly Gln Leu
            340                 345                 350

Gly Pro Leu Met Cys Gln Phe Gly Leu Pro Ala Glu Ala Val Glu Ala
        355                 360                 365

Ala Asn Lys Gly Asp Val Glu Ala Phe Ala Lys Ala Met Gln Asn Asn
    370                 375                 380

Ala Lys Pro Glu Gln Lys Glu Gly Asp Thr Lys Asp Lys Lys Asp Glu
385                 390                 395                 400
```

Glu Glu Asp Met Ser Leu Asp
405

<210> 3157
<211> 407
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 704; "

<220>
<221> source
<223> /note="Gene Symbol: ADRM1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion regulating molecule 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q16186; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478877"

<400> 3157
Met Thr Thr Ser Gly Ala Leu Phe Pro Ser Leu Val Pro Gly Ser Arg
1 5 10 15

Gly Ala Ser Asn Lys Tyr Leu Val Glu Phe Arg Ala Gly Lys Met Ser
20 25 30

Leu Lys Gly Thr Thr Val Thr Pro Asp Lys Arg Lys Gly Leu Val Tyr
35 40 45

Ile Gln Gln Thr Asp Asp Ser Leu Ile His Phe Cys Trp Lys Asp Arg
50 55 60

Thr Ser Gly Asn Val Glu Asp Asp Leu Ile Ile Phe Pro Asp Asp Cys
65 70 75 80

Glu Phe Lys Arg Val Pro Gln Cys Pro Ser Gly Arg Val Tyr Val Leu
85 90 95

Lys Phe Lys Ala Gly Ser Lys Arg Leu Phe Phe Trp Met Gln Glu Pro
100 105 110

```
Lys Thr Asp Gln Asp Glu Glu His Cys Arg Lys Val Asn Glu Tyr Leu
        115                 120                 125

Asn Asn Pro Pro Met Pro Gly Ala Leu Gly Ala Ser Gly Ser Ser Gly
    130                 135                 140

His Glu Leu Ser Ala Leu Gly Gly Glu Gly Gly Leu Gln Ser Leu Leu
145                 150                 155                 160

Gly Asn Met Ser His Ser Gln Leu Met Gln Leu Ile Gly Pro Ala Gly
                165                 170                 175

Leu Gly Gly Leu Gly Gly Leu Gly Ala Leu Thr Gly Pro Gly Leu Ala
            180                 185                 190

Ser Leu Leu Gly Ser Ser Gly Pro Pro Gly Ser Ser Ser Ser Ser Ser
        195                 200                 205

Ser Arg Ser Gln Ser Ala Ala Val Thr Pro Ser Ser Thr Thr Ser Ser
    210                 215                 220

Thr Arg Ala Thr Pro Ala Pro Ser Ala Pro Ala Ala Ala Ser Ala Thr
225                 230                 235                 240

Ser Pro Ser Pro Ala Pro Ser Ser Gly Asn Gly Ala Ser Thr Ala Ala
                245                 250                 255

Ser Pro Thr Gln Pro Ile Gln Leu Ser Asp Leu Gln Ser Ile Leu Ala
            260                 265                 270

Thr Met Asn Val Pro Ala Gly Pro Ala Gly Gly Gln Gln Val Asp Leu
        275                 280                 285

Ala Ser Val Leu Thr Pro Glu Ile Met Ala Pro Ile Leu Ala Asn Ala
    290                 295                 300

Asp Val Gln Glu Arg Leu Leu Pro Tyr Leu Pro Ser Gly Glu Ser Leu
305                 310                 315                 320

Pro Gln Thr Ala Asp Glu Ile Gln Asn Thr Leu Thr Ser Pro Gln Phe
                325                 330                 335
```

```
Gln Gln Ala Leu Gly Met Phe Ser Ala Ala Leu Ala Ser Gly Gln Leu
            340                 345                 350

Gly Pro Leu Met Cys Gln Phe Gly Leu Pro Ala Glu Ala Val Glu Ala
        355                 360                 365

Ala Asn Lys Gly Asp Val Glu Ala Phe Ala Lys Ala Met Gln Asn Asn
    370                 375                 380

Ala Lys Pro Glu Gln Lys Glu Gly Asp Thr Lys Asp Lys Lys Asp Glu
385                 390                 395                 400

Glu Glu Asp Met Ser Leu Asp
                405
```

<210> 3158
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 704; "

<220>
<221> source
<223> /note="Gene Symbol: ADRM1; "

<220>
<221> source
<223> /note="Gene Name:
adhesion regulating molecule 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479008"

<400> 3158

```
Met Thr Thr Ser Gly Ala Leu Phe Pro Ser Leu Val Pro Gly Ser Arg
1               5                   10                  15

Gly Ala Ser Asn Lys Tyr Leu Val Glu Phe Arg Ala Gly Lys Met Ser
            20                  25                  30

Leu Lys Gly Thr Thr Val Thr Pro Asp Lys Arg Lys Gly Leu Val Tyr
        35                  40                  45

Ile Gln Gln Thr Asp Asp Ser Leu Ile His Phe Cys Trp Lys Asp Arg
```

```
    50                  55                  60

Thr Ser Gly Asn Val Glu Asp Glu Pro Lys Thr Asp Gln Asp Glu Glu
65                  70                  75                  80

His Cys Arg Lys Val Asn Glu Tyr Leu Asn Asn Pro Pro Met Pro Gly
                85                  90                  95

Ala Leu Gly Ala Ser Gly Ser Ser Gly His Glu Leu Ser Ala Leu Gly
            100                 105                 110

Gly Glu Gly Gly Leu Gln Ser Leu Leu Gly Asn Met Ser His Ser Gln
        115                 120                 125

Leu Met Gln Leu Ile Gly Pro Ala Gly Leu Gly Gly Leu
    130                 135                 140


<210> 3159
<211> 368
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 704; "

<220>
<221> source
<223> /note="Gene Symbol: ADRM1; "

<220>
<221> source
<223> /note="Gene Name:
      adhesion regulating molecule 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480756"

<400> 3159
Met Thr Thr Ser Gly Ala Leu Phe Pro Ser Leu Val Pro Gly Ser Arg
1               5                   10                  15

Gly Ala Ser Asn Lys Tyr Leu Val Glu Phe Arg Ala Gly Lys Met Ser
            20                  25                  30

Leu Lys Gly Thr Thr Val Thr Pro Asp Lys Arg Lys Gly Leu Val Tyr
        35                  40                  45
```

```
Ile Gln Gln Thr Asp Asp Ser Leu Ile His Phe Cys Trp Lys Asp Arg
    50                  55                  60

Thr Ser Gly Asn Val Glu Asp Glu Pro Lys Thr Asp Gln Asp Glu Glu
65                  70                  75                  80

His Cys Arg Lys Val Asn Glu Tyr Leu Asn Asn Pro Pro Met Pro Gly
                85                  90                  95

Ala Leu Gly Ala Ser Gly Ser Ser Gly His Glu Leu Ser Ala Leu Gly
            100                 105                 110

Gly Glu Gly Gly Leu Gln Ser Leu Leu Gly Asn Met Ser His Ser Gln
        115                 120                 125

Leu Met Gln Leu Ile Gly Pro Ala Gly Leu Gly Gly Leu Gly Gly Leu
    130                 135                 140

Gly Ala Leu Thr Gly Pro Gly Leu Ala Ser Leu Leu Gly Ser Ser Gly
145                 150                 155                 160

Pro Pro Gly Ser Ser Ser Ser Ser Ser Ser Arg Ser Gln Ser Ala Ala
                165                 170                 175

Val Thr Pro Ser Ser Thr Thr Ser Ser Thr Arg Ala Thr Pro Ala Pro
            180                 185                 190

Ser Ala Pro Ala Ala Ala Ser Ala Thr Ser Pro Ser Pro Ala Pro Ser
        195                 200                 205

Ser Gly Asn Gly Ala Ser Thr Ala Ala Ser Pro Thr Gln Pro Ile Gln
    210                 215                 220

Leu Ser Asp Leu Gln Ser Ile Leu Ala Thr Met Asn Val Pro Ala Gly
225                 230                 235                 240

Pro Ala Gly Gly Gln Gln Val Asp Leu Ala Ser Val Leu Thr Pro Glu
                245                 250                 255

Ile Met Ala Pro Ile Leu Ala Asn Ala Asp Val Gln Glu Arg Leu Leu
            260                 265                 270
```

```
Pro Tyr Leu Pro Ser Gly Glu Ser Leu Pro Gln Thr Ala Asp Glu Ile
        275                 280                 285

Gln Asn Thr Leu Thr Ser Pro Gln Phe Gln Gln Ala Leu Gly Met Phe
    290                 295                 300

Ser Ala Ala Leu Ala Ser Gly Gln Leu Gly Pro Leu Met Cys Gln Phe
305                 310                 315                 320

Gly Leu Pro Ala Glu Ala Val Glu Ala Ala Asn Lys Gly Asp Val Glu
                325                 330                 335

Ala Phe Ala Lys Ala Met Gln Asn Asn Ala Lys Pro Glu Gln Lys Glu
            340                 345                 350

Gly Asp Thr Lys Asp Lys Lys Asp Glu Glu Glu Asp Met Ser Leu Asp
        355                 360                 365


<210> 3160
<211> 416
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 705; "

<220>
<221> source
<223> /note="Gene Symbol: APMAP; "

<220>
<221> source
<223> /note="Gene Name:
      adipocyte plasma membrane
      associated prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9HDC9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000217456"

<400> 3160
Met Ser Glu Ala Asp Gly Leu Arg Gln Arg Arg Pro Leu Arg Pro Gln
1               5                   10                  15

Val Val Thr Asp Asp Asp Gly Gln Ala Pro Glu Ala Lys Asp Gly Ser
```

```
            20                  25                  30

Ser Phe Ser Gly Arg Val Phe Arg Val Thr Phe Leu Met Leu Ala Val
        35                  40                  45

Ser Leu Thr Val Pro Leu Leu Gly Ala Met Met Leu Leu Glu Ser Pro
    50                  55                  60

Ile Asp Pro Gln Pro Leu Ser Phe Lys Glu Pro Pro Leu Leu Leu Gly
65                  70                  75                  80

Val Leu His Pro Asn Thr Lys Leu Arg Gln Ala Glu Arg Leu Phe Glu
                85                  90                  95

Asn Gln Leu Val Gly Pro Glu Ser Ile Ala His Ile Gly Asp Val Met
            100                 105                 110

Phe Thr Gly Thr Ala Asp Gly Arg Val Val Lys Leu Glu Asn Gly Glu
        115                 120                 125

Ile Glu Thr Ile Ala Arg Phe Gly Ser Gly Pro Cys Lys Thr Arg Asp
    130                 135                 140

Asp Glu Pro Val Cys Gly Arg Pro Leu Gly Ile Arg Ala Gly Pro Asn
145                 150                 155                 160

Gly Thr Leu Phe Val Ala Asp Ala Tyr Lys Gly Leu Phe Glu Val Asn
                165                 170                 175

Pro Trp Lys Arg Glu Val Lys Leu Leu Leu Ser Ser Glu Thr Pro Ile
            180                 185                 190

Glu Gly Lys Asn Met Ser Phe Val Asn Asp Leu Thr Val Thr Gln Asp
        195                 200                 205

Gly Arg Lys Ile Tyr Phe Thr Asp Ser Ser Ser Lys Trp Gln Arg Arg
    210                 215                 220

Asp Tyr Leu Leu Leu Val Met Glu Gly Thr Asp Asp Gly Arg Leu Leu
225                 230                 235                 240

Glu Tyr Asp Thr Val Thr Arg Glu Val Lys Val Leu Leu Asp Gln Leu
                245                 250                 255
```

```
Arg Phe Pro Asn Gly Val Gln Leu Ser Pro Ala Glu Asp Phe Val Leu
            260                 265                 270

Val Ala Glu Thr Thr Met Ala Arg Ile Arg Arg Val Tyr Val Ser Gly
        275                 280                 285

Leu Met Lys Gly Gly Ala Asp Leu Phe Val Glu Asn Met Pro Gly Phe
    290                 295                 300

Pro Asp Asn Ile Arg Pro Ser Ser Ser Gly Gly Tyr Trp Val Gly Met
305                 310                 315                 320

Ser Thr Ile Arg Pro Asn Pro Gly Phe Ser Met Leu Asp Phe Leu Ser
                325                 330                 335

Glu Arg Pro Trp Ile Lys Arg Met Ile Phe Lys Leu Phe Ser Gln Glu
            340                 345                 350

Thr Val Met Lys Phe Val Pro Arg Tyr Ser Leu Val Leu Glu Leu Ser
        355                 360                 365

Asp Ser Gly Ala Phe Arg Arg Ser Leu His Asp Pro Asp Gly Leu Val
    370                 375                 380

Ala Thr Tyr Ile Ser Glu Val His Glu His Asp Gly His Leu Tyr Leu
385                 390                 395                 400

Gly Ser Phe Arg Ser Pro Phe Leu Cys Arg Leu Ser Leu Gln Ala Val
                405                 410                 415


<210> 3161
<211> 409
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 705; "

<220>
<221> source
<223> /note="Gene Symbol: APMAP; "

<220>
<221> source
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<223> /note="Gene Name:
adipocyte plasma membrane
associated prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395874"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3161

```
Xaa Val Val Thr Asp Asp Asp Gly Gln Ala Pro Glu Ala Lys Asp Gly
1               5                  10                  15

Ser Ser Phe Ser Gly Arg Val Phe Arg Val Thr Phe Leu Met Leu Ala
            20                  25                  30

Val Ser Leu Thr Val Pro Leu Leu Gly Ala Met Met Leu Leu Glu Ser
        35                  40                  45

Pro Ile Asp Pro Gln Pro Leu Ser Phe Lys Glu Pro Pro Leu Leu Leu
    50                  55                  60

Gly Val Leu His Pro Asn Thr Lys Leu Arg Gln Ala Glu Arg Leu Phe
65                  70                  75                  80

Glu Asn Gln Leu Val Gly Pro Glu Ser Ile Ala His Ile Gly Asp Val
                85                  90                  95

Met Phe Thr Gly Thr Ala Asp Gly Arg Val Val Lys Leu Glu Asn Gly
            100                 105                 110

Glu Ile Glu Thr Ile Ala Arg Phe Gly Ser Gly Pro Cys Lys Thr Arg
        115                 120                 125

Asp Asp Glu Pro Val Cys Gly Arg Pro Leu Gly Ile Arg Ala Gly Pro
    130                 135                 140

Asn Gly Thr Leu Phe Val Ala Asp Ala Tyr Lys Gly Leu Phe Glu Val
145                 150                 155                 160

Asn Pro Trp Lys Arg Glu Val Lys Leu Leu Leu Ser Ser Glu Thr Pro
                165                 170                 175
```

```
Ile Glu Gly Lys Asn Met Ser Phe Val Asn Asp Leu Thr Val Thr Gln
            180                 185                 190

Asp Gly Arg Lys Ile Tyr Phe Thr Asp Ser Ser Ser Lys Trp Gln Arg
        195                 200                 205

Arg Asp Tyr Leu Leu Leu Val Met Glu Gly Thr Asp Asp Gly Arg Leu
    210                 215                 220

Leu Glu Tyr Asp Thr Val Thr Arg Glu Val Lys Val Leu Leu Asp Gln
225                 230                 235                 240

Leu Arg Phe Pro Asn Gly Val Gln Leu Ser Pro Ala Glu Asp Phe Val
                245                 250                 255

Leu Val Ala Glu Thr Thr Met Ala Arg Ile Arg Arg Val Tyr Val Ser
            260                 265                 270

Gly Leu Met Lys Gly Gly Ala Asp Leu Phe Val Glu Asn Met Pro Gly
        275                 280                 285

Phe Pro Asp Asn Ile Arg Pro Ser Ser Ser Gly Gly Tyr Trp Val Gly
    290                 295                 300

Met Ser Thr Ile Arg Pro Asn Pro Gly Phe Ser Met Leu Asp Phe Leu
305                 310                 315                 320

Ser Glu Arg Pro Trp Ile Lys Arg Met Ile Phe Lys Gly Ser Cys Ala
                325                 330                 335

Gly Cys Asp Leu Leu Phe Ser Gln Glu Thr Val Met Lys Phe Val Pro
            340                 345                 350

Arg Tyr Ser Leu Val Leu Glu Leu Ser Asp Ser Gly Ala Phe Arg Arg
        355                 360                 365

Ser Leu His Asp Pro Asp Gly Leu Val Ala Thr Tyr Ile Ser Glu Val
    370                 375                 380

His Glu His Asp Gly His Leu Tyr Leu Gly Ser Phe Arg Ser Pro Phe
385                 390                 395                 400
```

Leu Cys Arg Leu Ser Leu Gln Ala Val
405

<210> 3162
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000307254"

<400> 3162
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1 5 10 15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
20 25 30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His Ser Pro Gly
35 40 45

Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr
50 55 60

Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Ala Pro Thr Gln
65 70 75 80

Gln Leu Pro Ser Gly Val His Val Arg Ala Val Val Gln Phe His Leu
85 90 95

Ala Thr Ala Ser Trp His Ile Leu Glu Arg Cys Lys Thr Gly Ala Gly
100 105 110

Leu Ser Ile Lys His Val Cys Glu Leu Ala Met Ser His Leu Ser Thr

115 120 125

Phe Leu Tyr Gln Ile Tyr Asp Ala Ile Ile Leu Lys Met His Leu Tyr
130 135 140

Phe Met Lys
145

<210> 3163
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H7C9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377078"

<400> 3163
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1 5 10 15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
20 25 30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His Ser Pro Gly
35 40 45

Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr
50 55 60

Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Val Pro Ser Ser
65 70 75 80

```
Thr Val Glu Tyr Leu Lys Lys His Gly Ile Asp Val Arg Val Leu Gln
                85                  90                  95

Thr Glu Gln Ala Val Lys Glu Tyr Asn Ala Leu Val Ala Gln Gly Val
            100                 105                 110

Arg Val Gly Gly Val Phe His Ser Thr Cys
        115                 120


<210> 3164
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
      adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9H7C9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431808"

<400> 3164
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1               5                   10                  15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
            20                  25                  30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His Ser Pro Gly
        35                  40                  45

Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr
    50                  55                  60

Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Val Pro Ser Ser
```

65 70 75 80

Thr Val Glu Tyr Leu Lys Lys His Gly Ile Asp Val Arg Val Leu Gln
85 90 95

Thr Glu Gln Ala Val Lys Glu Tyr Asn Ala Leu Val Ala Gln Gly Val
100 105 110

Arg Val Gly Gly Val Phe His Ser Thr Cys
115 120

<210> 3165
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432830"

<400> 3165
Met Arg Val Glu Pro Ser Trp Pro Asn Gln Leu Leu Lys Thr Ser Val
1 5 10 15

Lys Phe Leu Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln
20 25 30

Met Lys Val Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp
35 40 45

Pro Gly Gly Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His
50 55 60

Ser Pro Gly Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly
65 70 75 80

```
Val Gln Thr Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Val
                85                  90                  95

Pro Ser Ser Thr Val Glu Tyr Leu Lys Lys His Gly Ile Asp Val Arg
            100                 105                 110

Val Leu Gln Thr Glu Gln Ala Val Lys Glu Tyr Asn Ala Leu Val Ala
        115                 120                 125

Gln Gly Val Arg Val Gly Gly Val Phe His Ser Thr Cys
    130                 135                 140


<210> 3166
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
      adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433281"

<400> 3166
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1               5                  10                  15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
            20                  25                  30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His Ser Pro Gly
        35                  40                  45

Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr
    50                  55                  60

Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Ala Pro Thr Gln
```

65 70 75 80

Gln Leu Pro Ser Gly Val His Val Arg Ala Val Val Gln Phe His Leu
85 90 95

Ala Thr Ala Ser Trp His Ile Leu Glu Arg Cys Lys Thr Asp Gln Glu
100 105 110

Leu Glu Gln Leu Gly Val Phe Ser Thr Leu Leu Trp Thr Gly Glu Gly
115 120 125

Ser Trp Thr Glu His Gln Thr Cys Leu
130 135

<210> 3167
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H7C9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433293"

<400> 3167
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1 5 10 15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
20 25 30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His Ser Pro Gly
35 40 45

```
Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr
    50                  55                  60

Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Asp Gly Ile Gln
65                  70                  75                  80

Gly Ala Gln Leu Asp Leu Asn Cys
                85
```

<210> 3168
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433956"

<400> 3168

```
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1               5                   10                  15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
            20                  25                  30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu Val Pro Ser Ser
        35                  40                  45

Thr Val Glu Tyr Leu Lys Lys His Gly Ile Asp Val Arg Val Leu Gln
    50                  55                  60

Thr Glu Gln Ala Val Lys Glu Tyr Asn Ala Leu Val Ala Gln Gly Val
65                  70                  75                  80

Arg Val Gly Gly Val Phe His Ser Thr Cys
```

85 90

<210> 3169
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435560"

<400> 3169
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1 5 10 15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
20 25 30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His Ser Pro Gly
35 40 45

Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr
50 55 60

Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Gly Leu Thr Leu
65 70 75 80

Pro Pro Arg Leu Glu Cys Ser Gly Thr Ile Ile Thr His
85 90

<210> 3170
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436086"

<400> 3170

```
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1               5                  10                  15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
            20                  25                  30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu Ser Leu Thr Leu
        35                  40                  45

Leu Pro Arg Leu Glu Cys Ser Gly Ala Ile Ser Ala His Cys Asn Leu
    50                  55                  60

His Leu Pro Gly Ser Cys His Ser Pro Ala Ser Ala Ser Gln Val Ala
65                  70                  75                  80

Gly Thr Thr Gly Ala Cys His His Thr Gln His Ser Pro Gly Val Gln
                85                  90                  95

Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr Leu Val
            100                 105                 110

Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Val Pro Ser Ser Thr Val
        115                 120                 125

Glu Tyr Leu Lys Lys His Gly Ile Asp Val Arg Val Leu Gln Thr Glu
    130                 135                 140

Gln Ala Val Lys Glu Tyr Asn Ala Leu Val Ala Gln Gly Val Arg Val
145                 150                 155                 160

Gly Gly Val Phe His Ser Thr Cys
```

<210> 3171
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437120"

<400> 3171
Arg Leu Gln Pro Ser Ser Cys His Gln Val Phe Met Ser Gly Leu Trp
1 5 10 15

Tyr Asn Ser Thr Trp Leu Gln Leu His Gly Thr Ser Leu Arg Asp Ala
20 25 30

Lys Gln Gly Leu Thr Leu Pro Pro Arg Leu Glu Cys Ser Gly Thr Ile
35 40 45

Ile Thr His
50

<210> 3172
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 706; "

<220>
<221> source
<223> /note="Gene Symbol: AAMDC; "

<220>
<221> source

<223> /note="Gene Name:
adipogenesis associated, Mth938 domain containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486080"

<400> 3172
Met Thr Ser Pro Glu Ile Ala Ser Leu Ser Trp Gly Gln Met Lys Val
1 5 10 15

Lys Gly Ser Asn Thr Thr Tyr Lys Asp Cys Lys Val Trp Pro Gly Gly
20 25 30

Ser Arg Thr Trp Asp Trp Arg Glu Thr Gly Thr Glu His Ser Pro Gly
35 40 45

Val Gln Pro Ala Asp Val Lys Glu Val Val Glu Lys Gly Val Gln Thr
50 55 60

Leu Val Ile Gly Arg Gly Met Ser Glu Ala Leu Lys Ala Pro Thr Gln
65 70 75 80

Gln Leu Pro Ser Gly Val His Val Arg Ala Val Val Gln Phe His Leu
85 90 95

Ala Thr Ala Ser Trp His Ile Leu Glu Arg Cys Lys Thr Gly Ala Gly
100 105 110

Leu Ser Ile Lys His Val Cys Glu Leu Ala Met Ser His Leu Ser Thr
115 120 125

Phe Leu Tyr Gln Ile Tyr Asp Ala Ile Ile Leu Lys Met His Leu Tyr
130 135 140

Phe Met Lys
145

<210> 3173
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 707; "

<220>
<221> source
<223> /note="Gene Symbol: ADIRF; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis regulatory
factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q15847; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361083"

<400> 3173
Met Ala Ser Lys Gly Leu Gln Asp Leu Lys Gln Gln Val Glu Gly Thr
1   5   10   15

Ala Gln Glu Ala Val Ser Ala Ala Gly Ala Ala Ala Gln Gln Val Val
            20   25   30

Asp Gln Ala Thr Glu Ala Gly Gln Lys Ala Met Asp Gln Leu Ala Lys
        35   40   45

Thr Thr Gln Glu Thr Ile Asp Lys Thr Ala Asn Gln Ala Ser Asp Thr
    50   55   60

Phe Ser Gly Ile Gly Lys Lys Phe Gly Leu Leu Lys
65   70   75

<210> 3174
<211> 38
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 707; "

<220>
<221> source
<223> /note="Gene Symbol: ADIRF; "

<220>
<221> source
<223> /note="Gene Name:
adipogenesis regulatory
factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394643"

<400> 3174
Met Ala Ser Lys Gly Leu Gln Asp Leu Lys Gln Gln Val Glu Gly Thr
1   5   10   15

Ala Gln Glu Ala Ala Met Asp Gln Leu Ala Lys Thr Thr Gln Glu Thr
            20   25   30

Ile Asp Lys Thr Ala Asn
        35

<210> 3175
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 707; "

<220>
<221> source
<223> /note="Gene Symbol: ADIRF; "

<220>
<221> source
<223> /note="Gene Name:
      adipogenesis regulatory
      factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q15847; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000475582"

<400> 3175
Met Ala Ser Lys Gly Leu Gln Asp Leu Lys Gln Gln Val Glu Gly Thr
1   5   10   15

Ala Gln Glu Ala Val Ser Ala Ala Gly Ala Ala Ala Gln Gln Val Val
            20   25   30

Asp Gln Ala Thr Glu Ala Gly Gln Lys Ala Met Asp Gln Leu Ala Lys
        35   40   45

```
Thr Thr Gln Glu Thr Ile Asp Lys Thr Ala Asn Gln Ala Ser Asp Thr
    50                  55                  60

Phe Ser Gly Ile Gly Lys Lys Phe Gly Leu Leu Lys
65                  70                  75


<210> 3176
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 708; "

<220>
<221> source
<223> /note="Gene Symbol: ADIG; "

<220>
<221> source
<223> /note="Gene Name:
      adipogenin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362445"

<400> 3176
Met Lys Tyr Pro Leu Met Pro Leu Val Asn Asp Leu Thr Phe Ser Phe
1               5                   10                  15

Leu Val Phe Trp Phe Cys Leu Pro Val Gly Leu Leu Leu Leu Leu Ile
            20                  25                  30

Ile Trp Leu Arg Phe Leu Leu Ser Gln Asp Ile Leu Gln Val Arg Arg
        35                  40                  45

Tyr Arg Tyr Asp Ala Asn Ile Leu Thr Ala Ser
    50                  55


<210> 3177
<211> 179
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 708; "
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<220>
<221> source
<223> /note="Gene Symbol: ADIG; "

<220>
<221> source
<223> /note="Gene Name:
adipogenin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416834"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3177
Xaa Trp Phe Cys Leu Pro Val Gly Leu Leu Leu Leu Ile Ile Trp
1 5 10 15

Leu Arg Phe Leu Leu Ser Gln Asp Ser Glu Glu Asn Asp Ser Ser Val
20 25 30

Cys Leu Asp Trp Glu Pro Trp Ser Lys Gly Pro Ala Glu Phe Cys Trp
35 40 45

Lys Gly Thr Leu His Gly Gln Glu Lys Glu Arg Pro Cys Cys Leu Val
50 55 60

Phe Leu Glu Ser Ala Gly Gln Trp Gln Trp Gln Lys Trp Met Gly Glu
65 70 75 80

Thr Cys Gln Gly Gly Lys Arg Thr Leu Ala Thr Val Val Pro Pro Trp
85 90 95

Asn Pro Gln Leu Ile Ser Ser Ser Asp Arg His Val Lys Ala Ser Arg
100 105 110

Gly Pro Ser Pro Ser Pro Ala Ser Gln Met Thr Ser Ser Pro Ala Gly
115 120 125

Ser Arg Ser Ser Leu Gly Gly His Gly Ser Ser Glu Gln Ala His Gly
130 135 140

Glu Lys Leu Ala Asn Leu Ile Gln Arg Gly Leu Lys Ala Gly Leu Gly

145 150 155 160

Arg Arg Val Trp Val His Ile Lys Glu Ala Arg Val Phe Pro Tyr Pro
165 170 175

Gly Asp Pro

<210> 3178
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 708; "

<220>
<221> source
<223> /note="Gene Symbol: ADIG; "

<220>
<221> source
<223> /note="Gene Name:
adipogenin; "

<220>
<221> source
<223> /note="Uniprot ID: Q0VDE8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434385"

<400> 3178
Met Lys Tyr Pro Leu Met Pro Leu Val Asn Asp Leu Thr Phe Ser Phe
1 5 10 15

Leu Val Phe Trp Phe Cys Leu Pro Val Gly Leu Leu Leu Leu Leu Ile
20 25 30

Ile Trp Leu Arg Phe Leu Leu Ser Gln Asp Ser Glu Glu Asn Asp Ser
35 40 45

Ser Val Cys Leu Asp Trp Glu Pro Trp Ser Lys Gly Pro Ala Glu Phe
50 55 60

Cys Trp Lys Gly Thr Leu His Gly Gln Glu Lys Glu Arg Pro Cys Trp
65 70 75 80

<210> 3179
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 708; "

<220>
<221> source
<223> /note="Gene Symbol: ADIG; "

<220>
<221> source
<223> /note="Gene Name:
adipogenin; "

<220>
<221> source
<223> /note="Uniprot ID: Q0VDE8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440331"

<400> 3179
Met Lys Tyr Pro Leu Met Pro Leu Val Asn Asp Leu Thr Phe Ser Phe
1   5   10   15

Leu Val Phe Trp Phe Cys Leu Pro Val Gly Leu Leu Leu Leu Leu Ile
            20   25   30

Ile Trp Leu Arg Phe Leu Leu Ser Gln Asp Ser Glu Glu Asn Asp Ser
        35   40   45

Ser Val Cys Leu Asp Trp Glu Pro Trp Ser Lys Gly Pro Ala Glu Phe
    50   55   60

Cys Trp Lys Gly Thr Leu His Gly Gln Glu Lys Glu Arg Pro Cys Trp
65   70   75   80

<210> 3180
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 709; "

<220>
<221> source
<223> /note="Gene Symbol: ADIPOR1; "

<220>
<221> source
<223> /note="Gene Name:
adiponectin receptor 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q96A54; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000341785"

<400> 3180
Met Ser Ser His Lys Gly Ser Val Val Ala Gln Gly Asn Gly Ala Pro
1 5 10 15

Ala Ser Asn Arg Glu Ala Asp Thr Val Glu Leu Ala Glu Leu Gly Pro
20 25 30

Leu Leu Glu Glu Lys Gly Lys Arg Val Ile Ala Asn Pro Pro Lys Ala
35 40 45

Glu Glu Glu Gln Thr Cys Pro Val Pro Gln Glu Glu Glu Glu Glu Val
50 55 60

Arg Val Leu Thr Leu Pro Leu Gln Ala His His Ala Met Glu Lys Met
65 70 75 80

Glu Glu Phe Val Tyr Lys Val Trp Glu Gly Arg Trp Arg Val Ile Pro
85 90 95

Tyr Asp Val Leu Pro Asp Trp Leu Lys Asp Asn Asp Tyr Leu Leu His
100 105 110

Gly His Arg Pro Pro Met Pro Ser Phe Arg Ala Cys Phe Lys Ser Ile
115 120 125

Phe Arg Ile His Thr Glu Thr Gly Asn Ile Trp Thr His Leu Leu Gly
130 135 140

Phe Val Leu Phe Leu Phe Leu Gly Ile Leu Thr Met Leu Arg Pro Asn
145 150 155 160

Met Tyr Phe Met Ala Pro Leu Gln Glu Lys Val Val Phe Gly Met Phe
165 170 175

Phe Leu Gly Ala Val Leu Cys Leu Ser Phe Ser Trp Leu Phe His Thr
180 185 190

Val Tyr Cys His Ser Glu Lys Val Ser Arg Thr Phe Ser Lys Leu Asp
195 200 205

Tyr Ser Gly Ile Ala Leu Leu Ile Met Gly Ser Phe Val Pro Trp Leu
210 215 220

Tyr Tyr Ser Phe Tyr Cys Ser Pro Gln Pro Arg Leu Ile Tyr Leu Ser
225 230 235 240

Ile Val Cys Val Leu Gly Ile Ser Ala Ile Ile Val Ala Gln Trp Asp
245 250 255

Arg Phe Ala Thr Pro Lys His Arg Gln Thr Arg Ala Gly Val Phe Leu
260 265 270

Gly Leu Gly Leu Ser Gly Val Val Pro Thr Met His Phe Thr Ile Ala
275 280 285

Glu Gly Phe Val Lys Ala Thr Thr Val Gly Gln Met Gly Trp Phe Phe
290 295 300

Leu Met Ala Val Met Tyr Ile Thr Gly Ala Gly Leu Tyr Ala Ala Arg
305 310 315 320

Ile Pro Glu Arg Phe Phe Pro Gly Lys Phe Asp Ile Trp Phe Gln Ser
325 330 335

His Gln Ile Phe His Val Leu Val Val Ala Ala Ala Phe Val His Phe
340 345 350

Tyr Gly Val Ser Asn Leu Gln Glu Phe Arg Tyr Gly Leu Glu Gly Gly
355 360 365

Cys Thr Asp Asp Thr Leu Leu
370 375

<210> 3181
<211> 171
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 709; "

<220>
<221> source
<223> /note="Gene Symbol: ADIPOR1; "

<220>
<221> source
<223> /note="Gene Name:
adiponectin receptor 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356223"

<400> 3181

```
Met Ser Ser His Lys Gly Ser Val Val Ala Gln Gly Asn Gly Ala Pro
1               5                  10                  15


Ala Ser Asn Arg Glu Ala Asp Thr Val Glu Leu Ala Glu Leu Gly Pro
            20                  25                  30


Leu Leu Glu Glu Lys Gly Lys Arg Val Ile Ala Asn Pro Pro Lys Ala
        35                  40                  45


Glu Glu Glu Gln Thr Cys Pro Val Pro Gln Glu Glu Glu Glu Glu Val
    50                  55                  60


Arg Val Leu Thr Leu Pro Leu Gln Ala His His Ala Met Glu Lys Met
65                  70                  75                  80


Glu Glu Phe Val Tyr Lys Val Trp Glu Gly Arg Trp Arg Val Ile Pro
                85                  90                  95


Tyr Asp Val Leu Pro Asp Trp Leu Lys Asp Asn Asp Tyr Leu Leu His
            100                 105                 110


Gly His Arg Pro Pro Met Pro Ser Phe Arg Ala Cys Phe Lys Ser Ile
        115                 120                 125


Phe Arg Ile His Thr Glu Thr Gly Asn Ile Trp Thr His Leu Leu Ala
    130                 135                 140
```

Thr Ala His Leu Pro Leu His Arg Leu Cys Pro Gly His Phe Cys His
145 150 155 160

His Cys Gly Ala Val Gly Pro Val Cys His Ser
165 170

<210> 3182
<211> 205
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 709; "

<220>
<221> source
<223> /note="Gene Symbol: ADIPOR1; "

<220>
<221> source
<223> /note="Gene Name:
adiponectin receptor 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392946"

<400> 3182
Met Ser Ser His Lys Gly Ser Val Val Ala Gln Gly Asn Gly Ala Pro
1 5 10 15

Ala Ser Asn Arg Glu Ala Asp Thr Val Glu Leu Ala Glu Leu Gly Pro
20 25 30

Leu Leu Glu Glu Lys Gly Lys Arg Val Ile Ala Asn Pro Pro Lys Ala
35 40 45

Glu Glu Glu Gln Thr Cys Pro Val Pro Gln Glu Glu Glu Glu Glu Val
50 55 60

Arg Val Leu Thr Leu Pro Leu Gln Ala His His Ala Met Glu Lys Met
65 70 75 80

Glu Glu Phe Val Tyr Lys Val Trp Glu Gly Arg Trp Arg Val Ile Pro
85 90 95

```
Tyr Asp Val Leu Pro Asp Trp Leu Lys Asp Asn Asp Tyr Leu Leu His
            100                 105                 110

Gly His Arg Pro Pro Met Pro Ser Phe Arg Ala Cys Phe Lys Ser Ile
        115                 120                 125

Phe Arg Ile His Thr Glu Thr Gly Asn Ile Trp Thr His Leu Leu Gly
    130                 135                 140

Phe Val Leu Phe Leu Phe Leu Gly Ile Leu Thr Met Leu Arg Pro Asn
145                 150                 155                 160

Met Tyr Phe Met Ala Pro Leu Gln Glu Lys Val Val Phe Gly Met Phe
                165                 170                 175

Phe Leu Gly Ala Val Leu Cys Leu Ser Phe Ser Trp Leu Phe His Thr
            180                 185                 190

Val Tyr Cys His Ser Glu Lys Val Ser Arg Thr Phe Ser
        195                 200                 205


<210> 3183
<211> 266
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 709; "

<220>
<221> source
<223> /note="Gene Symbol: ADIPOR1; "

<220>
<221> source
<223> /note="Gene Name:
      adiponectin receptor 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402178"

<400> 3183
Met Ser Ser His Lys Gly Ser Val Val Ala Gln Gly Asn Gly Ala Pro
1               5                   10                  15

Ala Ser Asn Arg Glu Ala Asp Thr Val Glu Leu Ala Glu Leu Gly Pro
            20                  25                  30
```

```
Leu Leu Glu Glu Lys Gly Lys Arg Val Ile Ala Asn Pro Pro Lys Ala
        35                  40                  45

Glu Glu Glu Gln Thr Cys Pro Val Pro Gln Glu Glu Glu Glu Glu Val
    50                  55                  60

Arg Val Leu Thr Leu Pro Leu Gln Ala His His Ala Met Glu Lys Met
65                  70                  75                  80

Glu Glu Phe Val Tyr Lys Val Trp Glu Gly Arg Trp Arg Val Ile Pro
                85                  90                  95

Tyr Asp Val Leu Pro Asp Trp Leu Lys Asp Asn Asp Tyr Leu Leu His
            100                 105                 110

Gly His Arg Pro Pro Met Pro Ser Phe Arg Ala Cys Phe Lys Ser Ile
        115                 120                 125

Phe Arg Ile His Thr Glu Thr Gly Asn Ile Trp Thr His Leu Leu Gly
    130                 135                 140

Phe Val Leu Phe Leu Phe Leu Gly Ile Leu Thr Met Leu Arg Pro Asn
145                 150                 155                 160

Met Tyr Phe Met Ala Pro Leu Gln Glu Lys Val Val Phe Gly Met Phe
                165                 170                 175

Phe Leu Gly Ala Val Leu Cys Leu Ser Phe Ser Trp Leu Phe His Thr
            180                 185                 190

Val Tyr Cys His Ser Glu Lys Val Ser Arg Thr Phe Ser Lys Leu Asp
        195                 200                 205

Tyr Ser Gly Ile Ala Leu Leu Ile Met Gly Ser Phe Val Pro Trp Leu
    210                 215                 220

Tyr Tyr Ser Phe Tyr Cys Ser Pro Gln Pro Arg Leu Ile Tyr Leu Ser
225                 230                 235                 240

Ile Val Cys Val Leu Gly Ile Ser Ala Ile Ile Val Ala Gln Trp Asp
                245                 250                 255
```

Arg Phe Ala Thr Pro Lys His Arg Gln Thr
260 265

<210> 3184
<211> 386
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 710; "

<220>
<221> source
<223> /note="Gene Symbol: ADIPOR2; "

<220>
<221> source
<223> /note="Gene Name:
adiponectin receptor 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86V24; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349616"

<400> 3184
Met Asn Glu Pro Thr Glu Asn Arg Leu Gly Cys Ser Arg Thr Pro Glu
1 5 10 15

Pro Asp Ile Arg Leu Arg Lys Gly His Gln Leu Asp Gly Thr Arg Arg
20 25 30

Gly Asp Asn Asp Ser His Gln Gly Asp Leu Glu Pro Ile Leu Glu Ala
35 40 45

Ser Val Leu Ser Ser His His Lys Lys Ser Ser Glu Glu His Glu Tyr
50 55 60

Ser Asp Glu Ala Pro Gln Glu Asp Glu Gly Phe Met Gly Met Ser Pro
65 70 75 80

Leu Leu Gln Ala His His Ala Met Glu Lys Met Glu Glu Phe Val Cys
85 90 95

Lys Val Trp Glu Gly Arg Trp Arg Val Ile Pro His Asp Val Leu Pro

```
            100                 105                 110

Asp Trp Leu Lys Asp Asn Asp Phe Leu Leu His Gly His Arg Pro Pro
        115                 120                 125

Met Pro Ser Phe Arg Ala Cys Phe Lys Ser Ile Phe Arg Ile His Thr
    130                 135                 140

Glu Thr Gly Asn Ile Trp Thr His Leu Leu Gly Cys Val Phe Phe Leu
145                 150                 155                 160

Cys Leu Gly Ile Phe Tyr Met Phe Arg Pro Asn Ile Ser Phe Val Ala
                165                 170                 175

Pro Leu Gln Glu Lys Val Val Phe Gly Leu Phe Phe Leu Gly Ala Ile
            180                 185                 190

Leu Cys Leu Ser Phe Ser Trp Leu Phe His Thr Val Tyr Cys His Ser
        195                 200                 205

Glu Gly Val Ser Arg Leu Phe Ser Lys Leu Asp Tyr Ser Gly Ile Ala
    210                 215                 220

Leu Leu Ile Met Gly Ser Phe Val Pro Trp Leu Tyr Tyr Ser Phe Tyr
225                 230                 235                 240

Cys Asn Pro Gln Pro Cys Phe Ile Tyr Leu Ile Val Ile Cys Val Leu
                245                 250                 255

Gly Ile Ala Ala Ile Ile Val Ser Gln Trp Asp Met Phe Ala Thr Pro
            260                 265                 270

Gln Tyr Arg Gly Val Arg Ala Gly Val Phe Leu Gly Leu Gly Leu Ser
        275                 280                 285

Gly Ile Ile Pro Thr Leu His Tyr Val Ile Ser Glu Gly Phe Leu Lys
    290                 295                 300

Ala Ala Thr Ile Gly Gln Ile Gly Trp Leu Met Leu Met Ala Ser Leu
305                 310                 315                 320

Tyr Ile Thr Gly Ala Ala Leu Tyr Ala Ala Arg Ile Pro Glu Arg Phe
                325                 330                 335
```

```
Phe Pro Gly Lys Cys Asp Ile Trp Phe His Ser His Gln Leu Phe His
            340                 345                 350

Ile Phe Val Val Ala Gly Ala Phe Val His Phe His Gly Val Ser Asn
        355                 360                 365

Leu Gln Glu Phe Arg Phe Met Ile Gly Gly Gly Cys Ser Glu Glu Asp
    370                 375                 380

Ala Leu
385
```

<210> 3185
<211> 244
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 711; "

<220>
<221> source
<223> /note="Gene Symbol: ADIPOQ; "

<220>
<221> source
<223> /note="Gene Name:
adiponectin, C1Q and collagen domain containing; "

<220>
<221> source
<223> /note="Uniprot ID: Q15848; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000320709"

<400> 3185

```
Met Leu Leu Leu Gly Ala Val Leu Leu Leu Leu Ala Leu Pro Gly His
1               5                   10                  15

Asp Gln Glu Thr Thr Thr Gln Gly Pro Gly Val Leu Leu Pro Leu Pro
            20                  25                  30

Lys Gly Ala Cys Thr Gly Trp Met Ala Gly Ile Pro Gly His Pro Gly
        35                  40                  45
```

```
His Asn Gly Ala Pro Gly Arg Asp Gly Arg Asp Gly Thr Pro Gly Glu
    50                  55                  60

Lys Gly Glu Lys Gly Asp Pro Gly Leu Ile Gly Pro Lys Gly Asp Ile
65                  70                  75                  80

Gly Glu Thr Gly Val Pro Gly Ala Glu Gly Pro Arg Gly Phe Pro Gly
                85                  90                  95

Ile Gln Gly Arg Lys Gly Glu Pro Gly Glu Gly Ala Tyr Val Tyr Arg
            100                 105                 110

Ser Ala Phe Ser Val Gly Leu Glu Thr Tyr Val Thr Ile Pro Asn Met
        115                 120                 125

Pro Ile Arg Phe Thr Lys Ile Phe Tyr Asn Gln Gln Asn His Tyr Asp
    130                 135                 140

Gly Ser Thr Gly Lys Phe His Cys Asn Ile Pro Gly Leu Tyr Tyr Phe
145                 150                 155                 160

Ala Tyr His Ile Thr Val Tyr Met Lys Asp Val Lys Val Ser Leu Phe
                165                 170                 175

Lys Lys Asp Lys Ala Met Leu Phe Thr Tyr Asp Gln Tyr Gln Glu Asn
            180                 185                 190

Asn Val Asp Gln Ala Ser Gly Ser Val Leu Leu His Leu Glu Val Gly
        195                 200                 205

Asp Gln Val Trp Leu Gln Val Tyr Gly Glu Gly Glu Arg Asn Gly Leu
    210                 215                 220

Tyr Ala Asp Asn Asp Asn Asp Ser Thr Phe Thr Gly Phe Leu Leu Tyr
225                 230                 235                 240

His Asp Thr Asn
```

<210> 3186
<211> 244
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 711; "

<220>
<221> source
<223> /note="Gene Symbol: ADIPOQ; "

<220>
<221> source
<223> /note="Gene Name:
adiponectin, C1Q and collagen domain containing; "

<220>
<221> source
<223> /note="Uniprot ID: Q15848; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000389814"

<400> 3186
Met Leu Leu Leu Gly Ala Val Leu Leu Leu Leu Ala Leu Pro Gly His
1   5   10   15

Asp Gln Glu Thr Thr Thr Gln Gly Pro Gly Val Leu Leu Pro Leu Pro
            20   25   30

Lys Gly Ala Cys Thr Gly Trp Met Ala Gly Ile Pro Gly His Pro Gly
        35   40   45

His Asn Gly Ala Pro Gly Arg Asp Gly Arg Asp Gly Thr Pro Gly Glu
    50   55   60

Lys Gly Glu Lys Gly Asp Pro Gly Leu Ile Gly Pro Lys Gly Asp Ile
65   70   75   80

Gly Glu Thr Gly Val Pro Gly Ala Glu Gly Pro Arg Gly Phe Pro Gly
                85   90   95

Ile Gln Gly Arg Lys Gly Glu Pro Gly Glu Gly Ala Tyr Val Tyr Arg
            100   105   110

Ser Ala Phe Ser Val Gly Leu Glu Thr Tyr Val Thr Ile Pro Asn Met
        115   120   125

Pro Ile Arg Phe Thr Lys Ile Phe Tyr Asn Gln Gln Asn His Tyr Asp
    130   135   140

```
Gly Ser Thr Gly Lys Phe His Cys Asn Ile Pro Gly Leu Tyr Tyr Phe
145                 150                 155                 160

Ala Tyr His Ile Thr Val Tyr Met Lys Asp Val Lys Val Ser Leu Phe
                165                 170                 175

Lys Lys Asp Lys Ala Met Leu Phe Thr Tyr Asp Gln Tyr Gln Glu Asn
            180                 185                 190

Asn Val Asp Gln Ala Ser Gly Ser Val Leu Leu His Leu Glu Val Gly
        195                 200                 205

Asp Gln Val Trp Leu Gln Val Tyr Gly Glu Gly Glu Arg Asn Gly Leu
    210                 215                 220

Tyr Ala Asp Asn Asp Asn Asp Ser Thr Phe Thr Gly Phe Leu Leu Tyr
225                 230                 235                 240

His Asp Thr Asn
```

<210> 3187
<211> 1131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 712; "

<220>
<221> source
<223> /note="Gene Symbol: ADNP2; "

<220>
<221> source
<223> /note="Gene Name:
ADNP homeobox 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q6IQ32; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000262198"

<400> 3187

```
Met Phe Gln Ile Pro Val Glu Asn Leu Asp Asn Ile Arg Lys Val Arg
```

```
1               5                   10                  15

Lys Lys Val Lys Gly Ile Leu Val Asp Ile Gly Leu Asp Ser Cys Lys
            20                  25                  30

Glu Leu Leu Lys Asp Leu Lys Gly Phe Asp Pro Gly Glu Lys Tyr Phe
        35                  40                  45

His Asn Thr Ser Trp Gly Asp Val Ser Leu Trp Glu Pro Ser Gly Lys
    50                  55                  60

Lys Val Arg Tyr Arg Thr Lys Pro Tyr Cys Cys Gly Leu Cys Lys Tyr
65                  70                  75                  80

Ser Thr Lys Val Leu Thr Ser Phe Lys Asn His Leu His Arg Tyr His
                85                  90                  95

Glu Asp Glu Ile Asp Gln Glu Leu Val Ile Pro Cys Pro Asn Cys Val
            100                 105                 110

Phe Ala Ser Gln Pro Lys Val Val Gly Arg His Phe Arg Met Phe His
        115                 120                 125

Ala Pro Val Arg Lys Val Gln Asn Tyr Thr Val Asn Ile Leu Gly Glu
    130                 135                 140

Thr Lys Ser Ser Arg Ser Asp Val Ile Ser Phe Thr Cys Leu Lys Cys
145                 150                 155                 160

Asn Phe Ser Asn Thr Leu Tyr Tyr Ser Met Lys Lys His Val Leu Val
                165                 170                 175

Ala His Phe His Tyr Leu Ile Asn Ser Tyr Phe Gly Leu Arg Thr Glu
            180                 185                 190

Glu Met Gly Glu Gln Pro Lys Thr Asn Asp Thr Val Ser Ile Glu Lys
        195                 200                 205

Ile Pro Pro Pro Asp Lys Tyr Tyr Cys Lys Lys Cys Asn Ala Asn Ala
    210                 215                 220

Ser Ser Gln Asp Ala Leu Met Tyr His Ile Leu Thr Ser Asp Ile His
225                 230                 235                 240
```

```
Arg Asp Leu Glu Asn Lys Leu Arg Ser Val Ile Ser Glu His Ile Lys
                245                 250                 255

Arg Thr Gly Leu Leu Lys Gln Thr His Ile Ala Pro Lys Pro Ala Ala
            260                 265                 270

His Leu Ala Ala Pro Ala Asn Gly Ser Ala Pro Ser Ala Pro Ala Gln
        275                 280                 285

Pro Pro Cys Phe His Leu Ala Leu Pro Gln Asn Ser Pro Ser Pro Ala
    290                 295                 300

Ala Gly Gln Pro Val Thr Val Ala Gln Gly Ala Pro Gly Ser Leu Thr
305                 310                 315                 320

His Ser Pro Pro Ala Ala Gly Gln Ser His Met Thr Leu Val Ser Ser
                325                 330                 335

Pro Leu Pro Val Gly Gln Asn Ser Leu Thr Leu Gln Pro Pro Ala Pro
            340                 345                 350

Gln Pro Val Phe Leu Ser His Gly Val Pro Leu His Gln Ser Val Asn
        355                 360                 365

Pro Pro Val Leu Pro Leu Ser Gln Pro Val Gly Pro Val Asn Lys Ser
    370                 375                 380

Val Gly Thr Ser Val Leu Pro Ile Asn Gln Thr Val Arg Pro Gly Val
385                 390                 395                 400

Leu Pro Leu Thr Gln Pro Val Gly Pro Ile Asn Arg Pro Val Gly Pro
                405                 410                 415

Gly Val Leu Pro Val Ser Pro Ser Val Thr Pro Gly Val Leu Gln Ala
            420                 425                 430

Val Ser Pro Gly Val Leu Ser Val Ser Arg Ala Val Pro Ser Gly Val
        435                 440                 445

Leu Pro Ala Gly Gln Met Thr Pro Ala Gly Gln Met Thr Pro Ala Gly
    450                 455                 460
```

```
Val Ile Pro Gly Gln Thr Ala Thr Ser Gly Val Leu Pro Thr Gly Gln
465                 470                 475                 480

Met Val Gln Ser Gly Val Leu Pro Val Gly Gln Thr Ala Pro Ser Arg
                485                 490                 495

Val Leu Pro Pro Gly Gln Thr Ala Pro Leu Arg Val Ile Ser Ala Gly
            500                 505                 510

Gln Val Val Pro Ser Gly Leu Leu Ser Pro Asn Gln Thr Val Ser Ser
        515                 520                 525

Ser Ala Val Val Pro Val Asn Gln Gly Val Asn Ser Gly Val Leu Gln
    530                 535                 540

Leu Ser Gln Pro Val Val Ser Gly Val Leu Pro Val Gly Gln Pro Val
545                 550                 555                 560

Arg Pro Gly Val Leu Gln Leu Asn Gln Thr Val Gly Thr Asn Ile Leu
                565                 570                 575

Pro Val Asn Gln Pro Val Arg Pro Gly Ala Ser Gln Asn Thr Thr Phe
            580                 585                 590

Leu Thr Ser Gly Ser Ile Leu Arg Gln Leu Ile Pro Thr Gly Lys Gln
        595                 600                 605

Val Asn Gly Ile Pro Thr Tyr Thr Leu Ala Pro Val Ser Val Thr Leu
    610                 615                 620

Pro Val Pro Pro Gly Gly Leu Ala Thr Val Ala Pro Pro Gln Met Pro
625                 630                 635                 640

Ile Gln Leu Leu Pro Ser Gly Ala Ala Ala Pro Met Ala Gly Ser Met
                645                 650                 655

Pro Gly Met Pro Ser Pro Pro Val Leu Val Asn Ala Ala Gln Ser Val
            660                 665                 670

Phe Val Gln Ala Ser Ser Ser Ala Ala Asp Thr Asn Gln Val Leu Lys
        675                 680                 685
```

```
Gln Ala Lys Gln Trp Lys Thr Cys Pro Val Cys Asn Glu Leu Phe Pro
    690                 695                 700

Ser Asn Val Tyr Gln Val His Met Glu Val Ala His Lys His Ser Glu
705                 710                 715                 720

Ser Lys Ser Gly Glu Lys Leu Glu Pro Glu Lys Leu Ala Ala Cys Ala
                725                 730                 735

Pro Phe Leu Lys Trp Met Arg Glu Lys Thr Val Arg Cys Leu Ser Cys
            740                 745                 750

Lys Cys Leu Val Ser Glu Glu Glu Leu Ile His His Leu Leu Met His
        755                 760                 765

Gly Leu Gly Cys Leu Phe Cys Pro Cys Thr Phe His Asp Ile Lys Gly
    770                 775                 780

Leu Ser Glu His Ser Arg Asn Arg His Leu Gly Lys Lys Lys Leu Pro
785                 790                 795                 800

Met Asp Tyr Ser Asn Arg Gly Phe Gln Leu Asp Val Asp Ala Asn Gly
                805                 810                 815

Asn Leu Leu Phe Pro His Leu Asp Phe Ile Thr Ile Leu Pro Lys Glu
            820                 825                 830

Lys Leu Gly Glu Arg Glu Val Tyr Leu Ala Ile Leu Ala Gly Ile His
        835                 840                 845

Ser Lys Ser Leu Val Pro Val Tyr Val Lys Val Arg Pro Gln Ala Glu
    850                 855                 860

Gly Thr Pro Gly Ser Thr Gly Lys Arg Val Ser Thr Cys Pro Phe Cys
865                 870                 875                 880

Phe Gly Pro Phe Val Thr Thr Glu Ala Tyr Glu Leu His Leu Lys Glu
                885                 890                 895

Arg His His Ile Met Pro Thr Val His Thr Val Leu Lys Ser Pro Ala
            900                 905                 910

Phe Lys Cys Ile His Cys Cys Gly Val Tyr Thr Gly Asn Met Thr Leu
```

915 920 925

Ala Ala Ile Ala Val His Leu Val Arg Cys Arg Ser Ala Pro Lys Asp
930 935 940

Ser Ser Ser Asp Leu Gln Ala Gln Pro Gly Phe Ile His Asn Ser Glu
945 950 955 960

Leu Leu Leu Val Ser Gly Glu Val Met His Asp Ser Ser Phe Ser Val
965 970 975

Lys Arg Lys Leu Pro Asp Gly His Leu Gly Ala Glu Asp Gln Arg His
980 985 990

Gly Glu Glu Gln Pro Pro Ile Leu Asn Ala Asp Ala Ala Pro Gly Pro
995 1000 1005

Glu Lys Val Thr Ser Val Val Pro Phe Lys Arg Gln Arg Asn Glu
1010 1015 1020

Ser Arg Thr Glu Gly Pro Ile Val Lys Asp Glu Ala Leu Gln Ile
1025 1030 1035

Leu Ala Leu Asp Pro Lys Lys Tyr Glu Gly Arg Ser Tyr Glu Glu
1040 1045 1050

Lys Lys Gln Phe Leu Lys Asp Tyr Phe His Lys Lys Pro Tyr Pro
1055 1060 1065

Ser Lys Lys Glu Ile Glu Leu Leu Ser Ser Leu Phe Trp Val Trp
1070 1075 1080

Lys Ile Asp Val Ala Ser Phe Phe Gly Lys Arg Arg Tyr Ile Cys
1085 1090 1095

Met Lys Ala Ile Lys Asn His Lys Pro Ser Val Leu Leu Gly Phe
1100 1105 1110

Asp Met Ser Glu Leu Lys Asn Val Lys His Arg Leu Asn Phe Glu
1115 1120 1125

Tyr Glu Pro

1130

<210> 3188
<211> 171
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 712; "

<220>
<221> source
<223> /note="Gene Symbol: ADNP2; "

<220>
<221> source
<223> /note="Gene Name:
ADNP homeobox 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453275"

<400> 3188
Met Phe Gln Ile Pro Val Glu Asn Leu Asp Asn Ile Arg Lys Val Arg
1 5 10 15

Lys Lys Val Lys Gly Ile Leu Val Asp Ile Gly Leu Asp Ser Cys Lys
20 25 30

Glu Leu Leu Lys Asp Leu Lys Gly Phe Asp Pro Gly Glu Lys Tyr Phe
35 40 45

His Asn Thr Ser Trp Gly Asp Val Ser Leu Trp Glu Pro Ser Gly Lys
50 55 60

Lys Val Arg Tyr Arg Thr Lys Pro Tyr Cys Cys Gly Leu Cys Lys Tyr
65 70 75 80

Ser Thr Lys Val Leu Thr Ser Phe Lys Asn His Leu His Arg Tyr His
85 90 95

Glu Asp Glu Ile Asp Gln Glu Leu Val Ile Pro Cys Pro Asn Cys Val
100 105 110

Phe Ala Ser Gln Pro Lys Val Val Gly Arg His Phe Arg Met Phe His
115 120 125

```
Ala Pro Val Arg Lys Val Gln Asn Tyr Thr Val Asn Ile Leu Gly Glu
    130                 135                 140

Thr Lys Ser Ser Arg Ser Asp Val Ile Ser Phe Thr Cys Leu Lys Cys
145                 150                 155                 160

Asn Phe Ser Asn Thr Leu Tyr Tyr Ser Met Lys
                165                 170


<210> 3189
<211> 229
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADNP2; "

<220>
<221> source
<223> /note="Gene Name:
      ADNP homeobox 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453418"

<400> 3189
Met Phe Gln Ile Pro Val Glu Asn Leu Asp Asn Ile Arg Lys Asp Leu
1               5                   10                  15

Lys Gly Phe Asp Pro Gly Glu Lys Tyr Phe His Asn Thr Ser Trp Gly
            20                  25                  30

Asp Val Ser Leu Trp Glu Pro Ser Gly Lys Lys Val Arg Tyr Arg Thr
        35                  40                  45

Lys Pro Tyr Cys Cys Gly Leu Cys Lys Tyr Ser Thr Lys Val Leu Thr
    50                  55                  60

Ser Phe Lys Asn His Leu His Arg Tyr His Glu Asp Glu Ile Asp Gln
65                  70                  75                  80

Glu Leu Val Ile Pro Cys Pro Asn Cys Val Phe Ala Ser Gln Pro Lys
```

```
                85                  90                  95

Val Val Gly Arg His Phe Arg Met Phe His Ala Pro Val Arg Lys Val
            100                 105                 110

Gln Asn Tyr Thr Val Asn Ile Leu Gly Glu Thr Lys Ser Ser Arg Ser
        115                 120                 125

Asp Val Ile Ser Phe Thr Cys Leu Lys Cys Asn Phe Ser Asn Thr Leu
    130                 135                 140

Tyr Tyr Ser Met Lys Lys His Val Leu Val Ala His Phe His Tyr Leu
145                 150                 155                 160

Ile Asn Ser Tyr Phe Gly Leu Arg Thr Glu Glu Met Gly Glu Gln Pro
                165                 170                 175

Lys Thr Asn Asp Thr Val Ser Ile Glu Lys Ile Pro Pro Pro Asp Lys
            180                 185                 190

Tyr Tyr Cys Lys Lys Cys Asn Ala Asn Ala Ser Ser Gln Asp Ala Leu
        195                 200                 205

Met Tyr His Ile Leu Thr Ser Asp Ile His Arg Asp Leu Glu Asn Lys
    210                 215                 220

Leu Arg Ser Val Ile
225
```

<210> 3190
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 712; "

<220>
<221> source
<223> /note="Gene Symbol: ADNP2; "

<220>
<221> source
<223> /note="Gene Name:
ADNP homeobox 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467370"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3190
Xaa Ile Gly Leu Asp Ser Cys Lys Glu Leu Leu Lys Pro Asp Arg Lys
1 5 10 15

Ser Gly Ala Leu Arg Cys Val Arg Ala Phe
20 25

<210> 3191
<211> 82
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 712; "

<220>
<221> source
<223> /note="Gene Symbol: ADNP2; "

<220>
<221> source
<223> /note="Gene Name:
ADNP homeobox 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468397"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3191
Xaa Leu Val Asp Ile Gly Leu Asp Ser Cys Lys Glu Leu Leu Lys Asp
1 5 10 15

Leu Lys Gly Phe Asp Pro Gly Glu Lys Tyr Phe His Asn Thr Ser Trp
20 25 30

Gly Asp Val Ser Leu Trp Glu Pro Ser Gly Lys Lys Val Leu Leu Ala

```
        35                  40                  45

Pro Ser Ser Val Ser Asp Ser Ala His Pro Arg Leu Asp Leu Ala Val
    50                  55                  60

Pro Ser His Gln Leu Leu Trp Ser Lys Ser Cys Trp Pro Trp Glu Phe
65                  70                  75                  80

Gly Leu
```

<210> 3192
<211> 496
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BRR6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312250"

<400> 3192

```
Met Ala Leu Trp Arg Gly Ser Ala Tyr Ala Gly Phe Leu Ala Leu Ala
1               5                   10                  15

Val Gly Cys Val Phe Leu Leu Glu Pro Glu Leu Pro Gly Ser Ala Leu
            20                  25                  30

Arg Ser Leu Trp Ser Ser Leu Cys Leu Gly Pro Ala Pro Ala Pro Pro
        35                  40                  45

Gly Pro Val Ser Pro Glu Gly Arg Leu Ala Ala Ala Trp Asp Ala Leu
    50                  55                  60
```

```
Ile Val Arg Pro Val Arg Arg Trp Arg Arg Val Ala Val Gly Val Asn
65                  70                  75                  80

Ala Cys Val Asp Val Val Leu Ser Gly Val Lys Leu Leu Gln Ala Leu
                85                  90                  95

Gly Leu Ser Pro Gly Asn Gly Lys Asp His Ser Ile Leu His Ser Arg
            100                 105                 110

Asn Asp Leu Glu Glu Ala Phe Ile His Phe Met Gly Lys Gly Ala Ala
        115                 120                 125

Ala Glu Arg Phe Phe Ser Asp Lys Glu Thr Phe His Asp Ile Ala Gln
    130                 135                 140

Val Ala Ser Glu Phe Pro Gly Ala Gln His Tyr Val Gly Gly Asn Ala
145                 150                 155                 160

Ala Leu Ile Gly Gln Lys Phe Ala Ala Asn Ser Asp Leu Lys Val Leu
                165                 170                 175

Leu Cys Gly Pro Val Gly Pro Lys Leu His Glu Leu Leu Asp Asp Asn
            180                 185                 190

Val Phe Val Pro Pro Glu Ser Leu Gln Glu Val Asp Glu Phe His Leu
        195                 200                 205

Ile Leu Glu Tyr Gln Ala Gly Glu Glu Trp Gly Gln Leu Lys Ala Pro
    210                 215                 220

His Ala Asn Arg Phe Ile Phe Ser His Asp Leu Ser Asn Gly Ala Met
225                 230                 235                 240

Asn Met Leu Glu Val Phe Val Ser Ser Leu Glu Glu Phe Gln Pro Asp
                245                 250                 255

Leu Val Val Leu Ser Gly Leu His Met Met Glu Gly Gln Ser Lys Glu
            260                 265                 270

Leu Gln Arg Lys Arg Leu Leu Glu Val Val Thr Ser Ile Ser Asp Ile
        275                 280                 285
```

```
Pro Thr Gly Ile Pro Val His Leu Glu Leu Ala Ser Met Thr Asn Arg
    290                 295                 300

Glu Leu Met Ser Ser Ile Val His Gln Val Phe Pro Ala Val Thr Ser
305                 310                 315                 320

Leu Gly Leu Asn Glu Gln Glu Leu Leu Phe Leu Thr Gln Ser Ala Ser
                325                 330                 335

Gly Pro His Ser Ser Leu Ser Ser Trp Asn Gly Val Pro Asp Val Gly
            340                 345                 350

Met Val Ser Asp Ile Leu Phe Trp Ile Leu Lys Glu His Gly Arg Ser
        355                 360                 365

Lys Ser Arg Ala Ser Asp Leu Thr Arg Ile His Phe His Thr Leu Val
    370                 375                 380

Tyr His Ile Leu Ala Thr Val Asp Gly His Trp Ala Asn Gln Leu Ala
385                 390                 395                 400

Ala Val Ala Ala Gly Ala Arg Val Ala Gly Thr Gln Ala Cys Ala Thr
                405                 410                 415

Glu Thr Ile Asp Thr Ser Arg Val Ser Leu Arg Ala Pro Gln Glu Phe
            420                 425                 430

Met Thr Ser His Ser Glu Ala Gly Ser Arg Ile Val Leu Asn Pro Asn
        435                 440                 445

Lys Pro Val Val Glu Trp His Arg Glu Gly Ile Ser Phe His Phe Thr
    450                 455                 460

Pro Val Leu Val Cys Lys Asp Pro Ile Arg Thr Val Gly Leu Gly Asp
465                 470                 475                 480

Ala Ile Ser Ala Glu Gly Leu Phe Tyr Ser Glu Val His Pro His Tyr
                485                 490                 495
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<210> 3193
<211> 222
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BRR6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397694"

<400> 3193

```
Met Ala Ala Ser Cys Arg Val Val Thr Ser Ile Ser Asp Ile Pro Thr
1               5                  10                  15

Gly Ile Pro Val His Leu Glu Leu Ala Ser Met Thr Asn Arg Glu Leu
            20                  25                  30

Met Ser Ser Ile Val His Gln Val Phe Pro Ala Val Thr Ser Leu Gly
        35                  40                  45

Leu Asn Glu Gln Glu Leu Leu Phe Leu Thr Gln Ser Ala Ser Gly Pro
    50                  55                  60

His Ser Ser Leu Ser Ser Trp Asn Gly Val Pro Asp Val Gly Met Val
65                  70                  75                  80

Ser Asp Ile Leu Phe Trp Ile Leu Lys Glu His Gly Arg Ser Lys Ser
                85                  90                  95

Arg Ala Ser Asp Leu Thr Arg Ile His Phe His Thr Leu Val Tyr His
            100                 105                 110

Ile Leu Ala Thr Val Asp Gly His Trp Ala Asn Gln Leu Ala Ala Val
        115                 120                 125

Ala Ala Gly Ala Arg Val Ala Gly Thr Gln Ala Cys Ala Thr Glu Thr
    130                 135                 140
```

```
Ile Asp Thr Ser Arg Val Ser Leu Arg Ala Pro Gln Glu Phe Met Thr
145                 150                 155                 160


Ser His Ser Glu Ala Gly Ser Arg Ile Val Leu Asn Pro Asn Lys Pro
                165                 170                 175


Val Val Glu Trp His Arg Glu Gly Ile Ser Phe His Phe Thr Pro Val
            180                 185                 190


Leu Val Cys Lys Asp Pro Ile Arg Thr Val Gly Leu Gly Asp Ala Ile
        195                 200                 205


Ser Ala Glu Gly Leu Phe Tyr Ser Glu Val His Pro His Tyr
    210                 215                 220


<210> 3194
<211> 78
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BRR6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454304"

<400> 3194
Met Ala Leu Trp Arg Gly Ser Ala Tyr Ala Gly Phe Leu Ala Leu Ala
1               5                   10                  15


Val Gly Cys Val Phe Leu Leu Glu Pro Glu Leu Pro Gly Ser Ala Leu
            20                  25                  30


Arg Ser Leu Trp Ser Ser Leu Cys Leu Gly Pro Ala Pro Ala Pro Pro
```

```
        35                  40                  45

Gly Pro Val Ser Pro Glu Gly Arg Leu Ala Ala Ala Trp Asp Ala Leu
    50                  55                  60

Ile Val Arg Pro Val Arg Arg Trp Arg Arg Val Ala Val Gly
65                  70                  75


<210> 3195
<211> 78
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BRR6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454367"

<400> 3195
Met Ala Leu Trp Arg Gly Ser Ala Tyr Ala Gly Phe Leu Ala Leu Ala
1               5                   10                  15

Val Gly Cys Val Phe Leu Leu Glu Pro Glu Leu Pro Gly Ser Ala Leu
            20                  25                  30

Arg Ser Leu Trp Ser Ser Leu Cys Leu Gly Pro Ala Pro Ala Pro Pro
        35                  40                  45

Gly Pro Val Ser Pro Glu Gly Arg Leu Ala Ala Ala Trp Asp Ala Leu
    50                  55                  60

Ile Val Arg Pro Val Arg Arg Trp Arg Arg Val Ala Val Gly
65                  70                  75
```

<210> 3196
<211> 113
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454707"

<400> 3196
Met Ala Leu Trp Arg Gly Ser Ala Tyr Ala Gly Phe Leu Ala Leu Ala
1 5 10 15

Val Gly Cys Val Phe Leu Leu Glu Pro Glu Leu Pro Gly Ser Ala Leu
20 25 30

Arg Ser Leu Trp Ser Ser Leu Cys Leu Gly Pro Ala Pro Ala Pro Pro
35 40 45

Gly Pro Val Ser Pro Glu Gly Arg Leu Ala Ala Ala Trp Asp Ala Leu
50 55 60

Ile Val Arg Pro Val Arg Arg Trp Arg Arg Val Ala Val Gly Phe Phe
65 70 75 80

Phe Ala Val Gln Leu Val Gln Ser Tyr Met Ser Phe Leu Met Thr Met
85 90 95

Ser Leu Phe His Gln Ser His Cys Arg Lys Trp Met Ser Ser Thr Ser
100 105 110

Phe

<210> 3197

<211> 204
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
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<223> /note="Gene Symbol: ADPGK; "

<220>
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<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456387"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3197
Xaa Glu Pro Glu Leu Pro Gly Ser Ala Leu Arg Ser Leu Trp Ser Ser
1 5 10 15

Leu Cys Leu Gly Pro Ala Pro Ala Pro Pro Gly Pro Val Ser Pro Glu
20 25 30

Gly Arg Leu Ala Ala Ala Trp Asp Ala Leu Ile Val Arg Pro Val Arg
35 40 45

Arg Trp Arg Arg Val Ala Val Gly Val Asn Ala Cys Val Asp Val Val
50 55 60

Leu Ser Gly Val Lys Leu Leu Gln Ala Leu Gly Leu Ser Pro Gly Asn
65 70 75 80

Gly Lys Asp His Ser Ile Leu His Ser Arg Asn Asp Leu Glu Glu Ala
85 90 95

Phe Ile His Phe Met Gly Lys Gly Ala Ala Ala Glu Arg Phe Phe Ser
100 105 110

Asp Lys Glu Thr Phe His Asp Ile Ala Gln Val Ala Ser Glu Phe Pro

115 120 125

Gly Ala Gln His Tyr Val Gly Gly Asn Ala Ala Leu Ile Gly Gln Lys
130 135 140

Phe Ala Ala Asn Ser Asp Leu Lys Val Leu Leu Cys Gly Pro Val Gly
145 150 155 160

Pro Lys Leu His Glu Leu Leu Asp Asp Asn Val Phe Val Pro Pro Glu
165 170 175

Ser Leu Gln Glu Val Asp Glu Phe His Leu Ile Leu Glu Tyr Gln Ala
180 185 190

Ala Gly Leu Ser Arg Gly Asp Phe Pro Trp Ala Glu
195 200

<210> 3198
<211> 57
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457175"

<400> 3198
Leu Leu Glu Pro Glu Leu Pro Gly Ser Ala Leu Arg Ser Leu Trp Ser
1 5 10 15

Ser Leu Cys Leu Gly Pro Ala Pro Ala Pro Pro Gly Pro Val Ser Pro
20 25 30

Glu Gly Arg Leu Ala Ala Ala Trp Asp Ala Leu Ile Val Arg Pro Val
35 40 45

Arg Arg Trp Arg Arg Val Ala Val Gly
50 55

<210> 3199
<211> 154
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457447"

<400> 3199
Met Gly Lys Gly Ala Ala Ala Glu Arg Phe Phe Ser Asp Lys Glu Thr
1 5 10 15

Phe His Asp Ile Ala Gln Val Ala Ser Glu Phe Pro Gly Ala Gln His
20 25 30

Tyr Val Gly Gly Asn Ala Ala Leu Ile Gly Gln Lys Phe Ala Ala Asn
35 40 45

Ser Asp Leu Lys Val Leu Leu Cys Gly Pro Val Gly Pro Lys Leu His
50 55 60

Glu Leu Leu Asp Asp Asn Val Phe Val Pro Pro Glu Ser Leu Gln Glu
65 70 75 80

Val Asp Glu Phe His Leu Ile Leu Glu Tyr Gln Ala Gly Glu Glu Trp
85 90 95

Gly Gln Leu Lys Ala Pro His Ala Asn Arg Phe Ile Phe Ser His Asp
100 105 110

Leu Ser Asn Gly Ala Met Asn Met Leu Glu Val Phe Val Ser Ser Leu

115 120 125

Glu Glu Phe Gln Pro Asp Leu Val Val Leu Ser Gly Leu His Met Met
130 135 140

Glu Gly Gln Ser Lys Glu Leu Gln Arg Lys
145 150

<210> 3200
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
<221> source
<223> /note="Gene Symbol: ADPGK; "

<220>
<221> source
<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457572"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3200
Xaa Lys Arg Leu Leu Glu Val Leu Ala Ser Gln Gly His Ile Leu Ala
1 5 10 15

Ala Gly Cys Gly Ala Cys Leu Leu Leu Gln
20 25

<210> 3201
<211> 78
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 713; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
ADP-dependent glucokinase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BRR6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458102"

<400> 3201
Met Ala Leu Trp Arg Gly Ser Ala Tyr Ala Gly Phe Leu Ala Leu Ala
1   5   10   15

Val Gly Cys Val Phe Leu Leu Glu Pro Glu Leu Pro Gly Ser Ala Leu
            20   25   30

Arg Ser Leu Trp Ser Ser Leu Cys Leu Gly Pro Ala Pro Ala Pro Pro
        35   40   45

Gly Pro Val Ser Pro Glu Gly Arg Leu Ala Ala Ala Trp Asp Ala Leu
    50   55   60

Ile Val Arg Pro Val Arg Arg Trp Arg Arg Val Ala Val Gly
65   70   75

<210> 3202
<211> 342
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 714; "

<220>
<221> source
<223> /note="Gene Symbol: ADPRM; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribose/CDP-alcohol diphosphatase,
manganese-dependent; "

<220>
<221> source
<223> /note="Uniprot ID: Q3LIE5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369099"

<400> 3202
Met Asp Asp Lys Pro Asn Pro Glu Ala Leu Ser Asp Ser Ser Glu Arg
1   5   10   15

Leu Phe Ser Phe Gly Val Ile Ala Asp Val Gln Phe Ala Asp Leu Glu
            20   25   30

Asp Gly Phe Asn Phe Gln Gly Thr Arg Arg Arg Tyr Tyr Arg His Ser
        35   40   45

Leu Leu His Leu Gln Gly Ala Ile Glu Asp Trp Asn Asn Glu Ser Ser
    50   55   60

Met Pro Cys Cys Val Leu Gln Leu Gly Asp Ile Ile Asp Gly Tyr Asn
65   70   75   80

Ala Gln Tyr Asn Ala Ser Lys Lys Ser Leu Glu Leu Val Met Asp Met
                85   90   95

Phe Lys Arg Leu Lys Val Pro Val His His Thr Trp Gly Asn His Glu
            100   105   110

Phe Tyr Asn Phe Ser Arg Glu Tyr Leu Thr His Ser Lys Leu Asn Thr
        115   120   125

Lys Phe Leu Glu Asp Gln Ile Val His His Pro Glu Thr Met Pro Ser
    130   135   140

Glu Asp Tyr Tyr Ala Tyr His Phe Val Pro Phe Pro Lys Phe Arg Phe
145   150   155   160

Ile Leu Leu Asp Ala Tyr Asp Leu Ser Val Leu Gly Val Asp Gln Ser
                165   170   175

Ser Pro Lys Tyr Glu Gln Cys Met Lys Ile Leu Arg Glu His Asn Pro
            180   185   190

```
Asn Thr Glu Leu Asn Ser Pro Gln Gly Leu Ser Glu Pro Gln Phe Val
        195                 200                 205

Gln Phe Asn Gly Gly Phe Ser Gln Glu Gln Leu Asn Trp Leu Asn Glu
    210                 215                 220

Val Leu Thr Phe Ser Asp Thr Asn Gln Glu Lys Val Val Ile Val Ser
225                 230                 235                 240

His Leu Pro Ile Tyr Pro Asp Ala Ser Asp Asn Val Cys Leu Ala Trp
                245                 250                 255

Asn Tyr Arg Asp Ala Leu Ala Val Ile Trp Ser His Glu Cys Val Val
            260                 265                 270

Cys Phe Phe Ala Gly His Thr His Asp Gly Gly Tyr Ser Glu Asp Pro
        275                 280                 285

Phe Gly Val Tyr His Val Asn Leu Glu Gly Val Ile Glu Thr Ala Pro
    290                 295                 300

Asp Ser Gln Ala Phe Gly Thr Val His Val Tyr Pro Asp Lys Met Met
305                 310                 315                 320

Leu Lys Gly Arg Gly Arg Val Pro Asp Arg Ile Met Asn Tyr Lys Lys
                325                 330                 335

Glu Arg Ala Phe His Cys
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<210> 3203
<211> 205
<212> PRT
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<220>
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<220>
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<223> /note="Gene Symbol: ADPRM; "

<220>
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<223> /note="Gene Name:
      ADP-ribose/CDP-alcohol diphosphatase,
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manganese-dependent; "

<220>
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<223> /note="Uniprot ID: Q3LIE5; "

<220>
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Met Asp Asp Lys Pro Asn Pro Glu Ala Leu Ser Asp Ser Ser Glu Arg
1   5   10   15

Leu Phe Ser Phe Gly Val Ile Ala Asp Val Gln Phe Ala Asp Leu Glu
            20   25   30

Asp Gly Phe Asn Phe Gln Gly Thr Arg Arg Arg Tyr Tyr Arg His Ser
        35   40   45

Leu Leu His Leu Gln Gly Ala Ile Glu Asp Trp Asn Asn Glu Ser Ser
    50   55   60

Met Pro Cys Cys Val Leu Gln Leu Gly Asp Ile Ile Asp Gly Tyr Asn
65   70   75   80

Ala Gln Tyr Asn Ala Ser Lys Lys Ser Leu Glu Leu Val Met Asp Met
                85   90   95

Phe Lys Arg Leu Lys Val Pro Val His His Thr Trp Gly Asn His Glu
            100   105   110

Phe Tyr Asn Phe Ser Arg Glu Tyr Leu Thr His Ser Lys Leu Asn Thr
        115   120   125

Lys Phe Leu Glu Asp Gln Ile Val His His Pro Glu Thr Met Pro Ser
    130   135   140

Glu Asp Tyr Tyr Ala Tyr His Phe Val Pro Phe Pro Lys Phe Arg Phe
145   150   155   160

Ile Leu Leu Asp Ala Tyr Asp Leu Ser Val Leu Gly Val Asp Gln Ser
                165   170   175

Ser Pro Lys Tyr Glu Gln Cys Met Lys Ile Leu Arg Glu His Asn Pro
            180   185   190

```
Asn Thr Glu Leu Asn Ser Pro Gln Gly Glu Leu Phe Leu
        195                 200                 205


<210> 3204
<211> 294
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<220>
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<220>
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<220>
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<223> /note="Gene Name:
      ADP-ribose/CDP-alcohol diphosphatase,
      manganese-dependent; "

<220>
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<400> 3204
Met Asp Asp Lys Pro Asn Pro Glu Ala Leu Ser Asp Ser Ser Glu Arg
1               5                  10                  15


Leu Phe Ser Phe Gly Val Ile Ala Asp Val Gln Phe Ala Asp Leu Glu
            20                  25                  30


Asp Gly Phe Asn Phe Gln Gly Thr Arg Arg Arg Tyr Tyr Arg His Ser
        35                  40                  45


Leu Leu His Leu Gln Gly Ala Ile Glu Asp Trp Asn Asn Glu Ser Ser
    50                  55                  60


Met Pro Cys Cys Val Leu Gln Leu Gly Asp Ile Ile Asp Gly Tyr Asn
65                  70                  75                  80


Ala Gln Tyr Asn Ala Ser Lys Lys Ser Leu Glu Leu Val Met Asp Met
                85                  90                  95


Phe Lys Arg Leu Lys Val Pro Val His His Thr Trp Gly Asn His Glu
            100                 105                 110
```

```
Phe Tyr Asn Phe Ser Arg Glu Tyr Leu Thr His Ser Lys Leu Asn Thr
        115                 120                 125

Lys Phe Leu Glu Asp Gln Ile Val His His Pro Glu Thr Met Pro Ser
    130                 135                 140

Glu Asp Tyr Tyr Ala Tyr His Phe Val Pro Phe Pro Lys Phe Arg Phe
145                 150                 155                 160

Ile Leu Leu Asp Ala Tyr Asp Leu Ser Val Leu Gly Val Asp Gln Ser
                165                 170                 175

Ser Pro Lys Tyr Glu Gln Cys Met Lys Ile Leu Arg Glu His Asn Pro
            180                 185                 190

Asn Thr Glu Leu Asn Ser Pro Gln Gly Leu Ser Glu Pro Gln Phe Val
        195                 200                 205

Gln Phe Asn Gly Gly Phe Ser Gln Glu Gln Leu Asn Trp Leu Asn Glu
    210                 215                 220

Val Leu Thr Phe Ser Asp Thr Asn Gln Glu Lys Val Val Ile Ala Ile
225                 230                 235                 240

Phe Pro Phe Thr Arg Thr Pro Leu Thr Met Cys Ala Trp Pro Gly Thr
                245                 250                 255

Thr Glu Met Pro Trp Gln Ser Phe Gly Leu Met Ser Val Trp Cys Val
            260                 265                 270

Ser Leu Leu Val Thr Pro Met Met Val Ala Thr Leu Arg Ile Leu Leu
        275                 280                 285

Val Tyr Thr Thr Ser Thr
    290


<210> 3205
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<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
ADP-ribosylarginine hydrolase; "

<220>
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<223> /note="Uniprot ID: P54922; "

<220>
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<223> /note="ENSP ID: ENSP00000349496"

<400> 3205
Met Glu Lys Tyr Val Ala Ala Met Val Leu Ser Ala Ala Gly Asp Ala
1   5   10   15

Leu Gly Tyr Tyr Asn Gly Lys Trp Glu Phe Leu Gln Asp Gly Glu Lys
            20   25   30

Ile His Arg Gln Leu Ala Gln Leu Gly Gly Leu Asp Ala Leu Asp Val
        35   40   45

Gly Arg Trp Arg Val Ser Asp Asp Thr Val Met His Leu Ala Thr Ala
    50   55   60

Glu Ala Leu Val Glu Ala Gly Lys Ala Pro Lys Leu Thr Gln Leu Tyr
65   70   75   80

Tyr Leu Leu Ala Lys His Tyr Gln Asp Cys Met Glu Asp Met Asp Gly
                85   90   95

Arg Ala Pro Gly Gly Ala Ser Val His Asn Ala Met Gln Leu Lys Pro
            100   105   110

Gly Lys Pro Asn Gly Trp Arg Ile Pro Phe Asn Ser His Glu Gly Gly
        115   120   125

Cys Gly Ala Ala Met Arg Ala Met Cys Ile Gly Leu Arg Phe Pro His
    130   135   140

His Ser Gln Leu Asp Thr Leu Ile Gln Val Ser Ile Glu Ser Gly Arg
145   150   155   160

```
Met Thr His His His Pro Thr Gly Tyr Leu Gly Ala Leu Ala Ser Ala
                165                 170                 175

Leu Phe Thr Ala Tyr Ala Val Asn Ser Arg Pro Pro Leu Gln Trp Gly
            180                 185                 190

Lys Gly Leu Met Glu Leu Leu Pro Glu Ala Lys Lys Tyr Ile Val Gln
        195                 200                 205

Ser Gly Tyr Phe Val Glu Glu Asn Leu Gln His Trp Ser Tyr Phe Gln
    210                 215                 220

Thr Lys Trp Glu Asn Tyr Leu Lys Leu Arg Gly Ile Leu Asp Gly Glu
225                 230                 235                 240

Ser Ala Pro Thr Phe Pro Glu Ser Phe Gly Val Lys Glu Arg Asp Gln
                245                 250                 255

Phe Tyr Thr Ser Leu Ser Tyr Ser Gly Trp Gly Gly Ser Ser Gly His
            260                 265                 270

Asp Ala Pro Met Ile Ala Tyr Asp Ala Val Leu Ala Ala Gly Asp Ser
        275                 280                 285

Trp Lys Glu Leu Ala His Arg Ala Phe Phe His Gly Gly Asp Ser Asp
    290                 295                 300

Ser Thr Ala Ala Ile Ala Gly Cys Trp Trp Gly Val Met Tyr Gly Phe
305                 310                 315                 320

Lys Gly Val Ser Pro Ser Asn Tyr Glu Lys Leu Glu Tyr Arg Asn Arg
                325                 330                 335

Leu Glu Glu Thr Ala Arg Ala Leu Tyr Ser Leu Gly Ser Lys Glu Asp
            340                 345                 350

Thr Val Ile Ser Leu
        355
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<210> 3206
<211> 357
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
ADP-ribosylarginine hydrolase; "

<220>
<221> source
<223> /note="Uniprot ID: P54922; "

<220>
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<223> /note="ENSP ID: ENSP00000417430"

<400> 3206
Met Glu Lys Tyr Val Ala Ala Met Val Leu Ser Ala Ala Gly Asp Ala
1   5   10   15

Leu Gly Tyr Tyr Asn Gly Lys Trp Glu Phe Leu Gln Asp Gly Glu Lys
            20   25   30

Ile His Arg Gln Leu Ala Gln Leu Gly Gly Leu Asp Ala Leu Asp Val
        35   40   45

Gly Arg Trp Arg Val Ser Asp Asp Thr Val Met His Leu Ala Thr Ala
    50   55   60

Glu Ala Leu Val Glu Ala Gly Lys Ala Pro Lys Leu Thr Gln Leu Tyr
65   70   75   80

Tyr Leu Leu Ala Lys His Tyr Gln Asp Cys Met Glu Asp Met Asp Gly
                85   90   95

Arg Ala Pro Gly Gly Ala Ser Val His Asn Ala Met Gln Leu Lys Pro
            100   105   110

Gly Lys Pro Asn Gly Trp Arg Ile Pro Phe Asn Ser His Glu Gly Gly
        115   120   125

Cys Gly Ala Ala Met Arg Ala Met Cys Ile Gly Leu Arg Phe Pro His

130 135 140

His Ser Gln Leu Asp Thr Leu Ile Gln Val Ser Ile Glu Ser Gly Arg
145 150 155 160

Met Thr His His His Pro Thr Gly Tyr Leu Gly Ala Leu Ala Ser Ala
165 170 175

Leu Phe Thr Ala Tyr Ala Val Asn Ser Arg Pro Pro Leu Gln Trp Gly
180 185 190

Lys Gly Leu Met Glu Leu Leu Pro Glu Ala Lys Lys Tyr Ile Val Gln
195 200 205

Ser Gly Tyr Phe Val Glu Glu Asn Leu Gln His Trp Ser Tyr Phe Gln
210 215 220

Thr Lys Trp Glu Asn Tyr Leu Lys Leu Arg Gly Ile Leu Asp Gly Glu
225 230 235 240

Ser Ala Pro Thr Phe Pro Glu Ser Phe Gly Val Lys Glu Arg Asp Gln
245 250 255

Phe Tyr Thr Ser Leu Ser Tyr Ser Gly Trp Gly Gly Ser Ser Gly His
260 265 270

Asp Ala Pro Met Ile Ala Tyr Asp Ala Val Leu Ala Ala Gly Asp Ser
275 280 285

Trp Lys Glu Leu Ala His Arg Ala Phe Phe His Gly Gly Asp Ser Asp
290 295 300

Ser Thr Ala Ala Ile Ala Gly Cys Trp Trp Gly Val Met Tyr Gly Phe
305 310 315 320

Lys Gly Val Ser Pro Ser Asn Tyr Glu Lys Leu Glu Tyr Arg Asn Arg
325 330 335

Leu Glu Glu Thr Ala Arg Ala Leu Tyr Ser Leu Gly Ser Lys Glu Asp
340 345 350

Thr Val Ile Ser Leu
355

<210> 3207
<211> 357
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
ADP-ribosylarginine hydrolase; "

<220>
<221> source
<223> /note="Uniprot ID: P54922; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417528"

<400> 3207
Met Glu Lys Tyr Val Ala Ala Met Val Leu Ser Ala Ala Gly Asp Ala
1   5   10   15

Leu Gly Tyr Tyr Asn Gly Lys Trp Glu Phe Leu Gln Asp Gly Glu Lys
            20   25   30

Ile His Arg Gln Leu Ala Gln Leu Gly Gly Leu Asp Ala Leu Asp Val
        35   40   45

Gly Arg Trp Arg Val Ser Asp Asp Thr Val Met His Leu Ala Thr Ala
    50   55   60

Glu Ala Leu Val Glu Ala Gly Lys Ala Pro Lys Leu Thr Gln Leu Tyr
65   70   75   80

Tyr Leu Leu Ala Lys His Tyr Gln Asp Cys Met Glu Asp Met Asp Gly
                85   90   95

Arg Ala Pro Gly Gly Ala Ser Val His Asn Ala Met Gln Leu Lys Pro
            100   105   110

```
Gly Lys Pro Asn Gly Trp Arg Ile Pro Phe Asn Ser His Glu Gly Gly
        115                 120                 125

Cys Gly Ala Ala Met Arg Ala Met Cys Ile Gly Leu Arg Phe Pro His
    130                 135                 140

His Ser Gln Leu Asp Thr Leu Ile Gln Val Ser Ile Glu Ser Gly Arg
145                 150                 155                 160

Met Thr His His His Pro Thr Gly Tyr Leu Gly Ala Leu Ala Ser Ala
                165                 170                 175

Leu Phe Thr Ala Tyr Ala Val Asn Ser Arg Pro Pro Leu Gln Trp Gly
            180                 185                 190

Lys Gly Leu Met Glu Leu Leu Pro Glu Ala Lys Lys Tyr Ile Val Gln
        195                 200                 205

Ser Gly Tyr Phe Val Glu Glu Asn Leu Gln His Trp Ser Tyr Phe Gln
    210                 215                 220

Thr Lys Trp Glu Asn Tyr Leu Lys Leu Arg Gly Ile Leu Asp Gly Glu
225                 230                 235                 240

Ser Ala Pro Thr Phe Pro Glu Ser Phe Gly Val Lys Glu Arg Asp Gln
                245                 250                 255

Phe Tyr Thr Ser Leu Ser Tyr Ser Gly Trp Gly Gly Ser Ser Gly His
            260                 265                 270

Asp Ala Pro Met Ile Ala Tyr Asp Ala Val Leu Ala Ala Gly Asp Ser
        275                 280                 285

Trp Lys Glu Leu Ala His Arg Ala Phe Phe His Gly Gly Asp Ser Asp
    290                 295                 300

Ser Thr Ala Ala Ile Ala Gly Cys Trp Trp Gly Val Met Tyr Gly Phe
305                 310                 315                 320

Lys Gly Val Ser Pro Ser Asn Tyr Glu Lys Leu Glu Tyr Arg Asn Arg
                325                 330                 335

Leu Glu Glu Thr Ala Arg Ala Leu Tyr Ser Leu Gly Ser Lys Glu Asp
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            340                 345                 350

Thr Val Ile Ser Leu
        355


<210> 3208
<211> 125
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 715; "

<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: ENSP00000419703"

<400> 3208
Met Glu Lys Tyr Val Ala Ala Met Val Leu Ser Ala Ala Gly Asp Ala
1               5                  10                  15


Leu Gly Tyr Tyr Asn Gly Lys Trp Glu Phe Leu Gln Asp Gly Glu Lys
            20                  25                  30


Ile His Arg Gln Leu Ala Gln Leu Gly Gly Leu Asp Ala Leu Asp Val
        35                  40                  45


Gly Arg Trp Arg Val Ser Asp Asp Thr Val Met His Leu Ala Thr Ala
    50                  55                  60


Glu Ala Leu Val Glu Ala Gly Lys Ala Pro Lys Leu Thr Gln Leu Tyr
65                  70                  75                  80


Tyr Leu Leu Ala Lys His Tyr Gln Asp Cys Met Glu Asp Met Asp Gly
                85                  90                  95


Arg Ala Pro Gly Gly Ala Ser Val His Asn Ala Met Gln Leu Lys Pro
            100                 105                 110
```

Gly Lys Pro Asn Gly Trp Arg Ile Pro Phe Asn Ser His
115 120 125

<210> 3209
<211> 357
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 715; "

<220>
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<220>
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<223> /note="Gene Name:
ADP-ribosylarginine hydrolase; "

<220>
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<223> /note="Uniprot ID: P54922; "

<220>
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<223> /note="ENSP ID: ENSP00000420200"

<400> 3209
Met Glu Lys Tyr Val Ala Ala Met Val Leu Ser Ala Ala Gly Asp Ala
1 5 10 15

Leu Gly Tyr Tyr Asn Gly Lys Trp Glu Phe Leu Gln Asp Gly Glu Lys
20 25 30

Ile His Arg Gln Leu Ala Gln Leu Gly Gly Leu Asp Ala Leu Asp Val
35 40 45

Gly Arg Trp Arg Val Ser Asp Asp Thr Val Met His Leu Ala Thr Ala
50 55 60

Glu Ala Leu Val Glu Ala Gly Lys Ala Pro Lys Leu Thr Gln Leu Tyr
65 70 75 80

Tyr Leu Leu Ala Lys His Tyr Gln Asp Cys Met Glu Asp Met Asp Gly
85 90 95

Arg Ala Pro Gly Gly Ala Ser Val His Asn Ala Met Gln Leu Lys Pro

```
            100                 105                 110

Gly Lys Pro Asn Gly Trp Arg Ile Pro Phe Asn Ser His Glu Gly Gly
        115                 120                 125

Cys Gly Ala Ala Met Arg Ala Met Cys Ile Gly Leu Arg Phe Pro His
    130                 135                 140

His Ser Gln Leu Asp Thr Leu Ile Gln Val Ser Ile Glu Ser Gly Arg
145                 150                 155                 160

Met Thr His His His Pro Thr Gly Tyr Leu Gly Ala Leu Ala Ser Ala
                165                 170                 175

Leu Phe Thr Ala Tyr Ala Val Asn Ser Arg Pro Pro Leu Gln Trp Gly
            180                 185                 190

Lys Gly Leu Met Glu Leu Leu Pro Glu Ala Lys Lys Tyr Ile Val Gln
        195                 200                 205

Ser Gly Tyr Phe Val Glu Glu Asn Leu Gln His Trp Ser Tyr Phe Gln
    210                 215                 220

Thr Lys Trp Glu Asn Tyr Leu Lys Leu Arg Gly Ile Leu Asp Gly Glu
225                 230                 235                 240

Ser Ala Pro Thr Phe Pro Glu Ser Phe Gly Val Lys Glu Arg Asp Gln
                245                 250                 255

Phe Tyr Thr Ser Leu Ser Tyr Ser Gly Trp Gly Gly Ser Ser Gly His
            260                 265                 270

Asp Ala Pro Met Ile Ala Tyr Asp Ala Val Leu Ala Ala Gly Asp Ser
        275                 280                 285

Trp Lys Glu Leu Ala His Arg Ala Phe Phe His Gly Gly Asp Ser Asp
    290                 295                 300

Ser Thr Ala Ala Ile Ala Gly Cys Trp Trp Gly Val Met Tyr Gly Phe
305                 310                 315                 320

Lys Gly Val Ser Pro Ser Asn Tyr Glu Lys Leu Glu Tyr Arg Asn Arg
                325                 330                 335
```

Leu Glu Glu Thr Ala Arg Ala Leu Tyr Ser Leu Gly Ser Lys Glu Asp
340 345 350

Thr Val Ile Ser Leu
355

<210> 3210
<211> 181
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 716; "

<220>
<221> source
<223> /note="Gene Symbol: ARF1; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
1; "

<220>
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<223> /note="Uniprot ID: P84077; "

<220>
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<223> /note="ENSP ID: ENSP00000272102"

<400> 3210
Met Gly Asn Ile Phe Ala Asn Leu Phe Lys Gly Leu Phe Gly Lys Lys
1 5 10 15

Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
35 40 45

Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr
50 55 60

Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65 70 75 80

```
Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85                  90                  95

Arg Glu Arg Val Asn Glu Ala Arg Glu Glu Leu Met Arg Met Leu Ala
            100                 105                 110

Glu Asp Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln
        115                 120                 125

Asp Leu Pro Asn Ala Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly
    130                 135                 140

Leu His Ser Leu Arg His Arg Asn Trp Tyr Ile Gln Ala Thr Cys Ala
145                 150                 155                 160

Thr Ser Gly Asp Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ser Asn Gln
                165                 170                 175

Leu Arg Asn Gln Lys
            180
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<210> 3211
<211> 181
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 716; "

<220>
<221> source
<223> /note="Gene Symbol: ARF1; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
1; "

<220>
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<223> /note="Uniprot ID: P84077; "

<220>
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<400> 3211

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Met Gly Asn Ile Phe Ala Asn Leu Phe Lys Gly Leu Phe Gly Lys Lys
1               5                  10                  15

Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20                  25                  30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35                  40                  45

Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr
    50                  55                  60

Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65                  70                  75                  80

Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85                  90                  95

Arg Glu Arg Val Asn Glu Ala Arg Glu Glu Leu Met Arg Met Leu Ala
            100                 105                 110

Glu Asp Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln
        115                 120                 125

Asp Leu Pro Asn Ala Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly
    130                 135                 140

Leu His Ser Leu Arg His Arg Asn Trp Tyr Ile Gln Ala Thr Cys Ala
145                 150                 155                 160

Thr Ser Gly Asp Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ser Asn Gln
                165                 170                 175

Leu Arg Asn Gln Lys
            180
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<210> 3212
<211> 181
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ARF1; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
1; "

<220>
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<223> /note="Uniprot ID: P84077; "

<220>
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<223> /note="ENSP ID: ENSP00000442980"

<400> 3212
Met Gly Asn Ile Phe Ala Asn Leu Phe Lys Gly Leu Phe Gly Lys Lys
1 5 10 15

Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
35 40 45

Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr
50 55 60

Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65 70 75 80

Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
85 90 95

Arg Glu Arg Val Asn Glu Ala Arg Glu Glu Leu Met Arg Met Leu Ala
100 105 110

Glu Asp Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln
115 120 125

Asp Leu Pro Asn Ala Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly
130 135 140

Leu His Ser Leu Arg His Arg Asn Trp Tyr Ile Gln Ala Thr Cys Ala
145 150 155 160

```
Thr Ser Gly Asp Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ser Asn Gln
                165                 170                 175


Leu Arg Asn Gln Lys
            180


<210> 3213
<211> 181
<212> PRT
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<220>
<221> source
<223> /note="Payload ID: 717; "

<220>
<221> source
<223> /note="Gene Symbol: ARF3; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      3; "

<220>
<221> source
<223> /note="Uniprot ID:  P61204; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000256682"

<400> 3213
Met Gly Asn Ile Phe Gly Asn Leu Leu Lys Ser Leu Ile Gly Lys Lys
1               5                   10                  15


Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20                  25                  30


Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35                  40                  45


Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr
    50                  55                  60


Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65                  70                  75                  80
```

```
Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85                  90                  95

Arg Glu Arg Val Asn Glu Ala Arg Glu Glu Leu Met Arg Met Leu Ala
            100                 105                 110

Glu Asp Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln
        115                 120                 125

Asp Leu Pro Asn Ala Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly
    130                 135                 140

Leu His Ser Leu Arg His Arg Asn Trp Tyr Ile Gln Ala Thr Cys Ala
145                 150                 155                 160

Thr Ser Gly Asp Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ala Asn Gln
                165                 170                 175

Leu Lys Asn Lys Lys
            180


<210> 3214
<211> 144
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ARF3; "

<220>
<221> source
<223> /note="Gene Name:
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      3; "

<220>
<221> source
<223> /note="Uniprot ID:  P61204; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395370"

<400> 3214
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```
Met Gly Asn Ile Phe Gly Asn Leu Leu Lys Ser Leu Ile Gly Lys Lys
1               5                  10                  15

Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20                  25                  30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35                  40                  45

Ile Gly Leu Ile Phe Val Val Asp Ser Asn Asp Arg Glu Arg Val Asn
    50                  55                  60

Glu Ala Arg Glu Glu Leu Met Arg Met Leu Ala Glu Asp Glu Leu Arg
65                  70                  75                  80

Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln Asp Leu Pro Asn Ala
                85                  90                  95

Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly Leu His Ser Leu Arg
            100                 105                 110

His Arg Asn Trp Tyr Ile Gln Ala Thr Cys Ala Thr Ser Gly Asp Gly
        115                 120                 125

Leu Tyr Glu Gly Leu Asp Trp Leu Ala Asn Gln Leu Lys Asn Lys Lys
    130                 135                 140


<210> 3215
<211> 50
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 717; "

<220>
<221> source
<223> /note="Gene Symbol: ARF3; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      3; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000437374"

<400> 3215
Met Gly Asn Ile Phe Gly Asn Leu Leu Lys Ser Leu Ile Gly Lys Lys
1   5   10   15

Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35   40   45

Ile Gly
    50

<210> 3216
<211> 102
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 717; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438063"

<400> 3216
Met Gly Asn Ile Phe Gly Asn Leu Leu Lys Ser Leu Ile Gly Lys Lys
1   5   10   15

Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35   40   45

Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr
    50   55   60

```
Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65                  70                  75                  80


Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85                  90                  95


Arg Glu Arg Val Asn Glu
            100


<210> 3217
<211> 181
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 717; "

<220>
<221> source
<223> /note="Gene Symbol: ARF3; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation  factor
      3; "

<220>
<221> source
<223> /note="Uniprot ID:  P61204; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438510"

<400> 3217
Met Gly Asn Ile Phe Gly Asn Leu Leu Lys Ser Leu Ile Gly Lys Lys
1               5                  10                  15


Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20                  25                  30


Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35                  40                  45


Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr
    50                  55                  60
```

```
Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65                  70                  75                  80

Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85                  90                  95

Arg Glu Arg Val Asn Glu Ala Arg Glu Glu Leu Met Arg Met Leu Ala
            100                 105                 110

Glu Asp Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln
        115                 120                 125

Asp Leu Pro Asn Ala Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly
    130                 135                 140

Leu His Ser Leu Arg His Arg Asn Trp Tyr Ile Gln Ala Thr Cys Ala
145                 150                 155                 160

Thr Ser Gly Asp Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ala Asn Gln
                165                 170                 175

Leu Lys Asn Lys Lys
            180
```

<210> 3218
<211> 40
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 717; "

<220>
<221> source
<223> /note="Gene Symbol: ARF3; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446353"

<400> 3218

```
Met Gly Asn Ile Phe Gly Asn Leu Leu Lys Ser Leu Ile Gly Lys Lys
1               5                   10                  15


Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20                  25                  30


Ile Leu Tyr Lys Leu Lys Leu Gly
        35                  40


<210> 3219
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 718; "

<220>
<221> source
<223> /note="Gene Symbol: ARF4; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      4; "

<220>
<221> source
<223> /note="Uniprot ID:  P18085; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000306010"

<400> 3219
Met Gly Leu Thr Ile Ser Ser Leu Phe Ser Arg Leu Phe Gly Lys Lys
1               5                   10                  15


Gln Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20                  25                  30


Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35                  40                  45


Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Cys Phe Thr
    50                  55                  60


Val Trp Asp Val Gly Gly Gln Asp Arg Ile Arg Pro Leu Trp Lys His
```

```
65                  70                  75                  80

Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85                  90                  95

Arg Glu Arg Ile Gln Glu Val Ala Asp Glu Leu Gln Lys Met Leu Leu
            100                 105                 110

Val Asp Glu Leu Arg Asp Ala Val Leu Leu Leu Phe Ala Asn Lys Gln
        115                 120                 125

Asp Leu Pro Asn Ala Met Ala Ile Ser Glu Met Thr Asp Lys Leu Gly
    130                 135                 140

Leu Gln Ser Leu Arg Asn Arg Thr Trp Tyr Val Gln Ala Thr Cys Ala
145                 150                 155                 160

Thr Gln Gly Thr Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ser Asn Glu
                165                 170                 175

Leu Ser Lys Arg
            180
```

<210> 3220
<211> 153
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 718; "

<220>
<221> source
<223> /note="Gene Symbol: ARF4; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417501"

<400> 3220

```
Met Gly Leu Thr Ile Ser Ser Leu Phe Ser Arg Leu Phe Gly Lys Lys
1               5                   10                  15
```

```
Gln Met Arg Ile Leu Met Gly Phe Asn Val Glu Thr Val Glu Tyr Lys
            20                  25                  30

Asn Ile Cys Phe Thr Val Trp Asp Val Gly Gly Gln Asp Arg Ile Arg
        35                  40                  45

Pro Leu Trp Lys His Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val
    50                  55                  60

Val Asp Ser Asn Asp Arg Glu Arg Ile Gln Glu Val Ala Asp Glu Leu
65                  70                  75                  80

Gln Lys Met Leu Leu Val Asp Glu Leu Arg Asp Ala Val Leu Leu Leu
                85                  90                  95

Phe Ala Asn Lys Gln Asp Leu Pro Asn Ala Met Ala Ile Ser Glu Met
            100                 105                 110

Thr Asp Lys Leu Gly Leu Gln Ser Leu Arg Asn Arg Thr Trp Tyr Val
        115                 120                 125

Gln Ala Thr Cys Ala Thr Gln Gly Thr Gly Leu Tyr Glu Gly Leu Asp
    130                 135                 140

Trp Leu Ser Asn Glu Leu Ser Lys Arg
145                 150
```

<210> 3221
<211> 22
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 718; "

<220>
<221> source
<223> /note="Gene Symbol: ARF4; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418388"

<400> 3221
Met Gly Leu Thr Ile Ser Ser Leu Phe Ser Arg Leu Phe Gly Lys Lys
1   5   10   15

Gln Met Arg Ile Leu Met
            20

<210> 3222
<211> 127
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 718; "

<220>
<221> source
<223> /note="Gene Symbol: ARF4; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor
      4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420254"

<400> 3222
Met Gly Leu Thr Ile Ser Ser Leu Phe Ser Arg Leu Phe Gly Lys Lys
1   5   10   15

Gln Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35   40   45

Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Cys Phe Thr
    50   55   60

Val Trp Asp Val Gly Gly Gln Asp Arg Ile Arg Pro Leu Trp Lys His
65   70   75   80

```
Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85                  90                  95

Arg Glu Arg Ile Gln Glu Val Ala Asp Glu Leu Gln Lys Met Leu Leu
            100                 105                 110

Val Asp Glu Leu Arg Asp Ala Val Leu Leu Leu Phe Ala Asn Lys
        115                 120                 125


<210> 3223
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 718; "

<220>
<221> source
<223> /note="Gene Symbol: ARF4; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420655"

<400> 3223
Met Gly Leu Thr Ile Ser Ser Leu Phe Ser Arg Leu Phe Gly Lys Lys
1               5                  10                  15

Gln Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20                  25                  30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35                  40                  45

Ile Ala Val Ile Phe Val Phe Leu Cys Arg Phe
    50                  55


<210> 3224
<211> 71
<212> PRT
<213> Homo sapiens
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<220>
<221> source
<223> /note="Payload ID: 718; "

<220>
<221> source
<223> /note="Gene Symbol: ARF4; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000475828"

<400> 3224
Met Leu Leu Val Asp Glu Leu Arg Asp Ala Val Leu Leu Leu Phe Ala
1 5 10 15

Asn Lys Gln Asp Leu Pro Asn Ala Met Ala Ile Ser Glu Met Thr Asp
20 25 30

Lys Leu Gly Leu Gln Ser Leu Arg Asn Arg Thr Trp Tyr Val Gln Ala
35 40 45

Thr Cys Ala Thr Gln Gly Thr Gly Leu Tyr Glu Gly Leu Asp Trp Leu
50 55 60

Ser Asn Glu Leu Ser Lys Arg
65 70

<210> 3225
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 719; "

<220>
<221> source
<223> /note="Gene Symbol: ARF5; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
5; "

<220>
<221> source
<223> /note="Uniprot ID: P84085; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000000233"

<400> 3225
Met Gly Leu Thr Val Ser Ala Leu Phe Ser Arg Ile Phe Gly Lys Lys
1   5   10   15

Gln Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
        35   40   45

Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Cys Phe Thr
    50   55   60

Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65   70   75   80

Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
                85   90   95

Arg Glu Arg Val Gln Glu Ser Ala Asp Glu Leu Gln Lys Met Leu Gln
            100   105   110

Glu Asp Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln
        115   120   125

Asp Met Pro Asn Ala Met Pro Val Ser Glu Leu Thr Asp Lys Leu Gly
    130   135   140

Leu Gln His Leu Arg Ser Arg Thr Trp Tyr Val Gln Ala Thr Cys Ala
145   150   155   160

Thr Gln Gly Thr Gly Leu Tyr Asp Gly Leu Asp Trp Leu Ser His Glu
                165   170   175

Leu Ser Lys Arg
            180

<210> 3226
<211> 150
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 719; "

<220>
<221> source
<223> /note="Gene Symbol: ARF5; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412701"

<400> 3226
Met Gly Leu Thr Val Ser Ala Leu Phe Ser Arg Ile Phe Gly Lys Lys
1 5 10 15

Gln Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
35 40 45

Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Cys Phe Thr
50 55 60

Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
65 70 75 80

Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
85 90 95

Arg Glu Arg Val Gln Glu Ser Ala Asp Glu Leu Gln Lys Met Glu Asp
100 105 110

Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln Asp Met
115 120 125

Pro Asn Ala Met Pro Val Ser Glu Leu Thr Asp Lys Leu Gly Leu Gln
    130   135   140

His Leu Arg Ser Arg Thr
145   150

<210> 3227
<211> 175
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 720; "

<220>
<221> source
<223> /note="Gene Symbol: ARF6; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor
      6; "

<220>
<221> source
<223> /note="Uniprot ID: P62330; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000298316"

<400> 3227
Met Gly Lys Val Leu Ser Lys Ile Phe Gly Asn Lys Glu Met Arg Ile
1   5   10   15

Leu Met Leu Gly Leu Asp Ala Ala Gly Lys Thr Thr Ile Leu Tyr Lys
            20   25   30

Leu Lys Leu Gly Gln Ser Val Thr Thr Ile Pro Thr Val Gly Phe Asn
        35   40   45

Val Glu Thr Val Thr Tyr Lys Asn Val Lys Phe Asn Val Trp Asp Val
    50   55   60

Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His Tyr Tyr Thr Gly
65   70   75   80

Thr Gln Gly Leu Ile Phe Val Val Asp Cys Ala Asp Arg Asp Arg Ile

```
                85                  90                  95

Asp Glu Ala Arg Gln Glu Leu His Arg Ile Ile Asn Asp Arg Glu Met
            100                 105                 110

Arg Asp Ala Ile Ile Leu Ile Phe Ala Asn Lys Gln Asp Leu Pro Asp
        115                 120                 125

Ala Met Lys Pro His Glu Ile Gln Glu Lys Leu Gly Leu Thr Arg Ile
    130                 135                 140

Arg Asp Arg Asn Trp Tyr Val Gln Pro Ser Cys Ala Thr Ser Gly Asp
145                 150                 155                 160

Gly Leu Tyr Glu Gly Leu Thr Trp Leu Thr Ser Asn Tyr Lys Ser
                165                 170                 175


<210> 3228
<211> 414
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N6T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000314615"

<400> 3228
Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Gln
1               5                   10                  15

Asp Glu Asn Asn Val Cys Phe Glu Cys Gly Ala Phe Asn Pro Gln Trp
            20                  25                  30
```

```
Val Ser Val Thr Tyr Gly Ile Trp Ile Cys Leu Glu Cys Ser Gly Arg
        35                  40                  45

His Arg Gly Leu Gly Val His Leu Ser Phe Val Arg Ser Val Thr Met
    50                  55                  60

Asp Lys Trp Lys Asp Ile Glu Leu Glu Lys Met Lys Ala Gly Gly Asn
65                  70                  75                  80

Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln Glu Asp Tyr Asp Pro Cys
                85                  90                  95

Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg Ala Ala Ala Leu Phe Arg
            100                 105                 110

Asp Lys Val Val Ala Leu Ala Glu Gly Arg Glu Trp Ser Leu Glu Ser
        115                 120                 125

Ser Pro Ala Gln Asn Trp Thr Pro Pro Gln Pro Arg Thr Leu Pro Ser
    130                 135                 140

Met Val His Arg Val Ser Gly Gln Pro Gln Ser Val Thr Ala Ser Ser
145                 150                 155                 160

Asp Lys Ala Phe Glu Asp Trp Leu Asn Asp Asp Leu Gly Ser Tyr Gln
                165                 170                 175

Gly Ala Gln Gly Asn Arg Tyr Val Gly Phe Gly Asn Thr Pro Pro Pro
            180                 185                 190

Gln Lys Lys Glu Asp Asp Phe Leu Asn Asn Ala Met Ser Ser Leu Tyr
        195                 200                 205

Ser Gly Trp Ser Ser Phe Thr Thr Gly Ala Ser Arg Phe Ala Ser Ala
    210                 215                 220

Ala Lys Glu Gly Ala Thr Lys Phe Gly Ser Gln Ala Ser Gln Lys Phe
225                 230                 235                 240

Trp Gly His Lys Gln Gln Pro Glu Pro Ala Ser Glu Leu Gly His Ser
                245                 250                 255
```

```
Leu Asn Glu Asn Val Leu Lys Pro Ala Gln Glu Lys Val Lys Glu Gly
            260                 265                 270

Lys Ile Phe Asp Asp Val Ser Ser Gly Val Ser Gln Leu Ala Ser Lys
        275                 280                 285

Gly Val Gly Ser Lys Gly Trp Arg Asp Val Thr Thr Phe Phe Ser Gly
    290                 295                 300

Lys Ala Glu Gly Pro Leu Asp Ser Pro Ser Glu Gly His Ser Tyr Gln
305                 310                 315                 320

Asn Ser Gly Leu Asp His Phe Gln Asn Ser Asn Ile Asp Gln Ser Phe
                325                 330                 335

Trp Glu Thr Phe Gly Ser Ala Glu Pro Thr Lys Thr Arg Lys Ser Pro
            340                 345                 350

Ser Ser Asp Ser Trp Thr Cys Ala Asp Thr Ser Thr Glu Arg Arg Ser
        355                 360                 365

Ser Asp Ser Trp Glu Val Trp Gly Ser Ala Ser Thr Asn Arg Asn Ser
    370                 375                 380

Asn Ser Asp Gly Gly Glu Gly Gly Glu Gly Thr Lys Lys Ala Val Pro
385                 390                 395                 400

Pro Ala Val Pro Thr Asp Asp Gly Trp Asp Asn Gln Asn Trp
                405                 410


<210> 3229
<211> 403
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
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ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N6T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359298"

<400> 3229

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Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Gln
1               5                  10                  15

Asp Glu Asn Asn Val Cys Phe Glu Cys Gly Ala Phe Asn Pro Gln Trp
            20                  25                  30

Val Ser Val Thr Tyr Gly Ile Trp Ile Cys Leu Glu Cys Ser Gly Arg
        35                  40                  45

His Arg Gly Leu Gly Val His Leu Ser Phe Val Arg Ser Val Thr Met
    50                  55                  60

Asp Lys Trp Lys Asp Ile Glu Leu Glu Lys Met Lys Ala Gly Gly Asn
65                  70                  75                  80

Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln Glu Asp Tyr Asp Pro Cys
                85                  90                  95

Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg Ala Ala Ala Leu Phe Arg
            100                 105                 110

Asp Lys Val Val Ala Leu Ala Glu Gly Arg Glu Trp Ser Leu Glu Ser
        115                 120                 125

Ser Pro Ala Gln Asn Trp Thr Pro Pro Gln Pro Arg Thr Leu Pro Ser
    130                 135                 140

Met Val His Arg Val Ser Gly Gln Pro Gln Ser Val Thr Ala Ser Ser
145                 150                 155                 160

Asp Lys Ala Phe Glu Asp Trp Leu Asn Asp Asp Leu Gly Ser Tyr Gln
                165                 170                 175

Gly Ala Gln Gly Asn Arg Tyr Val Gly Phe Gly Asn Thr Pro Pro Pro
```

```
            180                 185                 190

Gln Lys Lys Glu Asp Asp Phe Leu Asn Asn Ala Met Ser Ser Leu Tyr
        195                 200                 205

Ser Gly Trp Ser Ser Phe Thr Thr Gly Ala Ser Arg Phe Ala Ser Ala
    210                 215                 220

Ala Lys Glu Gly Ala Thr Lys Phe Gly Ser Gln Ala Ser Gln Lys Ala
225                 230                 235                 240

Ser Glu Leu Gly His Ser Leu Asn Glu Asn Val Leu Lys Pro Ala Gln
                245                 250                 255

Glu Lys Val Lys Glu Gly Lys Ile Phe Asp Asp Val Ser Ser Gly Val
            260                 265                 270

Ser Gln Leu Ala Ser Lys Cys Gln Arg Arg Leu Cys Cys His Gln Ser
        275                 280                 285

His Cys Ser Ala Gly His Leu Gly Arg Ala Phe Cys Pro Val Ser Trp
    290                 295                 300

His Glu Ala Leu Cys Gly Gln Thr Gly Arg Glu Glu Gln Ala Ser Leu
305                 310                 315                 320

Leu Pro Pro Lys His Val Val Gly Ala Leu Glu Val Cys Ala Arg Gly
                325                 330                 335

Cys Pro Arg Cys His Val Pro His Thr Pro Gly Thr Ala Ala Glu Trp
            340                 345                 350

Pro Gly Arg Leu Cys Leu Ser Arg Glu Ser Val Val Arg Asp Gly Gly
        355                 360                 365

Thr Ser Pro Pro Phe Phe Arg Gly Lys Gln Arg Ala Pro Trp Thr Ala
    370                 375                 380

Pro Arg Arg Ala Thr Val Ile Arg Thr Ala Val Trp Thr Thr Ser Lys
385                 390                 395                 400

Thr Ala Thr
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<210> 3230
<211> 406
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N6T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359306"

<400> 3230
Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Gln
1 5 10 15

Asp Glu Asn Asn Val Cys Phe Glu Cys Gly Ala Phe Asn Pro Gln Trp
20 25 30

Val Ser Val Thr Tyr Gly Ile Trp Ile Cys Leu Glu Cys Ser Gly Arg
35 40 45

His Arg Gly Leu Gly Val His Leu Ser Phe Val Arg Ser Val Thr Met
50 55 60

Asp Lys Trp Lys Asp Ile Glu Leu Glu Lys Met Lys Ala Gly Gly Asn
65 70 75 80

Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln Glu Asp Tyr Asp Pro Cys
85 90 95

Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg Ala Ala Ala Leu Phe Arg
100 105 110

```
Asp Lys Val Val Ala Leu Ala Glu Gly Arg Glu Trp Ser Leu Glu Ser
        115                 120                 125

Ser Pro Ala Gln Asn Trp Thr Pro Pro Gln Pro Arg Thr Leu Pro Ser
    130                 135                 140

Met Val His Arg Val Ser Gly Gln Pro Gln Ser Val Thr Ala Ser Ser
145                 150                 155                 160

Asp Lys Ala Phe Glu Asp Trp Leu Asn Asp Asp Leu Gly Ser Tyr Gln
                165                 170                 175

Gly Ala Gln Gly Asn Arg Tyr Val Gly Phe Gly Asn Thr Pro Pro Pro
            180                 185                 190

Gln Lys Lys Glu Asp Asp Phe Leu Asn Asn Ala Met Ser Ser Leu Tyr
        195                 200                 205

Ser Gly Trp Ser Ser Phe Thr Thr Gly Ala Ser Arg Phe Ala Ser Ala
    210                 215                 220

Ala Lys Glu Gly Ala Thr Lys Phe Gly Ser Gln Ala Ser Gln Lys Ala
225                 230                 235                 240

Ser Glu Leu Gly His Ser Leu Asn Glu Asn Val Leu Lys Pro Ala Gln
                245                 250                 255

Glu Lys Val Lys Glu Gly Lys Ile Phe Asp Asp Val Ser Ser Gly Val
            260                 265                 270

Ser Gln Leu Ala Ser Lys Val Gln Gly Val Gly Ser Lys Gly Trp Arg
        275                 280                 285

Asp Val Thr Thr Phe Phe Ser Gly Lys Ala Glu Gly Pro Leu Asp Ser
    290                 295                 300

Pro Ser Glu Gly His Ser Tyr Gln Asn Ser Gly Leu Asp His Phe Gln
305                 310                 315                 320

Asn Ser Asn Ile Asp Gln Ser Phe Trp Glu Thr Phe Gly Ser Ala Glu
                325                 330                 335
```

```
Pro Thr Lys Thr Arg Lys Ser Pro Ser Ser Asp Ser Trp Thr Cys Ala
            340                 345                 350

Asp Thr Ser Thr Glu Arg Arg Ser Ser Asp Ser Trp Glu Val Trp Gly
        355                 360                 365

Ser Ala Ser Thr Asn Arg Asn Ser Asn Ser Asp Gly Gly Glu Gly Gly
    370                 375                 380

Glu Gly Thr Lys Lys Ala Val Pro Pro Ala Val Pro Thr Asp Asp Gly
385                 390                 395                 400

Trp Asp Asn Gln Asn Trp
                405


<210> 3231
<211> 130
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427717"

<400> 3231
Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Gln
1               5                   10                  15

Asp Glu Asn Asn Val Cys Phe Glu Cys Gly Ala Phe Asn Pro Gln Trp
            20                  25                  30

Val Ser Val Thr Tyr Gly Ile Trp Ile Cys Leu Glu Cys Ser Gly Arg
        35                  40                  45

His Arg Gly Leu Gly Val His Leu Ser Phe Val Arg Ser Val Thr Met
```

```
    50                  55                  60

Asp Lys Trp Lys Asp Ile Glu Leu Glu Lys Met Lys Ala Gly Gly Asn
65                  70                  75                  80

Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln Glu Asp Tyr Asp Pro Cys
                85                  90                  95

Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg Ala Ala Ala Leu Phe Arg
            100                 105                 110

Asp Lys Ser Leu Trp Pro Ala Ala Glu Cys Asp Arg Leu Leu Gly Gln
        115                 120                 125

Gly Phe
    130


<210> 3232
<211> 79
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 721; "

<220>
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<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428355"

<400> 3232
Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Gln
1               5                   10                  15

Asp Glu Asn Asn Val Cys Phe Glu Cys Gly Ala Phe Asn Pro Gln Trp
            20                  25                  30

Val Ser Val Thr Tyr Gly Ile Trp Ile Cys Leu Glu Cys Ser Gly Arg
        35                  40                  45
```

```
His Arg Gly Leu Gly Val His Leu Ser Phe Val Arg Ser Val Thr Met
    50                  55                  60

Asp Lys Trp Lys Asp Ile Glu Leu Glu Lys Met Lys Ala Gly Gly
65                  70                  75

<210> 3233
<211> 244
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
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<223> /note="Gene Name:
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      GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429674"

<400> 3233
Met Lys Ala Gly Gly Asn Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln
1               5                   10                  15

Glu Asp Tyr Asp Pro Cys Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg
            20                  25                  30

Ala Ala Ala Leu Phe Arg Asp Lys Val Val Ala Leu Ala Glu Gly Arg
        35                  40                  45

Glu Trp Ser Leu Glu Ser Ser Pro Ala Gln Asn Trp Thr Pro Pro Gln
    50                  55                  60

Pro Arg Thr Leu Pro Ser Met Val His Arg Val Ser Gly Gln Pro Gln
65                  70                  75                  80

Ser Val Thr Ala Ser Ser Asp Lys Ala Phe Glu Asp Trp Leu Asn Asp
                85                  90                  95
```

```
Asp Leu Gly Ser Tyr Gln Gly Ala Gln Gly Asn Arg Tyr Val Gly Phe
            100                 105                 110

Gly Asn Thr Pro Pro Pro Gln Lys Lys Glu Asp Asp Phe Leu Asn Asn
        115                 120                 125

Ala Met Ser Ser Leu Tyr Ser Thr Glu Ser Cys Phe Val Ala Gln Ala
    130                 135                 140

Ala Asp Trp Arg Ala Val Val Arg Pro Gln Leu Thr Ala Thr Ser Ala
145                 150                 155                 160

Ser Gln Val Gln Gly Trp Ser Ser Phe Thr Thr Gly Ala Ser Arg Phe
                165                 170                 175

Ala Ser Ala Ala Lys Glu Gly Ala Thr Lys Phe Gly Ser Gln Ala Ser
            180                 185                 190

Gln Lys Ala Ser Glu Leu Gly His Ser Leu Asn Glu Asn Val Leu Lys
        195                 200                 205

Pro Ala Gln Glu Lys Val Lys Glu Gly Lys Ile Phe Asp Asp Val Ser
    210                 215                 220

Ser Gly Val Ser Gln Leu Ala Ser Lys Val Gln Gly Val Gly Ser Lys
225                 230                 235                 240

Gly Trp Arg Asp
```

<210> 3234
<211> 153
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 721; "

<220>
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<223> /note="Gene Symbol: ARFGAP1; "

<220>
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<223> /note="Gene Name:

ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429770"

<400> 3234
Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Lys
1 5 10 15

Glu Gly Lys Ile Phe Asp Asp Val Ser Ser Gly Val Ser Gln Leu Ala
20 25 30

Ser Lys Val Gln Gly Val Gly Ser Lys Gly Trp Arg Asp Val Thr Thr
35 40 45

Phe Phe Ser Gly Lys Ala Glu Gly Pro Leu Asp Ser Pro Ser Glu Gly
50 55 60

His Ser Tyr Gln Asn Ser Gly Leu Asp His Phe Gln Asn Ser Asn Ile
65 70 75 80

Asp Gln Ser Phe Trp Glu Thr Phe Gly Ser Ala Glu Pro Thr Lys Thr
85 90 95

Arg Lys Ser Pro Ser Ser Asp Ser Trp Thr Cys Ala Asp Thr Ser Thr
100 105 110

Glu Arg Arg Ser Ser Asp Ser Trp Glu Val Trp Gly Ser Ala Ser Thr
115 120 125

Asn Arg Asn Ser Asn Ser Asp Gly Gly Glu Gly Gly Glu Gly Thr Lys
130 135 140

Lys Ala Val Pro Pro Ala Val Pro Thr
145 150

<210> 3235
<211> 361
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 721; "

<220>
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<223> /note="Gene Symbol: ARFGAP1; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N6T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430500"

<400> 3235
Met Arg Thr Thr Phe Val Arg Ser Val Thr Met Asp Lys Trp Lys Asp
1 5 10 15

Ile Glu Leu Glu Lys Met Lys Ala Gly Gly Asn Ala Lys Phe Arg Glu
20 25 30

Phe Leu Glu Ser Gln Glu Asp Tyr Asp Pro Cys Trp Ser Leu Gln Glu
35 40 45

Lys Tyr Asn Ser Arg Ala Ala Ala Leu Phe Arg Asp Lys Val Val Ala
50 55 60

Leu Ala Glu Gly Arg Glu Trp Ser Leu Glu Ser Ser Pro Ala Gln Asn
65 70 75 80

Trp Thr Pro Pro Gln Pro Arg Thr Leu Pro Ser Met Val His Arg Val
85 90 95

Ser Gly Gln Pro Gln Ser Val Thr Ala Ser Ser Asp Lys Ala Phe Glu
100 105 110

Asp Trp Leu Asn Asp Asp Leu Gly Ser Tyr Gln Gly Ala Gln Gly Asn
115 120 125

Arg Tyr Val Gly Phe Gly Asn Thr Pro Pro Pro Gln Lys Lys Glu Asp
130 135 140

Asp Phe Leu Asn Asn Ala Met Ser Ser Leu Tyr Ser Gly Trp Ser Ser
145 150 155 160

```
Phe Thr Thr Gly Ala Ser Arg Phe Ala Ser Ala Ala Lys Glu Gly Ala
                165                 170                 175

Thr Lys Phe Gly Ser Gln Ala Ser Gln Lys Phe Trp Gly His Lys Gln
            180                 185                 190

Gln Pro Glu Pro Ala Ser Glu Leu Gly His Ser Leu Asn Glu Asn Val
        195                 200                 205

Leu Lys Pro Ala Gln Glu Lys Val Lys Glu Gly Lys Ile Phe Asp Asp
    210                 215                 220

Val Ser Ser Gly Val Ser Gln Leu Ala Ser Lys Gly Val Gly Ser Lys
225                 230                 235                 240

Gly Trp Arg Asp Val Thr Thr Phe Phe Ser Gly Lys Ala Glu Gly Pro
                245                 250                 255

Leu Asp Ser Pro Ser Glu Gly His Ser Tyr Gln Asn Ser Gly Leu Asp
            260                 265                 270

His Phe Gln Asn Ser Asn Ile Asp Gln Ser Phe Trp Glu Thr Phe Gly
        275                 280                 285

Ser Ala Glu Pro Thr Lys Thr Arg Lys Ser Pro Ser Ser Asp Ser Trp
    290                 295                 300

Thr Cys Ala Asp Thr Ser Thr Glu Arg Arg Ser Ser Asp Ser Trp Glu
305                 310                 315                 320

Val Trp Gly Ser Ala Ser Thr Asn Arg Asn Ser Asn Ser Asp Gly Gly
                325                 330                 335

Glu Gly Gly Glu Gly Thr Lys Lys Ala Val Pro Pro Ala Val Pro Thr
            340                 345                 350

Asp Asp Gly Trp Asp Asn Gln Asn Trp
        355                 360
```

<210> 3236
<211> 261
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430929"

<400> 3236
Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Gln
1 5 10 15

Asp Glu Asn Asn Val Cys Phe Glu Cys Gly Ala Phe Asn Pro Gln Trp
20 25 30

Val Ser Val Thr Tyr Gly Ile Trp Ile Cys Leu Glu Cys Ser Gly Arg
35 40 45

His Arg Gly Leu Gly Val His Leu Ser Phe Val Arg Ser Val Thr Met
50 55 60

Asp Lys Trp Lys Asp Ile Glu Leu Glu Lys Met Lys Ala Gly Gly Asn
65 70 75 80

Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln Glu Asp Tyr Asp Pro Cys
85 90 95

Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg Ala Ala Ala Leu Phe Arg
100 105 110

Asp Lys Val Val Ala Leu Ala Glu Gly Arg Glu Trp Ser Leu Glu Ser
115 120 125

Ser Pro Ala Gln Asn Trp Thr Pro Pro Gln Pro Arg Thr Leu Pro Ser
130 135 140

```
Met Val His Arg Val Ser Gly Gln Pro Gln Ser Val Thr Ala Ser Ser
145                 150                 155                 160

Asp Lys Ala Phe Glu Asp Trp Leu Asn Asp Asp Leu Gly Ser Tyr Gln
                165                 170                 175

Gly Ala Gln Gly Asn Arg Tyr Val Gly Phe Gly Asn Thr Pro Pro Pro
            180                 185                 190

Gln Lys Lys Glu Asp Asp Phe Leu Asn Asn Ala Met Ser Ser Leu Tyr
        195                 200                 205

Ser Gly Trp Ser Ser Phe Thr Thr Gly Ala Ser Arg Phe Ala Ser Ala
    210                 215                 220

Ala Lys Glu Gly Ala Thr Lys Phe Gly Ser Gln Ala Ser Gln Lys Ala
225                 230                 235                 240

Ser Glu Leu Gly His Ser Leu Asn Glu Asn Val Leu Lys Pro Ala Gln
                245                 250                 255

Glu Lys Val Lys Glu
            260


<210> 3237
<211> 293
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N6T3; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000443716"

<400> 3237

```
Met Leu Ser Ser Glu Ser Ser Trp Ser Leu Arg Arg Ile Thr Ile Leu
1               5                  10                  15

Ala Gly Pro Cys Arg Arg Ser Thr Thr Ala Glu Pro Arg Pro Ser Leu
            20                  25                  30

Gly Ile Arg Val Ser Gly Gln Pro Gln Ser Val Thr Ala Ser Ser Asp
        35                  40                  45

Lys Ala Phe Glu Asp Trp Leu Asn Asp Asp Leu Gly Ser Tyr Gln Gly
    50                  55                  60

Ala Gln Gly Asn Arg Tyr Val Gly Phe Gly Asn Thr Pro Pro Pro Gln
65                  70                  75                  80

Lys Lys Glu Asp Asp Phe Leu Asn Asn Ala Met Ser Ser Leu Tyr Ser
                85                  90                  95

Gly Trp Ser Ser Phe Thr Thr Gly Ala Ser Arg Phe Ala Ser Ala Ala
            100                 105                 110

Lys Glu Gly Ala Thr Lys Phe Gly Ser Gln Ala Ser Gln Lys Ala Ser
        115                 120                 125

Glu Leu Gly His Ser Leu Asn Glu Asn Val Leu Lys Pro Ala Gln Glu
    130                 135                 140

Lys Val Lys Glu Gly Lys Ile Phe Asp Asp Val Ser Ser Gly Val Ser
145                 150                 155                 160

Gln Leu Ala Ser Lys Val Gln Gly Val Gly Ser Lys Gly Trp Arg Asp
                165                 170                 175

Val Thr Thr Phe Phe Ser Gly Lys Ala Glu Gly Pro Leu Asp Ser Pro
            180                 185                 190

Ser Glu Gly His Ser Tyr Gln Asn Ser Gly Leu Asp His Phe Gln Asn
        195                 200                 205

Ser Asn Ile Asp Gln Ser Phe Trp Glu Thr Phe Gly Ser Ala Glu Pro
    210                 215                 220
```

```
Thr Lys Thr Arg Lys Ser Pro Ser Ser Asp Ser Trp Thr Cys Ala Asp
225                 230                 235                 240


Thr Ser Thr Glu Arg Arg Ser Ser Asp Ser Trp Glu Val Trp Gly Ser
                245                 250                 255


Ala Ser Thr Asn Arg Asn Ser Asn Ser Asp Gly Gly Glu Gly Gly Glu
            260                 265                 270


Gly Thr Lys Lys Ala Val Pro Pro Ala Val Pro Thr Asp Asp Gly Trp
        275                 280                 285


Asp Asn Gln Asn Trp
    290


<210> 3238
<211> 271
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447037"

<400> 3238
Met Lys Ala Gly Gly Asn Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln
1               5                   10                  15


Glu Asp Tyr Asp Pro Cys Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg
            20                  25                  30


Ala Ala Ala Leu Phe Arg Asp Lys Val Val Ala Leu Ala Glu Gly Arg
        35                  40                  45
```

```
Glu Trp Ser Leu Glu Ser Ser Pro Ala Gln Asn Trp Thr Pro Pro Gln
    50                  55                  60

Pro Arg Thr Leu Pro Ser Met Val His Arg Val Ser Gly Gln Pro Gln
65                  70                  75                  80

Ser Val Thr Ala Ser Ser Asp Lys Ala Phe Glu Asp Trp Leu Asn Asp
                85                  90                  95

Asp Leu Gly Ser Tyr Gln Gly Ala Gln Gly Asn Arg Tyr Val Gly Phe
            100                 105                 110

Gly Asn Thr Pro Pro Pro Gln Lys Lys Glu Asp Asp Phe Leu Asn Asn
        115                 120                 125

Ala Met Ser Ser Leu Tyr Ser Gly Trp Ser Ser Phe Thr Thr Gly Ala
    130                 135                 140

Ser Arg Phe Ala Ser Ala Ala Lys Glu Gly Ala Thr Lys Phe Gly Ser
145                 150                 155                 160

Gln Ala Ser Gln Lys Ala Ser Glu Leu Gly His Ser Leu Asn Glu Asn
                165                 170                 175

Val Leu Lys Pro Ala Gln Glu Lys Val Lys Glu Gly Lys Ile Phe Asp
            180                 185                 190

Asp Val Ser Ser Gly Val Ser Gln Leu Ala Ser Lys Val Gln Gly Val
        195                 200                 205

Gly Ser Lys Gly Trp Arg Asp Val Thr Thr Phe Phe Ser Gly Lys Ala
    210                 215                 220

Glu Gly Pro Leu Asp Ser Pro Ser Glu Gly His Ser Tyr Gln Asn Ser
225                 230                 235                 240

Gly Leu Asp His Phe Gln Asn Ser Asn Ile Asp Gln Ser Phe Trp Glu
                245                 250                 255

Thr Phe Gly Ser Ala Glu Pro Thr Lys Thr Arg Lys Ser Pro Ser
            260                 265                 270
```

<210> 3239
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449515"

<400> 3239
Met Ala Ser Pro Arg Thr Arg Lys Val Leu Lys Glu Val Arg Val Gln
1 5 10 15

Asp Glu Asn Asn Val Cys Phe Glu Cys Gly Ala Phe Asn Pro Gln Trp
20 25 30

Val Ser Val Thr Tyr Gly Ile Trp Ile Cys Leu Glu Cys Ser Gly Arg
35 40 45

His Arg Gly Leu Gly Val His Leu Ser Phe Val Arg Ser Val Thr Met
50 55 60

Asp Lys Trp Lys Asp Ile Glu Leu Glu Lys Met Lys Ala Gly Gly Asn
65 70 75 80

Ala Lys Phe Arg Glu Phe Leu Glu Ser Gln Glu Asp Tyr Asp Pro Cys
85 90 95

Trp Ser Leu Gln Glu Lys Tyr Asn Ser Arg Ala Ala Ala Leu Phe Arg
100 105 110

Asp Lys Val Val Ala Leu Ala Glu Gly Arg
115 120

<210> 3240

<211> 340
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449800"

<400> 3240

Met	Lys	Ala	Gly	Gly	Asn	Ala	Lys	Phe	Arg	Glu	Phe	Leu	Glu	Ser	Gln
1				5				10					15		
Glu	Asp	Tyr	Asp	Pro	Cys	Trp	Ser	Leu	Gln	Glu	Lys	Tyr	Asn	Ser	Arg
			20					25					30		
Ala	Ala	Ala	Leu	Phe	Arg	Asp	Lys	Val	Val	Ala	Leu	Ala	Glu	Gly	Arg
		35					40					45			
Glu	Trp	Ser	Leu	Glu	Ser	Ser	Pro	Ala	Gln	Asn	Trp	Thr	Pro	Pro	Gln
	50					55					60				
Pro	Arg	Thr	Leu	Pro	Ser	Met	Val	His	Arg	Val	Ser	Gly	Gln	Pro	Gln
65					70					75					80
Ser	Val	Thr	Ala	Ser	Ser	Asp	Lys	Ala	Phe	Glu	Asp	Trp	Leu	Asn	Asp
				85					90					95	
Asp	Leu	Gly	Ser	Tyr	Gln	Gly	Ala	Gln	Gly	Asn	Arg	Tyr	Val	Gly	Phe
			100					105					110		
Gly	Asn	Thr	Pro	Pro	Pro	Gln	Lys	Lys	Glu	Asp	Asp	Phe	Leu	Asn	Asn
		115					120					125			
Ala	Met	Ser	Ser	Leu	Tyr	Ser	Gly	Trp	Ser	Ser	Phe	Thr	Thr	Gly	Ala
	130					135					140				

Ser Arg Phe Ala Ser Ala Ala Lys Glu Gly Ala Thr Lys Phe Gly Ser
145 150 155 160

Gln Ala Ser Gln Lys Phe Trp Gly His Lys Gln Gln Pro Glu Pro Ala
165 170 175

Ser Glu Leu Gly His Ser Leu Asn Glu Asn Val Leu Lys Pro Ala Gln
180 185 190

Glu Lys Val Lys Glu Gly Lys Ile Phe Asp Asp Val Ser Ser Gly Val
195 200 205

Ser Gln Leu Ala Ser Lys Gly Val Gly Ser Lys Gly Trp Arg Asp Val
210 215 220

Thr Thr Phe Phe Ser Gly Lys Ala Glu Gly Pro Leu Asp Ser Pro Ser
225 230 235 240

Glu Gly His Ser Tyr Gln Asn Ser Gly Leu Asp His Phe Gln Asn Ser
245 250 255

Asn Ile Asp Gln Ser Phe Trp Glu Thr Phe Gly Ser Ala Glu Pro Thr
260 265 270

Lys Thr Arg Lys Ser Pro Ser Ser Asp Ser Trp Thr Cys Ala Asp Thr
275 280 285

Ser Thr Glu Arg Arg Ser Ser Asp Ser Trp Glu Val Trp Gly Ser Ala
290 295 300

Ser Thr Asn Arg Asn Ser Asn Ser Asp Gly Gly Glu Gly Gly Glu Gly
305 310 315 320

Thr Lys Lys Ala Val Pro Pro Ala Val Pro Thr Asp Asp Gly Trp Asp
325 330 335

Asn Gln Asn Trp
340

<210> 3241
<211> 104
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 721; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449849"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3241
Xaa Glu Pro Thr Lys Thr Arg Lys Ser Pro Ser Ser Asp Ser Trp Thr
1 5 10 15

Cys Ala Asp Thr Ser Thr Glu Arg Arg Ser Ser Asp Ser Trp Glu Phe
20 25 30

Phe Leu Phe Glu Glu Ser Asp Trp Ser Gly Lys Asp Gly Asn Ala Gly
35 40 45

Asn Asp Thr Gly Ala His Ala Ala Ile Arg Pro Pro Ser Ala Pro Glu
50 55 60

Ser Thr Pro Ala Trp Ala Cys Ala Val Arg Pro Ala Ser Val Val Thr
65 70 75 80

Leu Cys Gly Ser Pro Ala Ser Ala Pro Ser His His Gln Val His Gln
85 90 95

Val His Gln Thr Arg Pro Pro Gln
100

<210> 3242
<211> 493

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400226"

<400> 3242
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1 5 10 15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
20 25 30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
35 40 45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
50 55 60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65 70 75 80

Gln Val Gly Gly Asn Ala Asn Ala Thr Ala Phe Phe Arg Gln His Gly
85 90 95

Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr Asn Ser Arg Ala Ala Gln
100 105 110

Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly Ser Ala Ala Leu Ala Arg
115 120 125

His Gly Thr Asp Pro Pro Ala Trp Asp Ala Pro Ala Thr Glu Pro Ser
130 135 140

```
Gly Thr Gln Gln Pro Ala Pro Ser Thr Glu Ser Ser Gly Leu Ala Gln
145                 150                 155                 160

Pro Glu His Gly Pro Asn Thr Asp Leu Leu Gly Thr Ser Pro Lys Ala
                165                 170                 175

Ser Leu Glu Leu Lys Ser Ser Ile Ile Gly Lys Lys Lys Pro Ala Ala
            180                 185                 190

Ala Lys Lys Gly Leu Gly Ala Lys Lys Gly Leu Gly Ala Gln Lys Val
        195                 200                 205

Ser Ser Gln Ser Phe Ser Glu Ile Glu Arg Gln Ala Gln Val Ala Glu
    210                 215                 220

Lys Leu Arg Glu Gln Gln Ala Ala Asp Ala Lys Lys Gln Ala Glu Glu
225                 230                 235                 240

Ser Met Val Ala Ser Met Arg Leu Ala Tyr Gln Glu Leu Gln Ile Asp
                245                 250                 255

Arg Lys Lys Glu Glu Lys Lys Leu Gln Asn Leu Glu Gly Lys Lys Arg
            260                 265                 270

Glu Gln Ala Glu Arg Leu Gly Met Gly Leu Val Ser Arg Ser Ser Val
        275                 280                 285

Ser His Ser Val Leu Ser Glu Met Gln Val Ile Glu Gln Glu Thr Pro
    290                 295                 300

Val Ser Ala Lys Ser Ser Arg Ser Gln Leu Asp Leu Phe Asp Asp Val
305                 310                 315                 320

Gly Thr Phe Ala Ser Gly Pro Pro Lys Tyr Lys Asp Asn Pro Phe Ser
                325                 330                 335

Leu Gly Glu Ser Phe Gly Ser Arg Trp Asp Thr Asp Ala Ala Trp Gly
            340                 345                 350

Met Asp Arg Val Glu Glu Lys Glu Pro Glu Val Thr Ile Ser Ser Ile
        355                 360                 365
```

```
Arg Pro Ile Ser Glu Arg Ala Thr Asn Arg Arg Glu Val Glu Ser Arg
    370                 375                 380

Ser Ser Gly Leu Glu Ser Ser Glu Ala Arg Gln Lys Phe Ala Gly Ala
385                 390                 395                 400

Lys Ala Ile Ser Ser Asp Met Phe Phe Gly Arg Glu Val Asp Ala Glu
                405                 410                 415

Tyr Glu Ala Arg Ser Arg Leu Gln Gln Leu Ser Gly Ser Ser Ala Ile
            420                 425                 430

Ser Ser Ser Asp Leu Phe Gly Asp Met Asp Gly Ala His Gly Ala Gly
        435                 440                 445

Ser Val Ser Leu Gly Asn Val Leu Pro Thr Ala Asp Ile Ala Gln Phe
    450                 455                 460

Lys Gln Gly Val Lys Ser Val Ala Gly Lys Met Ala Val Leu Ala Asn
465                 470                 475                 480

Gly Val Met Asn Ser Leu Gln Asp Arg Tyr Gly Ser Tyr
                485                 490


<210> 3243
<211> 16
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431238"

<400> 3243
Lys Val Arg Glu Gln Gly Ala Arg Gly Val Ser Arg Pro Ala Gly Ala
```

1 5 10 15

<210> 3244
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431684"

<400> 3244
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1 5 10 15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
20 25 30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
35 40 45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
50 55 60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65 70 75 80

Gln Val Gly Gly Asn Ala Asn Ala Thr Ala Phe Phe Arg Gln His Gly
85 90 95

Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr Asn Ser Arg Ala Ala Gln
100 105 110

Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly Ser Ala Ala Leu Ala Arg
115 120 125

```
His Gly Thr Asp Leu Trp Ile Asp Asn Met Ser Ser Ala Val Pro Asn
    130                 135                 140

His Ser Pro Glu Lys Lys Asp Ser Asp Phe Phe Thr Glu His Thr Gln
145                 150                 155                 160

Val Leu Val Gly Leu Gly Ala Ser Cys Gln Gln Glu Trp Leu Thr Glu
                165                 170                 175

Ala Ser Val Ile Trp Pro Pro Phe Gln Pro Pro Ala Trp Asp Ala Pro
            180                 185                 190

Ala Thr Glu Pro Ser Gly Thr Gln Gln Pro Ala Pro Ser Thr Glu Ser
        195                 200                 205

Ser Gly Leu Ala Gln Pro Glu His Gly Pro Asn Thr Asp Leu Leu Gly
    210                 215                 220

Thr Ser Pro Lys Ala Ser Leu Glu Leu Lys Ser Ser Ile Ile
225                 230                 235


<210> 3245
<211> 17
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 722; "

<220>
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<223> /note="Gene Symbol: ARFGAP2; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431847"

<400> 3245
Asn Lys Val Arg Glu Gln Gly Ala Arg Gly Val Ser Arg Pro Ala Gly
1               5                   10                  15
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Ala

<210> 3246
<211> 327
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 722; "

<220>
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<220>
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<400> 3246
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1 5 10 15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
20 25 30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
35 40 45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
50 55 60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65 70 75 80

Gln Val Gly Gly Asn Ala Asn Ala Thr Ala Phe Phe Arg Gln His Gly
85 90 95

Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr Asn Ser Arg Ala Ala Gln
100 105 110

Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly Ser Ala Ala Leu Ala Arg
115 120 125

His Gly Thr Asp Leu Trp Ile Asp Asn Met Ser Ser Ala Val Pro Asn
130 135 140

His Ser Pro Glu Lys Lys Asp Ser Asp Phe Phe Thr Glu His Thr Gln
145 150 155 160

Glu Trp Leu Thr Glu Ala Ser Val Ile Trp Pro Pro Phe Gln Pro Pro
165 170 175

Ala Trp Asp Ala Pro Ala Thr Glu Pro Ser Gly Thr Gln Gln Pro Ala
180 185 190

Pro Ser Thr Glu Ser Ser Gly Leu Ala Gln Pro Glu His Gly Pro Asn
195 200 205

Thr Asp Leu Leu Gly Thr Ser Pro Lys Ala Ser Leu Glu Leu Lys Ser
210 215 220

Ser Ile Ile Gly Lys Lys Lys Pro Ala Ala Ala Lys Lys Gly Leu Gly
225 230 235 240

Ala Lys Lys Gly Leu Gly Ala Gln Lys Val Ser Ser Gln Ser Phe Ser
245 250 255

Glu Ile Glu Arg Gln Ala Gln Val Ala Glu Lys Leu Arg Glu Gln Gln
260 265 270

Ala Ala Asp Ala Lys Lys Gln Ala Glu Glu Ser Met Val Ala Ser Met
275 280 285

Arg Leu Ala Tyr Gln Glu Leu Gln Ile Asp Arg Lys Lys Glu Glu Lys
290 295 300

Lys Leu Gln Asn Leu Glu Gly Lys Lys Arg Glu Gln Ala Glu Arg Leu
305 310 315 320

Gly Met Gly Leu Val Ser Arg
325

<210> 3247

<211> 89
<212> PRT
<213> Homo sapiens

<220>
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GTPase activating prt 2; "

<220>
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<223> /note="ENSP ID: ENSP00000432978"

<400> 3247
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1 5 10 15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
20 25 30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
35 40 45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
50 55 60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65 70 75 80

Gln Val Gly Gly Asn Ala Asn Ala Asn
85

<210> 3248
<211> 94
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
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ADP-ribosylation factor
GTPase activating prt 2; "

<220>
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<223> /note="ENSP ID: ENSP00000433108"

<400> 3248
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1 5 10 15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
20 25 30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
35 40 45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
50 55 60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65 70 75 80

Gln Val Gly Gly Asn Ala Asn Ala Ile Ile Thr Ser Leu Ser
85 90

<210> 3249
<211> 70
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433210"

<400> 3249
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1   5   10   15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20   25   30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35   40   45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Ser
    50   55   60

Trp Val Pro Arg Lys Ala
65   70

<210> 3250
<211> 237
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
<221> source
<223> /note="Gene Name:
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      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434022"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3250
Xaa Val Ala Ser Met Arg Leu Ala Tyr Gln Glu Leu Gln Ile Asp Arg
1   5   10   15

```
Lys Lys Glu Glu Lys Lys Leu Gln Asn Leu Glu Gly Lys Lys Arg Glu
            20                  25                  30

Gln Ala Glu Ser Ser Val Ser His Ser Val Leu Ser Glu Met Gln Val
        35                  40                  45

Ile Glu Gln Glu Thr Pro Val Ser Ala Lys Ser Ser Arg Ser Gln Leu
    50                  55                  60

Asp Leu Phe Asp Asp Val Gly Thr Phe Ala Ser Gly Pro Pro Lys Tyr
65                  70                  75                  80

Lys Asp Asn Pro Phe Ser Leu Gly Glu Ser Phe Gly Ser Arg Trp Asp
                85                  90                  95

Thr Asp Ala Ala Trp Gly Met Asp Arg Val Glu Glu Lys Glu Pro Glu
            100                 105                 110

Val Thr Ile Ser Ser Ile Arg Pro Ile Ser Glu Arg Ala Thr Asn Arg
        115                 120                 125

Arg Glu Val Glu Ser Arg Ser Ser Gly Leu Glu Ser Ser Glu Ala Arg
    130                 135                 140

Gln Lys Phe Ala Gly Ala Lys Ala Ile Ser Ser Asp Met Phe Phe Gly
145                 150                 155                 160

Arg Glu Val Asp Ala Glu Tyr Glu Ala Arg Ser Arg Leu Gln Gln Leu
                165                 170                 175

Ser Gly Ser Ser Ala Ile Ser Ser Ser Asp Leu Phe Gly Asp Met Asp
            180                 185                 190

Gly Ala His Gly Ala Gly Ser Val Ser Leu Gly Asn Val Leu Pro Thr
        195                 200                 205

Ala Asp Ile Ala Gln Phe Lys Gln Gly Val Lys Ser Val Ala Gly Lys
    210                 215                 220

Met Ala Val Leu Ala Asn Gly Val Met Asn Ser Leu Gln
225                 230                 235
```

<210> 3251
<211> 274
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 722; "

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<223> /note="Gene Symbol: ARFGAP2; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434433"

<400> 3251
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1 5 10 15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
20 25 30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
35 40 45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
50 55 60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65 70 75 80

Gln Val Gly Gly Asn Ala Asn Ala Leu Gly Ala Lys Lys Gly Leu Gly
85 90 95

Ala Gln Lys Val Ser Ser Gln Ser Phe Ser Glu Ile Glu Arg Gln Ala
100 105 110

Gln Val Ala Glu Lys Leu Arg Glu Gln Gln Ala Ala Asp Ala Lys Lys
115 120 125

```
Gln Ala Glu Glu Ser Met Val Ala Ser Met Arg Leu Ala Tyr Gln Glu
    130                 135                 140

Leu Gln Ile Asp Arg Lys Lys Glu Glu Lys Lys Leu Gln Asn Leu Glu
145                 150                 155                 160

Gly Lys Lys Arg Glu Gln Ala Glu Arg Leu Gly Met Gly Leu Val Ser
                165                 170                 175

Arg Ser Ser Val Ser His Ser Val Leu Ser Glu Met Gln Val Ile Glu
            180                 185                 190

Gln Glu Thr Pro Val Ser Ala Lys Ser Ser Arg Ser Gln Leu Asp Leu
        195                 200                 205

Phe Asp Asp Val Gly Thr Phe Ala Ser Gly Pro Pro Lys Tyr Lys Asp
    210                 215                 220

Asn Pro Phe Ser Leu Gly Glu Ser Phe Gly Ser Arg Trp Asp Thr Asp
225                 230                 235                 240

Ala Ala Trp Gly Met Asp Arg Val Glu Glu Lys Glu Pro Glu Val Thr
                245                 250                 255

Ile Ser Ser Ile Arg Pro Ile Ser Glu Arg Ala Thr Asn Arg Arg Glu
            260                 265                 270

Val Glu
```

<210> 3252
<211> 521
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 722; "

<220>
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<220>
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<223> /note="Gene Name:
ADP-ribosylation factor

GTPase activating prt 2; "

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<223> /note="Uniprot ID: Q8N6H7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434442"

<400> 3252

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Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1               5                  10                  15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20                  25                  30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35                  40                  45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
    50                  55                  60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65                  70                  75                  80

Gln Val Gly Gly Asn Ala Asn Ala Thr Ala Phe Phe Arg Gln His Gly
                85                  90                  95

Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr Asn Ser Arg Ala Ala Gln
            100                 105                 110

Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly Ser Ala Ala Leu Ala Arg
        115                 120                 125

His Gly Thr Asp Leu Trp Ile Asp Asn Met Ser Ser Ala Val Pro Asn
    130                 135                 140

His Ser Pro Glu Lys Lys Asp Ser Asp Phe Phe Thr Glu His Thr Gln
145                 150                 155                 160

Pro Pro Ala Trp Asp Ala Pro Ala Thr Glu Pro Ser Gly Thr Gln Gln
                165                 170                 175

Pro Ala Pro Ser Thr Glu Ser Ser Gly Leu Ala Gln Pro Glu His Gly
            180                 185                 190
```

```
Pro Asn Thr Asp Leu Leu Gly Thr Ser Pro Lys Ala Ser Leu Glu Leu
        195                 200                 205

Lys Ser Ser Ile Ile Gly Lys Lys Lys Pro Ala Ala Ala Lys Lys Gly
    210                 215                 220

Leu Gly Ala Lys Lys Gly Leu Gly Ala Gln Lys Val Ser Ser Gln Ser
225                 230                 235                 240

Phe Ser Glu Ile Glu Arg Gln Ala Gln Val Ala Glu Lys Leu Arg Glu
                245                 250                 255

Gln Gln Ala Ala Asp Ala Lys Lys Gln Ala Glu Glu Ser Met Val Ala
            260                 265                 270

Ser Met Arg Leu Ala Tyr Gln Glu Leu Gln Ile Asp Arg Lys Lys Glu
        275                 280                 285

Glu Lys Lys Leu Gln Asn Leu Glu Gly Lys Lys Arg Glu Gln Ala Glu
    290                 295                 300

Arg Leu Gly Met Gly Leu Val Ser Arg Ser Ser Val Ser His Ser Val
305                 310                 315                 320

Leu Ser Glu Met Gln Val Ile Glu Gln Glu Thr Pro Val Ser Ala Lys
                325                 330                 335

Ser Ser Arg Ser Gln Leu Asp Leu Phe Asp Asp Val Gly Thr Phe Ala
            340                 345                 350

Ser Gly Pro Pro Lys Tyr Lys Asp Asn Pro Phe Ser Leu Gly Glu Ser
        355                 360                 365

Phe Gly Ser Arg Trp Asp Thr Asp Ala Ala Trp Gly Met Asp Arg Val
    370                 375                 380

Glu Glu Lys Glu Pro Glu Val Thr Ile Ser Ser Ile Arg Pro Ile Ser
385                 390                 395                 400

Glu Arg Ala Thr Asn Arg Arg Glu Val Glu Ser Arg Ser Ser Gly Leu
                405                 410                 415
```

```
Glu Ser Ser Glu Ala Arg Gln Lys Phe Ala Gly Ala Lys Ala Ile Ser
            420                 425                 430

Ser Asp Met Phe Phe Gly Arg Glu Val Asp Ala Glu Tyr Glu Ala Arg
        435                 440                 445

Ser Arg Leu Gln Gln Leu Ser Gly Ser Ser Ala Ile Ser Ser Ser Asp
    450                 455                 460

Leu Phe Gly Asp Met Asp Gly Ala His Gly Ala Gly Ser Val Ser Leu
465                 470                 475                 480

Gly Asn Val Leu Pro Thr Ala Asp Ile Ala Gln Phe Lys Gln Gly Val
                485                 490                 495

Lys Ser Val Ala Gly Lys Met Ala Val Leu Ala Asn Gly Val Met Asn
            500                 505                 510

Ser Leu Gln Asp Arg Tyr Gly Ser Tyr
        515                 520


<210> 3253
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
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<223> /note="Gene Name:
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      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434487"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid
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<400> 3253
Xaa Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1   5   10   15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20   25   30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35   40   45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
    50   55   60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65   70   75   80

Gln Val Gly Gly Asn Ala Asn Ala Thr Ala Phe Phe Arg Gln His Gly
                85   90   95

Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr Asn Ser Arg Ala Ala Gln
            100   105   110

Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly Ser Ala Ala Leu Ala Arg
        115   120   125

His Gly Thr Asp Asn
    130

<210> 3254
<211> 252
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor
      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434809"

<400> 3254
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1   5   10   15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20   25   30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35   40   45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
    50   55   60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65   70   75   80

Gln Val Gly Gly Asn Ala Asn Ala Thr Ala Phe Phe Arg Gln His Gly
                85   90   95

Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr Asn Ser Arg Ala Ala Gln
            100   105   110

Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly Ser Ala Ala Leu Ala Arg
        115   120   125

His Gly Thr Asp Leu Trp Ile Asp Asn Met Ser Ser Ala Val Pro Asn
    130   135   140

His Ser Pro Glu Lys Lys Asp Ser Asp Phe Phe Thr Glu His Thr Gln
145   150   155   160

Pro Pro Ala Trp Asp Ala Pro Ala Thr Glu Pro Ser Gly Thr Gln Gln
                165   170   175

Pro Ala Pro Ser Thr Glu Ser Ser Gly Leu Ala Gln Pro Glu His Gly
            180   185   190

Pro Asn Thr Asp Leu Leu Gly Thr Ser Pro Lys Ala Ser Leu Glu Ser
        195   200   205

```
Val Tyr Leu Ser Ala Lys Gly Ala Leu Pro Ala Arg Glu Leu Lys Ser
    210                 215                 220

Ser Ile Ile Gly Lys Lys Lys Pro Ala Ala Ala Lys Lys Gly Leu Gly
225                 230                 235                 240

Ala Lys Lys Gly Leu Gly Ala Gln Lys Val Ser Ser
                245                 250


<210> 3255
<211> 173
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
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<223> /note="Gene Symbol: ARFGAP2; "

<220>
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<223> /note="Gene Name:
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      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435488"

<400> 3255
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1               5                   10                  15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20                  25                  30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35                  40                  45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
    50                  55                  60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65                  70                  75                  80

Gln Thr Ala Phe Phe Arg Gln His Gly Cys Thr Ala Asn Asp Ala Asn
```

```
                85                  90                  95

Thr Lys Tyr Asn Ser Arg Ala Ala Gln Met Tyr Arg Glu Lys Ile Arg
            100                 105                 110

Gln Leu Gly Ser Ala Ala Leu Ala Arg His Gly Thr Asp Leu Trp Ile
        115                 120                 125

Asp Asn Met Ser Ser Ala Val Pro Asn His Ser Pro Glu Lys Lys Asp
    130                 135                 140

Ser Asp Phe Phe Thr Glu His Thr Gln Pro Pro Ala Trp Asp Ala Pro
145                 150                 155                 160

Ala Thr Glu Pro Ser Gly Thr Gln Gln Pro Ala Pro Ser
                165                 170


<210> 3256
<211> 110
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437070"

<400> 3256
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1               5                   10                  15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20                  25                  30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35                  40                  45
```

```
Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
    50                  55                  60

Arg Leu Phe Phe Ala Asn Met Asp Ala Gln Pro Met Met Pro Thr Pro
65                  70                  75                  80

Asn Ile Ile Ala Glu Leu Pro Arg Cys Thr Gly Arg Arg Ser Gly Ser
                85                  90                  95

Trp Gly Val Arg Pro Trp Leu Gly Met Ala Leu Ile Phe Gly
            100                 105                 110


<210> 3257
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

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<223> /note="Gene Name:
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      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437194"

<400> 3257
Arg Ser Arg Thr Arg Pro Lys Ser Arg Leu Phe Leu Arg Gly Phe Ala
1               5                   10                  15

Gln Phe Gln Pro Thr Arg Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp
            20                  25                  30

Phe Gln Leu Arg Cys Met Gln Val Gly Gly Asn Ala Asn Ala Thr Ala
        35                  40                  45

Phe Phe Arg Gln His Gly Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr
    50                  55                  60
```

```
Asn Ser Arg Ala Ala Gln Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly
65                  70                  75                  80

Ser Ala Ala Leu Ala Arg His Gly Thr Asp Leu Trp Ile Asp Asn Met
                85                  90                  95

Ser Ser Ala Val Pro Asn His Ser Pro Glu Lys Lys Asp Ser Asp Phe
            100                 105                 110

Phe Thr Glu His Thr Gln Asn
        115


<210> 3258
<211> 156
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
<221> source
<223> /note="Gene Name:
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      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437305"

<400> 3258
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1               5                   10                  15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20                  25                  30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35                  40                  45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
    50                  55                  60
```

```
Tyr Lys Asp Asn Pro Phe Ser Leu Gly Glu Ser Phe Gly Ser Arg Trp
65                  70                  75                  80

Asp Thr Asp Ala Ala Trp Gly Met Asp Arg Val Glu Glu Lys Glu Pro
                85                  90                  95

Glu Val Thr Ile Ser Ser Ile Arg Pro Ile Ser Glu Arg Ala Thr Asn
            100                 105                 110

Arg Arg Glu Val Glu Ser Arg Ser Ser Gly Leu Glu Ser Ser Glu Ala
        115                 120                 125

Arg Gln Lys Phe Ala Gly Ala Lys Ala Ile Ser Ser Asp Met Phe Phe
    130                 135                 140

Gly Arg Glu Val Asp Ala Glu Tyr Glu Ala Arg Ser
145                 150                 155


<210> 3259
<211> 70
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486229"

<400> 3259
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1               5                   10                  15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20                  25                  30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
```

```
        35                  40                  45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Ser
    50                  55                  60

Trp Val Pro Arg Lys Ala
65                  70


<210> 3260
<211> 385
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 722; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP2; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486339"

<400> 3260
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu Phe Lys Arg
1               5                   10                  15

Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys Gly Ala Lys
            20                  25                  30

Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp
        35                  40                  45

Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg
    50                  55                  60

Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu Arg Cys Met
65                  70                  75                  80

Gln Val Gly Gly Asn Ala Asn Ala Leu Gly Ala Lys Lys Gly Leu Gly
                85                  90                  95
```

```
Ala Gln Lys Val Ser Ser Gln Ser Phe Ser Glu Ile Glu Arg Gln Ala
            100                 105                 110

Gln Val Ala Glu Lys Leu Arg Glu Gln Gln Ala Ala Asp Ala Lys Lys
        115                 120                 125

Gln Ala Glu Glu Ser Met Val Ala Ser Met Arg Leu Ala Tyr Gln Glu
    130                 135                 140

Leu Gln Ile Asp Arg Lys Lys Glu Glu Lys Lys Leu Gln Asn Leu Glu
145                 150                 155                 160

Gly Lys Lys Arg Glu Gln Ala Glu Arg Leu Gly Met Gly Leu Val Ser
                165                 170                 175

Arg Ser Ser Val Ser His Ser Val Leu Ser Glu Met Gln Val Ile Glu
            180                 185                 190

Gln Glu Thr Pro Val Ser Ala Lys Ser Ser Arg Ser Gln Leu Asp Leu
        195                 200                 205

Phe Asp Asp Val Gly Thr Phe Ala Ser Gly Pro Pro Lys Tyr Lys Asp
    210                 215                 220

Asn Pro Phe Ser Leu Gly Glu Ser Phe Gly Ser Arg Trp Asp Thr Asp
225                 230                 235                 240

Ala Ala Trp Gly Met Asp Arg Val Glu Glu Lys Glu Pro Glu Val Thr
                245                 250                 255

Ile Ser Ser Ile Arg Pro Ile Ser Glu Arg Ala Thr Asn Arg Arg Glu
            260                 265                 270

Val Glu Ser Arg Ser Ser Gly Leu Glu Ser Ser Glu Ala Arg Gln Lys
        275                 280                 285

Phe Ala Gly Ala Lys Ala Ile Ser Ser Asp Met Phe Phe Gly Arg Glu
    290                 295                 300

Val Asp Ala Glu Tyr Glu Ala Arg Ser Arg Leu Gln Gln Leu Ser Gly
305                 310                 315                 320
```

```
Ser Ser Ala Ile Ser Ser Ser Asp Leu Phe Gly Asp Met Asp Gly Ala
                325                 330                 335

His Gly Ala Gly Ser Val Ser Leu Gly Asn Val Leu Pro Thr Ala Asp
            340                 345                 350

Ile Ala Gln Phe Lys Gln Gly Val Lys Ser Val Ala Gly Lys Met Ala
        355                 360                 365

Val Leu Ala Asn Gly Val Met Asn Ser Leu Gln Asp Arg Tyr Gly Ser
    370                 375                 380

Tyr
385


<210> 3261
<211> 516
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 723; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP3; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation  factor
      GTPase activating prt 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NP61; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263245"

<400> 3261
Met Gly Asp Pro Ser Lys Gln Asp Ile Leu Thr Ile Phe Lys Arg Leu
1               5                   10                  15

Arg Ser Val Pro Thr Asn Lys Val Cys Phe Asp Cys Gly Ala Lys Asn
            20                  25                  30
```

```
Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp Cys
        35                  40                  45

Ser Gly Ser His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg Ser
    50                  55                  60

Thr Glu Leu Asp Ser Asn Trp Ser Trp Phe Gln Leu Arg Cys Met Gln
65                  70                  75                  80

Val Gly Gly Asn Ala Ser Ala Ser Ser Phe Phe His Gln His Gly Cys
                85                  90                  95

Ser Thr Asn Asp Thr Asn Ala Lys Tyr Asn Ser Arg Ala Ala Gln Leu
            100                 105                 110

Tyr Arg Glu Lys Ile Lys Ser Leu Ala Ser Gln Ala Thr Arg Lys His
        115                 120                 125

Gly Thr Asp Leu Trp Leu Asp Ser Cys Val Val Pro Pro Leu Ser Pro
    130                 135                 140

Pro Pro Lys Glu Glu Asp Phe Phe Ala Ser His Val Ser Pro Glu Val
145                 150                 155                 160

Ser Asp Thr Ala Trp Ala Ser Ala Ile Ala Glu Pro Ser Ser Leu Thr
                165                 170                 175

Ser Arg Pro Val Glu Thr Thr Leu Glu Asn Asn Glu Gly Gly Gln Glu
            180                 185                 190

Gln Gly Pro Ser Val Glu Gly Leu Asn Val Pro Thr Lys Ala Thr Leu
        195                 200                 205

Glu Val Ser Ser Ile Ile Lys Lys Lys Pro Asn Gln Ala Lys Lys Gly
    210                 215                 220

Leu Gly Ala Lys Lys Gly Ser Leu Gly Ala Gln Lys Leu Ala Asn Thr
225                 230                 235                 240

Cys Phe Asn Glu Ile Glu Lys Gln Ala Gln Ala Ala Asp Lys Met Lys
                245                 250                 255

Glu Gln Glu Asp Leu Ala Lys Val Val Ser Lys Glu Glu Ser Ile Val
```

260 265 270

Ser Ser Leu Arg Leu Ala Tyr Lys Asp Leu Glu Ile Gln Met Lys Lys
275 280 285

Asp Glu Lys Met Asn Ile Ser Gly Lys Lys Asn Val Asp Ser Asp Arg
290 295 300

Leu Gly Met Gly Phe Gly Asn Cys Arg Ser Val Ile Ser His Ser Val
305 310 315 320

Thr Ser Asp Met Gln Thr Ile Glu Gln Glu Ser Pro Ile Met Ala Lys
325 330 335

Pro Arg Lys Lys Tyr Asn Asp Asp Ser Asp Asp Ser Tyr Phe Thr Ser
340 345 350

Ser Ser Ser Tyr Phe Asp Glu Pro Val Glu Leu Arg Ser Ser Ser Phe
355 360 365

Ser Ser Trp Asp Asp Ser Ser Asp Ser Tyr Trp Lys Lys Glu Thr Ser
370 375 380

Lys Asp Thr Glu Thr Val Leu Lys Thr Thr Gly Tyr Ser Asp Arg Pro
385 390 395 400

Thr Ala Arg Arg Lys Pro Asp Tyr Glu Pro Val Glu Asn Thr Asp Glu
405 410 415

Ala Gln Lys Lys Phe Gly Asn Val Lys Ala Ile Ser Ser Asp Met Tyr
420 425 430

Phe Gly Arg Gln Ser Gln Ala Asp Tyr Glu Thr Arg Ala Arg Leu Glu
435 440 445

Arg Leu Ser Ala Ser Ser Ser Ile Ser Ser Ala Asp Leu Phe Glu Glu
450 455 460

Pro Arg Lys Gln Pro Ala Gly Asn Tyr Ser Leu Ser Ser Val Leu Pro
465 470 475 480

Asn Ala Pro Asp Met Ala Gln Phe Lys Gln Gly Val Arg Ser Val Ala
485 490 495

Gly Lys Leu Ser Val Phe Ala Asn Gly Val Val Thr Ser Ile Gln Asp
500 505 510

Arg Tyr Gly Ser
515

<210> 3262
<211> 472
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 723; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP3; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP61; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388791"

<400> 3262
Met Gly Asp Pro Ser Lys Gln Asp Ile Leu Thr Ile Phe Lys Arg Leu
1 5 10 15

Arg Ser Val Pro Thr Asn Lys Val Cys Phe Asp Cys Gly Ala Lys Asn
20 25 30

Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp Cys
35 40 45

Ser Gly Ser His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg Ser
50 55 60

Thr Glu Leu Asp Ser Asn Trp Ser Trp Phe Gln Leu Arg Cys Met Gln
65 70 75 80

```
Val Gly Gly Asn Ala Ser Ala Leu Trp Leu Asp Ser Cys Val Val Pro
                85                  90                  95

Pro Leu Ser Pro Pro Pro Lys Glu Glu Asp Phe Phe Ala Ser His Val
            100                 105                 110

Ser Pro Glu Val Ser Asp Thr Ala Trp Ala Ser Ala Ile Ala Glu Pro
        115                 120                 125

Ser Ser Leu Thr Ser Arg Pro Val Glu Thr Thr Leu Glu Asn Asn Glu
    130                 135                 140

Gly Gly Gln Glu Gln Gly Pro Ser Val Glu Gly Leu Asn Val Pro Thr
145                 150                 155                 160

Lys Ala Thr Leu Glu Val Ser Ser Ile Ile Lys Lys Lys Pro Asn Gln
                165                 170                 175

Ala Lys Lys Gly Leu Gly Ala Lys Lys Gly Ser Leu Gly Ala Gln Lys
            180                 185                 190

Leu Ala Asn Thr Cys Phe Asn Glu Ile Glu Lys Gln Ala Gln Ala Ala
        195                 200                 205

Asp Lys Met Lys Glu Gln Glu Asp Leu Ala Lys Val Val Ser Lys Glu
    210                 215                 220

Glu Ser Ile Val Ser Ser Leu Arg Leu Ala Tyr Lys Asp Leu Glu Ile
225                 230                 235                 240

Gln Met Lys Lys Asp Glu Lys Met Asn Ile Ser Gly Lys Lys Asn Val
                245                 250                 255

Asp Ser Asp Arg Leu Gly Met Gly Phe Gly Asn Cys Arg Ser Val Ile
            260                 265                 270

Ser His Ser Val Thr Ser Asp Met Gln Thr Ile Glu Gln Glu Ser Pro
        275                 280                 285

Ile Met Ala Lys Pro Arg Lys Lys Tyr Asn Asp Asp Ser Asp Asp Ser
    290                 295                 300
```

```
Tyr Phe Thr Ser Ser Ser Ser Tyr Phe Asp Glu Pro Val Glu Leu Arg
305                 310                 315                 320

Ser Ser Ser Phe Ser Ser Trp Asp Asp Ser Ser Asp Ser Tyr Trp Lys
                325                 330                 335

Lys Glu Thr Ser Lys Asp Thr Glu Thr Val Leu Lys Thr Thr Gly Tyr
            340                 345                 350

Ser Asp Arg Pro Thr Ala Arg Arg Lys Pro Asp Tyr Glu Pro Val Glu
        355                 360                 365

Asn Thr Asp Glu Ala Gln Lys Lys Phe Gly Asn Val Lys Ala Ile Ser
    370                 375                 380

Ser Asp Met Tyr Phe Gly Arg Gln Ser Gln Ala Asp Tyr Glu Thr Arg
385                 390                 395                 400

Ala Arg Leu Glu Arg Leu Ser Ala Ser Ser Ser Ile Ser Ser Ala Asp
                405                 410                 415

Leu Phe Glu Glu Pro Arg Lys Gln Pro Ala Gly Asn Tyr Ser Leu Ser
            420                 425                 430

Ser Val Leu Pro Asn Ala Pro Asp Met Ala Gln Phe Lys Gln Gly Val
        435                 440                 445

Arg Ser Val Ala Gly Lys Leu Ser Val Phe Ala Asn Gly Val Val Thr
    450                 455                 460

Ser Ile Gln Asp Arg Tyr Gly Ser
465                 470


<210> 3263
<211> 152
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 723; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP3; "
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<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403520"

<400> 3263
Met Gly Asp Pro Ser Lys Gln Asp Ile Leu Thr Ile Phe Lys Arg Leu
1 5 10 15

Arg Ser Val Pro Thr Asn Lys Val Cys Phe Asp Cys Gly Ala Lys Asn
20 25 30

Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu Cys Ile Asp Cys
35 40 45

Ser Gly Ser His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg Ser
50 55 60

Thr Glu Leu Asp Ser Asn Trp Ser Trp Phe Gln Leu Arg Cys Met Gln
65 70 75 80

Val Gly Gly Asn Ala Ser Ala Val Ser Asp Thr Ala Trp Ala Ser Ala
85 90 95

Ile Ala Glu Pro Ser Ser Leu Thr Ser Arg Pro Val Glu Thr Thr Leu
100 105 110

Glu Asn Asn Glu Gly Gly Gln Glu Gln Gly Pro Ser Val Glu Gly Leu
115 120 125

Asn Val Pro Thr Lys Ala Thr Leu Glu Val Ser Ser Ile Ile Lys Lys
130 135 140

Lys Pro Asn Gln Ala Lys Lys Gly
145 150

<210> 3264
<211> 273
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 723; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP3; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403995"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3264
Xaa Leu Ala Leu Phe Gln Val Ser Asp Thr Ala Trp Ala Ser Ala Ile
1 5 10 15

Ala Glu Pro Ser Ser Leu Thr Ser Arg Pro Val Glu Thr Thr Leu Glu
20 25 30

Asn Asn Glu Gly Gly Gln Glu Gln Gly Pro Ser Val Glu Gly Leu Asn
35 40 45

Val Pro Thr Lys Ala Thr Leu Glu Val Ser Ser Ile Ile Lys Lys Lys
50 55 60

Pro Asn Gln Ala Lys Lys Gly Leu Gly Ala Lys Lys Gly Ser Leu Gly
65 70 75 80

Ala Gln Lys Leu Ala Asn Thr Cys Phe Asn Glu Ile Glu Lys Gln Ala
85 90 95

Gln Ala Ala Asp Lys Met Lys Glu Gln Glu Asp Leu Ala Lys Val Val
100 105 110

Ser Lys Glu Glu Ser Ile Val Ser Ser Leu Arg Leu Ala Tyr Lys Asp
115 120 125

Leu Glu Ile Gln Met Lys Lys Asp Glu Lys Met Asn Ile Ser Gly Lys

```
    130                 135                 140

Lys Asn Val Asp Ser Asp Arg Leu Gly Met Gly Phe Gly Asn Cys Arg
145                 150                 155                 160

Ser Val Ile Ser His Ser Val Thr Ser Asp Met Gln Thr Ile Glu Gln
                165                 170                 175

Glu Ser Pro Ile Met Ala Lys Pro Arg Lys Lys Tyr Asn Asp Asp Ser
            180                 185                 190

Asp Asp Ser Tyr Phe Thr Ser Ser Ser Arg Pro Thr Ala Arg Arg Lys
        195                 200                 205

Pro Asp Tyr Glu Pro Val Glu Asn Thr Asp Glu Ala Gln Lys Lys Phe
    210                 215                 220

Gly Asn Val Lys Ala Ile Ser Ser Asp Met Tyr Phe Gly Arg Gln Ser
225                 230                 235                 240

Gln Ala Asp Tyr Glu Thr Arg Ala Arg Leu Glu Arg Leu Ser Ala Ser
                245                 250                 255

Ser Ser Ile Ser Ser Ala Asp Leu Phe Glu Glu Pro Arg Lys Gln Pro
            260                 265                 270

Ala
```

<210> 3265
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 723; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGAP3; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
GTPase activating prt 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407734"

<400> 3265
Met Val Cys Phe Asp Cys Gly Ala Lys Asn Pro Ser Trp Ala Ser Ile
1   5   10   15

Thr Tyr Gly Val Phe Leu Cys Ile Asp Cys Ser Gly Ser His Arg Ser
            20   25   30

Leu Gly Val His Leu Ser Phe Ile Arg Ser Thr Glu Leu Asp Ser Asn
        35   40   45

Trp Ser Trp Phe Gln Leu Arg Cys Met Gln Val Gly Gly Asn Ala Ser
    50   55   60

Ala Ser Ser Phe Phe His Gln His Gly Cys Ser Thr Asn Asp Thr Asn
65   70   75   80

Ala Lys Tyr Asn Ser Arg Ala Ala Gln Leu Tyr Arg
                85   90

<210> 3266
<211> 1849
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 724; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGEF1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor
      guanine nucleotide-exchange
      factor 1 (brefeldin A-inhibited); "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y6D6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000262215"

<400> 3266
Met Tyr Glu Gly Lys Lys Thr Lys Asn Met Phe Leu Thr Arg Ala Leu
1 5 10 15

Glu Lys Ile Leu Ala Asp Lys Glu Val Lys Lys Ala His His Ser Gln
20 25 30

Leu Arg Lys Ala Cys Glu Val Ala Leu Glu Glu Ile Lys Ala Glu Thr
35 40 45

Glu Lys Gln Ser Pro Pro His Gly Glu Ala Lys Ala Gly Ser Ser Thr
50 55 60

Leu Pro Pro Val Lys Ser Lys Thr Asn Phe Ile Glu Ala Asp Lys Tyr
65 70 75 80

Phe Leu Pro Phe Glu Leu Ala Cys Gln Ser Lys Cys Pro Arg Ile Val
85 90 95

Ser Thr Ser Leu Asp Cys Leu Gln Lys Leu Ile Ala Tyr Gly His Leu
100 105 110

Thr Gly Asn Ala Pro Asp Ser Thr Thr Pro Gly Lys Lys Leu Ile Asp
115 120 125

Arg Ile Ile Glu Thr Ile Cys Gly Cys Phe Gln Gly Pro Gln Thr Asp
130 135 140

Glu Gly Val Gln Leu Gln Ile Ile Lys Ala Leu Leu Thr Ala Val Thr
145 150 155 160

Ser Gln His Ile Glu Ile His Glu Gly Thr Val Leu Gln Ala Val Arg
165 170 175

Thr Cys Tyr Asn Ile Tyr Leu Ala Ser Lys Asn Leu Ile Asn Gln Thr
180 185 190

Thr Ala Lys Ala Thr Leu Thr Gln Met Leu Asn Val Ile Phe Ala Arg
195 200 205

Met Glu Asn Gln Ala Leu Gln Glu Ala Lys Gln Met Glu Lys Glu Arg
210 215 220

```
His Arg Gln His His His Leu Leu Gln Ser Pro Val Ser His His Glu
225                 230                 235                 240

Pro Glu Ser Pro Gln Leu Arg Tyr Leu Pro Pro Gln Thr Val Asp His
                245                 250                 255

Ile Ser Gln Glu His Glu Gly Asp Leu Asp Leu His Thr Asn Asp Val
            260                 265                 270

Asp Lys Ser Leu Gln Asp Asp Thr Glu Pro Glu Asn Gly Ser Asp Ile
        275                 280                 285

Ser Ser Ala Glu Asn Glu Gln Thr Glu Ala Asp Gln Ala Thr Ala Ala
    290                 295                 300

Glu Thr Leu Ser Lys Asn Glu Val Leu Tyr Asp Gly Glu Asn His Asp
305                 310                 315                 320

Cys Glu Glu Lys Pro Gln Asp Ile Val Gln Asn Ile Val Glu Glu Met
                325                 330                 335

Val Asn Ile Val Val Gly Asp Met Gly Glu Gly Thr Thr Ile Asn Ala
            340                 345                 350

Ser Ala Asp Gly Asn Ile Gly Thr Ile Glu Asp Gly Ser Asp Ser Glu
        355                 360                 365

Asn Ile Gln Ala Asn Gly Ile Pro Gly Thr Pro Ile Ser Val Ala Tyr
    370                 375                 380

Thr Pro Ser Leu Pro Asp Asp Arg Leu Ser Val Ser Ser Asn Asp Thr
385                 390                 395                 400

Gln Glu Ser Gly Asn Ser Ser Gly Pro Ser Pro Gly Ala Lys Phe Ser
                405                 410                 415

His Ile Leu Gln Lys Asp Ala Phe Leu Val Phe Arg Ser Leu Cys Lys
            420                 425                 430

Leu Ser Met Lys Pro Leu Ser Asp Gly Pro Pro Asp Pro Lys Ser His
        435                 440                 445
```

Glu Leu Arg Ser Lys Ile Leu Ser Leu Gln Leu Leu Leu Ser Ile Leu
450 455 460

Gln Asn Ala Gly Pro Ile Phe Arg Thr Asn Glu Met Phe Ile Asn Ala
465 470 475 480

Ile Lys Gln Tyr Leu Cys Val Ala Leu Ser Lys Asn Gly Val Ser Ser
485 490 495

Val Pro Glu Val Phe Glu Leu Ser Leu Ser Ile Phe Leu Thr Leu Leu
500 505 510

Ser Asn Phe Lys Thr His Leu Lys Met Gln Ile Glu Val Phe Phe Lys
515 520 525

Glu Ile Phe Leu Tyr Ile Leu Glu Thr Ser Thr Ser Ser Phe Asp His
530 535 540

Lys Trp Met Val Ile Gln Thr Leu Thr Arg Ile Cys Ala Asp Ala Gln
545 550 555 560

Ser Val Val Asp Ile Tyr Val Asn Tyr Asp Cys Asp Leu Asn Ala Ala
565 570 575

Asn Ile Phe Glu Arg Leu Val Asn Asp Leu Ser Lys Ile Ala Gln Gly
580 585 590

Arg Gly Ser Gln Glu Leu Gly Met Ser Asn Val Gln Glu Leu Ser Leu
595 600 605

Arg Lys Lys Gly Leu Glu Cys Leu Val Ser Ile Leu Lys Cys Met Val
610 615 620

Glu Trp Ser Lys Asp Gln Tyr Val Asn Pro Asn Ser Gln Thr Thr Leu
625 630 635 640

Gly Gln Glu Lys Pro Ser Glu Gln Glu Met Ser Glu Ile Lys His Pro
645 650 655

Glu Thr Ile Asn Arg Tyr Gly Ser Leu Asn Ser Leu Glu Ser Thr Ser
660 665 670

Ser Ser Gly Ile Gly Ser Tyr Ser Thr Gln Met Ser Gly Thr Asp Asn

675 680 685

Pro Glu Gln Phe Glu Val Leu Lys Gln Gln Lys Glu Ile Ile Glu Gln
690 695 700

Gly Ile Asp Leu Phe Asn Lys Lys Pro Lys Arg Gly Ile Gln Tyr Leu
705 710 715 720

Gln Glu Gln Gly Met Leu Gly Thr Thr Pro Glu Asp Ile Ala Gln Phe
725 730 735

Leu His Gln Glu Glu Arg Leu Asp Ser Thr Gln Val Gly Glu Phe Leu
740 745 750

Gly Asp Asn Asp Lys Phe Asn Lys Glu Val Met Tyr Ala Tyr Val Asp
755 760 765

Gln His Asp Phe Ser Gly Lys Asp Phe Val Ser Ala Leu Arg Met Phe
770 775 780

Leu Glu Gly Phe Arg Leu Pro Gly Glu Ala Gln Lys Ile Asp Arg Leu
785 790 795 800

Met Glu Lys Phe Ala Ala Arg Tyr Leu Glu Cys Asn Gln Gly Gln Thr
805 810 815

Leu Phe Ala Ser Ala Asp Thr Ala Tyr Val Leu Ala Tyr Ser Ile Ile
820 825 830

Met Leu Thr Thr Asp Leu His Ser Pro Gln Val Lys Asn Lys Met Thr
835 840 845

Lys Glu Gln Tyr Ile Lys Met Asn Arg Gly Ile Asn Asp Ser Lys Asp
850 855 860

Leu Pro Glu Glu Tyr Leu Ser Ala Ile Tyr Asn Glu Ile Ala Gly Lys
865 870 875 880

Lys Ile Ser Met Lys Glu Thr Lys Glu Leu Thr Ile Pro Thr Lys Ser
885 890 895

Ser Lys Gln Asn Val Ala Ser Glu Lys Gln Arg Arg Leu Leu Tyr Asn
900 905 910

```
Leu Glu Met Glu Gln Met Ala Lys Thr Ala Lys Ala Leu Met Glu Ala
        915                 920                 925

Val Ser His Val Gln Ala Pro Phe Thr Ser Ala Thr His Leu Glu His
    930                 935                 940

Val Arg Pro Met Phe Lys Leu Ala Trp Thr Pro Phe Leu Ala Ala Phe
945                 950                 955                 960

Ser Val Gly Leu Gln Asp Cys Asp Asp Thr Glu Val Ala Ser Leu Cys
                965                 970                 975

Leu Glu Gly Ile Arg Cys Ala Ile Arg Ile Ala Cys Ile Phe Ser Ile
            980                 985                 990

Gln Leu Glu Arg Asp Ala Tyr Val  Gln Ala Leu Ala Arg  Phe Thr
Leu
        995                 1000                1005

Leu Thr  Val Ser Ser Gly Ile  Thr Glu Met Lys Gln  Lys Asn Ile
    1010                1015                1020

Asp Thr  Ile Lys Thr Leu Ile  Thr Val Ala His Thr  Asp Gly Asn
    1025                1030                1035

Tyr Leu  Gly Asn Ser Trp His  Glu Ile Leu Lys Cys  Ile Ser Gln
    1040                1045                1050

Leu Glu  Leu Ala Gln Leu Ile  Gly Thr Gly Val Lys  Pro Arg Tyr
    1055                1060                1065

Ile Ser  Gly Thr Val Arg Gly  Arg Glu Gly Ser Leu  Thr Gly Thr
    1070                1075                1080

Lys Asp  Gln Ala Pro Asp Glu  Phe Val Gly Leu Gly  Leu Val Gly
    1085                1090                1095

Gly Asn  Val Asp Trp Lys Gln  Ile Ala Ser Ile Gln  Glu Ser Ile
    1100                1105                1110

Gly Glu  Thr Ser Ser Gln Ser  Val Val Val Ala Val  Asp Arg Ile
    1115                1120                1125
```

```
Phe Thr  Gly Ser Thr Arg Leu  Asp Gly Asn Ala Ile  Val Asp Phe
    1130                1135                1140

Val Arg  Trp Leu Cys Ala Val  Ser Met Asp Glu Leu  Leu Ser Thr
    1145                1150                1155

Thr His  Pro Arg Met Phe Ser  Leu Gln Lys Ile Val  Glu Ile Ser
    1160                1165                1170

Tyr Tyr  Asn Met Gly Arg Ile  Arg Leu Gln Trp Ser  Arg Ile Trp
    1175                1180                1185

Glu Val  Ile Gly Asp His Phe  Asn Lys Val Gly Cys  Asn Pro Asn
    1190                1195                1200

Glu Asp  Val Ala Ile Phe Ala  Val Asp Ser Leu Arg  Gln Leu Ser
    1205                1210                1215

Met Lys  Phe Leu Glu Lys Gly  Glu Leu Ala Asn Phe  Arg Phe Gln
    1220                1225                1230

Lys Asp  Phe Leu Arg Pro Phe  Glu His Ile Met Lys  Arg Asn Arg
    1235                1240                1245

Ser Pro  Thr Ile Arg Asp Met  Val Val Arg Cys Ile  Ala Gln Met
    1250                1255                1260

Val Asn  Ser Gln Ala Ala Asn  Ile Arg Ser Gly Trp  Lys Asn Ile
    1265                1270                1275

Phe Ser  Val Phe His Leu Ala  Ala Ser Asp Gln Asp  Glu Ser Ile
    1280                1285                1290

Val Glu  Leu Ala Phe Gln Thr  Thr Gly His Ile Val  Thr Leu Val
    1295                1300                1305

Phe Glu  Lys His Phe Pro Ala  Thr Ile Asp Ser Phe  Gln Asp Ala
    1310                1315                1320

Val Lys  Cys Leu Ser Glu Phe  Ala Cys Asn Ala Ala  Phe Pro Asp
    1325                1330                1335
```

Thr Ser Met Glu Ala Ile Arg Leu Ile Arg His Cys Ala Lys Tyr
1340 1345 1350

Val Ser Asp Arg Pro Gln Ala Phe Lys Glu Tyr Thr Ser Asp Asp
1355 1360 1365

Met Asn Val Ala Pro Glu Asp Arg Val Trp Val Arg Gly Trp Phe
1370 1375 1380

Pro Ile Leu Phe Glu Leu Ser Cys Ile Ile Asn Arg Cys Lys Leu
1385 1390 1395

Asp Val Arg Thr Arg Gly Leu Thr Val Met Phe Glu Ile Met Lys
1400 1405 1410

Thr Tyr Gly His Thr Tyr Glu Lys His Trp Trp Gln Asp Leu Phe
1415 1420 1425

Arg Ile Val Phe Arg Ile Phe Asp Asn Met Lys Leu Pro Glu Gln
1430 1435 1440

Gln Thr Glu Lys Ala Glu Trp Met Thr Thr Thr Cys Asn His Ala
1445 1450 1455

Leu Tyr Ala Ile Cys Asp Val Phe Thr Gln Tyr Leu Glu Val Leu
1460 1465 1470

Ser Asp Val Leu Leu Asp Asp Ile Phe Ala Gln Leu Tyr Trp Cys
1475 1480 1485

Val Gln Gln Asp Asn Glu Gln Leu Ala Arg Ser Gly Thr Asn Cys
1490 1495 1500

Leu Glu Asn Val Val Ile Leu Asn Gly Glu Lys Phe Thr Leu Glu
1505 1510 1515

Ile Trp Asp Lys Thr Cys Asn Cys Thr Leu Asp Ile Phe Lys Thr
1520 1525 1530

Thr Ile Pro His Ala Leu Leu Thr Trp Arg Pro Asn Ser Gly Glu
1535 1540 1545

```
Thr Ala  Pro Pro Pro Pro Ser  Pro Val Ser Glu Lys  Pro Leu Asp
    1550                1555                1560

Thr Ile  Ser Gln Lys Ser Val  Asp Ile His Asp Ser  Ile Gln Pro
    1565                1570                1575

Arg Ser  Val Asp Asn Arg Pro  Gln Ala Pro Leu Val  Ser Ala Ser
    1580                1585                1590

Ala Val  Asn Glu Glu Val Ser  Lys Ile Lys Ser Thr  Ala Lys Phe
    1595                1600                1605

Pro Glu  Gln Lys Leu Phe Ala  Ala Leu Leu Ile Lys  Cys Val Val
    1610                1615                1620

Gln Leu  Glu Leu Ile Gln Thr  Ile Asp Asn Ile Val  Phe Phe Pro
    1625                1630                1635

Ala Thr  Ser Lys Lys Glu Asp  Ala Glu Asn Leu Ala  Ala Ala Gln
    1640                1645                1650

Arg Asp  Ala Val Asp Phe Asp  Val Arg Val Asp Thr  Gln Asp Gln
    1655                1660                1665

Gly Met  Tyr Arg Phe Leu Thr  Ser Gln Gln Leu Phe  Lys Leu Leu
    1670                1675                1680

Asp Cys  Leu Leu Glu Ser His  Arg Phe Ala Lys Ala  Phe Asn Ser
    1685                1690                1695

Asn Asn  Glu Gln Arg Thr Ala  Leu Trp Lys Ala Gly  Phe Lys Gly
    1700                1705                1710

Lys Ser  Lys Pro Asn Leu Leu  Lys Gln Glu Thr Ser  Ser Leu Ala
    1715                1720                1725

Cys Gly  Leu Arg Ile Leu Phe  Arg Met Tyr Met Asp  Glu Ser Arg
    1730                1735                1740

Val Ser  Ala Trp Glu Glu Val  Gln Gln Arg Leu Leu  Asn Val Cys
    1745                1750                1755

Ser Glu  Ala Leu Ser Tyr Phe  Leu Thr Leu Thr Ser  Glu Ser His
```

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    1760                1765                1770

Arg Glu  Ala Trp Thr Asn Leu  Leu Leu Leu Phe Leu  Thr Lys Val
    1775                1780                1785

Leu Lys  Ile Ser Asp Asn Arg  Phe Lys Ala His Ala  Ser Phe Tyr
    1790                1795                1800

Tyr Pro  Leu Leu Cys Glu Ile  Met Gln Phe Asp Leu  Ile Pro Glu
    1805                1810                1815

Leu Arg  Ala Val Leu Arg Arg  Phe Phe Leu Arg Ile  Gly Val Val
    1820                1825                1830

Phe Gln  Ile Ser Gln Pro Pro  Glu Gln Glu Leu Gly  Ile Asn Lys
    1835                1840                1845

Gln
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<210> 3267
<211> 1279
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 724; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGEF1; "

<220>
<221> source
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ADP-ribosylation factor
guanine nucleotide-exchange
factor 1 (brefeldin A-inhibited); "

<220>
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<223> /note="ENSP ID: ENSP00000428429"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3267
Xaa Ile Glu Val Phe Phe Lys Glu Ile Phe Leu Tyr Ile Leu Glu Thr
1 5 10 15

Ser Thr Ser Ser Phe Asp His Lys Trp Met Val Ile Gln Thr Leu Thr
20 25 30

Arg Ile Cys Ala Asp Ala Gln Ser Val Val Asp Ile Tyr Val Asn Tyr
35 40 45

Asp Cys Asp Leu Asn Ala Ala Asn Ile Phe Glu Arg Leu Val Asn Asp
50 55 60

Leu Ser Lys Ile Ala Gln Gly Arg Gly Ser Gln Glu Leu Gly Met Ser
65 70 75 80

Asn Val Gln Glu Leu Ser Leu Arg Lys Lys Gly Leu Glu Cys Leu Val
85 90 95

Ser Ile Leu Lys Cys Met Val Glu Trp Ser Lys Asp Gln Tyr Val Asn
100 105 110

Pro Asn Ser Gln Thr Thr Leu Gly Gln Glu Lys Pro Ser Glu Gln Glu
115 120 125

Met Ser Glu Ile Lys His Pro Glu Thr Ile Asn Arg Tyr Gly Ser Leu
130 135 140

Asn Ser Leu Glu Ser Thr Ser Ser Ser Gly Ile Gly Ser Tyr Ser Thr
145 150 155 160

Gln Met Ser Gly Thr Asp Asn Pro Glu Gln Phe Glu Val Leu Lys Gln
165 170 175

Gln Lys Glu Ile Ile Glu Gln Gly Ile Asp Leu Phe Asn Lys Lys Pro
180 185 190

Lys Arg Gly Ile Gln Tyr Leu Gln Glu Gln Gly Met Leu Gly Thr Thr
195 200 205

Pro Glu Asp Ile Ala Gln Phe Leu His Gln Glu Glu Arg Leu Asp Ser
210 215 220

```
Thr Gln Val Gly Glu Phe Leu Gly Asp Asn Asp Lys Phe Asn Lys Glu
225                 230                 235                 240

Val Met Tyr Ala Tyr Val Asp Gln His Asp Phe Ser Gly Lys Asp Phe
                245                 250                 255

Val Ser Ala Leu Arg Met Phe Leu Glu Gly Phe Arg Leu Pro Gly Glu
            260                 265                 270

Ala Gln Lys Ile Asp Arg Leu Met Glu Lys Phe Ala Ala Arg Tyr Leu
        275                 280                 285

Glu Cys Asn Gln Gly Gln Thr Leu Phe Ala Ser Ala Asp Thr Ala Tyr
    290                 295                 300

Val Leu Ala Tyr Ser Ile Ile Met Leu Thr Thr Asp Leu His Ser Pro
305                 310                 315                 320

Gln Val Lys Asn Lys Met Thr Lys Glu Gln Tyr Ile Lys Met Asn Arg
                325                 330                 335

Gly Ile Asn Asp Ser Lys Asp Leu Pro Glu Glu Tyr Leu Ser Ala Ile
            340                 345                 350

Tyr Asn Glu Ile Ala Gly Lys Lys Ile Ser Met Lys Glu Thr Lys Glu
        355                 360                 365

Leu Thr Ile Pro Thr Lys Ser Ser Lys Gln Asn Val Ala Ser Glu Lys
    370                 375                 380

Gln Arg Arg Leu Leu Tyr Asn Leu Glu Met Glu Gln Met Ala Lys Thr
385                 390                 395                 400

Ala Lys Ala Leu Met Glu Ala Val Ser His Val Gln Ala Pro Phe Thr
                405                 410                 415

Ser Ala Thr His Leu Glu His Val Arg Pro Met Phe Lys Leu Ala Trp
            420                 425                 430

Thr Pro Phe Leu Ala Ala Phe Ser Val Gly Leu Gln Asp Cys Asp Asp
        435                 440                 445

Thr Glu Val Ala Ser Leu Cys Leu Glu Gly Ile Arg Cys Ala Ile Arg
```

```
    450                 455                 460

Ile Ala Cys Ile Phe Ser Ile Gln Leu Glu Arg Asp Ala Tyr Val Gln
465                 470                 475                 480

Ala Leu Ala Arg Phe Thr Leu Leu Thr Val Ser Ser Gly Ile Thr Glu
                485                 490                 495

Met Lys Gln Lys Asn Ile Asp Thr Ile Lys Thr Leu Ile Thr Val Ala
            500                 505                 510

His Thr Asp Gly Asn Tyr Leu Gly Asn Ser Trp His Glu Ile Leu Lys
        515                 520                 525

Cys Ile Ser Gln Leu Glu Leu Ala Gln Leu Ile Gly Thr Gly Val Lys
    530                 535                 540

Pro Arg Tyr Ile Ser Gly Thr Val Arg Gly Arg Glu Gly Ser Leu Thr
545                 550                 555                 560

Gly Thr Lys Asp Gln Ala Pro Asp Glu Phe Val Gly Leu Gly Leu Val
                565                 570                 575

Gly Gly Asn Val Asp Trp Lys Gln Ile Ala Ser Ile Gln Glu Ser Ile
            580                 585                 590

Gly Glu Thr Ser Ser Gln Ser Val Val Val Ala Val Asp Arg Ile Phe
        595                 600                 605

Thr Gly Ser Thr Arg Leu Asp Gly Asn Ala Ile Val Asp Phe Val Arg
    610                 615                 620

Trp Leu Cys Ala Val Ser Met Asp Glu Leu Leu Ser Thr Thr His Pro
625                 630                 635                 640

Arg Met Phe Ser Leu Gln Lys Ile Val Glu Ile Ser Tyr Tyr Asn Met
                645                 650                 655

Gly Arg Ile Arg Leu Gln Trp Ser Arg Ile Trp Glu Val Ile Gly Asp
            660                 665                 670

His Phe Asn Lys Val Gly Cys Asn Pro Asn Glu Asp Val Ala Ile Phe
        675                 680                 685
```

```
Ala Val Asp Ser Leu Arg Gln Leu Ser Met Lys Phe Leu Glu Lys Gly
    690                 695                 700

Glu Leu Ala Asn Phe Arg Phe Gln Lys Asp Phe Leu Arg Pro Phe Glu
705                 710                 715                 720

His Ile Met Lys Arg Asn Arg Ser Pro Thr Ile Arg Asp Met Val Val
                725                 730                 735

Arg Cys Ile Ala Gln Met Val Asn Ser Gln Ala Ala Asn Ile Arg Ser
            740                 745                 750

Gly Trp Lys Asn Ile Phe Ser Val Phe His Leu Ala Ala Ser Asp Gln
        755                 760                 765

Asp Glu Ser Ile Val Glu Leu Ala Phe Gln Thr Thr Gly His Ile Val
    770                 775                 780

Thr Leu Val Phe Glu Lys His Phe Pro Ala Thr Ile Asp Ser Phe Gln
785                 790                 795                 800

Asp Ala Val Lys Cys Leu Ser Glu Phe Ala Cys Asn Ala Ala Phe Pro
                805                 810                 815

Asp Thr Ser Met Glu Ala Ile Arg Leu Ile Arg His Cys Ala Lys Tyr
            820                 825                 830

Val Ser Asp Arg Pro Gln Ala Phe Lys Glu Tyr Thr Ser Asp Asp Met
        835                 840                 845

Asn Val Ala Pro Glu Asp Arg Val Trp Val Arg Gly Trp Phe Pro Ile
    850                 855                 860

Leu Phe Glu Leu Ser Cys Ile Ile Asn Arg Cys Lys Leu Asp Val Arg
865                 870                 875                 880

Thr Arg Gly Leu Thr Val Met Phe Glu Ile Met Lys Thr Tyr Gly His
                885                 890                 895

Thr Tyr Glu Lys His Trp Trp Gln Asp Leu Phe Arg Ile Val Phe Arg
            900                 905                 910
```

```
Ile Phe Asp Asn Met Lys Leu Pro Glu Gln Gln Thr Glu Lys Ala Glu
        915                 920                 925

Trp Met Thr Thr Thr Cys Asn His Ala Leu Tyr Ala Ile Cys Asp Val
    930                 935                 940

Phe Thr Gln Tyr Leu Glu Val Leu Ser Asp Val Leu Leu Asp Asp Ile
945                 950                 955                 960

Phe Ala Gln Leu Tyr Trp Cys Val Gln Gln Asp Asn Glu Gln Leu Ala
                965                 970                 975

Arg Ser Gly Thr Asn Cys Leu Glu Asn Val Val Ile Leu Asn Gly Glu
            980                 985                 990

Lys Phe Thr Leu Glu Ile Trp Asp  Lys Thr Cys Asn Cys  Thr Leu
Asp
        995                 1000                1005

Ile Phe  Lys Thr Thr Ile Pro  His Ala Leu Leu Thr  Trp Arg Pro
    1010                1015                1020

Asn Ser  Gly Glu Thr Ala Pro  Pro Pro Pro Ser Pro  Val Ser Glu
    1025                1030                1035

Lys Pro  Leu Asp Thr Ile Ser  Gln Lys Ser Val Asp  Ile His Asp
    1040                1045                1050

Ser Ile  Gln Pro Arg Ser Val  Asp Asn Arg Pro Gln  Ala Pro Leu
    1055                1060                1065

Val Ser  Ala Ser Ala Val Asn  Glu Glu Val Ser Lys  Ile Lys Ser
    1070                1075                1080

Thr Ala  Lys Phe Pro Glu Gln  Lys Leu Phe Ala Ala  Leu Leu Ile
    1085                1090                1095

Lys Cys  Val Val Gln Leu Glu  Leu Ile Gln Thr Ile  Asp Asn Ile
    1100                1105                1110

Val Phe  Phe Pro Ala Thr Ser  Lys Lys Glu Asp Ala  Glu Asn Leu
    1115                1120                1125
```

```
Ala Ala  Ala Gln Arg Asp Ala  Val Asp Phe Asp Val  Arg Val Asp
    1130                1135                1140

Thr Gln  Asp Gln Gly Met Tyr  Arg Phe Leu Thr Ser  Gln Gln Leu
    1145                1150                1155

Phe Lys  Leu Leu Asp Cys Leu  Leu Glu Ser His Arg  Phe Ala Lys
    1160                1165                1170

Ala Phe  Asn Ser Asn Asn Glu  Gln Arg Thr Ala Leu  Trp Lys Ala
    1175                1180                1185

Gly Phe  Lys Gly Lys Ser Lys  Pro Asn Leu Leu Lys  Gln Glu Thr
    1190                1195                1200

Ser Ser  Leu Ala Cys Gly Leu  Arg Ile Leu Phe Arg  Met Tyr Met
    1205                1210                1215

Asp Glu  Ser Arg Val Ser Ala  Trp Glu Glu Val Gln  Gln Arg Leu
    1220                1225                1230

Leu Asn  Val Cys Ser Glu Ala  Leu Ser Tyr Phe Leu  Thr Leu Thr
    1235                1240                1245

Ser Glu  Ser His Arg Glu Ala  Trp Thr Asn Leu Leu  Leu Leu Phe
    1250                1255                1260

Leu Thr  Lys Val Leu Lys Ile  Ser Asp Asn Arg Thr  Lys Arg Thr
    1265                1270                1275

Leu
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<210> 3268
<211> 118
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 724; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGEF1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
guanine nucleotide-exchange
factor 1 (brefeldin A-inhibited); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429002"

<400> 3268
Met Tyr Glu Gly Lys Lys Thr Lys Asn Met Phe Leu Thr Arg Ala Leu
1 5 10 15

Glu Lys Ile Leu Ala Asp Lys Glu Val Lys Lys Ala His His Ser Gln
20 25 30

Leu Arg Lys Ala Cys Glu Val Ala Leu Glu Glu Ile Lys Ala Glu Thr
35 40 45

Glu Lys Gln Ser Pro Pro His Gly Glu Ala Lys Ala Gly Ser Ser Thr
50 55 60

Leu Pro Pro Val Lys Ser Lys Thr Asn Phe Ile Glu Ala Asp Lys Tyr
65 70 75 80

Phe Leu Pro Phe Glu Leu Ala Cys Gln Ser Lys Cys Pro Arg Ile Val
85 90 95

Ser Thr Ser Leu Asp Cys Leu Gln Lys Leu Ile Ala Tyr Gly His Leu
100 105 110

Thr Gly Asn Ala Pro Asp
115

<210> 3269
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ARFGEF1; "

<220>
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ADP-ribosylation factor
guanine nucleotide-exchange
factor 1 (brefeldin A-inhibited); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429560"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3269
Xaa Arg Leu Leu Leu Met Lys Lys Ser Ala Lys Leu Asn Leu Gln Gln
1 5 10 15

Leu Glu Leu Ile Gln Thr Ile Asp Asn Ile Val Phe Phe Pro Ala Thr
20 25 30

Ser Lys Lys Glu Asp Ala Glu Asn Leu Ala Ala Ala Gln Arg Asp Ala
35 40 45

Val Asp Phe Asp Val Arg Val Asp Thr Gln Asp Gln Gly Met Tyr Arg
50 55 60

Phe Leu Thr Ser Gln Gln Leu Phe Lys Leu Leu Asp Cys Leu Leu Glu
65 70 75 80

Ser His Arg Phe Ala Lys Ala Phe Asn Ser Asn Asn Glu Gln Arg Thr
85 90 95

Ala Leu Trp Lys Ala Gly Phe Lys Gly Lys Ser Lys Pro Asn Leu Leu
100 105 110

Lys Gln Glu Thr Ser Ser Leu Ala Cys Gly Leu Arg Ile Leu Phe Arg
115 120 125

Met Tyr Met Asp Glu Ser Arg Val Ser Ala Trp Glu Glu Val Gln Gln
130 135 140

Arg Leu Leu Asn Val Cys Ser Glu Ala Leu Ser Tyr Phe Leu Thr Leu
145 150 155 160

```
Thr Ser Glu Ser His Arg Glu Ala Trp Thr Asn Leu Leu Leu Leu Phe
                165                 170                 175

Leu Thr Lys Val Leu Lys Ile Ser Asp Asn Arg Thr Lys Arg Thr Leu
            180                 185                 190


<210> 3270
<211> 825
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: ARFGEF1; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation  factor
      guanine nucleotide-exchange
      factor 1 (brefeldin A-inhibited); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430891"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3270
Xaa Gly Asn Ser Trp His Glu Ile Leu Lys Cys Ile Ser Gln Leu Glu
1               5                   10                  15

Leu Ala Gln Leu Ile Gly Thr Gly Val Lys Pro Arg Tyr Ile Ser Gly
            20                  25                  30

Thr Val Arg Gly Arg Glu Gly Ser Leu Thr Gly Thr Lys Asp Gln Ala
        35                  40                  45

Pro Asp Glu Phe Val Gly Leu Gly Leu Val Gly Gly Asn Val Asp Trp
    50                  55                  60
```

```
Lys Gln Ile Ala Ser Ile Gln Glu Ser Ile Gly Glu Thr Ser Ser Gln
65                  70                  75                  80

Ser Val Val Val Ala Val Asp Arg Ile Phe Thr Gly Ser Thr Arg Leu
                85                  90                  95

Asp Gly Asn Ala Ile Val Asp Phe Val Arg Trp Leu Cys Ala Val Ser
            100                 105                 110

Met Asp Glu Leu Leu Ser Thr Thr His Pro Arg Met Phe Ser Leu Gln
        115                 120                 125

Lys Ile Val Glu Ile Ser Tyr Tyr Asn Met Gly Arg Ile Arg Leu Gln
    130                 135                 140

Trp Ser Arg Ile Trp Glu Val Ile Gly Asp His Phe Asn Lys Val Gly
145                 150                 155                 160

Cys Asn Pro Asn Glu Asp Val Ala Ile Phe Ala Val Asp Ser Leu Arg
                165                 170                 175

Gln Leu Ser Met Lys Phe Leu Glu Lys Gly Glu Leu Ala Asn Phe Arg
            180                 185                 190

Phe Gln Lys Asp Phe Leu Arg Pro Phe Glu His Ile Met Lys Arg Asn
        195                 200                 205

Arg Ser Pro Thr Ile Arg Asp Met Val Val Arg Cys Ile Ala Gln Met
    210                 215                 220

Val Asn Ser Gln Ala Ala Asn Ile Arg Ser Gly Trp Lys Asn Ile Phe
225                 230                 235                 240

Ser Val Phe His Leu Ala Ala Ser Asp Gln Asp Glu Ser Ile Val Glu
                245                 250                 255

Leu Ala Phe Gln Thr Thr Gly His Ile Val Thr Leu Val Phe Glu Lys
            260                 265                 270

His Phe Pro Ala Thr Ile Asp Ser Phe Gln Asp Ala Val Lys Cys Leu
        275                 280                 285

Ser Glu Phe Ala Cys Asn Ala Ala Phe Pro Asp Thr Ser Met Glu Ala
```

```
    290                 295                 300

Ile Arg Leu Ile Arg His Cys Ala Lys Tyr Val Ser Asp Arg Pro Gln
305                 310                 315                 320

Ala Phe Lys Glu Tyr Thr Ser Asp Asp Met Asn Val Ala Pro Glu Asp
                325                 330                 335

Arg Val Trp Val Arg Gly Trp Phe Pro Ile Leu Phe Glu Leu Ser Cys
            340                 345                 350

Ile Ile Asn Arg Cys Lys Leu Asp Val Arg Thr Arg Gly Leu Thr Val
        355                 360                 365

Met Phe Glu Ile Met Lys Thr Tyr Gly His Thr Tyr Glu Lys His Trp
    370                 375                 380

Trp Gln Asp Leu Phe Arg Ile Val Phe Arg Ile Phe Asp Asn Met Lys
385                 390                 395                 400

Leu Pro Glu Gln Gln Thr Glu Lys Ala Glu Trp Met Thr Thr Thr Cys
                405                 410                 415

Asn His Ala Leu Tyr Ala Ile Cys Asp Val Phe Thr Gln Tyr Leu Glu
            420                 425                 430

Val Leu Ser Asp Val Leu Leu Asp Asp Ile Phe Ala Gln Leu Tyr Trp
        435                 440                 445

Cys Val Gln Gln Asp Asn Glu Gln Leu Ala Arg Ser Gly Thr Asn Cys
    450                 455                 460

Leu Glu Asn Val Val Ile Leu Asn Gly Glu Lys Phe Thr Leu Glu Ile
465                 470                 475                 480

Trp Asp Lys Thr Cys Asn Cys Thr Leu Asp Ile Phe Lys Thr Thr Ile
                485                 490                 495

Pro His Ala Leu Leu Thr Trp Arg Pro Asn Ser Gly Glu Thr Ala Pro
            500                 505                 510

Pro Pro Pro Ser Pro Val Ser Glu Lys Pro Leu Asp Thr Ile Ser Gln
        515                 520                 525
```

```
Lys Ser Val Asp Ile His Asp Ser Ile Gln Pro Arg Ser Val Asp Asn
    530                 535                 540

Arg Pro Gln Ala Pro Leu Val Ser Ala Ser Ala Val Asn Glu Glu Val
545                 550                 555                 560

Ser Lys Ile Lys Ser Thr Ala Lys Phe Pro Glu Gln Lys Leu Phe Ala
                565                 570                 575

Ala Leu Leu Ile Lys Cys Val Val Gln Leu Glu Leu Ile Gln Thr Ile
            580                 585                 590

Asp Asn Ile Val Phe Phe Pro Ala Thr Ser Lys Lys Glu Asp Ala Glu
        595                 600                 605

Asn Leu Ala Ala Ala Gln Arg Asp Ala Val Asp Phe Asp Val Arg Val
    610                 615                 620

Asp Thr Gln Asp Gln Gly Met Tyr Arg Phe Leu Thr Ser Gln Gln Leu
625                 630                 635                 640

Phe Lys Leu Leu Asp Cys Leu Leu Glu Ser His Arg Phe Ala Lys Ala
                645                 650                 655

Phe Asn Ser Asn Asn Glu Gln Arg Thr Ala Leu Trp Lys Ala Gly Phe
            660                 665                 670

Lys Gly Lys Ser Lys Pro Asn Leu Leu Lys Gln Glu Thr Ser Ser Leu
        675                 680                 685

Ala Cys Gly Leu Arg Ile Leu Phe Arg Met Tyr Met Asp Glu Ser Arg
    690                 695                 700

Val Ser Ala Trp Glu Glu Val Gln Gln Arg Leu Leu Asn Val Cys Ser
705                 710                 715                 720

Glu Ala Leu Ser Tyr Phe Leu Thr Leu Thr Ser Glu Ser His Arg Glu
                725                 730                 735

Ala Trp Thr Asn Leu Leu Leu Leu Phe Leu Thr Lys Val Leu Lys Ile
            740                 745                 750
```

```
Ser Asp Asn Arg Val Ser Met Arg Leu Arg Ile Gln Pro His Ile Ser
        755                 760                 765

Ser Pro Ile Arg Ile Gly Met Arg Gly Pro Arg Ala Ala Val Gln Glu
    770                 775                 780

Leu Ser Glu Met Asn Gln Ala Val Pro Arg Leu His Cys Cys Leu Cys
785                 790                 795                 800

Lys Ala Thr Ser Gly Leu Ala Val Ser Ser Ser Val Leu Ala Phe Leu
                805                 810                 815

Pro Pro Tyr Pro Ala Leu Phe Thr Asn
            820                 825


<210> 3271
<211> 1785
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 725; "

<220>
<221> source
<223> /note="Gene Symbol: ARFGEF2; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation  factor
      guanine nucleotide-exchange
      factor 2 (brefeldin A-inhibited); "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y6D5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360985"

<400> 3271
Met Gln Glu Ser Gln Thr Lys Ser Met Phe Val Ser Arg Ala Leu Glu
1               5                   10                  15

Lys Ile Leu Ala Asp Lys Glu Val Lys Arg Pro Gln His Ser Gln Leu
            20                  25                  30
```

```
Arg Arg Ala Cys Gln Val Ala Leu Asp Glu Ile Lys Ala Glu Ile Glu
        35                  40                  45

Lys Gln Arg Leu Gly Thr Ala Ala Pro Pro Lys Ala Asn Phe Ile Glu
    50                  55                  60

Ala Asp Lys Tyr Phe Leu Pro Phe Glu Leu Ala Cys Gln Ser Lys Ser
65                  70                  75                  80

Pro Arg Val Val Ser Thr Ser Leu Asp Cys Leu Gln Lys Leu Ile Ala
                85                  90                  95

Tyr Gly His Ile Thr Gly Asn Ala Pro Asp Ser Gly Ala Pro Gly Lys
            100                 105                 110

Arg Leu Ile Asp Arg Ile Val Glu Thr Ile Cys Ser Cys Phe Gln Gly
        115                 120                 125

Pro Gln Thr Asp Glu Gly Val Gln Leu Gln Ile Ile Lys Ala Leu Leu
    130                 135                 140

Thr Ala Val Thr Ser Pro His Ile Glu Ile His Glu Gly Thr Ile Leu
145                 150                 155                 160

Gln Thr Val Arg Thr Cys Tyr Asn Ile Tyr Leu Ala Ser Lys Asn Leu
                165                 170                 175

Ile Asn Gln Thr Thr Ala Lys Ala Thr Leu Thr Gln Met Leu Asn Val
            180                 185                 190

Ile Phe Thr Arg Met Glu Asn Gln Val Leu Gln Glu Ala Arg Glu Leu
        195                 200                 205

Glu Lys Pro Ile Gln Ser Lys Pro Gln Ser Pro Val Ile Gln Ala Ala
    210                 215                 220

Ala Val Ser Pro Lys Phe Val Arg Leu Lys His Ser Gln Ala Gln Ser
225                 230                 235                 240

Lys Pro Thr Thr Pro Glu Lys Thr Asp Leu Thr Asn Gly Glu His Ala
                245                 250                 255
```

```
Arg Ser Asp Ser Gly Lys Val Ser Thr Glu Asn Gly Asp Ala Pro Arg
            260                 265                 270

Glu Arg Gly Ser Ser Leu Ser Gly Thr Asp Asp Gly Ala Gln Glu Val
        275                 280                 285

Val Lys Asp Ile Leu Glu Asp Val Val Thr Ser Ala Ile Lys Glu Ala
    290                 295                 300

Ala Glu Lys His Gly Leu Thr Glu Pro Glu Arg Val Leu Gly Glu Leu
305                 310                 315                 320

Glu Cys Gln Glu Cys Ala Ile Pro Pro Gly Val Asp Glu Asn Ser Gln
                325                 330                 335

Thr Asn Gly Ile Ala Asp Asp Arg Gln Ser Leu Ser Ser Ala Asp Asn
            340                 345                 350

Leu Glu Ser Asp Ala Gln Gly His Gln Val Ala Ala Arg Phe Ser His
        355                 360                 365

Val Leu Gln Lys Asp Ala Phe Leu Val Phe Arg Ser Leu Cys Lys Leu
    370                 375                 380

Ser Met Lys Pro Leu Gly Glu Gly Pro Pro Asp Pro Lys Ser His Glu
385                 390                 395                 400

Leu Arg Ser Lys Val Val Ser Leu Gln Leu Leu Leu Ser Val Leu Gln
                405                 410                 415

Asn Ala Gly Pro Val Phe Arg Thr His Glu Met Phe Ile Asn Ala Ile
            420                 425                 430

Lys Gln Tyr Leu Cys Val Ala Leu Ser Lys Asn Gly Val Ser Ser Val
        435                 440                 445

Pro Asp Val Phe Glu Leu Ser Leu Ala Ile Phe Leu Thr Leu Leu Ser
    450                 455                 460

Asn Phe Lys Met His Leu Lys Met Gln Ile Glu Val Phe Phe Lys Glu
465                 470                 475                 480

Ile Phe Leu Asn Ile Leu Glu Thr Ser Thr Ser Ser Phe Glu His Arg
```

485 490 495

Trp Met Val Ile Gln Thr Leu Thr Arg Ile Cys Ala Asp Ala Gln Cys
500 505 510

Val Val Asp Ile Tyr Val Asn Tyr Asp Cys Asp Leu Asn Ala Ala Asn
515 520 525

Ile Phe Glu Arg Leu Val Asn Asp Leu Ser Lys Ile Ala Gln Gly Arg
530 535 540

Ser Gly His Glu Leu Gly Met Thr Pro Leu Gln Glu Leu Ser Leu Arg
545 550 555 560

Lys Lys Gly Leu Glu Cys Leu Val Ser Ile Leu Lys Cys Met Val Glu
565 570 575

Trp Ser Lys Asp Leu Tyr Val Asn Pro Asn His Gln Thr Ser Leu Gly
580 585 590

Gln Glu Arg Leu Thr Asp Gln Glu Ile Gly Asp Gly Lys Gly Leu Asp
595 600 605

Met Ala Arg Arg Cys Ser Val Thr Ser Met Glu Ser Thr Val Ser Ser
610 615 620

Gly Thr Gln Thr Thr Val Gln Asp Asp Pro Glu Gln Phe Glu Val Ile
625 630 635 640

Lys Gln Gln Lys Glu Ile Ile Glu His Gly Ile Glu Leu Phe Asn Lys
645 650 655

Lys Pro Lys Arg Gly Ile Gln Phe Leu Gln Glu Gln Gly Met Leu Gly
660 665 670

Thr Ser Val Glu Asp Ile Ala Gln Phe Leu His Gln Glu Glu Arg Leu
675 680 685

Asp Ser Thr Gln Val Gly Asp Phe Leu Gly Asp Ser Ala Arg Phe Asn
690 695 700

Lys Glu Val Met Tyr Ala Tyr Val Asp Gln Leu Asp Phe Cys Glu Lys
705 710 715 720

```
Glu Phe Val Ser Ala Leu Arg Thr Phe Leu Glu Gly Phe Arg Leu Pro
                725                 730                 735

Gly Glu Ala Gln Lys Ile Asp Arg Leu Met Glu Lys Phe Ala Ala Arg
            740                 745                 750

Tyr Ile Glu Cys Asn Gln Gly Gln Thr Leu Phe Ala Ser Ala Asp Thr
        755                 760                 765

Ala Tyr Val Leu Ala Tyr Ser Ile Ile Met Leu Thr Thr Asp Leu His
    770                 775                 780

Ser Pro Gln Val Lys Asn Lys Met Thr Lys Glu Gln Tyr Ile Lys Met
785                 790                 795                 800

Asn Arg Gly Ile Asn Asp Ser Lys Asp Leu Pro Glu Glu Tyr Leu Ser
                805                 810                 815

Ser Ile Tyr Glu Glu Ile Glu Gly Lys Lys Ile Ala Met Lys Glu Thr
            820                 825                 830

Lys Glu Leu Thr Ile Ala Thr Lys Ser Thr Lys Gln Asn Val Ala Ser
        835                 840                 845

Glu Lys Gln Arg Arg Leu Leu Tyr Asn Leu Glu Met Glu Gln Met Ala
    850                 855                 860

Lys Thr Ala Lys Ala Leu Met Glu Ala Val Ser His Ala Lys Ala Pro
865                 870                 875                 880

Phe Thr Ser Ala Thr His Leu Asp His Val Arg Pro Met Phe Lys Leu
                885                 890                 895

Val Trp Thr Pro Leu Leu Ala Ala Tyr Ser Ile Gly Leu Gln Asn Cys
            900                 905                 910

Asp Asp Thr Glu Val Ala Ser Leu Cys Leu Glu Gly Ile Arg Cys Ala
        915                 920                 925

Ile Arg Ile Ala Cys Ile Phe Gly Met Gln Leu Glu Arg Asp Ala Tyr
    930                 935                 940
```

```
Val Gln Ala Leu Ala Arg Phe Ser Leu Leu Thr Ala Ser Ser Ser Ile
945                 950                 955                 960

Thr Glu Met Lys Gln Lys Asn Ile Asp Thr Ile Lys Thr Leu Ile Thr
                965                 970                 975

Val Ala His Thr Asp Gly Asn Tyr Leu Gly Asn Ser Trp His Glu Ile
            980                 985                 990

Leu Lys Cys Ile Ser Gln Leu Glu  Leu Ala Gln Leu Ile  Gly Thr
Gly
        995                 1000                1005

Val Lys  Thr Arg Tyr Leu Ser  Gly Ser Gly Arg Glu  Arg Glu Gly
    1010                1015                1020

Ser Leu  Lys Gly His Thr Leu  Ala Gly Glu Glu Phe  Met Gly Leu
    1025                1030                1035

Gly Leu  Gly Asn Leu Val Ser  Gly Gly Val Asp Lys  Arg Gln Met
    1040                1045                1050

Ala Ser  Phe Gln Glu Ser Val  Gly Glu Thr Ser Ser  Gln Ser Val
    1055                1060                1065

Val Val  Ala Val Asp Arg Ile  Phe Thr Gly Ser Thr  Arg Leu Asp
    1070                1075                1080

Gly Asn  Ala Ile Val Asp Phe  Val Arg Trp Leu Cys  Ala Val Ser
    1085                1090                1095

Met Asp  Glu Leu Ala Ser Pro  His His Pro Arg Met  Phe Ser Leu
    1100                1105                1110

Gln Lys  Ile Val Glu Ile Ser  Tyr Tyr Asn Met Asn  Arg Ile Arg
    1115                1120                1125

Leu Gln  Trp Ser Arg Ile Trp  His Val Ile Gly Asp  His Phe Asn
    1130                1135                1140

Lys Val  Gly Cys Asn Pro Asn  Glu Asp Val Ala Ile  Phe Ala Val
    1145                1150                1155
```

```
Asp Ser  Leu Arg Gln Leu Ser  Met Lys Phe Leu Glu  Lys Gly Glu
    1160                1165                1170

Leu Ala  Asn Phe Arg Phe Gln  Lys Asp Phe Leu Arg  Pro Phe Glu
    1175                1180                1185

His Ile  Met Lys Lys Asn Arg  Ser Pro Thr Ile Arg  Asp Met Ala
    1190                1195                1200

Ile Arg  Cys Ile Ala Gln Met  Val Asn Ser Gln Ala  Ala Asn Ile
    1205                1210                1215

Arg Ser  Gly Trp Lys Asn Ile  Phe Ala Val Phe His  Gln Ala Ala
    1220                1225                1230

Ser Asp  His Asp Gly Asn Ile  Val Glu Leu Ala Phe  Gln Thr Thr
    1235                1240                1245

Cys His  Ile Val Thr Thr Ile  Phe Gln His His Phe  Pro Ala Ala
    1250                1255                1260

Ile Asp  Ser Phe Gln Asp Ala  Val Lys Cys Leu Ser  Glu Phe Ala
    1265                1270                1275

Cys Asn  Ala Ala Phe Pro Asp  Thr Ser Met Glu Ala  Ile Arg Leu
    1280                1285                1290

Ile Arg  Phe Cys Gly Lys Tyr  Val Ser Glu Arg Pro  Arg Val Leu
    1295                1300                1305

Gln Glu  Tyr Thr Ser Asp Asp  Met Asn Val Ala Pro  Gly Asp Arg
    1310                1315                1320

Val Trp  Val Arg Gly Trp Phe  Pro Ile Leu Phe Glu  Leu Ser Cys
    1325                1330                1335

Ile Ile  Asn Arg Cys Lys Leu  Asp Val Arg Thr Arg  Gly Leu Thr
    1340                1345                1350

Val Met  Phe Glu Ile Met Lys  Ser Tyr Gly His Thr  Phe Glu Lys
    1355                1360                1365
```

```
His Trp  Trp Gln Asp Leu Phe  Arg Ile Val Phe Arg  Ile Phe Asp
    1370                1375                1380

Asn Met  Lys Leu Pro Glu Gln  Leu Ser Glu Lys Ser  Glu Trp Met
    1385                1390                1395

Thr Thr  Thr Cys Asn His Ala  Leu Tyr Ala Ile Cys  Asp Val Phe
    1400                1405                1410

Thr Gln  Phe Tyr Glu Ala Leu  Asn Glu Val Leu Leu  Ser Asp Val
    1415                1420                1425

Phe Ala  Gln Leu Gln Trp Cys  Val Lys Gln Asp Asn  Glu Gln Leu
    1430                1435                1440

Ala Arg  Ser Gly Thr Asn Cys  Leu Glu Asn Leu Val  Ile Ser Asn
    1445                1450                1455

Gly Glu  Lys Phe Ser Pro Glu  Val Trp Asp Glu Thr  Cys Asn Cys
    1460                1465                1470

Met Leu  Asp Ile Phe Lys Thr  Thr Ile Pro His Val  Leu Leu Thr
    1475                1480                1485

Trp Arg  Pro Val Gly Met Glu  Glu Asp Ser Ser Glu  Lys His Leu
    1490                1495                1500

Asp Val  Asp Leu Asp Arg Gln  Ser Leu Ser Ser Ile  Asp Lys Asn
    1505                1510                1515

Pro Ser  Glu Arg Gly Gln Ser  Gln Leu Ser Asn Pro  Thr Asp Asp
    1520                1525                1530

Ser Trp  Lys Gly Arg Pro Tyr  Ala Asn Gln Lys Leu  Phe Ala Ser
    1535                1540                1545

Leu Leu  Ile Lys Cys Val Val  Gln Leu Glu Leu Ile  Gln Thr Ile
    1550                1555                1560

Asp Asn  Ile Val Phe Tyr Pro  Ala Thr Ser Lys Lys  Glu Asp Ala
    1565                1570                1575

Glu His  Met Val Ala Ala Gln  Gln Asp Thr Leu Asp  Ala Asp Ile
```

1580 1585 1590

His Ile Glu Thr Glu Asp Gln Gly Met Tyr Lys Tyr Met Ser Ser
1595 1600 1605

Gln His Leu Phe Lys Leu Leu Asp Cys Leu Gln Glu Ser His Ser
1610 1615 1620

Phe Ser Lys Ala Phe Asn Ser Asn Tyr Glu Gln Arg Thr Val Leu
1625 1630 1635

Trp Arg Ala Gly Phe Lys Gly Lys Ser Lys Pro Asn Leu Leu Lys
1640 1645 1650

Gln Glu Thr Ser Ser Leu Ala Cys Cys Leu Arg Ile Leu Phe Arg
1655 1660 1665

Met Tyr Val Asp Glu Asn Arg Arg Asp Ser Trp Glu Glu Ile Gln
1670 1675 1680

Gln Arg Leu Leu Thr Val Cys Ser Glu Ala Leu Ala Tyr Phe Ile
1685 1690 1695

Thr Val Asn Ser Glu Ser His Arg Glu Ala Trp Thr Ser Leu Leu
1700 1705 1710

Leu Leu Leu Leu Thr Lys Thr Leu Lys Ile Asn Asp Glu Lys Phe
1715 1720 1725

Lys Ala His Ala Ser Met Tyr Tyr Pro Tyr Leu Cys Glu Ile Met
1730 1735 1740

Gln Phe Asp Leu Ile Pro Glu Leu Arg Ala Val Leu Arg Lys Phe
1745 1750 1755

Phe Leu Arg Ile Gly Val Val Tyr Lys Ile Trp Ile Pro Glu Glu
1760 1765 1770

Pro Ser Gln Val Pro Ala Ala Leu Ser Pro Val Trp
1775 1780 1785

<210> 3272
<211> 373

<212> PRT
<213> Homo sapiens

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ADP-ribosylation factor
interacting prt 1; "

<220>
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<400> 3272

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Met Ala Gln Glu Ser Pro Lys Asn Ser Ala Ala Glu Ile Pro Val Thr
1               5                  10                  15

Ser Asn Gly Glu Val Asp Asp Ser Arg Glu His Ser Phe Asn Arg Asp
            20                  25                  30

Leu Lys His Ser Leu Pro Ser Gly Leu Gly Leu Ser Glu Thr Gln Ile
        35                  40                  45

Thr Ser His Gly Phe Asp Asn Thr Lys Glu Gly Val Ile Glu Ala Gly
    50                  55                  60

Ala Phe Gln Gly Ser Pro Ala Pro Pro Leu Pro Ser Val Met Ser Pro
65                  70                  75                  80

Ser Arg Val Ala Ala Ser Arg Leu Ala Gln Gln Gly Ser Asp Leu Ile
                85                  90                  95

Val Pro Ala Gly Gly Gln Arg Thr Gln Thr Lys Ser Gly Pro Val Ile
            100                 105                 110

Leu Ala Asp Glu Ile Lys Asn Pro Ala Met Glu Lys Leu Glu Leu Val
        115                 120                 125
```

```
Arg Lys Trp Ser Leu Asn Thr Tyr Lys Cys Thr Arg Gln Ile Ile Ser
    130                 135                 140

Glu Lys Leu Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Ala
145                 150                 155                 160

Gln Ile Asp Ile Leu Arg Asp Asn Lys Lys Lys Tyr Glu Asn Ile Leu
                165                 170                 175

Lys Leu Ala Gln Thr Leu Ser Thr Gln Leu Phe Gln Met Val His Thr
            180                 185                 190

Gln Arg Gln Leu Gly Asp Ala Phe Ala Asp Leu Ser Leu Lys Ser Leu
        195                 200                 205

Glu Leu His Glu Glu Phe Gly Tyr Asn Ala Asp Thr Gln Lys Leu Leu
    210                 215                 220

Ala Lys Asn Gly Glu Thr Leu Leu Gly Ala Ile Asn Phe Phe Ile Ala
225                 230                 235                 240

Ser Val Asn Thr Leu Val Asn Lys Thr Ile Glu Asp Thr Leu Met Thr
                245                 250                 255

Val Lys Gln Tyr Glu Ser Ala Arg Ile Glu Tyr Asp Ala Tyr Arg Thr
            260                 265                 270

Asp Leu Glu Glu Leu Asn Leu Gly Pro Arg Asp Ala Asn Thr Leu Pro
        275                 280                 285

Lys Ile Glu Gln Ser Gln His Leu Phe Gln Ala His Lys Glu Lys Tyr
    290                 295                 300

Asp Lys Met Arg Asn Asp Val Ser Val Lys Leu Lys Phe Leu Glu Glu
305                 310                 315                 320

Asn Lys Val Lys Val Leu His Asn Gln Leu Val Leu Phe His Asn Ala
                325                 330                 335

Ile Ala Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu
            340                 345                 350
```

Lys Gln Phe His Ile Lys Leu Lys Thr Pro Gly Val Asp Ala Pro Ser
355 360 365

Trp Leu Glu Glu Gln
370

<210> 3273
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<400> 3273
Met Ala Gln Glu Ser Pro Lys Asn Ser Ala Ala Glu Ile Pro Val Thr
1 5 10 15

Ser Asn Gly Glu Val Asp Asp Ser Arg Glu His Ser Phe Asn Arg Asp
20 25 30

Leu Lys His Ser Leu Pro Ser Gly Leu Gly Leu Ser Glu Thr Gln Ile
35 40 45

Thr Ser His Gly Phe Asp Asn Thr Lys Glu Gly Val Ile Glu Ala Gly
50 55 60

Ala Phe Gln Gly Gly Gln Arg Thr Gln Thr Lys Ser Gly Pro Val Ile
65 70 75 80

Leu Ala Asp Glu Ile Lys Asn Pro Ala Met Glu Lys Leu Glu Leu Val

```
                85                  90                  95

Arg Lys Trp Ser Leu Asn Thr Tyr Lys Cys Thr Arg Gln Ile Ile Ser
            100                 105                 110

Glu Lys Leu Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Ala
        115                 120                 125

Gln Ile Asp Ile Leu Arg Asp Asn Lys Lys Lys Tyr Glu Asn Ile Leu
    130                 135                 140

Lys Leu Ala Gln Thr Leu Ser Thr Gln Leu Phe Gln Met Val His Thr
145                 150                 155                 160

Gln Arg Gln Leu Gly Asp Ala Phe Ala Asp Leu Ser Leu Lys Ser Leu
                165                 170                 175

Glu Leu His Glu Glu Phe Gly Tyr Asn Ala Asp Thr Gln Lys Leu Leu
            180                 185                 190

Ala Lys Asn Gly Glu Thr Leu Leu Gly Ala Ile Asn Phe Phe Ile Ala
        195                 200                 205

Ser Val Asn Thr Leu Val Asn Lys Thr Ile Glu Asp Thr Leu Met Thr
    210                 215                 220

Val Lys Gln Tyr Glu Ser Ala Arg Ile Glu Tyr Asp Ala Tyr Arg Thr
225                 230                 235                 240

Asp Leu Glu Glu Leu Asn Leu Gly Pro Arg Asp Ala Asn Thr Leu Pro
                245                 250                 255

Lys Ile Glu Gln Ser Gln His Leu Phe Gln Ala His Lys Glu Lys Tyr
            260                 265                 270

Asp Lys Met Arg Asn Asp Val Ser Val Lys Leu Lys Phe Leu Glu Glu
        275                 280                 285

Asn Lys Val Lys Val Leu His Asn Gln Leu Val Leu Phe His Asn Ala
    290                 295                 300

Ile Ala Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu
305                 310                 315                 320
```

```
Lys Gln Phe His Ile Lys Leu Lys Thr Pro Gly Val Asp Ala Pro Ser
                325                 330                 335


Trp Leu Glu Glu Gln
            340


<210> 3274
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<400> 3274
Met Ala Gln Glu Ser Pro Lys Asn Ser Ala Ala Glu Ile Pro Val Thr
1               5                   10                  15


Ser Asn Gly Glu Val Asp Asp Ser Arg Glu His Ser Phe Asn Arg Asp
            20                  25                  30


Leu Lys His Ser Leu Pro Ser Gly Leu Gly Leu Ser Glu Thr Gln Ile
        35                  40                  45


Thr Ser His Gly Phe Asp Asn Thr Lys Glu Gly Val Ile Glu Ala Gly
    50                  55                  60


Ala Phe Gln Gly Gly Gln Arg Thr Gln Thr Lys Ser Gly Pro Val Ile
65                  70                  75                  80
```

Leu Ala Asp Glu Ile Lys Asn Pro Ala Met Glu Lys Leu Glu Leu Val
85 90 95

Arg Lys Trp Ser Leu Asn Thr Tyr Lys Cys Thr Arg Gln Ile Ile Ser
100 105 110

Glu Lys Leu Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Ala
115 120 125

Gln Ile Asp Ile Leu Arg Asp Asn Lys Lys Lys Tyr Glu Asn Ile Leu
130 135 140

Lys Leu Ala Gln Thr Leu Ser Thr Gln Leu Phe Gln Met Val His Thr
145 150 155 160

Gln Arg Gln Leu Gly Asp Ala Phe Ala Asp Leu Ser Leu Lys Ser Leu
165 170 175

Glu Leu His Glu Glu Phe Gly Tyr Asn Ala Asp Thr Gln Lys Leu Leu
180 185 190

Ala Lys Asn Gly Glu Thr Leu Leu Gly Ala Ile Asn Phe Phe Ile Ala
195 200 205

Ser Val Asn Thr Leu Val Asn Lys Thr Ile Glu Asp Thr Leu Met Thr
210 215 220

Val Lys Gln Tyr Glu Ser Ala Arg Ile Glu Tyr Asp Ala Tyr Arg Thr
225 230 235 240

Asp Leu Glu Glu Leu Asn Leu Gly Pro Arg Asp Ala Asn Thr Leu Pro
245 250 255

Lys Ile Glu Gln Ser Gln His Leu Phe Gln Ala His Lys Glu Lys Tyr
260 265 270

Asp Lys Met Arg Asn Asp Val Ser Val Lys Leu Lys Phe Leu Glu Glu
275 280 285

Asn Lys Val Lys Val Leu His Asn Gln Leu Val Leu Phe His Asn Ala
290 295 300

```
Ile Ala Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu
305                 310                 315                 320


Lys Gln Phe His Ile Lys Leu Lys Thr Pro Gly Val Asp Ala Pro Ser
                325                 330                 335


Trp Leu Glu Glu Gln
            340


<210> 3275
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<400> 3275
Met Ala Gln Glu Ser Pro Lys Asn Ser Ala Ala Glu Ile Pro Val Thr
1               5                   10                  15


Ser Asn Gly Glu Val Asp Asp Ser Arg Glu His Ser Phe Asn Arg Asp
            20                  25                  30


Leu Lys His Ser Leu Pro Ser Gly Leu Gly Leu Ser Glu Thr Gln Ile
        35                  40                  45


Thr Ser His Gly Phe Asp Asn Thr Lys Glu Gly Val Ile Glu Ala Gly
    50                  55                  60


Ala Phe Gln Gly Ser Pro Ala Pro Pro Leu Pro Ser Val Met Ser Pro
```

65 70 75 80

Ser Arg Val Ala Ala Ser Arg Leu Ala Gln Gln Gly Ser Asp Leu Ile
85 90 95

Val Pro Ala Gly Gly Gln Arg Thr Gln Thr Lys Ser Gly Pro Val Ile
100 105 110

Leu Ala Asp Glu Ile Lys Asn Pro Ala Met Glu Lys Leu Glu Leu Val
115 120 125

Arg Lys Trp Ser Leu Asn Thr Tyr Lys Cys Thr Arg Gln Ile Ile Ser
130 135 140

Glu Lys Leu Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Ala
145 150 155 160

Gln Ile Asp Ile Leu Arg Asp Asn Lys Lys Lys Tyr Glu Asn Ile Leu
165 170 175

Lys Leu Ala Gln Thr Leu Ser Thr Gln Leu Phe Gln Met Val His Thr
180 185 190

Gln Arg Gln Leu Gly Asp Ala Phe Ala Asp Leu Ser Leu Lys Ser Leu
195 200 205

Glu Leu His Glu Glu Phe Gly Tyr Asn Ala Asp Thr Gln Lys Leu Leu
210 215 220

Ala Lys Asn Gly Glu Thr Leu Leu Gly Ala Ile Asn Phe Phe Ile Ala
225 230 235 240

Ser Val Asn Thr Leu Val Asn Lys Thr Ile Glu Asp Thr Leu Met Thr
245 250 255

Val Lys Gln Tyr Glu Ser Ala Arg Ile Glu Tyr Asp Ala Tyr Arg Thr
260 265 270

Asp Leu Glu Glu Leu Asn Leu Gly Pro Arg Asp Ala Asn Thr Leu Pro
275 280 285

Lys Ile Glu Gln Ser Gln His Leu Phe Gln Ala His Lys Glu Lys Tyr
290 295 300

```
Asp Lys Met Arg Asn Asp Val Ser Val Lys Leu Lys Phe Leu Glu Glu
305                 310                 315                 320

Asn Lys Val Lys Val Leu His Asn Gln Leu Val Leu Phe His Asn Ala
                325                 330                 335

Ile Ala Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu
            340                 345                 350

Lys Gln Phe His Ile Lys Leu Lys Thr Pro Gly Val Asp Ala Pro Ser
        355                 360                 365

Trp Leu Glu Glu Gln
    370


<210> 3276
<211> 193
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<213> Homo sapiens

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<400> 3276
Met Ala Gln Glu Ser Pro Lys Asn Ser Ala Ala Glu Ile Pro Val Thr
1               5                   10                  15

Ser Asn Gly Glu Val Asp Asp Ser Arg Glu His Ser Phe Asn Arg Glu
            20                  25                  30
```

```
Glu Phe Gly Tyr Asn Ala Asp Thr Gln Lys Leu Leu Ala Lys Asn Gly
        35                  40                  45

Glu Thr Leu Leu Gly Ala Ile Asn Phe Phe Ile Ala Ser Val Asn Thr
    50                  55                  60

Leu Val Asn Lys Thr Ile Glu Asp Thr Leu Met Thr Val Lys Gln Tyr
65                  70                  75                  80

Glu Ser Ala Arg Ile Glu Tyr Asp Ala Tyr Arg Thr Asp Leu Glu Glu
                85                  90                  95

Leu Asn Leu Gly Pro Arg Asp Ala Asn Thr Leu Pro Lys Ile Glu Gln
            100                 105                 110

Ser Gln His Leu Phe Gln Ala His Lys Glu Lys Tyr Asp Lys Met Arg
        115                 120                 125

Asn Asp Val Ser Val Lys Leu Lys Phe Leu Glu Glu Asn Lys Val Lys
    130                 135                 140

Val Leu His Asn Gln Leu Val Leu Phe His Asn Ala Ile Ala Ala Tyr
145                 150                 155                 160

Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu Lys Gln Phe His
                165                 170                 175

Ile Lys Leu Lys Thr Pro Gly Val Asp Ala Pro Ser Trp Leu Glu Glu
            180                 185                 190

Gln
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<210> 3277
<211> 341
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<400> 3277
Met Ala Gln Glu Ser Pro Lys Asn Ser Ala Ala Glu Ile Pro Val Thr
1   5   10   15

Ser Asn Gly Glu Val Asp Asp Ser Arg Glu His Ser Phe Asn Arg Asp
            20   25   30

Leu Lys His Ser Leu Pro Ser Gly Leu Gly Leu Ser Glu Thr Gln Ile
        35   40   45

Thr Ser His Gly Phe Asp Asn Thr Lys Glu Gly Val Ile Glu Ala Gly
    50   55   60

Ala Phe Gln Gly Gly Gln Arg Thr Gln Thr Lys Ser Gly Pro Val Ile
65   70   75   80

Leu Ala Asp Glu Ile Lys Asn Pro Ala Met Glu Lys Leu Glu Leu Val
                85   90   95

Arg Lys Trp Ser Leu Asn Thr Tyr Lys Cys Thr Arg Gln Ile Ile Ser
            100   105   110

Glu Lys Leu Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Ala
        115   120   125

Gln Ile Asp Ile Leu Arg Asp Asn Lys Lys Lys Tyr Glu Asn Ile Leu
    130   135   140

Lys Leu Ala Gln Thr Leu Ser Thr Gln Leu Phe Gln Met Val His Thr
145   150   155   160

Gln Arg Gln Leu Gly Asp Ala Phe Ala Asp Leu Ser Leu Lys Ser Leu

```
                165                 170                 175

Glu Leu His Glu Glu Phe Gly Tyr Asn Ala Asp Thr Gln Lys Leu Leu
            180                 185                 190

Ala Lys Asn Gly Glu Thr Leu Leu Gly Ala Ile Asn Phe Phe Ile Ala
        195                 200                 205

Ser Val Asn Thr Leu Val Asn Lys Thr Ile Glu Asp Thr Leu Met Thr
    210                 215                 220

Val Lys Gln Tyr Glu Ser Ala Arg Ile Glu Tyr Asp Ala Tyr Arg Thr
225                 230                 235                 240

Asp Leu Glu Glu Leu Asn Leu Gly Pro Arg Asp Ala Asn Thr Leu Pro
                245                 250                 255

Lys Ile Glu Gln Ser Gln His Leu Phe Gln Ala His Lys Glu Lys Tyr
            260                 265                 270

Asp Lys Met Arg Asn Asp Val Ser Val Lys Leu Lys Phe Leu Glu Glu
        275                 280                 285

Asn Lys Val Lys Val Leu His Asn Gln Leu Val Leu Phe His Asn Ala
    290                 295                 300

Ile Ala Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu
305                 310                 315                 320

Lys Gln Phe His Ile Lys Leu Lys Thr Pro Gly Val Asp Ala Pro Ser
                325                 330                 335

Trp Leu Glu Glu Gln
            340


<210> 3278
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<212> PRT
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<220>
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<221> source
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ADP-ribosylation factor
interacting prt 2; "

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<400> 3278

Met	Thr	Asp	Gly	Ile	Leu	Gly	Lys	Ala	Ala	Thr	Met	Glu	Ile	Pro	Ile
1				5				10					15		
His	Gly	Asn	Gly	Glu	Ala	Arg	Gln	Leu	Pro	Glu	Asp	Asp	Gly	Leu	Glu
		20					25					30			
Gln	Asp	Leu	Gln	Gln	Val	Met	Val	Ser	Gly	Pro	Asn	Leu	Asn	Glu	Thr
	35					40					45				
Ser	Ile	Val	Ser	Gly	Gly	Tyr	Gly	Gly	Ser	Gly	Asp	Gly	Leu	Ile	Pro
50					55					60					
Thr	Gly	Ser	Gly	Arg	His	Pro	Ser	His	Ser	Thr	Thr	Pro	Ser	Gly	Pro
65				70					75					80	
Gly	Asp	Glu	Val	Ala	Arg	Gly	Ile	Ala	Gly	Glu	Lys	Phe	Asp	Ile	Val
			85					90					95		
Lys	Lys	Trp	Gly	Ile	Asn	Thr	Tyr	Lys	Cys	Thr	Lys	Gln	Leu	Leu	Ser
		100					105					110			
Glu	Arg	Phe	Gly	Arg	Gly	Ser	Arg	Thr	Val	Asp	Leu	Glu	Leu	Glu	Leu
	115					120					125				
Gln	Ile	Glu	Leu	Leu	Arg	Glu	Thr	Lys	Arg	Lys	Tyr	Glu	Ser	Val	Leu
130					135					140					
Gln	Leu	Gly	Arg	Ala	Leu	Thr	Ala	His	Leu	Tyr	Ser	Leu	Leu	Gln	Thr
145				150					155					160	

```
Gln His Ala Leu Gly Asp Ala Phe Ala Asp Leu Ser Gln Lys Ser Pro
                165                 170                 175

Glu Leu Gln Glu Glu Phe Gly Tyr Asn Ala Glu Thr Gln Lys Leu Leu
            180                 185                 190

Cys Lys Asn Gly Glu Thr Leu Leu Gly Ala Val Asn Phe Phe Val Ser
        195                 200                 205

Ser Ile Asn Thr Leu Val Thr Lys Thr Met Glu Asp Thr Leu Met Thr
    210                 215                 220

Val Lys Gln Tyr Glu Ala Ala Arg Leu Glu Tyr Asp Ala Tyr Arg Thr
225                 230                 235                 240

Asp Leu Glu Glu Leu Ser Leu Gly Pro Arg Asp Ala Gly Thr Arg Gly
                245                 250                 255

Arg Leu Glu Ser Ala Gln Ala Thr Phe Gln Ala His Arg Asp Lys Tyr
            260                 265                 270

Glu Lys Leu Arg Gly Asp Val Ala Ile Lys Leu Lys Phe Leu Glu Glu
        275                 280                 285

Asn Lys Ile Lys Val Met His Lys Gln Leu Leu Leu Phe His Asn Ala
    290                 295                 300

Val Ser Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu
305                 310                 315                 320

Gln Gln Phe Asn Ile Lys Leu Arg Pro Pro Gly Ala Glu Lys Pro Ser
                325                 330                 335

Trp Leu Glu Glu Gln
            340
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<210> 3279
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interacting prt 2; "

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<223> /note="ENSP ID: ENSP00000379998"

<400> 3279
Met Thr Asp Gly Ile Leu Gly Lys Ala Ala Thr Met Glu Ile Pro Ile
1 5 10 15

His Gly Asn Gly Glu Ala Arg Gln Leu Pro Glu Asp Asp Gly Leu Glu
20 25 30

Gln Asp Leu Gln Gln Val Met Val Ser Gly Pro Asn Leu Asn Glu Thr
35 40 45

Ser Ile Val Ser Gly Gly Tyr Gly Gly Ser Gly Asp Gly Leu Ile Pro
50 55 60

Thr Gly Ser Gly Arg His Pro Ser His Ser Thr Thr Pro Ser Gly Pro
65 70 75 80

Gly Asp Glu Val Ala Arg Gly Ile Ala Gly Glu Lys Phe Asp Ile Val
85 90 95

Lys Lys Trp Gly Ile Asn Thr Tyr Lys Cys Thr Lys Gln Leu Leu Ser
100 105 110

Glu Arg Phe Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Leu
115 120 125

Gln Ile Glu Leu Leu Arg Glu Thr Lys Arg Lys Tyr Glu Ser Val Leu
130 135 140

Gln Leu Gly Arg Ala Leu Thr Ala His Leu Tyr Ser Leu Leu Gln Thr

145 150 155 160

Gln His Ala Leu Gly Asp Ala Phe Ala Asp Leu Ser Gln Lys Ser Pro
165 170 175

Glu Leu Gln Glu Glu Phe Gly Tyr Asn Ala Glu Thr Gln Lys Leu Leu
180 185 190

Cys Lys Asn Gly Glu Thr Leu Leu Gly Ala Val Asn Phe Phe Val Ser
195 200 205

Ser Ile Asn Thr Leu Val Thr Lys Thr Met Glu Asp Thr Leu Met Thr
210 215 220

Val Lys Gln Tyr Glu Ala Ala Arg Leu Glu Tyr Asp Ala Tyr Arg Thr
225 230 235 240

Asp Leu Glu Glu Leu Ser Leu Gly Pro Arg Asp Ala Gly Thr Arg Gly
245 250 255

Arg Leu Glu Ser Ala Gln Ala Thr Phe Gln Ala His Arg Asp Lys Tyr
260 265 270

Glu Lys Leu Arg Gly Asp Val Ala Ile Lys Leu Lys Phe Leu Glu Glu
275 280 285

Asn Lys Ile Lys Val Met His Lys Gln Leu Leu Leu Phe His Asn Ala
290 295 300

Val Ser Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu
305 310 315 320

Gln Gln Phe Asn Ile Lys Leu Arg Pro Pro Gly Ala Glu Lys Pro Ser
325 330 335

Trp Leu Glu Glu Gln
340

<210> 3280
<211> 256
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 727; "

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<223> /note="Gene Symbol: ARFIP2; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor
interacting prt 2; "

<220>
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<223> /note="Uniprot ID: P53365; "

<220>
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<400> 3280

```
Met Lys Pro Ala Leu Cys Leu Val Ala Met Gly Ala Leu Val Met Asp
1               5                  10                  15

Ser Ser Pro Gln Cys Thr Lys Gln Leu Leu Ser Glu Arg Phe Gly Arg
            20                  25                  30

Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Leu Gln Ile Glu Leu Leu
        35                  40                  45

Arg Glu Thr Lys Arg Lys Tyr Glu Ser Val Leu Gln Leu Gly Arg Ala
    50                  55                  60

Leu Thr Ala His Leu Tyr Ser Leu Leu Gln Thr Gln His Ala Leu Gly
65                  70                  75                  80

Asp Ala Phe Ala Asp Leu Ser Gln Lys Ser Pro Glu Leu Gln Glu Glu
                85                  90                  95

Phe Gly Tyr Asn Ala Glu Thr Gln Lys Leu Leu Cys Lys Asn Gly Glu
            100                 105                 110

Thr Leu Leu Gly Ala Val Asn Phe Phe Val Ser Ser Ile Asn Thr Leu
        115                 120                 125

Val Thr Lys Thr Met Glu Asp Thr Leu Met Thr Val Lys Gln Tyr Glu
    130                 135                 140
```

```
Ala Ala Arg Leu Glu Tyr Asp Ala Tyr Arg Thr Asp Leu Glu Glu Leu
145                 150                 155                 160

Ser Leu Gly Pro Arg Asp Ala Gly Thr Arg Gly Arg Leu Glu Ser Ala
                165                 170                 175

Gln Ala Thr Phe Gln Ala His Arg Asp Lys Tyr Glu Lys Leu Arg Gly
            180                 185                 190

Asp Val Ala Ile Lys Leu Lys Phe Leu Glu Glu Asn Lys Ile Lys Val
        195                 200                 205

Met His Lys Gln Leu Leu Leu Phe His Asn Ala Val Ser Ala Tyr Phe
    210                 215                 220

Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu Gln Gln Phe Asn Ile
225                 230                 235                 240

Lys Leu Arg Pro Pro Gly Ala Glu Lys Pro Ser Trp Leu Glu Glu Gln
                245                 250                 255
```

<210> 3281
<211> 303
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<213> Homo sapiens

<220>
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<220>
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ADP-ribosylation factor
interacting prt 2; "

<220>
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<220>
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<400> 3281

```
Met Val Ser Gly Pro Asn Leu Asn Glu Thr Ser Ile Val Ser Gly Gly
1               5                  10                  15

Tyr Gly Gly Ser Gly Asp Gly Leu Ile Pro Thr Gly Ser Gly Arg His
            20                  25                  30

Pro Ser His Ser Thr Thr Pro Ser Gly Pro Gly Asp Glu Val Ala Arg
        35                  40                  45

Gly Ile Ala Gly Glu Lys Phe Asp Ile Val Lys Lys Trp Gly Ile Asn
    50                  55                  60

Thr Tyr Lys Cys Thr Lys Gln Leu Leu Ser Glu Arg Phe Gly Arg Gly
65                  70                  75                  80

Ser Arg Thr Val Asp Leu Glu Leu Glu Leu Gln Ile Glu Leu Leu Arg
                85                  90                  95

Glu Thr Lys Arg Lys Tyr Glu Ser Val Leu Gln Leu Gly Arg Ala Leu
            100                 105                 110

Thr Ala His Leu Tyr Ser Leu Leu Gln Thr Gln His Ala Leu Gly Asp
        115                 120                 125

Ala Phe Ala Asp Leu Ser Gln Lys Ser Pro Glu Leu Gln Glu Glu Phe
    130                 135                 140

Gly Tyr Asn Ala Glu Thr Gln Lys Leu Leu Cys Lys Asn Gly Glu Thr
145                 150                 155                 160

Leu Leu Gly Ala Val Asn Phe Phe Val Ser Ser Ile Asn Thr Leu Val
                165                 170                 175

Thr Lys Thr Met Glu Asp Thr Leu Met Thr Val Lys Gln Tyr Glu Ala
            180                 185                 190

Ala Arg Leu Glu Tyr Asp Ala Tyr Arg Thr Asp Leu Glu Glu Leu Ser
        195                 200                 205

Leu Gly Pro Arg Asp Ala Gly Thr Arg Gly Arg Leu Glu Ser Ala Gln
    210                 215                 220

Ala Thr Phe Gln Ala His Arg Asp Lys Tyr Glu Lys Leu Arg Gly Asp
```

225 230 235 240

Val Ala Ile Lys Leu Lys Phe Leu Glu Glu Asn Lys Ile Lys Val Met
245 250 255

His Lys Gln Leu Leu Leu Phe His Asn Ala Val Ser Ala Tyr Phe Ala
260 265 270

Gly Asn Gln Lys Gln Leu Glu Gln Thr Leu Gln Gln Phe Asn Ile Lys
275 280 285

Leu Arg Pro Pro Gly Ala Glu Lys Pro Ser Trp Leu Glu Glu Gln
290 295 300

<210> 3282
<211> 202
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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ADP-ribosylation factor
interacting prt 2; "

<220>
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<223> /note="ENSP ID: ENSP00000434124"

<400> 3282
Met Thr Asp Gly Ile Leu Gly Lys Ala Ala Thr Met Glu Ile Pro Ile
1 5 10 15

His Gly Asn Gly Glu Ala Arg Gln Leu Pro Glu Asp Asp Gly Leu Glu
20 25 30

Gln Asp Leu Gln Gln Val Met Val Ser Gly Pro Asn Leu Asn Glu Thr
35 40 45

Ser Ile Val Ser Gly Gly Tyr Gly Gly Ser Gly Asp Gly Leu Ile Pro
50 55 60

```
Thr Gly Ser Gly Arg His Pro Ser His Ser Thr Thr Pro Ser Gly Pro
65                  70                  75                  80

Gly Asp Glu Val Ala Arg Gly Ile Ala Gly Glu Lys Phe Asp Ile Val
                85                  90                  95

Lys Lys Trp Gly Ile Asn Thr Tyr Lys Cys Thr Lys Gln Leu Leu Ser
            100                 105                 110

Glu Arg Phe Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Leu
        115                 120                 125

Gln Ile Glu Leu Leu Arg Glu Thr Lys Arg Lys Tyr Glu Ser Val Leu
    130                 135                 140

Gln Leu Gly Arg Ala Leu Thr Ala His Leu Tyr Ser Leu Leu Gln Thr
145                 150                 155                 160

Gln His Ala Leu Gly Asp Ala Phe Ala Asp Leu Ser Gln Lys Ser Pro
                165                 170                 175

Glu Leu Gln Pro Thr Gly Arg Thr Pro Ser Gly Trp Ala Gln Pro Tyr
            180                 185                 190

Pro Gln Gln His Ser Pro Val Glu Ala Ala
        195                 200


<210> 3283
<211> 159
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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      interacting prt 2; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000434564"

<400> 3283
Met Thr Asp Gly Ile Leu Gly Lys Ala Ala Thr Met Glu Ile Pro Ile
1   5   10   15

His Gly Asn Gly Glu Ala Arg Gln Leu Pro Glu Asp Asp Gly Leu Glu
            20   25   30

Gln Asp Leu Gln Gln Val Met Val Ser Gly Pro Asn Leu Asn Glu Thr
        35   40   45

Ser Ile Val Ser Gly Gly Tyr Gly Gly Ser Gly Asp Gly Leu Ile Pro
    50   55   60

Thr Gly Ser Gly Arg His Pro Ser His Ser Thr Thr Pro Ser Gly Pro
65   70   75   80

Gly Asp Glu Val Ala Arg Gly Ile Ala Gly Glu Lys Phe Asp Ile Val
                85   90   95

Lys Lys Trp Gly Ile Asn Thr Tyr Lys Cys Thr Lys Gln Leu Leu Ser
            100   105   110

Glu Arg Phe Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu Leu
        115   120   125

Gln Ile Glu Leu Leu Arg Glu Thr Lys Arg Lys Arg Asn Leu Ala Thr
    130   135   140

Met Gln Arg His Arg Asn Tyr Tyr Ala Arg Met Gly Lys Arg Cys
145   150   155

<210> 3284
<211> 374
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000484121"

<400> 3284

```
Met Thr Asp Gly Ile Leu Gly Lys Ala Ala Thr Met Glu Ile Pro Ile
1               5                  10                  15

His Gly Asn Gly Glu Ala Arg Gln Leu Pro Glu Asp Asp Gly Leu Glu
            20                  25                  30

Gln Asp Leu Gln Gln Val Met Val Ser Gly Pro Asn Leu Asn Glu Thr
        35                  40                  45

Ser Ile Val Ser Gly Gly Tyr Gly Gly Ser Gly Asp Gly Leu Ile Pro
    50                  55                  60

Thr Gly Lys Ser Ile Ser Cys Ala Arg Arg Glu Val Trp Val Gly Pro
65                  70                  75                  80

Gln Arg Cys Leu Val Tyr Leu Arg Glu Ala Gly Val Arg Glu Leu Asp
                85                  90                  95

Pro Leu Gly Ser Gly Arg His Pro Ser His Ser Thr Thr Pro Ser Gly
            100                 105                 110

Pro Gly Asp Glu Val Ala Arg Gly Ile Ala Gly Glu Lys Phe Asp Ile
        115                 120                 125

Val Lys Lys Trp Gly Ile Asn Thr Tyr Lys Cys Thr Lys Gln Leu Leu
    130                 135                 140

Ser Glu Arg Phe Gly Arg Gly Ser Arg Thr Val Asp Leu Glu Leu Glu
145                 150                 155                 160

Leu Gln Ile Glu Leu Leu Arg Glu Thr Lys Arg Lys Tyr Glu Ser Val
                165                 170                 175

Leu Gln Leu Gly Arg Ala Leu Thr Ala His Leu Tyr Ser Leu Leu Gln
```

```
            180                 185                 190

Thr Gln His Ala Leu Gly Asp Ala Phe Ala Asp Leu Ser Gln Lys Ser
        195                 200                 205

Pro Glu Leu Gln Glu Glu Phe Gly Tyr Asn Ala Glu Thr Gln Lys Leu
    210                 215                 220

Leu Cys Lys Asn Gly Glu Thr Leu Leu Gly Ala Val Asn Phe Phe Val
225                 230                 235                 240

Ser Ser Ile Asn Thr Leu Val Thr Lys Thr Met Glu Asp Thr Leu Met
                245                 250                 255

Thr Val Lys Gln Tyr Glu Ala Ala Arg Leu Glu Tyr Asp Ala Tyr Arg
            260                 265                 270

Thr Asp Leu Glu Glu Leu Ser Leu Gly Pro Arg Asp Ala Gly Thr Arg
        275                 280                 285

Gly Arg Leu Glu Ser Ala Gln Ala Thr Phe Gln Ala His Arg Asp Lys
    290                 295                 300

Tyr Glu Lys Leu Arg Gly Asp Val Ala Ile Lys Leu Lys Phe Leu Glu
305                 310                 315                 320

Glu Asn Lys Ile Lys Val Met His Lys Gln Leu Leu Leu Phe His Asn
                325                 330                 335

Ala Val Ser Ala Tyr Phe Ala Gly Asn Gln Lys Gln Leu Glu Gln Thr
            340                 345                 350

Leu Gln Gln Phe Asn Ile Lys Leu Arg Pro Pro Gly Ala Glu Lys Pro
        355                 360                 365

Ser Trp Leu Glu Glu Gln
    370
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<210> 3285
<211> 154
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 728; "

<220>
<221> source
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<220>
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ADP-ribosylation factor
related prt 1; "

<220>
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<223> /note="Uniprot ID: Q13795; "

<220>
<221> source
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<400> 3285

```
Met Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr
1               5                  10                  15

Val Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln
            20                  25                  30

Glu Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly
        35                  40                  45

Val Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser
    50                  55                  60

Lys Gln Ala Phe Glu Lys Val Val Thr Ser Glu Ala Leu Cys Gly Val
65                  70                  75                  80

Pro Val Leu Val Leu Ala Asn Lys Gln Asp Val Glu Thr Cys Leu Ser
                85                  90                  95

Ile Pro Asp Ile Lys Thr Ala Phe Ser Asp Cys Thr Ser Lys Ile Gly
            100                 105                 110

Arg Arg Asp Cys Leu Thr Gln Ala Cys Ser Ala Leu Thr Gly Lys Gly
        115                 120                 125

Val Arg Glu Gly Ile Glu Trp Met Val Lys Cys Val Val Arg Asn Val
    130                 135                 140
```

```
His Arg Pro Pro Arg Gln Arg Asp Ile Thr
145                 150


<210> 3286
<211> 173
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 728; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
      ADP-ribosylation  factor
      related prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q13795; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479058"

<400> 3286
Met Tyr Thr Leu Leu Ser Gly Leu Tyr Lys Tyr Met Phe Gln Lys Asp
1               5                   10                  15


Glu Tyr Cys Ile Leu Ile Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr
            20                  25                  30


Phe Leu Glu Gln Ser Lys Thr Arg Phe Asn Lys Asn Tyr Lys Gly Met
        35                  40                  45


Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr Val
    50                  55                  60


Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln Glu
65                  70                  75                  80


Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly Val
                85                  90                  95
```

```
Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser Lys
            100                 105                 110

Gln Ala Phe Glu Lys Val Val Thr Ser Glu Ala Leu Cys Gly Val Pro
        115                 120                 125

Val Leu Val Leu Ala Asn Lys Gln Asp Val Glu Thr Cys Leu Ser Ile
    130                 135                 140

Pro Asp Ile Lys Thr Ala Phe Ser Asp Cys Thr Ser Lys Ile Gly Arg
145                 150                 155                 160

Arg Asp Cys Leu Thr Gln Ala Cys Ser Ala Leu Thr Gly
                165                 170


<210> 3287
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Symbol: ARFRP1; "

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<223> /note="Gene Name:
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      related prt 1; "

<220>
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<223> /note="Uniprot ID:  Q13795; "

<220>
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<223> /note="ENSP ID: ENSP00000479616"

<400> 3287
Met Tyr Thr Leu Leu Ser Gly Leu Tyr Lys Tyr Met Phe Gln Lys Asp
1               5                   10                  15

Glu Tyr Cys Ile Leu Ile Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr
            20                  25                  30

Phe Leu Glu Gln Ser Lys Thr Arg Phe Asn Lys Asn Tyr Lys Gly Met
```

```
        35                  40                  45

Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr Val
    50                  55                  60

Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln Glu
65                  70                  75                  80

Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly Val
                85                  90                  95

Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser Lys
            100                 105                 110

Gln Ala Phe Glu Lys Val Val Thr Ser Glu Ala Leu Cys Gly Val Pro
        115                 120                 125

Val Leu Val Leu Ala Asn Lys Gln Asp Val Glu Thr Cys Leu Ser Ile
    130                 135                 140

Pro Asp Ile Lys Thr Ala Phe Ser Asp Cys Thr Ser Lys Ile Gly Arg
145                 150                 155                 160

Arg Asp Cys Leu Thr Gln Ala Cys Ser Ala Leu Thr Gly Lys Gly Val
                165                 170                 175

Arg Glu Gly Ile Glu Trp Met Val Lys Cys Val Val Arg Asn Val His
            180                 185                 190

Arg Pro Pro Arg Gln Arg Asp Ile Thr
        195                 200


<210> 3288
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 728; "

<220>
<221> source
<223> /note="Gene Symbol: ARFRP1; "

<220>
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<221> source
<223> /note="Gene Name:
ADP-ribosylation factor
related prt 1; "

<220>
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<223> /note="Uniprot ID: Q13795; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479940"

<400> 3288

```
Met Tyr Thr Leu Leu Ser Gly Leu Tyr Lys Tyr Met Phe Gln Lys Asp
1               5                  10                  15

Glu Tyr Cys Ile Leu Ile Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr
            20                  25                  30

Phe Leu Glu Gln Ser Lys Thr Arg Phe Asn Lys Asn Tyr Lys Gly Met
        35                  40                  45

Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr Val
    50                  55                  60

Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln Glu
65                  70                  75                  80

Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly Val
                85                  90                  95

Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser Lys
            100                 105                 110

Gln Ala Phe Glu Lys Val Val Thr Ser Glu Ala Leu Cys Gly Val Pro
        115                 120                 125

Val Leu Val Leu Ala Asn Lys Gln Asp Val Glu Thr Cys Leu Ser Ile
    130                 135                 140

Pro Asp Ile Lys Thr Ala Phe Ser Asp Cys Thr Ser Lys Ile Gly Arg
145                 150                 155                 160

Arg Asp Cys Leu Thr Gln Ala Cys Ser Ala Leu Thr Gly Lys Gly Val
                165                 170                 175
```

```
Arg Glu Gly Ile Glu Trp Met Val Lys Cys Val Val Arg Asn Val His
            180                 185                 190

Arg Pro Pro Arg Gln Arg Asp Ile Thr
        195                 200


<210> 3289
<211> 121
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 728; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
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      related prt 1; "

<220>
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<223> /note="Uniprot ID:  Q13795; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481446"

<400> 3289
Met Tyr Thr Leu Leu Ser Gly Leu Tyr Lys Tyr Met Phe Gln Lys Asp
1               5                   10                  15

Glu Tyr Cys Ile Leu Ile Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr
            20                  25                  30

Phe Leu Glu Gln Ser Lys Thr Arg Phe Asn Lys Asn Tyr Lys Gly Met
        35                  40                  45

Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr Val
    50                  55                  60

Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln Glu
65                  70                  75                  80
```

```
Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly Val
                85                  90                  95

Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser Lys
            100                 105                 110

Gln Ala Phe Asp Val Pro Leu Asn Pro
        115                 120


<210> 3290
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID:  Q13795; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483130"

<400> 3290
Met Tyr Thr Leu Leu Ser Gly Leu Tyr Lys Tyr Met Phe Gln Lys Asp
1               5                  10                  15

Glu Tyr Cys Ile Leu Ile Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr
            20                  25                  30

Phe Leu Glu Gln Ser Lys Thr Arg Phe Asn Lys Asn Tyr Lys Gly Met
        35                  40                  45

Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr Val
    50                  55                  60

Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln Glu
```

65 70 75 80

Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly Val
85 90 95

Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser Lys
100 105 110

Gln Ala Phe Asp Val Pro Leu Asn Pro
115 120

<210> 3291
<211> 201
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ARFRP1; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q13795; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483486"

<400> 3291
Met Tyr Thr Leu Leu Ser Gly Leu Tyr Lys Tyr Met Phe Gln Lys Asp
1 5 10 15

Glu Tyr Cys Ile Leu Ile Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr
20 25 30

Phe Leu Glu Gln Ser Lys Thr Arg Phe Asn Lys Asn Tyr Lys Gly Met
35 40 45

Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr Val
50 55 60

```
Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln Glu
65                  70                  75                  80

Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly Val
                85                  90                  95

Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser Lys
            100                 105                 110

Gln Ala Phe Glu Lys Val Val Thr Ser Glu Ala Leu Cys Gly Val Pro
        115                 120                 125

Val Leu Val Leu Ala Asn Lys Gln Asp Val Glu Thr Cys Leu Ser Ile
    130                 135                 140

Pro Asp Ile Lys Thr Ala Phe Ser Asp Cys Thr Ser Lys Ile Gly Arg
145                 150                 155                 160

Arg Asp Cys Leu Thr Gln Ala Cys Ser Ala Leu Thr Gly Lys Gly Val
                165                 170                 175

Arg Glu Gly Ile Glu Trp Met Val Lys Cys Val Val Arg Asn Val His
            180                 185                 190

Arg Pro Pro Arg Gln Arg Asp Ile Thr
        195                 200
```

<210> 3292
<211> 154
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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related prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q13795; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484109"

<400> 3292
Met Ser Leu Ser Lys Ile Thr Thr Thr Val Gly Leu Asn Ile Gly Thr
1   5   10   15

Val Asp Val Gly Lys Ala Arg Leu Met Phe Trp Asp Leu Gly Gly Gln
            20   25   30

Glu Glu Leu Gln Ser Leu Trp Asp Lys Tyr Tyr Ala Glu Cys His Gly
        35   40   45

Val Ile Tyr Val Ile Asp Ser Thr Asp Glu Glu Arg Leu Ala Glu Ser
    50   55   60

Lys Gln Ala Phe Glu Lys Val Val Thr Ser Glu Ala Leu Cys Gly Val
65   70   75   80

Pro Val Leu Val Leu Ala Asn Lys Gln Asp Val Glu Thr Cys Leu Ser
                85   90   95

Ile Pro Asp Ile Lys Thr Ala Phe Ser Asp Cys Thr Ser Lys Ile Gly
            100   105   110

Arg Arg Asp Cys Leu Thr Gln Ala Cys Ser Ala Leu Thr Gly Lys Gly
        115   120   125

Val Arg Glu Gly Ile Glu Trp Met Val Lys Cys Val Val Arg Asn Val
    130   135   140

His Arg Pro Pro Arg Gln Arg Asp Ile Thr
145   150

<210> 3293
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 729; "

<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 1; "

<220>
<221> source
<223> /note="Uniprot ID: P40616; "

<220>
<221> source
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<400> 3293
Met Gly Gly Phe Phe Ser Ser Ile Phe Ser Ser Leu Phe Gly Thr Arg
1   5   10   15

Glu Met Arg Ile Leu Ile Leu Gly Leu Asp Gly Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Arg Leu Gln Val Gly Glu Val Val Thr Thr Ile Pro Thr
        35   40   45

Ile Gly Phe Asn Val Glu Thr Val Thr Tyr Lys Asn Leu Lys Phe Gln
    50   55   60

Val Trp Asp Leu Gly Gly Gln Thr Ser Ile Arg Pro Tyr Trp Arg Cys
65   70   75   80

Tyr Tyr Ser Asn Thr Asp Ala Val Ile Tyr Val Val Asp Ser Cys Asp
                85   90   95

Arg Asp Arg Ile Gly Ile Ser Lys Ser Glu Leu Val Ala Met Leu Glu
            100   105   110

Glu Glu Glu Leu Arg Lys Ala Ile Leu Val Val Phe Ala Asn Lys Gln
        115   120   125

Asp Met Glu Gln Ala Met Thr Ser Ser Glu Met Ala Asn Ser Leu Gly
    130   135   140

Leu Pro Ala Leu Lys Asp Arg Lys Trp Gln Ile Phe Lys Thr Ser Ala
145   150   155   160

```
Thr Lys Gly Thr Gly Leu Asp Glu Ala Met Glu Trp Leu Val Glu Thr
                165                 170                 175


Leu Lys Ser Arg Gln
            180


<210> 3294
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 729; "

<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation factor-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439590"

<400> 3294
Met Ala Ile Gly Phe Asn Val Glu Thr Val Thr Tyr Lys Asn Leu Lys
1               5                   10                  15


Phe Gln Val Trp Asp Leu Gly Gly Gln Thr Ser Ile Arg Pro Tyr Trp
            20                  25                  30


Arg Cys Tyr Tyr Ser Asn Thr Asp Ala Val Ile Tyr Val Val Asp Ser
        35                  40                  45


Cys Asp Arg Asp Arg Ile Gly Ile Ser Lys Ser Glu Leu Val Ala Met
    50                  55                  60


Leu Glu Glu Glu Glu Leu Arg Lys Ala Ile Leu Val Val Phe Ala Asn
65                  70                  75                  80


Lys Gln Asp Met Glu Gln Ala Met Thr Ser Ser Glu Met Ala Asn Ser
                85                  90                  95
```

```
Leu Gly Leu Pro Ala Leu Lys Asp Arg Lys Trp Gln Ile Phe Lys Thr
            100                 105                 110

Ser Ala Thr Lys Gly Thr Gly Leu Asp Glu Ala Met Glu Trp Leu Val
        115                 120                 125

Glu Thr Leu Lys Ser Arg Gln
    130                 135


<210> 3295
<211> 164
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID:  P40616; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441808"

<400> 3295
Met Arg Ile Leu Ile Leu Gly Leu Asp Gly Ala Gly Lys Thr Thr Ile
1               5                  10                  15

Leu Tyr Arg Leu Gln Val Gly Glu Val Val Thr Thr Ile Pro Thr Ile
            20                  25                  30

Gly Phe Asn Val Glu Thr Val Thr Tyr Lys Asn Leu Lys Phe Gln Val
        35                  40                  45

Trp Asp Leu Gly Gly Gln Thr Ser Ile Arg Pro Tyr Trp Arg Cys Tyr
    50                  55                  60

Tyr Ser Asn Thr Asp Ala Val Ile Tyr Val Val Asp Ser Cys Asp Arg
65                  70                  75                  80
```

```
Asp Arg Ile Gly Ile Ser Lys Ser Glu Leu Val Ala Met Leu Glu Glu
                85                  90                  95

Glu Glu Leu Arg Lys Ala Ile Leu Val Val Phe Ala Asn Lys Gln Asp
            100                 105                 110

Met Glu Gln Ala Met Thr Ser Ser Glu Met Ala Asn Ser Leu Gly Leu
        115                 120                 125

Pro Ala Leu Lys Asp Arg Lys Trp Gln Ile Phe Lys Thr Ser Ala Thr
    130                 135                 140

Lys Gly Thr Gly Leu Asp Glu Ala Met Glu Trp Leu Val Glu Thr Leu
145                 150                 155                 160

Lys Ser Arg Gln
```

<210> 3296
<211> 52
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447405"

<400> 3296

```
Met Glu Gln Ala Met Thr Ser Ser Glu Met Ala Asn Ser Leu Gly Leu
1               5                   10                  15

Pro Ala Leu Lys Asp Arg Lys Trp Gln Ile Phe Lys Thr Ser Ala Thr
            20                  25                  30
```

Lys Gly Thr Gly Leu Asp Glu Ala Met Glu Trp Leu Val Glu Thr Leu
35 40 45

Lys Ser Arg Gln
50

<210> 3297
<211> 164
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 1; "

<220>
<221> source
<223> /note="Uniprot ID: P40616; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448850"

<400> 3297
Met Arg Ile Leu Ile Leu Gly Leu Asp Gly Ala Gly Lys Thr Thr Ile
1 5 10 15

Leu Tyr Arg Leu Gln Val Gly Glu Val Val Thr Thr Ile Pro Thr Ile
20 25 30

Gly Phe Asn Val Glu Thr Val Thr Tyr Lys Asn Leu Lys Phe Gln Val
35 40 45

Trp Asp Leu Gly Gly Gln Thr Ser Ile Arg Pro Tyr Trp Arg Cys Tyr
50 55 60

Tyr Ser Asn Thr Asp Ala Val Ile Tyr Val Val Asp Ser Cys Asp Arg
65 70 75 80

Asp Arg Ile Gly Ile Ser Lys Ser Glu Leu Val Ala Met Leu Glu Glu
85 90 95

```
Glu Glu Leu Arg Lys Ala Ile Leu Val Val Phe Ala Asn Lys Gln Asp
            100                 105                 110

Met Glu Gln Ala Met Thr Ser Ser Glu Met Ala Asn Ser Leu Gly Leu
        115                 120                 125

Pro Ala Leu Lys Asp Arg Lys Trp Gln Ile Phe Lys Thr Ser Ala Thr
    130                 135                 140

Lys Gly Thr Gly Leu Asp Glu Ala Met Glu Trp Leu Val Glu Thr Leu
145                 150                 155                 160

Lys Ser Arg Gln
```

<210> 3298
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 729; "

<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448912"

<400> 3298

```
Met Gly Gly Phe Phe Ser Ser Ile Phe Ser Ser Leu Phe Gly Thr Arg
1               5                   10                  15

Glu Met Arg Ile Leu Ile Leu Gly Leu Asp Gly Ala Gly Lys Thr Thr
            20                  25                  30

Ile Leu Tyr Arg Leu Gln Val Gly Glu Val Val Thr Thr Ile Pro Thr
        35                  40                  45
```

```
Ile Gly Phe Asn Val Glu Thr Val Thr Tyr Lys Asn Leu Lys Phe Gln
    50                  55                  60

Val Trp Asp Leu Gly Gly Gln Thr Ser Ile Arg Pro Tyr Trp Arg Cys
65                  70                  75                  80

Tyr Tyr Ser Asn Thr Asp Ala Val Ile Tyr Val Val Asp Ser Cys Asp
                85                  90                  95

Arg Asp Arg Ile Gly Ile Ser Lys Ser Glu Leu Val Ala Met Leu Glu
            100                 105                 110

Glu Glu Glu Leu Arg Lys Ala Ile Leu Val Val Phe Ala Asn Lys Gln
        115                 120                 125

Asp Met Glu Gln Ala Met Thr Ser Ser Glu Met Ala Asn Ser Leu Gly
    130                 135                 140

Leu Pro Ala Leu Lys Asp Arg Lys Trp Gln Ile Phe Lys Thr Ser Ala
145                 150                 155                 160

Thr Lys Gly Thr Gly Leu Asp Glu Ala Met Glu Trp Gln Val Ser Cys
                165                 170                 175

Phe Gln Lys Pro Ser Val His Leu Cys Val Leu Ala Ala Met His Val
            180                 185                 190

His Val
```

<210> 3299
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 729; "

<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450162"

<400> 3299
Met Gly Gly Phe Phe Ser Ser Ile Phe Ser Ser Leu Phe Gly Thr Arg
1   5   10   15

Glu Met Arg Ile Leu Ile Leu Gly Leu Asp Gly Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Arg Leu Gln Val Gly Glu Val Val Thr Thr Ile Pro Lys
        35   40   45

Leu Leu Ala Phe Lys Lys Tyr Pro Glu Asp Gly Ile Asp Leu Ala Asn
    50   55   60

<210> 3300
<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 729; "

<220>
<221> source
<223> /note="Gene Symbol: ARL1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450315"

<400> 3300
Met Arg Ile Leu Ile Leu Gly Leu Asp Gly Ala Gly Lys Thr Thr Ile
1   5   10   15

Leu

<210> 3301
<211> 244
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 730; "

<220>
<221> source
<223> /note="Gene Symbol: ARL10; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 10; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N8L6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000308496"

<400> 3301
Met Ala Pro Arg Pro Leu Gly Pro Leu Val Leu Ala Leu Gly Gly Ala
1   5   10   15

Ala Ala Val Leu Gly Ser Val Leu Phe Ile Leu Trp Lys Thr Tyr Phe
            20   25   30

Gly Arg Gly Arg Glu Arg Arg Trp Asp Arg Gly Glu Ala Trp Trp Gly
        35   40   45

Ala Glu Ala Ala Arg Leu Pro Glu Trp Asp Glu Trp Asp Pro Glu Asp
    50   55   60

Glu Glu Asp Glu Glu Pro Ala Leu Glu Glu Leu Glu Gln Arg Glu Val
65   70   75   80

Leu Val Leu Gly Leu Asp Gly Ala Gly Lys Ser Thr Phe Leu Arg Val
                85   90   95

Leu Ser Gly Lys Pro Pro Leu Glu Gly His Ile Pro Thr Trp Gly Phe
            100   105   110

Asn Ser Val Arg Leu Pro Thr Lys Asp Phe Glu Val Asp Leu Leu Glu
        115   120   125

Ile Gly Gly Ser Gln Asn Leu Arg Phe Tyr Trp Lys Glu Phe Val Ser
    130   135   140

```
Glu Val Asp Val Leu Val Phe Val Val Asp Ser Ala Asp Arg Leu Arg
145                 150                 155                 160

Leu Pro Trp Ala Arg Gln Glu Leu His Lys Leu Leu Asp Lys Asp Pro
                165                 170                 175

Asp Leu Pro Val Val Val Val Ala Asn Lys Gln Asp Leu Ser Glu Ala
            180                 185                 190

Met Ser Met Gly Glu Leu Gln Arg Glu Leu Gly Leu Gln Ala Ile Asp
        195                 200                 205

Asn Gln Arg Glu Val Phe Leu Leu Ala Ala Ser Ile Ala Pro Ala Gly
    210                 215                 220

Pro Thr Phe Glu Glu Pro Gly Thr Val His Ile Trp Lys Leu Leu Leu
225                 230                 235                 240

Glu Leu Leu Ser
```

<210> 3302
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 730; "

<220>
<221> source
<223> /note="Gene Symbol: ARL10; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421449"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3302
Xaa Ser Glu Val Asp Val Leu Val Phe Val Val Asp Ser Ala Asp Arg
1 5 10 15

Leu Arg Leu Pro Trp Ala Arg Gln Glu Leu His Lys Leu Leu Asp Lys
20 25 30

Asp Pro Asp Leu Pro Val Val Val Val Ala Asn Lys Gln Met Leu Lys
35 40 45

<210> 3303
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 730; "

<220>
<221> source
<223> /note="Gene Symbol: ARL10; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424831"

<400> 3303
Pro Asp Leu Pro Val Val Val Val Ala Asn Lys Gln Val Leu Pro Tyr
1 5 10 15

Arg Phe Ser Val Val Pro Gly Met Ser Asp Val Gly Ala Thr Gly Lys
20 25 30

Glu Arg His Arg Gly Ser Val Ile Ser Arg Thr Val Pro Ala Glu Ala
35 40 45

His Gly His Pro Glu Pro Gln Pro Pro His His Ser Ile Arg Gly Ala
50 55 60

Ala Phe Arg Arg Ala Phe Arg Phe Arg Arg Phe Arg Leu Thr Leu
65 70 75

<210> 3304
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 731; "

<220>
<221> source
<223> /note="Gene Symbol: ARL11; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 11; "

<220>
<221> source
<223> /note="Uniprot ID: Q969Q4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000282026"

<400> 3304
Met Gly Ser Val Asn Ser Arg Gly His Lys Ala Glu Ala Gln Val Val
1   5   10   15

Met Met Gly Leu Asp Ser Ala Gly Lys Thr Thr Leu Leu Tyr Lys Leu
            20   25   30

Lys Gly His Gln Leu Val Glu Thr Leu Pro Thr Val Gly Phe Asn Val
        35   40   45

Glu Pro Leu Lys Ala Pro Gly His Val Ser Leu Thr Leu Trp Asp Val
    50   55   60

Gly Gly Gln Ala Pro Leu Arg Ala Ser Trp Lys Asp Tyr Leu Glu Gly
65   70   75   80

Thr Asp Ile Leu Val Tyr Val Leu Asp Ser Thr Asp Glu Ala Arg Leu
                85   90   95

Pro Glu Ser Ala Ala Glu Leu Thr Glu Val Leu Asn Asp Pro Asn Met
            100   105   110

Ala Gly Val Pro Phe Leu Val Leu Ala Asn Lys Gln Glu Ala Pro Asp
        115   120   125

```
Ala Leu Pro Leu Leu Lys Ile Arg Asn Arg Leu Ser Leu Glu Arg Phe
    130                 135                 140

Gln Asp His Cys Trp Glu Leu Arg Gly Cys Ser Ala Leu Thr Gly Glu
145                 150                 155                 160

Gly Leu Pro Glu Ala Leu Gln Ser Leu Trp Ser Leu Leu Lys Ser Arg
                165                 170                 175

Ser Cys Met Cys Leu Gln Ala Arg Ala His Gly Ala Glu Arg Gly Asp
            180                 185                 190

Ser Lys Arg Ser
        195


<210> 3305
<211> 163
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 732; "

<220>
<221> source
<223> /note="Gene Symbol: ARL13A; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 13A; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362044"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3305
Xaa Leu Ala Asn Lys Gln Asp Lys Lys Lys Ala Leu Met Pro Cys Asp
1               5                   10                  15

Ile Ile Asp Tyr Leu Leu Leu Lys Lys Leu Val Lys Glu Asn Lys Cys
            20                  25                  30
```

```
Pro Cys Arg Val Glu Pro Cys Ser Ala Ile Arg Asn Leu Glu Arg Arg
        35                  40                  45

Asn His Gln Pro Ile Val Glu Gly Leu Arg Trp Leu Leu Ala Val Ile
    50                  55                  60

Asp Thr Cys Gln Leu Pro Pro Thr Ser Ser Ile Ser Ile Ser Lys Asn
65                  70                  75                  80

Asn Thr Gly Ser Gly Glu Arg Cys Ser Ser His Ser Phe Ser Thr Arg
                85                  90                  95

Thr Gly Met Ser Lys Glu Lys Arg Gln His Leu Glu Gln Cys Ser Ile
            100                 105                 110

Glu Ala Lys Pro Leu Lys Ser Ile Leu Gln Lys Glu Ala Ile Lys Ser
        115                 120                 125

Ile Leu Tyr Ser Leu Arg Gly Ser Arg Arg Val Arg Trp His Pro Leu
    130                 135                 140

Arg Met Lys Thr Thr Leu Val Lys Lys Asn Arg Asp Phe Thr Ser Leu
145                 150                 155                 160

Tyr Arg Asp
```

<210> 3306
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 732; "

<220>
<221> source
<223> /note="Gene Symbol: ARL13A; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 13A; "

<220>

<221> source
<223> /note="Uniprot ID: Q5H913; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398637"

<400> 3306

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Met Phe Arg Leu Leu Ser Ser Cys Cys Ser Cys Leu Arg Thr Thr Glu
1               5                  10                  15

Glu Thr Arg Arg Asn Val Thr Ile Pro Ile Ile Gly Leu Asn Asn Ser
            20                  25                  30

Gly Lys Thr Val Leu Val Glu Ala Phe Gln Lys Leu Leu Pro Ser Lys
        35                  40                  45

Thr Asp His Cys Met Lys Ser Glu Leu Thr Thr Leu Leu Leu Asp Glu
    50                  55                  60

Tyr Glu Leu Ser Ile Tyr Asp Leu Asn Gly Asp Leu Lys Gly Arg Glu
65                  70                  75                  80

Ala Trp Pro Asn Tyr Tyr Ala Gln Ala His Gly Leu Val Phe Val Leu
                85                  90                  95

Asp Ser Ser Asp Ile Arg Arg Met Gln Glu Val Lys Ile Ile Leu Thr
            100                 105                 110

His Leu Leu Ser Asp Lys Arg Val Ala Gly Lys Pro Ile Leu Ile Leu
        115                 120                 125

Ala Asn Lys Gln Asp Lys Lys Lys Ala Leu Met Pro Cys Asp Ile Ile
    130                 135                 140

Asp Tyr Leu Leu Leu Lys Lys Leu Val Lys Glu Asn Lys Cys Pro Cys
145                 150                 155                 160

Arg Val Glu Pro Cys Ser Ala Ile Arg Asn Leu Glu Arg Arg Asn His
                165                 170                 175

Gln Pro Ile Val Glu Gly Leu Arg Trp Leu Leu Ala Val Ile Asp Thr
            180                 185                 190

Cys Gln Leu Pro Pro Thr Ser Ser Ile Ser Ile Ser Lys Asn Asn Thr
```

195 200 205

Gly Ser Gly Glu Arg Cys Ser Ser His Ser Phe Ser Thr Arg Thr Gly
210 215 220

Met Ser Lys Glu Lys Arg Gln His Leu Glu Gln Cys Ser Ile Glu Ala
225 230 235 240

Lys Pro Leu Lys Ser Ile Leu Gln Pro Ser Asn Gln Ser Tyr Thr His
245 250 255

<210> 3307
<211> 290
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 732; "

<220>
<221> source
<223> /note="Gene Symbol: ARL13A; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 13A; "

<220>
<221> source
<223> /note="Uniprot ID: Q5H913; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414757"

<400> 3307
Met Phe Arg Leu Leu Ser Ser Cys Cys Ser Cys Leu Arg Thr Thr Glu
1 5 10 15

Glu Thr Arg Arg Asn Val Thr Ile Pro Ile Ile Gly Leu Asn Asn Ser
20 25 30

Gly Lys Thr Val Leu Val Glu Ala Phe Gln Lys Leu Leu Pro Ser Lys
35 40 45

Thr Asp His Cys Met Lys Ser Glu Leu Thr Thr Leu Leu Leu Asp Glu
50 55 60

```
Tyr Glu Leu Ser Ile Tyr Asp Leu Asn Gly Asp Leu Lys Gly Arg Glu
65                  70                  75                  80

Ala Trp Pro Asn Tyr Tyr Ala Gln Ala His Gly Leu Val Phe Val Leu
                85                  90                  95

Asp Ser Ser Asp Ile Arg Arg Met Gln Glu Val Lys Ile Ile Leu Thr
            100                 105                 110

His Leu Leu Ser Asp Lys Arg Val Ala Gly Lys Pro Ile Leu Ile Leu
        115                 120                 125

Ala Asn Lys Gln Asp Lys Lys Lys Ala Leu Met Pro Cys Asp Ile Ile
    130                 135                 140

Asp Tyr Leu Leu Leu Lys Lys Leu Val Lys Glu Asn Lys Cys Pro Cys
145                 150                 155                 160

Arg Val Glu Pro Cys Ser Ala Ile Arg Asn Leu Glu Arg Arg Asn His
                165                 170                 175

Gln Pro Ile Val Glu Gly Leu Arg Trp Leu Leu Ala Val Ile Asp Thr
            180                 185                 190

Cys Gln Leu Pro Pro Thr Ser Ser Ile Ser Ile Ser Lys Asn Asn Thr
        195                 200                 205

Gly Ser Gly Glu Arg Cys Ser Ser His Ser Phe Ser Thr Arg Thr Gly
    210                 215                 220

Met Ser Lys Glu Lys Arg Gln His Leu Glu Gln Cys Ser Ile Glu Ala
225                 230                 235                 240

Lys Pro Leu Lys Ser Ile Leu Gln Lys Glu Gly Thr Arg Leu Trp Ser
                245                 250                 255

Lys Lys Asn Met Ser Val Thr Phe Ala Leu Asp Glu Pro Met Lys Glu
            260                 265                 270

Gly Glu Cys Ser Arg Arg Met Arg Ala Gln Asn Thr Thr Lys Leu Cys
        275                 280                 285
```

Tyr Asn
290

<210> 3308
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 732; "

<220>
<221> source
<223> /note="Gene Symbol: ARL13A; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 13A; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445825"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3308
Xaa Ile Arg Asn Leu Glu Arg Arg Asn His Gln Pro Ile Val Glu Gly
1 5 10 15

Leu Arg Trp Leu Leu Ala Val Ile Asp Thr Cys Gln Leu Pro Pro Thr
20 25 30

Ser Ser Ile Ser Ile Ser Lys Asn Asn Thr Gly Ser Gly Glu Arg Cys
35 40 45

Ser Ser His Ser Phe Ser Thr Arg Thr Gly Met Ser Lys Glu Lys Arg
50 55 60

Gln His Leu Glu Gln Cys Ser Ile Glu Ala Lys Pro Leu Lys Ser Ile
65 70 75 80

Leu Gln Lys Glu Gly Thr Arg Leu Trp Ser Lys Lys Asn Met Ser Val
85 90 95

```
Thr Phe Ala Leu Asp Glu Pro Met Lys Glu Gly Glu Cys Ser Arg Arg
            100                 105                 110


Met Arg Ala Gln Asn Thr Thr Lys Leu Cys Tyr Asn
        115                 120


<210> 3309
<211> 321
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 733; "

<220>
<221> source
<223> /note="Gene Symbol: ARL13B; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 13B; "

<220>
<221> source
<223> /note="Uniprot ID:  Q3SXY8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000306225"

<400> 3309
Met Phe Ser Leu Met Ala Ser Cys Cys Gly Trp Phe Lys Arg Trp Arg
1               5                   10                  15


Glu Pro Val Arg Leu Ala Asn Lys Gln Asp Lys Glu Gly Ala Leu Gly
            20                  25                  30


Glu Ala Asp Val Ile Glu Cys Leu Ser Leu Glu Lys Leu Val Asn Glu
        35                  40                  45


His Lys Cys Leu Cys Gln Ile Glu Pro Cys Ser Ala Ile Ser Gly Tyr
    50                  55                  60


Gly Lys Lys Ile Asp Lys Ser Ile Lys Lys Gly Leu Tyr Trp Leu Leu
65                  70                  75                  80


His Val Ile Ala Arg Asp Phe Asp Ala Leu Asn Glu Arg Ile Gln Lys
                85                  90                  95
```

```
Glu Thr Thr Glu Gln Arg Ala Leu Glu Glu Gln Glu Lys Gln Glu Arg
            100                 105                 110

Ala Glu Arg Val Arg Lys Leu Arg Glu Glu Arg Lys Gln Asn Glu Gln
        115                 120                 125

Glu Gln Ala Glu Leu Asp Gly Thr Ser Gly Leu Ala Glu Leu Asp Pro
    130                 135                 140

Glu Pro Thr Asn Pro Phe Gln Pro Ile Ala Ser Val Ile Ile Glu Asn
145                 150                 155                 160

Glu Gly Lys Leu Glu Arg Glu Lys Lys Asn Gln Lys Met Glu Lys Asp
                165                 170                 175

Ser Asp Gly Cys His Leu Lys His Lys Met Glu His Glu Gln Ile Glu
            180                 185                 190

Thr Gln Gly Gln Val Asn His Asn Gly Gln Lys Asn Asn Glu Phe Gly
        195                 200                 205

Leu Val Glu Asn Tyr Lys Glu Ala Leu Thr Gln Gln Leu Lys Asn Glu
    210                 215                 220

Asp Glu Thr Asp Arg Pro Ser Leu Glu Ser Ala Asn Gly Lys Lys Lys
225                 230                 235                 240

Thr Lys Lys Leu Arg Met Lys Arg Asn His Arg Val Glu Pro Leu Asn
                245                 250                 255

Ile Asp Asp Cys Ala Pro Glu Ser Pro Thr Pro Pro Pro Pro Pro Pro
            260                 265                 270

Pro Val Gly Trp Gly Thr Pro Lys Val Thr Arg Leu Pro Lys Leu Glu
        275                 280                 285

Pro Leu Gly Glu Thr His His Asn Asp Phe Tyr Arg Lys Pro Leu Pro
    290                 295                 300

Pro Leu Ala Val Pro Gln Arg Pro Asn Ser Asp Ala His Asp Val Ile
305                 310                 315                 320
```

Ser

<210> 3310
<211> 89
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 733; "

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<223> /note="Gene Name:
ADP-ribosylation factor-like 13B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000335400"

<400> 3310
Met Phe Ser Leu Met Ala Ser Cys Cys Gly Trp Phe Lys Arg Trp Arg
1 5 10 15

Glu Pro Val Arg Lys Val Thr Leu Leu Met Val Gly Leu Asp Asn Ala
20 25 30

Gly Lys Thr Ala Thr Ala Lys Gly Ile Gln Gly Glu Met Gly Ser Pro
35 40 45

Tyr Val Ala Gln Ala Gly Leu Glu Cys Leu Ala Ser Ser Tyr Ser Ser
50 55 60

Ala Leu Ala Ser Lys Ser Ala Gly Ile Thr Gly Met Ser His His Ala
65 70 75 80

Gln Pro Gly Gln Asn Thr Leu Lys Met
85

<210> 3311
<211> 428
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Uniprot ID: Q3SXY8; "

<220>
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<400> 3311

```
Met Phe Ser Leu Met Ala Ser Cys Cys Gly Trp Phe Lys Arg Trp Arg
1               5                  10                  15

Glu Pro Val Arg Lys Val Thr Leu Leu Met Val Gly Leu Asp Asn Ala
            20                  25                  30

Gly Lys Thr Ala Thr Ala Lys Gly Ile Gln Gly Glu Tyr Pro Glu Asp
        35                  40                  45

Val Ala Pro Thr Val Gly Phe Ser Lys Ile Asn Leu Arg Gln Gly Lys
    50                  55                  60

Phe Glu Val Thr Ile Phe Asp Leu Gly Gly Gly Ile Arg Ile Arg Gly
65                  70                  75                  80

Ile Trp Lys Asn Tyr Tyr Ala Glu Ser Tyr Gly Val Ile Phe Val Val
                85                  90                  95

Asp Ser Ser Asp Glu Glu Arg Met Glu Glu Thr Lys Glu Ala Met Ser
            100                 105                 110

Glu Met Leu Arg His Pro Arg Ile Ser Gly Lys Pro Ile Leu Val Leu
        115                 120                 125

Ala Asn Lys Gln Asp Lys Glu Gly Ala Leu Gly Glu Ala Asp Val Ile
    130                 135                 140
```

```
Glu Cys Leu Ser Leu Glu Lys Leu Val Asn Glu His Lys Cys Leu Cys
145                 150                 155                 160

Gln Ile Glu Pro Cys Ser Ala Ile Ser Gly Tyr Gly Lys Lys Ile Asp
                165                 170                 175

Lys Ser Ile Lys Lys Gly Leu Tyr Trp Leu Leu His Val Ile Ala Arg
            180                 185                 190

Asp Phe Asp Ala Leu Asn Glu Arg Ile Gln Lys Glu Thr Thr Glu Gln
        195                 200                 205

Arg Ala Leu Glu Glu Gln Glu Lys Gln Glu Arg Ala Glu Arg Val Arg
    210                 215                 220

Lys Leu Arg Glu Glu Arg Lys Gln Asn Glu Gln Glu Gln Ala Glu Leu
225                 230                 235                 240

Asp Gly Thr Ser Gly Leu Ala Glu Leu Asp Pro Glu Pro Thr Asn Pro
                245                 250                 255

Phe Gln Pro Ile Ala Ser Val Ile Ile Glu Asn Glu Gly Lys Leu Glu
            260                 265                 270

Arg Glu Lys Lys Asn Gln Lys Met Glu Lys Asp Ser Asp Gly Cys His
        275                 280                 285

Leu Lys His Lys Met Glu His Glu Gln Ile Glu Thr Gln Gly Gln Val
    290                 295                 300

Asn His Asn Gly Gln Lys Asn Asn Glu Phe Gly Leu Val Glu Asn Tyr
305                 310                 315                 320

Lys Glu Ala Leu Thr Gln Gln Leu Lys Asn Glu Asp Glu Thr Asp Arg
                325                 330                 335

Pro Ser Leu Glu Ser Ala Asn Gly Lys Lys Lys Thr Lys Lys Leu Arg
            340                 345                 350

Met Lys Arg Asn His Arg Val Glu Pro Leu Asn Ile Asp Asp Cys Ala
        355                 360                 365
```

```
Pro Glu Ser Pro Thr Pro Pro Pro Pro Pro Pro Pro Val Gly Trp Gly
    370                 375                 380

Thr Pro Lys Val Thr Arg Leu Pro Lys Leu Glu Pro Leu Gly Glu Thr
385                 390                 395                 400

His His Asn Asp Phe Tyr Arg Lys Pro Leu Pro Pro Leu Ala Val Pro
                405                 410                 415

Gln Arg Pro Asn Ser Asp Ala His Asp Val Ile Ser
            420                 425
```

<210> 3312
<211> 56
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<400> 3312

```
Met Phe Ser Leu Met Ala Ser Cys Cys Gly Trp Phe Lys Arg Trp Arg
1               5                   10                  15

Glu Pro Val Arg Lys Val Thr Leu Leu Met Val Gly Leu Asp Asn Ala
            20                  25                  30

Gly Lys Thr Ala Thr Ala Lys Gly Ile Gln Gly Gly Thr Met Phe Ser
        35                  40                  45

Asn Leu Gly Val Trp Lys Glu Asn
    50                  55
```

<210> 3313
<211> 428

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q3SXY8; "

<220>
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<223> /note="ENSP ID: ENSP00000420780"

<400> 3313

Met	Phe	Ser	Leu	Met	Ala	Ser	Cys	Cys	Gly	Trp	Phe	Lys	Arg	Trp	Arg
1				5				10					15		
Glu	Pro	Val	Arg	Lys	Val	Thr	Leu	Leu	Met	Val	Gly	Leu	Asp	Asn	Ala
			20					25					30		
Gly	Lys	Thr	Ala	Thr	Ala	Lys	Gly	Ile	Gln	Gly	Glu	Tyr	Pro	Glu	Asp
		35					40					45			
Val	Ala	Pro	Thr	Val	Gly	Phe	Ser	Lys	Ile	Asn	Leu	Arg	Gln	Gly	Lys
	50					55					60				
Phe	Glu	Val	Thr	Ile	Phe	Asp	Leu	Gly	Gly	Gly	Ile	Arg	Ile	Arg	Gly
65					70					75					80
Ile	Trp	Lys	Asn	Tyr	Tyr	Ala	Glu	Ser	Tyr	Gly	Val	Ile	Phe	Val	Val
				85					90					95	
Asp	Ser	Ser	Asp	Glu	Glu	Arg	Met	Glu	Glu	Thr	Lys	Glu	Ala	Met	Ser
			100					105					110		
Glu	Met	Leu	Arg	His	Pro	Arg	Ile	Ser	Gly	Lys	Pro	Ile	Leu	Val	Leu
		115					120					125			

```
Ala Asn Lys Gln Asp Lys Glu Gly Ala Leu Gly Glu Ala Asp Val Ile
    130                 135                 140

Glu Cys Leu Ser Leu Glu Lys Leu Val Asn Glu His Lys Cys Leu Cys
145                 150                 155                 160

Gln Ile Glu Pro Cys Ser Ala Ile Ser Gly Tyr Gly Lys Lys Ile Asp
                165                 170                 175

Lys Ser Ile Lys Lys Gly Leu Tyr Trp Leu Leu His Val Ile Ala Arg
            180                 185                 190

Asp Phe Asp Ala Leu Asn Glu Arg Ile Gln Lys Glu Thr Thr Glu Gln
        195                 200                 205

Arg Ala Leu Glu Glu Gln Glu Lys Gln Glu Arg Ala Glu Arg Val Arg
    210                 215                 220

Lys Leu Arg Glu Glu Arg Lys Gln Asn Glu Gln Glu Gln Ala Glu Leu
225                 230                 235                 240

Asp Gly Thr Ser Gly Leu Ala Glu Leu Asp Pro Glu Pro Thr Asn Pro
                245                 250                 255

Phe Gln Pro Ile Ala Ser Val Ile Ile Glu Asn Glu Gly Lys Leu Glu
            260                 265                 270

Arg Glu Lys Lys Asn Gln Lys Met Glu Lys Asp Ser Asp Gly Cys His
        275                 280                 285

Leu Lys His Lys Met Glu His Glu Gln Ile Glu Thr Gln Gly Gln Val
    290                 295                 300

Asn His Asn Gly Gln Lys Asn Asn Glu Phe Gly Leu Val Glu Asn Tyr
305                 310                 315                 320

Lys Glu Ala Leu Thr Gln Gln Leu Lys Asn Glu Asp Glu Thr Asp Arg
                325                 330                 335

Pro Ser Leu Glu Ser Ala Asn Gly Lys Lys Lys Thr Lys Lys Leu Arg
            340                 345                 350

Met Lys Arg Asn His Arg Val Glu Pro Leu Asn Ile Asp Asp Cys Ala
```

```
        355                 360                 365

Pro Glu Ser Pro Thr Pro Pro Pro Pro Pro Pro Val Gly Trp Gly
    370                 375                 380

Thr Pro Lys Val Thr Arg Leu Pro Lys Leu Glu Pro Leu Gly Glu Thr
385                 390                 395                 400

His His Asn Asp Phe Tyr Arg Lys Pro Leu Pro Pro Leu Ala Val Pro
                405                 410                 415

Gln Arg Pro Asn Ser Asp Ala His Asp Val Ile Ser
            420                 425


<210> 3314
<211> 325
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Uniprot ID:  Q3SXY8; "

<220>
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<223> /note="ENSP ID: ENSP00000445145"

<400> 3314
Met Glu Glu Thr Lys Glu Ala Met Ser Glu Met Leu Arg His Pro Arg
1               5                   10                  15

Ile Ser Gly Lys Pro Ile Leu Val Leu Ala Asn Lys Gln Asp Lys Glu
            20                  25                  30

Gly Ala Leu Gly Glu Ala Asp Val Ile Glu Cys Leu Ser Leu Glu Lys
        35                  40                  45
```

```
Leu Val Asn Glu His Lys Cys Leu Cys Gln Ile Glu Pro Cys Ser Ala
    50                  55                  60

Ile Ser Gly Tyr Gly Lys Lys Ile Asp Lys Ser Ile Lys Lys Gly Leu
65                  70                  75                  80

Tyr Trp Leu Leu His Val Ile Ala Arg Asp Phe Asp Ala Leu Asn Glu
                85                  90                  95

Arg Ile Gln Lys Glu Thr Thr Glu Gln Arg Ala Leu Glu Glu Gln Glu
            100                 105                 110

Lys Gln Glu Arg Ala Glu Arg Val Arg Lys Leu Arg Glu Glu Arg Lys
        115                 120                 125

Gln Asn Glu Gln Glu Gln Ala Glu Leu Asp Gly Thr Ser Gly Leu Ala
    130                 135                 140

Glu Leu Asp Pro Glu Pro Thr Asn Pro Phe Gln Pro Ile Ala Ser Val
145                 150                 155                 160

Ile Ile Glu Asn Glu Gly Lys Leu Glu Arg Glu Lys Lys Asn Gln Lys
                165                 170                 175

Met Glu Lys Asp Ser Asp Gly Cys His Leu Lys His Lys Met Glu His
            180                 185                 190

Glu Gln Ile Glu Thr Gln Gly Gln Val Asn His Asn Gly Gln Lys Asn
        195                 200                 205

Asn Glu Phe Gly Leu Val Glu Asn Tyr Lys Glu Ala Leu Thr Gln Gln
    210                 215                 220

Leu Lys Asn Glu Asp Glu Thr Asp Arg Pro Ser Leu Glu Ser Ala Asn
225                 230                 235                 240

Gly Lys Lys Lys Thr Lys Lys Leu Arg Met Lys Arg Asn His Arg Val
                245                 250                 255

Glu Pro Leu Asn Ile Asp Asp Cys Ala Pro Glu Ser Pro Thr Pro Pro
            260                 265                 270
```

```
Pro Pro Pro Pro Pro Val Gly Trp Gly Thr Pro Lys Val Thr Arg Leu
        275                 280                 285

Pro Lys Leu Glu Pro Leu Gly Glu Thr His His Asn Asp Phe Tyr Arg
    290                 295                 300

Lys Pro Leu Pro Pro Leu Ala Val Pro Gln Arg Pro Asn Ser Asp Ala
305                 310                 315                 320

His Asp Val Ile Ser
                325
```

<210> 3315
<211> 192
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 734; "

<220>
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<223> /note="Gene Symbol: ARL14; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 14; "

<220>
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<223> /note="Uniprot ID: Q8N4G2; "

<220>
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<223> /note="ENSP ID: ENSP00000323847"

<400> 3315

```
Met Gly Ser Leu Gly Ser Lys Asn Pro Gln Thr Lys Gln Ala Gln Val
1               5                   10                  15

Leu Leu Leu Gly Leu Asp Ser Ala Gly Lys Ser Thr Leu Leu Tyr Lys
            20                  25                  30

Leu Lys Leu Ala Lys Asp Ile Thr Thr Ile Pro Thr Ile Gly Phe Asn
        35                  40                  45

Val Glu Met Ile Glu Leu Glu Arg Asn Leu Ser Leu Thr Val Trp Asp
    50                  55                  60
```

```
Val Gly Gly Gln Glu Lys Met Arg Thr Val Trp Gly Cys Tyr Cys Glu
65                  70                  75                  80

Asn Thr Asp Gly Leu Val Tyr Val Val Asp Ser Thr Asp Lys Gln Arg
                85                  90                  95

Leu Glu Glu Ser Gln Arg Gln Phe Glu His Ile Leu Lys Asn Glu His
            100                 105                 110

Ile Lys Asn Val Pro Val Val Leu Leu Ala Asn Lys Gln Asp Met Pro
        115                 120                 125

Gly Ala Leu Thr Ala Glu Asp Ile Thr Arg Met Phe Lys Val Lys Lys
    130                 135                 140

Leu Cys Ser Asp Arg Asn Trp Tyr Val Gln Pro Cys Cys Ala Leu Thr
145                 150                 155                 160

Gly Glu Gly Leu Ala Gln Gly Phe Arg Lys Leu Thr Gly Phe Val Lys
                165                 170                 175

Ser His Met Lys Ser Arg Gly Asp Thr Leu Ala Phe Phe Lys Gln Asn
            180                 185                 190


<210> 3316
<211> 260
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 735; "

<220>
<221> source
<223> /note="Gene Symbol: ARL14EP; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  Q8N8R7; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000282032"

<400> 3316

```
Met Met Asp Pro Cys Ser Val Gly Val Gln Leu Arg Thr Thr Asn Glu
1               5                  10                  15

Cys His Lys Thr Tyr Tyr Thr Arg His Thr Gly Phe Lys Thr Leu Gln
            20                  25                  30

Glu Leu Ser Ser Asn Asp Met Leu Leu Gln Leu Arg Thr Gly Met
        35                  40                  45

Thr Leu Ser Gly Asn Asn Thr Ile Cys Phe His His Val Lys Ile Tyr
    50                  55                  60

Ile Asp Arg Phe Glu Asp Leu Gln Lys Ser Cys Cys Asp Pro Phe Asn
65                  70                  75                  80

Ile His Lys Lys Leu Ala Lys Lys Asn Leu His Val Ile Asp Leu Asp
                85                  90                  95

Asp Ala Thr Phe Leu Ser Ala Lys Phe Gly Arg Gln Leu Val Pro Gly
            100                 105                 110

Trp Lys Leu Cys Pro Lys Cys Thr Gln Ile Ile Asn Gly Ser Val Asp
        115                 120                 125

Val Asp Thr Glu Asp Arg Gln Lys Arg Lys Pro Glu Ser Asp Gly Arg
    130                 135                 140

Thr Ala Lys Ala Leu Arg Ser Leu Gln Phe Thr Asn Pro Gly Arg Gln
145                 150                 155                 160

Thr Glu Phe Ala Pro Glu Thr Gly Lys Arg Glu Lys Arg Arg Leu Thr
                165                 170                 175

Lys Asn Ala Thr Ala Gly Ser Asp Arg Gln Val Ile Pro Ala Lys Ser
            180                 185                 190

Lys Val Tyr Asp Ser Gln Gly Leu Leu Ile Phe Ser Gly Met Asp Leu
        195                 200                 205

Cys Asp Cys Leu Asp Glu Asp Cys Leu Gly Cys Phe Tyr Ala Cys Pro
```

```
    210                 215                 220

Ala Cys Gly Ser Thr Lys Cys Gly Ala Glu Cys Arg Cys Asp Arg Lys
225                 230                 235                 240

Trp Leu Tyr Glu Gln Ile Glu Ile Glu Gly Gly Glu Ile Ile His Asn
                245                 250                 255

Lys His Ala Gly
            260


<210> 3317
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 735; "

<220>
<221> source
<223> /note="Gene Symbol: ARL14EP; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 14 effector prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432224"

<400> 3317
Met Met Asp Pro Cys Ser Val Gly Val Gln Leu Arg Thr Thr Asn Glu
1               5                   10                  15

Cys His Lys Thr Tyr Tyr Thr Arg His Thr Gly Phe Lys Thr Leu Gln
            20                  25                  30

Glu Leu Ser Ser Asn Asp Met Leu Leu Leu Gln Leu Arg Thr Gly Met
        35                  40                  45

Thr Leu Ser Gly Asn Asn Thr Ile Cys Phe His His Val Lys Ile Tyr
    50                  55                  60

Ile Asp Arg Phe Glu Asp Leu Gln Lys Ser Cys Cys Asp Pro Phe Asn
65                  70                  75                  80
```

```
Ile His Lys Lys Leu Ala Lys Lys Asn Leu His Val Ile Asp Leu Asp
                85                  90                  95

Asp Ala Thr Phe Leu Ser Ala Lys Phe Gly Arg Gln Leu Val Pro Gly
            100                 105                 110

Trp Lys Leu Cys Pro Lys Cys Thr Gln Ile Ile Asn Gly Ser Val Asp
        115                 120                 125

Val Asp Thr Glu Asp Arg Gln Lys Arg Lys Pro Glu Ser Asp Gly Arg
    130                 135                 140

Thr Ala Lys Ala Leu Arg Ser Leu Gln Phe Thr Asn Pro Gly Arg Gln
145                 150                 155                 160

Thr Glu Phe Ala Pro Glu Thr Gly
                165


<210> 3318
<211> 152
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 736; "

<220>
<221> source
<223> /note="Gene Symbol: ARL14EPL; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 14 effector prt-like; "

<220>
<221> source
<223> /note="Uniprot ID:  P0DKL9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472409"

<400> 3318
Met Asn Glu Gln Ser Glu Lys Asn Asn Ser Ile Gln Glu Arg His Thr
1               5                   10                  15

Asp His Ser Phe Pro Glu Lys Asn Cys Gln Ile Gly Gln Lys Gln Leu
```

```
            20                  25                  30

Gln Gln Ile Glu Arg Gln Leu Lys Cys Leu Ala Phe Arg Asn Pro Gly
        35                  40                  45

Pro Gln Val Ala Asp Phe Asn Pro Glu Thr Arg Gln Gln Lys Lys Lys
    50                  55                  60

Ala Arg Met Ser Lys Met Asn Glu Tyr Phe Ser Thr Lys Tyr Lys Ile
65                  70                  75                  80

Met Arg Lys Tyr Asp Lys Ser Gly Arg Leu Ile Cys Asn Asp Ala Asp
                85                  90                  95

Leu Cys Asp Cys Leu Glu Lys Asn Cys Leu Gly Cys Phe Tyr Pro Cys
            100                 105                 110

Pro Lys Cys Asn Ser Asn Lys Cys Gly Pro Glu Cys Arg Cys Asn Arg
        115                 120                 125

Arg Trp Val Tyr Asp Ala Ile Val Thr Glu Ser Gly Glu Val Ile Ser
    130                 135                 140

Thr Leu Pro Phe Asn Val Pro Asp
145                 150


<210> 3319
<211> 152
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ARL14EPL; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000489287"
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<400> 3319
Met Asn Glu Gln Ser Glu Lys Asn Asn Ser Ile Gln Glu Arg His Thr
1   5   10   15

Asp His Ser Phe Pro Glu Lys Asn Cys Gln Ile Gly Gln Lys Gln Leu
            20   25   30

Gln Gln Ile Glu Arg Gln Leu Lys Cys Leu Ala Phe Arg Asn Pro Gly
        35   40   45

Pro Gln Val Ala Asp Phe Asn Pro Glu Thr Arg Gln Gln Lys Lys Lys
    50   55   60

Ala Arg Met Ser Lys Met Asn Glu Tyr Phe Ser Thr Lys Tyr Lys Ile
65   70   75   80

Met Arg Lys Tyr Asp Lys Ser Gly Arg Leu Ile Cys Asn Asp Ala Asp
                85   90   95

Leu Cys Asp Cys Leu Glu Lys Asn Cys Leu Gly Cys Phe Tyr Pro Cys
            100   105   110

Pro Lys Cys Asn Ser Asn Lys Cys Gly Pro Glu Cys Arg Cys Asn Arg
        115   120   125

Arg Trp Val Tyr Asp Ala Ile Val Thr Glu Ser Gly Glu Val Ile Ser
    130   135   140

Thr Leu Pro Phe Asn Val Pro Asp
145   150

<210> 3320
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 737; "

<220>
<221> source
<223> /note="Gene Symbol: ARL15; "

<220>
<221> source
<223> /note="Gene Name:

ADP-ribosylation factor-like 15; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432680"

<400> 3320
Met Ser Asp Leu Arg Ile Thr Glu Ala Phe Leu Tyr Met Asp Tyr Leu
1 5 10 15

Cys Phe Arg Ala Leu Cys Cys Lys Gly Pro Pro Pro Ala Arg Pro Glu
20 25 30

Tyr Asp Leu Val Cys Ile Gly Leu Thr Gly Ser Gly Lys Thr Ser Leu
35 40 45

Leu Ser Lys Leu Cys Ser Glu Ser Pro Asp Asn Val Val Ser Thr Thr
50 55 60

Gly Phe Ser Ile Lys Ala Val Pro Phe Gln Asn Ala Ile Leu Asn Val
65 70 75 80

Lys Glu Leu Gly Gly Ala Asp Asn Ile Arg Lys Tyr Trp Ser Arg Tyr
85 90 95

Tyr Gln Gly Ser Gln Gly Val Ile Phe Val Leu Asp Ser Ala Ser Ser
100 105 110

Glu Asp Asp Leu Glu Ala Ala Arg Asn Glu Leu His Ser Ala Leu Gln
115 120 125

His Pro Gln Leu Cys Thr Leu Pro Phe Leu Ile Leu Ala Asn His Gln
130 135 140

Asp Lys Pro Ala Ala Arg Ser Val Gln Glu Lys Ile Gln Asp
145 150 155

<210> 3321
<211> 204
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 737; "

<220>

<221> source
<223> /note="Gene Symbol: ARL15; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 15; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NXU5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433427"

<400> 3321

Met	Ser	Asp	Leu	Arg	Ile	Thr	Glu	Ala	Phe	Leu	Tyr	Met	Asp	Tyr	Leu
1				5				10						15	

Cys	Phe	Arg	Ala	Leu	Cys	Cys	Lys	Gly	Pro	Pro	Pro	Ala	Arg	Pro	Glu
			20					25					30		

Tyr	Asp	Leu	Val	Cys	Ile	Gly	Leu	Thr	Gly	Ser	Gly	Lys	Thr	Ser	Leu
		35					40					45			

Leu	Ser	Lys	Leu	Cys	Ser	Glu	Ser	Pro	Asp	Asn	Val	Val	Ser	Thr	Thr
	50					55					60				

Gly	Phe	Ser	Ile	Lys	Ala	Val	Pro	Phe	Gln	Asn	Ala	Ile	Leu	Asn	Val
65					70					75					80

Lys	Glu	Leu	Gly	Gly	Ala	Asp	Asn	Ile	Arg	Lys	Tyr	Trp	Ser	Arg	Tyr
				85					90					95	

Tyr	Gln	Gly	Ser	Gln	Gly	Val	Ile	Phe	Val	Leu	Asp	Ser	Ala	Ser	Ser
			100					105					110		

Glu	Asp	Asp	Leu	Glu	Ala	Ala	Arg	Asn	Glu	Leu	His	Ser	Ala	Leu	Gln
		115					120					125			

His	Pro	Gln	Leu	Cys	Thr	Leu	Pro	Phe	Leu	Ile	Leu	Ala	Asn	His	Gln
	130					135					140				

Asp	Lys	Pro	Ala	Ala	Arg	Ser	Val	Gln	Glu	Ile	Lys	Lys	Tyr	Phe	Glu
145					150					155					160

```
Leu Glu Pro Leu Ala Arg Gly Lys Arg Trp Ile Leu Gln Pro Cys Ser
                165                 170                 175

Leu Asp Asp Met Asp Ala Leu Lys Asp Ser Phe Ser Gln Leu Ile Asn
            180                 185                 190

Leu Leu Glu Glu Lys Asp His Glu Ala Val Arg Met
        195                 200


<210> 3322
<211> 25
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 737; "

<220>
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<223> /note="Gene Symbol: ARL15; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 15; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473508"

<400> 3322
Met Asp Ala Leu Lys Asp Ser Phe Ser Gln Leu Ile Asn Leu Leu Glu
1               5                   10                  15

Glu Lys Asp His Glu Ala Val Arg Met
            20                  25


<210> 3323
<211> 204
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 737; "

<220>
<221> source
<223> /note="Gene Symbol: ARL15; "

<220>
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<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 15; "

<220>
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<223> /note="ENSP ID: ENSP00000478984"

<400> 3323

```
Met Ser Asp Leu Arg Ile Thr Glu Ala Phe Leu Tyr Met Asp Tyr Leu
1               5                  10                  15

Cys Phe Arg Ala Leu Cys Cys Lys Gly Pro Pro Pro Ala Arg Pro Glu
            20                  25                  30

Tyr Asp Leu Val Cys Ile Gly Leu Thr Gly Ser Gly Lys Thr Ser Leu
        35                  40                  45

Leu Ser Lys Leu Cys Ser Glu Ser Pro Asp Asn Val Val Ser Thr Thr
    50                  55                  60

Gly Phe Ser Ile Lys Ala Val Pro Phe Gln Asn Ala Ile Leu Asn Val
65                  70                  75                  80

Lys Glu Leu Gly Gly Ala Asp Asn Ile Arg Lys Tyr Trp Ser Arg Tyr
                85                  90                  95

Tyr Gln Gly Ser Gln Gly Val Ile Phe Val Leu Asp Ser Ala Ser Ser
            100                 105                 110

Glu Asp Asp Leu Glu Ala Ala Arg Asn Glu Leu His Ser Ala Leu Gln
        115                 120                 125

His Pro Gln Leu Cys Thr Leu Pro Phe Leu Ile Leu Ala Asn His Gln
    130                 135                 140

Asp Lys Pro Ala Ala Arg Ser Val Gln Glu Leu Lys Lys Tyr Phe Glu
145                 150                 155                 160

Leu Glu Pro Leu Ala Arg Gly Lys Arg Trp Ile Leu Gln Pro Cys Ser
                165                 170                 175

Leu Asp Asp Met Asp Ala Leu Lys Asp Ser Phe Ser Gln Leu Ile Asn
            180                 185                 190
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Leu Leu Glu Glu Lys Asp His Glu Ala Val Arg Met
195 200

<210> 3324
<211> 197
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q0P5N6; "

<220>
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<400> 3324
Met Arg Val Ala Gly Gly Arg Ala Leu Ser Arg Gly Ala Glu Leu Arg
1 5 10 15

Val Pro Gly Gly Ala Lys His Gly Met Cys Leu Leu Leu Gly Ala Thr
20 25 30

Gly Val Gly Lys Thr Leu Leu Val Lys Arg Leu Gln Glu Val Ser Ser
35 40 45

Arg Asp Gly Lys Gly Asp Leu Gly Glu Pro Pro Pro Thr Arg Pro Thr
50 55 60

Val Gly Thr Asn Leu Thr Asp Ile Val Ala Gln Arg Lys Ile Thr Ile
65 70 75 80

Arg Glu Leu Gly Gly Cys Met Gly Pro Ile Trp Ser Ser Tyr Tyr Gly
85 90 95

Asn Cys Arg Ser Leu Leu Phe Val Met Asp Ala Ser Asp Pro Thr Gln
100 105 110

```
Leu Ser Ala Ser Cys Val Gln Leu Leu Gly Leu Leu Ser Ala Glu Gln
        115                 120                 125

Leu Ala Glu Ala Ser Val Leu Ile Leu Phe Asn Lys Ile Asp Leu Pro
    130                 135                 140

Cys Tyr Met Ser Thr Glu Glu Met Lys Ser Leu Ile Arg Leu Pro Asp
145                 150                 155                 160

Ile Ile Ala Cys Ala Lys Gln Asn Ile Thr Thr Ala Glu Ile Ser Ala
                165                 170                 175

Arg Glu Gly Thr Gly Leu Ala Gly Val Leu Ala Trp Leu Gln Ala Thr
            180                 185                 190

His Arg Ala Asn Asp
        195


<210> 3325
<211> 93
<212> PRT
<213> Homo sapiens

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<400> 3325
Met Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val Gln Leu
1               5                   10                  15

Leu Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val Leu Ile
            20                  25                  30
```

```
Leu Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu Glu Met
        35                  40                  45

Lys Ser Leu Ile Arg Leu Pro Asp Ile Ile Ala Cys Ala Lys Gln Asn
    50                  55                  60

Ile Thr Thr Ala Glu Ile Ser Ala Arg Glu Gly Thr Gly Leu Ala Gly
65                  70                  75                  80

Val Leu Ala Trp Leu Gln Ala Thr His Arg Ala Asn Asp
                85                  90
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<210> 3326
<211> 93
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 3326

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Met Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val Gln Leu
1               5                   10                  15

Leu Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val Leu Ile
            20                  25                  30

Leu Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu Glu Met
        35                  40                  45

Lys Ser Leu Ile Arg Leu Pro Asp Ile Ile Ala Cys Ala Lys Gln Asn
    50                  55                  60

Ile Thr Thr Ala Glu Ile Ser Ala Arg Glu Gly Thr Gly Leu Ala Gly
65                  70                  75                  80
```

Val Leu Ala Trp Leu Gln Ala Thr His Arg Ala Asn Asp
85 90

<210> 3327
<211> 111
<212> PRT
<213> Homo sapiens

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<400> 3327
Met Gly Pro Ile Trp Ser Ser Tyr Tyr Gly Asn Cys Arg Ser Leu Leu
1 5 10 15

Phe Val Met Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val
20 25 30

Gln Leu Leu Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val
35 40 45

Leu Ile Leu Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu
50 55 60

Glu Met Lys Ser Leu Ile Arg Leu Pro Asp Ile Ile Ala Cys Ala Lys
65 70 75 80

Gln Asn Ile Thr Thr Ala Glu Ile Ser Ala Arg Glu Gly Thr Gly Leu
85 90 95

Ala Gly Val Leu Ala Trp Leu Gln Ala Thr His Arg Ala Asn Asp
100 105 110

<210> 3328
<211> 93
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000460198"

<400> 3328
Met Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val Gln Leu
1 5 10 15

Leu Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val Leu Ile
20 25 30

Leu Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu Glu Met
35 40 45

Lys Ser Leu Ile Arg Leu Pro Asp Ile Ile Ala Cys Ala Lys Gln Asn
50 55 60

Ile Thr Thr Ala Glu Ile Ser Ala Arg Glu Gly Thr Gly Leu Ala Gly
65 70 75 80

Val Leu Ala Trp Leu Gln Ala Thr His Arg Ala Asn Asp
85 90

<210> 3329
<211> 48
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000461661"

<400> 3329
Val Gly Thr Asn Leu Thr Asp Ile Val Ala Gln Arg Lys Ile Thr Ile
1 5 10 15

Arg Glu Leu Gly Gly Cys Met Gly Pro Ile Trp Ser Ser Tyr Tyr Gly
20 25 30

Asn Cys Arg Ser Leu Leu Ala Cys Ala Ala Asp Thr Ser Met Glu Asn
35 40 45

<210> 3330
<211> 111
<212> PRT
<213> Homo sapiens

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<220>
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<400> 3330
Met Gly Pro Ile Trp Ser Ser Tyr Tyr Gly Asn Cys Arg Ser Leu Leu
1 5 10 15

Phe Val Met Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val
20 25 30

Gln Leu Leu Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val

35 40 45

Leu Ile Leu Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu
50 55 60

Glu Met Lys Ser Leu Ile Arg Leu Pro Asp Ile Ile Ala Cys Ala Lys
65 70 75 80

Gln Asn Ile Thr Thr Ala Glu Ile Ser Ala Arg Glu Gly Thr Gly Leu
85 90 95

Ala Gly Val Leu Ala Trp Leu Gln Ala Thr His Arg Ala Asn Asp
100 105 110

<210> 3331
<211> 197
<212> PRT
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<220>
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<400> 3331
Met Arg Val Ala Gly Gly Arg Ala Leu Ser Arg Gly Ala Glu Leu Arg
1 5 10 15

Val Pro Gly Gly Ala Lys His Gly Met Cys Leu Leu Leu Gly Ala Thr
20 25 30

Gly Val Gly Lys Thr Leu Leu Val Lys Arg Leu Gln Glu Val Ser Ser
35 40 45

```
Arg Asp Gly Lys Gly Asp Leu Gly Glu Pro Pro Pro Thr Arg Pro Thr
    50                  55                  60

Val Gly Thr Asn Leu Thr Asp Ile Val Ala Gln Arg Lys Ile Thr Ile
65                  70                  75                  80

Arg Glu Leu Gly Gly Cys Met Gly Pro Ile Trp Ser Ser Tyr Tyr Gly
                85                  90                  95

Asn Cys Arg Ser Leu Leu Phe Val Met Asp Ala Ser Asp Pro Thr Gln
            100                 105                 110

Leu Ser Ala Ser Cys Val Gln Leu Leu Gly Leu Leu Ser Ala Glu Gln
        115                 120                 125

Leu Ala Glu Ala Ser Val Leu Ile Leu Phe Asn Lys Ile Asp Leu Pro
    130                 135                 140

Cys Tyr Met Ser Thr Glu Glu Met Lys Ser Leu Ile Arg Leu Pro Asp
145                 150                 155                 160

Ile Ile Ala Cys Ala Lys Gln Asn Ile Thr Thr Ala Glu Ile Ser Ala
                165                 170                 175

Arg Glu Gly Thr Gly Leu Ala Gly Val Leu Ala Trp Leu Gln Ala Thr
            180                 185                 190

His Arg Ala Asn Asp
        195


<210> 3332
<211> 173
<212> PRT
<213> Homo sapiens

<220>
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ADP-ribosylation factor-like 16; "

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<223> /note="ENSP ID: ENSP00000483183"

<400> 3332
Met Cys Leu Leu Leu Gly Ala Thr Gly Val Gly Lys Thr Leu Leu Val
1 5 10 15

Lys Arg Leu Gln Glu Val Ser Ser Arg Asp Gly Lys Gly Asp Leu Gly
20 25 30

Glu Pro Pro Pro Thr Arg Pro Thr Val Gly Thr Asn Leu Thr Asp Ile
35 40 45

Val Ala Gln Arg Lys Ile Thr Ile Arg Glu Leu Gly Gly Cys Met Gly
50 55 60

Pro Ile Trp Ser Ser Tyr Tyr Gly Asn Cys Arg Ser Leu Leu Phe Val
65 70 75 80

Met Asp Ala Ser Asp Pro Thr Gln Leu Ser Ala Ser Cys Val Gln Leu
85 90 95

Leu Gly Leu Leu Ser Ala Glu Gln Leu Ala Glu Ala Ser Val Leu Ile
100 105 110

Leu Phe Asn Lys Ile Asp Leu Pro Cys Tyr Met Ser Thr Glu Glu Met
115 120 125

Lys Ser Leu Ile Arg Leu Pro Asp Ile Ile Ala Cys Ala Lys Gln Asn
130 135 140

Ile Thr Thr Ala Glu Ile Ser Ala Arg Glu Gly Thr Gly Leu Ala Gly
145 150 155 160

Val Leu Ala Trp Leu Gln Ala Thr His Arg Ala Asn Asp
165 170

<210> 3333
<211> 141
<212> PRT
<213> Homo sapiens

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ADP-ribosylation factor-like 17A; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000331563"

<400> 3333
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ser Cys Ser Ile Asp Gln Ala Gly Val
85 90 95

Gln Trp Arg Asp Leu Gly Ser Leu Gln Arg Pro Leu Pro Lys Leu Arg
100 105 110

Phe Val Ser His Thr Ser Pro His Thr Lys Leu Leu His Thr Arg Pro
115 120 125

Arg Thr Ala Ser Arg Lys Cys Phe Phe Arg Gly Lys Ile
130 135 140

<210> 3334
<211> 177
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 739; "

<220>
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<223> /note="Gene Symbol: ARL17A; "

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<220>
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<223> /note="Uniprot ID: Q8IVW1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000337478"

<400> 3334
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln
                85   90   95

Gly Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu
            100   105   110

Phe Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser
        115   120   125

Ser Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His
    130   135   140

```
Gln Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly
145                 150                 155                 160


Phe Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Val
                165                 170                 175


Lys



<210> 3335
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 739; "

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<223> /note="Gene Symbol: ARL17A; "

<220>
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<220>
<221> source
<223> /note="Uniprot ID:  Q8IVW1; "

<220>
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<223> /note="ENSP ID: ENSP00000416535"

<400> 3335
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1               5                   10                  15


Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20                  25                  30


Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35                  40                  45


Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50                  55                  60
```

```
Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65                  70                  75                  80


Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85                  90                  95


Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100                 105                 110


Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115                 120                 125


<210> 3336
<211> 87
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 3336
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1               5                   10                  15


Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20                  25                  30


Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35                  40                  45


Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50                  55                  60


Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65                  70                  75                  80
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Phe Phe Gln Asn Thr Lys Ala
85

<210> 3337
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 739; "

<220>
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<223> /note="Gene Symbol: ARL17A; "

<220>
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ADP-ribosylation factor-like 17A; "

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<223> /note="ENSP ID: ENSP00000459759"

<400> 3337
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Ala Ala His Ser Gln Ser Leu Thr Ser
85 90 95

<210> 3338
<211> 88
<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: ENSP00000481578"

<400> 3338
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ser
85

<210> 3339
<211> 125
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 740; "

<220>
<221> source
<223> /note="Gene Symbol: ARL17B; "

<220>

<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q8IVW1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391751"

<400> 3339
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85   90   95

Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100   105   110

Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115   120   125

<210> 3340
<211> 177
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ARL17B; "

<220>
<221> source
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<220>
<221> source
<223> /note="Uniprot ID: Q8IVW1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404247"

<400> 3340
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln
85 90 95

Gly Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu
100 105 110

Phe Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser
115 120 125

Ser Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His
130 135 140

Gln Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly
145 150 155 160

Phe Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Val
165 170 175

Lys

<210> 3341
<211> 111
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 740; "

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3341

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Xaa Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His Phe
1               5                  10                  15

Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln Gly
            20                  25                  30

Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu Phe
        35                  40                  45

Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser Ser
    50                  55                  60

Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His Gln
65                  70                  75                  80

Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly Phe
                85                  90                  95
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Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Gln
100 105 110

<210> 3342
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 740; "

<220>
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<220>
<221> source
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ADP-ribosylation factor-like 17B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000459131"

<400> 3342
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Ala Ala His Ser Gln Ser Leu Thr Ser
85 90 95

<210> 3343
<211> 125
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ARL17B; "

<220>
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<220>
<221> source
<223> /note="Uniprot ID: Q8IVW1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000459151"

<400> 3343
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85   90   95

Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100   105   110

Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115   120   125

<210> 3344
<211> 87

<212> PRT
<213> Homo sapiens

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<220>
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<400> 3344
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Ala
85

<210> 3345
<211> 181
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<400> 3345
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln
85 90 95

Gly Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu
100 105 110

Phe Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser
115 120 125

Ser Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His
130 135 140

Gln Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly
145 150 155 160

Phe Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Leu
165 170 175

Leu Thr Pro Lys Ala
180

<210> 3346
<211> 88
<212> PRT
<213> Homo sapiens

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<400> 3346
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ser
85

<210> 3347
<211> 125
<212> PRT
<213> Homo sapiens

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<223> /note="Uniprot ID: Q8IVW1; "

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<223> /note="ENSP ID: ENSP00000479224"

<400> 3347
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85   90   95

Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100   105   110

Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115   120   125

<210> 3348
<211> 141
<212> PRT
<213> Homo sapiens

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<400> 3348
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ser Cys Ser Ile Asp Gln Ala Gly Val
85 90 95

Gln Trp Arg Asp Leu Gly Ser Leu Gln Arg Pro Leu Pro Lys Leu Arg
100 105 110

Phe Val Ser His Thr Ser Pro His Thr Lys Leu Leu His Thr Arg Pro
115 120 125

Arg Thr Ala Ser Arg Lys Cys Phe Phe Arg Gly Lys Ile
130 135 140

<210> 3349
<211> 141
<212> PRT
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<223> /note="ENSP ID: ENSP00000481458"

<400> 3349
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ser Cys Ser Ile Asp Gln Ala Gly Val
85 90 95

Gln Trp Arg Asp Leu Gly Ser Leu Gln Arg Pro Leu Pro Lys Leu Arg
100 105 110

Phe Val Ser His Thr Ser Pro His Thr Lys Leu Leu His Thr Arg Pro
115 120 125

Arg Thr Ala Ser Arg Lys Cys Phe Phe Arg Gly Lys Ile
130 135 140

<210> 3350
<211> 177

<212> PRT
<213> Homo sapiens

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<220>
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<400> 3350

Met	Gly	Asn	Ile	Phe	Glu	Lys	Leu	Phe	Lys	Ser	Leu	Leu	Gly	Lys	Lys
1					5				10					15	

Lys	Met	Arg	Ile	Leu	Ile	Leu	Ser	Leu	Asp	Thr	Ala	Gly	Lys	Thr	Thr
			20					25					30		

Ile	Leu	Tyr	Lys	Leu	Lys	Leu	Gly	Glu	Thr	Val	Pro	Ala	Val	Pro	Thr
			35					40					45		

Val	Gly	Phe	Cys	Val	Glu	Thr	Val	Glu	Tyr	Lys	Asn	Asn	Thr	Phe	Ala
	50					55					60				

Val	Trp	Asp	Val	Gly	Ser	His	Phe	Lys	Ile	Arg	Pro	Leu	Trp	Gln	His
65					70					75					80

Phe	Phe	Gln	Asn	Thr	Lys	Gly	Ala	Arg	Ser	Pro	Gly	Ser	Thr	His	Gln
				85					90					95	

Gly	Ser	Leu	Ala	Ser	Gly	Val	Leu	Pro	Ile	Lys	Cys	Ser	His	Val	Glu
			100					105					110		

Phe	Gly	Met	Trp	Lys	Gly	Gly	Arg	Ser	His	Pro	Phe	Leu	Pro	His	Ser
			115					120					125		

```
Ser Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His
    130                 135                 140

Gln Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly
145                 150                 155                 160

Phe Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Val
                165                 170                 175

Lys
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<210> 3351
<211> 125
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<223> /note="Uniprot ID: Q8IVW1; "

<220>
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<400> 3351

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Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1               5                   10                  15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20                  25                  30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35                  40                  45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50                  55                  60
```

```
Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65                  70                  75                  80


Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85                  90                  95


Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100                 105                 110


Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115                 120                 125


<210> 3352
<211> 125
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<223> /note="Uniprot ID:  Q8IVW1; "

<220>
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<223> /note="ENSP ID: ENSP00000482856"

<400> 3352
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1               5                   10                  15


Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20                  25                  30


Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35                  40                  45
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```
Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50                  55                  60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65                  70                  75                  80

Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85                  90                  95

Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100                 105                 110

Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115                 120                 125


<210> 3353
<211> 177
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID:  Q8IVW1; "

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<223> /note="ENSP ID: ENSP00000483271"

<400> 3353
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1               5                   10                  15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20                  25                  30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35                  40                  45
```

```
Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50                  55                  60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65                  70                  75                  80

Phe Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln
                85                  90                  95

Gly Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu
            100                 105                 110

Phe Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser
        115                 120                 125

Ser Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His
    130                 135                 140

Gln Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly
145                 150                 155                 160

Phe Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Val
                165                 170                 175

Lys
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<210> 3354
<211> 141
<212> PRT
<213> Homo sapiens

<220>
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ADP-ribosylation factor-like 17B; "

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<223> /note="ENSP ID: ENSP00000483384"

<400> 3354
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Gly Ser Cys Ser Ile Asp Gln Ala Gly Val
                85   90   95

Gln Trp Arg Asp Leu Gly Ser Leu Gln Arg Pro Leu Pro Lys Leu Arg
            100   105   110

Phe Val Ser His Thr Ser Pro His Thr Lys Leu Leu His Thr Arg Pro
        115   120   125

Arg Thr Ala Ser Arg Lys Cys Phe Phe Arg Gly Lys Ile
    130   135   140

<210> 3355
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<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000485737"

<400> 3355
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln
                85   90   95

Gly Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu
            100   105   110

Phe Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser
        115   120   125

Ser Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His
    130   135   140

Gln Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly
145   150   155   160

Phe Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Leu
                165   170   175

Leu Thr Pro Lys Ala
            180

<210> 3356
<211> 95
<212> PRT

<213> Homo sapiens

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<400> 3356
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Ala Ala His Ser Gln Ser Leu Thr Ser
85 90 95

<210> 3357
<211> 87
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 3357
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Ala
85

<210> 3358
<211> 111
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3358
Xaa Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His Phe
1   5   10   15

Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln Gly
            20   25   30

Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu Phe
        35   40   45

Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser Ser
    50   55   60

Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His Gln
65   70   75   80

Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly Phe
                85   90   95

Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Gln
            100   105   110

<210> 3359
<211> 125
<212> PRT
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<220>
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<223> /note="Uniprot ID: Q8IVW1; "

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<221> source
<223> /note="ENSP ID: ENSP00000487334"

<400> 3359
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85   90   95

Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100   105   110

Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115   120   125

<210> 3360
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<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q8IVW1; "

<220>
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<223> /note="ENSP ID: ENSP00000487605"

<400> 3360
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1   5   10   15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
            20   25   30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
        35   40   45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
    50   55   60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65   70   75   80

Phe Phe Gln Asn Thr Lys Glu Leu Ser Ala Ser Gln Phe Ala Gln Phe
                85   90   95

Ile Lys Lys Leu Cys Gly Val Thr Gly Thr Asn Asp Glu Ala Ser Pro
            100   105   110

Gly Ser Leu Thr Ser Tyr Pro Ser His Leu Leu Asp Arg
        115   120   125

<210> 3361
<211> 181
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000487735"

<400> 3361
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln
85 90 95

Gly Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu
100 105 110

Phe Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser
115 120 125

Ser Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His
130 135 140

Gln Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly
145 150 155 160

Phe Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Leu
165 170 175

Leu Thr Pro Lys Ala
180

<210> 3362
<211> 95
<212> PRT
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000487838"

<400> 3362
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Ala Ala His Ser Gln Ser Leu Thr Ser
85 90 95

<210> 3363
<211> 111
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 740; "

<220>
<221> source
<223> /note="Gene Symbol: ARL17B; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 17B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488136"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3363
Xaa Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His Phe
1 5 10 15

Phe Gln Asn Thr Lys Gly Ala Arg Ser Pro Gly Ser Thr His Gln Gly
20 25 30

Ser Leu Ala Ser Gly Val Leu Pro Ile Lys Cys Ser His Val Glu Phe
35 40 45

Gly Met Trp Lys Gly Gly Arg Ser His Pro Phe Leu Pro His Ser Ser
50 55 60

Arg Cys Ala Gly Ser Gly Gly Gln Leu Asp Ser Ile Leu Pro His Gln
65 70 75 80

Ser Pro Ala Trp Gly Pro Trp Gly Cys Lys Asp Leu Ser Ser Gly Phe
85 90 95

Pro Ser Phe Leu Thr Ser Ser Ile Leu Trp Lys Ser Ala Val Gln
100 105 110

<210> 3364
<211> 87
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 740; "

<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: ENSP00000488599"

<400> 3364
Met Gly Asn Ile Phe Glu Lys Leu Phe Lys Ser Leu Leu Gly Lys Lys
1 5 10 15

Lys Met Arg Ile Leu Ile Leu Ser Leu Asp Thr Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Thr Val Pro Ala Val Pro Thr
35 40 45

Val Gly Phe Cys Val Glu Thr Val Glu Tyr Lys Asn Asn Thr Phe Ala
50 55 60

Val Trp Asp Val Gly Ser His Phe Lys Ile Arg Pro Leu Trp Gln His
65 70 75 80

Phe Phe Gln Asn Thr Lys Ala
85

<210> 3365
<211> 184
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 741; "

<220>
<221> source
<223> /note="Gene Symbol: ARL2; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 2; "

<220>
<221> source
<223> /note="Uniprot ID: P36404; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000246747"

<400> 3365
Met Gly Leu Leu Thr Ile Leu Lys Lys Met Lys Gln Lys Glu Arg Glu
1 5 10 15

Leu Arg Leu Leu Met Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr Ile
20 25 30

Leu Lys Lys Phe Asn Gly Glu Asp Ile Asp Thr Ile Ser Pro Thr Leu
35 40 45

Gly Phe Asn Ile Lys Thr Leu Glu His Arg Gly Phe Lys Leu Asn Ile
50 55 60

Trp Asp Val Gly Gly Gln Lys Ser Leu Arg Ser Tyr Trp Arg Asn Tyr
65 70 75 80

Phe Glu Ser Thr Asp Gly Leu Ile Trp Val Val Asp Ser Ala Asp Arg
85 90 95

Gln Arg Met Gln Asp Cys Gln Arg Glu Leu Gln Ser Leu Leu Val Glu
100 105 110

Glu Arg Leu Ala Gly Ala Thr Leu Leu Ile Phe Ala Asn Lys Gln Asp
115 120 125

Leu Pro Gly Ala Leu Ser Ser Asn Ala Ile Arg Glu Val Leu Glu Leu
130 135 140

Asp Ser Ile Arg Ser His His Trp Cys Ile Gln Gly Cys Ser Ala Val
145 150 155 160

Thr Gly Glu Asn Leu Leu Pro Gly Ile Asp Trp Leu Leu Asp Asp Ile
165 170 175

Ser Ser Arg Ile Phe Thr Ala Asp
180

<210> 3366
<211> 157
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 741; "

<220>
<221> source
<223> /note="Gene Symbol: ARL2; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 2; "

<220>
<221> source
<223> /note="Uniprot ID: P36404; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432971"

<400> 3366

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Met Gly Leu Leu Thr Ile Leu Lys Lys Met Lys Gln Lys Glu Arg Glu
1               5                  10                  15

Leu Arg Leu Leu Met Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr Ile
            20                  25                  30

Leu Lys Lys Phe Asn Gly Glu Asp Ile Asp Thr Ile Ser Pro Thr Leu
        35                  40                  45

Gly Phe Asn Ile Lys Thr Leu Glu His Arg Gly Phe Lys Leu Asn Ile
    50                  55                  60

Trp Asp Val Gly Gly Gln Lys Ser Leu Arg Ser Tyr Trp Arg Asn Tyr
65                  70                  75                  80

Phe Glu Ser Thr Asp Gly Leu Ile Trp Val Val Asp Ser Ala Asp Arg
                85                  90                  95

Gln Arg Met Gln Asp Cys Gln Arg Glu Leu Gln Ser Leu Leu Val Glu
            100                 105                 110

Glu Val Leu Glu Leu Asp Ser Ile Arg Ser His His Trp Cys Ile Gln
        115                 120                 125

Gly Cys Ser Ala Val Thr Gly Glu Asn Leu Leu Pro Gly Ile Asp Trp
    130                 135                 140

Leu Leu Asp Asp Ile Ser Ser Arg Ile Phe Thr Ala Asp
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145 150 155

<210> 3367
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 741; "

<220>
<221> source
<223> /note="Gene Symbol: ARL2; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 2; "

<220>
<221> source
<223> /note="Uniprot ID: P36404; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436021"

<400> 3367
Met Gly Leu Leu Thr Ile Leu Lys Lys Met Lys Gln Lys Glu Arg Glu
1 5 10 15

Leu Arg Leu Leu Met Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr Ile
20 25 30

Leu Lys Lys Phe Asn Gly Glu Asp Ile Asp Thr Ile Ser Pro Thr Leu
35 40 45

Gly Phe Asn Ile Lys Thr Leu Glu His Arg Gly Phe Lys Leu Asn Ile
50 55 60

Trp Asp Val Gly Gly Gln Lys Ser Leu Arg Ser Tyr Trp Arg Asn Tyr
65 70 75 80

Phe Glu Ser Thr Asp Gly Leu Ile Trp Val Val Asp Ser Ala Asp Arg
85 90 95

Gln Arg Met Gln Asp Cys Gln Arg Glu Leu Gln Ser Leu Leu Val Glu
100 105 110

```
Glu Arg Leu Ala Gly Ala Thr Leu Leu Ile Phe Ala Asn Lys Gln Asp
        115                 120                 125

Leu Pro Gly Ala Leu Ser Ser Asn Ala Ile Arg Glu Val Leu Glu Leu
    130                 135                 140

Asp Ser Ile Arg Ser His His Trp Cys Ile Gln Gly Cys Ser Ala Val
145                 150                 155                 160

Thr Gly Glu Asn Leu Leu Pro Gly Ile Asp Trp Leu Leu Asp Asp Ile
                165                 170                 175

Ser Ser Arg Ile Phe Thr Ala Asp
            180


<210> 3368
<211> 163
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 742; "

<220>
<221> source
<223> /note="Gene Symbol: ARL2BP; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 2 binding prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2Y0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000219204"

<400> 3368
Met Asp Ala Leu Glu Gly Glu Ser Phe Ala Leu Ser Phe Ser Ser Ala
1               5                   10                  15

Ser Asp Ala Glu Phe Asp Ala Val Val Gly Tyr Leu Glu Asp Ile Ile
            20                  25                  30

Met Asp Asp Glu Phe Gln Leu Leu Gln Arg Asn Phe Met Asp Lys Tyr
```

```
        35                  40                  45

Tyr Leu Glu Phe Glu Asp Thr Glu Glu Asn Lys Leu Ile Tyr Thr Pro
    50                  55                  60

Ile Phe Asn Glu Tyr Ile Ser Leu Val Glu Lys Tyr Ile Glu Glu Gln
65                  70                  75                  80

Leu Leu Gln Arg Ile Pro Glu Phe Asn Met Ala Ala Phe Thr Thr Thr
                85                  90                  95

Leu Gln His His Lys Asp Glu Val Ala Gly Asp Ile Phe Asp Met Leu
            100                 105                 110

Leu Thr Phe Thr Asp Phe Leu Ala Phe Lys Glu Met Phe Leu Asp Tyr
        115                 120                 125

Arg Ala Glu Lys Glu Gly Arg Gly Leu Asp Leu Ser Ser Gly Leu Val
    130                 135                 140

Val Thr Ser Leu Cys Lys Ser Ser Ser Leu Pro Ala Ser Gln Asn Asn
145                 150                 155                 160

Leu Arg His
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<210> 3369
<211> 171
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 742; "

<220>
<221> source
<223> /note="Gene Symbol: ARL2BP; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 2 binding prt; "

<220>
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<223> /note="ENSP ID: ENSP00000454237"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3369
Xaa Leu Glu Gly Glu Ser Phe Ala Leu Ser Phe Ser Ser Ala Ser Asp
1 5 10 15

Ala Glu Phe Asp Ala Val Val Gly Tyr Leu Glu Asp Ile Ile Met Asp
20 25 30

Asp Glu Phe Gln Leu Leu Gln Arg Asn Phe Met Asp Lys Tyr Tyr Leu
35 40 45

Glu Phe Glu Asp Thr Glu Glu Asn Lys Leu Ile Tyr Thr Pro Ile Phe
50 55 60

Asn Glu Tyr Ile Ser Leu Val Glu Lys Tyr Ile Glu Glu Gln Leu Leu
65 70 75 80

Gln Arg Ile Pro Glu Phe Asn Met Ala Ala Phe Thr Thr Thr Leu Gln
85 90 95

His His Lys Asp Glu Val Ala Gly Asp Ile Phe Asp Met Leu Leu Thr
100 105 110

Phe Thr Asp Phe Leu Ala Phe Lys Glu Met Phe Leu Asp Tyr Arg Ala
115 120 125

Leu Pro Arg Thr Ile Cys Gly Thr Arg Ser Tyr Leu Gln Pro Met Asn
130 135 140

Gly Ile Ile Leu Asp Val Thr Ser Pro Ile Gly Ser Ala His Asp Asp
145 150 155 160

Arg Thr His Leu Gly Lys Thr Asp Ser Val Met
165 170

<210> 3370
<211> 123
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 742; "

<220>
<221> source
<223> /note="Gene Symbol: ARL2BP; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 2 binding prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457465"

<400> 3370
Met Asp Ala Leu Glu Gly Glu Ser Phe Ala Leu Ser Phe Ser Ser Ala
1 5 10 15

Ser Asp Ala Glu Phe Asp Ala Val Val Gly Tyr Leu Glu Asp Ile Ile
20 25 30

Met Glu Lys Tyr Ile Glu Glu Gln Leu Leu Gln Arg Ile Pro Glu Phe
35 40 45

Asn Met Ala Ala Phe Thr Thr Thr Leu Gln His His Lys Asp Glu Val
50 55 60

Ala Gly Asp Ile Phe Asp Met Leu Leu Thr Phe Thr Asp Phe Leu Ala
65 70 75 80

Phe Lys Glu Met Phe Leu Asp Tyr Arg Ala Glu Lys Glu Gly Arg Gly
85 90 95

Leu Asp Leu Ser Ser Gly Leu Val Val Thr Ser Leu Cys Lys Ser Ser
100 105 110

Ser Leu Pro Ala Ser Gln Asn Asn Leu Arg His
115 120

<210> 3371
<211> 182
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 743; "

<220>
<221> source
<223> /note="Gene Symbol: ARL3; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 3; "

<220>
<221> source
<223> /note="Uniprot ID: P36405; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260746"

<400> 3371
Met Gly Leu Leu Ser Ile Leu Arg Lys Leu Lys Ser Ala Pro Asp Gln
1   5   10   15

Glu Val Arg Ile Leu Leu Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr
            20   25   30

Leu Leu Lys Gln Leu Ala Ser Glu Asp Ile Ser His Ile Thr Pro Thr
        35   40   45

Gln Gly Phe Asn Ile Lys Ser Val Gln Ser Gln Gly Phe Lys Leu Asn
    50   55   60

Val Trp Asp Ile Gly Gly Gln Arg Lys Ile Arg Pro Tyr Trp Lys Asn
65   70   75   80

Tyr Phe Glu Asn Thr Asp Ile Leu Ile Tyr Val Ile Asp Ser Ala Asp
                85   90   95

Arg Lys Arg Phe Glu Glu Thr Gly Gln Glu Leu Ala Glu Leu Leu Glu
            100   105   110

Glu Glu Lys Leu Ser Cys Val Pro Val Leu Ile Phe Ala Asn Lys Gln
        115   120   125

Asp Leu Leu Thr Ala Ala Pro Ala Ser Glu Ile Ala Glu Gly Leu Asn
    130   135   140

Leu His Thr Ile Arg Asp Arg Val Trp Gln Ile Gln Ser Cys Ser Ala
145   150   155   160

```
Leu Thr Gly Glu Gly Val Gln Asp Gly Met Asn Trp Val Cys Lys Asn
                165                 170                 175


Val Asn Ala Lys Lys Lys
            180


<210> 3372
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 744; "

<220>
<221> source
<223> /note="Gene Symbol: ARL4A; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 4A; "

<220>
<221> source
<223> /note="Uniprot ID:  P40617; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349250"

<400> 3372
Met Gly Asn Gly Leu Ser Asp Gln Thr Ser Ile Leu Ser Asn Leu Pro
1               5                   10                  15


Ser Phe Gln Ser Phe His Ile Val Ile Leu Gly Leu Asp Cys Ala Gly
            20                  25                  30


Lys Thr Thr Val Leu Tyr Arg Leu Gln Phe Asn Glu Phe Val Asn Thr
        35                  40                  45


Val Pro Thr Lys Gly Phe Asn Thr Glu Lys Ile Lys Val Thr Leu Gly
    50                  55                  60


Asn Ser Lys Thr Val Thr Phe His Phe Trp Asp Val Gly Gly Gln Glu
65                  70                  75                  80
```

```
Lys Leu Arg Pro Leu Trp Lys Ser Tyr Thr Arg Cys Thr Asp Gly Ile
                85                  90                  95

Val Phe Val Val Asp Ser Val Asp Val Glu Arg Met Glu Glu Ala Lys
            100                 105                 110

Thr Glu Leu His Lys Ile Thr Arg Ile Ser Glu Asn Gln Gly Val Pro
        115                 120                 125

Val Leu Ile Val Ala Asn Lys Gln Asp Leu Arg Asn Ser Leu Ser Leu
    130                 135                 140

Ser Glu Ile Glu Lys Leu Leu Ala Met Gly Glu Leu Ser Ser Ser Thr
145                 150                 155                 160

Pro Trp His Leu Gln Pro Thr Cys Ala Ile Ile Gly Asp Gly Leu Lys
                165                 170                 175

Glu Gly Leu Glu Lys Leu His Asp Met Ile Ile Lys Arg Arg Lys Met
            180                 185                 190

Leu Arg Gln Gln Lys Lys Lys Arg
        195                 200


<210> 3373
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 744; "

<220>
<221> source
<223> /note="Gene Symbol: ARL4A; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 4A; "

<220>
<221> source
<223> /note="Uniprot ID:  P40617; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379897"
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<400> 3373
Met Gly Asn Gly Leu Ser Asp Gln Thr Ser Ile Leu Ser Asn Leu Pro
1 5 10 15

Ser Phe Gln Ser Phe His Ile Val Ile Leu Gly Leu Asp Cys Ala Gly
20 25 30

Lys Thr Thr Val Leu Tyr Arg Leu Gln Phe Asn Glu Phe Val Asn Thr
35 40 45

Val Pro Thr Lys Gly Phe Asn Thr Glu Lys Ile Lys Val Thr Leu Gly
50 55 60

Asn Ser Lys Thr Val Thr Phe His Phe Trp Asp Val Gly Gly Gln Glu
65 70 75 80

Lys Leu Arg Pro Leu Trp Lys Ser Tyr Thr Arg Cys Thr Asp Gly Ile
85 90 95

Val Phe Val Val Asp Ser Val Asp Val Glu Arg Met Glu Glu Ala Lys
100 105 110

Thr Glu Leu His Lys Ile Thr Arg Ile Ser Glu Asn Gln Gly Val Pro
115 120 125

Val Leu Ile Val Ala Asn Lys Gln Asp Leu Arg Asn Ser Leu Ser Leu
130 135 140

Ser Glu Ile Glu Lys Leu Leu Ala Met Gly Glu Leu Ser Ser Ser Thr
145 150 155 160

Pro Trp His Leu Gln Pro Thr Cys Ala Ile Ile Gly Asp Gly Leu Lys
165 170 175

Glu Gly Leu Glu Lys Leu His Asp Met Ile Ile Lys Arg Arg Lys Met
180 185 190

Leu Arg Gln Gln Lys Lys Lys Arg
195 200

<210> 3374
<211> 200
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 744; "

<220>
<221> source
<223> /note="Gene Symbol: ARL4A; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 4A; "

<220>
<221> source
<223> /note="Uniprot ID: P40617; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379898"

<400> 3374
Met Gly Asn Gly Leu Ser Asp Gln Thr Ser Ile Leu Ser Asn Leu Pro
1   5   10   15

Ser Phe Gln Ser Phe His Ile Val Ile Leu Gly Leu Asp Cys Ala Gly
            20   25   30

Lys Thr Thr Val Leu Tyr Arg Leu Gln Phe Asn Glu Phe Val Asn Thr
        35   40   45

Val Pro Thr Lys Gly Phe Asn Thr Glu Lys Ile Lys Val Thr Leu Gly
    50   55   60

Asn Ser Lys Thr Val Thr Phe His Phe Trp Asp Val Gly Gly Gln Glu
65   70   75   80

Lys Leu Arg Pro Leu Trp Lys Ser Tyr Thr Arg Cys Thr Asp Gly Ile
                85   90   95

Val Phe Val Val Asp Ser Val Asp Val Glu Arg Met Glu Glu Ala Lys
            100   105   110

Thr Glu Leu His Lys Ile Thr Arg Ile Ser Glu Asn Gln Gly Val Pro
        115   120   125

Val Leu Ile Val Ala Asn Lys Gln Asp Leu Arg Asn Ser Leu Ser Leu

```
    130                 135                 140

Ser Glu Ile Glu Lys Leu Leu Ala Met Gly Glu Leu Ser Ser Ser Thr
145                 150                 155                 160

Pro Trp His Leu Gln Pro Thr Cys Ala Ile Ile Gly Asp Gly Leu Lys
                165                 170                 175

Glu Gly Leu Glu Lys Leu His Asp Met Ile Ile Lys Arg Arg Lys Met
            180                 185                 190

Leu Arg Gln Gln Lys Lys Lys Arg
        195                 200


<210> 3375
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 744; "

<220>
<221> source
<223> /note="Gene Symbol: ARL4A; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 4A; "

<220>
<221> source
<223> /note="Uniprot ID:  P40617; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379899"

<400> 3375
Met Gly Asn Gly Leu Ser Asp Gln Thr Ser Ile Leu Ser Asn Leu Pro
1               5                   10                  15

Ser Phe Gln Ser Phe His Ile Val Ile Leu Gly Leu Asp Cys Ala Gly
            20                  25                  30

Lys Thr Thr Val Leu Tyr Arg Leu Gln Phe Asn Glu Phe Val Asn Thr
        35                  40                  45
```

```
Val Pro Thr Lys Gly Phe Asn Thr Glu Lys Ile Lys Val Thr Leu Gly
    50                  55                  60

Asn Ser Lys Thr Val Thr Phe His Phe Trp Asp Val Gly Gly Gln Glu
65                  70                  75                  80

Lys Leu Arg Pro Leu Trp Lys Ser Tyr Thr Arg Cys Thr Asp Gly Ile
                85                  90                  95

Val Phe Val Val Asp Ser Val Asp Val Glu Arg Met Glu Glu Ala Lys
            100                 105                 110

Thr Glu Leu His Lys Ile Thr Arg Ile Ser Glu Asn Gln Gly Val Pro
        115                 120                 125

Val Leu Ile Val Ala Asn Lys Gln Asp Leu Arg Asn Ser Leu Ser Leu
    130                 135                 140

Ser Glu Ile Glu Lys Leu Leu Ala Met Gly Glu Leu Ser Ser Ser Thr
145                 150                 155                 160

Pro Trp His Leu Gln Pro Thr Cys Ala Ile Ile Gly Asp Gly Leu Lys
                165                 170                 175

Glu Gly Leu Glu Lys Leu His Asp Met Ile Ile Lys Arg Arg Lys Met
            180                 185                 190

Leu Arg Gln Gln Lys Lys Lys Arg
        195                 200


<210> 3376
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 744; "

<220>
<221> source
<223> /note="Gene Symbol: ARL4A; "

<220>
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<223> /note="Gene Name:
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ADP-ribosylation factor-like 4A; "

<220>
<221> source
<223> /note="Uniprot ID: P40617; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000385236"

<400> 3376
Met Gly Asn Gly Leu Ser Asp Gln Thr Ser Ile Leu Ser Asn Leu Pro
1   5   10   15

Ser Phe Gln Ser Phe His Ile Val Ile Leu Gly Leu Asp Cys Ala Gly
            20   25   30

Lys Thr Thr Val Leu Tyr Arg Leu Gln Phe Asn Glu Phe Val Asn Thr
        35   40   45

Val Pro Thr Lys Gly Phe Asn Thr Glu Lys Ile Lys Val Thr Leu Gly
    50   55   60

Asn Ser Lys Thr Val Thr Phe His Phe Trp Asp Val Gly Gly Gln Glu
65   70   75   80

Lys Leu Arg Pro Leu Trp Lys Ser Tyr Thr Arg Cys Thr Asp Gly Ile
                85   90   95

Val Phe Val Val Asp Ser Val Asp Val Glu Arg Met Glu Glu Ala Lys
            100   105   110

Thr Glu Leu His Lys Ile Thr Arg Ile Ser Glu Asn Gln Gly Val Pro
        115   120   125

Val Leu Ile Val Ala Asn Lys Gln Asp Leu Arg Asn Ser Leu Ser Leu
    130   135   140

Ser Glu Ile Glu Lys Leu Leu Ala Met Gly Glu Leu Ser Ser Ser Thr
145   150   155   160

Pro Trp His Leu Gln Pro Thr Cys Ala Ile Ile Gly Asp Gly Leu Lys
                165   170   175

Glu Gly Leu Glu Lys Leu His Asp Met Ile Ile Lys Arg Arg Lys Met
            180   185   190

Leu Arg Gln Gln Lys Lys Lys Arg
195 200

<210> 3377
<211> 50
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 744; "

<220>
<221> source
<223> /note="Gene Symbol: ARL4A; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 4A; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397651"

<400> 3377
Met Gly Asn Gly Leu Ser Asp Gln Thr Ser Ile Leu Ser Asn Leu Pro
1 5 10 15

Ser Phe Gln Ser Phe His Ile Val Ile Leu Gly Leu Asp Cys Ala Gly
20 25 30

Lys Thr Thr Val Leu Tyr Arg Leu Gln Phe Asn Glu Phe Val Asn Thr
35 40 45

Val Pro
50

<210> 3378
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 745; "

<220>
<221> source
<223> /note="Gene Symbol: ARL4C; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 4C; "

<220>
<221> source
<223> /note="Uniprot ID: P56559; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000339754"

<400> 3378
Met Gly Asn Ile Ser Ser Asn Ile Ser Ala Phe Gln Ser Leu His Ile
1 5 10 15

Val Met Leu Gly Leu Asp Ser Ala Gly Lys Thr Thr Val Leu Tyr Arg
20 25 30

Leu Lys Phe Asn Glu Phe Val Asn Thr Val Pro Thr Ile Gly Phe Asn
35 40 45

Thr Glu Lys Ile Lys Leu Ser Asn Gly Thr Ala Lys Gly Ile Ser Cys
50 55 60

His Phe Trp Asp Val Gly Gly Gln Glu Lys Leu Arg Pro Leu Trp Lys
65 70 75 80

Ser Tyr Ser Arg Cys Thr Asp Gly Ile Ile Tyr Val Val Asp Ser Val
85 90 95

Asp Val Asp Arg Leu Glu Glu Ala Lys Thr Glu Leu His Lys Val Thr
100 105 110

Lys Phe Ala Glu Asn Gln Gly Thr Pro Leu Leu Val Ile Ala Asn Lys
115 120 125

Gln Asp Leu Pro Lys Ser Leu Pro Val Ala Glu Ile Glu Lys Gln Leu
130 135 140

Ala Leu His Glu Leu Ile Pro Ala Thr Thr Tyr His Val Gln Pro Ala
145 150 155 160

Cys Ala Ile Ile Gly Glu Gly Leu Thr Glu Gly Met Asp Lys Leu Tyr
165 170 175

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Glu Met Ile Leu Lys Arg Arg Lys Ser Leu Lys Gln Lys Lys Lys Arg
            180                 185                 190

Thr Gly Asp Leu Arg Ser Cys Glu Val
        195                 200


<210> 3379
<211> 192
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 745; "

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<223> /note="Gene Symbol: ARL4C; "

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<223> /note="Gene Name:
      ADP-ribosylation factor-like 4C; "

<220>
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<223> /note="Uniprot ID:  P56559; "

<220>
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<223> /note="ENSP ID: ENSP00000375057"

<400> 3379
Met Gly Asn Ile Ser Ser Asn Ile Ser Ala Phe Gln Ser Leu His Ile
1               5                   10                  15

Val Met Leu Gly Leu Asp Ser Ala Gly Lys Thr Thr Val Leu Tyr Arg
            20                  25                  30

Leu Lys Phe Asn Glu Phe Val Asn Thr Val Pro Thr Ile Gly Phe Asn
        35                  40                  45

Thr Glu Lys Ile Lys Leu Ser Asn Gly Thr Ala Lys Gly Ile Ser Cys
    50                  55                  60

His Phe Trp Asp Val Gly Gly Gln Glu Lys Leu Arg Pro Leu Trp Lys
65                  70                  75                  80
```

```
Ser Tyr Ser Arg Cys Thr Asp Gly Ile Ile Tyr Val Val Asp Ser Val
                85                  90                  95

Asp Val Asp Arg Leu Glu Glu Ala Lys Thr Glu Leu His Lys Val Thr
            100                 105                 110

Lys Phe Ala Glu Asn Gln Gly Thr Pro Leu Leu Val Ile Ala Asn Lys
        115                 120                 125

Gln Asp Leu Pro Lys Ser Leu Pro Val Ala Glu Ile Glu Lys Gln Leu
    130                 135                 140

Ala Leu His Glu Leu Ile Pro Ala Thr Thr Tyr His Val Gln Pro Ala
145                 150                 155                 160

Cys Ala Ile Ile Gly Glu Gly Leu Thr Glu Gly Met Asp Lys Leu Tyr
                165                 170                 175

Glu Met Ile Leu Lys Arg Arg Lys Ser Leu Lys Gln Lys Lys Lys Arg
            180                 185                 190


<210> 3380
<211> 201
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 746; "

<220>
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<223> /note="Gene Symbol: ARL4D; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 4D; "

<220>
<221> source
<223> /note="Uniprot ID:  P49703; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000322628"

<400> 3380
Met Gly Asn His Leu Thr Glu Met Ala Pro Thr Ala Ser Ser Phe Leu
1               5                   10                  15
```

```
Pro His Phe Gln Ala Leu His Val Val Val Ile Gly Leu Asp Ser Ala
            20                  25                  30

Gly Lys Thr Ser Leu Leu Tyr Arg Leu Lys Phe Lys Glu Phe Val Gln
        35                  40                  45

Ser Val Pro Thr Lys Gly Phe Asn Thr Glu Lys Ile Arg Val Pro Leu
    50                  55                  60

Gly Gly Ser Arg Gly Ile Thr Phe Gln Val Trp Asp Val Gly Gly Gln
65                  70                  75                  80

Glu Lys Leu Arg Pro Leu Trp Arg Ser Tyr Thr Arg Arg Thr Asp Gly
                85                  90                  95

Leu Val Phe Val Val Asp Ala Ala Glu Ala Glu Arg Leu Glu Glu Ala
            100                 105                 110

Lys Val Glu Leu His Arg Ile Ser Arg Ala Ser Asp Asn Gln Gly Val
        115                 120                 125

Pro Val Leu Val Leu Ala Asn Lys Gln Asp Gln Pro Gly Ala Leu Ser
    130                 135                 140

Ala Ala Glu Val Glu Lys Arg Leu Ala Val Arg Glu Leu Ala Ala Ala
145                 150                 155                 160

Thr Leu Thr His Val Gln Gly Cys Ser Ala Val Asp Gly Leu Gly Leu
                165                 170                 175

Gln Gln Gly Leu Glu Arg Leu Tyr Glu Met Ile Leu Lys Arg Lys Lys
            180                 185                 190

Ala Ala Arg Gly Gly Lys Lys Arg Arg
        195                 200
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<210> 3381
<211> 179
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 747; "

<220>
<221> source
<223> /note="Gene Symbol: ARL5A; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 5A; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y689; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295087"

<400> 3381

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Met Gly Ile Leu Phe Thr Arg Ile Trp Arg Leu Phe Asn His Gln Glu
1               5                  10                  15

His Lys Val Ile Ile Val Gly Leu Asp Asn Ala Gly Lys Thr Thr Ile
            20                  25                  30

Leu Tyr Gln Phe Ser Met Asn Glu Val Val His Thr Ser Pro Thr Ile
        35                  40                  45

Gly Ser Asn Val Glu Glu Ile Val Ile Asn Asn Thr Arg Phe Leu Met
    50                  55                  60

Trp Asp Ile Gly Gly Gln Glu Ser Leu Arg Ser Ser Trp Asn Thr Tyr
65                  70                  75                  80

Tyr Thr Asn Thr Glu Phe Val Ile Val Val Val Asp Ser Thr Asp Arg
                85                  90                  95

Glu Arg Ile Ser Val Thr Arg Glu Glu Leu Tyr Lys Met Leu Ala His
            100                 105                 110

Glu Asp Leu Arg Lys Ala Gly Leu Leu Ile Phe Ala Asn Lys Gln Asp
        115                 120                 125

Val Lys Glu Cys Met Thr Val Ala Glu Ile Ser Gln Phe Leu Lys Leu
    130                 135                 140

Thr Ser Ile Lys Asp His Gln Trp His Ile Gln Ala Cys Cys Ala Leu
```

145 150 155 160

Thr Gly Glu Gly Leu Cys Gln Gly Leu Glu Trp Met Met Ser Arg Leu
165 170 175

Lys Ile Arg

<210> 3382
<211> 77
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 747; "

<220>
<221> source
<223> /note="Gene Symbol: ARL5A; "

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ADP-ribosylation factor-like 5A; "

<220>
<221> source
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<400> 3382
Met Asn Glu Val Val His Thr Ser Pro Thr Ile Gly Ser Asn Val Glu
1 5 10 15

Glu Ile Val Ile Asn Asn Thr Arg Phe Leu Met Trp Asp Ile Gly Gly
20 25 30

Gln Glu Ser Leu Arg Ser Ser Trp Asn Thr Tyr Tyr Thr Asn Thr Glu
35 40 45

Phe Val Ile Val Val Val Asp Ser Thr Asp Arg Glu Arg Ile Ser Val
50 55 60

Thr Arg Glu Glu Leu Tyr Lys Met Leu Ala His Glu Lys
65 70 75

<210> 3383
<211> 142
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 747; "

<220>
<221> source
<223> /note="Gene Symbol: ARL5A; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 5A; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y689; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394626"

<400> 3383
Met Asn Glu Val Val His Thr Ser Pro Thr Ile Gly Ser Asn Val Glu
1   5   10   15

Glu Ile Val Ile Asn Asn Thr Arg Phe Leu Met Trp Asp Ile Gly Gly
            20   25   30

Gln Glu Ser Leu Arg Ser Ser Trp Asn Thr Tyr Tyr Thr Asn Thr Glu
        35   40   45

Phe Val Ile Val Val Val Asp Ser Thr Asp Arg Glu Arg Ile Ser Val
    50   55   60

Thr Arg Glu Glu Leu Tyr Lys Met Leu Ala His Glu Asp Leu Arg Lys
65   70   75   80

Ala Gly Leu Leu Ile Phe Ala Asn Lys Gln Asp Val Lys Glu Cys Met
                85   90   95

Thr Val Ala Glu Ile Ser Gln Phe Leu Lys Leu Thr Ser Ile Lys Asp
            100   105   110

His Gln Trp His Ile Gln Ala Cys Cys Ala Leu Thr Gly Glu Gly Leu
        115   120   125

Cys Gln Gly Leu Glu Trp Met Met Ser Arg Leu Lys Ile Arg

130 135 140

<210> 3384
<211> 142
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 747; "

<220>
<221> source
<223> /note="Gene Symbol: ARL5A; "

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<220>
<221> source
<223> /note="Uniprot ID: Q9Y689; "

<220>
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<223> /note="ENSP ID: ENSP00000415950"

<400> 3384
Met Asn Glu Val Val His Thr Ser Pro Thr Ile Gly Ser Asn Val Glu
1 5 10 15

Glu Ile Val Ile Asn Asn Thr Arg Phe Leu Met Trp Asp Ile Gly Gly
20 25 30

Gln Glu Ser Leu Arg Ser Ser Trp Asn Thr Tyr Tyr Thr Asn Thr Glu
35 40 45

Phe Val Ile Val Val Val Asp Ser Thr Asp Arg Glu Arg Ile Ser Val
50 55 60

Thr Arg Glu Glu Leu Tyr Lys Met Leu Ala His Glu Asp Leu Arg Lys
65 70 75 80

Ala Gly Leu Leu Ile Phe Ala Asn Lys Gln Asp Val Lys Glu Cys Met
85 90 95

Thr Val Ala Glu Ile Ser Gln Phe Leu Lys Leu Thr Ser Ile Lys Asp
100 105 110

```
His Gln Trp His Ile Gln Ala Cys Cys Ala Leu Thr Gly Glu Gly Leu
        115                 120                 125


Cys Gln Gly Leu Glu Trp Met Met Ser Arg Leu Lys Ile Arg
    130                 135                 140


<210> 3385
<211> 179
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 748; "

<220>
<221> source
<223> /note="Gene Symbol: ARL5B; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 5B; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96KC2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366487"

<400> 3385
Met Gly Leu Ile Phe Ala Lys Leu Trp Ser Leu Phe Cys Asn Gln Glu
1               5                   10                  15


His Lys Val Ile Ile Val Gly Leu Asp Asn Ala Gly Lys Thr Thr Ile
            20                  25                  30


Leu Tyr Gln Phe Leu Met Asn Glu Val Val His Thr Ser Pro Thr Ile
        35                  40                  45


Gly Ser Asn Val Glu Glu Ile Val Val Lys Asn Thr His Phe Leu Met
    50                  55                  60


Trp Asp Ile Gly Gly Gln Glu Ser Leu Arg Ser Ser Trp Asn Thr Tyr
65                  70                  75                  80


Tyr Ser Asn Thr Glu Phe Ile Ile Leu Val Val Asp Ser Ile Asp Arg
```

```
                85                  90                  95

Glu Arg Leu Ala Ile Thr Lys Glu Glu Leu Tyr Arg Met Leu Ala His
            100                 105                 110

Glu Asp Leu Arg Lys Ala Ala Val Leu Ile Phe Ala Asn Lys Gln Asp
        115                 120                 125

Met Lys Gly Cys Met Thr Ala Ala Glu Ile Ser Lys Tyr Leu Thr Leu
    130                 135                 140

Ser Ser Ile Lys Asp His Pro Trp His Ile Gln Ser Cys Cys Ala Leu
145                 150                 155                 160

Thr Gly Glu Gly Leu Cys Gln Gly Leu Glu Trp Met Thr Ser Arg Ile
                165                 170                 175

Gly Val Arg


<210> 3386
<211> 179
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 749; "

<220>
<221> source
<223> /note="Gene Symbol: ARL5C; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID:  A6NH57; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000269586"

<400> 3386
Met Gly Gln Leu Ile Ala Lys Leu Met Ser Ile Phe Gly Asn Gln Glu
1               5                   10                  15
```

```
His Thr Val Ile Ile Val Gly Leu Asp Asn Glu Gly Lys Thr Thr Ile
            20                  25                  30

Leu Tyr Arg Phe Leu Thr Asn Glu Val Val His Met Cys Pro Thr Ile
        35                  40                  45

Gly Ser Asn Val Glu Glu Ile Ile Leu Pro Lys Thr His Phe Phe Met
    50                  55                  60

Trp Asp Ile Val Arg Pro Glu Ala Leu Ser Phe Ile Trp Asn Thr Tyr
65                  70                  75                  80

Tyr Ser Asn Thr Glu Phe Ile Ile Leu Val Ile Asp Ser Thr Asp Arg
                85                  90                  95

Asp Arg Leu Leu Thr Thr Arg Glu Glu Leu Tyr Lys Met Leu Ala His
            100                 105                 110

Glu Ala Leu Gln Asp Ala Ser Val Leu Ile Phe Ala Asn Lys Gln Asp
        115                 120                 125

Val Lys Asp Ser Met Arg Met Val Glu Ile Ser His Phe Leu Thr Leu
    130                 135                 140

Ser Thr Ile Lys Asp His Ser Trp His Ile Gln Gly Cys Cys Ala Leu
145                 150                 155                 160

Thr Arg Glu Gly Leu Pro Ala Arg Leu Gln Trp Met Glu Ser Gln Ala
                165                 170                 175

Ala Ala Asn
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<210> 3387
<211> 99
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 749; "

<220>
<221> source
<223> /note="Gene Symbol: ARL5C; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 5C; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466347"

<400> 3387
Asn Thr Tyr Tyr Ser Asn Thr Glu Phe Ile Ile Leu Val Ile Asp Ser
1 5 10 15

Thr Asp Arg Asp Arg Leu Leu Thr Thr Arg Glu Glu Leu Tyr Lys Met
20 25 30

Leu Ala His Glu Ala Leu Gln Asp Ala Ser Val Leu Ile Phe Ala Asn
35 40 45

Lys Gln Asp Val Lys Asp Ser Met Arg Met Val Glu Ile Ser His Phe
50 55 60

Leu Thr Leu Ser Thr Ile Lys Asp His Ser Trp His Ile Gln Gly Cys
65 70 75 80

Cys Ala Leu Thr Arg Glu Gly Leu Val Ala Ala Leu Pro Gly Ser Leu
85 90 95

Gly Pro Gly

<210> 3388
<211> 186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 750; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 6; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H0F7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000337722"

<400> 3388
Met Gly Leu Leu Asp Arg Leu Ser Val Leu Leu Gly Leu Lys Lys Lys
1   5   10   15

Glu Val His Val Leu Cys Leu Gly Leu Asp Asn Ser Gly Lys Thr Thr
            20   25   30

Ile Ile Asn Lys Leu Lys Pro Ser Asn Ala Gln Ser Gln Asn Ile Leu
        35   40   45

Pro Thr Ile Gly Phe Ser Ile Glu Lys Phe Lys Ser Ser Ser Leu Ser
    50   55   60

Phe Thr Val Phe Asp Met Ser Gly Gln Gly Arg Tyr Arg Asn Leu Trp
65   70   75   80

Glu His Tyr Tyr Lys Glu Gly Gln Ala Ile Ile Phe Val Ile Asp Ser
                85   90   95

Ser Asp Arg Leu Arg Met Val Val Ala Lys Glu Glu Leu Asp Thr Leu
            100   105   110

Leu Asn His Pro Asp Ile Lys His Arg Arg Ile Pro Ile Leu Phe Phe
        115   120   125

Ala Asn Lys Met Asp Leu Arg Asp Ala Val Thr Ser Val Lys Val Ser
    130   135   140

Gln Leu Leu Cys Leu Glu Asn Ile Lys Asp Lys Pro Trp His Ile Cys
145   150   155   160

Ala Ser Asp Ala Ile Lys Gly Glu Gly Leu Gln Glu Gly Val Asp Trp
                165   170   175

Leu Gln Asp Gln Ile Gln Thr Val Lys Thr
            180   185

<210> 3389
<211> 186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 750; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 6; "

<220>
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<223> /note="Uniprot ID: Q9H0F7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377756"

<400> 3389
Met Gly Leu Leu Asp Arg Leu Ser Val Leu Leu Gly Leu Lys Lys Lys
1   5   10   15

Glu Val His Val Leu Cys Leu Gly Leu Asp Asn Ser Gly Lys Thr Thr
            20   25   30

Ile Ile Asn Lys Leu Lys Pro Ser Asn Ala Gln Ser Gln Asn Ile Leu
        35   40   45

Pro Thr Ile Gly Phe Ser Ile Glu Lys Phe Lys Ser Ser Ser Leu Ser
    50   55   60

Phe Thr Val Phe Asp Met Ser Gly Gln Gly Arg Tyr Arg Asn Leu Trp
65   70   75   80

Glu His Tyr Tyr Lys Glu Gly Gln Ala Ile Ile Phe Val Ile Asp Ser
                85   90   95

Ser Asp Arg Leu Arg Met Val Val Ala Lys Glu Glu Leu Asp Thr Leu
            100   105   110

Leu Asn His Pro Asp Ile Lys His Arg Arg Ile Pro Ile Leu Phe Phe
        115   120   125

```
Ala Asn Lys Met Asp Leu Arg Asp Ala Val Thr Ser Val Lys Val Ser
    130                 135                 140

Gln Leu Leu Cys Leu Glu Asn Ile Lys Asp Lys Pro Trp His Ile Cys
145                 150                 155                 160

Ala Ser Asp Ala Ile Lys Gly Glu Gly Leu Gln Glu Gly Val Asp Trp
                165                 170                 175

Leu Gln Asp Gln Ile Gln Thr Val Lys Thr
            180                 185


<210> 3390
<211> 186
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 750; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation factor-like 6; "

<220>
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<223> /note="Uniprot ID:  Q9H0F7; "

<220>
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<223> /note="ENSP ID: ENSP00000418057"

<400> 3390
Met Gly Leu Leu Asp Arg Leu Ser Val Leu Leu Gly Leu Lys Lys Lys
1               5                   10                  15

Glu Val His Val Leu Cys Leu Gly Leu Asp Asn Ser Gly Lys Thr Thr
            20                  25                  30

Ile Ile Asn Lys Leu Lys Pro Ser Asn Ala Gln Ser Gln Asn Ile Leu
        35                  40                  45
```

```
Pro Thr Ile Gly Phe Ser Ile Glu Lys Phe Lys Ser Ser Ser Leu Ser
    50                  55                  60

Phe Thr Val Phe Asp Met Ser Gly Gln Gly Arg Tyr Arg Asn Leu Trp
65                  70                  75                  80

Glu His Tyr Tyr Lys Glu Gly Gln Ala Ile Ile Phe Val Ile Asp Ser
                85                  90                  95

Ser Asp Arg Leu Arg Met Val Val Ala Lys Glu Glu Leu Asp Thr Leu
            100                 105                 110

Leu Asn His Pro Asp Ile Lys His Arg Arg Ile Pro Ile Leu Phe Phe
        115                 120                 125

Ala Asn Lys Met Asp Leu Arg Asp Ala Val Thr Ser Val Lys Val Ser
    130                 135                 140

Gln Leu Leu Cys Leu Glu Asn Ile Lys Asp Lys Pro Trp His Ile Cys
145                 150                 155                 160

Ala Ser Asp Ala Ile Lys Gly Glu Gly Leu Gln Glu Gly Val Asp Trp
                165                 170                 175

Leu Gln Asp Gln Ile Gln Thr Val Lys Thr
            180                 185


<210> 3391
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 750; "

<220>
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<223> /note="Gene Symbol: ARL6; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation factor-like 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418740"
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<400> 3391
Met Gly Leu Leu Asp Arg Leu Ser Val Leu Leu Gly Leu Lys Lys Lys
1   5   10   15

Glu Val His Val Leu Cys Leu Gly Leu Asp Asn Ser Gly Lys Thr Thr
            20   25   30

Ile Ile Asn Lys Leu Lys Pro Ser Asn Ala Gln Ser Gln Asn Ile Leu
        35   40   45

Pro Thr Ile Gly Phe Ser Ile Glu Lys Phe Lys Ser Ser Ser Leu Ser
    50   55   60

Phe Thr Val Phe Asp Met Ser Gly Gln Gly Arg Tyr Arg Asn Leu Trp
65   70   75   80

Glu His Tyr Tyr Lys Glu Gly Gln Ala Ile Ile Phe Val Ile Asp Ser
                85   90   95

Ser Asp Arg Leu Arg Met Val Val Ala Lys Glu Glu Leu Asp Thr Leu
            100   105   110

Leu Asn His Pro Asp Ile Lys His Arg
        115   120

<210> 3392
<211> 186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 750; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 6; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H0F7; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000419619"

<400> 3392
Met Gly Leu Leu Asp Arg Leu Ser Val Leu Leu Gly Leu Lys Lys Lys
1 5 10 15

Glu Val His Val Leu Cys Leu Gly Leu Asp Asn Ser Gly Lys Thr Thr
20 25 30

Ile Ile Asn Lys Leu Lys Pro Ser Asn Ala Gln Ser Gln Asn Ile Leu
35 40 45

Pro Thr Ile Gly Phe Ser Ile Glu Lys Phe Lys Ser Ser Ser Leu Ser
50 55 60

Phe Thr Val Phe Asp Met Ser Gly Gln Gly Arg Tyr Arg Asn Leu Trp
65 70 75 80

Glu His Tyr Tyr Lys Glu Gly Gln Ala Ile Ile Phe Val Ile Asp Ser
85 90 95

Ser Asp Arg Leu Arg Met Val Val Ala Lys Glu Glu Leu Asp Thr Leu
100 105 110

Leu Asn His Pro Asp Ile Lys His Arg Arg Ile Pro Ile Leu Phe Phe
115 120 125

Ala Asn Lys Met Asp Leu Arg Asp Ala Val Thr Ser Val Lys Val Ser
130 135 140

Gln Leu Leu Cys Leu Glu Asn Ile Lys Asp Lys Pro Trp His Ile Cys
145 150 155 160

Ala Ser Asp Ala Ile Lys Gly Glu Gly Leu Gln Glu Gly Val Asp Trp
165 170 175

Leu Gln Asp Gln Ile Gln Thr Val Lys Thr
180 185

<210> 3393
<211> 54
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 750; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419934"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3393
Xaa Glu Glu Leu Asp Thr Leu Leu Asn His Pro Asp Ile Lys His Arg
1 5 10 15

Arg Ile Pro Ile Leu Phe Phe Ala Asn Lys Met Asp Leu Arg Asp Ala
20 25 30

Val Thr Ser Val Lys Val Ser Gln Leu Leu Cys Leu Glu Asn Ile Lys
35 40 45

Asp Lys Pro Trp His Ile
50

<210> 3394
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 750; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488530"

<400> 3394
Ile Leu Pro Thr Ile Gly Phe Ser Ile Glu Lys Phe Lys Ser Ser Ser
1   5   10   15

Leu Ser Phe Thr Val Phe Asp Met Ser Gly Gln Gly Arg Tyr Arg Asn
            20   25   30

Leu Trp Glu His Tyr Tyr Lys Glu Gly Gln Ala Ile Ile Phe Val Ile
        35   40   45

Asp Ser Ser Asp Arg Leu Arg Met Val Val Ala Lys Glu Glu Leu Asp
    50   55   60

Thr Leu Leu Asn His Pro Asp Ile Lys His Arg Arg Ile Pro Ile Leu
65   70   75   80

Phe Phe Ala Asn Lys Met Asp Leu Arg Asp Ala Val Thr Ser Val Lys
                85   90   95

Val Ser Gln Leu Leu Cys Leu Glu Asn Ile Lys Asp Lys Pro Trp His
            100   105   110

Ile Cys Ala Ser Asp Ala Ile Lys Gly Glu Gly Leu Gln Glu Gly Val
        115   120   125

Asp Trp Leu Gln Glu Lys Thr Ile Gln Ser Asp Pro Asp Cys Glu Asp
    130   135   140

Met Lys Arg
145

<210> 3395
<211> 203
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 751; "

<220>
<221> source

<223> /note="Gene Symbol: ARL6IP1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 6
interacting prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q15041; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000306788"

<400> 3395

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Met Ala Glu Gly Asp Asn Arg Ser Thr Asn Leu Leu Ala Ala Glu Thr
1               5                  10                  15


Ala Ser Leu Glu Glu Gln Leu Gln Gly Trp Gly Glu Val Met Leu Met
            20                  25                  30


Ala Asp Lys Val Leu Arg Trp Glu Arg Ala Trp Phe Pro Pro Ala Ile
        35                  40                  45


Met Gly Val Val Ser Leu Val Phe Leu Ile Ile Tyr Tyr Leu Asp Pro
    50                  55                  60


Ser Val Leu Ser Gly Val Ser Cys Phe Val Met Phe Leu Cys Leu Ala
65                  70                  75                  80


Asp Tyr Leu Val Pro Ile Leu Ala Pro Arg Ile Phe Gly Ser Asn Lys
                85                  90                  95


Trp Thr Thr Glu Gln Gln Gln Arg Phe His Glu Ile Cys Ser Asn Leu
            100                 105                 110


Val Lys Thr Arg Arg Arg Ala Val Gly Trp Trp Lys Arg Leu Phe Thr
        115                 120                 125


Leu Lys Glu Glu Lys Pro Lys Met Tyr Phe Met Thr Met Ile Val Ser
    130                 135                 140


Leu Ala Ala Val Ala Trp Val Gly Gln Gln Val His Asn Leu Leu Leu
145                 150                 155                 160
```

```
Thr Tyr Leu Ile Val Thr Ser Leu Leu Leu Leu Pro Gly Leu Asn Gln
                165                 170                 175


His Gly Ile Ile Leu Lys Tyr Ile Gly Met Ala Lys Arg Glu Ile Asn
            180                 185                 190


Lys Leu Leu Lys Gln Lys Glu Lys Lys Asn Glu
        195                 200


<210> 3396
<211> 174
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ARL6IP1; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation factor-like 6
      interacting prt 1; "

<220>
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<223> /note="Uniprot ID:  Q15041; "

<220>
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<223> /note="ENSP ID: ENSP00000440048"

<400> 3396
Met Leu Met Ala Asp Lys Val Leu Arg Trp Glu Arg Ala Trp Phe Pro
1               5                   10                  15


Pro Ala Ile Met Gly Val Val Ser Leu Val Phe Leu Ile Ile Tyr Tyr
            20                  25                  30


Leu Asp Pro Ser Val Leu Ser Gly Val Ser Cys Phe Val Met Phe Leu
        35                  40                  45


Cys Leu Ala Asp Tyr Leu Val Pro Ile Leu Ala Pro Arg Ile Phe Gly
    50                  55                  60


Ser Asn Lys Trp Thr Thr Glu Gln Gln Gln Arg Phe His Glu Ile Cys
```

65 70 75 80

Ser Asn Leu Val Lys Thr Arg Arg Ala Val Gly Trp Trp Lys Arg
85 90 95

Leu Phe Thr Leu Lys Glu Glu Lys Pro Lys Met Tyr Phe Met Thr Met
100 105 110

Ile Val Ser Leu Ala Ala Val Ala Trp Val Gly Gln Gln Val His Asn
115 120 125

Leu Leu Leu Thr Tyr Leu Ile Val Thr Ser Leu Leu Leu Leu Pro Gly
130 135 140

Leu Asn Gln His Gly Ile Ile Leu Lys Tyr Ile Gly Met Ala Lys Arg
145 150 155 160

Glu Ile Asn Lys Leu Leu Lys Gln Lys Glu Lys Lys Asn Glu
165 170

<210> 3397
<211> 101
<212> PRT
<213> Homo sapiens

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<220>
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interacting prt 1; "

<220>
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<400> 3397
Met Ala Glu Gly Asp Asn Arg Ser Thr Asn Leu Leu Ala Ala Glu Thr
1 5 10 15

Ala Ser Leu Glu Glu Gln Leu Gln Gly Trp Gly Glu Val Met Leu Met
20 25 30

```
Ala Asp Lys Val Leu Arg Trp Glu Arg Ala Trp Phe Pro Pro Ala Ile
        35                  40                  45

Met Ala Pro Arg Ile Phe Gly Ser Asn Lys Trp Thr Thr Glu Gln Gln
    50                  55                  60

Gln Arg Phe His Glu Ile Cys Ser Asn Leu Val Lys Thr Arg Arg Arg
65                  70                  75                  80

Ala Val Gly Trp Trp Lys Arg Leu Phe Thr Leu Lys Glu Glu Lys Pro
                85                  90                  95

Lys Met Tyr Phe Met
            100


<210> 3398
<211> 99
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      interacting prt 1; "

<220>
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<400> 3398
Met Ala Glu Gly Asp Asn Arg Ser Thr Asn Leu Leu Ala Ala Glu Thr
1               5                   10                  15

Ala Ser Leu Glu Glu Gln Leu Gln Gly Trp Gly Glu Val Met Leu Met
            20                  25                  30

Ala Asp Lys Val Leu Arg Trp Glu Arg Ala Trp Phe Pro Pro Ala Ile
        35                  40                  45
```

```
Met Gly Val Val Ser Leu Val Phe Leu Ile Ile Tyr Tyr Leu Asp Pro
    50                  55                  60

Ser Val Leu Ser Gly Val Ser Cys Phe Val Met Phe Leu Cys Leu Ala
65                  70                  75                  80

Asp Tyr Leu Val Pro Ile Leu Ala Pro Arg Ile Phe Gly Ser Asn Lys
                85                  90                  95

Cys Thr Ser
```

<210> 3399
<211> 88
<212> PRT
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<220>
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interacting prt 1; "

<220>
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<223> /note="ENSP ID: ENSP00000457372"

<400> 3399

```
Met Ala Glu Gly Asp Asn Arg Ser Thr Asn Leu Leu Ala Ala Glu Thr
1               5                   10                  15

Ala Ser Leu Glu Glu Gln Leu Gln Gly Trp Gly Glu Val Met Leu Met
            20                  25                  30

Ala Asp Lys Val Leu Arg Trp Glu Arg Ala Trp Phe Pro Pro Ala Ile
        35                  40                  45

Met Val Thr Ser Leu Leu Leu Leu Pro Gly Leu Asn Gln His Gly Ile
    50                  55                  60
```

```
Ile Leu Lys Tyr Ile Gly Met Ala Lys Arg Glu Ile Asn Lys Leu Leu
65                  70                  75                  80


Lys Gln Lys Glu Lys Lys Asn Glu
                85


<210> 3400
<211> 421
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 752; "

<220>
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<223> /note="Gene Symbol: ARL6IP4; "

<220>
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<223> /note="Gene Name:
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      interacting
      prt 4; "

<220>
<221> source
<223> /note="Uniprot ID:  Q66PJ3; "

<220>
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<223> /note="ENSP ID: ENSP00000313422"

<400> 3400
Met Pro Arg Cys Thr Tyr Gln Leu Glu Gln Asn Pro Gly Phe Leu Pro
1               5                   10                  15


Asp Gly Pro Gly Val His Ala Arg Ala His Cys Gln Asp Leu Ser Gly
            20                  25                  30


Pro Tyr Gly His Glu Phe Ala Thr Ser Glu Ser Leu Gly Gly Arg Val
        35                  40                  45


Gly Lys Thr Arg Ala Pro Gln Ser Gly Ala Arg Ser Arg Met Glu Arg
    50                  55                  60


Ala Gly Pro Ala Gly Glu Glu Gly Gly Ala Arg Glu Gly Arg Leu Leu
65                  70                  75                  80
```

```
Pro Arg Ala Pro Gly Ala Trp Val Leu Arg Ala Cys Ala Glu Arg Ala
                85                  90                  95

Ala Leu Glu Val Gly Ala Ala Ser Ala Asp Thr Gly Val Arg Gly Cys
            100                 105                 110

Gly Ala Arg Gly Pro Ala Pro Leu Leu Ala Ser Ala Gly Gly Gly Arg
        115                 120                 125

Ala Arg Asp Gly Thr Trp Gly Val Arg Thr Lys Gly Ser Gly Ala Ala
    130                 135                 140

Leu Pro Ser Arg Pro Ala Ser Arg Ala Ala Pro Arg Pro Glu Ala Ser
145                 150                 155                 160

Ser Pro Pro Leu Pro Leu Glu Lys Ala Arg Gly Gly Leu Ser Gly Pro
                165                 170                 175

Gln Gly Gly Arg Ala Arg Gly Ala Met Ala His Val Gly Ser Arg Lys
            180                 185                 190

Arg Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser Glu Lys Arg
        195                 200                 205

Lys Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser Ala Ser Thr
    210                 215                 220

Ser Gln Gly Arg Lys Ala Ser Thr Ala Pro Gly Ala Glu Ala Ser Pro
225                 230                 235                 240

Ser Pro Cys Ile Thr Glu Arg Ser Lys Gln Lys Ala Arg Arg Arg Thr
                245                 250                 255

Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
            260                 265                 270

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Gly Arg Lys Lys Arg
        275                 280                 285

Gly Lys Tyr Lys Asp Lys Arg Arg Lys Lys Lys Lys Lys Arg Lys Lys
    290                 295                 300

Leu Lys Lys Lys Gly Lys Glu Lys Ala Glu Ala Gln Gln Val Glu Ala
```

```
305                 310                 315                 320

Leu Pro Gly Pro Ser Leu Asp Gln Trp His Arg Ser Ala Gly Glu Glu
                325                 330                 335

Glu Asp Gly Pro Val Leu Thr Asp Glu Gln Lys Ser Arg Ile Gln Ala
            340                 345                 350

Met Lys Pro Met Thr Lys Glu Glu Trp Asp Ala Arg Gln Ser Ile Ile
        355                 360                 365

Arg Lys Val Val Asp Pro Glu Thr Gly Arg Thr Arg Leu Ile Lys Gly
    370                 375                 380

Asp Gly Glu Val Leu Glu Glu Ile Val Thr Lys Glu Arg His Arg Glu
385                 390                 395                 400

Ile Asn Lys Gln Ala Thr Arg Gly Asp Cys Leu Ala Phe Gln Met Arg
                405                 410                 415

Ala Gly Leu Leu Pro
            420


<210> 3401
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 752; "

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<220>
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      interacting
      prt 4; "

<220>
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<223> /note="ENSP ID: ENSP00000350532"

<400> 3401
Met Ala His Val Gly Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser
```

```
1               5                   10                  15

Arg Gly Arg Gly Ser Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr
            20                  25                  30

Ser Arg Asn Cys Ser Ala Ser Thr Ser Gln Gly Arg Lys Ala Ser Thr
        35                  40                  45

Ala Pro Gly Ala Glu Glu Arg Ser Lys Gln Lys Ala Arg Arg Arg Thr
    50                  55                  60

Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
65                  70                  75                  80

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Gly Arg Lys Lys Arg
                85                  90                  95

Gly Lys Tyr Lys Asp Lys Arg Arg Lys Lys Lys Lys Lys Arg Lys Lys
            100                 105                 110

Leu Lys Lys Lys Gly Lys Glu Lys Ala Glu Ala Gln Gln Ser Ile Ile
        115                 120                 125

Arg Lys Val Val Asp Pro Glu Thr Gly Arg Thr Arg Leu Ile Lys Gly
    130                 135                 140

Asp Gly Glu Val Leu Glu Glu Ile Val Thr Lys Glu Arg His Arg Glu
145                 150                 155                 160

Ile Asn Lys Gln Ala Thr Arg Gly Asp Cys Leu Ala Phe Gln Met Arg
                165                 170                 175

Ala Gly Leu Leu Pro
            180


<210> 3402
<211> 399
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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ADP-ribosylation factor-like 6
interacting
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<221> source
<223> /note="Uniprot ID: Q66PJ3; "

<220>
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<223> /note="ENSP ID: ENSP00000376230"

<400> 3402

```
Met Pro Arg Cys Thr Tyr Gln Leu Glu Gln Asn Pro Gly Phe Leu Pro
1               5                  10                  15

Asp Gly Pro Gly Val His Ala Arg Ala His Cys Gln Asp Leu Ser Gly
            20                  25                  30

Pro Tyr Gly His Glu Phe Ala Thr Ser Glu Ser Leu Gly Gly Arg Val
        35                  40                  45

Gly Lys Thr Arg Ala Pro Gln Ser Gly Ala Arg Ser Arg Met Glu Arg
    50                  55                  60

Ala Gly Pro Ala Gly Glu Glu Gly Gly Ala Arg Glu Gly Arg Leu Leu
65                  70                  75                  80

Pro Arg Ala Pro Gly Ala Trp Val Leu Arg Ala Cys Ala Glu Arg Ala
                85                  90                  95

Ala Leu Glu Val Gly Ala Ala Ser Ala Asp Thr Gly Val Arg Gly Cys
            100                 105                 110

Gly Ala Arg Gly Pro Ala Pro Leu Leu Ala Ser Ala Gly Gly Gly Arg
        115                 120                 125

Ala Arg Asp Gly Thr Trp Gly Val Arg Thr Lys Gly Ser Gly Ala Ala
    130                 135                 140

Leu Pro Ser Arg Pro Ala Ser Arg Ala Ala Pro Arg Pro Glu Ala Ser
145                 150                 155                 160
```

```
Ser Pro Pro Leu Pro Leu Glu Lys Ala Arg Gly Gly Leu Ser Gly Pro
                165                 170                 175

Gln Gly Gly Arg Ala Arg Gly Ala Met Ala His Val Gly Ser Arg Lys
            180                 185                 190

Arg Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser Glu Lys Arg
        195                 200                 205

Lys Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser Ala Ser Thr
    210                 215                 220

Ser Gln Glu Arg Ser Lys Gln Lys Ala Arg Arg Arg Thr Arg Ser Ser
225                 230                 235                 240

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
                245                 250                 255

Ser Ser Ser Ser Ser Ser Ser Asp Gly Arg Lys Lys Arg Gly Lys Tyr
            260                 265                 270

Lys Asp Lys Arg Arg Lys Lys Lys Lys Lys Arg Lys Lys Leu Lys Lys
        275                 280                 285

Lys Gly Lys Glu Lys Ala Glu Ala Gln Gln Val Glu Ala Leu Pro Gly
    290                 295                 300

Pro Ser Leu Asp Gln Trp His Arg Ser Ala Gly Glu Glu Glu Asp Gly
305                 310                 315                 320

Pro Val Leu Thr Asp Glu Gln Lys Ser Arg Ile Gln Ala Met Lys Pro
                325                 330                 335

Met Thr Lys Glu Glu Trp Asp Ala Arg Gln Ser Ile Ile Arg Lys Val
            340                 345                 350

Val Asp Pro Glu Thr Gly Arg Thr Arg Leu Ile Lys Gly Asp Gly Glu
        355                 360                 365

Val Leu Glu Glu Ile Val Thr Lys Glu Arg His Arg Glu Ile Asn Lys
    370                 375                 380
```

```
Val Gly Val Ala Pro Leu Pro Ala Ile Arg Pro Gln Leu Cys Leu
385                 390                 395


<210> 3403
<211> 216
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
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      interacting
      prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391598"

<400> 3403
Ala Met Ala His Val Gly Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg
1               5                   10                  15


Ser Arg Gly Arg Gly Ser Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp
            20                  25                  30


Thr Ser Arg Asn Cys Ser Ala Ser Thr Ser Gln Glu Arg Ser Lys Gln
        35                  40                  45


Lys Ala Arg Arg Arg Thr Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser
    50                  55                  60


Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
65                  70                  75                  80


Asp Gly Arg Lys Lys Arg Gly Lys Tyr Lys Asp Lys Arg Arg Lys Lys
                85                  90                  95


Lys Lys Lys Arg Lys Lys Leu Lys Lys Lys Gly Lys Glu Lys Ala Glu
            100                 105                 110
```

```
Ala Gln Gln Val Glu Ala Leu Pro Gly Pro Ser Leu Asp Gln Trp His
        115                 120                 125

Arg Ser Ala Gly Glu Glu Glu Asp Gly Pro Val Leu Thr Asp Glu Gln
    130                 135                 140

Lys Ser Arg Ile Gln Ala Met Lys Pro Met Thr Lys Glu Glu Trp Asp
145                 150                 155                 160

Ala Arg Gln Ser Ile Ile Arg Lys Val Val Asp Pro Glu Thr Gly Arg
                165                 170                 175

Thr Arg Leu Ile Lys Gly Asp Gly Glu Val Leu Glu Glu Ile Val Thr
            180                 185                 190

Lys Glu Arg His Arg Glu Ile Asn Lys Val Gly Val Ala Pro Leu Pro
        195                 200                 205

Ala Ile Arg Pro Gln Leu Cys Leu
    210                 215


<210> 3404
<211> 229
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 752; "

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<223> /note="Gene Symbol: ARL6IP4; "

<220>
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      interacting
      prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396365"

<400> 3404
Met Ala His Val Gly Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser
1               5                   10                  15
```

```
Arg Gly Arg Gly Ser Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr
            20                  25                  30

Ser Arg Asn Cys Ser Ala Ser Thr Ser Gln Gly Arg Lys Ala Ser Thr
        35                  40                  45

Ala Pro Gly Ala Glu Glu Arg Ser Lys Gln Lys Ala Arg Arg Arg Thr
    50                  55                  60

Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
65                  70                  75                  80

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Gly Arg Lys Lys Arg
                85                  90                  95

Gly Lys Tyr Lys Asp Lys Arg Arg Lys Lys Lys Lys Lys Arg Lys Lys
            100                 105                 110

Leu Lys Lys Lys Gly Lys Glu Lys Ala Glu Ala Gln Gln Val Glu Ala
        115                 120                 125

Leu Pro Gly Pro Ser Leu Asp Gln Trp His Arg Ser Ala Gly Glu Glu
    130                 135                 140

Glu Asp Gly Pro Val Leu Thr Asp Glu Gln Lys Ser Arg Ile Gln Ala
145                 150                 155                 160

Met Lys Pro Met Thr Lys Glu Glu Trp Asp Ala Arg Gln Ser Ile Ile
                165                 170                 175

Arg Lys Val Val Asp Pro Glu Thr Gly Arg Thr Arg Leu Ile Lys Gly
            180                 185                 190

Asp Gly Glu Val Leu Glu Glu Ile Val Thr Lys Glu Arg His Arg Glu
        195                 200                 205

Ile Asn Lys Gln Ala Thr Arg Gly Asp Cys Leu Ala Phe Gln Met Arg
    210                 215                 220

Ala Gly Leu Leu Pro
225
```

<210> 3405
<211> 226
<212> PRT
<213> Homo sapiens

<220>
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interacting
prt 4; "

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<223> /note="Uniprot ID: Q66PJ3; "

<220>
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<223> /note="ENSP ID: ENSP00000396723"

<400> 3405
Met Ala His Val Gly Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser
1   5   10   15

Arg Gly Arg Gly Ser Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr
            20   25   30

Ser Arg Asn Cys Ser Ala Ser Thr Ser Gln Ala Ser Pro Ser Pro Cys
        35   40   45

Ile Thr Glu Arg Ser Lys Gln Lys Ala Arg Arg Arg Thr Arg Ser Ser
    50   55   60

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
65   70   75   80

Ser Ser Ser Ser Ser Ser Ser Asp Gly Arg Lys Lys Arg Gly Lys Tyr
                85   90   95

Lys Asp Lys Arg Arg Lys Lys Lys Lys Lys Arg Lys Lys Leu Lys Lys
            100   105   110

```
Lys Gly Lys Glu Lys Ala Glu Ala Gln Gln Val Glu Ala Leu Pro Gly
        115                 120                 125

Pro Ser Leu Asp Gln Trp His Arg Ser Ala Gly Glu Glu Glu Asp Gly
    130                 135                 140

Pro Val Leu Thr Asp Glu Gln Lys Ser Arg Ile Gln Ala Met Lys Pro
145                 150                 155                 160

Met Thr Lys Glu Glu Trp Asp Ala Arg Gln Ser Ile Ile Arg Lys Val
                165                 170                 175

Val Asp Pro Glu Thr Gly Arg Thr Arg Leu Ile Lys Gly Asp Gly Glu
            180                 185                 190

Val Leu Glu Glu Ile Val Thr Lys Glu Arg His Arg Glu Ile Asn Lys
        195                 200                 205

Gln Ala Thr Arg Gly Asp Cys Leu Ala Phe Gln Met Arg Ala Gly Leu
    210                 215                 220

Leu Pro
225


<210> 3406
<211> 218
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      interacting
      prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406036"

<400> 3406
```

Met Ala His Val Gly Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser
1 5 10 15

Arg Gly Arg Gly Ser Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr
20 25 30

Ser Arg Asn Cys Ser Ala Ser Thr Ser Gln Glu Arg Ser Lys Gln Lys
35 40 45

Ala Arg Arg Arg Thr Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
50 55 60

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp
65 70 75 80

Gly Arg Lys Lys Arg Gly Lys Tyr Lys Asp Lys Arg Arg Lys Lys Lys
85 90 95

Lys Lys Arg Lys Lys Leu Lys Lys Lys Gly Lys Glu Lys Ala Glu Ala
100 105 110

Gln Gln Val Glu Ala Leu Pro Gly Pro Ser Leu Asp Gln Trp His Arg
115 120 125

Ser Ala Gly Glu Glu Glu Asp Gly Pro Val Leu Thr Asp Glu Gln Lys
130 135 140

Ser Arg Ile Gln Ala Met Lys Pro Met Thr Lys Glu Glu Trp Asp Ala
145 150 155 160

Arg Gln Ser Ile Ile Arg Lys Val Val Asp Pro Glu Thr Gly Arg Thr
165 170 175

Arg Leu Ile Lys Gly Asp Gly Glu Val Leu Glu Glu Ile Val Thr Lys
180 185 190

Glu Arg His Arg Glu Ile Asn Lys Gln Ala Thr Arg Gly Asp Cys Leu
195 200 205

Ala Phe Gln Met Arg Ala Gly Leu Leu Pro
210 215

<210> 3407

<211> 170
<212> PRT
<213> Homo sapiens

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interacting
prt 4; "

<220>
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<223> /note="ENSP ID: ENSP00000413132"

<400> 3407
Met Ala His Val Gly Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser
1 5 10 15

Arg Gly Arg Gly Ser Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr
20 25 30

Ser Arg Asn Cys Ser Ala Ser Thr Ser Gln Glu Arg Ser Lys Gln Lys
35 40 45

Ala Arg Arg Arg Thr Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
50 55 60

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp
65 70 75 80

Gly Arg Lys Lys Arg Gly Lys Tyr Lys Asp Lys Arg Arg Lys Lys Lys
85 90 95

Lys Lys Arg Lys Lys Leu Lys Lys Lys Gly Lys Glu Lys Ala Glu Ala
100 105 110

Gln Gln Ser Ile Ile Arg Lys Val Val Asp Pro Glu Thr Gly Arg Thr
115 120 125

Arg Leu Ile Lys Gly Asp Gly Glu Val Leu Glu Glu Ile Val Thr Lys

```
    130                 135                 140

Glu Arg His Arg Glu Ile Asn Lys Gln Ala Thr Arg Gly Asp Cys Leu
145                 150                 155                 160

Ala Phe Gln Met Arg Ala Gly Leu Leu Pro
                165                 170


<210> 3408
<211> 413
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
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      interacting
      prt 4; "

<220>
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<223> /note="Uniprot ID:  Q66PJ3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414847"

<400> 3408
Met Pro Arg Cys Thr Tyr Gln Leu Glu Gln Asn Pro Gly Phe Leu Pro
1               5                   10                  15

Asp Gly Pro Gly Val His Ala Arg Ala His Cys Gln Asp Leu Ser Gly
            20                  25                  30

Pro Tyr Gly His Glu Phe Ala Thr Ser Glu Ser Leu Gly Gly Arg Val
        35                  40                  45

Gly Lys Thr Arg Ala Pro Gln Ser Gly Ala Arg Ser Arg Met Glu Arg
    50                  55                  60

Ala Gly Pro Ala Gly Glu Glu Gly Gly Ala Arg Glu Gly Arg Leu Leu
```

65 70 75 80

Pro Arg Ala Pro Gly Ala Trp Val Leu Arg Ala Cys Ala Glu Arg Ala
85 90 95

Ala Leu Glu Val Gly Ala Ala Ser Ala Asp Thr Gly Val Arg Gly Cys
100 105 110

Gly Ala Arg Gly Pro Ala Pro Leu Leu Ala Ser Ala Gly Gly Gly Arg
115 120 125

Ala Arg Asp Gly Thr Trp Gly Val Arg Thr Lys Gly Ser Gly Ala Ala
130 135 140

Leu Pro Ser Arg Pro Ala Ser Arg Ala Ala Pro Arg Pro Glu Ala Ser
145 150 155 160

Ser Pro Pro Leu Pro Leu Glu Lys Ala Arg Gly Gly Leu Ser Gly Pro
165 170 175

Gln Gly Gly Arg Ala Arg Gly Ala Met Ala His Val Gly Ser Arg Lys
180 185 190

Arg Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser Glu Lys Arg
195 200 205

Lys Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser Ala Ser Thr
210 215 220

Ser Gln Gly Arg Lys Ala Ser Thr Ala Pro Gly Ala Glu Glu Arg Ser
225 230 235 240

Lys Gln Lys Ala Arg Arg Arg Thr Arg Ser Ser Ser Ser Ser Ser Ser
245 250 255

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
260 265 270

Ser Ser Asp Gly Arg Lys Lys Arg Gly Lys Tyr Lys Asp Lys Arg Arg
275 280 285

Lys Lys Lys Lys Lys Arg Lys Lys Leu Lys Lys Lys Gly Lys Glu Lys
290 295 300

```
Ala Glu Ala Gln Gln Val Glu Ala Leu Pro Gly Pro Ser Leu Asp Gln
305                 310                 315                 320

Trp His Arg Ser Ala Gly Glu Glu Glu Asp Gly Pro Val Leu Thr Asp
                325                 330                 335

Glu Gln Lys Ser Arg Ile Gln Ala Met Lys Pro Met Thr Lys Glu Glu
            340                 345                 350

Trp Asp Ala Arg Gln Ser Ile Ile Arg Lys Val Val Asp Pro Glu Thr
        355                 360                 365

Gly Arg Thr Arg Leu Ile Lys Gly Asp Gly Glu Val Leu Glu Glu Ile
    370                 375                 380

Val Thr Lys Glu Arg His Arg Glu Ile Asn Lys Gln Ala Thr Arg Gly
385                 390                 395                 400

Asp Cys Leu Ala Phe Gln Met Arg Ala Gly Leu Leu Pro
                405                 410
```

<210> 3409
<211> 215
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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ADP-ribosylation factor-like 6
interacting
prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438969"

<400> 3409

```
Met Glu Arg Ala Gly Pro Ala Gly Glu Glu Gly Gly Ala Arg Glu Gly
1               5                   10                  15
```

```
Arg Leu Leu Pro Arg Ala Pro Gly Ala Trp Val Leu Arg Ala Cys Ala
            20                  25                  30

Glu Arg Ala Ala Leu Glu Val Gly Ala Ala Ser Ala Asp Thr Gly Val
        35                  40                  45

Arg Gly Cys Gly Ala Arg Gly Pro Ala Pro Leu Leu Ala Ser Ala Gly
    50                  55                  60

Gly Gly Arg Ala Arg Asp Gly Thr Trp Gly Val Arg Thr Lys Gly Ser
65                  70                  75                  80

Gly Ala Ala Leu Pro Ser Arg Pro Ala Ser Arg Ala Ala Pro Arg Pro
                85                  90                  95

Glu Ala Ser Ser Pro Pro Leu Pro Leu Glu Lys Ala Arg Gly Gly Leu
            100                 105                 110

Ser Gly Pro Gln Gly Gly Arg Ala Arg Gly Ala Met Ala His Val Gly
        115                 120                 125

Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser
    130                 135                 140

Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser
145                 150                 155                 160

Ala Ser Thr Ser Gln Gly Arg Lys Ala Ser Thr Ala Pro Gly Ala Glu
                165                 170                 175

Val Leu Leu Ala Pro Leu Leu Pro Pro Arg Pro Pro Pro Leu Pro Pro
            180                 185                 190

Val Met Ala Gly Arg Ser Gly Gly Ser Thr Arg Thr Arg Gly Gly Arg
        195                 200                 205

Arg Arg Arg Arg Gly Arg Ser
    210                 215
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<210> 3410
<211> 211
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ARL6IP4; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 6
interacting
prt 4; "

<220>
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<223> /note="ENSP ID: ENSP00000441406"

<400> 3410

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Met Ala His Val Gly Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser
1               5                   10                  15


Arg Gly Arg Gly Ser Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr
            20                  25                  30


Ser Arg Asn Cys Ser Ala Ser Thr Ser Gln Gly Arg Lys Ala Ser Thr
        35                  40                  45


Ala Pro Gly Ala Glu Glu Arg Ser Lys Gln Lys Ala Arg Arg Arg Thr
    50                  55                  60


Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
65                  70                  75                  80


Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Gly Arg Lys Lys Arg
                85                  90                  95


Gly Lys Tyr Lys Asp Lys Arg Arg Lys Lys Lys Lys Lys Arg Lys Lys
            100                 105                 110


Leu Lys Lys Lys Gly Lys Glu Lys Ala Glu Ala Gln Gln Val Glu Ala
        115                 120                 125


Leu Pro Gly Pro Ser Leu Asp Gln Trp His Arg Ser Ala Gly Glu Glu
    130                 135                 140
```

```
Glu Asp Gly Pro Val Leu Thr Asp Glu Gln Lys Ser Arg Ile Gln Ala
145                 150                 155                 160


Met Lys Pro Met Thr Lys Glu Glu Trp Asp Ala Arg Gln Ser Ile Ile
                165                 170                 175


Arg Lys Val Val Asp Pro Glu Thr Gly Arg Thr Arg Leu Ile Lys Gly
            180                 185                 190


Asp Gly Glu Val Leu Glu Glu Ile Val Thr Lys Glu Arg His Arg Glu
        195                 200                 205


Ile Asn Lys
    210


<210> 3411
<211> 307
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      interacting
      prt 4; "

<220>
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<400> 3411
Met Glu Arg Ala Gly Pro Ala Gly Glu Glu Gly Gly Ala Arg Glu Gly
1               5                   10                  15


Arg Leu Leu Pro Arg Ala Pro Gly Ala Trp Val Leu Arg Ala Cys Ala
            20                  25                  30


Glu Arg Ala Ala Leu Glu Val Gly Ala Ala Ser Ala Asp Thr Gly Val
        35                  40                  45
```

```
Arg Gly Cys Gly Ala Arg Gly Pro Ala Pro Leu Leu Ala Ser Ala Gly
    50                  55                  60

Gly Gly Arg Ala Arg Asp Gly Thr Trp Gly Val Arg Thr Lys Gly Ser
65                  70                  75                  80

Gly Ala Ala Leu Pro Ser Arg Pro Ala Ser Arg Ala Ala Pro Arg Pro
                85                  90                  95

Glu Ala Ser Ser Pro Pro Leu Pro Leu Glu Lys Ala Arg Gly Gly Leu
            100                 105                 110

Ser Gly Pro Gln Gly Gly Arg Ala Arg Gly Ala Met Ala His Val Gly
        115                 120                 125

Ser Arg Lys Arg Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser
    130                 135                 140

Glu Lys Arg Lys Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser
145                 150                 155                 160

Ala Ser Thr Ser Gln Ala Ser Pro Ser Pro Cys Ile Thr Glu Arg Ser
                165                 170                 175

Lys Gln Lys Ala Arg Arg Arg Thr Arg Ser Ser Ser Ser Ser Ser Ser
            180                 185                 190

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
        195                 200                 205

Ser Ser Asp Gly Arg Lys Lys Arg Gly Lys Tyr Lys Asp Lys Arg Arg
    210                 215                 220

Lys Lys Lys Lys Lys Arg Lys Lys Leu Lys Lys Lys Gly Lys Glu Lys
225                 230                 235                 240

Ala Glu Ala Gln Gln Val Glu Ala Leu Pro Gly Pro Ser Leu Asp Gln
                245                 250                 255

Trp His Arg Ser Ala Gly Glu Glu Glu Asp Gly Pro Val Leu Thr Asp
            260                 265                 270
```

Glu Gln Lys Ser Arg Ile Gln Ala Met Lys Pro Met Thr Lys Glu Glu
        275   280   285

Trp Asp Ala Arg Gln Ser Ile Ile Arg Lys Val Val Asp Pro Glu Thr
    290   295   300

Gly Arg Thr
305

<210> 3412
<211> 402
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
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      interacting
      prt 4; "

<220>
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<223> /note="Uniprot ID: Q66PJ3; "

<220>
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<223> /note="ENSP ID: ENSP00000442718"

<400> 3412
Met Pro Arg Cys Thr Tyr Gln Leu Glu Gln Asn Pro Gly Phe Leu Pro
1   5   10   15

Asp Gly Pro Gly Val His Ala Arg Ala His Cys Gln Asp Leu Ser Gly
            20   25   30

Pro Tyr Gly His Glu Phe Ala Thr Ser Glu Ser Leu Gly Gly Arg Val
        35   40   45

Gly Lys Thr Arg Ala Pro Gln Ser Gly Ala Arg Ser Arg Met Glu Arg
    50   55   60

```
Ala Gly Pro Ala Gly Glu Glu Gly Gly Ala Arg Glu Gly Arg Leu Leu
65                  70                  75                  80

Pro Arg Ala Pro Gly Ala Trp Val Leu Arg Ala Cys Ala Glu Arg Ala
                85                  90                  95

Ala Leu Glu Val Gly Ala Ala Ser Ala Asp Thr Gly Val Arg Gly Cys
            100                 105                 110

Gly Ala Arg Gly Pro Ala Pro Leu Leu Ala Ser Ala Gly Gly Gly Arg
        115                 120                 125

Ala Arg Asp Gly Thr Trp Gly Val Arg Thr Lys Gly Ser Gly Ala Ala
    130                 135                 140

Leu Pro Ser Arg Pro Ala Ser Arg Ala Ala Pro Arg Pro Glu Ala Ser
145                 150                 155                 160

Ser Pro Pro Leu Pro Leu Glu Lys Ala Arg Gly Gly Leu Ser Gly Pro
                165                 170                 175

Gln Gly Gly Arg Ala Arg Gly Ala Met Ala His Val Gly Ser Arg Lys
            180                 185                 190

Arg Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser Glu Lys Arg
        195                 200                 205

Lys Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser Ala Ser Thr
    210                 215                 220

Ser Gln Glu Arg Ser Lys Gln Lys Ala Arg Arg Arg Thr Arg Ser Ser
225                 230                 235                 240

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
                245                 250                 255

Ser Ser Ser Ser Ser Ser Ser Asp Gly Arg Lys Lys Arg Gly Lys Tyr
            260                 265                 270

Lys Asp Lys Arg Arg Lys Lys Lys Lys Lys Arg Lys Lys Leu Lys Lys
        275                 280                 285

Lys Gly Lys Glu Lys Ala Glu Ala Gln Gln Val Glu Ala Leu Pro Gly
```

```
    290                 295                 300

Pro Ser Leu Asp Gln Trp His Arg Ser Ala Gly Glu Glu Glu Asp Gly
305                 310                 315                 320

Pro Val Leu Thr Asp Glu Gln Lys Ser Arg Ile Gln Ala Met Lys Pro
                325                 330                 335

Met Thr Lys Glu Glu Trp Asp Ala Arg Gln Ser Ile Ile Arg Lys Val
            340                 345                 350

Val Asp Pro Glu Thr Gly Arg Thr Arg Leu Ile Lys Gly Asp Gly Glu
        355                 360                 365

Val Leu Glu Glu Ile Val Thr Lys Glu Arg His Arg Glu Ile Asn Lys
    370                 375                 380

Gln Ala Thr Arg Gly Asp Cys Leu Ala Phe Gln Met Arg Ala Gly Leu
385                 390                 395                 400

Leu Pro
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<210> 3413
<211> 188
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 753; "

<220>
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<223> /note="Gene Symbol: ARL6IP5; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 6
interacting
prt 5; "

<220>
<221> source
<223> /note="Uniprot ID: O75915; "

<220>
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<223> /note="ENSP ID: ENSP00000273258"

<400> 3413
Met Asp Val Asn Ile Ala Pro Leu Arg Ala Trp Asp Asp Phe Phe Pro
1 5 10 15

Gly Ser Asp Arg Phe Ala Arg Pro Asp Phe Arg Asp Ile Ser Lys Trp
20 25 30

Asn Asn Arg Val Val Ser Asn Leu Leu Tyr Tyr Gln Thr Asn Tyr Leu
35 40 45

Val Val Ala Ala Met Met Ile Ser Ile Val Gly Phe Leu Ser Pro Phe
50 55 60

Asn Met Ile Leu Gly Gly Ile Val Val Val Leu Val Phe Thr Gly Phe
65 70 75 80

Val Trp Ala Ala His Asn Lys Asp Val Leu Arg Arg Met Lys Lys Arg
85 90 95

Tyr Pro Thr Thr Phe Val Met Val Val Met Leu Ala Ser Tyr Phe Leu
100 105 110

Ile Ser Met Phe Gly Gly Val Met Val Phe Val Phe Gly Ile Thr Phe
115 120 125

Pro Leu Leu Leu Met Phe Ile His Ala Ser Leu Arg Leu Arg Asn Leu
130 135 140

Lys Asn Lys Leu Glu Asn Lys Met Glu Gly Ile Gly Leu Lys Arg Thr
145 150 155 160

Pro Met Gly Ile Val Leu Asp Ala Leu Glu Gln Gln Glu Glu Gly Ile
165 170 175

Asn Arg Leu Thr Asp Tyr Ile Ser Lys Val Lys Glu
180 185

<210> 3414
<211> 59
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 753; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6IP5; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 6
interacting
prt 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419021"

<400> 3414
Met Asp Val Asn Ile Ala Pro Leu Arg Ala Trp Asp Asp Phe Phe Pro
1 5 10 15

Gly Ser Asp Arg Phe Ala Arg Pro Asp Phe Arg Asp Ile Ser Lys Trp
20 25 30

Asn Asn Arg Val Val Ser Asn Leu Leu Tyr Tyr Gln Thr Asn Tyr Leu
35 40 45

Val Val Ala Ala Met Met Ile Ser Ile Val Gly
50 55

<210> 3415
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 753; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6IP5; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 6
interacting
prt 5; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000419374"

<400> 3415
Met Asp Val Asn Ile Ala Pro Leu Arg Ala Trp Asp Asp Phe Phe Pro
1   5   10   15

Gly Ser Asp Arg Phe Ala Arg Pro Asp Phe Arg Asp Ile Ser Lys Trp
            20   25   30

Asn Asn Arg Val Val Ser Asn Leu Leu Tyr Tyr Gln Thr Asn Tyr Leu
        35   40   45

Val Val Ala Ala Met Met Ile Ser Ile Val Gly Leu Glu Cys Asn Gly
    50   55   60

Val Ile Ser Ala His Cys Asn Leu His Leu Leu Ser Ser Ser Asp Ser
65   70   75   80

Pro Ala Ser Ala Ser Gln Val Ala Gly Ile Thr Gly Phe
                85   90

<210> 3416
<211> 88
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ARL6IP5; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 6
interacting
prt 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420138"

<400> 3416
Met Asp Val Asn Ile Ala Pro Leu Arg Ala Trp Asp Asp Phe Phe Pro
1   5   10   15

Gly Ser Asp Arg Phe Ala Arg Pro Asp Phe Arg Asp Ile Ser Lys Trp

```
            20                  25                  30

Asn Asn Arg Val Val Ser Asn Leu Leu Tyr Tyr Gln Thr Asn Tyr Leu
        35                  40                  45

Val Val Ala Ala Met Met Ile Ser Ile Val Gly Phe Leu Ser Pro Phe
    50                  55                  60

Asn Pro Pro Ile Val Ser Glu Val Ser Arg Val Phe Met Lys Ser Asn
65                  70                  75                  80

Gly Lys Trp Ile Thr Arg Phe Leu
                85


<210> 3417
<211> 226
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 754; "

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<221> source
<223> /note="Gene Symbol: ARL6IP6; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylation factor-like 6
      interacting
      prt 6; "

<220>
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<223> /note="Uniprot ID:  Q8N6S5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000315357"

<400> 3417
Met Ser Phe Ala Glu Ser Gly Trp Arg Ser Ala Leu Arg Arg Arg Gly
1               5                   10                  15

Pro Gly Thr Pro Gly Pro Val Ala Arg Pro Ser Tyr Ser Ser Phe Thr
            20                  25                  30

Gln Gly Asp Ser Trp Gly Glu Gly Glu Val Asp Glu Glu Glu Gly Cys
```

35 40 45

Asp Gln Val Ala Arg Asp Leu Arg Ala Glu Phe Ser Ala Gly Ala Trp
50 55 60

Ser Glu Pro Arg Lys Arg Ser Val Leu Pro Pro Asp Gly Asn Gly Ser
65 70 75 80

Pro Val Leu Pro Asp Lys Arg Asn Gly Ile Phe Pro Ala Ala Ala Gly
85 90 95

Ser Arg Ala Gln Pro Arg Arg Trp Pro Val Gln Val Leu Ser Ile Leu
100 105 110

Cys Ser Leu Leu Phe Ala Ile Leu Leu Ala Phe Leu Leu Ala Ile Ala
115 120 125

Tyr Leu Ile Val Lys Glu Leu His Ala Glu Asn Leu Lys Asn Glu Asp
130 135 140

Asp Val Asp Thr Gly Leu Leu Gly Phe Trp Thr Leu Leu Ile Ile Ser
145 150 155 160

Leu Thr Ala Gly Phe Ser Cys Cys Ser Phe Ser Trp Thr Val Thr Tyr
165 170 175

Phe Asp Ser Phe Glu Pro Gly Met Phe Pro Pro Thr Pro Leu Ser Pro
180 185 190

Ala Arg Phe Lys Lys Leu Thr Gly His Ser Phe His Met Gly Tyr Ser
195 200 205

Met Ala Ile Leu Asn Gly Ile Val Ala Ala Leu Thr Val Ala Trp Cys
210 215 220

Leu Met
225

<210> 3418
<211> 38
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 754; "

<220>
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<223> /note="Gene Symbol: ARL6IP6; "

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ADP-ribosylation factor-like 6
interacting
prt 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395052"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3418
Xaa Cys Ser Leu Leu Phe Ala Ile Leu Leu Ala Phe Leu Leu Ala Ile
1 5 10 15

Ala Tyr Leu Ile Val Lys Ala Phe Ser Gly Leu Gln Met Ala Trp His
20 25 30

Leu Lys Pro Tyr Asn Ala
35

<210> 3419
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 754; "

<220>
<221> source
<223> /note="Gene Symbol: ARL6IP6; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 6
interacting
prt 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399141"

<400> 3419
Ala Gln Pro Arg Arg Trp Pro Val Gln Val Leu Ser Ile Leu Cys Ser
1   5   10   15

Leu Leu Phe Ala Ile Leu Leu Ala Phe Leu Leu Ala Ile Ala Tyr Leu
            20   25   30

Ile Val Lys Glu Leu His Ala Glu Asn Leu Lys Asn Glu Asp Asp Val
        35   40   45

Asp Thr Gly Leu Leu Gly Ile Ile Cys Ile Ser Arg Lys Phe Ser Leu
    50   55   60

Met Leu
65

<210> 3420
<211> 186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 755; "

<220>
<221> source
<223> /note="Gene Symbol: ARL8A; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q96BM9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000272217"

<400> 3420
Met Ile Ala Leu Phe Asn Lys Leu Leu Asp Trp Phe Lys Ala Leu Phe
1   5   10   15

Trp Lys Glu Glu Met Glu Leu Thr Leu Val Gly Leu Gln Tyr Ser Gly

```
            20                  25                  30

Lys Thr Thr Phe Val Asn Val Ile Ala Ser Gly Gln Phe Asn Glu Asp
        35                  40                  45

Met Ile Pro Thr Val Gly Phe Asn Met Arg Lys Ile Thr Lys Gly Asn
    50                  55                  60

Val Thr Ile Lys Leu Trp Asp Ile Gly Gly Gln Pro Arg Phe Arg Ser
65                  70                  75                  80

Met Trp Glu Arg Tyr Cys Arg Gly Val Ser Ala Ile Val Tyr Met Val
                85                  90                  95

Asp Ala Ala Asp Gln Glu Lys Ile Glu Ala Ser Lys Asn Glu Leu His
            100                 105                 110

Asn Leu Leu Asp Lys Pro Gln Leu Gln Gly Ile Pro Val Leu Val Leu
        115                 120                 125

Gly Asn Lys Arg Asp Leu Pro Gly Ala Leu Asp Glu Lys Glu Leu Ile
    130                 135                 140

Glu Lys Met Asn Leu Ser Ala Ile Gln Asp Arg Glu Ile Cys Cys Tyr
145                 150                 155                 160

Ser Ile Ser Cys Lys Glu Lys Asp Asn Ile Asp Ile Thr Leu Gln Trp
                165                 170                 175

Leu Ile Gln His Ser Lys Ser Arg Arg Ser
            180                 185


<210> 3421
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 755; "

<220>
<221> source
<223> /note="Gene Symbol: ARL8A; "

<220>
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<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 8A; "

<220>
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<223> /note="ENSP ID: ENSP00000485023"

<400> 3421
Met Ile Ala Leu Phe Asn Lys Leu Leu Asp Trp Phe Lys Ala Leu Phe
1 5 10 15

Trp Lys Glu Glu Met Glu Leu Thr Leu Val Gly Leu Gln Tyr Ser Gly
20 25 30

Lys Thr Thr Phe Val Asn Val Ile Ala Ser Gly Gln Phe Asn Glu Asp
35 40 45

Met Ile Pro Thr Val Gly Phe Asn Met Arg Lys Ile Thr Lys Gly Asn
50 55 60

Val Thr Ile Lys Leu Trp Asp Ile Gly Gly Gln Pro Arg Phe Arg Ser
65 70 75 80

Met Trp Glu Arg Tyr Cys Arg Gly Val Ser Ala Ile Val Tyr Met Val
85 90 95

Asp Ala Ala Asp Gln Glu Lys Ile Glu Ala Ser Lys Asn Glu Leu His
100 105 110

Asn Leu Leu Asp Lys Pro Gln Leu Gln Gly Ile Pro Glu Ser Val Cys
115 120 125

His Pro Gly Pro Arg Asp Leu Leu Leu Leu His Leu Leu Gln Arg Lys
130 135 140

Gly Gln His
145

<210> 3422
<211> 186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 756; "

<220>
<221> source
<223> /note="Gene Symbol: ARL8B; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 8B; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NVJ2; "

<220>
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<223> /note="ENSP ID: ENSP00000256496"

<400> 3422
Met Leu Ala Leu Ile Ser Arg Leu Leu Asp Trp Phe Arg Ser Leu Phe
1   5   10   15

Trp Lys Glu Glu Met Glu Leu Thr Leu Val Gly Leu Gln Tyr Ser Gly
            20   25   30

Lys Thr Thr Phe Val Asn Val Ile Ala Ser Gly Gln Phe Ser Glu Asp
        35   40   45

Met Ile Pro Thr Val Gly Phe Asn Met Arg Lys Val Thr Lys Gly Asn
    50   55   60

Val Thr Ile Lys Ile Trp Asp Ile Gly Gly Gln Pro Arg Phe Arg Ser
65   70   75   80

Met Trp Glu Arg Tyr Cys Arg Gly Val Asn Ala Ile Val Tyr Met Ile
                85   90   95

Asp Ala Ala Asp Arg Glu Lys Ile Glu Ala Ser Arg Asn Glu Leu His
            100   105   110

Asn Leu Leu Asp Lys Pro Gln Leu Gln Gly Ile Pro Val Leu Val Leu
        115   120   125

Gly Asn Lys Arg Asp Leu Pro Asn Ala Leu Asp Glu Lys Gln Leu Ile
    130   135   140

Glu Lys Met Asn Leu Ser Ala Ile Gln Asp Arg Glu Ile Cys Cys Tyr
145   150   155   160

```
Ser Ile Ser Cys Lys Glu Lys Asp Asn Ile Asp Ile Thr Leu Gln Trp
                165                 170                 175


Leu Ile Gln His Ser Lys Ser Arg Arg Ser
            180                 185


<210> 3423
<211> 103
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 756; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000400831"

<400> 3423
Met Ile Arg Ser Ala Ser Trp Val Trp Leu Leu Pro Pro Ala Gly Val
1               5                   10                  15


Arg Pro Cys Arg Ala Gly Ala Pro Arg Ser Arg Trp Arg Val Arg Ala
            20                  25                  30


Glu Ala Arg Ser Cys Gly Ser Arg Arg Arg Arg Arg Ser Ser Val Leu
        35                  40                  45


Pro Ser Val Leu Ala Pro Gly Arg His His Ala Gly Ala His Leu Pro
    50                  55                  60


Pro Ala Gly Leu Val Pro Phe Ala Leu Leu Glu Gly Arg Asp Gly Ala
65                  70                  75                  80


Asp Ala Arg Gly Ala Ala Val Leu Gly Gln Asp His Leu Arg Gln Cys
                85                  90                  95
```

His Arg Val Arg Ser Ile Gln
100

<210> 3424
<211> 163
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 756; "

<220>
<221> source
<223> /note="Gene Symbol: ARL8B; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q9NVJ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402996"

<400> 3424
Met Leu Ala Leu Ile Ser Arg Leu Leu Asp Trp Phe Arg Ser Leu Phe
1 5 10 15

Trp Lys Glu Glu Met Glu Leu Thr Leu Val Gly Leu Gln Tyr Ser Gly
20 25 30

Lys Thr Thr Phe Val Asn Val Ile Ala Ser Gly Gln Phe Ser Glu Asp
35 40 45

Met Ile Pro Thr Val Gly Phe Asn Met Arg Lys Val Thr Lys Gly Asn
50 55 60

Val Thr Ile Lys Ile Trp Asp Ile Gly Gly Gln Pro Arg Phe Arg Ser
65 70 75 80

Met Trp Glu Arg Tyr Cys Arg Gly Val Asn Ala Ile Val Tyr Met Ile
85 90 95

Asp Ala Ala Asp Arg Glu Lys Ile Glu Ala Ser Arg Asn Glu Leu His
100 105 110

```
Asn Leu Leu Asp Lys Pro Gln Leu Gln Gly Ile Pro Ile Ser His Phe
        115                 120                 125

Ser Gly Leu Phe Ser Ile Gln Asn Leu Glu Glu Ala Glu Ala Ser Pro
    130                 135                 140

Glu Val Phe Gln Ser Phe Leu Ala Ile Ile Leu Glu Leu Leu Ser Val
145                 150                 155                 160

Pro Leu Lys
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<210> 3425
<211> 102
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 756; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylation factor-like 8B; "

<220>
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<223> /note="ENSP ID: ENSP00000405196"

<400> 3425

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Met Ile Arg Ser Ala Ser Trp Val Trp Leu Leu Pro Pro Ala Gly Val
1               5                   10                  15

Arg Pro Cys Arg Ala Gly Ala Pro Arg Ser Arg Trp Arg Val Arg Ala
            20                  25                  30

Glu Ala Arg Ser Cys Gly Ser Arg Arg Arg Arg Arg Ser Ser Val Leu
        35                  40                  45

Pro Ser Val Leu Ala Pro Gly Arg His His Ala Gly Ala His Leu Pro
    50                  55                  60
```

```
Pro Ala Gly Leu Val Pro Phe Ala Leu Leu Glu Gly Arg Asp Gly Ala
65                  70                  75                  80


Asp Ala Arg Gly Ala Ala Val Leu Gly Gln Asp His Leu Arg Gln Cys
                85                  90                  95


His Arg Asp Gln Glu Ser
            100


<210> 3426
<211> 186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 756; "

<220>
<221> source
<223> /note="Gene Symbol: ARL8B; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylation factor-like 8B; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NVJ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479202"

<400> 3426
Met Leu Ala Leu Ile Ser Arg Leu Leu Asp Trp Phe Arg Ser Leu Phe
1               5                  10                  15


Trp Lys Glu Glu Met Glu Leu Thr Leu Val Gly Leu Gln Tyr Ser Gly
            20                  25                  30


Lys Thr Thr Phe Val Asn Val Ile Ala Ser Gly Gln Phe Ser Glu Asp
        35                  40                  45


Met Ile Pro Thr Val Gly Phe Asn Met Arg Lys Val Thr Lys Gly Asn
    50                  55                  60


Val Thr Ile Lys Ile Trp Asp Ile Gly Gly Gln Pro Arg Phe Arg Ser
65                  70                  75                  80
```

```
Met Trp Glu Arg Tyr Cys Arg Gly Val Asn Ala Ile Val Tyr Met Ile
                85                  90                  95

Asp Ala Ala Asp Arg Glu Lys Ile Glu Ala Ser Arg Asn Glu Leu His
            100                 105                 110

Asn Leu Leu Asp Lys Pro Gln Leu Gln Gly Ile Pro Val Leu Val Leu
        115                 120                 125

Gly Asn Lys Arg Asp Leu Pro Asn Ala Leu Asp Glu Lys Gln Leu Ile
    130                 135                 140

Glu Lys Met Asn Leu Ser Ala Ile Gln Asp Arg Glu Ile Cys Cys Tyr
145                 150                 155                 160

Ser Ile Ser Cys Lys Glu Lys Asp Asn Ile Asp Ile Thr Leu Gln Trp
                165                 170                 175

Leu Ile Gln His Ser Lys Ser Arg Arg Ser
            180                 185
```

<210> 3427
<211> 123
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ARL9; "

<220>
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<223> /note="Gene Name:
ADP-ribosylation factor-like 9; "

<220>
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<223> /note="Uniprot ID: Q6T311; "

<220>
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<223> /note="ENSP ID: ENSP00000353210"

<400> 3427

```
Met Glu Phe Leu Glu Ile Gly Gly Ser Lys Pro Phe Arg Ser Tyr Trp
1               5                   10                  15

Glu Met Tyr Leu Ser Lys Gly Leu Leu Leu Ile Phe Val Val Asp Ser
            20                  25                  30

Ala Asp His Ser Arg Leu Pro Glu Ala Lys Lys Tyr Leu His Gln Leu
        35                  40                  45

Ile Ala Ala Asn Pro Val Leu Pro Leu Val Val Phe Ala Asn Lys Gln
    50                  55                  60

Asp Leu Glu Ala Ala Tyr His Ile Thr Asp Ile His Glu Ala Leu Ala
65                  70                  75                  80

Leu Ser Glu Val Gly Asn Asp Arg Lys Met Phe Leu Phe Gly Thr Tyr
                85                  90                  95

Leu Thr Lys Asn Gly Ser Glu Ile Pro Ser Thr Met Gln Asp Ala Lys
            100                 105                 110

Asp Leu Ile Ala Gln Leu Ala Ala Asp Val Gln
        115                 120


<210> 3428
<211> 272
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 758; "

<220>
<221> source
<223> /note="Gene Symbol: ADPRHL1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylhydrolase like 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NDY3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348894"
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<400> 3428
Met Val Arg Cys Tyr Val Glu Ile Val Glu Lys Leu Pro Glu Arg Arg
1 5 10 15

Pro Asp Pro Ala Thr Ile Glu Gly Cys Ala Gln Leu Lys Pro Asn Asn
20 25 30

Tyr Leu Leu Ala Trp His Thr Pro Phe Asn Glu Lys Gly Ser Gly Phe
35 40 45

Gly Ala Ala Thr Lys Ala Met Cys Ile Gly Leu Arg Tyr Trp Lys Pro
50 55 60

Glu Arg Leu Glu Thr Leu Ile Glu Val Ser Val Glu Cys Gly Arg Met
65 70 75 80

Thr His Asn His Pro Thr Gly Phe Leu Gly Ser Leu Cys Thr Ala Leu
85 90 95

Phe Val Ser Phe Ala Ala Gln Gly Lys Pro Leu Val Gln Trp Gly Arg
100 105 110

Asp Met Leu Arg Ala Val Pro Leu Ala Glu Glu Tyr Cys Arg Lys Thr
115 120 125

Ile Arg His Thr Ala Glu Tyr Gln Glu His Trp Phe Tyr Phe Glu Ala
130 135 140

Lys Trp Gln Phe Tyr Leu Glu Glu Arg Lys Ile Ser Lys Asp Ser Glu
145 150 155 160

Asn Lys Ala Ile Phe Pro Asp Asn Tyr Asp Ala Glu Glu Arg Glu Lys
165 170 175

Thr Tyr Arg Lys Trp Ser Ser Glu Gly Arg Gly Gly Arg Arg Gly His
180 185 190

Asp Ala Pro Met Ile Ala Tyr Asp Ala Leu Leu Ala Ala Gly Asn Ser
195 200 205

Trp Thr Glu Leu Cys His Arg Ala Met Phe His Gly Gly Glu Ser Ala
210 215 220

```
Ala Thr Gly Thr Ile Ala Gly Cys Leu Phe Gly Leu Leu Tyr Gly Leu
225                 230                 235                 240


Asp Leu Val Pro Lys Gly Leu Tyr Gln Asp Leu Glu Asp Lys Glu Lys
                245                 250                 255


Leu Glu Asp Leu Gly Ala Ala Leu Tyr Arg Leu Ser Thr Glu Glu Lys
            260                 265                 270


<210> 3429
<211> 354
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 758; "

<220>
<221> source
<223> /note="Gene Symbol: ADPRHL1; "

<220>
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<223> /note="Gene Name:
      ADP-ribosylhydrolase like 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NDY3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364567"

<400> 3429
Met Glu Lys Phe Lys Ala Ala Met Leu Leu Gly Ser Val Gly Asp Ala
1               5                   10                  15


Leu Gly Tyr Arg Asn Val Cys Lys Glu Asn Ser Thr Val Gly Met Lys
            20                  25                  30


Ile Gln Glu Glu Leu Gln Arg Ser Gly Gly Leu Asp His Leu Val Leu
        35                  40                  45


Ser Pro Gly Glu Trp Pro Val Ser Asp Asn Thr Ile Met His Ile Ala
    50                  55                  60


Thr Ala Glu Ala Leu Thr Thr Asp Tyr Trp Cys Leu Asp Asp Leu Tyr
```

65 70 75 80

Arg Glu Met Val Arg Cys Tyr Val Glu Ile Val Glu Lys Leu Pro Glu
85 90 95

Arg Arg Pro Asp Pro Ala Thr Ile Glu Gly Cys Ala Gln Leu Lys Pro
100 105 110

Asn Asn Tyr Leu Leu Ala Trp His Thr Pro Phe Asn Glu Lys Gly Ser
115 120 125

Gly Phe Gly Ala Ala Thr Lys Ala Met Cys Ile Gly Leu Arg Tyr Trp
130 135 140

Lys Pro Glu Arg Leu Glu Thr Leu Ile Glu Val Ser Val Glu Cys Gly
145 150 155 160

Arg Met Thr His Asn His Pro Thr Gly Phe Leu Gly Ser Leu Cys Thr
165 170 175

Ala Leu Phe Val Ser Phe Ala Ala Gln Gly Lys Pro Leu Val Gln Trp
180 185 190

Gly Arg Asp Met Leu Arg Ala Val Pro Leu Ala Glu Glu Tyr Cys Arg
195 200 205

Lys Thr Ile Arg His Thr Ala Glu Tyr Gln Glu His Trp Phe Tyr Phe
210 215 220

Glu Ala Lys Trp Gln Phe Tyr Leu Glu Glu Arg Lys Ile Ser Lys Asp
225 230 235 240

Ser Glu Asn Lys Ala Ile Phe Pro Asp Asn Tyr Asp Ala Glu Glu Arg
245 250 255

Glu Lys Thr Tyr Arg Lys Trp Ser Ser Glu Gly Arg Gly Gly Arg Arg
260 265 270

Gly His Asp Ala Pro Met Ile Ala Tyr Asp Ala Leu Leu Ala Ala Gly
275 280 285

Asn Ser Trp Thr Glu Leu Cys His Arg Ala Met Phe His Gly Gly Glu
290 295 300

```
Ser Ala Ala Thr Gly Thr Ile Ala Gly Cys Leu Phe Gly Leu Leu Tyr
305                 310                 315                 320

Gly Leu Asp Leu Val Pro Lys Gly Leu Tyr Gln Asp Leu Glu Asp Lys
                325                 330                 335

Glu Lys Leu Glu Asp Leu Gly Ala Ala Leu Tyr Arg Leu Ser Thr Glu
            340                 345                 350

Glu Lys
```

<210> 3430
<211> 176
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
ADP-ribosylhydrolase like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416213"

<400> 3430

```
Met Val Arg Cys Tyr Val Glu Ile Val Glu Lys Leu Pro Glu Arg Arg
1               5                   10                  15

Pro Asp Pro Ala Thr Ile Glu Gly Cys Ala Gln Leu Lys Pro Asn Asn
            20                  25                  30

Tyr Leu Leu Ala Trp His Thr Pro Phe Asn Glu Lys Gly Ser Gly Phe
        35                  40                  45

Gly Ala Ala Thr Lys Ala Met Cys Ile Gly Leu Arg Tyr Trp Lys Pro
    50                  55                  60
```

```
Glu Arg Leu Glu Thr Leu Ile Glu Val Ser Val Glu Cys Gly Arg Met
65                  70                  75                  80

Thr His Asn His Pro Thr Gly Phe Leu Gly Ser Leu Cys Thr Ala Leu
                85                  90                  95

Phe Val Ser Phe Ala Ala Gln Gly Lys Pro Leu Val Gln Trp Gly Arg
            100                 105                 110

Asp Met Leu Arg Ala Val Pro Leu Ala Glu Glu Tyr Cys Arg Lys Thr
        115                 120                 125

Ile Arg His Thr Ala Glu Tyr Gln Glu His Trp Phe Tyr Phe Glu Ala
    130                 135                 140

Lys Trp Gln Phe Tyr Leu Glu Glu Arg Lys Ile Ser Lys Asp Ser Glu
145                 150                 155                 160

Asn Lys Ala Ile Phe Pro Asp Asn Tyr Asp Ala Glu Glu Arg Glu Lys
                165                 170                 175


<210> 3431
<211> 1967
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ADPRHL1; "

<220>
<221> source
<223> /note="Gene Name:
      ADP-ribosylhydrolase like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489048"

<400> 3431
Met Glu Lys Phe Lys Ala Ala Met Leu Leu Gly Ser Val Gly Asp Ala
1               5                   10                  15

Leu Gly Tyr Arg Asn Val Cys Lys Glu Asn Ser Thr Val Gly Met Lys
            20                  25                  30
```

```
Ile Gln Glu Glu Leu Gln Arg Ser Gly Gly Leu Asp His Leu Val Leu
        35                  40                  45

Ser Pro Gly Glu Trp Pro Val Ser Asp Asn Thr Ile Met His Ile Ala
    50                  55                  60

Thr Ala Glu Ala Leu Thr Thr Asp Tyr Trp Cys Leu Asp Asp Leu Tyr
65                  70                  75                  80

Arg Glu Met Val Arg Cys Tyr Val Glu Ile Val Glu Lys Leu Pro Glu
                85                  90                  95

Arg Arg Pro Asp Pro Ala Thr Ile Glu Gly Cys Ala Gln Leu Lys Pro
            100                 105                 110

Asn Asn Tyr Leu Leu Ala Trp His Thr Pro Phe Asn Glu Lys Gly Ser
        115                 120                 125

Gly Phe Gly Ala Ala Thr Lys Ala Met Cys Ile Gly Leu Arg Tyr Trp
    130                 135                 140

Lys Pro Glu Arg Leu Glu Thr Leu Ile Glu Val Ser Val Glu Cys Gly
145                 150                 155                 160

Arg Met Thr His Asn His Pro Thr Gly Phe Leu Gly Ser Leu Cys Thr
                165                 170                 175

Ala Leu Phe Val Ser Phe Ala Ala Gln Gly Lys Pro Leu Val Gln Trp
            180                 185                 190

Gly Arg Asp Met Leu Arg Ala Val Pro Leu Ala Glu Glu Tyr Cys Arg
        195                 200                 205

Lys Thr Ile Arg His Thr Ala Glu Tyr Gln Glu His Trp Phe Tyr Phe
    210                 215                 220

Glu Ala Lys Trp Gln Phe Tyr Leu Glu Glu Arg Lys Ile Ser Lys Asp
225                 230                 235                 240

Ser Glu Asn Lys Ala Ile Phe Pro Asp Asn Tyr Asp Ala Glu Glu Arg
                245                 250                 255
```

```
Glu Lys Thr Tyr Arg Lys Trp Ser Ser Glu Gly Arg Gly Gly Arg Arg
            260                 265                 270

Gly His Asp Ala Pro Met Ile Ala Tyr Asp Ala Leu Leu Ala Ala Gly
        275                 280                 285

Asn Ser Trp Thr Glu Leu Cys His Arg Ala Met Phe His Gly Gly Glu
    290                 295                 300

Ser Ala Ala Thr Gly Thr Ile Ala Gly Cys Leu Phe Gly Leu Leu Tyr
305                 310                 315                 320

Gly Leu Asp Leu Val Pro Lys Gly Leu Tyr Gln Asp Leu Glu Asp Lys
                325                 330                 335

Glu Lys Leu Glu Asp Leu Gly Ala Ala Leu Tyr Arg Leu Ser Thr Glu
            340                 345                 350

Glu Asn Arg Lys Ser Ser Lys Thr Cys Ser Asp Val Met Ser Val Asp
        355                 360                 365

Ala Gln Thr Leu Lys Lys Lys Met Gly Lys Leu Ala Cys Asp Pro Ala
    370                 375                 380

Ala His Ser Ile Leu Ser Ser Leu Leu Leu Tyr Val Thr Gly Arg Ala
385                 390                 395                 400

Asp Arg Pro Pro Gly Thr Glu Ala Gly Gly Ser Arg Pro Ser His Gln
                405                 410                 415

Pro Gln Thr Gln Glu Ala Thr Gln Arg Pro Thr Arg Phe Gln Leu Leu
            420                 425                 430

Gln Ala Lys Phe Leu Gly Thr Gly Arg Glu Arg Tyr Leu Lys Arg Thr
        435                 440                 445

Arg Glu Val Gly Arg Leu Ile Ser Lys Asp Lys Gln Gly Pro Gly Gly
    450                 455                 460

Gly Leu Val Gly Ala Thr Ile Asn Lys Leu Leu Glu Lys Thr Lys Glu
465                 470                 475                 480
```

```
Pro Ala Pro Lys Pro Cys Leu Ser Glu Lys Pro Arg Trp Gly His Pro
                485                 490                 495

Ala Gly Lys Ser Thr Val Lys Asn Ile Leu Lys Ile Phe Leu Ala Ala
            500                 505                 510

Glu Glu Lys Glu Ala Lys Glu Lys Glu Ala Arg Glu Lys Pro Pro Val
        515                 520                 525

Glu Arg Pro Lys Ala Ala Arg Gly Leu Leu Pro Lys Ile Met Gly Lys
    530                 535                 540

Ser Ser Val Leu Ser Lys Leu Arg Glu Lys Phe Glu Gln Asn Ser Cys
545                 550                 555                 560

Leu Cys Ser Glu Ala Ser Ala Leu Arg Leu His Thr Gln Glu Arg Lys
                565                 570                 575

Lys Arg Asn Leu Gln Arg Lys Arg Met His Arg Pro Glu Val Arg Val
            580                 585                 590

Leu His Thr Ala Thr Met Ala Ser Thr Cys Val Lys Met Pro Pro Ala
        595                 600                 605

Arg Phe Leu Ala Cys Thr Ala Glu Pro Leu Pro Ala Leu Ser Ile Ala
    610                 615                 620

Thr Val Val Cys Gly Pro Arg Ser Trp Leu Ser His Cys Thr Lys Ile
625                 630                 635                 640

Ser His Ser Glu Ala Arg Arg Pro Pro Arg Gly Glu Ala Ser Val Pro
                645                 650                 655

Pro Ser Ala Arg Glu Thr Gly Pro Ser Gly Asn Lys Ala Val Gly Lys
            660                 665                 670

Gly Pro Leu Glu Glu Glu Pro Gln Arg Gln Pro Arg Pro Ser Lys Pro
        675                 680                 685

Val Thr Pro Gln Val Met Ala Gln Arg Asp Gly His Ala Val Pro Ser
    690                 695                 700

Leu Ala Phe Ser Cys Ala Pro Cys Thr Gly Gly Val Leu Pro Gly Leu
```

705 710 715 720

Val Pro Ala Ser Ser Pro Leu Gly Pro Ala Ser Pro Trp Gly Thr Gly
725 730 735

Ser Ala Gly Gly Asp Gly Thr Ala Asp Pro Thr Ala Glu Ser Thr Ala
740 745 750

Gly Gly Val Gln Glu Val Arg Gly Ala Arg Leu Thr Trp Pro Pro Gly
755 760 765

Pro Pro Gly Glu Cys Ala Gly Glu Gly Pro Glu Ile Thr Met Thr Val
770 775 780

Cys Ser Ser Glu Asp Glu Arg Glu Gly Ala Gly Phe Pro Asp Pro Gly
785 790 795 800

Arg Asp Pro Leu Phe Ala Thr Gln Lys Tyr Phe Pro Glu Gln Lys Val
805 810 815

Pro Glu His Ile Pro Pro Leu Asn Ala Pro Ser Val Gln Ala Ala Arg
820 825 830

Arg Thr Gln Pro Ala Thr Glu Pro Pro Arg Ile Thr Val Gln Ile Pro
835 840 845

Val Val His Glu Met Pro Ala Pro Pro Thr Arg Leu Gln Asn Met Ser
850 855 860

Ser Gly Glu Asn Lys Pro Cys Ile Cys Gly Gly Glu Asn Val Val Glu
865 870 875 880

Asn Ala His Thr Glu Phe Pro Thr Val Thr Glu Asn Arg Arg Gly His
885 890 895

Arg Ala Pro Val Glu Leu Ser Lys Leu Ser Gly Met Gln Ala Gly Leu
900 905 910

Ser Ala Ser Ser Pro Gln Gly Pro Arg Ala Ala Pro Arg Leu Ala Ala
915 920 925

Ala Arg Gly Ala Val Gly Ala Asp His Ser Val Pro Glu Thr Leu Leu
930 935 940

```
Thr Gln Arg Leu Gln Thr Asp Pro Ala Gly Gly Lys Glu Asn Lys Gly
945                 950                 955                 960

Ser Phe Glu Asn Ser His Gly Pro Arg Asn Pro Asp Asp Ile Ser Gly
                965                 970                 975

Glu Arg Thr Ser Glu Leu Arg Asp Val Lys His Pro Leu Pro Glu Ser
            980                 985                 990

Asn Glu Ile Ser Met Gln Lys Lys  Gly Ser Ala Thr Asn  Asp Pro
Ala
        995                 1000                1005

Ala Ser  Gln Asn Leu Leu Arg  Gly Asn Thr Ser His  Ala Ser Ser
    1010                1015                1020

Ser Gln  Gln Val Pro Ser Pro  Thr Gly Arg Asn Pro  Thr Gly Ala
    1025                1030                1035

Pro Thr  Ser Leu Ala Ala Ser  Ser Lys Gly Arg Thr  Gly Pro Glu
    1040                1045                1050

Gly Val  Thr Pro Met Gly Met  Thr Val Pro Gly Ala  Leu Glu Glu
    1055                1060                1065

Cys Arg  Arg Pro Leu Leu Ile  Glu Ser Ser Gln Pro  Leu Lys Ala
    1070                1075                1080

Ala Glu  Glu Ile Thr Ser His  Asp Val Arg Glu Asn  Pro Leu Ser
    1085                1090                1095

Ser Leu  Asn Glu Pro Pro Lys  Pro Gly Met Lys Ala  Cys Gly Ala
    1100                1105                1110

Met Ala  Ala Ala Gly Ser Val  Ala Ser Arg Ala Thr  Pro Ala Pro
    1115                1120                1125

Ala Pro  Gly Ser Thr Gln Ser  Pro Gly Asp Arg Thr  Ala Gly Glu
    1130                1135                1140

Pro Glu  Thr Leu Gly Gln Trp  Gly Ser Arg Ala Leu  Ser Glu Ser
    1145                1150                1155
```

```
His Pro  Arg Gly Glu Ala Leu  Pro Arg Asp Pro His  Ser His Gly
    1160                1165                1170

Leu Leu  Ala Pro Gly Gly Ser  Leu Glu Pro Lys Ser  Gly Ala Ala
    1175                1180                1185

Gly Arg  Ser Leu Leu Arg Gly  Val Ala Leu Val Gln  His Pro Glu
    1190                1195                1200

Asp Ile  Ala Thr Leu Ala Arg  His Pro Glu Asp Ala  Ala Ala Leu
    1205                1210                1215

Ala Arg  His Pro Glu Ala Ala  Arg Leu Tyr Ile Ser  Asn Thr Ser
    1220                1225                1230

Ala Ala  Ser Arg His Thr Ala  Ala Val Gly Gly Arg  Lys Asp Val
    1235                1240                1245

Ala Val  Glu Gly Asn Leu Leu  Gly Phe Ser Thr Glu  Ser Gly Ile
    1250                1255                1260

Pro Ala  Ser Asp His Pro Arg  Pro Gln Ala Arg Ser  Val Ala Glu
    1265                1270                1275

Ser Pro  Ser Tyr Gly Pro Gly  Leu Pro Pro Ser Pro  Pro Glu Asn
    1280                1285                1290

Pro Gln  Ala Lys Gly Arg Glu  Gly Val Arg Phe Pro  Arg Gly Ala
    1295                1300                1305

Glu Pro  Asp His Leu Leu Pro  Ala Val Pro Pro Ala  Glu Val Asp
    1310                1315                1320

Met Gly  Trp Val Gly Gly Thr  His Gln Arg Gly Pro  Pro His Leu
    1325                1330                1335

Gln Ala  His Leu Pro Pro Thr  Ala Gly Asp Thr Gln  Ala Lys Leu
    1340                1345                1350

Arg Ala  Ser Val Pro Glu Pro  Arg Thr Gln Ala Gly  Glu Ser Gln
    1355                1360                1365
```

```
Glu Arg  Pro Leu Thr Gln Ala  Asp Leu Gly Arg Gln  Gln Ser His
    1370                1375                1380

Gln Ala  Gln Glu Glu Thr Pro  Gln Pro Gly Asp Ala  Gly Lys Arg
    1385                1390                1395

Val Ala  Pro Ser Gly Ser Lys  Val Val Leu Asn Pro  Ala Lys Glu
    1400                1405                1410

Pro Gln  Thr Trp Trp Ala Gln  Asp Leu Ala Gly Asp  Lys Gly Met
    1415                1420                1425

Ala Ile  Gly Val Gly Gly Ala  Cys Gln Arg Ser Asp  Gln Gly Gln
    1430                1435                1440

Gln His  Leu Gln Gly Pro Trp  Glu Glu Arg Gly Arg  Ser Thr Ala
    1445                1450                1455

Trp Gly  Glu Gly Thr Arg Ala  Ala Arg Asn Pro Ala  Val Pro Pro
    1460                1465                1470

Gly Glu  Pro Glu Gly Pro Gly  Ser Pro Ala Ala Gln  Gly Gln Ala
    1475                1480                1485

Gln Lys  Gln Val Gln Glu Trp  Asp Arg Gly Gln Val  Gln Gly His
    1490                1495                1500

Ala Gln  Glu Gln Ala Gln Trp  Gln Thr Gln Ile Glu  Ala Gln Gly
    1505                1510                1515

Gln Ala  Gln Glu Gln Ala Gln  Gly Gly Thr Gln Gly  His Ser Gln
    1520                1525                1530

Gly Gln  Ala Gln Lys Gln Phe  Gln Asn Trp Ala Gln  Gly Gln Ala
    1535                1540                1545

Gln Gly  His Ala Gln Glu Gln  Ala Gln Trp Gln Thr  Gln Ile Glu
    1550                1555                1560

Ala Gln  Gly Gln Ala Gln Glu  Pro Ala Gln Gly Gly  Ala Gln Gly
    1565                1570                1575
```

```
Gln Val  Gln Gly Gln Ala Gln  Lys Trp Ala Gln Gly  Gln Ile Gln
    1580                1585                1590

Gly Gln  Ala Gln Lys Gln Val  Gln Gly Glu Val Gln  Lys Trp Ala
    1595                1600                1605

Gln Glu  Glu Ala Gln Gly Gln  Ala Gln Trp Gln Thr  Gln Ile Lys
    1610                1615                1620

Ala Gln  Lys Trp Ala Gln Glu  Gln Thr Gln Lys Gly  Ala Gln Glu
    1625                1630                1635

Arg Val  Gln Gly Gln Ala Gln  Lys Gly Ala Gln Glu  Arg Ala Gln
    1640                1645                1650

Glu Gln  Ala Gln Glu Gln Thr  Gln Ile Glu Ala Gln  Gly Gln Ala
    1655                1660                1665

Gln Lys  Gly Ala Gln Glu Arg  Ala Arg Glu Gln Ala  Gln Lys Gly
    1670                1675                1680

Ala Gln  Glu Arg Ala Arg Glu  Gln Ala Gln Lys Gly  Ala Gln Glu
    1685                1690                1695

Arg Ala  Arg Glu Gln Ala Gln  Lys Gly Ala Gln Glu  Arg Ala Arg
    1700                1705                1710

Glu Gln  Ala Gln Lys Gly Ala  Gln Glu Arg Ala Arg  Glu Gln Ala
    1715                1720                1725

Gln Lys  Gly Ala Gln Glu Arg  Ala Arg Glu Gln Ala  Gln Lys Gly
    1730                1735                1740

Ala Gln  Glu Arg Ala Gln Glu  Gln Gly Arg Glu Gln  Thr His Ile
    1745                1750                1755

Glu Ala  Gln Gly Gln Ala Gln  Lys Gly Ala Gln Glu  Trp Ala Arg
    1760                1765                1770

Asp Arg  Ala Arg Asp Gln Gly  Trp Glu Gln Thr Gln  Ile Glu Thr
    1775                1780                1785

Gln Arg  Gln Thr Gln Lys Gly  Ala Gln Glu Arg Ala  Trp Glu Gln
```

```
    1790                1795                1800

Gly Arg  Glu Gln Ala Leu Thr  Ser Gly Met Ala Pro  Arg Ala Trp
    1805                1810                1815

Glu Gln  Pro Ile Ser Gly Ile  Ala Glu Gly Val Asp  Ala Ala Gly
    1820                1825                1830

Arg Ser  Gly Gly Ser Arg Ser  Pro Ala Pro Arg Asp  Gly Gly Gln
    1835                1840                1845

Ser Gly  Gly Ser Gly Leu Gly  Glu Pro Ser Ala Gly  Tyr Pro Pro
    1850                1855                1860

Pro Gly  Ser Arg Pro Leu Arg  Gly Lys Ser Ile Ala  Thr Ser Pro
    1865                1870                1875

Leu Gly  Leu Gly Lys Ser Pro  Thr Glu Pro Lys Pro  Glu Ala Gly
    1880                1885                1890

Gly Cys  Gly Thr Pro Gln Ala  Pro Ala Gln Glu Gly  Ser Pro Asp
    1895                1900                1905

His Pro  Gly Ala Glu Arg Ala  Leu Gln Asp Arg Met  Glu Ala Ser
    1910                1915                1920

Glu Pro  Glu Arg Arg Gly Arg  Ser Arg His Leu Ala  Lys Tyr Lys
    1925                1930                1935

Ala Gln  Ser Phe Arg Asp Gln  Arg Ala Phe Asp Leu  Ser Phe Arg
    1940                1945                1950

Pro Met  Ser Val Arg Ala Ser  Asp Thr Ser Glu Leu  Pro Lys
    1955                1960                1965


<210> 3432
<211> 363
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 759; "

<220>
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<221> source
<223> /note="Gene Symbol: ADPRHL2; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosylhydrolase like 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NX46; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362273"

<400> 3432

```
Met Ala Ala Ala Ala Met Ala Ala Ala Ala Gly Gly Gly Ala Gly Ala
1               5                  10                  15

Ala Arg Ser Leu Ser Arg Phe Arg Gly Cys Leu Ala Gly Ala Leu Leu
            20                  25                  30

Gly Asp Cys Val Gly Ser Phe Tyr Glu Ala His Asp Thr Val Asp Leu
        35                  40                  45

Thr Ser Val Leu Arg His Val Gln Ser Leu Glu Pro Asp Pro Gly Thr
    50                  55                  60

Pro Gly Ser Glu Arg Thr Glu Ala Leu Tyr Tyr Thr Asp Asp Thr Ala
65                  70                  75                  80

Met Ala Arg Ala Leu Val Gln Ser Leu Leu Ala Lys Glu Ala Phe Asp
                85                  90                  95

Glu Val Asp Met Ala His Arg Phe Ala Gln Glu Tyr Lys Lys Asp Pro
            100                 105                 110

Asp Arg Gly Tyr Gly Ala Gly Val Val Thr Val Phe Lys Lys Leu Leu
        115                 120                 125

Asn Pro Lys Cys Arg Asp Val Phe Glu Pro Ala Arg Ala Gln Phe Asn
    130                 135                 140

Gly Lys Gly Ser Tyr Gly Asn Gly Gly Ala Met Arg Val Ala Gly Ile
145                 150                 155                 160
```

```
Ser Leu Ala Tyr Ser Ser Val Gln Asp Val Gln Lys Phe Ala Arg Leu
                165                 170                 175

Ser Ala Gln Leu Thr His Ala Ser Ser Leu Gly Tyr Asn Gly Ala Ile
            180                 185                 190

Leu Gln Ala Leu Ala Val His Leu Ala Leu Gln Gly Glu Ser Ser Ser
        195                 200                 205

Glu His Phe Leu Lys Gln Leu Leu Gly His Met Glu Asp Leu Glu Gly
    210                 215                 220

Asp Ala Gln Ser Val Leu Asp Ala Arg Glu Leu Gly Met Glu Glu Arg
225                 230                 235                 240

Pro Tyr Ser Ser Arg Leu Lys Lys Ile Gly Glu Leu Leu Asp Gln Ala
                245                 250                 255

Ser Val Thr Arg Glu Glu Val Val Ser Glu Leu Gly Asn Gly Ile Ala
            260                 265                 270

Ala Phe Glu Ser Val Pro Thr Ala Ile Tyr Cys Phe Leu Arg Cys Met
        275                 280                 285

Glu Pro Asp Pro Glu Ile Pro Ser Ala Phe Asn Ser Leu Gln Arg Thr
    290                 295                 300

Leu Ile Tyr Ser Ile Ser Leu Gly Gly Asp Thr Asp Thr Ile Ala Thr
305                 310                 315                 320

Met Ala Gly Ala Ile Ala Gly Ala Tyr Tyr Gly Met Asp Gln Val Pro
                325                 330                 335

Glu Ser Trp Gln Gln Ser Cys Glu Gly Tyr Glu Glu Thr Asp Ile Leu
            340                 345                 350

Ala Gln Ser Leu His Arg Val Phe Gln Lys Ser
        355                 360
```

<210> 3433
<211> 327
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 760; "

<220>
<221> source
<223> /note="Gene Symbol: ART1; "

<220>
<221> source
<223> /note="Gene Name:
ADP-ribosyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: P52961; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000250693"

<400> 3433

Met	Gln	Met	Pro	Ala	Met	Met	Ser	Leu	Leu	Leu	Val	Ser	Val	Gly	Leu
1				5				10						15	

Met	Glu	Ala	Leu	Gln	Ala	Gln	Ser	His	Pro	Ile	Thr	Arg	Arg	Asp	Leu
		20					25					30			

Phe	Ser	Gln	Glu	Ile	Gln	Leu	Asp	Met	Ala	Leu	Ala	Ser	Phe	Asp	Asp
		35					40					45			

Gln	Tyr	Ala	Gly	Cys	Ala	Ala	Ala	Met	Thr	Ala	Ala	Leu	Pro	Asp	Leu
	50					55					60				

Asn	His	Thr	Glu	Phe	Gln	Ala	Asn	Gln	Val	Tyr	Ala	Asp	Ser	Trp	Thr
65					70					75					80

Leu	Ala	Ser	Ser	Gln	Trp	Gln	Glu	Arg	Gln	Ala	Arg	Trp	Pro	Glu	Trp
				85					90					95	

Ser	Leu	Ser	Pro	Thr	Arg	Pro	Ser	Pro	Pro	Pro	Leu	Gly	Phe	Arg	Asp
		100					105					110			

Glu	His	Gly	Val	Ala	Leu	Leu	Ala	Tyr	Thr	Ala	Asn	Ser	Pro	Leu	His
		115					120					125			

Lys	Glu	Phe	Asn	Ala	Ala	Val	Arg	Glu	Ala	Gly	Arg	Ser	Arg	Ala	His
	130					135					140				

```
Tyr Leu His His Phe Ser Phe Lys Thr Leu His Phe Leu Leu Thr Glu
145                 150                 155                 160

Ala Leu Gln Leu Leu Gly Ser Gly Gln Arg Pro Pro Arg Cys His Gln
                165                 170                 175

Val Phe Arg Gly Val His Gly Leu Arg Phe Arg Pro Ala Gly Pro Arg
            180                 185                 190

Ala Thr Val Arg Leu Gly Gly Phe Ala Ser Ala Ser Leu Lys His Val
        195                 200                 205

Ala Ala Gln Gln Phe Gly Glu Asp Thr Phe Phe Gly Ile Trp Thr Cys
    210                 215                 220

Leu Gly Ala Pro Ile Lys Gly Tyr Ser Phe Phe Pro Gly Glu Glu Glu
225                 230                 235                 240

Val Leu Ile Pro Pro Phe Glu Thr Phe Gln Val Ile Asn Ala Ser Arg
                245                 250                 255

Leu Ala Gln Gly Pro Ala Arg Ile Tyr Leu Arg Ala Leu Gly Lys His
            260                 265                 270

Ser Thr Tyr Asn Cys Glu Tyr Ile Lys Asp Lys Lys Cys Lys Ser Gly
        275                 280                 285

Pro Cys His Leu Asp Asn Ser Ala Met Gly Gln Ser Pro Leu Ser Ala
    290                 295                 300

Val Trp Ser Leu Leu Leu Leu Leu Trp Phe Leu Val Val Arg Ala Phe
305                 310                 315                 320

Pro Asp Gly Pro Gly Leu Leu
                325
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<210> 3434
<211> 378
<212> PRT
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<220>
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<220>
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<220>
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<400> 3434

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Met Lys Thr Gly His Phe Glu Ile Val Thr Met Leu Leu Ala Thr Met
1               5                  10                  15

Ile Leu Val Asp Ile Phe Gln Val Lys Ala Glu Val Leu Asp Met Ala
            20                  25                  30

Asp Asn Ala Phe Asp Asp Glu Tyr Leu Lys Cys Thr Asp Arg Met Glu
        35                  40                  45

Ile Lys Tyr Val Pro Gln Leu Leu Lys Glu Glu Lys Ala Ser His Gln
    50                  55                  60

Gln Leu Asp Thr Val Trp Glu Asn Ala Lys Ala Lys Trp Ala Ala Arg
65                  70                  75                  80

Lys Thr Gln Ile Phe Leu Pro Met Asn Phe Lys Asp Asn His Gly Ile
                85                  90                  95

Ala Leu Met Ala Tyr Ile Ser Glu Ala Gln Glu Gln Thr Pro Phe Tyr
            100                 105                 110

His Leu Phe Ser Glu Ala Val Lys Met Ala Gly Gln Ser Arg Glu Asp
        115                 120                 125

Tyr Ile Tyr Gly Phe Gln Phe Lys Ala Phe His Phe Tyr Leu Thr Arg
    130                 135                 140

Ala Leu Gln Leu Leu Arg Lys Pro Cys Glu Ala Ser Ser Lys Thr Val
145                 150                 155                 160
```

```
Val Tyr Arg Thr Ser Gln Gly Thr Ser Phe Thr Phe Gly Gly Leu Asn
                165                 170                 175

Gln Ala Arg Phe Gly His Phe Thr Leu Ala Tyr Ser Ala Lys Pro Gln
            180                 185                 190

Ala Ala Asn Asp Gln Leu Thr Val Leu Ser Ile Tyr Thr Cys Leu Gly
        195                 200                 205

Val Asp Ile Glu Asn Phe Leu Asp Lys Glu Ser Glu Arg Ile Thr Leu
    210                 215                 220

Ile Pro Leu Asn Glu Val Phe Gln Val Ser Gln Glu Gly Ala Gly Asn
225                 230                 235                 240

Asn Leu Ile Leu Gln Ser Ile Asn Lys Thr Cys Ser His Tyr Glu Cys
                245                 250                 255

Ala Phe Leu Gly Gly Leu Lys Thr Glu Asn Cys Ile Glu Asn Leu Glu
            260                 265                 270

Tyr Phe Gln Pro Ile Tyr Val Tyr Asn Pro Gly Glu Lys Asn Gln Lys
        275                 280                 285

Leu Glu Asp His Ser Glu Lys Asn Trp Lys Leu Glu Asp His Gly Glu
    290                 295                 300

Lys Asn Gln Lys Leu Glu Asp His Gly Val Lys Ile Leu Glu Pro Thr
305                 310                 315                 320

Gln Ile Pro Glu Asp Lys Ser Gln Gly Asn Ile Asn Asn Pro Thr Pro
                325                 330                 335

Gly Pro Val Pro Val Pro Gly Pro Lys Ser His Pro Ser Ala Ser Ser
            340                 345                 350

Gly Lys Leu Leu Leu Pro Gln Phe Gly Met Val Ile Ile Leu Ile Ser
        355                 360                 365

Val Ser Ala Ile Asn Leu Phe Val Ala Leu
    370                 375
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<210> 3435
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<220>
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Met Lys Thr Gly His Phe Glu Ile Val Thr Met Leu Leu Ala Thr Met
1   5   10   15

Ile Leu Val Asp Ile Phe Gln Val Lys Ala Glu Val Leu Asp Met Ala
            20   25   30

Asp Asn Ala Phe Asp Asp Glu Tyr Leu Lys Cys Thr Asp Arg Met Glu
        35   40   45

Ile Lys Tyr Val Pro Gln Leu Leu Lys Glu Glu Lys Ala Ser His Gln
    50   55   60

Gln Leu Asp Thr Val Trp Glu Asn Ala Lys Ala Lys Trp Ala Ala Arg
65   70   75   80

Lys Thr Gln Ile Phe Leu Pro Met Asn Phe Lys Asp Asn His Gly Ile
                85   90   95

Ala Leu Met Ala Tyr Ile Ser Glu Ala Gln Glu Gln Thr Pro Phe Tyr
            100   105   110

His Leu Phe Ser Glu Ala Val Lys Met Ala Gly Gln Ser Arg Glu Asp

```
        115                 120                 125

Tyr Ile Tyr Gly Phe Gln Phe Lys Ala Phe His Phe Tyr Leu Thr Arg
    130                 135                 140

Ala Leu Gln Leu Leu Arg Lys Pro Cys Glu Ala Ser Ser Lys Thr Val
145                 150                 155                 160

Val Tyr Arg Thr Ser Gln Gly Thr Ser Phe Thr Phe Gly Gly Leu Asn
                165                 170                 175

Gln Ala Arg Phe Gly His Phe Thr Leu Ala Tyr Ser Ala Lys Pro Gln
            180                 185                 190

Ala Ala Asn Asp Gln Leu Thr Val Leu Ser Ile Tyr Thr Cys Leu Gly
        195                 200                 205

Val Asp Ile Glu Asn Phe Leu Asp Lys Glu Ser Glu Arg Ile Thr Leu
    210                 215                 220

Ile Pro Leu Asn Glu Val Phe Gln Val Ser Gln Glu Gly Ala Gly Asn
225                 230                 235                 240

Asn Leu Ile Leu Gln Ser Ile Asn Lys Thr Cys Ser His Tyr Glu Cys
                245                 250                 255

Ala Phe Leu Gly Gly Leu Lys Thr Glu Asn Cys Ile Glu Asn Leu Glu
            260                 265                 270

Tyr Phe Gln Pro Ile Tyr Val Tyr Asn Pro Gly Glu Lys Asn Gln Lys
        275                 280                 285

Leu Glu Asp His Ser Glu Lys Asn Trp Lys Leu Glu Asp His Gly Glu
    290                 295                 300

Lys Asn Gln Lys Leu Glu Asp His Gly Val Lys Ile Leu Glu Pro Thr
305                 310                 315                 320

Gln Ile Pro Ala Pro Gly Pro Val Pro Val Pro Gly Pro Lys Ser His
                325                 330                 335

Pro Ser Ala Ser Ser Gly Lys Leu Leu Leu Pro Gln Phe Gly Met Val
            340                 345                 350
```

Ile Ile Leu Ile Ser Val Ser Ala Ile Asn Leu Phe Val Ala Leu
355 360 365

<210> 3436
<211> 389
<212> PRT
<213> Homo sapiens

<220>
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<400> 3436
Met Lys Thr Gly His Phe Glu Ile Val Thr Met Leu Leu Ala Thr Met
1 5 10 15

Ile Leu Val Asp Ile Phe Gln Val Lys Ala Glu Val Leu Asp Met Ala
20 25 30

Asp Asn Ala Phe Asp Asp Glu Tyr Leu Lys Cys Thr Asp Arg Met Glu
35 40 45

Ile Lys Tyr Val Pro Gln Leu Leu Lys Glu Glu Lys Ala Ser His Gln
50 55 60

Gln Leu Asp Thr Val Trp Glu Asn Ala Lys Ala Lys Trp Ala Ala Arg
65 70 75 80

Lys Thr Gln Ile Phe Leu Pro Met Asn Phe Lys Asp Asn His Gly Ile
85 90 95

```
Ala Leu Met Ala Tyr Ile Ser Glu Ala Gln Glu Gln Thr Pro Phe Tyr
            100                 105                 110

His Leu Phe Ser Glu Ala Val Lys Met Ala Gly Gln Ser Arg Glu Asp
        115                 120                 125

Tyr Ile Tyr Gly Phe Gln Phe Lys Ala Phe His Phe Tyr Leu Thr Arg
    130                 135                 140

Ala Leu Gln Leu Leu Arg Lys Pro Cys Glu Ala Ser Ser Lys Thr Val
145                 150                 155                 160

Val Tyr Arg Thr Ser Gln Gly Thr Ser Phe Thr Phe Gly Gly Leu Asn
                165                 170                 175

Gln Ala Arg Phe Gly His Phe Thr Leu Ala Tyr Ser Ala Lys Pro Gln
            180                 185                 190

Ala Ala Asn Asp Gln Leu Thr Val Leu Ser Ile Tyr Thr Cys Leu Gly
        195                 200                 205

Val Asp Ile Glu Asn Phe Leu Asp Lys Glu Ser Glu Arg Ile Thr Leu
    210                 215                 220

Ile Pro Leu Asn Glu Val Phe Gln Val Ser Gln Glu Gly Ala Gly Asn
225                 230                 235                 240

Asn Leu Ile Leu Gln Ser Ile Asn Lys Thr Cys Ser His Tyr Glu Cys
                245                 250                 255

Ala Phe Leu Gly Gly Leu Lys Thr Glu Asn Cys Ile Glu Asn Leu Glu
            260                 265                 270

Tyr Phe Gln Pro Ile Tyr Val Tyr Asn Pro Gly Glu Lys Asn Gln Lys
        275                 280                 285

Leu Glu Asp His Ser Glu Lys Asn Trp Lys Leu Glu Asp His Gly Glu
    290                 295                 300

Lys Asn Gln Lys Leu Glu Asp His Gly Val Lys Ile Leu Glu Pro Thr
305                 310                 315                 320

Gln Ile Pro Gly Met Lys Ile Pro Glu Pro Phe Pro Leu Pro Glu Asp
```

```
                325                 330                 335

Lys Ser Gln Gly Asn Ile Asn Asn Pro Thr Pro Gly Pro Val Pro Val
            340                 345                 350

Pro Gly Pro Lys Ser His Pro Ser Ala Ser Ser Gly Lys Leu Leu Leu
        355                 360                 365

Pro Gln Phe Gly Met Val Ile Ile Leu Ile Ser Val Ser Ala Ile Asn
    370                 375                 380

Leu Phe Val Ala Leu
385
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<210> 3437
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<220>
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<400> 3437

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Met Lys Thr Gly His Phe Glu Ile Val Thr Met Leu Leu Ala Thr Met
1               5                   10                  15

Ile Leu Val Asp Ile Phe Gln Val Lys Ala Glu Val Leu Asp Met Ala
            20                  25                  30

Asp Asn Ala Phe Asp Asp Glu Tyr Leu Lys Cys Thr Asp Arg Met Glu
        35                  40                  45

Ile Lys Tyr Val Pro Gln Leu Leu Lys Glu Glu Lys Ala Ser His Gln
    50                  55                  60
```

```
Gln Leu Asp Thr Val Trp Glu Asn Ala Lys Ala Lys Trp Ala Ala Arg
65                  70                  75                  80


Lys Thr Gln Ile Phe Leu Pro Met Asn Phe Lys Asp Asn His Gly Ile
                85                  90                  95


Ala Leu Met Ala Tyr Ile Ser Glu Ala Gln Glu
            100                 105


<210> 3438
<211> 129
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000421431"

<400> 3438
Met Lys Thr Gly His Phe Glu Ile Val Thr Met Leu Leu Ala Thr Met
1               5                   10                  15


Ile Leu Val Asp Ile Phe Gln Val Lys Ala Glu Val Leu Asp Met Ala
            20                  25                  30


Asp Asn Ala Phe Asp Asp Glu Tyr Leu Lys Cys Thr Asp Arg Met Glu
        35                  40                  45


Ile Lys Tyr Val Pro Gln Leu Leu Lys Glu Glu Lys Ala Ser His Gln
    50                  55                  60


Gln Leu Asp Thr Val Trp Glu Asn Ala Lys Ala Lys Trp Ala Ala Arg
65                  70                  75                  80


Lys Thr Gln Ile Phe Leu Pro Met Asn Phe Lys Asp Asn His Gly Ile
```

85 90 95

Ala Leu Met Ala Tyr Ile Ser Glu Ala Gln Glu Gln Thr Pro Phe Tyr
100 105 110

His Leu Phe Ser Glu Ala Val Lys Met Ala Gly Gln Ser Arg Glu Asp
115 120 125

Tyr

<210> 3439
<211> 117
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 3439
Lys Thr Cys Ser His Tyr Glu Cys Ala Phe Leu Gly Gly Leu Lys Thr
1 5 10 15

Glu Asn Cys Ile Glu Asn Leu Glu Tyr Phe Gln Pro Ile Tyr Val Tyr
20 25 30

Asn Pro Gly Glu Lys Asn Gln Lys Leu Glu Asp His Ser Glu Lys Asn
35 40 45

Trp Lys Leu Glu Asp His Gly Glu Lys Asn Gln Lys Leu Glu Asp His
50 55 60

Gly Val Lys Ile Leu Glu Pro Thr Gln Ile Pro Gly Met Lys Ile Pro
65 70 75 80

Glu Pro Phe Pro Leu Pro Gly Ile Lys Met Ile Gln Leu Asn Glu Lys
85 90 95

Pro Glu Asp Lys Ser Gln Gly Asn Ile Asn Asn Pro Thr Pro Gly Pro
100 105 110

Val Pro Val Pro Gly
115

<210> 3440
<211> 201
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name:
ADP-ribosyltransferase 3; "

<220>
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<223> /note="ENSP ID: ENSP00000422287"

<400> 3440
Met Lys Thr Gly His Phe Glu Ile Val Thr Met Leu Leu Ala Thr Met
1 5 10 15

Ile Leu Val Asp Ile Phe Gln Val Lys Ala Glu Val Leu Asp Met Ala
20 25 30

Asp Asn Ala Phe Asp Asp Glu Tyr Leu Lys Cys Thr Asp Arg Met Glu
35 40 45

Ile Lys Tyr Val Pro Gln Leu Leu Lys Glu Glu Lys Ala Ser His Gln
50 55 60

Gln Leu Asp Thr Val Trp Glu Asn Ala Lys Ala Lys Trp Ala Ala Arg
65 70 75 80

Lys Thr Gln Ile Phe Leu Pro Met Asn Phe Lys Asp Asn His Gly Ile

```
                85                  90                  95

Ala Leu Met Ala Tyr Ile Ser Glu Ala Gln Glu Gln Thr Pro Phe Tyr
            100                 105                 110

His Leu Phe Ser Glu Ala Val Lys Met Ala Gly Gln Ser Arg Glu Asp
        115                 120                 125

Tyr Ile Tyr Gly Phe Gln Phe Lys Ala Phe His Phe Tyr Leu Thr Arg
    130                 135                 140

Ala Leu Gln Leu Leu Arg Lys Pro Cys Glu Ala Ser Ser Lys Thr Val
145                 150                 155                 160

Val Tyr Arg Thr Ser Gln Gly Thr Ser Phe Thr Phe Gly Gly Leu Asn
                165                 170                 175

Gln Ala Arg Phe Gly His Phe Thr Leu Ala Tyr Ser Ala Lys Pro Gln
            180                 185                 190

Ala Ala Asn Asp Gln Leu Thr Val Leu
        195                 200


<210> 3441
<211> 174
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000425327"

<400> 3441
Met Lys Thr Gly His Phe Glu Ile Val Thr Met Leu Leu Ala Thr Met
1               5                   10                  15
```

```
Ile Leu Val Asp Ile Phe Gln Val Lys Ala Glu Val Leu Asp Met Ala
            20                  25                  30

Asp Asn Ala Phe Asp Asp Glu Tyr Leu Lys Cys Thr Asp Arg Met Glu
        35                  40                  45

Ile Lys Tyr Val Pro Gln Leu Leu Lys Glu Glu Lys Ala Ser His Gln
    50                  55                  60

Gln Leu Asp Thr Val Trp Glu Asn Ala Lys Ala Lys Trp Ala Ala Arg
65                  70                  75                  80

Lys Thr Gln Ile Phe Leu Pro Met Asn Phe Lys Asp Asn His Gly Ile
                85                  90                  95

Ala Leu Met Ala Tyr Ile Ser Glu Ala Gln Glu Gln Thr Pro Phe Tyr
            100                 105                 110

His Leu Phe Ser Glu Ala Val Lys Met Ala Gly Gln Ser Arg Glu Asp
        115                 120                 125

Tyr Ile Tyr Gly Phe Gln Phe Lys Ala Phe His Phe Tyr Leu Thr Arg
    130                 135                 140

Ala Leu Gln Leu Leu Arg Lys Pro Cys Glu Ala Ser Ser Lys Thr Val
145                 150                 155                 160

Val Tyr Arg Thr Ser Gln Gly Thr Ser Phe Thr Phe Gly Gly
                165                 170


<210> 3442
<211> 314
<212> PRT
<213> Homo sapiens

<220>
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<220>
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ADP-ribosyltransferase 4 (Dombrock
blood group); "

<220>
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<400> 3442

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Met Gly Pro Leu Ile Asn Arg Cys Lys Lys Ile Leu Leu Pro Thr Thr
1               5                  10                  15

Val Pro Pro Ala Thr Met Arg Ile Trp Leu Leu Gly Gly Leu Leu Pro
            20                  25                  30

Phe Leu Leu Leu Leu Ser Gly Leu Gln Arg Pro Thr Glu Gly Ser Glu
        35                  40                  45

Val Ala Ile Lys Ile Asp Phe Asp Phe Ala Pro Gly Ser Phe Asp Asp
    50                  55                  60

Gln Tyr Gln Gly Cys Ser Lys Gln Val Met Glu Lys Leu Thr Gln Gly
65                  70                  75                  80

Asp Tyr Phe Thr Lys Asp Ile Glu Ala Gln Lys Asn Tyr Phe Arg Met
                85                  90                  95

Trp Gln Lys Ala His Leu Ala Trp Leu Asn Gln Gly Lys Val Leu Pro
            100                 105                 110

Gln Asn Met Thr Thr Thr His Ala Val Ala Ile Leu Phe Tyr Thr Leu
        115                 120                 125

Asn Ser Asn Val His Ser Asp Phe Thr Arg Ala Met Ala Ser Val Ala
    130                 135                 140

Arg Thr Pro Gln Gln Tyr Glu Arg Ser Phe His Phe Lys Tyr Leu His
145                 150                 155                 160

Tyr Tyr Leu Thr Ser Ala Ile Gln Leu Leu Arg Lys Asp Ser Ile Met
                165                 170                 175

Glu Asn Gly Thr Leu Cys Tyr Glu Val His Tyr Arg Thr Lys Asp Val
```

```
            180                 185                 190

His Phe Asn Ala Tyr Thr Gly Ala Thr Ile Arg Phe Gly Gln Phe Leu
        195                 200                 205

Ser Thr Ser Leu Leu Lys Glu Glu Ala Gln Glu Phe Gly Asn Gln Thr
    210                 215                 220

Leu Phe Thr Ile Phe Thr Cys Leu Gly Ala Pro Val Gln Tyr Phe Ser
225                 230                 235                 240

Leu Lys Lys Glu Val Leu Ile Pro Pro Tyr Glu Leu Phe Lys Val Ile
                245                 250                 255

Asn Met Ser Tyr His Pro Arg Gly Asp Trp Leu Gln Leu Arg Ser Thr
            260                 265                 270

Gly Asn Leu Ser Thr Tyr Asn Cys Gln Leu Leu Lys Ala Ser Ser Lys
        275                 280                 285

Lys Cys Ile Pro Asp Pro Ile Ala Ile Ala Ser Leu Ser Phe Leu Thr
    290                 295                 300

Ser Val Ile Ile Phe Ser Lys Ser Arg Val
305                 310


<210> 3443
<211> 273
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<400> 3443
Pro Pro Ala Thr Met Arg Ile Trp Leu Leu Gly Gly Leu Leu Pro Phe
1 5 10 15

Leu Leu Leu Leu Ser Gly Leu Gln Arg Pro Thr Glu Gly Ser Glu Val
20 25 30

Ala Ile Lys Ile Asp Phe Asp Phe Ala Pro Gly Ser Phe Asp Asp Gln
35 40 45

Tyr Gln Gly Cys Ser Lys Gln Val Met Glu Lys Leu Thr Gln Gly Asp
50 55 60

Tyr Phe Thr Lys Asp Ile Glu Ala Gln Lys Asn Tyr Phe Arg Met Trp
65 70 75 80

Gln Lys Ala His Leu Ala Trp Leu Asn Gln Gly Lys Val Leu Pro Gln
85 90 95

Asn Met Thr Thr Thr His Ala Val Ala Ile Leu Phe Tyr Thr Leu Asn
100 105 110

Ser Asn Val His Ser Asp Phe Thr Arg Ala Met Ala Ser Val Ala Arg
115 120 125

Thr Pro Gln Gln Tyr Glu Arg Ser Phe His Phe Lys Tyr Leu His Tyr
130 135 140

Tyr Leu Thr Ser Ala Ile Gln Leu Leu Arg Lys Asp Ser Ile Met Glu
145 150 155 160

Asn Gly Thr Leu Cys Tyr Glu Val His Tyr Arg Thr Lys Asp Val His
165 170 175

Phe Asn Ala Tyr Thr Gly Ala Thr Ile Arg Phe Gly Gln Phe Leu Ser
180 185 190

Thr Ser Leu Leu Lys Glu Glu Ala Gln Glu Phe Gly Asn Gln Thr Leu
195 200 205

Phe Thr Ile Phe Thr Cys Leu Gly Ala Pro Val Gln Tyr Phe Ser Leu
210 215 220

```
Lys Lys Glu Val Leu Ile Pro Pro Tyr Glu Leu Phe Lys Val Ile Asn
225                 230                 235                 240

Met Ser Tyr His Pro Arg Gly Asp Trp Leu Gln Leu Arg Ser Thr Gly
                245                 250                 255

Asn Leu Ser Thr Tyr Asn Cys Gln Leu Leu Lys Gly Ile Leu Tyr Leu
            260                 265                 270

Asn
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<210> 3444
<211> 65
<212> PRT
<213> Homo sapiens

<220>
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<220>
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blood group); "

<220>
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<400> 3444

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Pro Pro Ala Thr Met Arg Ile Trp Leu Leu Gly Gly Leu Leu Pro Phe
1               5                   10                  15

Leu Leu Leu Leu Ser Gly Leu Gln Arg Pro Thr Glu Gly Ser Glu Val
            20                  25                  30

Ala Ile Lys Ile Asp Phe Asp Phe Ala Pro Gly Ser Phe Asp Asp Gln
        35                  40                  45

Tyr Gln Gly Cys Ser Lys Gln Leu Pro Ala Arg Asn Ala Ser Leu Ile
    50                  55                  60
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Leu
65

<210> 3445
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<212> PRT
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<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000442877"

<400> 3445
Pro Pro Ala Thr Met Arg Ile Trp Leu Leu Gly Gly Leu Leu Pro Phe
1 5 10 15

Leu Leu Leu Leu Ser Gly Leu Gln Arg Pro Thr Glu Gly Ser Glu Leu
20 25 30

Pro Ala Arg Asn Ala Ser Leu Ile Leu
35 40

<210> 3446
<211> 291
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000352992"

<400> 3446
Met Ala Leu Ala Ala Leu Met Ile Ala Leu Gly Ser Leu Gly Leu His
1   5   10   15

Thr Trp Gln Ala Gln Ala Val Pro Ile Leu Pro Leu Gly Leu Ala Pro
            20   25   30

Asp Thr Phe Asp Asp Thr Tyr Val Gly Cys Ala Glu Glu Met Glu Glu
        35   40   45

Lys Ala Ala Pro Leu Leu Lys Glu Glu Met Ala His His Ala Leu Leu
    50   55   60

Arg Glu Ser Trp Glu Ala Ala Gln Glu Thr Trp Glu Asp Lys Arg Arg
65   70   75   80

Gly Leu Thr Leu Pro Pro Gly Phe Lys Ala Gln Asn Gly Ile Ala Ile
                85   90   95

Met Val Tyr Thr Asn Ser Ser Asn Thr Leu Tyr Trp Glu Leu Asn Gln
            100   105   110

Ala Val Arg Thr Gly Gly Gly Ser Arg Glu Leu Tyr Met Arg His Phe
        115   120   125

Pro Phe Lys Ala Leu His Phe Tyr Leu Ile Arg Ala Leu Gln Leu Leu
    130   135   140

Arg Gly Ser Gly Gly Cys Ser Arg Gly Pro Gly Glu Val Val Phe Arg
145   150   155   160

Gly Val Gly Ser Leu Arg Phe Glu Pro Lys Arg Leu Gly Asp Ser Val
                165   170   175

Arg Leu Gly Gln Phe Ala Ser Ser Ser Leu Asp Lys Ala Val Ala His
            180   185   190

```
Arg Phe Gly Asn Ala Thr Leu Phe Ser Leu Thr Thr Cys Phe Gly Ala
        195                 200                 205

Pro Ile Gln Ala Phe Ser Val Phe Pro Lys Glu Arg Glu Val Leu Ile
    210                 215                 220

Pro Pro His Glu Val Phe Leu Val Thr Arg Phe Ser Gln Asp Gly Ala
225                 230                 235                 240

Gln Ser Leu Val Thr Leu Trp Ser Tyr Asn Gln Thr Cys Ser His Phe
                245                 250                 255

Asn Cys Ala Tyr Leu Gly Gly Glu Lys Arg Arg Gly Cys Val Ser Ala
            260                 265                 270

Pro Gly Ala Leu Gly Thr Gly Asp Leu His Met Thr Lys Arg His Leu
        275                 280                 285

Gln Gln Pro
    290
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<210> 3447
<211> 239
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 763; "

<220>
<221> source
<223> /note="Gene Symbol: ART5; "

<220>
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<223> /note="Gene Name:
ADP-ribosyltransferase 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q96L15; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380257"

<400> 3447

```
Met Ala Leu Ala Ala Leu Met Ile Ala Leu Gly Ser Leu Gly Leu His
```

```
1               5                   10                  15

Thr Trp Gln Ala Gln Ala Val Pro Ile Leu Pro Leu Gly Leu Ala Pro
            20                  25                  30

Asp Thr Phe Asp Asp Thr Tyr Val Gly Cys Ala Glu Glu Met Glu Glu
        35                  40                  45

Lys Ala Ala Pro Leu Leu Lys Glu Glu Met Ala His His Ala Leu Leu
    50                  55                  60

Arg Glu Ser Trp Glu Ala Ala Gln Glu Thr Trp Glu Asp Lys Arg Arg
65                  70                  75                  80

Gly Leu Thr Leu Pro Pro Gly Phe Lys Ala Gln Asn Gly Ile Ala Ile
                85                  90                  95

Met Val Tyr Thr Asn Ser Ser Asn Thr Leu Tyr Trp Glu Leu Asn Gln
            100                 105                 110

Ala Val Arg Thr Gly Gly Gly Ser Arg Glu Leu Tyr Met Arg His Phe
        115                 120                 125

Pro Phe Lys Ala Leu His Phe Tyr Leu Ile Arg Ala Leu Gln Leu Leu
    130                 135                 140

Arg Gly Ser Gly Gly Cys Ser Arg Gly Pro Gly Glu Val Val Phe Arg
145                 150                 155                 160

Gly Val Gly Ser Leu Arg Phe Glu Pro Lys Arg Leu Gly Asp Ser Val
                165                 170                 175

Arg Leu Gly Gln Phe Ala Ser Ser Ser Leu Asp Lys Ala Val Ala His
            180                 185                 190

Arg Phe Gly Glu Lys Arg Arg Gly Cys Val Ser Ala Pro Gly Val Gln
        195                 200                 205

Leu Gly Ser Gln Ser Glu Gly Ala Ser Ser Leu Pro Pro Trp Lys Thr
    210                 215                 220

Leu Leu Leu Ala Pro Gly Glu Phe Gln Leu Ser Gly Val Gly Pro
225                 230                 235
```

<210> 3448
<211> 291
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ART5; "

<220>
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<223> /note="Gene Name:
ADP-ribosyltransferase 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q96L15; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380258"

<400> 3448
Met Ala Leu Ala Ala Leu Met Ile Ala Leu Gly Ser Leu Gly Leu His
1   5   10   15

Thr Trp Gln Ala Gln Ala Val Pro Ile Leu Pro Leu Gly Leu Ala Pro
            20   25   30

Asp Thr Phe Asp Asp Thr Tyr Val Gly Cys Ala Glu Glu Met Glu Glu
        35   40   45

Lys Ala Ala Pro Leu Leu Lys Glu Glu Met Ala His His Ala Leu Leu
    50   55   60

Arg Glu Ser Trp Glu Ala Ala Gln Glu Thr Trp Glu Asp Lys Arg Arg
65   70   75   80

Gly Leu Thr Leu Pro Pro Gly Phe Lys Ala Gln Asn Gly Ile Ala Ile
                85   90   95

Met Val Tyr Thr Asn Ser Ser Asn Thr Leu Tyr Trp Glu Leu Asn Gln
            100   105   110

```
Ala Val Arg Thr Gly Gly Gly Ser Arg Glu Leu Tyr Met Arg His Phe
        115                 120                 125

Pro Phe Lys Ala Leu His Phe Tyr Leu Ile Arg Ala Leu Gln Leu Leu
    130                 135                 140

Arg Gly Ser Gly Gly Cys Ser Arg Gly Pro Gly Glu Val Val Phe Arg
145                 150                 155                 160

Gly Val Gly Ser Leu Arg Phe Glu Pro Lys Arg Leu Gly Asp Ser Val
                165                 170                 175

Arg Leu Gly Gln Phe Ala Ser Ser Ser Leu Asp Lys Ala Val Ala His
            180                 185                 190

Arg Phe Gly Asn Ala Thr Leu Phe Ser Leu Thr Thr Cys Phe Gly Ala
        195                 200                 205

Pro Ile Gln Ala Phe Ser Val Phe Pro Lys Glu Arg Glu Val Leu Ile
    210                 215                 220

Pro Pro His Glu Val Phe Leu Val Thr Arg Phe Ser Gln Asp Gly Ala
225                 230                 235                 240

Gln Ser Leu Val Thr Leu Trp Ser Tyr Asn Gln Thr Cys Ser His Phe
                245                 250                 255

Asn Cys Ala Tyr Leu Gly Gly Glu Lys Arg Arg Gly Cys Val Ser Ala
            260                 265                 270

Pro Gly Ala Leu Gly Thr Gly Asp Leu His Met Thr Lys Arg His Leu
        275                 280                 285

Gln Gln Pro
    290
```

<210> 3449
<211> 264
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ART5; "

<220>
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<223> /note="Gene Name:
ADP-ribosyltransferase 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402737"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3449
Xaa Glu Met Glu Glu Lys Ala Ala Pro Leu Leu Lys Glu Glu Met Ala
1 5 10 15

His His Ala Leu Leu Arg Glu Ser Trp Glu Ala Ala Gln Glu Thr Trp
20 25 30

Glu Asp Lys Arg Arg Gly Leu Thr Leu Pro Pro Gly Phe Lys Ala Gln
35 40 45

Asn Gly Ile Ala Ile Met Val Tyr Thr Asn Ser Ser Asn Thr Leu Tyr
50 55 60

Trp Glu Leu Asn Gln Ala Val Arg Thr Gly Gly Gly Ser Arg Glu Leu
65 70 75 80

Tyr Met Arg His Phe Pro Phe Lys Ala Leu His Phe Tyr Leu Ile Arg
85 90 95

Ala Leu Gln Leu Leu Arg Gly Ser Gly Gly Cys Ser Arg Gly Pro Gly
100 105 110

Glu Val Val Phe Arg Gly Val Gly Ser Leu Arg Phe Glu Pro Lys Arg
115 120 125

Leu Gly Asp Ser Val Arg Leu Gly Gln Phe Ala Ser Ser Ser Leu Asp
130 135 140

Lys Ala Val Ala His Arg Phe Gly Asn Ala Thr Leu Phe Ser Leu Thr

145 150 155 160

Thr Cys Phe Gly Ala Pro Ile Gln Ala Phe Ser Val Phe Pro Lys Glu
165 170 175

Arg Glu Val Leu Ile Pro Pro His Glu Val Phe Leu Val Thr Arg Phe
180 185 190

Ser Gln Asp Gly Ala Gln Ser Leu Val Thr Leu Trp Ser Tyr Asn Gln
195 200 205

Thr Cys Ser His Phe Asn Cys Ala Tyr Leu Gly Gly Glu Lys Arg Arg
210 215 220

Gly Cys Val Ser Ala Pro Gly Val Gln Leu Gly Ser Gln Ser Glu Gly
225 230 235 240

Ala Ser Ser Leu Pro Pro Trp Lys Thr Leu Leu Leu Ala Pro Gly Glu
245 250 255

Phe Gln Leu Ser Gly Val Gly Pro
260

<210> 3450
<211> 151
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 763; "

<220>
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<223> /note="Gene Symbol: ART5; "

<220>
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<223> /note="Gene Name:
ADP-ribosyltransferase 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413852"

<400> 3450
Ala Val Pro Ile Leu Pro Leu Gly Leu Ala Pro Asp Thr Phe Asp Asp
1 5 10 15

```
Thr Tyr Val Gly Cys Ala Glu Glu Met Glu Glu Lys Ala Ala Pro Leu
            20                  25                  30

Leu Lys Glu Glu Met Ala His His Ala Leu Leu Arg Glu Ser Trp Glu
        35                  40                  45

Ala Ala Gln Glu Thr Trp Glu Asp Lys Arg Arg Gly Leu Thr Leu Pro
    50                  55                  60

Pro Gly Phe Lys Ala Gln Asn Gly Ile Ala Ile Met Val Tyr Thr Asn
65                  70                  75                  80

Ser Ser Asn Thr Leu Tyr Trp Glu Leu Asn Gln Ala Ala Phe Ser Val
                85                  90                  95

Phe Pro Lys Glu Arg Glu Val Leu Ile Pro Pro His Glu Val Phe Leu
            100                 105                 110

Val Thr Arg Phe Ser Gln Asp Gly Ala Gln Ser Leu Val Thr Leu Trp
        115                 120                 125

Ser Tyr Asn Gln Thr Cys Ser His Phe Asn Cys Ala Tyr Leu Gly Gly
    130                 135                 140

Glu Lys Arg Arg Gly Cys Val
145                 150
```

<210> 3451
<211> 689
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 764; "

<220>
<221> source
<223> /note="Gene Symbol: ADRBK1; "

<220>
<221> source
<223> /note="Gene Name:
adrenergic, beta, receptor kinase 1; "

<220>
<221> source

<223> /note="Uniprot ID: P25098; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312262"

<400> 3451

```
Met Ala Asp Leu Glu Ala Val Leu Ala Asp Val Ser Tyr Leu Met Ala
1               5                  10                  15

Met Glu Lys Ser Lys Ala Thr Pro Ala Ala Arg Ala Ser Lys Lys Ile
            20                  25                  30

Leu Leu Pro Glu Pro Ser Ile Arg Ser Val Met Gln Lys Tyr Leu Glu
        35                  40                  45

Asp Arg Gly Glu Val Thr Phe Glu Lys Ile Phe Ser Gln Lys Leu Gly
    50                  55                  60

Tyr Leu Leu Phe Arg Asp Phe Cys Leu Asn His Leu Glu Glu Ala Arg
65                  70                  75                  80

Pro Leu Val Glu Phe Tyr Glu Glu Ile Lys Lys Tyr Glu Lys Leu Glu
                85                  90                  95

Thr Glu Glu Glu Arg Val Ala Arg Ser Arg Glu Ile Phe Asp Ser Tyr
            100                 105                 110

Ile Met Lys Glu Leu Leu Ala Cys Ser His Pro Phe Ser Lys Ser Ala
        115                 120                 125

Thr Glu His Val Gln Gly His Leu Gly Lys Lys Gln Val Pro Pro Asp
    130                 135                 140

Leu Phe Gln Pro Tyr Ile Glu Glu Ile Cys Gln Asn Leu Arg Gly Asp
145                 150                 155                 160

Val Phe Gln Lys Phe Ile Glu Ser Asp Lys Phe Thr Arg Phe Cys Gln
                165                 170                 175

Trp Lys Asn Val Glu Leu Asn Ile His Leu Thr Met Asn Asp Phe Ser
            180                 185                 190

Val His Arg Ile Ile Gly Arg Gly Gly Phe Gly Glu Val Tyr Gly Cys
        195                 200                 205
```

Arg Lys Ala Asp Thr Gly Lys Met Tyr Ala Met Lys Cys Leu Asp Lys
210 215 220

Lys Arg Ile Lys Met Lys Gln Gly Glu Thr Leu Ala Leu Asn Glu Arg
225 230 235 240

Ile Met Leu Ser Leu Val Ser Thr Gly Asp Cys Pro Phe Ile Val Cys
245 250 255

Met Ser Tyr Ala Phe His Thr Pro Asp Lys Leu Ser Phe Ile Leu Asp
260 265 270

Leu Met Asn Gly Gly Asp Leu His Tyr His Leu Ser Gln His Gly Val
275 280 285

Phe Ser Glu Ala Asp Met Arg Phe Tyr Ala Ala Glu Ile Ile Leu Gly
290 295 300

Leu Glu His Met His Asn Arg Phe Val Val Tyr Arg Asp Leu Lys Pro
305 310 315 320

Ala Asn Ile Leu Leu Asp Glu His Gly His Val Arg Ile Ser Asp Leu
325 330 335

Gly Leu Ala Cys Asp Phe Ser Lys Lys Lys Pro His Ala Ser Val Gly
340 345 350

Thr His Gly Tyr Met Ala Pro Glu Val Leu Gln Lys Gly Val Ala Tyr
355 360 365

Asp Ser Ser Ala Asp Trp Phe Ser Leu Gly Cys Met Leu Phe Lys Leu
370 375 380

Leu Arg Gly His Ser Pro Phe Arg Gln His Lys Thr Lys Asp Lys His
385 390 395 400

Glu Ile Asp Arg Met Thr Leu Thr Met Ala Val Glu Leu Pro Asp Ser
405 410 415

Phe Ser Pro Glu Leu Arg Ser Leu Leu Glu Gly Leu Leu Gln Arg Asp
420 425 430

```
Val Asn Arg Arg Leu Gly Cys Leu Gly Arg Gly Ala Gln Glu Val Lys
        435                 440                 445

Glu Ser Pro Phe Phe Arg Ser Leu Asp Trp Gln Met Val Phe Leu Gln
    450                 455                 460

Lys Tyr Pro Pro Pro Leu Ile Pro Pro Arg Gly Glu Val Asn Ala Ala
465                 470                 475                 480

Asp Ala Phe Asp Ile Gly Ser Phe Asp Glu Glu Asp Thr Lys Gly Ile
                485                 490                 495

Lys Leu Leu Asp Ser Asp Gln Glu Leu Tyr Arg Asn Phe Pro Leu Thr
            500                 505                 510

Ile Ser Glu Arg Trp Gln Gln Glu Val Ala Glu Thr Val Phe Asp Thr
        515                 520                 525

Ile Asn Ala Glu Thr Asp Arg Leu Glu Ala Arg Lys Lys Ala Lys Asn
    530                 535                 540

Lys Gln Leu Gly His Glu Glu Asp Tyr Ala Leu Gly Lys Asp Cys Ile
545                 550                 555                 560

Met His Gly Tyr Met Ser Lys Met Gly Asn Pro Phe Leu Thr Gln Trp
                565                 570                 575

Gln Arg Arg Tyr Phe Tyr Leu Phe Pro Asn Arg Leu Glu Trp Arg Gly
            580                 585                 590

Glu Gly Glu Ala Pro Gln Ser Leu Leu Thr Met Glu Glu Ile Gln Ser
        595                 600                 605

Val Glu Glu Thr Gln Ile Lys Glu Arg Lys Cys Leu Leu Leu Lys Ile
    610                 615                 620

Arg Gly Gly Lys Gln Phe Ile Leu Gln Cys Asp Ser Asp Pro Glu Leu
625                 630                 635                 640

Val Gln Trp Lys Lys Glu Leu Arg Asp Ala Tyr Arg Glu Ala Gln Gln
                645                 650                 655
```

```
Leu Val Gln Arg Val Pro Lys Met Lys Asn Lys Pro Arg Ser Pro Val
            660                 665                 670

Val Glu Leu Ser Lys Val Pro Leu Val Gln Arg Gly Ser Ala Asn Gly
        675                 680                 685

Leu
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<210> 3452
<211> 408
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 764; "

<220>
<221> source
<223> /note="Gene Symbol: ADRBK1; "

<220>
<221> source
<223> /note="Gene Name:
adrenergic, beta, receptor kinase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434126"

<400> 3452

```
Met Ala Asp Leu Glu Ala Val Leu Ala Asp Val Ser Tyr Leu Met Ala
1               5                   10                  15

Met Glu Lys Ser Lys Ala Thr Pro Ala Ala Arg Ala Ser Lys Lys Ile
            20                  25                  30

Leu Leu Pro Glu Pro Ser Ile Arg Ser Val Met Gln Lys Tyr Leu Glu
        35                  40                  45

Asp Arg Gly Glu Val Thr Phe Glu Lys Ile Phe Ser Gln Lys Leu Gly
    50                  55                  60

Tyr Leu Leu Phe Arg Asp Phe Cys Leu Asn His Leu Glu Glu Ala Arg
65                  70                  75                  80

Pro Leu Val Glu Phe Tyr Glu Glu Ile Lys Lys Tyr Glu Lys Leu Glu
                85                  90                  95
```

```
Thr Glu Glu Glu Arg Val Ala Arg Ser Arg Glu Ile Phe Asp Ser Tyr
            100                 105                 110

Ile Met Lys Glu Leu Leu Ala Cys Ser His Pro Phe Ser Lys Ser Ala
        115                 120                 125

Thr Glu His Val Gln Gly His Leu Gly Lys Lys Gln Val Pro Pro Asp
    130                 135                 140

Leu Phe Gln Pro Tyr Ile Glu Glu Ile Cys Gln Asn Leu Arg Gly Asp
145                 150                 155                 160

Val Phe Gln Lys Phe Ile Glu Ser Asp Lys Phe Thr Arg Phe Cys Gln
                165                 170                 175

Trp Lys Asn Val Glu Leu Asn Ile His Leu Thr Met Asn Asp Phe Ser
            180                 185                 190

Val His Arg Ile Ile Gly Arg Gly Gly Phe Gly Glu Val Tyr Gly Cys
        195                 200                 205

Arg Lys Ala Asp Thr Gly Lys Met Tyr Ala Met Lys Cys Leu Asp Lys
    210                 215                 220

Lys Arg Ile Lys Met Lys Gln Gly Glu Thr Leu Ala Leu Asn Glu Arg
225                 230                 235                 240

Ile Met Leu Ser Leu Val Ser Thr Gly Asp Cys Pro Phe Ile Val Cys
                245                 250                 255

Met Ser Tyr Ala Phe His Thr Pro Asp Lys Leu Ser Phe Ile Leu Asp
            260                 265                 270

Leu Met Asn Gly Gly Asp Leu His Tyr His Leu Ser Gln His Gly Val
        275                 280                 285

Phe Ser Glu Ala Asp Met Arg Phe Tyr Ala Ala Glu Ile Ile Leu Gly
    290                 295                 300

Leu Glu His Met His Asn Arg Phe Val Val Tyr Arg Asp Leu Lys Pro
305                 310                 315                 320
```

```
Ala Asn Ile Leu Leu Asp Glu His Gly His Val Arg Ile Ser Asp Leu
                325                 330                 335

Gly Leu Ala Cys Asp Phe Ser Lys Lys Lys Pro His Ala Ser Val Gly
            340                 345                 350

Thr His Gly Tyr Met Ala Pro Glu Val Leu Gln Lys Gly Ser Arg Cys
        355                 360                 365

Leu Cys Gly Val Ala Pro Ser Pro Pro Arg Gly Trp Val Gly Ala Pro
    370                 375                 380

Ser Pro Pro Val Tyr Ser Phe Pro Gly Ala Phe Leu Cys Arg Phe Leu
385                 390                 395                 400

Asn Val Ile Leu Lys Ser Glu Lys
                405
```

<210> 3453
<211> 688
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 765; "

<220>
<221> source
<223> /note="Gene Symbol: ADRBK2; "

<220>
<221> source
<223> /note="Gene Name:
adrenergic, beta, receptor kinase 2; "

<220>
<221> source
<223> /note="Uniprot ID: P35626; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000317578"

<400> 3453

```
Met Ala Asp Leu Glu Ala Val Leu Ala Asp Val Ser Tyr Leu Met Ala
1               5                   10                  15

Met Glu Lys Ser Lys Ala Thr Pro Ala Ala Arg Ala Ser Lys Arg Ile
```

```
            20                  25                  30

Val Leu Pro Glu Pro Ser Ile Arg Ser Val Met Gln Lys Tyr Leu Ala
        35                  40                  45

Glu Arg Asn Glu Ile Thr Phe Asp Lys Ile Phe Asn Gln Lys Ile Gly
    50                  55                  60

Phe Leu Leu Phe Lys Asp Phe Cys Leu Asn Glu Ile Asn Glu Ala Val
65                  70                  75                  80

Pro Gln Val Lys Phe Tyr Glu Glu Ile Lys Glu Tyr Glu Lys Leu Asp
                85                  90                  95

Asn Glu Glu Asp Arg Leu Cys Arg Ser Arg Gln Ile Tyr Asp Ala Tyr
            100                 105                 110

Ile Met Lys Glu Leu Leu Ser Cys Ser His Pro Phe Ser Lys Gln Ala
        115                 120                 125

Val Glu His Val Gln Ser His Leu Ser Lys Lys Gln Val Thr Ser Thr
    130                 135                 140

Leu Phe Gln Pro Tyr Ile Glu Glu Ile Cys Glu Ser Leu Arg Gly Asp
145                 150                 155                 160

Ile Phe Gln Lys Phe Met Glu Ser Asp Lys Phe Thr Arg Phe Cys Gln
                165                 170                 175

Trp Lys Asn Val Glu Leu Asn Ile His Leu Thr Met Asn Glu Phe Ser
            180                 185                 190

Val His Arg Ile Ile Gly Arg Gly Gly Phe Gly Glu Val Tyr Gly Cys
        195                 200                 205

Arg Lys Ala Asp Thr Gly Lys Met Tyr Ala Met Lys Cys Leu Asp Lys
    210                 215                 220

Lys Arg Ile Lys Met Lys Gln Gly Glu Thr Leu Ala Leu Asn Glu Arg
225                 230                 235                 240

Ile Met Leu Ser Leu Val Ser Thr Gly Asp Cys Pro Phe Ile Val Cys
                245                 250                 255
```

```
Met Thr Tyr Ala Phe His Thr Pro Asp Lys Leu Cys Phe Ile Leu Asp
            260                 265                 270

Leu Met Asn Gly Gly Asp Leu His Tyr His Leu Ser Gln His Gly Val
        275                 280                 285

Phe Ser Glu Lys Glu Met Arg Phe Tyr Ala Thr Glu Ile Ile Leu Gly
    290                 295                 300

Leu Glu His Met His Asn Arg Phe Val Val Tyr Arg Asp Leu Lys Pro
305                 310                 315                 320

Ala Asn Ile Leu Leu Asp Glu His Gly His Ala Arg Ile Ser Asp Leu
                325                 330                 335

Gly Leu Ala Cys Asp Phe Ser Lys Lys Lys Pro His Ala Ser Val Gly
            340                 345                 350

Thr His Gly Tyr Met Ala Pro Glu Val Leu Gln Lys Gly Thr Ala Tyr
        355                 360                 365

Asp Ser Ser Ala Asp Trp Phe Ser Leu Gly Cys Met Leu Phe Lys Leu
    370                 375                 380

Leu Arg Gly His Ser Pro Phe Arg Gln His Lys Thr Lys Asp Lys His
385                 390                 395                 400

Glu Ile Asp Arg Met Thr Leu Thr Val Asn Val Glu Leu Pro Asp Thr
                405                 410                 415

Phe Ser Pro Glu Leu Lys Ser Leu Leu Glu Gly Leu Leu Gln Arg Asp
            420                 425                 430

Val Ser Lys Arg Leu Gly Cys His Gly Gly Gly Ser Gln Glu Val Lys
        435                 440                 445

Glu His Ser Phe Phe Lys Gly Val Asp Trp Gln His Val Tyr Leu Gln
    450                 455                 460

Lys Tyr Pro Pro Pro Leu Ile Pro Pro Arg Gly Glu Val Asn Ala Ala
465                 470                 475                 480
```

Asp Ala Phe Asp Ile Gly Ser Phe Asp Glu Glu Asp Thr Lys Gly Ile
485 490 495

Lys Leu Leu Asp Cys Asp Gln Glu Leu Tyr Lys Asn Phe Pro Leu Val
500 505 510

Ile Ser Glu Arg Trp Gln Gln Glu Val Thr Glu Thr Val Tyr Glu Ala
515 520 525

Val Asn Ala Asp Thr Asp Lys Ile Glu Ala Arg Lys Arg Ala Lys Asn
530 535 540

Lys Gln Leu Gly His Glu Glu Asp Tyr Ala Leu Gly Lys Asp Cys Ile
545 550 555 560

Met His Gly Tyr Met Leu Lys Leu Gly Asn Pro Phe Leu Thr Gln Trp
565 570 575

Gln Arg Arg Tyr Phe Tyr Leu Phe Pro Asn Arg Leu Glu Trp Arg Gly
580 585 590

Glu Gly Glu Ser Arg Gln Asn Leu Leu Thr Met Glu Gln Ile Leu Ser
595 600 605

Val Glu Glu Thr Gln Ile Lys Asp Lys Lys Cys Ile Leu Phe Arg Ile
610 615 620

Lys Gly Gly Lys Gln Phe Val Leu Gln Cys Glu Ser Asp Pro Glu Phe
625 630 635 640

Val Gln Trp Lys Lys Glu Leu Asn Glu Thr Phe Lys Glu Ala Gln Arg
645 650 655

Leu Leu Arg Arg Ala Pro Lys Phe Leu Asn Lys Pro Arg Ser Gly Thr
660 665 670

Val Glu Leu Pro Lys Pro Ser Leu Cys His Arg Asn Ser Asn Gly Leu
675 680 685

<210> 3454
<211> 45
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 765; "

<220>
<221> source
<223> /note="Gene Symbol: ADRBK2; "

<220>
<221> source
<223> /note="Gene Name:
adrenergic, beta, receptor kinase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393688"

<400> 3454
Thr Pro Ala Ala Arg Ala Ser Lys Arg Ile Val Leu Pro Glu Pro Ser
1 5 10 15

Ile Arg Ser Val Met Gln Lys Tyr Leu Ala Glu Arg Asn Glu Ile Thr
20 25 30

Phe Asp Lys Ile Phe Asn Gln Lys Ile Asp Lys Gly Ile
35 40 45

<210> 3455
<211> 387
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 765; "

<220>
<221> source
<223> /note="Gene Symbol: ADRBK2; "

<220>
<221> source
<223> /note="Gene Name:
adrenergic, beta, receptor kinase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478925"

<400> 3455
Met Ala Asp Leu Glu Ala Val Leu Ala Asp Val Ser Tyr Leu Met Ala
1 5 10 15

```
Met Glu Lys Ser Lys Ala Thr Pro Ala Ala Arg Ala Ser Lys Arg Ile
            20                  25                  30

Val Leu Pro Glu Pro Ser Ile Arg Ser Val Met Gln Lys Tyr Leu Ala
        35                  40                  45

Glu Arg Asn Glu Ile Thr Phe Asp Lys Ile Phe Asn Gln Lys Ile Gly
    50                  55                  60

Phe Leu Leu Phe Lys Asp Phe Cys Leu Asn Glu Ile Asn Glu Ala Val
65                  70                  75                  80

Pro Gln Val Lys Phe Tyr Glu Glu Ile Lys Glu Tyr Glu Lys Leu Asp
                85                  90                  95

Asn Glu Glu Asp Arg Leu Cys Arg Ser Arg Gln Ile Tyr Asp Ala Tyr
            100                 105                 110

Ile Met Lys Glu Leu Leu Ser Cys Ser His Pro Phe Ser Lys Gln Ala
        115                 120                 125

Val Glu His Val Gln Ser His Leu Ser Lys Lys Gln Val Thr Ser Thr
    130                 135                 140

Leu Phe Gln Pro Tyr Ile Glu Glu Ile Cys Glu Ser Leu Arg Gly Asp
145                 150                 155                 160

Ile Phe Gln Lys Phe Met Glu Ser Asp Lys Phe Thr Arg Phe Cys Gln
                165                 170                 175

Trp Lys Asn Val Glu Leu Asn Ile His Leu Thr Met Asn Glu Phe Ser
            180                 185                 190

Val His Arg Ile Ile Gly Arg Gly Gly Phe Gly Glu Val Tyr Gly Cys
        195                 200                 205

Arg Lys Ala Asp Thr Gly Lys Met Tyr Ala Met Lys Cys Leu Asp Lys
    210                 215                 220

Lys Arg Ile Lys Met Lys Gln Gly Glu Thr Leu Ala Leu Asn Glu Arg
225                 230                 235                 240
```

```
Ile Met Leu Ser Leu Val Ser Thr Gly Asp Cys Pro Phe Ile Val Cys
                245                 250                 255

Met Thr Tyr Ala Phe His Thr Pro Asp Lys Leu Cys Phe Ile Leu Asp
            260                 265                 270

Leu Met Asn Gly Gly Asp Leu His Tyr His Leu Ser Gln His Gly Val
        275                 280                 285

Phe Ser Glu Lys Glu Met Arg Phe Tyr Ala Thr Glu Ile Ile Leu Gly
    290                 295                 300

Leu Glu His Met His Asn Arg Phe Val Val Tyr Arg Asp Leu Lys Pro
305                 310                 315                 320

Ala Asn Ile Leu Leu Asp Glu His Gly His Ala Arg Ile Ser Asp Leu
                325                 330                 335

Gly Leu Ala Cys Asp Phe Ser Lys Lys Lys Pro His Ala Ser Val Gly
            340                 345                 350

Thr His Gly Tyr Met Ala Pro Glu Val Leu Gln Lys Gly Thr Ala Tyr
        355                 360                 365

Asp Ser Ser Ala Asp Trp Phe Ser Leu Gly Cys Met Leu Phe Lys Leu
    370                 375                 380

Leu Arg Gly
385


<210> 3456
<211> 466
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 766; "

<220>
<221> source
<223> /note="Gene Symbol: ADRA1A; "

<220>
<221> source
<223> /note="Gene Name:
      adrenoceptor alpha 1A; "
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<220>
<221> source
<223> /note="Uniprot ID: P35348; "

<220>
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<400> 3456
Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1   5   10   15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
            20   25   30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
        35   40   45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50   55   60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65   70   75   80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85   90   95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100   105   110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115   120   125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130   135   140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145   150   155   160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
                165   170   175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180   185   190

```
Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser
    290                 295                 300

Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys
305                 310                 315                 320

Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala
                325                 330                 335

Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser
            340                 345                 350

Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu
        355                 360                 365

Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr
    370                 375                 380

Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe
385                 390                 395                 400

Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln
                405                 410                 415
```

```
Ser Ser Cys Thr Thr Ala Arg Val Arg Ser Lys Ser Phe Leu Gln Val
            420                 425                 430

Cys Cys Cys Val Gly Pro Ser Thr Pro Ser Leu Asp Lys Asn His Gln
        435                 440                 445

Val Pro Thr Ile Lys Val His Thr Ile Ser Leu Ser Glu Asn Gly Glu
    450                 455                 460

Glu Val
465
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<210> 3457
<211> 455
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 766; "

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<223> /note="Gene Symbol: ADRA1A; "

<220>
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<223> /note="Gene Name:
adrenoceptor alpha 1A; "

<220>
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<400> 3457

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Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1               5                  10                  15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
            20                  25                  30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
        35                  40                  45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50                  55                  60
```

```
Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65                  70                  75                  80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85                  90                  95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100                 105                 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115                 120                 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130                 135                 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145                 150                 155                 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
                165                 170                 175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285
```

```
Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser
    290                 295                 300

Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys
305                 310                 315                 320

Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala
                325                 330                 335

Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser
            340                 345                 350

Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu
        355                 360                 365

Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr
    370                 375                 380

Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe
385                 390                 395                 400

Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln
                405                 410                 415

Ser Ser Cys Thr Thr Ala Arg Arg Gly Met Asp Cys Arg Tyr Phe Thr
            420                 425                 430

Lys Asn Cys Arg Glu His Ile Lys His Val Asn Phe Met Met Pro Pro
        435                 440                 445

Trp Arg Lys Gly Ser Glu Cys
    450                 455


<210> 3458
<211> 342
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<213> Homo sapiens

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<220>
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adrenoceptor alpha 1A; "

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<400> 3458
Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1 5 10 15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
20 25 30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
35 40 45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
50 55 60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65 70 75 80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
85 90 95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
100 105 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
115 120 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
130 135 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145 150 155 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
165 170 175

```
Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Asp Glu Glu Thr Glu Ala Gln Glu Gly Lys
    290                 295                 300

Asn Asp Ser Pro Ser Phe Lys Gln Pro Val His His Ala Ala Val Leu
305                 310                 315                 320

Gly Leu Glu Val Met Glu Lys Glu Asn Leu Glu Gly Val Ser Arg Lys
                325                 330                 335

Asp Thr Cys Gly Val Trp
            340


<210> 3459
<211> 466
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 3459

```
Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1               5                  10                  15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
            20                  25                  30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
        35                  40                  45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50                  55                  60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65                  70                  75                  80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85                  90                  95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100                 105                 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115                 120                 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130                 135                 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145                 150                 155                 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
```

```
                165                 170                 175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser
    290                 295                 300

Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys
305                 310                 315                 320

Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala
                325                 330                 335

Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser
            340                 345                 350

Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu
        355                 360                 365

Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr
    370                 375                 380

Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe
385                 390                 395                 400
```

Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln
405 410 415

Ser Ser Cys Thr Thr Ala Arg Val Arg Ser Lys Ser Phe Leu Gln Val
420 425 430

Cys Cys Cys Val Gly Pro Ser Thr Pro Ser Leu Asp Lys Asn His Gln
435 440 445

Val Pro Thr Ile Lys Val His Thr Ile Ser Leu Ser Glu Asn Gly Glu
450 455 460

Glu Val
465

<210> 3460
<211> 429
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: P35348; "

<220>
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<223> /note="ENSP ID: ENSP00000369956"

<400> 3460
Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1 5 10 15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
20 25 30

```
Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
        35                  40                  45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50                  55                  60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65                  70                  75                  80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85                  90                  95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100                 105                 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115                 120                 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130                 135                 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145                 150                 155                 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
                165                 170                 175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
```

```
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser
    290                 295                 300

Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys
305                 310                 315                 320

Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala
                325                 330                 335

Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser
            340                 345                 350

Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu
        355                 360                 365

Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr
    370                 375                 380

Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe
385                 390                 395                 400

Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln
                405                 410                 415

Ser Ser Cys Thr Thr Ala Arg Gly His Thr Pro Met Thr
            420                 425


<210> 3461
<211> 475
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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<223> /note="Uniprot ID: P35348; "

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<223> /note="ENSP ID: ENSP00000369960"

<400> 3461

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Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1               5                  10                  15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
            20                  25                  30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
        35                  40                  45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50                  55                  60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65                  70                  75                  80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85                  90                  95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100                 105                 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115                 120                 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130                 135                 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145                 150                 155                 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
                165                 170                 175
```

```
Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser
    290                 295                 300

Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys
305                 310                 315                 320

Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala
                325                 330                 335

Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser
            340                 345                 350

Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu
        355                 360                 365

Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr
    370                 375                 380

Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe
385                 390                 395                 400

Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln
```

405 410 415

Ser Ser Cys Thr Thr Ala Arg Thr Lys Ser Arg Ser Val Thr Arg Leu
420 425 430

Glu Cys Ser Gly Met Ile Leu Ala His Cys Asn Leu Arg Leu Pro Gly
435 440 445

Ser Arg Asp Ser Pro Ala Ser Ala Ser Gln Ala Ala Gly Thr Thr Gly
450 455 460

Met Cys His Gln Ala Asp Ala Thr Arg Pro Ser
465 470 475

<210> 3462
<211> 324
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: P35348; "

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<400> 3462
Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1 5 10 15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
20 25 30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
35 40 45

```
Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50                  55                  60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65                  70                  75                  80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85                  90                  95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100                 105                 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115                 120                 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130                 135                 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145                 150                 155                 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
                165                 170                 175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270
```

```
Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Gly Thr Tyr Ile Leu Lys Tyr Asp Val Leu
    290                 295                 300

Phe Trp Arg Lys Gly Leu Ser Val Cys Thr Arg Leu Arg Glu Arg Lys
305                 310                 315                 320

Glu Ile Lys Asn
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<210> 3463
<211> 427
<212> PRT
<213> Homo sapiens

<220>
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<400> 3463

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Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1               5                  10                  15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
            20                  25                  30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
        35                  40                  45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50                  55                  60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65                  70                  75                  80
```

```
Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85                  90                  95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100                 105                 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115                 120                 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130                 135                 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145                 150                 155                 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
                165                 170                 175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220

Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Gly Ser Phe Phe Pro Asp Phe Lys Pro Ser
    290                 295                 300
```

```
Glu Thr Val Phe Lys Ile Val Phe Trp Leu Gly Tyr Leu Asn Ser Cys
305                 310                 315                 320

Ile Asn Pro Ile Ile Tyr Pro Cys Ser Ser Gln Glu Phe Lys Lys Ala
                325                 330                 335

Phe Gln Asn Val Leu Arg Ile Gln Cys Leu Cys Arg Lys Gln Ser Ser
            340                 345                 350

Lys His Ala Leu Gly Tyr Thr Leu His Pro Pro Ser Gln Ala Val Glu
        355                 360                 365

Gly Gln His Lys Asp Met Val Arg Ile Pro Val Gly Ser Arg Glu Thr
    370                 375                 380

Phe Tyr Arg Ile Ser Lys Thr Asp Gly Val Cys Glu Trp Lys Phe Phe
385                 390                 395                 400

Ser Ser Met Pro Arg Gly Ser Ala Arg Ile Thr Val Ser Lys Asp Gln
                405                 410                 415

Ser Ser Cys Thr Thr Ala Arg Ser Ser Gly Phe
            420                 425


<210> 3464
<211> 324
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000431073"

<400> 3464

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Met Val Phe Leu Ser Gly Asn Ala Ser Asp Ser Ser Asn Cys Thr Gln
1               5                  10                  15

Pro Pro Ala Pro Val Asn Ile Ser Lys Ala Ile Leu Leu Gly Val Ile
            20                  25                  30

Leu Gly Gly Leu Ile Leu Phe Gly Val Leu Gly Asn Ile Leu Val Ile
        35                  40                  45

Leu Ser Val Ala Cys His Arg His Leu His Ser Val Thr His Tyr Tyr
    50                  55                  60

Ile Val Asn Leu Ala Val Ala Asp Leu Leu Leu Thr Ser Thr Val Leu
65                  70                  75                  80

Pro Phe Ser Ala Ile Phe Glu Val Leu Gly Tyr Trp Ala Phe Gly Arg
                85                  90                  95

Val Phe Cys Asn Ile Trp Ala Ala Val Asp Val Leu Cys Cys Thr Ala
            100                 105                 110

Ser Ile Met Gly Leu Cys Ile Ile Ser Ile Asp Arg Tyr Ile Gly Val
        115                 120                 125

Ser Tyr Pro Leu Arg Tyr Pro Thr Ile Val Thr Gln Arg Arg Gly Leu
    130                 135                 140

Met Ala Leu Leu Cys Val Trp Ala Leu Ser Leu Val Ile Ser Ile Gly
145                 150                 155                 160

Pro Leu Phe Gly Trp Arg Gln Pro Ala Pro Glu Asp Glu Thr Ile Cys
                165                 170                 175

Gln Ile Asn Glu Glu Pro Gly Tyr Val Leu Phe Ser Ala Leu Gly Ser
            180                 185                 190

Phe Tyr Leu Pro Leu Ala Ile Ile Leu Val Met Tyr Cys Arg Val Tyr
        195                 200                 205

Val Val Ala Lys Arg Glu Ser Arg Gly Leu Lys Ser Gly Leu Lys Thr
    210                 215                 220
```

```
Asp Lys Ser Asp Ser Glu Gln Val Thr Leu Arg Ile His Arg Lys Asn
225                 230                 235                 240

Ala Pro Ala Gly Gly Ser Gly Met Ala Ser Ala Lys Thr Lys Thr His
                245                 250                 255

Phe Ser Val Arg Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys
            260                 265                 270

Thr Leu Gly Ile Val Val Gly Cys Phe Val Leu Cys Trp Leu Pro Phe
        275                 280                 285

Phe Leu Val Met Pro Ile Gly Thr Tyr Ile Leu Lys Tyr Asp Val Leu
    290                 295                 300

Phe Trp Arg Lys Gly Leu Ser Val Cys Thr Arg Leu Arg Glu Arg Lys
305                 310                 315                 320

Glu Ile Lys Asn
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<210> 3465
<211> 520
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 767; "

<220>
<221> source
<223> /note="Gene Symbol: ADRA1B; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor alpha 1B; "

<220>
<221> source
<223> /note="Uniprot ID: P35368; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000306662"

<400> 3465

```
Met Asn Pro Asp Leu Asp Thr Gly His Asn Thr Ser Ala Pro Ala His
1               5                  10                  15

Trp Gly Glu Leu Lys Asn Ala Asn Phe Thr Gly Pro Asn Gln Thr Ser
            20                  25                  30

Ser Asn Ser Thr Leu Pro Gln Leu Asp Ile Thr Arg Ala Ile Ser Val
        35                  40                  45

Gly Leu Val Leu Gly Ala Phe Ile Leu Phe Ala Ile Val Gly Asn Ile
    50                  55                  60

Leu Val Ile Leu Ser Val Ala Cys Asn Arg His Leu Arg Thr Pro Thr
65                  70                  75                  80

Asn Tyr Phe Ile Val Asn Leu Ala Met Ala Asp Leu Leu Leu Ser Phe
                85                  90                  95

Thr Val Leu Pro Phe Ser Ala Ala Leu Glu Val Leu Gly Tyr Trp Val
            100                 105                 110

Leu Gly Arg Ile Phe Cys Asp Ile Trp Ala Ala Val Asp Val Leu Cys
        115                 120                 125

Cys Thr Ala Ser Ile Leu Ser Leu Cys Ala Ile Ser Ile Asp Arg Tyr
    130                 135                 140

Ile Gly Val Arg Tyr Ser Leu Gln Tyr Pro Thr Leu Val Thr Arg Arg
145                 150                 155                 160

Lys Ala Ile Leu Ala Leu Leu Ser Val Trp Val Leu Ser Thr Val Ile
                165                 170                 175

Ser Ile Gly Pro Leu Leu Gly Trp Lys Glu Pro Ala Pro Asn Asp Asp
            180                 185                 190

Lys Glu Cys Gly Val Thr Glu Glu Pro Phe Tyr Ala Leu Phe Ser Ser
        195                 200                 205

Leu Gly Ser Phe Tyr Ile Pro Leu Ala Val Ile Leu Val Met Tyr Cys
    210                 215                 220

Arg Val Tyr Ile Val Ala Lys Arg Thr Thr Lys Asn Leu Glu Ala Gly
```

225 230 235 240

Val Met Lys Glu Met Ser Asn Ser Lys Glu Leu Thr Leu Arg Ile His
245 250 255

Ser Lys Asn Phe His Glu Asp Thr Leu Ser Ser Thr Lys Ala Lys Gly
260 265 270

His Asn Pro Arg Ser Ser Ile Ala Val Lys Leu Phe Lys Phe Ser Arg
275 280 285

Glu Lys Lys Ala Ala Lys Thr Leu Gly Ile Val Val Gly Met Phe Ile
290 295 300

Leu Cys Trp Leu Pro Phe Phe Ile Ala Leu Pro Leu Gly Ser Leu Phe
305 310 315 320

Ser Thr Leu Lys Pro Pro Asp Ala Val Phe Lys Val Val Phe Trp Leu
325 330 335

Gly Tyr Phe Asn Ser Cys Leu Asn Pro Ile Ile Tyr Pro Cys Ser Ser
340 345 350

Lys Glu Phe Lys Arg Ala Phe Val Arg Ile Leu Gly Cys Gln Cys Arg
355 360 365

Gly Arg Gly Arg Arg Arg Arg Arg Arg Arg Arg Arg Leu Gly Gly Cys
370 375 380

Ala Tyr Thr Tyr Arg Pro Trp Thr Arg Gly Gly Ser Leu Glu Arg Ser
385 390 395 400

Gln Ser Arg Lys Asp Ser Leu Asp Asp Ser Gly Ser Cys Leu Ser Gly
405 410 415

Ser Gln Arg Thr Leu Pro Ser Ala Ser Pro Ser Pro Gly Tyr Leu Gly
420 425 430

Arg Gly Ala Pro Pro Pro Val Glu Leu Cys Ala Phe Pro Glu Trp Lys
435 440 445

Ala Pro Gly Ala Leu Leu Ser Leu Pro Ala Pro Glu Pro Pro Gly Arg
450 455 460

```
Arg Gly Arg His Asp Ser Gly Pro Leu Phe Thr Phe Lys Leu Leu Thr
465                 470                 475                 480


Glu Pro Glu Ser Pro Gly Thr Asp Gly Gly Ala Ser Asn Gly Gly Cys
                485                 490                 495


Glu Ala Ala Ala Asp Val Ala Asn Gly Gln Pro Gly Phe Lys Ser Asn
            500                 505                 510


Met Pro Leu Ala Pro Gly Gln Phe
        515                 520


<210> 3466
<211> 572
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 768; "

<220>
<221> source
<223> /note="Gene Symbol: ADRA1D; "

<220>
<221> source
<223> /note="Gene Name:
      adrenoceptor alpha 1D; "

<220>
<221> source
<223> /note="Uniprot ID:  P25100; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368766"

<400> 3466
Met Thr Phe Arg Asp Leu Leu Ser Val Ser Phe Glu Gly Pro Arg Pro
1               5                   10                  15


Asp Ser Ser Ala Gly Gly Ser Ser Ala Gly Gly Gly Gly Gly Ser Ala
            20                  25                  30


Gly Gly Ala Ala Pro Ser Glu Gly Pro Ala Val Gly Gly Val Pro Gly
        35                  40                  45
```

```
Gly Ala Gly Gly Gly Gly Gly Val Val Gly Ala Gly Ser Gly Glu Asp
    50                  55                  60

Asn Arg Ser Ser Ala Gly Glu Pro Gly Ser Ala Gly Ala Gly Gly Asp
65                  70                  75                  80

Val Asn Gly Thr Ala Ala Val Gly Gly Leu Val Val Ser Ala Gln Gly
                85                  90                  95

Val Gly Val Gly Val Phe Leu Ala Ala Phe Ile Leu Met Ala Val Ala
            100                 105                 110

Gly Asn Leu Leu Val Ile Leu Ser Val Ala Cys Asn Arg His Leu Gln
        115                 120                 125

Thr Val Thr Asn Tyr Phe Ile Val Asn Leu Ala Val Ala Asp Leu Leu
    130                 135                 140

Leu Ser Ala Thr Val Leu Pro Phe Ser Ala Thr Met Glu Val Leu Gly
145                 150                 155                 160

Phe Trp Ala Phe Gly Arg Ala Phe Cys Asp Val Trp Ala Ala Val Asp
                165                 170                 175

Val Leu Cys Cys Thr Ala Ser Ile Leu Ser Leu Cys Thr Ile Ser Val
            180                 185                 190

Asp Arg Tyr Val Gly Val Arg His Ser Leu Lys Tyr Pro Ala Ile Met
        195                 200                 205

Thr Glu Arg Lys Ala Ala Ala Ile Leu Ala Leu Leu Trp Val Val Ala
    210                 215                 220

Leu Val Val Ser Val Gly Pro Leu Leu Gly Trp Lys Glu Pro Val Pro
225                 230                 235                 240

Pro Asp Glu Arg Phe Cys Gly Ile Thr Glu Glu Ala Gly Tyr Ala Val
                245                 250                 255

Phe Ser Ser Val Cys Ser Phe Tyr Leu Pro Met Ala Val Ile Val Val
            260                 265                 270

Met Tyr Cys Arg Val Tyr Val Val Ala Arg Ser Thr Thr Arg Ser Leu
```

```
        275                 280                 285

Glu Ala Gly Val Lys Arg Glu Arg Gly Lys Ala Ser Glu Val Val Leu
    290                 295                 300

Arg Ile His Cys Arg Gly Ala Ala Thr Gly Ala Asp Gly Ala His Gly
305                 310                 315                 320

Met Arg Ser Ala Lys Gly His Thr Phe Arg Ser Ser Leu Ser Val Arg
                325                 330                 335

Leu Leu Lys Phe Ser Arg Glu Lys Lys Ala Ala Lys Thr Leu Ala Ile
            340                 345                 350

Val Val Gly Val Phe Val Leu Cys Trp Phe Pro Phe Phe Phe Val Leu
        355                 360                 365

Pro Leu Gly Ser Leu Phe Pro Gln Leu Lys Pro Ser Glu Gly Val Phe
    370                 375                 380

Lys Val Ile Phe Trp Leu Gly Tyr Phe Asn Ser Cys Val Asn Pro Leu
385                 390                 395                 400

Ile Tyr Pro Cys Ser Ser Arg Glu Phe Lys Arg Ala Phe Leu Arg Leu
                405                 410                 415

Leu Arg Cys Gln Cys Arg Arg Arg Arg Arg Arg Arg Pro Leu Trp Arg
            420                 425                 430

Val Tyr Gly His His Trp Arg Ala Ser Thr Ser Gly Leu Arg Gln Asp
        435                 440                 445

Cys Ala Pro Ser Ser Gly Asp Ala Pro Pro Gly Ala Pro Leu Ala Leu
    450                 455                 460

Thr Ala Leu Pro Asp Pro Asp Pro Glu Pro Pro Gly Thr Pro Glu Met
465                 470                 475                 480

Gln Ala Pro Val Ala Ser Arg Arg Lys Pro Pro Ser Ala Phe Arg Glu
                485                 490                 495

Trp Arg Leu Leu Gly Pro Phe Arg Arg Pro Thr Thr Gln Leu Arg Ala
            500                 505                 510
```

```
Lys Val Ser Ser Leu Ser His Lys Ile Arg Ala Gly Gly Ala Gln Arg
        515                 520                 525

Ala Glu Ala Ala Cys Ala Gln Arg Ser Glu Val Glu Ala Val Ser Leu
    530                 535                 540

Gly Val Pro His Glu Val Ala Glu Gly Ala Thr Cys Gln Ala Tyr Glu
545                 550                 555                 560

Leu Ala Asp Tyr Ser Asn Leu Arg Glu Thr Asp Ile
                565                 570


<210> 3467
<211> 465
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 769; "

<220>
<221> source
<223> /note="Gene Symbol: ADRA2A; "

<220>
<221> source
<223> /note="Gene Name:
      adrenoceptor alpha 2A; "

<220>
<221> source
<223> /note="Uniprot ID:  P08913; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000280155"

<400> 3467
Met Phe Arg Gln Glu Gln Pro Leu Ala Glu Gly Ser Phe Ala Pro Met
1               5                   10                  15

Gly Ser Leu Gln Pro Asp Ala Gly Asn Ala Ser Trp Asn Gly Thr Glu
            20                  25                  30

Ala Pro Gly Gly Gly Ala Arg Ala Thr Pro Tyr Ser Leu Gln Val Thr
        35                  40                  45
```

```
Leu Thr Leu Val Cys Leu Ala Gly Leu Leu Met Leu Leu Thr Val Phe
    50                  55                  60

Gly Asn Val Leu Val Ile Ile Ala Val Phe Thr Ser Arg Ala Leu Lys
65                  70                  75                  80

Ala Pro Gln Asn Leu Phe Leu Val Ser Leu Ala Ser Ala Asp Ile Leu
                85                  90                  95

Val Ala Thr Leu Val Ile Pro Phe Ser Leu Ala Asn Glu Val Met Gly
            100                 105                 110

Tyr Trp Tyr Phe Gly Lys Ala Trp Cys Glu Ile Tyr Leu Ala Leu Asp
        115                 120                 125

Val Leu Phe Cys Thr Ser Ser Ile Val His Leu Cys Ala Ile Ser Leu
    130                 135                 140

Asp Arg Tyr Trp Ser Ile Thr Gln Ala Ile Glu Tyr Asn Leu Lys Arg
145                 150                 155                 160

Thr Pro Arg Arg Ile Lys Ala Ile Ile Ile Thr Val Trp Val Ile Ser
                165                 170                 175

Ala Val Ile Ser Phe Pro Pro Leu Ile Ser Ile Glu Lys Lys Gly Gly
            180                 185                 190

Gly Gly Gly Pro Gln Pro Ala Glu Pro Arg Cys Glu Ile Asn Asp Gln
        195                 200                 205

Lys Trp Tyr Val Ile Ser Ser Cys Ile Gly Ser Phe Phe Ala Pro Cys
    210                 215                 220

Leu Ile Met Ile Leu Val Tyr Val Arg Ile Tyr Gln Ile Ala Lys Arg
225                 230                 235                 240

Arg Thr Arg Val Pro Pro Ser Arg Arg Gly Pro Asp Ala Val Ala Ala
                245                 250                 255

Pro Pro Gly Gly Thr Glu Arg Arg Pro Asn Gly Leu Gly Pro Glu Arg
            260                 265                 270

Ser Ala Gly Pro Gly Gly Ala Glu Ala Glu Pro Leu Pro Thr Gln Leu
```

```
        275                 280                 285

Asn Gly Ala Pro Gly Glu Pro Ala Pro Ala Gly Pro Arg Asp Thr Asp
    290                 295                 300

Ala Leu Asp Leu Glu Glu Ser Ser Ser Ser Asp His Ala Glu Arg Pro
305                 310                 315                 320

Pro Gly Pro Arg Arg Pro Glu Arg Gly Pro Arg Gly Lys Gly Lys Ala
                325                 330                 335

Arg Ala Ser Gln Val Lys Pro Gly Asp Ser Leu Pro Arg Arg Gly Pro
            340                 345                 350

Gly Ala Thr Gly Ile Gly Thr Pro Ala Ala Gly Pro Gly Glu Glu Arg
        355                 360                 365

Val Gly Ala Ala Lys Ala Ser Arg Trp Arg Gly Arg Gln Asn Arg Glu
    370                 375                 380

Lys Arg Phe Thr Phe Val Leu Ala Val Val Ile Gly Val Phe Val Val
385                 390                 395                 400

Cys Trp Phe Pro Phe Phe Phe Thr Tyr Thr Leu Thr Ala Val Gly Cys
                405                 410                 415

Ser Val Pro Arg Thr Leu Phe Lys Phe Phe Phe Trp Phe Gly Tyr Cys
            420                 425                 430

Asn Ser Ser Leu Asn Pro Val Ile Tyr Thr Ile Phe Asn His Asp Phe
        435                 440                 445

Arg Arg Ala Phe Lys Lys Ile Leu Cys Arg Gly Asp Arg Lys Arg Ile
    450                 455                 460

Val
465
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<210> 3468
<211> 450
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 770; "

<220>
<221> source
<223> /note="Gene Symbol: ADRA2B; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor alpha 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480573"

<400> 3468

```
Met Asp His Gln Asp Pro Tyr Ser Val Gln Ala Thr Ala Ala Ile Ala
1               5                  10                  15

Ala Ala Ile Thr Phe Leu Ile Leu Phe Thr Ile Phe Gly Asn Ala Leu
            20                  25                  30

Val Ile Leu Ala Val Leu Thr Ser Arg Ser Leu Arg Ala Pro Gln Asn
        35                  40                  45

Leu Phe Leu Val Ser Leu Ala Ala Ala Asp Ile Leu Val Ala Thr Leu
    50                  55                  60

Ile Ile Pro Phe Ser Leu Ala Asn Glu Leu Leu Gly Tyr Trp Tyr Phe
65                  70                  75                  80

Arg Arg Thr Trp Cys Glu Val Tyr Leu Ala Leu Asp Val Leu Phe Cys
                85                  90                  95

Thr Ser Ser Ile Val His Leu Cys Ala Ile Ser Leu Asp Arg Tyr Trp
            100                 105                 110

Ala Val Ser Arg Ala Leu Glu Tyr Asn Ser Lys Arg Thr Pro Arg Arg
        115                 120                 125

Ile Lys Cys Ile Ile Leu Thr Val Trp Leu Ile Ala Ala Val Ile Ser
    130                 135                 140

Leu Pro Pro Leu Ile Tyr Lys Gly Asp Gln Gly Pro Gln Pro Arg Gly
145                 150                 155                 160
```

```
Arg Pro Gln Cys Lys Leu Asn Gln Glu Ala Trp Tyr Ile Leu Ala Ser
                165                 170                 175

Ser Ile Gly Ser Phe Phe Ala Pro Cys Leu Ile Met Ile Leu Val Tyr
            180                 185                 190

Leu Arg Ile Tyr Leu Ile Ala Lys Arg Ser Asn Arg Arg Gly Pro Arg
        195                 200                 205

Ala Lys Gly Gly Pro Gly Gln Gly Glu Ser Lys Gln Pro Arg Pro Asp
    210                 215                 220

His Gly Gly Ala Leu Ala Ser Ala Lys Leu Pro Ala Leu Ala Ser Val
225                 230                 235                 240

Ala Ser Ala Arg Glu Val Asn Gly His Ser Lys Ser Thr Gly Glu Lys
                245                 250                 255

Glu Glu Gly Glu Thr Pro Glu Asp Thr Gly Thr Arg Ala Leu Pro Pro
            260                 265                 270

Ser Trp Ala Ala Leu Pro Asn Ser Gly Gln Gly Gln Lys Glu Gly Val
        275                 280                 285

Cys Gly Ala Ser Pro Glu Asp Glu Ala Glu Glu Glu Glu Glu Glu Glu
    290                 295                 300

Glu Glu Glu Glu Glu Cys Glu Pro Gln Ala Val Pro Val Ser Pro Ala
305                 310                 315                 320

Ser Ala Cys Ser Pro Pro Leu Gln Gln Pro Gln Gly Ser Arg Val Leu
                325                 330                 335

Ala Thr Leu Arg Gly Gln Val Leu Leu Gly Arg Gly Val Gly Ala Ile
            340                 345                 350

Gly Gly Gln Trp Trp Arg Arg Arg Ala Gln Leu Thr Arg Glu Lys Arg
        355                 360                 365

Phe Thr Phe Val Leu Ala Val Val Ile Gly Val Phe Val Leu Cys Trp
    370                 375                 380

Phe Pro Phe Phe Phe Ser Tyr Ser Leu Gly Ala Ile Cys Pro Lys His
```

385 390 395 400

Cys Lys Val Pro His Gly Leu Phe Gln Phe Phe Phe Trp Ile Gly Tyr
405 410 415

Cys Asn Ser Ser Leu Asn Pro Val Ile Tyr Thr Ile Phe Asn Gln Asp
420 425 430

Phe Arg Arg Ala Phe Arg Arg Ile Leu Cys Arg Pro Trp Thr Gln Thr
435 440 445

Ala Trp
450

<210> 3469
<211> 462
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 771; "

<220>
<221> source
<223> /note="Gene Symbol: ADRA2C; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor alpha 2C; "

<220>
<221> source
<223> /note="Uniprot ID: P18825; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386069"

<400> 3469
Met Ala Ser Pro Ala Leu Ala Ala Ala Leu Ala Val Ala Ala Ala Ala
1 5 10 15

Gly Pro Asn Ala Ser Gly Ala Gly Glu Arg Gly Ser Gly Gly Val Ala
20 25 30

Asn Ala Ser Gly Ala Ser Trp Gly Pro Pro Arg Gly Gln Tyr Ser Ala
35 40 45

```
Gly Ala Val Ala Gly Leu Ala Ala Val Val Gly Phe Leu Ile Val Phe
    50                  55                  60

Thr Val Val Gly Asn Val Leu Val Val Ile Ala Val Leu Thr Ser Arg
65                  70                  75                  80

Ala Leu Arg Ala Pro Gln Asn Leu Phe Leu Val Ser Leu Ala Ser Ala
                85                  90                  95

Asp Ile Leu Val Ala Thr Leu Val Met Pro Phe Ser Leu Ala Asn Glu
            100                 105                 110

Leu Met Ala Tyr Trp Tyr Phe Gly Gln Val Trp Cys Gly Val Tyr Leu
        115                 120                 125

Ala Leu Asp Val Leu Phe Cys Thr Ser Ser Ile Val His Leu Cys Ala
    130                 135                 140

Ile Ser Leu Asp Arg Tyr Trp Ser Val Thr Gln Ala Val Glu Tyr Asn
145                 150                 155                 160

Leu Lys Arg Thr Pro Arg Arg Val Lys Ala Thr Ile Val Ala Val Trp
                165                 170                 175

Leu Ile Ser Ala Val Ile Ser Phe Pro Pro Leu Val Ser Leu Tyr Arg
            180                 185                 190

Gln Pro Asp Gly Ala Ala Tyr Pro Gln Cys Gly Leu Asn Asp Glu Thr
        195                 200                 205

Trp Tyr Ile Leu Ser Ser Cys Ile Gly Ser Phe Phe Ala Pro Cys Leu
    210                 215                 220

Ile Met Gly Leu Val Tyr Ala Arg Ile Tyr Arg Val Ala Lys Leu Arg
225                 230                 235                 240

Thr Arg Thr Leu Ser Glu Lys Arg Ala Pro Val Gly Pro Asp Gly Ala
                245                 250                 255

Ser Pro Thr Thr Glu Asn Gly Leu Gly Ala Ala Ala Gly Ala Gly Glu
            260                 265                 270
```

```
Asn Gly His Cys Ala Pro Pro Pro Ala Asp Val Glu Pro Asp Glu Ser
        275                 280                 285

Ser Ala Ala Ala Glu Arg Arg Arg Arg Gly Ala Leu Arg Arg Gly
    290                 295                 300

Gly Arg Arg Arg Ala Gly Ala Glu Gly Gly Ala Gly Gly Ala Asp Gly
305                 310                 315                 320

Gln Gly Ala Gly Pro Gly Ala Ala Glu Ser Gly Ala Leu Thr Ala Ser
                325                 330                 335

Arg Ser Pro Gly Pro Gly Gly Arg Leu Ser Arg Ala Ser Ser Arg Ser
            340                 345                 350

Val Glu Phe Phe Leu Ser Arg Arg Arg Arg Ala Arg Ser Ser Val Cys
        355                 360                 365

Arg Arg Lys Val Ala Gln Ala Arg Glu Lys Arg Phe Thr Phe Val Leu
    370                 375                 380

Ala Val Val Met Gly Val Phe Val Leu Cys Trp Phe Pro Phe Phe Phe
385                 390                 395                 400

Ser Tyr Ser Leu Tyr Gly Ile Cys Arg Glu Ala Cys Gln Val Pro Gly
                405                 410                 415

Pro Leu Phe Lys Phe Phe Phe Trp Ile Gly Tyr Cys Asn Ser Ser Leu
            420                 425                 430

Asn Pro Val Ile Tyr Thr Val Phe Asn Gln Asp Phe Arg Arg Ser Phe
        435                 440                 445

Lys His Ile Leu Phe Arg Arg Arg Arg Arg Gly Phe Arg Gln
    450                 455                 460


<210> 3470
<211> 374
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 771; "
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<220>
<221> source
<223> /note="Gene Symbol: ADRA2C; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor alpha 2C; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426268"

<400> 3470

```
Met Ala Ser Pro Ala Leu Ala Ala Ala Leu Ala Val Ala Ala Ala Ala
1               5                  10                  15

Gly Pro Asn Ala Ser Gly Ala Gly Glu Arg Gly Ser Gly Gly Val Ala
            20                  25                  30

Asn Ala Ser Gly Ala Ser Trp Gly Pro Pro Arg Gly Gln Tyr Ser Ala
        35                  40                  45

Gly Ala Val Ala Gly Leu Ala Ala Val Val Gly Phe Leu Ile Val Phe
    50                  55                  60

Thr Val Val Gly Asn Val Leu Val Val Ile Ala Val Leu Thr Ser Arg
65                  70                  75                  80

Ala Leu Arg Ala Pro Gln Asn Leu Phe Leu Val Ser Leu Ala Ser Ala
                85                  90                  95

Asp Ile Leu Val Ala Thr Leu Val Met Pro Phe Ser Leu Ala Asn Glu
            100                 105                 110

Leu Met Ala Tyr Trp Tyr Phe Gly Gln Val Trp Cys Gly Val Tyr Leu
        115                 120                 125

Ala Leu Asp Val Leu Phe Cys Thr Ser Ser Ile Val His Leu Cys Ala
    130                 135                 140

Ile Ser Leu Asp Arg Tyr Trp Ser Val Thr Gln Ala Val Glu Tyr Asn
145                 150                 155                 160

Leu Lys Arg Thr Pro Arg Arg Val Lys Ala Thr Ile Val Ala Val Trp
                165                 170                 175
```

```
Leu Ile Ser Ala Val Ile Ser Phe Pro Pro Leu Val Ser Leu Tyr Arg
            180                 185                 190

Gln Pro Asp Gly Ala Ala Tyr Pro Gln Cys Gly Leu Asn Asp Glu Thr
        195                 200                 205

Trp Tyr Ile Leu Ser Ser Cys Ile Gly Ser Phe Phe Ala Pro Cys Leu
    210                 215                 220

Ile Met Gly Leu Val Tyr Ala Arg Ile Tyr Arg Val Ala Lys Leu Arg
225                 230                 235                 240

Thr Arg Thr Leu Ser Glu Lys Arg Ala Pro Val Gly Pro Asp Gly Ala
                245                 250                 255

Ser Pro Thr Thr Glu Asn Gly Leu Gly Ala Ala Ala Gly Ala Gly Glu
            260                 265                 270

Asn Gly His Cys Ala Pro Pro Pro Ala Asp Val Glu Pro Asp Glu Ser
        275                 280                 285

Ser Ala Ala Ala Glu Arg Arg Arg Arg Arg Gly Ala Leu Arg Arg Gly
    290                 295                 300

Gly Arg Arg Arg Ala Gly Ala Glu Gly Gly Ala Gly Gly Ala Asp Gly
305                 310                 315                 320

Gln Gly Ala Gly Pro Gly Ala Ala Glu Ser Gly Ala Leu Thr Ala Ser
                325                 330                 335

Arg Glu Trp Gly Gly Glu Arg Gly Arg Pro Leu Cys Leu Pro Pro Ser
            340                 345                 350

Ala Arg Gly Cys Phe Trp Gly Ser Leu Pro Gly Ser Ser Ser Gly Ser
        355                 360                 365

Pro Ala Glu Val Trp Leu
    370
```

<210> 3471
<211> 477
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 772; "

<220>
<221> source
<223> /note="Gene Symbol: ADRB1; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor beta 1; "

<220>
<221> source
<223> /note="Uniprot ID: P08588; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358301"

<400> 3471

```
Met Gly Ala Gly Val Leu Val Leu Gly Ala Ser Glu Pro Gly Asn Leu
1               5                   10                  15


Ser Ser Ala Ala Pro Leu Pro Asp Gly Ala Ala Thr Ala Ala Arg Leu
            20                  25                  30


Leu Val Pro Ala Ser Pro Pro Ala Ser Leu Leu Pro Pro Ala Ser Glu
        35                  40                  45


Ser Pro Glu Pro Leu Ser Gln Gln Trp Thr Ala Gly Met Gly Leu Leu
    50                  55                  60


Met Ala Leu Ile Val Leu Leu Ile Val Ala Gly Asn Val Leu Val Ile
65                  70                  75                  80


Val Ala Ile Ala Lys Thr Pro Arg Leu Gln Thr Leu Thr Asn Leu Phe
                85                  90                  95


Ile Met Ser Leu Ala Ser Ala Asp Leu Val Met Gly Leu Leu Val Val
            100                 105                 110


Pro Phe Gly Ala Thr Ile Val Val Trp Gly Arg Trp Glu Tyr Gly Ser
        115                 120                 125


Phe Phe Cys Glu Leu Trp Thr Ser Val Asp Val Leu Cys Val Thr Ala
    130                 135                 140
```

```
Ser Ile Glu Thr Leu Cys Val Ile Ala Leu Asp Arg Tyr Leu Ala Ile
145                 150                 155                 160

Thr Ser Pro Phe Arg Tyr Gln Ser Leu Leu Thr Arg Ala Arg Ala Arg
                165                 170                 175

Gly Leu Val Cys Thr Val Trp Ala Ile Ser Ala Leu Val Ser Phe Leu
            180                 185                 190

Pro Ile Leu Met His Trp Trp Arg Ala Glu Ser Asp Glu Ala Arg Arg
        195                 200                 205

Cys Tyr Asn Asp Pro Lys Cys Cys Asp Phe Val Thr Asn Arg Ala Tyr
    210                 215                 220

Ala Ile Ala Ser Ser Val Val Ser Phe Tyr Val Pro Leu Cys Ile Met
225                 230                 235                 240

Ala Phe Val Tyr Leu Arg Val Phe Arg Glu Ala Gln Lys Gln Val Lys
                245                 250                 255

Lys Ile Asp Ser Cys Glu Arg Arg Phe Leu Gly Gly Pro Ala Arg Pro
            260                 265                 270

Pro Ser Pro Ser Pro Ser Pro Val Pro Ala Pro Ala Pro Pro Pro Gly
        275                 280                 285

Pro Pro Arg Pro Ala Ala Ala Ala Ala Thr Ala Pro Leu Ala Asn Gly
    290                 295                 300

Arg Ala Gly Lys Arg Arg Pro Ser Arg Leu Val Ala Leu Arg Glu Gln
305                 310                 315                 320

Lys Ala Leu Lys Thr Leu Gly Ile Ile Met Gly Val Phe Thr Leu Cys
                325                 330                 335

Trp Leu Pro Phe Phe Leu Ala Asn Val Val Lys Ala Phe His Arg Glu
            340                 345                 350

Leu Val Pro Asp Arg Leu Phe Val Phe Phe Asn Trp Leu Gly Tyr Ala
        355                 360                 365
```

```
Asn Ser Ala Phe Asn Pro Ile Ile Tyr Cys Arg Ser Pro Asp Phe Arg
    370                 375                 380

Lys Ala Phe Gln Gly Leu Leu Cys Cys Ala Arg Arg Ala Ala Arg Arg
385                 390                 395                 400

Arg His Ala Thr His Gly Asp Arg Pro Arg Ala Ser Gly Cys Leu Ala
                405                 410                 415

Arg Pro Gly Pro Pro Pro Ser Pro Gly Ala Ala Ser Asp Asp Asp Asp
            420                 425                 430

Asp Asp Val Val Gly Ala Thr Pro Pro Ala Arg Leu Leu Glu Pro Trp
        435                 440                 445

Ala Gly Cys Asn Gly Gly Ala Ala Ala Asp Ser Asp Ser Ser Leu Asp
    450                 455                 460

Glu Pro Cys Arg Pro Gly Phe Ala Ser Glu Ser Lys Val
465                 470                 475
```

<210> 3472
<211> 413
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 773; "

<220>
<221> source
<223> /note="Gene Symbol: ADRB2; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor beta 2, surface; "

<220>
<221> source
<223> /note="Uniprot ID: P07550; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000305372"

<400> 3472
Met Gly Gln Pro Gly Asn Gly Ser Ala Phe Leu Leu Ala Pro Asn Gly

```
1               5                   10                  15

Ser His Ala Pro Asp His Asp Val Thr Gln Glu Arg Asp Glu Val Trp
            20                  25                  30

Val Val Gly Met Gly Ile Val Met Ser Leu Ile Val Leu Ala Ile Val
        35                  40                  45

Phe Gly Asn Val Leu Val Ile Thr Ala Ile Ala Lys Phe Glu Arg Leu
    50                  55                  60

Gln Thr Val Thr Asn Tyr Phe Ile Thr Ser Leu Ala Cys Ala Asp Leu
65                  70                  75                  80

Val Met Gly Leu Ala Val Val Pro Phe Gly Ala Ala His Ile Leu Met
                85                  90                  95

Lys Met Trp Thr Phe Gly Asn Phe Trp Cys Glu Phe Trp Thr Ser Ile
            100                 105                 110

Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu Cys Val Ile Ala
        115                 120                 125

Val Asp Arg Tyr Phe Ala Ile Thr Ser Pro Phe Lys Tyr Gln Ser Leu
    130                 135                 140

Leu Thr Lys Asn Lys Ala Arg Val Ile Ile Leu Met Val Trp Ile Val
145                 150                 155                 160

Ser Gly Leu Thr Ser Phe Leu Pro Ile Gln Met His Trp Tyr Arg Ala
                165                 170                 175

Thr His Gln Glu Ala Ile Asn Cys Tyr Ala Asn Glu Thr Cys Cys Asp
            180                 185                 190

Phe Phe Thr Asn Gln Ala Tyr Ala Ile Ala Ser Ser Ile Val Ser Phe
        195                 200                 205

Tyr Val Pro Leu Val Ile Met Val Phe Val Tyr Ser Arg Val Phe Gln
    210                 215                 220

Glu Ala Lys Arg Gln Leu Gln Lys Ile Asp Lys Ser Glu Gly Arg Phe
225                 230                 235                 240
```

```
His Val Gln Asn Leu Ser Gln Val Glu Gln Asp Gly Arg Thr Gly His
                245                 250                 255

Gly Leu Arg Arg Ser Ser Lys Phe Cys Leu Lys Glu His Lys Ala Leu
            260                 265                 270

Lys Thr Leu Gly Ile Ile Met Gly Thr Phe Thr Leu Cys Trp Leu Pro
        275                 280                 285

Phe Phe Ile Val Asn Ile Val His Val Ile Gln Asp Asn Leu Ile Arg
    290                 295                 300

Lys Glu Val Tyr Ile Leu Leu Asn Trp Ile Gly Tyr Val Asn Ser Gly
305                 310                 315                 320

Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe
                325                 330                 335

Gln Glu Leu Leu Cys Leu Arg Arg Ser Ser Leu Lys Ala Tyr Gly Asn
            340                 345                 350

Gly Tyr Ser Ser Asn Gly Asn Thr Gly Glu Gln Ser Gly Tyr His Val
        355                 360                 365

Glu Gln Glu Lys Glu Asn Lys Leu Leu Cys Glu Asp Leu Pro Gly Thr
    370                 375                 380

Glu Asp Phe Val Gly His Gln Gly Thr Val Pro Ser Asp Asn Ile Asp
385                 390                 395                 400

Ser Gln Gly Arg Asn Cys Ser Thr Asn Asp Ser Leu Leu
                405                 410


<210> 3473
<211> 408
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 774; "

<220>
<221> source
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<223> /note="Gene Symbol: ADRB3; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor beta 3; "

<220>
<221> source
<223> /note="Uniprot ID: P13945; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343782"

<400> 3473

```
Met Ala Pro Trp Pro His Glu Asn Ser Ser Leu Ala Pro Trp Pro Asp
1               5                   10                  15

Leu Pro Thr Leu Ala Pro Asn Thr Ala Asn Thr Ser Gly Leu Pro Gly
            20                  25                  30

Val Pro Trp Glu Ala Ala Leu Ala Gly Ala Leu Leu Ala Leu Ala Val
        35                  40                  45

Leu Ala Thr Val Gly Gly Asn Leu Leu Val Ile Val Ala Ile Ala Trp
    50                  55                  60

Thr Pro Arg Leu Gln Thr Met Thr Asn Val Phe Val Thr Ser Leu Ala
65                  70                  75                  80

Ala Ala Asp Leu Val Met Gly Leu Leu Val Val Pro Pro Ala Ala Thr
                85                  90                  95

Leu Ala Leu Thr Gly His Trp Pro Leu Gly Ala Thr Gly Cys Glu Leu
            100                 105                 110

Trp Thr Ser Val Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu
        115                 120                 125

Cys Ala Leu Ala Val Asp Arg Tyr Leu Ala Val Thr Asn Pro Leu Arg
    130                 135                 140

Tyr Gly Ala Leu Val Thr Lys Arg Cys Ala Arg Thr Ala Val Val Leu
145                 150                 155                 160

Val Trp Val Val Ser Ala Ala Val Ser Phe Ala Pro Ile Met Ser Gln
```

```
                165                 170                 175

Trp Trp Arg Val Gly Ala Asp Ala Glu Ala Gln Arg Cys His Ser Asn
            180                 185                 190

Pro Arg Cys Cys Ala Phe Ala Ser Asn Met Pro Tyr Val Leu Leu Ser
        195                 200                 205

Ser Ser Val Ser Phe Tyr Leu Pro Leu Leu Val Met Leu Phe Val Tyr
    210                 215                 220

Ala Arg Val Phe Val Val Ala Thr Arg Gln Leu Arg Leu Leu Arg Gly
225                 230                 235                 240

Glu Leu Gly Arg Phe Pro Pro Glu Glu Ser Pro Pro Ala Pro Ser Arg
                245                 250                 255

Ser Leu Ala Pro Ala Pro Val Gly Thr Cys Ala Pro Pro Glu Gly Val
            260                 265                 270

Pro Ala Cys Gly Arg Arg Pro Ala Arg Leu Leu Pro Leu Arg Glu His
        275                 280                 285

Arg Ala Leu Cys Thr Leu Gly Leu Ile Met Gly Thr Phe Thr Leu Cys
    290                 295                 300

Trp Leu Pro Phe Phe Leu Ala Asn Val Leu Arg Ala Leu Gly Gly Pro
305                 310                 315                 320

Ser Leu Val Pro Gly Pro Ala Phe Leu Ala Leu Asn Trp Leu Gly Tyr
                325                 330                 335

Ala Asn Ser Ala Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe
            340                 345                 350

Arg Ser Ala Phe Arg Arg Leu Leu Cys Arg Cys Gly Arg Arg Leu Pro
        355                 360                 365

Pro Glu Pro Cys Ala Ala Ala Arg Pro Ala Leu Phe Pro Ser Gly Val
    370                 375                 380

Pro Ala Ala Arg Ser Ser Pro Ala Gln Pro Arg Leu Cys Gln Arg Leu
385                 390                 395                 400
```

Asp Gly Ala Ser Trp Gly Val Ser
405

<210> 3474
<211> 408
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 774; "

<220>
<221> source
<223> /note="Gene Symbol: ADRB3; "

<220>
<221> source
<223> /note="Gene Name:
adrenoceptor beta 3; "

<220>
<221> source
<223> /note="Uniprot ID: P13945; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480325"

<400> 3474
Met Ala Pro Trp Pro His Glu Asn Ser Ser Leu Ala Pro Trp Pro Asp
1 5 10 15

Leu Pro Thr Leu Ala Pro Asn Thr Ala Asn Thr Ser Gly Leu Pro Gly
20 25 30

Val Pro Trp Glu Ala Ala Leu Ala Gly Ala Leu Leu Ala Leu Ala Val
35 40 45

Leu Ala Thr Val Gly Gly Asn Leu Leu Val Ile Val Ala Ile Ala Trp
50 55 60

Thr Pro Arg Leu Gln Thr Met Thr Asn Val Phe Val Thr Ser Leu Ala
65 70 75 80

Ala Ala Asp Leu Val Met Gly Leu Leu Val Val Pro Pro Ala Ala Thr
85 90 95

```
Leu Ala Leu Thr Gly His Trp Pro Leu Gly Ala Thr Gly Cys Glu Leu
            100                 105                 110

Trp Thr Ser Val Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu
        115                 120                 125

Cys Ala Leu Ala Val Asp Arg Tyr Leu Ala Val Thr Asn Pro Leu Arg
    130                 135                 140

Tyr Gly Ala Leu Val Thr Lys Arg Cys Ala Arg Thr Ala Val Val Leu
145                 150                 155                 160

Val Trp Val Val Ser Ala Ala Val Ser Phe Ala Pro Ile Met Ser Gln
                165                 170                 175

Trp Trp Arg Val Gly Ala Asp Ala Glu Ala Gln Arg Cys His Ser Asn
            180                 185                 190

Pro Arg Cys Cys Ala Phe Ala Ser Asn Met Pro Tyr Val Leu Leu Ser
        195                 200                 205

Ser Ser Val Ser Phe Tyr Leu Pro Leu Leu Val Met Leu Phe Val Tyr
    210                 215                 220

Ala Arg Val Phe Val Val Ala Thr Arg Gln Leu Arg Leu Leu Arg Gly
225                 230                 235                 240

Glu Leu Gly Arg Phe Pro Pro Glu Glu Ser Pro Pro Ala Pro Ser Arg
                245                 250                 255

Ser Leu Ala Pro Ala Pro Val Gly Thr Cys Ala Pro Pro Glu Gly Val
            260                 265                 270

Pro Ala Cys Gly Arg Arg Pro Ala Arg Leu Leu Pro Leu Arg Glu His
        275                 280                 285

Arg Ala Leu Cys Thr Leu Gly Leu Ile Met Gly Thr Phe Thr Leu Cys
    290                 295                 300

Trp Leu Pro Phe Phe Leu Ala Asn Val Leu Arg Ala Leu Gly Gly Pro
305                 310                 315                 320

Ser Leu Val Pro Gly Pro Ala Phe Leu Ala Leu Asn Trp Leu Gly Tyr
```

```
                325                 330                 335

Ala Asn Ser Ala Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe
            340                 345                 350

Arg Ser Ala Phe Arg Arg Leu Leu Cys Arg Cys Gly Arg Arg Leu Pro
        355                 360                 365

Pro Glu Pro Cys Ala Ala Ala Arg Pro Ala Leu Phe Pro Ser Gly Val
    370                 375                 380

Pro Ala Ala Arg Ser Ser Pro Ala Gln Pro Arg Leu Cys Gln Arg Leu
385                 390                 395                 400

Asp Gly Ala Ser Trp Gly Val Ser
                405
```

<210> 3475
<211> 541
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 775; "

<220>
<221> source
<223> /note="Gene Symbol: ACD; "

<220>
<221> source
<223> /note="Gene Name:
adrenocortical dysplasia homolog (mouse); "

<220>
<221> source
<223> /note="Uniprot ID: Q96AP0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000219251"

<400> 3475

```
Met Pro Gly Arg Cys Gln Ser Asp Ala Ala Met Arg Val Asn Gly Pro
1               5                   10                  15

Ala Ser Arg Ala Pro Ala Gly Trp Thr Ser Gly Ser Leu His Thr Gly
            20                  25                  30
```

```
Pro Arg Ala Gly Arg Pro Arg Ala Gln Ala Arg Gly Val Arg Gly Arg
        35                  40                  45

Gly Leu Leu Leu Arg Pro Arg Pro Ala Lys Glu Leu Pro Leu Pro Arg
    50                  55                  60

Lys Gly Gly Ala Trp Ala Pro Ala Gly Asn Pro Gly Pro Leu His Pro
65                  70                  75                  80

Leu Gly Val Ala Val Gly Met Ala Gly Ser Gly Arg Leu Val Leu Arg
                85                  90                  95

Pro Trp Ile Arg Glu Leu Ile Leu Gly Ser Glu Thr Pro Ser Ser Pro
            100                 105                 110

Arg Ala Gly Gln Leu Leu Glu Asp Ala Glu Ala Ala Val Ala Gly Pro
        115                 120                 125

Ser His Ala Pro Asp Thr Ser Asp Val Gly Ala Thr Leu Leu Val Ser
    130                 135                 140

Asp Gly Thr His Ser Val Arg Cys Leu Val Thr Arg Glu Ala Leu Asp
145                 150                 155                 160

Thr Ser Asp Trp Glu Glu Lys Glu Phe Gly Phe Arg Gly Thr Glu Gly
                165                 170                 175

Arg Leu Leu Leu Leu Gln Asp Cys Gly Val His Val Gln Val Ala Glu
            180                 185                 190

Gly Gly Ala Pro Ala Glu Phe Tyr Leu Gln Val Asp Arg Phe Ser Leu
        195                 200                 205

Leu Pro Thr Glu Gln Pro Arg Leu Arg Val Pro Gly Cys Asn Gln Asp
    210                 215                 220

Leu Asp Val Gln Lys Lys Leu Tyr Asp Cys Leu Glu Glu His Leu Ser
225                 230                 235                 240

Glu Ser Thr Ser Ser Asn Ala Gly Leu Ser Leu Ser Gln Leu Leu Asp
                245                 250                 255
```

```
Glu Met Arg Glu Asp Gln Glu His Gln Gly Ala Leu Val Cys Leu Ala
            260                 265                 270

Glu Ser Cys Leu Thr Leu Glu Gly Pro Cys Thr Ala Pro Pro Val Thr
        275                 280                 285

His Trp Ala Ala Ser Arg Cys Lys Ala Thr Gly Glu Ala Val Tyr Thr
    290                 295                 300

Val Pro Ser Ser Met Leu Cys Ile Ser Glu Asn Asp Gln Leu Ile Leu
305                 310                 315                 320

Ser Ser Leu Gly Pro Cys Gln Arg Thr Gln Gly Pro Glu Leu Pro Pro
                325                 330                 335

Pro Asp Pro Ala Leu Gln Asp Leu Ser Leu Thr Leu Ile Ala Ser Pro
            340                 345                 350

Pro Ser Ser Pro Ser Ser Ser Gly Thr Pro Ala Leu Pro Gly His Met
        355                 360                 365

Ser Ser Glu Glu Ser Gly Thr Ser Ile Ser Leu Leu Pro Ala Leu Ser
    370                 375                 380

Leu Ala Ala Pro Asp Pro Gly Gln Arg Ser Ser Ser Gln Pro Ser Pro
385                 390                 395                 400

Ala Ile Cys Ser Ala Pro Ala Thr Leu Thr Pro Arg Ser Pro His Ala
                405                 410                 415

Ser Arg Thr Pro Ser Ser Pro Leu Gln Ser Cys Thr Pro Ser Leu Ser
            420                 425                 430

Pro Arg Ser His Val Pro Ser Pro His Gln Ala Leu Val Thr Arg Pro
        435                 440                 445

Gln Lys Pro Ser Leu Glu Phe Lys Glu Phe Val Gly Leu Pro Cys Lys
    450                 455                 460

Asn Arg Pro Pro Phe Pro Arg Thr Gly Ala Thr Arg Gly Ala Gln Glu
465                 470                 475                 480

Pro Cys Ser Val Trp Glu Pro Pro Lys Arg His Arg Asp Gly Ser Ala
```

```
                485                 490                 495

Phe Gln Tyr Glu Tyr Glu Pro Pro Cys Thr Ser Leu Cys Ala Arg Val
            500                 505                 510

Gln Ala Val Arg Leu Pro Pro Gln Leu Met Ala Trp Ala Leu His Phe
        515                 520                 525

Leu Met Asp Ala Gln Pro Gly Ser Glu Pro Thr Pro Met
    530                 535                 540


<210> 3476
<211> 544
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 775; "

<220>
<221> source
<223> /note="Gene Symbol: ACD; "

<220>
<221> source
<223> /note="Gene Name:
      adrenocortical dysplasia homolog (mouse); "

<220>
<221> source
<223> /note="Uniprot ID:  Q96AP0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377496"

<400> 3476
Met Pro Gly Arg Cys Gln Ser Asp Ala Ala Met Arg Val Asn Gly Pro
1               5                   10                  15

Ala Ser Arg Ala Pro Ala Gly Trp Thr Ser Gly Ser Leu His Thr Gly
            20                  25                  30

Pro Arg Ala Gly Arg Pro Arg Ala Gln Ala Arg Gly Val Arg Gly Arg
        35                  40                  45

Gly Leu Leu Leu Arg Pro Arg Pro Ala Lys Glu Leu Pro Leu Pro Arg
    50                  55                  60
```

```
Lys Gly Gly Ala Trp Ala Pro Ala Gly Asn Pro Gly Pro Leu His Pro
65                  70                  75                  80

Leu Gly Val Ala Val Gly Met Ala Gly Ser Gly Arg Leu Val Leu Arg
                85                  90                  95

Pro Trp Ile Arg Glu Leu Ile Leu Gly Ser Glu Thr Pro Ser Ser Pro
            100                 105                 110

Arg Ala Gly Gln Leu Leu Glu Val Leu Gln Asp Ala Glu Ala Ala Val
        115                 120                 125

Ala Gly Pro Ser His Ala Pro Asp Thr Ser Asp Val Gly Ala Thr Leu
    130                 135                 140

Leu Val Ser Asp Gly Thr His Ser Val Arg Cys Leu Val Thr Arg Glu
145                 150                 155                 160

Ala Leu Asp Thr Ser Asp Trp Glu Glu Lys Glu Phe Gly Phe Arg Gly
                165                 170                 175

Thr Glu Gly Arg Leu Leu Leu Leu Gln Asp Cys Gly Val His Val Gln
            180                 185                 190

Val Ala Glu Gly Gly Ala Pro Ala Glu Phe Tyr Leu Gln Val Asp Arg
        195                 200                 205

Phe Ser Leu Leu Pro Thr Glu Gln Pro Arg Leu Arg Val Pro Gly Cys
    210                 215                 220

Asn Gln Asp Leu Asp Val Gln Lys Lys Leu Tyr Asp Cys Leu Glu Glu
225                 230                 235                 240

His Leu Ser Glu Ser Thr Ser Ser Asn Ala Gly Leu Ser Leu Ser Gln
                245                 250                 255

Leu Leu Asp Glu Met Arg Glu Asp Gln Glu His Gln Gly Ala Leu Val
            260                 265                 270

Cys Leu Ala Glu Ser Cys Leu Thr Leu Glu Gly Pro Cys Thr Ala Pro
        275                 280                 285
```

```
Pro Val Thr His Trp Ala Ala Ser Arg Cys Lys Ala Thr Gly Glu Ala
    290                 295                 300

Val Tyr Thr Val Pro Ser Ser Met Leu Cys Ile Ser Glu Asn Asp Gln
305                 310                 315                 320

Leu Ile Leu Ser Ser Leu Gly Pro Cys Gln Arg Thr Gln Gly Pro Glu
                325                 330                 335

Leu Pro Pro Pro Asp Pro Ala Leu Gln Asp Leu Ser Leu Thr Leu Ile
            340                 345                 350

Ala Ser Pro Pro Ser Ser Pro Ser Ser Ser Gly Thr Pro Ala Leu Pro
        355                 360                 365

Gly His Met Ser Ser Glu Glu Ser Gly Thr Ser Ile Ser Leu Leu Pro
    370                 375                 380

Ala Leu Ser Leu Ala Ala Pro Asp Pro Gly Gln Arg Ser Ser Ser Gln
385                 390                 395                 400

Pro Ser Pro Ala Ile Cys Ser Ala Pro Ala Thr Leu Thr Pro Arg Ser
                405                 410                 415

Pro His Ala Ser Arg Thr Pro Ser Ser Pro Leu Gln Ser Cys Thr Pro
            420                 425                 430

Ser Leu Ser Pro Arg Ser His Val Pro Ser Pro His Gln Ala Leu Val
        435                 440                 445

Thr Arg Pro Gln Lys Pro Ser Leu Glu Phe Lys Glu Phe Val Gly Leu
    450                 455                 460

Pro Cys Lys Asn Arg Pro Pro Phe Pro Arg Thr Gly Ala Thr Arg Gly
465                 470                 475                 480

Ala Gln Glu Pro Cys Ser Val Trp Glu Pro Pro Lys Arg His Arg Asp
                485                 490                 495

Gly Ser Ala Phe Gln Tyr Glu Tyr Glu Pro Pro Cys Thr Ser Leu Cys
            500                 505                 510

Ala Arg Val Gln Ala Val Arg Leu Pro Pro Gln Leu Met Ala Trp Ala
```

515 520 525

Leu His Phe Leu Met Asp Ala Gln Pro Gly Ser Glu Pro Thr Pro Met
530 535 540

<210> 3477
<211> 182
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 775; "

<220>
<221> source
<223> /note="Gene Symbol: ACD; "

<220>
<221> source
<223> /note="Gene Name:
adrenocortical dysplasia homolog (mouse); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473313"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3477
Xaa Glu His Leu Ser Glu Ser Thr Ser Ser Asn Ala Gly Leu Ser Leu
1 5 10 15

Ser Gln Leu Leu Asp Glu Met Arg Glu Asp Gln Glu His Gln Gly Ala
20 25 30

Leu Val Cys Leu Ala Glu Ser Cys Leu Thr Leu Glu Gly Pro Cys Thr
35 40 45

Ala Pro Pro Val Thr His Trp Ala Ala Ser Arg Cys Lys Ala Thr Gly
50 55 60

Glu Ala Val Tyr Thr Val Pro Ser Ser Met Leu Cys Ile Ser Glu Asn
65 70 75 80

Asp Gln Leu Ile Leu Ser Ser Leu Gly Pro Cys Gln Arg Thr Gln Gly

```
                85                  90                  95

Pro Glu Leu Pro Pro Pro Asp Pro Ala Leu Gln Asp Leu Ser Leu Thr
            100                 105                 110

Leu Ile Ala Ser Pro Pro Ser Ser Pro Ser Ser Ser Gly Pro Glu Leu
        115                 120                 125

Pro Gly Glu Pro Arg Ser Pro Ala Leu Ser Gly Asn Pro Gln Arg Gly
    130                 135                 140

Ile Val Met Val Leu Pro Ser Ser Met Ser Met Ser His Pro Ala Arg
145                 150                 155                 160

Pro Ser Val Leu Gly Ser Lys Leu Ser Gly Phe Leu Pro Ser Ser Trp
                165                 170                 175

Pro Gly Pro Cys Thr Phe
            180


<210> 3478
<211> 16
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 775; "

<220>
<221> source
<223> /note="Gene Symbol: ACD; "

<220>
<221> source
<223> /note="Gene Name:
      adrenocortical dysplasia homolog (mouse); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473595"

<400> 3478
Ser Val Arg Cys Leu Val Thr Arg Glu Ala Leu Asp Thr Ser Asp Trp
1               5                   10                  15


<210> 3479
<211> 442
<212> PRT
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<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 775; "

<220>
<221> source
<223> /note="Gene Symbol: ACD; "

<220>
<221> source
<223> /note="Gene Name:
adrenocortical dysplasia homolog (mouse); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473679"

<400> 3479
Met Ala Gly Ser Gly Arg Leu Val Leu Arg Pro Trp Ile Arg Glu Leu
1 5 10 15

Ile Leu Gly Ser Glu Thr Pro Ser Ser Pro Arg Ala Gly Gln Leu Leu
20 25 30

Glu Asp Ala Glu Ala Ala Val Ala Gly Pro Ser His Ala Pro Asp Thr
35 40 45

Ser Asp Val Gly Ala Thr Leu Leu Val Ser Asp Gly Thr His Ser Val
50 55 60

Arg Cys Leu Val Thr Arg Glu Ala Leu Asp Thr Ser Asp Trp Glu Glu
65 70 75 80

Lys Glu Phe Gly Phe Arg Gly Thr Glu Gly Arg Leu Leu Leu Leu Gln
85 90 95

Asp Cys Gly Val His Val Gln Val Ala Glu Gly Gly Ala Pro Ala Glu
100 105 110

Phe Tyr Leu Gln Val Asp Arg Phe Ser Leu Leu Pro Thr Glu Gln Pro
115 120 125

Arg Leu Arg Val Pro Gly Cys Asn Gln Asp Leu Asp Val Gln Lys Lys
130 135 140

Leu Tyr Asp Cys Leu Glu Glu His Leu Ser Glu Ser Thr Ser Ser Asn

145 150 155 160

Ala Gly Leu Ser Leu Ser Gln Leu Leu Asp Glu Met Arg Glu Asp Gln
165 170 175

Glu His Gln Gly Ala Leu Val Cys Leu Ala Glu Ser Cys Leu Thr Leu
180 185 190

Glu Gly Pro Cys Thr Ala Pro Pro Val Thr His Trp Ala Ala Ser Arg
195 200 205

Cys Lys Ala Thr Gly Glu Ala Val Tyr Thr Val Pro Ser Ser Met Leu
210 215 220

Cys Ile Ser Glu Asn Asp Gln Leu Ile Leu Ser Ser Leu Gly Pro Cys
225 230 235 240

Gln Arg Thr Gln Gly Pro Glu Leu Pro Pro Pro Asp Pro Ala Leu Gln
245 250 255

Asp Leu Ser Leu Thr Leu Ile Ala Ser Pro Pro Ser Ser Pro Ser Ser
260 265 270

Ser Gly Thr Pro Ala Leu Pro Gly His Met Ser Ser Glu Glu Ser Gly
275 280 285

Thr Ser Ile Ser Leu Leu Pro Ala Leu Ser Leu Ala Ala Pro Asp Pro
290 295 300

Gly Gln Arg Ser Ser Ser Gln Pro Ser Pro Ala Ile Cys Ser Ala Pro
305 310 315 320

Ala Thr Leu Thr Pro Arg Ser Pro His Ala Ser Arg Thr Pro Ser Ser
325 330 335

Pro Leu Gln Ser Cys Thr Pro Ser Leu Ser Pro Arg Ser His Val Pro
340 345 350

Ser Pro His Gln Ala Leu Val Thr Arg Pro Gln Lys Pro Ser Leu Glu
355 360 365

Phe Lys Glu Phe Val Gly Leu Pro Cys Lys Asn Arg Pro Pro Phe Pro
370 375 380

```
Arg Thr Gly Ala Thr Arg Gly Ala Gln Glu Pro Cys Ser Val Trp Tyr
385                 390                 395                 400


Glu Tyr Glu Pro Pro Cys Thr Ser Leu Cys Ala Arg Val Gln Ala Val
                405                 410                 415


Arg Leu Pro Pro Gln Leu Met Ala Trp Ala Leu His Phe Leu Met Asp
            420                 425                 430


Ala Gln Pro Gly Ser Glu Pro Thr Pro Met
        435                 440


<210> 3480
<211> 458
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 775; "

<220>
<221> source
<223> /note="Gene Symbol: ACD; "

<220>
<221> source
<223> /note="Gene Name:
      adrenocortical dysplasia homolog (mouse); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478084"

<400> 3480
Met Ala Gly Ser Gly Arg Leu Val Leu Arg Pro Trp Ile Arg Glu Leu
1               5                   10                  15


Ile Leu Gly Ser Glu Thr Pro Ser Ser Pro Arg Ala Gly Gln Leu Leu
            20                  25                  30


Glu Val Leu Gln Asp Ala Glu Ala Ala Val Ala Gly Pro Ser His Ala
        35                  40                  45


Pro Asp Thr Ser Asp Val Gly Ala Thr Leu Leu Val Ser Asp Gly Thr
    50                  55                  60
```

```
His Ser Val Arg Cys Leu Val Thr Arg Glu Ala Leu Asp Thr Ser Asp
65                  70                  75                  80

Trp Glu Glu Lys Glu Phe Gly Phe Arg Gly Thr Glu Gly Arg Leu Leu
                85                  90                  95

Leu Leu Gln Asp Cys Gly Val His Val Gln Val Ala Glu Gly Gly Ala
            100                 105                 110

Pro Ala Glu Phe Tyr Leu Gln Val Asp Arg Phe Ser Leu Leu Pro Thr
        115                 120                 125

Glu Gln Pro Arg Leu Arg Val Pro Gly Cys Asn Gln Asp Leu Asp Val
    130                 135                 140

Gln Lys Lys Leu Tyr Asp Cys Leu Glu Glu His Leu Ser Glu Ser Thr
145                 150                 155                 160

Ser Ser Asn Ala Gly Leu Ser Leu Ser Gln Leu Leu Asp Glu Met Arg
                165                 170                 175

Glu Asp Gln Glu His Gln Gly Ala Leu Val Cys Leu Ala Glu Ser Cys
            180                 185                 190

Leu Thr Leu Glu Gly Pro Cys Thr Ala Pro Pro Val Thr His Trp Ala
        195                 200                 205

Ala Ser Arg Cys Lys Ala Thr Gly Glu Ala Val Tyr Thr Val Pro Ser
    210                 215                 220

Ser Met Leu Cys Ile Ser Glu Asn Asp Gln Leu Ile Leu Ser Ser Leu
225                 230                 235                 240

Gly Pro Cys Gln Arg Thr Gln Gly Pro Glu Leu Pro Pro Pro Asp Pro
                245                 250                 255

Ala Leu Gln Asp Leu Ser Leu Thr Leu Ile Ala Ser Pro Pro Ser Ser
            260                 265                 270

Pro Ser Ser Ser Gly Thr Pro Ala Leu Pro Gly His Met Ser Ser Glu
        275                 280                 285

Glu Ser Gly Thr Ser Ile Ser Leu Leu Pro Ala Leu Ser Leu Ala Ala
```

```
    290                 295                 300

Pro Asp Pro Gly Gln Arg Ser Ser Ser Gln Pro Ser Pro Ala Ile Cys
305                 310                 315                 320

Ser Ala Pro Ala Thr Leu Thr Pro Arg Ser Pro His Ala Ser Arg Thr
                325                 330                 335

Pro Ser Ser Pro Leu Gln Ser Cys Thr Pro Ser Leu Ser Pro Arg Ser
            340                 345                 350

His Val Pro Ser Pro His Gln Ala Leu Val Thr Arg Pro Gln Lys Pro
        355                 360                 365

Ser Leu Glu Phe Lys Glu Phe Val Gly Leu Pro Cys Lys Asn Arg Pro
    370                 375                 380

Pro Phe Pro Arg Thr Gly Ala Thr Arg Gly Ala Gln Glu Pro Cys Ser
385                 390                 395                 400

Val Trp Glu Pro Pro Lys Arg His Arg Asp Gly Ser Ala Phe Gln Tyr
                405                 410                 415

Glu Tyr Glu Pro Pro Cys Thr Ser Leu Cys Ala Arg Val Gln Ala Val
            420                 425                 430

Arg Leu Pro Pro Gln Leu Met Ala Trp Ala Leu His Phe Leu Met Asp
        435                 440                 445

Ala Gln Pro Gly Ser Glu Pro Thr Pro Met
    450                 455


<210> 3481
<211> 544
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 775; "

<220>
<221> source
<223> /note="Gene Symbol: ACD; "

<220>
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<221> source
<223> /note="Gene Name:
adrenocortical dysplasia homolog (mouse); "

<220>
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<223> /note="Uniprot ID: Q96AP0; "

<220>
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<223> /note="ENSP ID: ENSP00000483117"

<400> 3481

```
Met Pro Gly Arg Cys Gln Ser Asp Ala Ala Met Arg Val Asn Gly Pro
1               5                  10                  15

Ala Ser Arg Ala Pro Ala Gly Trp Thr Ser Gly Ser Leu His Thr Gly
            20                  25                  30

Pro Arg Ala Gly Arg Pro Arg Ala Gln Ala Arg Gly Val Arg Gly Arg
        35                  40                  45

Gly Leu Leu Leu Arg Pro Arg Pro Ala Lys Glu Leu Pro Leu Pro Arg
    50                  55                  60

Lys Gly Gly Ala Trp Ala Pro Ala Gly Asn Pro Gly Pro Leu His Pro
65                  70                  75                  80

Leu Gly Val Ala Val Gly Met Ala Gly Ser Gly Arg Leu Val Leu Arg
                85                  90                  95

Pro Trp Ile Arg Glu Leu Ile Leu Gly Ser Glu Thr Pro Ser Ser Pro
            100                 105                 110

Arg Ala Gly Gln Leu Leu Glu Val Leu Gln Asp Ala Glu Ala Ala Val
        115                 120                 125

Ala Gly Pro Ser His Ala Pro Asp Thr Ser Asp Val Gly Ala Thr Leu
    130                 135                 140

Leu Val Ser Asp Gly Thr His Ser Val Arg Cys Leu Val Thr Arg Glu
145                 150                 155                 160

Ala Leu Asp Thr Ser Asp Trp Glu Glu Lys Glu Phe Gly Phe Arg Gly
                165                 170                 175
```

```
Thr Glu Gly Arg Leu Leu Leu Leu Gln Asp Cys Gly Val His Val Gln
            180                 185                 190

Val Ala Glu Gly Gly Ala Pro Ala Glu Phe Tyr Leu Gln Val Asp Arg
        195                 200                 205

Phe Ser Leu Leu Pro Thr Glu Gln Pro Arg Leu Arg Val Pro Gly Cys
    210                 215                 220

Asn Gln Asp Leu Asp Val Gln Lys Lys Leu Tyr Asp Cys Leu Glu Glu
225                 230                 235                 240

His Leu Ser Glu Ser Thr Ser Ser Asn Ala Gly Leu Ser Leu Ser Gln
                245                 250                 255

Leu Leu Asp Glu Met Arg Glu Asp Gln Glu His Gln Gly Ala Leu Val
            260                 265                 270

Cys Leu Ala Glu Ser Cys Leu Thr Leu Glu Gly Pro Cys Thr Ala Pro
        275                 280                 285

Pro Val Thr His Trp Ala Ala Ser Arg Cys Lys Ala Thr Gly Glu Ala
    290                 295                 300

Val Tyr Thr Val Pro Ser Ser Met Leu Cys Ile Ser Glu Asn Asp Gln
305                 310                 315                 320

Leu Ile Leu Ser Ser Leu Gly Pro Cys Gln Arg Thr Gln Gly Pro Glu
                325                 330                 335

Leu Pro Pro Pro Asp Pro Ala Leu Gln Asp Leu Ser Leu Thr Leu Ile
            340                 345                 350

Ala Ser Pro Pro Ser Ser Pro Ser Ser Ser Gly Thr Pro Ala Leu Pro
        355                 360                 365

Gly His Met Ser Ser Glu Glu Ser Gly Thr Ser Ile Ser Leu Leu Pro
    370                 375                 380

Ala Leu Ser Leu Ala Ala Pro Asp Pro Gly Gln Arg Ser Ser Ser Gln
385                 390                 395                 400

Pro Ser Pro Ala Ile Cys Ser Ala Pro Ala Thr Leu Thr Pro Arg Ser
```

```
                405                 410                 415

Pro His Ala Ser Arg Thr Pro Ser Ser Pro Leu Gln Ser Cys Thr Pro
            420                 425                 430

Ser Leu Ser Pro Arg Ser His Val Pro Ser Pro His Gln Ala Leu Val
        435                 440                 445

Thr Arg Pro Gln Lys Pro Ser Leu Glu Phe Lys Glu Phe Val Gly Leu
    450                 455                 460

Pro Cys Lys Asn Arg Pro Pro Phe Pro Arg Thr Gly Ala Thr Arg Gly
465                 470                 475                 480

Ala Gln Glu Pro Cys Ser Val Trp Glu Pro Pro Lys Arg His Arg Asp
                485                 490                 495

Gly Ser Ala Phe Gln Tyr Glu Tyr Glu Pro Pro Cys Thr Ser Leu Cys
            500                 505                 510

Ala Arg Val Gln Ala Val Arg Leu Pro Pro Gln Leu Met Ala Trp Ala
        515                 520                 525

Leu His Phe Leu Met Asp Ala Gln Pro Gly Ser Glu Pro Thr Pro Met
    530                 535                 540


<210> 3482
<211> 185
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>
<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
      adrenomedullin; "

<220>
<221> source
<223> /note="Uniprot ID:  P35318; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000278175"

<400> 3482
Met Lys Leu Val Ser Val Ala Leu Met Tyr Leu Gly Ser Leu Ala Phe
1   5   10   15

Leu Gly Ala Asp Thr Ala Arg Leu Asp Val Ala Ser Glu Phe Arg Lys
            20   25   30

Lys Trp Asn Lys Trp Ala Leu Ser Arg Gly Lys Arg Glu Leu Arg Met
        35   40   45

Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro Ala
    50   55   60

Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser Pro
65   70   75   80

Glu Asp Ser Ser Pro Asp Ala Ala Arg Ile Arg Val Lys Arg Tyr Arg
                85   90   95

Gln Ser Met Asn Asn Phe Gln Gly Leu Arg Ser Phe Gly Cys Arg Phe
            100   105   110

Gly Thr Cys Thr Val Gln Lys Leu Ala His Gln Ile Tyr Gln Phe Thr
        115   120   125

Asp Lys Asp Lys Asp Asn Val Ala Pro Arg Ser Lys Ile Ser Pro Gln
    130   135   140

Gly Tyr Gly Arg Arg Arg Arg Arg Ser Leu Pro Glu Ala Gly Pro Gly
145   150   155   160

Arg Thr Leu Val Ser Ser Lys Pro Gln Ala His Gly Ala Pro Ala Pro
                165   170   175

Pro Ser Gly Ser Ala Pro His Phe Leu
            180   185

<210> 3483
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>
<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin; "

<220>
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<223> /note="ENSP ID: ENSP00000431438"

<400> 3483
Met Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro
1 5 10 15

Ala Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser
20 25 30

Pro Glu Asp Ser Ser Pro Asp Ala Ala Arg Ile Arg Val Lys Arg Tyr
35 40 45

Arg Gln Ser Met Asn Asn Phe Gln Gly Leu Arg Ser Phe Gly Cys Arg
50 55 60

Phe Gly Thr Cys Thr Val Gln Lys Leu Ala His Gln Ile Tyr Gln Phe
65 70 75 80

Thr Asp Lys Asp Lys Asp Asn Val Ala Pro Arg Ser Lys Ile Ser Pro
85 90 95

Gln Gly Tyr Gly Arg Arg Arg Arg Arg Ser Leu Pro Glu Ala Gly Pro
100 105 110

Gly Arg Thr Leu Val Ser Ser Lys Pro Gln Ala His Gly Ala Pro Ala
115 120 125

Pro Pro Ser Gly Ser Ala Pro His Phe Leu
130 135

<210> 3484
<211> 83

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>
<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433062"

<400> 3484
Met Lys Leu Val Ser Val Ala Leu Met Tyr Leu Gly Ser Leu Ala Phe
1 5 10 15

Leu Gly Ala Asp Thr Ala Arg Leu Asp Val Ala Ser Glu Phe Arg Lys
20 25 30

Lys Trp Asn Lys Trp Ala Leu Ser Arg Gly Lys Arg Glu Leu Arg Met
35 40 45

Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro Ala
50 55 60

Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser Pro
65 70 75 80

Glu Asp Arg

<210> 3485
<211> 139
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>
<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434354"

<400> 3485
Met Lys Leu Val Ser Val Ala Leu Met Tyr Leu Gly Ser Leu Ala Phe
1 5 10 15

Leu Gly Ala Asp Thr Ala Arg Leu Asp Val Ala Ser Glu Phe Arg Lys
20 25 30

Lys Trp Asn Lys Trp Ala Leu Ser Arg Gly Lys Arg Glu Leu Arg Met
35 40 45

Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro Ala
50 55 60

Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser Pro
65 70 75 80

Glu Asp Ser Cys Leu Ser Ser Pro Ser Pro Arg Pro Gln Gln Ser Gly
85 90 95

Cys Arg Pro His Pro Ser Gln Ala Leu Pro Pro Glu His Glu Gln Leu
100 105 110

Pro Gly Pro Pro Glu Leu Trp Leu Pro Leu Arg Asp Val His Gly Ala
115 120 125

Glu Ala Gly Thr Pro Asp Leu Pro Val His Arg
130 135

<210> 3486
<211> 83
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>

<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434749"

<400> 3486
Met Lys Leu Val Ser Val Ala Leu Met Tyr Leu Gly Ser Leu Ala Phe
1 5 10 15

Leu Gly Ala Asp Thr Ala Arg Leu Asp Val Ala Ser Glu Phe Arg Lys
20 25 30

Lys Trp Asn Lys Trp Ala Leu Ser Arg Gly Lys Arg Glu Leu Arg Met
35 40 45

Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro Ala
50 55 60

Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser Pro
65 70 75 80

Glu Asp Arg

<210> 3487
<211> 185
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>
<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin; "

<220>
<221> source

<223> /note="Uniprot ID: P35318; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435124"

<400> 3487
Met Lys Leu Val Ser Val Ala Leu Met Tyr Leu Gly Ser Leu Ala Phe
1   5   10   15

Leu Gly Ala Asp Thr Ala Arg Leu Asp Val Ala Ser Glu Phe Arg Lys
            20   25   30

Lys Trp Asn Lys Trp Ala Leu Ser Arg Gly Lys Arg Glu Leu Arg Met
        35   40   45

Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro Ala
    50   55   60

Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser Pro
65   70   75   80

Glu Asp Ser Ser Pro Asp Ala Ala Arg Ile Arg Val Lys Arg Tyr Arg
                85   90   95

Gln Ser Met Asn Asn Phe Gln Gly Leu Arg Ser Phe Gly Cys Arg Phe
            100   105   110

Gly Thr Cys Thr Val Gln Lys Leu Ala His Gln Ile Tyr Gln Phe Thr
        115   120   125

Asp Lys Asp Lys Asp Asn Val Ala Pro Arg Ser Lys Ile Ser Pro Gln
    130   135   140

Gly Tyr Gly Arg Arg Arg Arg Arg Ser Leu Pro Glu Ala Gly Pro Gly
145   150   155   160

Arg Thr Leu Val Ser Ser Lys Pro Gln Ala His Gly Ala Pro Ala Pro
                165   170   175

Pro Ser Gly Ser Ala Pro His Phe Leu
            180   185

<210> 3488
<211> 185

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>
<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin; "

<220>
<221> source
<223> /note="Uniprot ID: P35318; "

<220>
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<223> /note="ENSP ID: ENSP00000436607"

<400> 3488

```
Met Lys Leu Val Ser Val Ala Leu Met Tyr Leu Gly Ser Leu Ala Phe
1               5                  10                  15


Leu Gly Ala Asp Thr Ala Arg Leu Asp Val Ala Ser Glu Phe Arg Lys
            20                  25                  30


Lys Trp Asn Lys Trp Ala Leu Ser Arg Gly Lys Arg Glu Leu Arg Met
        35                  40                  45


Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro Ala
    50                  55                  60


Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser Pro
65                  70                  75                  80


Glu Asp Ser Ser Pro Asp Ala Ala Arg Ile Arg Val Lys Arg Tyr Arg
                85                  90                  95


Gln Ser Met Asn Asn Phe Gln Gly Leu Arg Ser Phe Gly Cys Arg Phe
            100                 105                 110


Gly Thr Cys Thr Val Gln Lys Leu Ala His Gln Ile Tyr Gln Phe Thr
        115                 120                 125
```

```
Asp Lys Asp Lys Asp Asn Val Ala Pro Arg Ser Lys Ile Ser Pro Gln
    130                 135                 140

Gly Tyr Gly Arg Arg Arg Arg Ser Leu Pro Glu Ala Gly Pro Gly
145                 150                 155                 160

Arg Thr Leu Val Ser Ser Lys Pro Gln Ala His Gly Ala Pro Ala Pro
                165                 170                 175

Pro Ser Gly Ser Ala Pro His Phe Leu
            180                 185
```

<210> 3489
<211> 117
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 776; "

<220>
<221> source
<223> /note="Gene Symbol: ADM; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436837"

<400> 3489

```
Met Gly Ser Gln Val Ala Phe Leu Pro Pro Pro Pro Ala Arg Ser Ser
1               5                   10                  15

Pro Asp Ala Ala Arg Ile Arg Val Lys Arg Tyr Arg Gln Ser Met Asn
            20                  25                  30

Asn Phe Gln Gly Leu Arg Ser Phe Gly Cys Arg Phe Gly Thr Cys Thr
        35                  40                  45

Val Gln Lys Leu Ala His Gln Ile Tyr Gln Phe Thr Asp Lys Asp Lys
    50                  55                  60

Asp Asn Val Ala Pro Arg Ser Lys Ile Ser Pro Gln Gly Tyr Gly Arg
65                  70                  75                  80
```

```
Arg Arg Arg Arg Ser Leu Pro Glu Ala Gly Pro Gly Arg Thr Leu Val
                85                  90                  95

Ser Ser Lys Pro Gln Ala His Gly Ala Pro Ala Pro Pro Ser Gly Ser
            100                 105                 110

Ala Pro His Phe Leu
        115


<210> 3490
<211> 148
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 777; "

<220>
<221> source
<223> /note="Gene Symbol: ADM2; "

<220>
<221> source
<223> /note="Gene Name:
      adrenomedullin 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q7Z4H4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379086"

<400> 3490
Met Ala Arg Ile Pro Thr Ala Ala Leu Gly Cys Ile Ser Leu Leu Cys
1               5                   10                  15

Leu Gln Leu Pro Gly Ser Leu Ser Arg Ser Leu Gly Gly Asp Pro Arg
            20                  25                  30

Pro Val Lys Pro Arg Glu Pro Pro Ala Arg Ser Pro Ser Ser Ser Leu
        35                  40                  45

Gln Pro Arg His Pro Ala Pro Arg Pro Val Val Trp Lys Leu His Arg
    50                  55                  60
```

```
Ala Leu Gln Ala Gln Arg Gly Ala Gly Leu Ala Pro Val Met Gly Gln
65                  70                  75                  80


Pro Leu Arg Asp Gly Gly Arg Gln His Ser Gly Pro Arg Arg His Ser
                85                  90                  95


Gly Pro Arg Arg Thr Gln Ala Gln Leu Leu Arg Val Gly Cys Val Leu
            100                 105                 110


Gly Thr Cys Gln Val Gln Asn Leu Ser His Arg Leu Trp Gln Leu Met
        115                 120                 125


Gly Pro Ala Gly Arg Gln Asp Ser Ala Pro Val Asp Pro Ser Ser Pro
    130                 135                 140


His Ser Tyr Gly
145


<210> 3491
<211> 148
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 777; "

<220>
<221> source
<223> /note="Gene Symbol: ADM2; "

<220>
<221> source
<223> /note="Gene Name:
      adrenomedullin 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q7Z4H4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379087"

<400> 3491
Met Ala Arg Ile Pro Thr Ala Ala Leu Gly Cys Ile Ser Leu Leu Cys
1               5                   10                  15


Leu Gln Leu Pro Gly Ser Leu Ser Arg Ser Leu Gly Gly Asp Pro Arg
            20                  25                  30
```

```
Pro Val Lys Pro Arg Glu Pro Pro Ala Arg Ser Pro Ser Ser Ser Leu
        35                  40                  45

Gln Pro Arg His Pro Ala Pro Arg Pro Val Val Trp Lys Leu His Arg
    50                  55                  60

Ala Leu Gln Ala Gln Arg Gly Ala Gly Leu Ala Pro Val Met Gly Gln
65                  70                  75                  80

Pro Leu Arg Asp Gly Gly Arg Gln His Ser Gly Pro Arg Arg His Ser
                85                  90                  95

Gly Pro Arg Arg Thr Gln Ala Gln Leu Leu Arg Val Gly Cys Val Leu
            100                 105                 110

Gly Thr Cys Gln Val Gln Asn Leu Ser His Arg Leu Trp Gln Leu Met
        115                 120                 125

Gly Pro Ala Gly Arg Gln Asp Ser Ala Pro Val Asp Pro Ser Ser Pro
    130                 135                 140

His Ser Tyr Gly
145
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<210> 3492
<211> 153
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 778; "

<220>
<221> source
<223> /note="Gene Symbol: ADM5; "

<220>
<221> source
<223> /note="Gene Name:
adrenomedullin 5
(putative); "

<220>
<221> source
<223> /note="Uniprot ID: C9JUS6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393631"

<400> 3492
Met Thr Ile His Ile Leu Ile Leu Leu Leu Leu Ala Phe Ser Ala
1   5   10   15

Gln Gly Asp Leu Asp Thr Ala Ala Arg Arg Gly Gln His Gln Val Pro
            20   25   30

Gln His Arg Gly His Val Cys Tyr Leu Gly Val Cys Arg Thr His Arg
        35   40   45

Leu Ala Glu Ile Ile Tyr Trp Ile Arg Cys Leu His Gln Gly Ala Leu
    50   55   60

Gly Glu Gly Gln Pro Arg Ala Pro Gly Pro Leu Gln Leu Trp Ala Pro
65   70   75   80

Pro Val Ala Arg Gly Gly Ser Pro Ala Arg Phe Pro Gly Phe Arg Pro
                85   90   95

Ala Ala Arg Gly Leu Ala Gln Cys Pro Ala Arg Trp Val Thr Ser Gly
            100   105   110

Thr Ala Arg Pro Leu Leu Gly Phe Ser Leu Pro Ile Cys Met Leu Glu
        115   120   125

Leu Leu Leu His Ile Ser Ser Pro Leu Thr Pro Ala Pro Glu Thr Val
    130   135   140

Phe Pro Ser Pro Ser Pro Gly Cys Asp
145   150

<210> 3493
<211> 347
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

<220>
<221> source
<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="Uniprot ID: Q15109; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364195"

<400> 3493
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115   120   125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130   135   140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145   150   155   160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165   170   175

```
Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
                325                 330                 335

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
            340                 345


<210> 3494
<211> 233
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

<220>
<221> source
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<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364196"

<400> 3494

```
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
```

```
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His
225                 230


<210> 3495
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

<220>
<221> source
<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364206"

<400> 3495
Met Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile
1               5                   10                  15

Leu Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala
            20                  25                  30

Thr His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser
        35                  40                  45

Ile Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly
    50                  55                  60

Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu
65                  70                  75                  80
```

```
Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln
                85                  90                  95


Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu
            100                 105                 110


Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser
        115                 120                 125


Ser Thr Gly Gly Pro
    130


<210> 3496
<211> 342
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

<220>
<221> source
<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="Uniprot ID:  Q15109; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364208"

<400> 3496
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15


Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30


Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45


Leu Glu Trp Lys Leu Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val
```

```
    50                  55                  60

Leu Pro Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu
65                  70                  75                  80

Gly Ile Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys
                85                  90                  95

Ser Asn Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile
            100                 105                 110

Val Asp Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly
        115                 120                 125

Thr Cys Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His
    130                 135                 140

Leu Asp Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys
145                 150                 155                 160

Glu Gln Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser
                165                 170                 175

Glu Leu Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe
            180                 185                 190

Ser Cys Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr
        195                 200                 205

Ala Pro Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val
    210                 215                 220

Gln Leu Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr
225                 230                 235                 240

Val Thr Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His
                245                 250                 255

Trp Met Lys Asp Val Ser Asp Leu Glu Arg Gly Ala Gly Arg Thr Arg
            260                 265                 270

Arg Gly Gly Ala Asn Cys Arg Leu Cys Gly Arg Ile Arg Ala Gly Asn
        275                 280                 285
```

```
Ser Ser Pro Gly Pro Gly Asp Pro Gly Arg Pro Gly Asp Ser Arg Pro
    290                 295                 300

Ala His Trp Gly His Leu Val Ala Lys Ala Ala Thr Pro Arg Arg Gly
305                 310                 315                 320

Glu Glu Gly Pro Arg Lys Pro Gly Gly Arg Gly Gly Ala Cys Arg Thr
                325                 330                 335

Glu Ser Val Gly Gly Thr
            340
```

<210> 3497
<211> 420
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
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<223> /note="Uniprot ID: Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000364210"

<400> 3497

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45
```

```
Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
```

```
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
            340                 345                 350

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
        355                 360                 365

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
    370                 375                 380

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
385                 390                 395                 400

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
                405                 410                 415

Thr Gly Gly Pro
            420
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<210> 3498
<211> 294
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 3498
Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn Tyr Arg Val Arg Val
1 5 10 15

Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser Glu Leu
20 25 30

Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu Gly Ser
35 40 45

Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro Leu Val
50 55 60

Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg His Pro
65 70 75 80

Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr Pro Ala
85 90 95

Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser Pro Gly
100 105 110

Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro Ile Gln Pro Arg Val
115 120 125

Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu Val Val Glu Pro Glu
130 135 140

Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr Leu Thr Cys Glu Val
145 150 155 160

Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met Lys Asp Gly Val Pro
165 170 175

Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu Pro Glu Ile Gly Pro
180 185 190

Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr His Ser Ser His Gly
195 200 205

```
Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile Ile Gly Ser Val Gly
    210                 215                 220

Gly Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly
225                 230                 235                 240

Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg
                245                 250                 255

Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu
            260                 265                 270

Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu
        275                 280                 285

Ser Ser Thr Gly Gly Pro
    290


<210> 3499
<211> 404
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<400> 3499
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255
```

```
Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
                325                 330                 335

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
            340                 345                 350

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
        355                 360                 365

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
    370                 375                 380

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
385                 390                 395                 400

Thr Gly Gly Pro
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<210> 3500
<211> 347
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000372762"

<400> 3500
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115   120   125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130   135   140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145   150   155   160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165   170   175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180   185   190

```
Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
                325                 330                 335

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
            340                 345


<210> 3501
<211> 342
<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: Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000372766"

<400> 3501

```
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val
    50                  55                  60

Leu Pro Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu
65                  70                  75                  80

Gly Ile Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys
                85                  90                  95

Ser Asn Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile
            100                 105                 110

Val Asp Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly
        115                 120                 125

Thr Cys Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His
    130                 135                 140

Leu Asp Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys
145                 150                 155                 160

Glu Gln Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser
                165                 170                 175

Glu Leu Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe
```

```
            180                 185                 190

Ser Cys Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr
        195                 200                 205

Ala Pro Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val
    210                 215                 220

Gln Leu Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr
225                 230                 235                 240

Val Thr Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His
                245                 250                 255

Trp Met Lys Asp Val Ser Asp Leu Glu Arg Gly Ala Gly Arg Thr Arg
            260                 265                 270

Arg Gly Gly Ala Asn Cys Arg Leu Cys Gly Arg Ile Arg Ala Gly Asn
        275                 280                 285

Ser Ser Pro Gly Pro Gly Asp Pro Gly Arg Pro Gly Asp Ser Arg Pro
    290                 295                 300

Ala His Trp Gly His Leu Val Ala Lys Ala Ala Thr Pro Arg Arg Gly
305                 310                 315                 320

Glu Glu Gly Pro Arg Lys Pro Gly Gly Arg Gly Gly Ala Cys Arg Thr
                325                 330                 335

Glu Ser Val Gly Gly Thr
            340


<210> 3502
<211> 342
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<221> source
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<223> /note="Uniprot ID: Q15109; "

<220>
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<400> 3502

```
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val
    50                  55                  60

Leu Pro Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu
65                  70                  75                  80

Gly Ile Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys
                85                  90                  95

Ser Asn Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile
            100                 105                 110

Val Asp Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly
        115                 120                 125

Thr Cys Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His
    130                 135                 140

Leu Asp Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys
145                 150                 155                 160

Glu Gln Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser
                165                 170                 175
```

```
Glu Leu Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe
            180                 185                 190

Ser Cys Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr
        195                 200                 205

Ala Pro Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val
    210                 215                 220

Gln Leu Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr
225                 230                 235                 240

Val Thr Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His
                245                 250                 255

Trp Met Lys Asp Val Ser Asp Leu Glu Arg Gly Ala Gly Arg Thr Arg
            260                 265                 270

Arg Gly Gly Ala Asn Cys Arg Leu Cys Gly Arg Ile Arg Ala Gly Asn
        275                 280                 285

Ser Ser Pro Gly Pro Gly Asp Pro Gly Arg Pro Gly Asp Ser Arg Pro
    290                 295                 300

Ala His Trp Gly His Leu Val Ala Lys Ala Ala Thr Pro Arg Arg Gly
305                 310                 315                 320

Glu Glu Gly Pro Arg Lys Pro Gly Gly Arg Gly Gly Ala Cys Arg Thr
                325                 330                 335

Glu Ser Val Gly Gly Thr
            340
```

<210> 3503
<211> 363
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000387887"

<400> 3503
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115   120   125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130   135   140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145   150   155   160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165   170   175

```
Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
            340                 345                 350

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
        355                 360
```

<210> 3504
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<212> PRT
<213> Homo sapiens

<220>
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<400> 3504

```
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15


Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30


Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45


Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60


Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80


Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95


Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110


Tyr Arg Ser Leu Arg Thr Phe Thr Ile Thr Ala Ser Asp Trp Ile Phe
        115                 120                 125


Pro Pro Ser Glu Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser
    130                 135                 140


Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu
145                 150                 155                 160


Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro
                165                 170                 175
```

```
Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg
            180                 185                 190


His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr
        195                 200                 205


Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser
    210                 215                 220


Pro Gly Leu Pro Arg His Arg Ala Leu Arg
225                 230


<210> 3505
<211> 342
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000388462"

<400> 3505
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15


Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30


Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45
```

```
Leu Glu Trp Lys Leu Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val
    50                  55                  60

Leu Pro Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu
65                  70                  75                  80

Gly Ile Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys
                85                  90                  95

Ser Asn Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile
            100                 105                 110

Val Asp Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly
        115                 120                 125

Thr Cys Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His
    130                 135                 140

Leu Asp Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys
145                 150                 155                 160

Glu Gln Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser
                165                 170                 175

Glu Leu Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe
            180                 185                 190

Ser Cys Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr
        195                 200                 205

Ala Pro Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val
    210                 215                 220

Gln Leu Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr
225                 230                 235                 240

Val Thr Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His
                245                 250                 255

Trp Met Lys Asp Val Ser Asp Leu Glu Arg Gly Ala Gly Arg Thr Arg
            260                 265                 270

Arg Gly Gly Ala Asn Cys Arg Leu Cys Gly Arg Ile Arg Ala Gly Asn
```

```
        275                 280                 285

Ser Ser Pro Gly Pro Gly Asp Pro Gly Arg Pro Gly Asp Ser Arg Pro
    290                 295                 300

Ala His Trp Gly His Leu Val Ala Lys Ala Ala Thr Pro Arg Arg Gly
305                 310                 315                 320

Glu Glu Gly Pro Arg Lys Pro Gly Gly Arg Gly Gly Ala Cys Arg Thr
                325                 330                 335

Glu Ser Val Gly Gly Thr
            340


<210> 3506
<211> 234
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000391024"

<400> 3506
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60
```

```
Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Ser Leu Arg Thr Phe Thr Ile Thr Ala Ser Asp Trp Ile Phe
        115                 120                 125

Pro Pro Ser Glu Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser
    130                 135                 140

Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu
145                 150                 155                 160

Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro
                165                 170                 175

Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg
            180                 185                 190

His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr
        195                 200                 205

Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser
    210                 215                 220

Pro Gly Leu Pro Arg His Arg Ala Leu Arg
225                 230
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<210> 3507
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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val
    50   55   60

Leu Pro Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu
65   70   75   80

Gly Ile Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys
                85   90   95

Ser Asn Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile
            100   105   110

Val Asp Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly
        115   120   125

Thr Cys Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His
    130   135   140

Leu Asp Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys
145   150   155   160

Glu Gln Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser
                165   170   175

```
Glu Leu Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe
            180                 185                 190

Ser Cys Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr
        195                 200                 205

Ala Pro Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val
    210                 215                 220

Gln Leu Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr
225                 230                 235                 240

Val Thr Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His
                245                 250                 255

Trp Met Lys Asp Val Ser Asp Leu Glu Arg Gly Ala Gly Arg Thr Arg
            260                 265                 270

Arg Gly Gly Ala Asn Cys Arg Leu Cys Gly Arg Ile Arg Ala Gly Asn
        275                 280                 285

Ser Ser Pro Gly Pro Gly Asp Pro Gly Arg Pro Gly Asp Ser Arg Pro
    290                 295                 300

Ala His Trp Gly His Leu Val Ala Lys Ala Ala Thr Pro Arg Arg Gly
305                 310                 315                 320

Glu Glu Gly Pro Arg Lys Pro Gly Gly Arg Gly Gly Ala Cys Arg Thr
                325                 330                 335

Glu Ser Val Gly Gly Thr
            340
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<400> 3508
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val
50 55 60

Leu Pro Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu
65 70 75 80

Gly Ile Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys
85 90 95

Ser Asn Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile
100 105 110

Val Asp Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly
115 120 125

Thr Cys Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His
130 135 140

Leu Asp Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys
145 150 155 160

Glu Gln Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser
165 170 175

Glu Leu Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe

```
            180                 185                 190

Ser Cys Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr
        195                 200                 205

Ala Pro Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val
    210                 215                 220

Gln Leu Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr
225                 230                 235                 240

Val Thr Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His
                245                 250                 255

Trp Met Lys Asp Val Ser Asp Leu Glu Arg Gly Ala Gly Arg Thr Arg
            260                 265                 270

Arg Gly Gly Ala Asn Cys Arg Leu Cys Gly Arg Ile Arg Ala Gly Asn
        275                 280                 285

Ser Ser Pro Gly Pro Gly Asp Pro Gly Arg Pro Gly Asp Ser Arg Pro
    290                 295                 300

Ala His Trp Gly His Leu Val Ala Lys Ala Ala Thr Pro Arg Arg Gly
305                 310                 315                 320

Glu Glu Gly Pro Arg Lys Pro Gly Gly Arg Gly Gly Ala Cys Arg Thr
                325                 330                 335

Glu Ser Val Gly Gly Thr
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<210> 3509
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<213> Homo sapiens

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<400> 3509
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
130 135 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145 150 155 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
165 170 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
180 185 190

```
Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His
225                 230


<210> 3510
<211> 234
<212> PRT
<213> Homo sapiens

<220>
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<400> 3510
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95
```

```
Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Ser Leu Arg Thr Phe Thr Ile Thr Ala Ser Asp Trp Ile Phe
        115                 120                 125

Pro Pro Ser Glu Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser
    130                 135                 140

Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu
145                 150                 155                 160

Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro
                165                 170                 175

Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg
            180                 185                 190

His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr
        195                 200                 205

Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser
    210                 215                 220

Pro Gly Leu Pro Arg His Arg Ala Leu Arg
225                 230


<210> 3511
<211> 404
<212> PRT
<213> Homo sapiens

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<400> 3511
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115   120   125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130   135   140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145   150   155   160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165   170   175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180   185   190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys

195 200 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
210 215 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225 230 235 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
245 250 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
260 265 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
275 280 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
290 295 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305 310 315 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
325 330 335

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
340 345 350

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
355 360 365

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
370 375 380

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
385 390 395 400

Thr Gly Gly Pro

<210> 3512
<211> 404

<212> PRT
<213> Homo sapiens

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<400> 3512
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115   120   125

```
Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
                325                 330                 335

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
            340                 345                 350

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
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355 360 365

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
370 375 380

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
385 390 395 400

Thr Gly Gly Pro

<210> 3513
<211> 233
<212> PRT
<213> Homo sapiens

<220>
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<400> 3513
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

```
Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His
225                 230


<210> 3514
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<400> 3514

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val
    50                  55                  60

Leu Pro Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu
65                  70                  75                  80

Gly Ile Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys
                85                  90                  95

Ser Asn Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile
            100                 105                 110

Val Asp Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly
        115                 120                 125

Thr Cys Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His
    130                 135                 140

Leu Asp Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys
145                 150                 155                 160

Glu Gln Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser
                165                 170                 175

Glu Leu Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe
            180                 185                 190

Ser Cys Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr
        195                 200                 205
```

```
Ala Pro Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val
    210                 215                 220

Gln Leu Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr
225                 230                 235                 240

Val Thr Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His
                245                 250                 255

Trp Met Lys Asp Val Ser Asp Leu Glu Arg Gly Ala Gly Arg Thr Arg
            260                 265                 270

Arg Gly Gly Ala Asn Cys Arg Leu Cys Gly Arg Ile Arg Ala Gly Asn
        275                 280                 285

Ser Ser Pro Gly Pro Gly Asp Pro Gly Arg Pro Gly Asp Ser Arg Pro
    290                 295                 300

Ala His Trp Gly His Leu Val Ala Lys Ala Ala Thr Pro Arg Arg Gly
305                 310                 315                 320

Glu Glu Gly Pro Arg Lys Pro Gly Gly Arg Gly Gly Ala Cys Arg Thr
                325                 330                 335

Glu Ser Val Gly Gly Thr
            340


<210> 3515
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<212> PRT
<213> Homo sapiens

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<221> source
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<400> 3515
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Ser Leu Arg Thr Phe Thr Ile Thr Ala Ser Asp Trp Ile Phe
115 120 125

Pro Pro Ser Glu Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser
130 135 140

Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu
145 150 155 160

Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro
165 170 175

Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg
180 185 190

His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr
195 200 205

Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser

210 215 220

Pro Gly Leu Pro Arg His Arg Ala Leu Arg
225 230

<210> 3516
<211> 233
<212> PRT
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<400> 3516
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

```
Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His
225                 230


<210> 3517
<211> 347
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000399686"

<400> 3517

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220
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Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
                325                 330                 335

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
            340                 345


<210> 3518
<211> 347
<212> PRT
<213> Homo sapiens

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<400> 3518
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
130 135 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145 150 155 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
165 170 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
180 185 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
195 200 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro

```
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
                325                 330                 335

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
            340                 345


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<400> 3519
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
130 135 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145 150 155 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
165 170 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
180 185 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
195 200 205

```
Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
                325                 330                 335

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
            340                 345                 350

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
        355                 360                 365

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
    370                 375                 380

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
385                 390                 395                 400

Thr Gly Gly Pro
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<210> 3520
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<400> 3520
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Ser Leu Arg Thr Phe Thr Ile Thr Ala Ser Asp Trp Ile Phe
115 120 125

Pro Pro Ser Glu Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser
130 135 140

Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu
145 150 155 160

Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro
165 170 175

Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg
180 185 190

His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr
195 200 205

Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser
210 215 220

Pro Gly Leu Pro Arg His Arg Ala Leu Arg
225 230

<210> 3521
<211> 347
<212> PRT
<213> Homo sapiens

<220>
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<400> 3521
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu

```
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285
```

```
Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
                325                 330                 335

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
            340                 345


<210> 3522
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<212> PRT
<213> Homo sapiens

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<400> 3522
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60
```

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
130 135 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145 150 155 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
165 170 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
180 185 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
195 200 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
210 215 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225 230 235 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
245 250 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
260 265 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
275 280 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr

```
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
                325                 330                 335

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
            340                 345


<210> 3523
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<212> PRT
<213> Homo sapiens

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<400> 3523
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60
```

```
Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285
```

```
Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
                325                 330                 335

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
            340                 345                 350

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
        355                 360                 365

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
    370                 375                 380

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
385                 390                 395                 400

Thr Gly Gly Pro
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<210> 3524
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<213> Homo sapiens

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<400> 3524

```
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15
```

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Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His
225                 230
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<210> 3525
<211> 233
<212> PRT
<213> Homo sapiens

<220>
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<400> 3525
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu

```
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His
225                 230


<210> 3526
<211> 233
<212> PRT
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<400> 3526
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His
225                 230
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<210> 3527
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<400> 3527

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Ser Leu Arg Thr Phe Thr Ile Thr Ala Ser Asp Trp Ile Phe
        115                 120                 125

Pro Pro Ser Glu Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser
    130                 135                 140

Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu
145                 150                 155                 160
```

```
Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro
                165                 170                 175

Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg
            180                 185                 190

His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr
        195                 200                 205

Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser
    210                 215                 220

Pro Gly Leu Pro Arg His Arg Ala Leu Arg
225                 230


<210> 3528
<211> 347
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID:  Q15109; "

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<223> /note="ENSP ID: ENSP00000413391"

<400> 3528
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
```

```
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
                325                 330                 335

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
            340                 345


<210> 3529
<211> 404
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

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<223> /note="Uniprot ID:  Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000415144"

<400> 3529
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255
```

```
Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
                325                 330                 335

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
            340                 345                 350

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
        355                 360                 365

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
    370                 375                 380

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
385                 390                 395                 400

Thr Gly Gly Pro
```

<210> 3530
<211> 234
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

<220>
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<223> /note="Gene Symbol: AGER; "

<220>
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<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000415780"

<400> 3530
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Ser Leu Arg Thr Phe Thr Ile Thr Ala Ser Asp Trp Ile Phe
        115   120   125

Pro Pro Ser Glu Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser
    130   135   140

Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu
145   150   155   160

Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro
                165   170   175

Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg
            180   185   190

His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr
        195   200   205

Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser
210 215 220

Pro Gly Leu Pro Arg His Arg Ala Leu Arg
225 230

<210> 3531
<211> 404
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
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<223> /note="Uniprot ID: Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000416042"

<400> 3531
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile

```
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys
    130                 135                 140

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
145                 150                 155                 160

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
                165                 170                 175

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
            180                 185                 190

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
        195                 200                 205

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
    210                 215                 220

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
225                 230                 235                 240

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
                245                 250                 255

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
            260                 265                 270

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
        275                 280                 285

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
    290                 295                 300

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
305                 310                 315                 320
```

```
Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
                325                 330                 335

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
            340                 345                 350

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
        355                 360                 365

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
    370                 375                 380

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
385                 390                 395                 400

Thr Gly Gly Pro
```

<210> 3532
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

<220>
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<223> /note="Gene Symbol: AGER; "

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<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
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<400> 3532
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Phe Glu Asn Leu His Asn Tyr Ser Leu
        115                 120                 125


<210> 3533
<211> 133
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

<220>
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<223> /note="Gene Symbol: AGER; "

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<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446495"

<400> 3533
Met Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile
1               5                   10                  15

Leu Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala
            20                  25                  30

Thr His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser
        35                  40                  45
```

```
Ile Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly
    50                  55                  60

Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu
65                  70                  75                  80

Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln
                85                  90                  95

Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu
            100                 105                 110

Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser
        115                 120                 125

Ser Thr Gly Gly Pro
    130


<210> 3534
<211> 133
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

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<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446533"

<400> 3534
Met Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile
1               5                   10                  15

Leu Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala
            20                  25                  30
```

```
Thr His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser
        35                  40                  45

Ile Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly
    50                  55                  60

Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu
65                  70                  75                  80

Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln
                85                  90                  95

Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu
            100                 105                 110

Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser
        115                 120                 125

Ser Thr Gly Gly Pro
    130


<210> 3535
<211> 128
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446582"

<400> 3535
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Phe Glu Asn Leu His Asn Tyr Ser Leu
        115                 120                 125


<210> 3536
<211> 363
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

<220>
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<223> /note="Gene Symbol: AGER; "

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<221> source
<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446660"

<400> 3536
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
```

```
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
            340                 345                 350

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
        355                 360


<210> 3537
<211> 420
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

<220>
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<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446682"

<400> 3537
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30
```

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255
```

```
Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
            340                 345                 350

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
        355                 360                 365

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
    370                 375                 380

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
385                 390                 395                 400

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
                405                 410                 415

Thr Gly Gly Pro
            420
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<210> 3538
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

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<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000446692"

<400> 3538
Met Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile
1 5 10 15

Leu Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala
20 25 30

Thr His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser
35 40 45

Ile Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly
50 55 60

Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu
65 70 75 80

Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln
85 90 95

Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu
100 105 110

Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser
115 120 125

Ser Thr Gly Gly Pro
130

<210> 3539
<211> 363
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

<220>
<221> source

<223> /note="Gene Symbol: AGER; "

<220>
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<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
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<223> /note="Uniprot ID: Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000446835"

<400> 3539

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15


Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30


Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45


Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60


Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80


Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95


Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110


Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125


Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140


Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160


Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
```

```
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
            340                 345                 350

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
        355                 360
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<210> 3540
<211> 128
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 779; "

<220>
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<220>
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<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447095"

<400> 3540
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Phe Glu Asn Leu His Asn Tyr Ser Leu
115 120 125

<210> 3541
<211> 420
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 779; "

<220>
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<223> /note="Gene Symbol: AGER; "

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<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="Uniprot ID: Q15109; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447301"

<400> 3541
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115   120   125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130   135   140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145   150   155   160

```
Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
            340                 345                 350

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
        355                 360                 365

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
    370                 375                 380
```

```
Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
385                 390                 395                 400

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
                405                 410                 415

Thr Gly Gly Pro
            420


<210> 3542
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<213> Homo sapiens

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<400> 3542
Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn Tyr Arg Val Arg Val
1               5                   10                  15

Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser Glu Leu
            20                  25                  30

Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu Gly Ser
        35                  40                  45

Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro Leu Val
    50                  55                  60

Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg His Pro
65                  70                  75                  80

Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr Pro Ala
```

```
                85                  90                  95

Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser Pro Gly
            100                 105                 110

Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro Ile Gln Pro Arg Val
        115                 120                 125

Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu Val Val Glu Pro Glu
    130                 135                 140

Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr Leu Thr Cys Glu Val
145                 150                 155                 160

Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met Lys Asp Gly Val Pro
                165                 170                 175

Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu Pro Glu Ile Gly Pro
            180                 185                 190

Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr His Ser Ser His Gly
        195                 200                 205

Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile Ile Gly Ser Val Gly
    210                 215                 220

Gly Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly
225                 230                 235                 240

Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg
                245                 250                 255

Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu
            260                 265                 270

Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu
        275                 280                 285

Ser Ser Thr Gly Gly Pro
    290
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<210> 3543
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<400> 3543
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Phe Glu Asn Leu His Asn Tyr Ser Leu
115 120 125

<210> 3544
<211> 153
<212> PRT
<213> Homo sapiens

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<400> 3544
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Leu Gly Gly Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp
100 105 110

Gln Arg Arg Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln
115 120 125

Glu Glu Glu Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu
130 135 140

Ala Gly Glu Ser Ser Thr Gly Gly Pro
145 150

<210> 3545
<211> 133
<212> PRT
<213> Homo sapiens

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<400> 3545
Met Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile
1 5 10 15

Leu Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala
20 25 30

Thr His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser
35 40 45

Ile Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly
50 55 60

Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu
65 70 75 80

Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln
85 90 95

Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu
100 105 110

Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser
115 120 125

Ser Thr Gly Gly Pro
    130

<210> 3546
<211> 294
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000448287"

<400> 3546
Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn Tyr Arg Val Arg Val
1   5   10   15

Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser Glu Leu
            20   25   30

Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu Gly Ser
        35   40   45

Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro Leu Val
    50   55   60

Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg His Pro
65   70   75   80

Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr Pro Ala
                85   90   95

Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser Pro Gly
            100   105   110

Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro Ile Gln Pro Arg Val
        115   120   125

```
Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu Val Val Glu Pro Glu
    130                 135                 140

Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr Leu Thr Cys Glu Val
145                 150                 155                 160

Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met Lys Asp Gly Val Pro
                165                 170                 175

Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu Pro Glu Ile Gly Pro
            180                 185                 190

Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr His Ser Ser His Gly
        195                 200                 205

Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile Ile Gly Ser Val Gly
    210                 215                 220

Gly Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly
225                 230                 235                 240

Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg
                245                 250                 255

Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu
            260                 265                 270

Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu
        275                 280                 285

Ser Ser Thr Gly Gly Pro
    290


<210> 3547
<211> 153
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<213> Homo sapiens

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<223> /note="Gene Symbol: AGER; "

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<400> 3547
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Leu Gly Gly Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp
100 105 110

Gln Arg Arg Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln
115 120 125

Glu Glu Glu Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu
130 135 140

Ala Gly Glu Ser Ser Thr Gly Gly Pro
145 150

<210> 3548
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<223> /note="Gene Name:
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<223> /note="ENSP ID: ENSP00000448525"

<400> 3548
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Phe Glu Asn Leu His Asn Tyr Ser Leu
115 120 125

<210> 3549
<211> 420
<212> PRT
<213> Homo sapiens

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<400> 3549

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
```

145 150 155 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
165 170 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
180 185 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
195 200 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
210 215 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225 230 235 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
245 250 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
260 265 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
275 280 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
290 295 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305 310 315 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
325 330 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
340 345 350

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
355 360 365

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
370 375 380

```
Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
385                 390                 395                 400


Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
                405                 410                 415


Thr Gly Gly Pro
            420


<210> 3550
<211> 420
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<400> 3550
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15


Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30


Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45


Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60
```

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
130 135 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145 150 155 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
165 170 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
180 185 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
195 200 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
210 215 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225 230 235 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
245 250 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
260 265 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
275 280 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu

```
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
            340                 345                 350

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
        355                 360                 365

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
    370                 375                 380

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
385                 390                 395                 400

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
                405                 410                 415

Thr Gly Gly Pro
            420


<210> 3551
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<213> Homo sapiens

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<400> 3551
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Leu Gly Gly Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp
100 105 110

Gln Arg Arg Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln
115 120 125

Glu Glu Glu Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu
130 135 140

Ala Gly Glu Ser Ser Thr Gly Gly Pro
145 150

<210> 3552
<211> 363
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000449040"

<400> 3552

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205
```

```
Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
            340                 345                 350

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
        355                 360
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<210> 3553
<211> 363
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name:
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<400> 3553

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
```

```
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
            340                 345                 350

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
        355                 360


<210> 3554
<211> 294
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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<223> /note="ENSP ID: ENSP00000449091"

<400> 3554

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Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn Tyr Arg Val Arg Val
1               5                  10                  15

Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser Glu Leu
            20                  25                  30

Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu Gly Ser
        35                  40                  45

Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro Leu Val
    50                  55                  60

Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg His Pro
65                  70                  75                  80

Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr Pro Ala
                85                  90                  95

Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser Pro Gly
            100                 105                 110

Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro Ile Gln Pro Arg Val
        115                 120                 125

Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu Val Val Glu Pro Glu
    130                 135                 140

Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr Leu Thr Cys Glu Val
145                 150                 155                 160

Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met Lys Asp Gly Val Pro
                165                 170                 175
```

```
Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu Pro Glu Ile Gly Pro
            180                 185                 190

Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr His Ser Ser His Gly
        195                 200                 205

Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile Ile Gly Ser Val Gly
    210                 215                 220

Gly Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly
225                 230                 235                 240

Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg
                245                 250                 255

Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu
            260                 265                 270

Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu
        275                 280                 285

Ser Ser Thr Gly Gly Pro
    290
```

<210> 3555
<211> 294
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<400> 3555
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Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn Tyr Arg Val Arg Val
1               5                   10                  15
```

```
Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser Glu Leu
            20                  25                  30

Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu Gly Ser
        35                  40                  45

Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro Leu Val
    50                  55                  60

Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg His Pro
65                  70                  75                  80

Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr Pro Ala
                85                  90                  95

Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser Pro Gly
            100                 105                 110

Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro Ile Gln Pro Arg Val
        115                 120                 125

Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu Val Val Glu Pro Glu
    130                 135                 140

Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr Leu Thr Cys Glu Val
145                 150                 155                 160

Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met Lys Asp Gly Val Pro
                165                 170                 175

Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu Pro Glu Ile Gly Pro
            180                 185                 190

Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr His Ser Ser His Gly
        195                 200                 205

Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile Ile Gly Ser Val Gly
    210                 215                 220

Gly Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly
225                 230                 235                 240
```

```
Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg
                245                 250                 255

Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu
            260                 265                 270

Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu
        275                 280                 285

Ser Ser Thr Gly Gly Pro
    290


<210> 3556
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<213> Homo sapiens

<220>
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<220>
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<400> 3556
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
```

65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Leu Gly Gly Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp
100 105 110

Gln Arg Arg Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln
115 120 125

Glu Glu Glu Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu
130 135 140

Ala Gly Glu Ser Ser Thr Gly Gly Pro
145 150

<210> 3557
<211> 363
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q15109; "

<220>
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<223> /note="ENSP ID: ENSP00000449226"

<400> 3557
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

```
Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255
```

```
Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
            340                 345                 350

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
        355                 360


<210> 3558
<211> 294
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000449368"

<400> 3558
Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn Tyr Arg Val Arg Val
1               5                   10                  15

Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser Glu Leu
            20                  25                  30
```

```
Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu Gly Ser
        35                  40                  45

Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro Leu Val
    50                  55                  60

Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg His Pro
65                  70                  75                  80

Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr Pro Ala
                85                  90                  95

Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser Pro Gly
            100                 105                 110

Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro Ile Gln Pro Arg Val
        115                 120                 125

Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu Val Val Glu Pro Glu
    130                 135                 140

Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr Leu Thr Cys Glu Val
145                 150                 155                 160

Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met Lys Asp Gly Val Pro
                165                 170                 175

Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu Pro Glu Ile Gly Pro
            180                 185                 190

Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr His Ser Ser His Gly
        195                 200                 205

Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile Ile Gly Ser Val Gly
    210                 215                 220

Gly Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly
225                 230                 235                 240

Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg
                245                 250                 255
```

```
Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu
            260                 265                 270

Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu
        275                 280                 285

Ser Ser Thr Gly Gly Pro
    290


<210> 3559
<211> 133
<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: ENSP00000449506"

<400> 3559
Met Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile
1               5                   10                  15

Leu Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala
            20                  25                  30

Thr His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser
        35                  40                  45

Ile Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly
    50                  55                  60

Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu
65                  70                  75                  80

Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln
```

```
                85                  90                  95

Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu
            100                 105                 110

Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser
        115                 120                 125

Ser Thr Gly Gly Pro
    130


<210> 3560
<211> 133
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

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<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000449676"

<400> 3560
Met Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile
1               5                   10                  15

Leu Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala
            20                  25                  30

Thr His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser
        35                  40                  45

Ile Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly
    50                  55                  60

Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu
65                  70                  75                  80
```

```
Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln
                85                  90                  95


Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu
            100                 105                 110


Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser
        115                 120                 125


Ser Thr Gly Gly Pro
    130


<210> 3561
<211> 363
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID:  Q15109; "

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<223> /note="ENSP ID: ENSP00000449708"

<400> 3561
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15


Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30


Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45


Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
```

50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
130 135 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145 150 155 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
165 170 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
180 185 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
195 200 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
210 215 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225 230 235 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
245 250 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
260 265 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
275 280 285

```
Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Glu Gly Phe Asp Lys
            340                 345                 350

Val Arg Glu Ala Glu Asp Ser Pro Gln His Met
        355                 360


<210> 3562
<211> 420
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<221> source
<223> /note="Gene Name:
      advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449731"

<400> 3562
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45
```

```
Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100                 105                 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
        115                 120                 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
    130                 135                 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145                 150                 155                 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
                165                 170                 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
            180                 185                 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
        195                 200                 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
```

```
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
            340                 345                 350

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
        355                 360                 365

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
    370                 375                 380

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
385                 390                 395                 400

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
                405                 410                 415

Thr Gly Gly Pro
            420


<210> 3563
<211> 294
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

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<220>
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<223> /note="ENSP ID: ENSP00000449754"

<400> 3563
Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn Tyr Arg Val Arg Val
1   5   10   15

Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp Ser Ala Ser Glu Leu
            20   25   30

Thr Ala Gly Val Pro Asn Lys Val Gly Thr Cys Val Ser Glu Gly Ser
        35   40   45

Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp Gly Lys Pro Leu Val
    50   55   60

Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln Thr Arg Arg His Pro
65   70   75   80

Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu Met Val Thr Pro Ala
                85   90   95

Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys Ser Phe Ser Pro Gly
            100   105   110

Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro Ile Gln Pro Arg Val
        115   120   125

Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu Val Val Glu Pro Glu
    130   135   140

Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr Leu Thr Cys Glu Val
145   150   155   160

Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met Lys Asp Gly Val Pro
                165   170   175

Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu Pro Glu Ile Gly Pro
            180   185   190

Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr His Ser Ser His Gly
        195   200   205

```
Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile Ile Gly Ser Val Gly
    210                 215                 220

Gly Ser Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly
225                 230                 235                 240

Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg
                245                 250                 255

Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu
            260                 265                 270

Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu
        275                 280                 285

Ser Ser Thr Gly Gly Pro
    290


<210> 3564
<211> 153
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000449769"

<400> 3564
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45
```

```
Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Leu Gly Gly Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp
            100                 105                 110

Gln Arg Arg Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln
        115                 120                 125

Glu Glu Glu Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu
    130                 135                 140

Ala Gly Glu Ser Ser Thr Gly Gly Pro
145                 150
```

<210> 3565
<211> 153
<212> PRT
<213> Homo sapiens

<220>
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<220>
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advanced glycosylation end product-specific receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449931"

<400> 3565

```
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                   10                  15
```

```
Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Leu Gly Gly Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp
            100                 105                 110

Gln Arg Arg Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln
        115                 120                 125

Glu Glu Glu Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu
    130                 135                 140

Ala Gly Glu Ser Ser Thr Gly Gly Pro
145                 150


<210> 3566
<211> 128
<212> PRT
<213> Homo sapiens

<220>
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<400> 3566
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1   5   10   15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20   25   30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35   40   45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50   55   60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65   70   75   80

Asn Ser Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85   90   95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
            100   105   110

Tyr Arg Val Arg Val Tyr Gln Phe Glu Asn Leu His Asn Tyr Ser Leu
        115   120   125

<210> 3567
<211> 420
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Uniprot ID: Q15109; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000450134"

<400> 3567
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Ile Pro Gly Lys Pro Glu Ile Val Asp
115 120 125

Ser Ala Ser Glu Leu Thr Ala Gly Val Pro Asn Lys Val Val Glu Glu
130 135 140

Ser Arg Arg Ser Arg Lys Arg Pro Cys Glu Gln Glu Val Gly Thr Cys
145 150 155 160

Val Ser Glu Gly Ser Tyr Pro Ala Gly Thr Leu Ser Trp His Leu Asp
165 170 175

Gly Lys Pro Leu Val Pro Asn Glu Lys Gly Val Ser Val Lys Glu Gln
180 185 190

Thr Arg Arg His Pro Glu Thr Gly Leu Phe Thr Leu Gln Ser Glu Leu
195 200 205

Met Val Thr Pro Ala Arg Gly Gly Asp Pro Arg Pro Thr Phe Ser Cys

```
    210                 215                 220

Ser Phe Ser Pro Gly Leu Pro Arg His Arg Ala Leu Arg Thr Ala Pro
225                 230                 235                 240

Ile Gln Pro Arg Val Trp Glu Pro Val Pro Leu Glu Glu Val Gln Leu
                245                 250                 255

Val Val Glu Pro Glu Gly Gly Ala Val Ala Pro Gly Gly Thr Val Thr
            260                 265                 270

Leu Thr Cys Glu Val Pro Ala Gln Pro Ser Pro Gln Ile His Trp Met
        275                 280                 285

Lys Asp Gly Val Pro Leu Pro Leu Pro Pro Ser Pro Val Leu Ile Leu
    290                 295                 300

Pro Glu Ile Gly Pro Gln Asp Gln Gly Thr Tyr Ser Cys Val Ala Thr
305                 310                 315                 320

His Ser Ser His Gly Pro Gln Glu Ser Arg Ala Val Ser Ile Ser Ile
                325                 330                 335

Ile Glu Pro Gly Glu Glu Gly Pro Thr Ala Gly Ser Val Gly Gly Ser
            340                 345                 350

Gly Leu Gly Thr Leu Ala Leu Ala Leu Gly Ile Leu Gly Gly Leu Gly
        355                 360                 365

Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp Gln Arg Arg Gln Arg
    370                 375                 380

Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln Glu Glu Glu Glu Glu
385                 390                 395                 400

Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu Ala Gly Glu Ser Ser
                405                 410                 415

Thr Gly Gly Pro
            420

<210> 3568
<211> 128
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<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 779; "

<220>
<221> source
<223> /note="Gene Symbol: AGER; "

<220>
<221> source
<223> /note="Gene Name:
advanced glycosylation end product-specific receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000450205"

<400> 3568
Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1 5 10 15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
20 25 30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
35 40 45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
50 55 60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65 70 75 80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
85 90 95

Phe Arg Cys Gln Ala Met Asn Arg Asn Gly Lys Glu Thr Lys Ser Asn
100 105 110

Tyr Arg Val Arg Val Tyr Gln Phe Glu Asn Leu His Asn Tyr Ser Leu
115 120 125

<210> 3569
<211> 153
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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advanced glycosylation end product-specific receptor; "

<220>
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<400> 3569

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Met Ala Ala Gly Thr Ala Val Gly Ala Trp Val Leu Val Leu Ser Leu
1               5                  10                  15

Trp Gly Ala Val Val Gly Ala Gln Asn Ile Thr Ala Arg Ile Gly Glu
            20                  25                  30

Pro Leu Val Leu Lys Cys Lys Gly Ala Pro Lys Lys Pro Pro Gln Arg
        35                  40                  45

Leu Glu Trp Lys Leu Asn Thr Gly Arg Thr Glu Ala Trp Lys Val Leu
    50                  55                  60

Ser Pro Gln Gly Gly Gly Pro Trp Asp Ser Val Ala Arg Val Leu Pro
65                  70                  75                  80

Asn Gly Ser Leu Phe Leu Pro Ala Val Gly Ile Gln Asp Glu Gly Ile
                85                  90                  95

Leu Gly Gly Leu Gly Thr Ala Ala Leu Leu Ile Gly Val Ile Leu Trp
            100                 105                 110

Gln Arg Arg Gln Arg Arg Gly Glu Glu Arg Lys Ala Pro Glu Asn Gln
        115                 120                 125

Glu Glu Glu Glu Glu Arg Ala Glu Leu Asn Gln Ser Glu Glu Pro Glu
    130                 135                 140

Ala Gly Glu Ser Ser Thr Gly Gly Pro
145                 150
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<210> 3570
<211> 819
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AVIL; "

<220>
<221> source
<223> /note="Gene Name:
advillin; "

<220>
<221> source
<223> /note="Uniprot ID: O75366; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000257861"

<400> 3570
Met Pro Leu Thr Ser Ala Phe Arg Ala Val Asp Asn Asp Pro Gly Ile
1   5   10   15

Ile Val Trp Arg Ile Glu Lys Met Glu Leu Ala Leu Val Pro Val Ser
            20   25   30

Ala His Gly Asn Phe Tyr Glu Gly Asp Cys Tyr Val Ile Leu Ser Thr
        35   40   45

Arg Arg Val Ala Ser Leu Leu Ser Gln Asp Ile His Phe Trp Ile Gly
    50   55   60

Lys Asp Ser Ser Gln Asp Glu Gln Ser Cys Ala Ala Ile Tyr Thr Thr
65   70   75   80

Gln Leu Asp Asp Tyr Leu Gly Gly Ser Pro Val Gln His Arg Glu Val
                85   90   95

Gln Tyr His Glu Ser Asp Thr Phe Arg Gly Tyr Phe Lys Gln Gly Ile
            100   105   110

```
Ile Tyr Lys Gln Gly Gly Val Ala Ser Gly Met Lys His Val Glu Thr
        115                 120                 125

Asn Thr Tyr Asp Val Lys Arg Leu Leu His Val Lys Gly Lys Arg Asn
    130                 135                 140

Ile Arg Ala Thr Glu Val Glu Met Ser Trp Asp Ser Phe Asn Arg Gly
145                 150                 155                 160

Asp Val Phe Leu Leu Asp Leu Gly Lys Val Ile Ile Gln Trp Asn Gly
                165                 170                 175

Pro Glu Ser Asn Ser Gly Glu Arg Leu Lys Ala Met Leu Leu Ala Lys
            180                 185                 190

Asp Ile Arg Asp Arg Glu Arg Gly Gly Arg Ala Lys Ile Gly Val Ile
        195                 200                 205

Glu Gly Asp Lys Glu Ala Ala Ser Pro Glu Leu Met Lys Val Leu Gln
    210                 215                 220

Asp Thr Leu Gly Arg Arg Ser Ile Ile Lys Pro Thr Val Pro Asp Glu
225                 230                 235                 240

Ile Ile Asp Gln Lys Gln Lys Ser Thr Ile Met Leu Tyr His Ile Ser
                245                 250                 255

Asp Ser Ala Gly Gln Leu Ala Val Thr Glu Val Ala Thr Arg Pro Leu
            260                 265                 270

Val Gln Asp Leu Leu Asn His Asp Asp Cys Tyr Ile Leu Asp Gln Ser
        275                 280                 285

Gly Thr Lys Ile Tyr Val Trp Lys Gly Lys Gly Ala Thr Lys Ala Glu
    290                 295                 300

Lys Gln Ala Ala Met Ser Lys Ala Leu Gly Phe Ile Lys Met Lys Ser
305                 310                 315                 320

Tyr Pro Ser Ser Thr Asn Val Glu Thr Val Asn Asp Gly Ala Glu Ser
                325                 330                 335

Ala Met Phe Lys Gln Leu Phe Gln Lys Trp Ser Val Lys Asp Gln Thr
```

```
            340                 345                 350

Met Gly Leu Gly Lys Thr Phe Ser Ile Gly Lys Ile Ala Lys Val Phe
        355                 360                 365

Gln Asp Lys Phe Asp Val Thr Leu Leu His Thr Lys Pro Glu Val Ala
    370                 375                 380

Ala Gln Glu Arg Met Val Asp Asp Gly Asn Gly Lys Val Glu Val Trp
385                 390                 395                 400

Arg Ile Glu Asn Leu Glu Leu Val Pro Val Glu Tyr Gln Trp Tyr Gly
                405                 410                 415

Phe Phe Tyr Gly Gly Asp Cys Tyr Leu Val Leu Tyr Thr Tyr Glu Val
            420                 425                 430

Asn Gly Lys Pro His His Ile Leu Tyr Ile Trp Gln Gly Arg His Ala
        435                 440                 445

Ser Gln Asp Glu Leu Ala Ala Ser Ala Tyr Gln Ala Val Glu Val Asp
    450                 455                 460

Arg Gln Phe Asp Gly Ala Ala Val Gln Val Arg Val Arg Met Gly Thr
465                 470                 475                 480

Glu Pro Arg His Phe Met Ala Ile Phe Lys Gly Lys Leu Val Ile Phe
                485                 490                 495

Glu Gly Gly Thr Ser Arg Lys Gly Asn Ala Glu Pro Asp Pro Pro Val
            500                 505                 510

Arg Leu Phe Gln Ile His Gly Asn Asp Lys Ser Asn Thr Lys Ala Val
        515                 520                 525

Glu Val Pro Ala Phe Ala Ser Ser Leu Asn Ser Asn Asp Val Phe Leu
    530                 535                 540

Leu Arg Thr Gln Ala Glu His Tyr Leu Trp Tyr Gly Lys Gly Ser Ser
545                 550                 555                 560

Gly Asp Glu Arg Ala Met Ala Lys Glu Leu Ala Ser Leu Leu Cys Asp
                565                 570                 575
```

```
Gly Ser Glu Asn Thr Val Ala Glu Gly Gln Glu Pro Ala Glu Phe Trp
            580                 585                 590

Asp Leu Leu Gly Gly Lys Thr Pro Tyr Ala Asn Asp Lys Arg Leu Gln
        595                 600                 605

Gln Glu Ile Leu Asp Val Gln Ser Arg Leu Phe Glu Cys Ser Asn Lys
    610                 615                 620

Thr Gly Gln Phe Val Val Thr Glu Ile Thr Asp Phe Thr Gln Asp Asp
625                 630                 635                 640

Leu Asn Pro Thr Asp Val Met Leu Leu Asp Thr Trp Asp Gln Val Phe
                645                 650                 655

Leu Trp Ile Gly Ala Glu Ala Asn Ala Thr Glu Lys Glu Ser Ala Leu
            660                 665                 670

Ala Thr Ala Gln Gln Tyr Leu His Thr His Pro Ser Gly Arg Asp Pro
        675                 680                 685

Asp Thr Pro Ile Leu Ile Ile Lys Gln Gly Phe Glu Pro Pro Ile Phe
    690                 695                 700

Thr Gly Trp Phe Leu Ala Trp Asp Pro Asn Ile Trp Ser Ala Gly Lys
705                 710                 715                 720

Thr Tyr Glu Gln Leu Lys Glu Glu Leu Gly Asp Ala Ala Ala Ile Met
                725                 730                 735

Arg Ile Thr Ala Asp Met Lys Asn Ala Thr Leu Ser Leu Asn Ser Asn
            740                 745                 750

Asp Ser Glu Pro Lys Tyr Tyr Pro Ile Ala Val Leu Leu Lys Asn Gln
        755                 760                 765

Asn Gln Glu Leu Pro Glu Asp Val Asn Pro Ala Lys Lys Glu Asn Tyr
    770                 775                 780

Leu Ser Glu Gln Asp Phe Val Ser Val Phe Gly Ile Thr Arg Gly Gln
785                 790                 795                 800
```

Phe Ala Ala Leu Pro Gly Trp Lys Gln Leu Gln Met Lys Lys Glu Lys
805 810 815

Gly Leu Phe

<210> 3571
<211> 157
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 780; "

<220>
<221> source
<223> /note="Gene Symbol: AVIL; "

<220>
<221> source
<223> /note="Gene Name:
advillin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449239"

<400> 3571
Met Pro Leu Thr Ser Ala Phe Arg Ala Val Asp Asn Asp Pro Gly Ile
1 5 10 15

Ile Val Trp Arg Ile Glu Lys Met Glu Leu Ala Leu Val Pro Val Ser
20 25 30

Ala His Gly Asn Phe Tyr Glu Gly Asp Cys Tyr Val Ile Leu Ser Thr
35 40 45

Arg Arg Val Ala Ser Leu Leu Ser Gln Asp Ile His Phe Trp Ile Gly
50 55 60

Lys Asp Ser Ser Gln Asp Glu Gln Ser Cys Ala Ala Ile Tyr Thr Thr
65 70 75 80

Gln Leu Asp Asp Tyr Leu Gly Gly Ser Pro Val Gln His Arg Glu Val
85 90 95

Gln Tyr His Glu Ser Asp Thr Phe Arg Gly Tyr Phe Lys Gln Gly Ile

100 105 110

Ile Tyr Lys Gln Gly Gly Val Ala Ser Gly Met Lys His Val Glu Thr
115 120 125

Asn Thr Tyr Asp Val Lys Arg Leu Leu His Val Lys Gly Lys Arg Asn
130 135 140

Ile Arg Ala Thr Glu Val Glu Met Ser Trp Asp Ser Phe
145 150 155

<210> 3572
<211> 76
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 780; "

<220>
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<223> /note="Gene Symbol: AVIL; "

<220>
<221> source
<223> /note="Gene Name:
advillin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450188"

<400> 3572
Met Pro Leu Thr Ser Ala Phe Arg Ala Val Asp Asn Asp Pro Gly Ile
1 5 10 15

Ile Val Trp Arg Ile Glu Glu Thr Pro Trp Lys Asp Arg Trp Asp Leu
20 25 30

Leu Ser Arg Leu Leu Ala Ala Ser Ile Arg Glu Met Glu His Val Phe
35 40 45

His Gly Ala Pro Trp Leu Leu Gln Asn Met Gly Arg Glu Asn Gly Ala
50 55 60

Gly Ala Gly Ala Cys Glu Arg Pro Arg Gln Leu Leu
65 70 75

<210> 3573
<211> 1158
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AEBP1; "

<220>
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<223> /note="Gene Name:
AE binding
prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IUX7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000223357"

<400> 3573
Met Ala Ala Val Arg Gly Ala Pro Leu Leu Ser Cys Leu Leu Ala Leu
1   5   10   15

Leu Ala Leu Cys Pro Gly Gly Arg Pro Gln Thr Val Leu Thr Asp Asp
            20   25   30

Glu Ile Glu Glu Phe Leu Glu Gly Phe Leu Ser Glu Leu Glu Pro Glu
        35   40   45

Pro Arg Glu Asp Asp Val Glu Ala Pro Pro Pro Pro Glu Pro Thr Pro
    50   55   60

Arg Val Arg Lys Ala Gln Ala Gly Gly Lys Pro Gly Lys Arg Pro Gly
65   70   75   80

Thr Ala Ala Glu Val Pro Pro Glu Lys Thr Lys Asp Lys Gly Lys Lys
                85   90   95

Gly Lys Lys Asp Lys Gly Pro Lys Val Pro Lys Glu Ser Leu Glu Gly
            100   105   110

```
Ser Pro Arg Pro Pro Lys Lys Gly Lys Glu Lys Pro Pro Lys Ala Thr
        115                 120                 125

Lys Lys Pro Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys Glu
    130                 135                 140

Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys Glu Lys Pro Pro Lys Ala
145                 150                 155                 160

Thr Lys Lys Pro Pro Ser Gly Lys Arg Pro Pro Ile Leu Ala Pro Ser
                165                 170                 175

Glu Thr Leu Glu Trp Pro Leu Pro Pro Pro Pro Ser Pro Gly Pro Glu
            180                 185                 190

Glu Leu Pro Gln Glu Gly Gly Ala Pro Leu Ser Asn Asn Trp Gln Asn
        195                 200                 205

Pro Gly Glu Glu Thr His Val Glu Ala Arg Glu His Gln Pro Glu Pro
    210                 215                 220

Glu Glu Glu Thr Glu Gln Pro Thr Leu Asp Tyr Asn Asp Gln Ile Glu
225                 230                 235                 240

Arg Glu Asp Tyr Glu Asp Phe Glu Tyr Ile Arg Arg Gln Lys Gln Pro
                245                 250                 255

Arg Pro Pro Pro Ser Arg Arg Arg Arg Pro Glu Arg Val Trp Pro Glu
            260                 265                 270

Pro Pro Glu Glu Lys Ala Pro Ala Pro Ala Pro Glu Glu Arg Ile Glu
        275                 280                 285

Pro Pro Val Lys Pro Leu Leu Pro Pro Leu Pro Pro Asp Tyr Gly Asp
    290                 295                 300

Gly Tyr Val Ile Pro Asn Tyr Asp Asp Met Asp Tyr Tyr Phe Gly Pro
305                 310                 315                 320

Pro Pro Pro Gln Lys Pro Asp Ala Glu Arg Gln Thr Asp Glu Glu Lys
                325                 330                 335

Glu Glu Leu Lys Lys Pro Lys Lys Glu Asp Ser Ser Pro Lys Glu Glu
```

```
            340                 345                 350

Thr Asp Lys Trp Ala Val Glu Lys Gly Lys Asp His Lys Glu Pro Arg
        355                 360                 365

Lys Gly Glu Glu Leu Glu Glu Glu Trp Thr Pro Thr Glu Lys Val Lys
    370                 375                 380

Cys Pro Pro Ile Gly Met Glu Ser His Arg Ile Glu Asp Asn Gln Ile
385                 390                 395                 400

Arg Ala Ser Ser Met Leu Arg His Gly Leu Gly Ala Gln Arg Gly Arg
                405                 410                 415

Leu Asn Met Gln Thr Gly Ala Thr Glu Asp Asp Tyr Tyr Asp Gly Ala
            420                 425                 430

Trp Cys Ala Glu Asp Asp Ala Arg Thr Gln Trp Ile Glu Val Asp Thr
        435                 440                 445

Arg Arg Thr Thr Arg Phe Thr Gly Val Ile Thr Gln Gly Arg Asp Ser
    450                 455                 460

Ser Ile His Asp Asp Phe Val Thr Thr Phe Phe Val Gly Phe Ser Asn
465                 470                 475                 480

Asp Ser Gln Thr Trp Val Met Tyr Thr Asn Gly Tyr Glu Glu Met Thr
                485                 490                 495

Phe His Gly Asn Val Asp Lys Asp Thr Pro Val Leu Ser Glu Leu Pro
            500                 505                 510

Glu Pro Val Val Ala Arg Phe Ile Arg Ile Tyr Pro Leu Thr Trp Asn
        515                 520                 525

Gly Ser Leu Cys Met Arg Leu Glu Val Leu Gly Cys Ser Val Ala Pro
    530                 535                 540

Val Tyr Ser Tyr Tyr Ala Gln Asn Glu Val Val Ala Thr Asp Asp Leu
545                 550                 555                 560

Asp Phe Arg His His Ser Tyr Lys Asp Met Arg Gln Leu Met Lys Val
                565                 570                 575
```

```
Val Asn Glu Glu Cys Pro Thr Ile Thr Arg Thr Tyr Ser Leu Gly Lys
            580                 585                 590

Ser Ser Arg Gly Leu Lys Ile Tyr Ala Met Glu Ile Ser Asp Asn Pro
        595                 600                 605

Gly Glu His Glu Leu Gly Glu Pro Glu Phe Arg Tyr Thr Ala Gly Ile
    610                 615                 620

His Gly Asn Glu Val Leu Gly Arg Glu Leu Leu Leu Leu Leu Met Gln
625                 630                 635                 640

Tyr Leu Cys Arg Glu Tyr Arg Asp Gly Asn Pro Arg Val Arg Ser Leu
                645                 650                 655

Val Gln Asp Thr Arg Ile His Leu Val Pro Ser Leu Asn Pro Asp Gly
            660                 665                 670

Tyr Glu Val Ala Ala Gln Met Gly Ser Glu Phe Gly Asn Trp Ala Leu
        675                 680                 685

Gly Leu Trp Thr Glu Glu Gly Phe Asp Ile Phe Glu Asp Phe Pro Asp
    690                 695                 700

Leu Asn Ser Val Leu Trp Gly Ala Glu Glu Arg Lys Trp Val Pro Tyr
705                 710                 715                 720

Arg Val Pro Asn Asn Asn Leu Pro Ile Pro Glu Arg Tyr Leu Ser Pro
                725                 730                 735

Asp Ala Thr Val Ser Thr Glu Val Arg Ala Ile Ile Ala Trp Met Glu
            740                 745                 750

Lys Asn Pro Phe Val Leu Gly Ala Asn Leu Asn Gly Gly Glu Arg Leu
        755                 760                 765

Val Ser Tyr Pro Tyr Asp Met Ala Arg Thr Pro Thr Gln Glu Gln Leu
    770                 775                 780

Leu Ala Ala Ala Met Ala Ala Ala Arg Gly Glu Asp Glu Asp Glu Val
785                 790                 795                 800
```

```
Ser Glu Ala Gln Glu Thr Pro Asp His Ala Ile Phe Arg Trp Leu Ala
                805                 810                 815

Ile Ser Phe Ala Ser Ala His Leu Thr Leu Thr Glu Pro Tyr Arg Gly
            820                 825                 830

Gly Cys Gln Ala Gln Asp Tyr Thr Gly Gly Met Gly Ile Val Asn Gly
        835                 840                 845

Ala Lys Trp Asn Pro Arg Thr Gly Thr Ile Asn Asp Phe Ser Tyr Leu
    850                 855                 860

His Thr Asn Cys Leu Glu Leu Ser Phe Tyr Leu Gly Cys Asp Lys Phe
865                 870                 875                 880

Pro His Glu Ser Glu Leu Pro Arg Glu Trp Glu Asn Asn Lys Glu Ala
                885                 890                 895

Leu Leu Thr Phe Met Glu Gln Val His Arg Gly Ile Lys Gly Val Val
            900                 905                 910

Thr Asp Glu Gln Gly Ile Pro Ile Ala Asn Ala Thr Ile Ser Val Ser
        915                 920                 925

Gly Ile Asn His Gly Val Lys Thr Ala Ser Gly Gly Asp Tyr Trp Arg
    930                 935                 940

Ile Leu Asn Pro Gly Glu Tyr Arg Val Thr Ala His Ala Glu Gly Tyr
945                 950                 955                 960

Thr Pro Ser Ala Lys Thr Cys Asn Val Asp Tyr Asp Ile Gly Ala Thr
                965                 970                 975

Gln Cys Asn Phe Ile Leu Ala Arg Ser Asn Trp Lys Arg Ile Arg Glu
            980                 985                 990

Ile Met Ala Met Asn Gly Asn Arg  Pro Ile Pro His Ile  Asp Pro
Ser
        995                 1000                1005

Arg Pro  Met Thr Pro Gln Gln  Arg Arg Leu Gln Gln  Arg Arg Leu
    1010                1015                1020
```

```
Gln His  Arg Leu Arg Leu Arg  Ala Gln Met Arg Leu  Arg Arg Leu
    1025                1030                1035

Asn Ala  Thr Thr Thr Leu Gly  Pro His Thr Val Pro  Pro Thr Leu
    1040                1045                1050

Pro Pro  Ala Pro Ala Thr Thr  Leu Ser Thr Thr Ile  Glu Pro Trp
    1055                1060                1065

Gly Leu  Ile Pro Pro Thr Thr  Ala Gly Trp Glu Glu  Ser Glu Thr
    1070                1075                1080

Glu Thr  Tyr Thr Glu Val Val  Thr Glu Phe Gly Thr  Glu Val Glu
    1085                1090                1095

Pro Glu  Phe Gly Thr Lys Val  Glu Pro Glu Phe Glu  Thr Gln Leu
    1100                1105                1110

Glu Pro  Glu Phe Glu Thr Gln  Leu Glu Pro Glu Phe  Glu Glu Glu
    1115                1120                1125

Glu Glu  Glu Glu Lys Glu Glu  Glu Ile Ala Thr Gly  Gln Ala Phe
    1130                1135                1140

Pro Phe  Thr Thr Val Glu Thr  Tyr Thr Val Asn Phe  Gly Asp Phe
    1145                1150                1155


<210> 3574
<211> 104
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 781; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP1; "

<220>
<221> source
<223> /note="Gene Name:
      AE binding
      prt 1; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000397241"

<400> 3574
Arg Thr Gln Trp Ile Glu Val Asp Thr Arg Arg Thr Thr Arg Phe Thr
1   5   10   15

Gly Val Ile Thr Gln Gly Arg Asp Ser Ser Ile His Asp Asp Phe Val
            20   25   30

Thr Thr Phe Phe Val Gly Phe Ser Asn Asp Ser Gln Thr Trp Val Met
        35   40   45

Tyr Thr Asn Gly Tyr Glu Glu Met Val Gly Thr Met Pro Arg Leu Leu
    50   55   60

Ala Leu Leu Pro Leu Ser Gly Arg Gly Val Gly Ser Gln Arg Gly Trp
65   70   75   80

Gln Tyr Cys Ser Glu Ala Cys Leu Ser Pro Asp Leu Ser Trp Glu Arg
                85   90   95

Gly Gln Gly His Thr Arg Ala Glu
            100

<210> 3575
<211> 733
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 781; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP1; "

<220>
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<223> /note="Gene Name:
      AE binding
      prt 1; "

<220>
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<223> /note="Uniprot ID: Q8IUX7; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000398878"

<400> 3575

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Met Arg Lys Trp Trp Ala Pro Cys Pro Gly Ser Trp Leu Cys Ser His
1               5                  10                  15

Cys Leu Gly Glu Gly Trp Ala Leu Arg Gly Ala Gly Ser Thr Ala Leu
            20                  25                  30

Arg Pro Ala Ser Pro Gln Thr Phe His Gly Asn Val Asp Lys Asp Thr
        35                  40                  45

Pro Val Leu Ser Glu Leu Pro Glu Pro Val Val Ala Arg Phe Ile Arg
    50                  55                  60

Ile Tyr Pro Leu Thr Trp Asn Gly Ser Leu Cys Met Arg Leu Glu Val
65                  70                  75                  80

Leu Gly Cys Ser Val Ala Arg Glu Cys Gly Gly Leu Ala Gly Ala Leu
                85                  90                  95

Ser Gly Gly Gly Val Leu Gly Trp Ala Ser Arg His Pro Ala Lys Asp
            100                 105                 110

Asn Pro Ala Ser Leu Ala Ala Val Tyr Ser Tyr Tyr Ala Gln Asn Glu
        115                 120                 125

Val Val Ala Thr Asp Asp Leu Asp Phe Arg His His Ser Tyr Lys Asp
    130                 135                 140

Met Arg Gln Leu Met Lys Val Val Asn Glu Glu Cys Pro Thr Ile Thr
145                 150                 155                 160

Arg Thr Tyr Ser Leu Gly Lys Ser Ser Arg Gly Leu Lys Ile Tyr Ala
                165                 170                 175

Met Glu Ile Ser Asp Asn Pro Gly Glu His Glu Leu Gly Glu Pro Glu
            180                 185                 190

Phe Arg Tyr Thr Ala Gly Ile His Gly Asn Glu Val Leu Gly Arg Glu
        195                 200                 205

Leu Leu Leu Leu Leu Met Gln Tyr Leu Cys Arg Glu Tyr Arg Asp Gly
    210                 215                 220
```

```
Asn Pro Arg Val Arg Ser Leu Val Gln Asp Thr Arg Ile His Leu Val
225                 230                 235                 240

Pro Ser Leu Asn Pro Asp Gly Tyr Glu Val Ala Ala Gln Met Gly Ser
                245                 250                 255

Glu Phe Gly Asn Trp Ala Leu Gly Leu Trp Thr Glu Glu Gly Phe Asp
            260                 265                 270

Ile Phe Glu Asp Phe Pro Asp Leu Asn Ser Val Leu Trp Gly Ala Glu
        275                 280                 285

Glu Arg Lys Trp Val Pro Tyr Arg Val Pro Asn Asn Asn Leu Pro Ile
    290                 295                 300

Pro Glu Arg Tyr Leu Ser Pro Asp Ala Thr Val Ser Thr Glu Val Arg
305                 310                 315                 320

Ala Ile Ile Ala Trp Met Glu Lys Asn Pro Phe Val Leu Gly Ala Asn
                325                 330                 335

Leu Asn Gly Gly Glu Arg Leu Val Ser Tyr Pro Tyr Asp Met Ala Arg
            340                 345                 350

Thr Pro Thr Gln Glu Gln Leu Leu Ala Ala Ala Met Ala Ala Ala Arg
        355                 360                 365

Gly Glu Asp Glu Asp Glu Val Ser Glu Ala Gln Glu Thr Pro Asp His
    370                 375                 380

Ala Ile Phe Arg Trp Leu Ala Ile Ser Phe Ala Ser Ala His Leu Thr
385                 390                 395                 400

Leu Thr Glu Pro Tyr Arg Gly Gly Cys Gln Ala Gln Asp Tyr Thr Gly
                405                 410                 415

Gly Met Gly Ile Val Asn Gly Ala Lys Trp Asn Pro Arg Thr Gly Thr
            420                 425                 430

Ile Asn Asp Phe Ser Tyr Leu His Thr Asn Cys Leu Glu Leu Ser Phe
        435                 440                 445
```

```
Tyr Leu Gly Cys Asp Lys Phe Pro His Glu Ser Glu Leu Pro Arg Glu
    450                 455                 460

Trp Glu Asn Asn Lys Glu Ala Leu Leu Thr Phe Met Glu Gln Val His
465                 470                 475                 480

Arg Gly Ile Lys Gly Val Val Thr Asp Glu Gln Gly Ile Pro Ile Ala
                485                 490                 495

Asn Ala Thr Ile Ser Val Ser Gly Ile Asn His Gly Val Lys Thr Ala
            500                 505                 510

Ser Gly Gly Asp Tyr Trp Arg Ile Leu Asn Pro Gly Glu Tyr Arg Val
        515                 520                 525

Thr Ala His Ala Glu Gly Tyr Thr Pro Ser Ala Lys Thr Cys Asn Val
    530                 535                 540

Asp Tyr Asp Ile Gly Ala Thr Gln Cys Asn Phe Ile Leu Ala Arg Ser
545                 550                 555                 560

Asn Trp Lys Arg Ile Arg Glu Ile Met Ala Met Asn Gly Asn Arg Pro
                565                 570                 575

Ile Pro His Ile Asp Pro Ser Arg Pro Met Thr Pro Gln Gln Arg Arg
            580                 585                 590

Leu Gln Gln Arg Arg Leu Gln His Arg Leu Arg Leu Arg Ala Gln Met
        595                 600                 605

Arg Leu Arg Arg Leu Asn Ala Thr Thr Thr Leu Gly Pro His Thr Val
    610                 615                 620

Pro Pro Thr Leu Pro Pro Ala Pro Ala Thr Thr Leu Ser Thr Thr Ile
625                 630                 635                 640

Glu Pro Trp Gly Leu Ile Pro Pro Thr Thr Ala Gly Trp Glu Glu Ser
                645                 650                 655

Glu Thr Glu Thr Tyr Thr Glu Val Val Thr Glu Phe Gly Thr Glu Val
            660                 665                 670
```

Glu Pro Glu Phe Gly Thr Lys Val Glu Pro Glu Phe Glu Thr Gln Leu
675 680 685

Glu Pro Glu Phe Glu Thr Gln Leu Glu Pro Glu Phe Glu Glu Glu Glu
690 695 700

Glu Glu Glu Lys Glu Glu Glu Ile Ala Thr Gly Gln Ala Phe Pro Phe
705 710 715 720

Thr Thr Val Glu Thr Tyr Thr Val Asn Phe Gly Asp Phe
725 730

<210> 3576
<211> 69
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 781; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP1; "

<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 1; "

<220>
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<223> /note="ENSP ID: ENSP00000400660"

<400> 3576
Lys Pro Asp Ala Glu Arg Gln Thr Asp Glu Glu Lys Glu Glu Leu Lys
1 5 10 15

Lys Pro Lys Lys Glu Asp Ser Ser Pro Lys Glu Glu Thr Asp Lys Trp
20 25 30

Ala Val Glu Lys Gly Lys Asp His Lys Glu Pro Arg Lys Gly Glu Glu
35 40 45

Leu Glu Glu Glu Trp Thr Pro Thr Glu Lys Val Arg Pro Leu Cys Arg
50 55 60

Arg Ser Pro Ser Gly

65

<210> 3577
<211> 162
<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:
AE binding
prt 1; "

<220>
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<223> /note="ENSP ID: ENSP00000401758"

<400> 3577
Met Pro Pro Glu Lys Thr Lys Asp Lys Gly Lys Lys Gly Lys Lys Asp
1 5 10 15

Lys Gly Pro Lys Val Pro Lys Glu Ser Leu Glu Gly Ser Pro Arg Pro
20 25 30

Pro Lys Lys Gly Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys
35 40 45

Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys Glu Lys Pro Pro Lys
50 55 60

Ala Thr Lys Lys Pro Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro
65 70 75 80

Pro Ser Gly Lys Arg Pro Pro Ile Leu Ala Pro Ser Glu Thr Leu Glu
85 90 95

Trp Pro Leu Pro Pro Pro Pro Ser Pro Gly Pro Glu Glu Leu Pro Gln
100 105 110

Glu Gly Gly Ala Pro Leu Ser Asn Asn Trp Gln Asn Pro Gly Glu Glu
115 120 125

```
Thr His Val Glu Ala Arg Glu His Gln Pro Glu Pro Glu Glu Glu Thr
    130                 135                 140

Glu Gln Pro Thr Leu Asp Tyr Asn Asp Gln Ile Glu Arg Glu Asp Tyr
145                 150                 155                 160

Glu Asp
```

<210> 3578
<211> 66
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 781; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP1; "

<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410349"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3578

```
Xaa Phe Arg His His Ser Tyr Lys Asp Met Arg Gln Leu Met Lys Val
1               5                   10                  15

Val Asn Glu Glu Cys Pro Thr Ile Thr Arg Thr Tyr Ser Leu Gly Lys
            20                  25                  30

Ser Ser Arg Gly Leu Lys Ile Tyr Ala Met Glu Ile Ser Asp Asn Pro
        35                  40                  45

Gly Glu His Glu Leu Gly Glu Gly Leu Trp Gly Pro Ala Ala Gly Leu
```

```
    50                  55                  60

Cys Cys
65
```

<210> 3579
<211> 251
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 781; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP1; "

<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000411277"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3579

```
Xaa Glu Leu Glu Pro Glu Pro Arg Glu Asp Asp Val Glu Ala Pro Pro
1               5                  10                  15

Pro Pro Glu Pro Thr Pro Arg Val Arg Lys Ala Gln Ala Gly Gly Lys
            20                  25                  30

Pro Gly Lys Arg Pro Gly Thr Ala Ala Glu Val Pro Pro Glu Lys Thr
        35                  40                  45

Lys Asp Lys Gly Lys Lys Gly Lys Lys Asp Lys Gly Pro Lys Val Pro
    50                  55                  60

Lys Glu Ser Leu Glu Gly Ser Pro Arg Pro Pro Lys Lys Gly Lys Glu
65                  70                  75                  80
```

```
Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys Glu Lys Pro Pro Lys Ala
                85                  90                  95

Thr Lys Lys Pro Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys
            100                 105                 110

Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro Pro Ser Gly Lys Arg Pro
        115                 120                 125

Pro Ile Leu Ala Pro Ser Glu Thr Leu Glu Trp Pro Leu Pro Pro Pro
    130                 135                 140

Pro Ser Pro Gly Pro Glu Glu Leu Pro Gln Glu Gly Gly Ala Pro Leu
145                 150                 155                 160

Ser Asn Asn Trp Gln Asn Pro Gly Glu Glu Thr His Val Glu Ala Arg
                165                 170                 175

Glu His Gln Pro Glu Pro Pro Val Lys Pro Leu Leu Pro Pro Leu Pro
            180                 185                 190

Pro Asp Tyr Gly Asp Gly Tyr Val Ile Pro Asn Tyr Asp Asp Met Asp
        195                 200                 205

Tyr Tyr Phe Gly Pro Pro Pro Pro Gln Lys Pro Asp Ala Glu Arg Gln
    210                 215                 220

Thr Asp Glu Glu Lys Glu Glu Leu Lys Lys Pro Lys Lys Glu Asp Ser
225                 230                 235                 240

Ser Pro Lys Glu Glu Thr Asp Lys Trp Ala Val
                245                 250


<210> 3580
<211> 54
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 781; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP1; "
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<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416568"

<400> 3580
Leu Met Lys Val Val Asn Glu Glu Cys Pro Thr Ile Thr Arg Thr Tyr
1 5 10 15

Ser Leu Gly Lys Ser Ser Arg Gly Leu Lys Ile Tyr Ala Met Glu Ile
20 25 30

Ser Asp Asn Pro Gly Glu His Glu Leu Gly Glu Gly Leu Trp Gly Pro
35 40 45

Ala Ala Gly Leu Cys Cys
50

<210> 3581
<211> 503
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 782; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP2; "

<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q6ZN18; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000266508"

<400> 3581
Met Ala Ala Ala Ile Thr Asp Met Ala Asp Leu Glu Glu Leu Ser Arg
1 5 10 15

```
Leu Ser Pro Leu Pro Pro Gly Ser Pro Gly Ser Ala Ala Arg Gly Arg
            20                  25                  30

Ala Glu Pro Pro Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu
        35                  40                  45

Ala Glu Ala Glu Ala Val Ala Ala Leu Leu Leu Asn Gly Gly Ser Gly
    50                  55                  60

Gly Gly Gly Gly Gly Gly Gly Gly Gly Val Gly Gly Gly Glu Ala Glu
65                  70                  75                  80

Thr Met Ser Glu Pro Ser Pro Glu Ser Ala Ser Gln Ala Gly Glu Asp
                85                  90                  95

Glu Asp Glu Glu Glu Asp Asp Glu Glu Glu Glu Asp Glu Ser Ser Ser
            100                 105                 110

Ser Gly Gly Gly Glu Glu Glu Ser Ser Ala Glu Ser Leu Val Gly Ser
        115                 120                 125

Ser Gly Gly Ser Ser Ser Asp Glu Thr Arg Ser Leu Ser Pro Gly Ala
    130                 135                 140

Ala Ser Ser Ser Ser Gly Asp Gly Asp Gly Lys Glu Gly Leu Glu Glu
145                 150                 155                 160

Pro Lys Gly Pro Arg Gly Ser Gln Gly Gly Gly Gly Gly Gly Ser Ser
                165                 170                 175

Ser Ser Ser Val Val Ser Ser Gly Gly Asp Glu Gly Tyr Gly Thr Gly
            180                 185                 190

Gly Gly Gly Ser Ser Ala Thr Ser Gly Gly Arg Arg Gly Ser Leu Glu
        195                 200                 205

Met Ser Ser Asp Gly Glu Pro Leu Ser Arg Met Asp Ser Glu Asp Ser
    210                 215                 220

Ile Ser Ser Thr Ile Met Asp Val Asp Ser Thr Ile Ser Ser Gly Arg
225                 230                 235                 240
```

```
Ser Thr Pro Ala Met Met Asn Gly Gln Gly Ser Thr Thr Ser Ser Ser
                245                 250                 255

Lys Asn Ile Ala Tyr Asn Cys Cys Trp Asp Gln Cys Gln Ala Cys Phe
            260                 265                 270

Asn Ser Ser Pro Asp Leu Ala Asp His Ile Arg Ser Ile His Val Asp
        275                 280                 285

Gly Gln Arg Gly Gly Val Phe Val Cys Leu Trp Lys Gly Cys Lys Val
    290                 295                 300

Tyr Asn Thr Pro Ser Thr Ser Gln Ser Trp Leu Gln Arg His Met Leu
305                 310                 315                 320

Thr His Ser Gly Asp Lys Pro Phe Lys Cys Val Val Gly Gly Cys Asn
                325                 330                 335

Ala Ser Phe Ala Ser Gln Gly Gly Leu Ala Arg His Val Pro Thr His
            340                 345                 350

Phe Ser Gln Gln Asn Ser Ser Lys Val Ser Ser Gln Pro Lys Ala Lys
        355                 360                 365

Glu Glu Ser Pro Ser Lys Ala Gly Met Asn Lys Arg Arg Lys Leu Lys
    370                 375                 380

Asn Lys Arg Arg Arg Ser Leu Pro Arg Pro His Asp Phe Phe Asp Ala
385                 390                 395                 400

Gln Thr Leu Asp Ala Ile Arg His Arg Ala Ile Cys Phe Asn Leu Ser
                405                 410                 415

Ala His Ile Glu Ser Leu Gly Lys Gly His Ser Val Val Phe His Ser
            420                 425                 430

Thr Val Ile Ala Lys Arg Lys Glu Asp Ser Gly Lys Ile Lys Leu Leu
        435                 440                 445

Leu His Trp Met Pro Glu Asp Ile Leu Pro Asp Val Trp Val Asn Glu
    450                 455                 460
```

```
Ser Glu Arg His Gln Leu Lys Thr Lys Val Val His Leu Ser Lys Leu
465                 470                 475                 480


Pro Lys Asp Thr Ala Leu Leu Leu Asp Pro Asn Ile Tyr Arg Thr Met
                485                 490                 495


Pro Gln Lys Arg Leu Lys Arg
            500


<210> 3582
<211> 301
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 782; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP2; "

<220>
<221> source
<223> /note="Gene Name:
      AE binding
      prt 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6ZN18; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354267"

<400> 3582
Met Tyr Thr Arg Arg Tyr Ser Ser Ile Ser Ser Thr Ile Met Asp Val
1               5                   10                  15


Asp Ser Thr Ile Ser Ser Gly Arg Ser Thr Pro Ala Met Met Asn Gly
            20                  25                  30


Gln Gly Ser Thr Thr Ser Ser Ser Lys Asn Ile Ala Tyr Asn Cys Cys
        35                  40                  45


Trp Asp Gln Cys Gln Ala Cys Phe Asn Ser Ser Pro Asp Leu Ala Asp
    50                  55                  60


His Ile Arg Ser Ile His Val Asp Gly Gln Arg Gly Gly Val Phe Val
```

65 70 75 80

Cys Leu Trp Lys Gly Cys Lys Val Tyr Asn Thr Pro Ser Thr Ser Gln
85 90 95

Ser Trp Leu Gln Arg His Met Leu Thr His Ser Gly Asp Lys Pro Phe
100 105 110

Lys Cys Val Val Gly Gly Cys Asn Ala Ser Phe Ala Ser Gln Gly Gly
115 120 125

Leu Ala Arg His Val Pro Thr His Phe Ser Gln Gln Asn Ser Ser Lys
130 135 140

Val Ser Ser Gln Pro Lys Ala Lys Glu Glu Ser Pro Ser Lys Ala Gly
145 150 155 160

Met Asn Lys Arg Arg Lys Leu Lys Asn Lys Arg Arg Arg Ser Leu Pro
165 170 175

Arg Pro His Asp Phe Phe Asp Ala Gln Thr Leu Asp Ala Ile Arg His
180 185 190

Arg Ala Ile Cys Phe Asn Leu Ser Ala His Ile Glu Ser Leu Gly Lys
195 200 205

Gly His Ser Val Val Phe His Ser Thr Val Ile Ala Lys Arg Lys Glu
210 215 220

Asp Ser Gly Lys Ile Lys Leu Leu Leu His Trp Met Pro Glu Asp Ile
225 230 235 240

Leu Pro Asp Val Trp Val Asn Glu Ser Glu Arg His Gln Leu Lys Thr
245 250 255

Lys Val Val His Leu Ser Lys Leu Pro Lys Asp Thr Ala Leu Leu Leu
260 265 270

Asp Pro Asn Ile Tyr Arg Thr Met Pro Gln Lys Arg Leu Lys Arg Thr
275 280 285

Leu Ile Arg Lys Val Phe Asn Leu Tyr Leu Ser Lys Gln
290 295 300

<210> 3583
<211> 140
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 782; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP2; "

<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381715"

<400> 3583
Leu Asp Ala Ile Arg His Arg Ala Ile Cys Phe Asn Leu Ser Ala His
1 5 10 15

Ile Glu Ser Leu Gly Lys Gly His Ser Val Val Phe His Ser Thr Val
20 25 30

Ile Ala Lys Arg Lys Glu Asp Ser Gly Lys Ile Lys Leu Leu Leu His
35 40 45

Trp Met Pro Glu Asp Ile Leu Pro Asp Val Trp Val Asn Glu Ser Glu
50 55 60

Arg His Gln Leu Lys Thr Lys Val Val His Leu Ser Lys Leu Pro Lys
65 70 75 80

Asp Thr Ala Leu Leu Leu Asp Pro Asn Ile Tyr Arg Thr Met Pro Gln
85 90 95

Lys Arg Leu Lys Arg Trp Ser Phe Thr Leu Val Ala Gln Ala Gly Val
100 105 110

Gln Trp Arg Asp Leu Gly Ser Pro Gln Pro Pro Leu Pro Gly Phe Lys
115 120 125

```
Arg Phe Phe Cys Leu Ser Phe Leu Ser Ser Trp Asp
    130                 135                 140


<210> 3584
<211> 517
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 782; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP2; "

<220>
<221> source
<223> /note="Gene Name:
      AE binding
      prt 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6ZN18; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381840"

<400> 3584
Met Ala Ala Ala Ile Thr Asp Met Ala Asp Leu Glu Glu Leu Ser Arg
1               5                   10                  15


Leu Ser Pro Leu Pro Pro Gly Ser Pro Gly Ser Ala Ala Arg Gly Arg
            20                  25                  30


Ala Glu Pro Pro Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu
        35                  40                  45


Ala Glu Ala Glu Ala Val Ala Ala Leu Leu Leu Asn Gly Gly Ser Gly
    50                  55                  60


Gly Gly Gly Gly Gly Gly Gly Gly Gly Val Gly Gly Gly Glu Ala Glu
65                  70                  75                  80


Thr Met Ser Glu Pro Ser Pro Glu Ser Ala Ser Gln Ala Gly Glu Asp
                85                  90                  95
```

```
Glu Asp Glu Glu Glu Asp Asp Glu Glu Glu Glu Asp Glu Ser Ser Ser
            100                 105                 110

Ser Gly Gly Gly Glu Glu Glu Ser Ser Ala Glu Ser Leu Val Gly Ser
        115                 120                 125

Ser Gly Gly Ser Ser Ser Asp Glu Thr Arg Ser Leu Ser Pro Gly Ala
    130                 135                 140

Ala Ser Ser Ser Ser Gly Asp Gly Asp Gly Lys Glu Gly Leu Glu Glu
145                 150                 155                 160

Pro Lys Gly Pro Arg Gly Ser Gln Gly Gly Gly Gly Gly Gly Ser Ser
                165                 170                 175

Ser Ser Ser Val Val Ser Ser Gly Gly Asp Glu Gly Tyr Gly Thr Gly
            180                 185                 190

Gly Gly Gly Ser Ser Ala Thr Ser Gly Gly Arg Arg Gly Ser Leu Glu
        195                 200                 205

Met Ser Ser Asp Gly Glu Pro Leu Ser Arg Met Asp Ser Glu Asp Ser
    210                 215                 220

Ile Ser Ser Thr Ile Met Asp Val Asp Ser Thr Ile Ser Ser Gly Arg
225                 230                 235                 240

Ser Thr Pro Ala Met Met Asn Gly Gln Gly Ser Thr Thr Ser Ser Ser
                245                 250                 255

Lys Asn Ile Ala Tyr Asn Cys Cys Trp Asp Gln Cys Gln Ala Cys Phe
            260                 265                 270

Asn Ser Ser Pro Asp Leu Ala Asp His Ile Arg Ser Ile His Val Asp
        275                 280                 285

Gly Gln Arg Gly Gly Val Phe Val Cys Leu Trp Lys Gly Cys Lys Val
    290                 295                 300

Tyr Asn Thr Pro Ser Thr Ser Gln Ser Trp Leu Gln Arg His Met Leu
305                 310                 315                 320

Thr His Ser Gly Asp Lys Pro Phe Lys Cys Val Val Gly Gly Cys Asn
```

325 330 335

Ala Ser Phe Ala Ser Gln Gly Gly Leu Ala Arg His Val Pro Thr His
340 345 350

Phe Ser Gln Gln Asn Ser Ser Lys Val Ser Ser Gln Pro Lys Ala Lys
355 360 365

Glu Glu Ser Pro Ser Lys Ala Gly Met Asn Lys Arg Arg Lys Leu Lys
370 375 380

Asn Lys Arg Arg Arg Ser Leu Pro Arg Pro His Asp Phe Phe Asp Ala
385 390 395 400

Gln Thr Leu Asp Ala Ile Arg His Arg Ala Ile Cys Phe Asn Leu Ser
405 410 415

Ala His Ile Glu Ser Leu Gly Lys Gly His Ser Val Val Phe His Ser
420 425 430

Thr Val Ile Ala Lys Arg Lys Glu Asp Ser Gly Lys Ile Lys Leu Leu
435 440 445

Leu His Trp Met Pro Glu Asp Ile Leu Pro Asp Val Trp Val Asn Glu
450 455 460

Ser Glu Arg His Gln Leu Lys Thr Lys Val Val His Leu Ser Lys Leu
465 470 475 480

Pro Lys Asp Thr Ala Leu Leu Leu Asp Pro Asn Ile Tyr Arg Thr Met
485 490 495

Pro Gln Lys Arg Leu Lys Arg Thr Leu Ile Arg Lys Val Phe Asn Leu
500 505 510

Tyr Leu Ser Lys Gln
515

<210> 3585
<211> 274
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 782; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP2; "

<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437983"

<400> 3585

```
Met Asp Val Asp Ser Thr Ile Ser Ser Gly Arg Ser Thr Pro Ala Met
1               5                  10                  15


Met Asn Gly Gln Gly Ser Thr Thr Ser Ser Ser Lys Asn Ile Ala Tyr
            20                  25                  30


Asn Cys Cys Trp Asp Gln Cys Gln Ala Cys Phe Asn Ser Ser Pro Asp
        35                  40                  45


Leu Ala Asp His Ile Arg Ser Ile His Val Asp Gly Gln Arg Gly Gly
    50                  55                  60


Val Phe Val Cys Leu Trp Lys Gly Cys Lys Val Tyr Asn Thr Pro Ser
65                  70                  75                  80


Thr Ser Gln Ser Trp Leu Gln Arg His Met Leu Thr His Ser Gly Asp
                85                  90                  95


Lys Pro Phe Lys Cys Val Val Gly Gly Cys Asn Ala Ser Phe Ala Ser
            100                 105                 110


Gln Gly Gly Leu Ala Arg His Val Pro Thr His Phe Ser Gln Gln Asn
        115                 120                 125


Ser Ser Lys Val Ser Ser Gln Pro Lys Ala Lys Glu Glu Ser Pro Ser
    130                 135                 140


Lys Ala Gly Met Asn Lys Arg Arg Lys Leu Lys Asn Lys Arg Arg Arg
145                 150                 155                 160
```

```
Ser Leu Pro Arg Pro His Asp Phe Phe Asp Ala Gln Thr Leu Asp Ala
                165                 170                 175

Ile Arg His Arg Ala Ile Cys Phe Asn Leu Ser Ala His Ile Glu Ser
            180                 185                 190

Leu Gly Lys Gly His Ser Val Val Phe His Ser Thr Val Ile Ala Lys
        195                 200                 205

Arg Lys Glu Asp Ser Gly Lys Ile Lys Leu Leu Leu His Trp Met Pro
    210                 215                 220

Glu Asp Ile Leu Pro Asp Val Trp Val Asn Glu Ser Glu Arg His Gln
225                 230                 235                 240

Leu Lys Thr Lys Val Val His Leu Ser Lys Leu Pro Lys Asp Thr Ala
                245                 250                 255

Leu Leu Leu Asp Pro Asn Ile Tyr Arg Thr Met Pro Gln Lys Arg Leu
            260                 265                 270

Lys Arg
```

<210> 3586
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 782; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP2; "

<220>
<221> source
<223> /note="Gene Name:
AE binding
prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000444255"

<400> 3586

```
Met Asp Val Asp Ser Thr Ile Ser Ser Gly Arg Ser Thr Pro Ala Met
1               5                   10                  15

Met Asn Gly Gln Gly Ser Thr Thr Ser Ser Ser Lys Asn Ile Ala Tyr
            20                  25                  30

Asn Cys Cys Trp Asp Gln Cys Gln Ala Cys Phe Asn Ser Ser Pro Asp
        35                  40                  45

Leu Ala Asp His Ile Arg Ser Ile His Val Asp Gly Gln Arg Gly Gly
    50                  55                  60

Val Phe Val Cys Leu Trp Lys Gly Cys Lys Val Tyr Asn Thr Pro Ser
65                  70                  75                  80

Thr Ser Gln Ser Trp Leu Gln Arg His Met Leu Thr His Ser Gly Asp
                85                  90                  95

Lys Pro Phe Lys Cys Val Val Gly Gly Cys Asn Ala Ser Phe
            100                 105                 110


<210> 3587
<211> 130
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 782; "

<220>
<221> source
<223> /note="Gene Symbol: AEBP2; "

<220>
<221> source
<223> /note="Gene Name:
      AE binding
      prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445587"

<400> 3587
Leu Ala Arg Pro His Asp Phe Phe Asp Ala Gln Thr Leu Asp Ala Ile
1               5                   10                  15

Arg His Arg Ala Ile Cys Phe Asn Leu Ser Ala His Ile Glu Ser Leu
```

```
            20                  25                  30

Gly Lys Gly His Ser Val Val Phe His Ser Thr Val Ile Ala Lys Arg
        35                  40                  45

Lys Glu Asp Ser Gly Lys Ile Lys Leu Leu Leu His Trp Met Pro Glu
    50                  55                  60

Asp Ile Leu Pro Asp Val Trp Val Asn Glu Ser Glu Arg His Gln Leu
65                  70                  75                  80

Lys Thr Lys Val Val His Leu Ser Lys Leu Pro Lys Asp Thr Ala Leu
                85                  90                  95

Leu Leu Asp Pro Asn Ile Tyr Arg Thr Met Pro Gln Lys Arg Leu Lys
            100                 105                 110

Arg Ser Asp Lys Pro Phe Thr Phe Cys His Asp Cys Glu Ala Ser Ser
        115                 120                 125

Ala Met
    130


<210> 3588
<211> 339
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 783; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AF011889.5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477056"

<400> 3588
Met Lys Thr Ser Ala Ser Pro Phe Phe Leu Ala Val Gly Tyr His Lys
1               5                   10                  15
```

```
Pro His Ile Pro Phe Arg Tyr Pro Lys Glu Phe Gln Lys Leu Tyr Pro
            20                  25                  30

Leu Glu Asn Ile Thr Leu Ala Pro Asp Pro Glu Val Pro Asp Gly Leu
        35                  40                  45

Pro Pro Val Ala Tyr Asn Pro Trp Met Asp Ile Arg Gln Arg Glu Asp
    50                  55                  60

Val Gln Ala Leu Asn Ile Ser Val Pro Tyr Gly Pro Ile Pro Val Asp
65                  70                  75                  80

Phe Gln Arg Lys Ile Arg Gln Ser Tyr Phe Ala Ser Val Ser Tyr Leu
                85                  90                  95

Asp Thr Gln Val Gly Arg Leu Leu Ser Ala Leu Asp Asp Leu Gln Leu
            100                 105                 110

Ala Asn Ser Thr Ile Ile Ala Phe Thr Ser Asp His Gly Trp Ala Leu
        115                 120                 125

Gly Glu His Gly Glu Trp Ala Lys Tyr Ser Asn Phe Asp Val Ala Thr
    130                 135                 140

His Val Pro Leu Ile Phe Tyr Val Pro Gly Arg Thr Ala Ser Leu Pro
145                 150                 155                 160

Glu Ala Gly Glu Lys Leu Phe Pro Tyr Leu Asp Pro Phe Asp Ser Ala
                165                 170                 175

Ser Gln Leu Met Glu Pro Gly Arg Gln Ser Met Asp Leu Val Glu Leu
            180                 185                 190

Val Ser Leu Phe Pro Thr Leu Ala Gly Leu Ala Gly Leu Gln Val Pro
        195                 200                 205

Pro Arg Cys Pro Val Pro Ser Phe His Val Glu Leu Cys Arg Glu Gly
    210                 215                 220

Lys Asn Leu Leu Lys His Phe Arg Phe Arg Asp Leu Glu Glu Asp Pro
225                 230                 235                 240
```

```
Tyr Leu Pro Gly Asn Pro Arg Glu Leu Ile Ala Tyr Ser Gln Tyr Pro
                245                 250                 255

Arg Pro Ser Asp Ile Pro Gln Trp Asn Ser Asp Lys Pro Ser Leu Lys
            260                 265                 270

Asp Ile Lys Ile Met Gly Tyr Ser Ile Arg Thr Ile Asp Tyr Arg Tyr
        275                 280                 285

Thr Val Trp Val Gly Phe Asn Pro Asp Glu Phe Leu Ala Asn Phe Ser
    290                 295                 300

Asp Ile His Ala Gly Glu Leu Tyr Phe Val Asp Ser Asp Pro Leu Gln
305                 310                 315                 320

Asp His Asn Met Tyr Asn Asp Ser Gln Gly Gly Asp Leu Phe Gln Leu
                325                 330                 335

Leu Met Pro
```

<210> 3589
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 784; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AF111168.2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485164"

<400> 3589

```
Met Thr Leu Lys Glu His Ala Ala Phe Lys His Leu Phe Asn Lys Ala
1               5                   10                  15

His Leu Ala Pro Pro Leu Ile His Ser Thr Leu Ser Gly Tyr Ser Thr
            20                  25                  30
```

Cys Phe Arg Glu His Arg Val Gly Gly Lys Val Thr Asp Gln Gln Asp
35 40 45

Pro Lys Ala Glu Glu Phe Phe Leu Val Gln Asn Lys Met Lys Ser Leu
50 55 60

Pro Cys Leu Pro Leu Ser Thr Gln Thr Arg Gln Pro Ser Asp Phe Ser
65 70 75 80

Ile Phe Ser Pro Pro Phe Pro Pro Phe Tyr Ser Thr Lys Pro Pro Leu
85 90 95

Ser Ser Trp Pro Val Leu Asn Glu Leu Leu Gly Thr Pro Pro Arg Arg
100 105 110

Gly Gly Gly Trp Ala Glu Gly Leu Leu Thr Ser Gln
115 120

<210> 3590
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 785; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AF131216.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485671"

<400> 3590
Met Pro Pro Glu Thr Gln Pro Asp Gln Lys Met Cys Val Pro Thr Arg
1 5 10 15

Lys Lys Ala Cys Leu Cys Leu His Ala Leu Pro Leu Pro Phe Leu Thr
20 25 30

```
Thr Tyr Lys Tyr Ser Leu Ser Glu Glu Val Arg Glu Glu Gly Gly Gly
        35                  40                  45

Pro Cys Leu Ala Phe Leu Arg Leu Ser Ser Ile Pro Ser Arg Ser Ser
    50                  55                  60

Ser Glu Arg Gly Ala Ala Val Asn Cys Asp Asn Cys Tyr Ala Leu Ala
65                  70                  75                  80

Leu Lys Thr Trp Gln Val Gly Asp Gly Gly Gly Asp Cys Asp Leu Thr
                85                  90                  95

Glu Ser Ser Arg Gly Gln Gly Gly Thr Gln Gly His Ser Thr Gly Ser
            100                 105                 110

Pro Arg Ala Pro Arg His Glu Val
        115                 120


<210> 3591
<211> 165
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<213> Homo sapiens

<220>
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<223> /note="Gene Name:
      AF165138.7; "

<220>
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<400> 3591
Met Asn Leu Phe Cys Ile Ser Leu Glu Gly Ser Met Asp Ser Leu Tyr
1               5                   10                  15

Glu Pro Ile Pro Glu Gln Gln Ala Asn Gln Glu Asn Met Ser Ser Arg
            20                  25                  30

Thr Asp Ser Pro Ile Pro Pro Phe Gly Glu Ser Glu Gln Thr Pro Asn
        35                  40                  45
```

```
Asn Leu Phe Val Gly Val Ser Asn Leu Glu Asn Ala Lys Pro Lys Lys
    50                  55                  60

Arg Lys Leu Phe Arg Arg Phe Met Ser Glu Asn Lys Ile Phe Glu Gly
65                  70                  75                  80

Lys Thr Val Asn Asp Lys Ile Trp Gln Glu His Ser Lys His Lys Asn
                85                  90                  95

Asp Ser His Ile Arg Arg Pro Cys Gln Leu Lys Asp Leu Asn Glu Asp
            100                 105                 110

Asp Phe Leu Ser Asn Asn Ile His Thr Tyr Gln Gly Lys Thr Leu Gln
        115                 120                 125

Gly Thr Ser Tyr Gln Val Thr Ser Glu Cys Trp Ser Pro Phe His Tyr
    130                 135                 140

Gln Arg His Val Glu Thr Thr Val Asp Glu Leu Val Arg His Phe Phe
145                 150                 155                 160

Pro Asp Val Thr Ile
                165


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<400> 3592
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```
Glu Gly Ser Met Asp Ser Leu Tyr Glu Pro Ile Pro Glu Gln Gln Ala
1               5                  10                  15

Asn Gln Glu Asn Met Ser Ser Arg Thr Asp Ser Pro Ile Pro Pro Phe
            20                  25                  30

Gly Glu Ser Glu Gln Thr Pro Asn Asn Leu Phe Val Gly Val Ser Asn
        35                  40                  45

Leu Glu Asn Ala Lys Pro Lys Lys Arg Lys Leu Phe Arg Arg Phe Met
    50                  55                  60

Ser Glu Asn Lys Ile Phe Glu Gly Lys Thr Val Asn Asp Lys Ile Trp
65                  70                  75                  80

Gln Glu His Ser Lys His Lys Asn Asp Ser His Ile Arg Arg Pro Cys
                85                  90                  95

Gln Leu Lys Asp Leu Asn Glu Asp Asp Phe Leu Ser Asn Asn Ile His
            100                 105                 110

Thr Tyr Gln Gly Lys Thr Leu Gln Gly Thr Ser Tyr Gln Val Thr Ser
        115                 120                 125

Glu Cys Trp Ser Pro Phe His Tyr Gln Arg His Val Glu Thr Thr Val
    130                 135                 140

Asp Glu Leu Ala Gln Glu Phe Met
145                 150


<210> 3593
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family, member 1; "

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<400> 3593
Met Ala Ala Gln Ser Ser Leu Tyr Asn Asp Asp Arg Asn Leu Leu Arg
1   5   10   15

Ile Arg Glu Lys Glu Arg Arg Asn Gln Glu Ala His Gln Glu Lys Glu
            20   25   30

Ala Phe Pro Glu Lys Ile Pro Leu Phe Gly Glu Pro Tyr Lys Thr Ala
        35   40   45

Lys Gly Asp Glu Leu Ser Ser Arg Ile Gln Asn Met Leu Gly Asn Tyr
    50   55   60

Glu Glu Val Lys Glu Phe Leu Ser Thr Lys Ser His Thr His Arg Leu
65   70   75   80

Asp Ala Ser Glu Asn Arg Leu Gly Lys Pro Lys Tyr Pro Leu Ile Pro
                85   90   95

Asp Lys Gly Ser Ser Ile Pro Ser Ser Ser Phe His Thr Ser Val His
            100   105   110

His Gln Ser Ile His Thr Pro Ala Ser Gly Pro Leu Ser Val Gly Asn
        115   120   125

Ile Ser His Asn Pro Lys Met Ala Gln Pro Arg Thr Glu Pro Met Pro
    130   135   140

Ser Leu His Ala Lys Ser Cys Gly Pro Pro Asp Ser Gln His Leu Thr
145   150   155   160

Gln Asp Arg Leu Gly Gln Glu Gly Phe Gly Ser Ser His His Lys Lys
                165   170   175

Gly Asp Arg Arg Ala Asp Gly Asp His Cys Ala Ser Val Thr Asp Ser
            180   185   190

```
Ala Pro Glu Arg Glu Leu Ser Pro Leu Ile Ser Leu Pro Ser Pro Val
        195                 200                 205

Pro Pro Leu Ser Pro Ile His Ser Asn Gln Gln Thr Leu Pro Arg Thr
    210                 215                 220

Gln Gly Ser Ser Lys Val His Gly Ser Ser Asn Asn Ser Lys Gly Tyr
225                 230                 235                 240

Cys Pro Ala Lys Ser Pro Lys Asp Leu Ala Val Lys Val His Asp Lys
                245                 250                 255

Glu Thr Pro Gln Asp Ser Leu Val Ala Pro Ala Gln Pro Pro Ser Gln
            260                 265                 270

Thr Phe Pro Pro Pro Ser Leu Pro Ser Lys Ser Val Ala Met Gln Gln
        275                 280                 285

Lys Pro Thr Ala Tyr Val Arg Pro Met Asp Gly Gln Asp Gln Ala Pro
    290                 295                 300

Ser Glu Ser Pro Glu Leu Lys Pro Leu Pro Glu Asp Tyr Arg Gln Gln
305                 310                 315                 320

Thr Phe Glu Lys Thr Asp Leu Lys Val Pro Ala Lys Ala Lys Leu Thr
                325                 330                 335

Lys Leu Lys Met Pro Ser Gln Ser Val Glu Gln Thr Tyr Ser Asn Glu
            340                 345                 350

Val His Cys Val Glu Glu Ile Leu Lys Glu Met Thr His Ser Trp Pro
        355                 360                 365

Pro Pro Leu Thr Ala Ile His Thr Pro Ser Thr Ala Glu Pro Ser Lys
    370                 375                 380

Phe Pro Phe Pro Thr Lys Asp Ser Gln His Val Ser Ser Val Thr Gln
385                 390                 395                 400

Asn Gln Lys Gln Tyr Asp Thr Ser Ser Lys Thr His Ser Asn Ser Gln
                405                 410                 415
```

```
Gln Gly Thr Ser Ser Met Leu Glu Asp Asp Leu Gln Leu Ser Asp Ser
            420                 425                 430

Glu Asp Ser Asp Ser Glu Gln Thr Pro Glu Lys Pro Pro Ser Ser Ser
        435                 440                 445

Ala Pro Pro Ser Ala Pro Gln Ser Leu Pro Glu Pro Val Ala Ser Ala
    450                 455                 460

His Ser Ser Ser Ala Glu Ser Glu Ser Thr Ser Asp Ser Asp Ser Ser
465                 470                 475                 480

Ser Asp Ser Glu Ser Glu Ser Ser Ser Ser Asp Ser Glu Glu Asn Glu
                485                 490                 495

Pro Leu Glu Thr Pro Ala Pro Glu Pro Glu Pro Pro Thr Thr Asn Lys
            500                 505                 510

Trp Gln Leu Asp Asn Trp Leu Thr Lys Val Ser Gln Pro Ala Ala Pro
        515                 520                 525

Pro Glu Gly Pro Arg Ser Thr Glu Pro Pro Arg Arg His Pro Glu Ser
    530                 535                 540

Lys Gly Ser Ser Asp Ser Ala Thr Ser Gln Glu His Ser Glu Ser Lys
545                 550                 555                 560

Asp Pro Pro Pro Lys Ser Ser Ser Lys Ala Pro Arg Ala Pro Pro Glu
                565                 570                 575

Ala Pro His Pro Gly Lys Arg Ser Cys Gln Lys Ser Pro Ala Gln Gln
            580                 585                 590

Glu Pro Pro Gln Arg Gln Thr Val Gly Thr Lys Gln Pro Lys Lys Pro
        595                 600                 605

Val Lys Ala Ser Ala Arg Ala Gly Ser Arg Thr Ser Leu Gln Gly Glu
    610                 615                 620

Arg Glu Pro Gly Leu Leu Pro Tyr Gly Ser Arg Asp Gln Thr Ser Lys
625                 630                 635                 640
```

```
Asp Lys Pro Lys Val Lys Thr Lys Gly Arg Pro Arg Ala Ala Ala Ser
                645                 650                 655

Asn Glu Pro Lys Pro Ala Val Pro Pro Ser Ser Glu Lys Lys Lys His
            660                 665                 670

Lys Ser Ser Leu Pro Ala Pro Ser Lys Ala Leu Ser Gly Pro Glu Pro
        675                 680                 685

Ala Lys Asp Asn Val Glu Asp Arg Thr Pro Glu His Phe Ala Leu Val
    690                 695                 700

Pro Leu Thr Glu Ser Gln Gly Pro Pro His Ser Gly Ser Gly Ser Arg
705                 710                 715                 720

Thr Ser Gly Cys Arg Gln Ala Val Val Val Gln Glu Asp Ser Arg Lys
                725                 730                 735

Asp Arg Leu Pro Leu Pro Leu Arg Asp Thr Lys Leu Leu Ser Pro Leu
            740                 745                 750

Arg Asp Thr Pro Pro Pro Gln Ser Leu Met Val Lys Ile Thr Leu Asp
        755                 760                 765

Leu Leu Ser Arg Ile Pro Gln Pro Pro Gly Lys Gly Ser Arg Gln Arg
    770                 775                 780

Lys Ala Glu Asp Lys Gln Pro Pro Ala Gly Lys Lys His Ser Ser Glu
785                 790                 795                 800

Lys Arg Ser Ser Asp Ser Ser Ser Lys Leu Ala Lys Lys Arg Lys Gly
                805                 810                 815

Glu Ala Glu Arg Asp Cys Asp Asn Lys Lys Ile Arg Leu Glu Lys Glu
            820                 825                 830

Ile Lys Ser Gln Ser Ser Ser Ser Ser Ser Ser His Lys Glu Ser Ser
        835                 840                 845

Lys Thr Lys Pro Ser Arg Pro Ser Ser Gln Ser Ser Lys Lys Glu Met
    850                 855                 860

Leu Pro Pro Pro Pro Val Ser Ser Ser Ser Gln Lys Pro Ala Lys Pro
```

865 870 875 880

Ala Leu Lys Arg Ser Arg Arg Glu Ala Asp Thr Cys Gly Gln Asp Pro
885 890 895

Pro Lys Ser Ala Ser Ser Thr Lys Ser Asn His Lys Asp Ser Ser Ile
900 905 910

Pro Lys Gln Arg Arg Val Glu Gly Lys Gly Ser Arg Ser Ser Ser Glu
915 920 925

His Lys Gly Ser Ser Gly Asp Thr Ala Asn Pro Phe Pro Val Pro Ser
930 935 940

Leu Pro Asn Gly Asn Ser Lys Pro Gly Lys Pro Gln Val Lys Phe Asp
945 950 955 960

Lys Gln Gln Ala Asp Leu His Met Arg Glu Ala Lys Lys Met Lys Gln
965 970 975

Lys Ala Glu Leu Met Thr Asp Arg Val Gly Lys Ala Phe Lys Tyr Leu
980 985 990

Glu Ala Val Leu Ser Phe Ile Glu Cys Gly Ile Ala Thr Glu Ser
Glu
995 1000 1005

Ser Gln Ser Ser Lys Ser Ala Tyr Ser Val Tyr Ser Glu Thr Val
1010 1015 1020

Asp Leu Ile Lys Phe Ile Met Ser Leu Lys Ser Phe Ser Asp Ala
1025 1030 1035

Thr Ala Pro Thr Gln Glu Lys Ile Phe Ala Val Leu Cys Met Arg
1040 1045 1050

Cys Gln Ser Ile Leu Asn Met Ala Met Phe Arg Cys Lys Lys Asp
1055 1060 1065

Ile Ala Ile Lys Tyr Ser Arg Thr Leu Asn Lys His Phe Glu Ser
1070 1075 1080

Ser Ser Lys Val Ala Gln Ala Pro Ser Pro Cys Ile Ala Ser Thr

```
    1085                1090                1095

Gly Thr  Pro Ser Pro Leu Ser  Pro Met Pro Ser Pro  Ala Ser Ser
    1100                1105                1110

Val Gly  Ser Gln Ser Ser Ala  Gly Ser Val Gly Ser  Ser Gly Val
    1115                1120                1125

Ala Ala  Thr Ile Ser Thr Pro  Val Thr Ile Gln Asn  Met Thr Ser
    1130                1135                1140

Ser Tyr  Val Thr Ile Thr Ser  His Val Leu Thr Ala  Phe Asp Leu
    1145                1150                1155

Trp Glu  Gln Ala Glu Ala Leu  Thr Arg Lys Asn Lys  Glu Phe Phe
    1160                1165                1170

Ala Arg  Leu Ser Thr Asn Val  Cys Thr Leu Ala Leu  Asn Ser Ser
    1175                1180                1185

Leu Val  Asp Leu Val His Tyr  Thr Arg Gln Gly Phe  Gln Gln Leu
    1190                1195                1200

Gln Glu  Leu Thr Lys Thr Pro
    1205                1210


<210> 3594
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Met Ala Phe Thr Glu Arg Val Asn Ser Ser Gly Asn Ser Leu Tyr Asn
1   5   10   15

Asp Asp Arg Asn Leu Leu Arg Ile Arg Glu Lys Glu Arg Arg Asn Gln
            20   25   30

Glu Ala His Gln Glu Lys Glu Ala Phe Pro Glu Lys Ile Pro Leu Phe
        35   40   45

Gly Glu Pro Tyr Lys Thr Ala Lys Gly Asp Glu Leu Ser Ser Arg Ile
    50   55   60

Gln Asn Met Leu Gly Asn Tyr Glu Glu Val Lys Glu Phe Leu Ser Thr
65   70   75   80

Lys Ser His Thr His Arg Leu Asp Ala Ser Glu Asn Arg Leu Gly Lys
                85   90   95

Pro Lys Tyr Pro Leu Ile Pro Asp Lys Gly Ser Ser Ile Pro Ser Ser
            100   105   110

Ser Phe His Thr Ser Val His His Gln Ser Ile His Thr Pro Ala Ser
        115   120   125

Gly Pro Leu Ser Val Gly Asn Ile Ser His Asn Pro Lys Met Ala Gln
    130   135   140

Pro Arg Thr Glu Pro Met Pro Ser Leu His Ala Lys Ser Cys Gly Pro
145   150   155   160

Pro Asp Ser Gln His Leu Thr Gln Asp Arg Leu Gly Gln Glu Gly Phe
                165   170   175

Gly Ser Ser His His Lys Lys Gly Asp Arg Arg Ala Asp Gly Asp His
            180   185   190

Cys Ala Ser Val Thr Asp Ser Ala Pro Glu Arg Glu Leu Ser Pro Leu
        195   200   205

```
Ile Ser Leu Pro Ser Pro Val Pro Pro Leu Ser Pro Ile His Ser Asn
    210                 215                 220

Gln Gln Thr Leu Pro Arg Thr Gln Gly Ser Ser Lys Val His Gly Ser
225                 230                 235                 240

Ser Asn Asn Ser Lys Gly Tyr Cys Pro Ala Lys Ser Pro Lys Asp Leu
                245                 250                 255

Ala Val Lys Val His Asp Lys Glu Thr Pro Gln Asp Ser Leu Val Ala
            260                 265                 270

Pro Ala Gln Pro Pro Ser Gln Thr Phe Pro Pro Pro Ser Leu Pro Ser
        275                 280                 285

Lys Ser Val Ala Met Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met
    290                 295                 300

Asp Gly Gln Asp Gln Ala Pro Ser Glu Ser Pro Glu Leu Lys Pro Leu
305                 310                 315                 320

Pro Glu Asp Tyr Arg Gln Gln Thr Phe Glu Lys Thr Asp Leu Lys Val
                325                 330                 335

Pro Ala Lys Ala Lys Leu Thr Lys Leu Lys Met Pro Ser Gln Ser Val
            340                 345                 350

Glu Gln Thr Tyr Ser Asn Glu Val His Cys Val Glu Glu Ile Leu Lys
        355                 360                 365

Glu Met Thr His Ser Trp Pro Pro Pro Leu Thr Ala Ile His Thr Pro
    370                 375                 380

Ser Thr Ala Glu Pro Ser Lys Phe Pro Phe Pro Thr Lys Asp Ser Gln
385                 390                 395                 400

His Val Ser Ser Val Thr Gln Asn Gln Lys Gln Tyr Asp Thr Ser Ser
                405                 410                 415

Lys Thr His Ser Asn Ser Gln Gln Gly Thr Ser Ser Met Leu Glu Asp
            420                 425                 430
```

```
Asp Leu Gln Leu Ser Asp Ser Glu Asp Ser Asp Ser Glu Gln Thr Pro
        435                 440                 445

Glu Lys Pro Pro Ser Ser Ser Ala Pro Pro Ser Ala Pro Gln Ser Leu
    450                 455                 460

Pro Glu Pro Val Ala Ser Ala His Ser Ser Ser Ala Glu Ser Glu Ser
465                 470                 475                 480

Thr Ser Asp Ser Asp Ser Ser Ser Asp Ser Glu Ser Glu Ser Ser Ser
                485                 490                 495

Ser Asp Ser Glu Glu Asn Glu Pro Leu Glu Thr Pro Ala Pro Glu Pro
            500                 505                 510

Glu Pro Pro Thr Thr Asn Lys Trp Gln Leu Asp Asn Trp Leu Thr Lys
        515                 520                 525

Val Ser Gln Pro Ala Ala Pro Pro Glu Gly Pro Arg Ser Thr Glu Pro
    530                 535                 540

Pro Arg Arg His Pro Glu Ser Lys Gly Ser Ser Asp Ser Ala Thr Ser
545                 550                 555                 560

Gln Glu His Ser Glu Ser Lys Asp Pro Pro Pro Lys Ser Ser Ser Lys
                565                 570                 575

Ala Pro Arg Ala Pro Pro Glu Ala Pro His Pro Gly Lys Arg Ser Cys
            580                 585                 590

Gln Lys Ser Pro Ala Gln Gln Glu Pro Pro Gln Arg Gln Thr Val Gly
        595                 600                 605

Thr Lys Gln Pro Lys Lys Pro Val Lys Ala Ser Ala Arg Ala Gly Ser
    610                 615                 620

Arg Thr Ser Leu Gln Gly Glu Arg Glu Pro Gly Leu Leu Pro Tyr Gly
625                 630                 635                 640

Ser Arg Asp Gln Thr Ser Lys Asp Lys Pro Lys Val Lys Thr Lys Gly
                645                 650                 655

Arg Pro Arg Ala Ala Ala Ser Asn Glu Pro Lys Pro Ala Val Pro Pro
```

660 665 670

Ser Ser Glu Lys Lys Lys His Lys Ser Ser Leu Pro Ala Pro Ser Lys
675 680 685

Ala Leu Ser Gly Pro Glu Pro Ala Lys Asp Asn Val Glu Asp Arg Thr
690 695 700

Pro Glu His Phe Ala Leu Val Pro Leu Thr Glu Ser Gln Gly Pro Pro
705 710 715 720

His Ser Gly Ser Gly Ser Arg Thr Ser Gly Cys Arg Gln Ala Val Val
725 730 735

Val Gln Glu Asp Ser Arg Lys Asp Arg Leu Pro Leu Pro Leu Arg Asp
740 745 750

Thr Lys Leu Leu Ser Pro Leu Arg Asp Thr Pro Pro Pro Gln Ser Leu
755 760 765

Met Val Lys Ile Thr Leu Asp Leu Leu Ser Arg Ile Pro Gln Pro Pro
770 775 780

Gly Lys Gly Ser Arg Gln Arg Lys Ala Glu Asp Lys Gln Pro Pro Ala
785 790 795 800

Gly Lys Lys His Ser Ser Glu Lys Arg Ser Ser Asp Ser Ser Ser Lys
805 810 815

Leu Ala Lys Lys Arg Lys Gly Glu Ala Glu Arg Asp Cys Asp Asn Lys
820 825 830

Lys Ile Arg Leu Glu Lys Glu Ile Lys Ser Gln Ser Ser Ser Ser Ser
835 840 845

Ser Ser His Lys Glu Ser Ser Lys Thr Lys Pro Ser Arg Pro Ser Ser
850 855 860

Gln Ser Ser Lys Lys Glu Met Leu Pro Pro Pro Pro Val Ser Ser Ser
865 870 875 880

Ser Gln Lys Pro Ala Lys Pro Ala Leu Lys Arg Ser Arg Arg Glu Ala
885 890 895

```
Asp Thr Cys Gly Gln Asp Pro Pro Lys Ser Ala Ser Ser Thr Lys Ser
            900                 905                 910

Asn His Lys Asp Ser Ser Ile Pro Lys Gln Arg Arg Val Glu Gly Lys
        915                 920                 925

Gly Ser Arg Ser Ser Ser Glu His Lys Gly Ser Ser Gly Asp Thr Ala
    930                 935                 940

Asn Pro Phe Pro Val Pro Ser Leu Pro Asn Gly Asn Ser Lys Pro Gly
945                 950                 955                 960

Lys Pro Gln Val Lys Phe Asp Lys Gln Gln Ala Asp Leu His Met Arg
                965                 970                 975

Glu Ala Lys Lys Met Lys Gln Lys Ala Glu Leu Met Thr Asp Arg Val
            980                 985                 990

Gly Lys Ala Phe Lys Tyr Leu Glu  Ala Val Leu Ser Phe  Ile Glu
Cys
        995                 1000                1005

Gly Ile  Ala Thr Glu Ser Glu  Ser Gln Ser Ser Lys  Ser Ala Tyr
    1010                1015                1020

Ser Val  Tyr Ser Glu Thr Val  Asp Leu Ile Lys Phe  Ile Met Ser
    1025                1030                1035

Leu Lys  Ser Phe Ser Asp Ala  Thr Ala Pro Thr Gln  Glu Lys Ile
    1040                1045                1050

Phe Ala  Val Leu Cys Met Arg  Cys Gln Ser Ile Leu  Asn Met Ala
    1055                1060                1065

Met Phe  Arg Cys Lys Lys Asp  Ile Ala Ile Lys Tyr  Ser Arg Thr
    1070                1075                1080

Leu Asn  Lys His Phe Glu Ser  Ser Ser Lys Val Ala  Gln Ala Pro
    1085                1090                1095

Ser Pro  Cys Ile Ala Arg Ser  Thr Gly Thr Pro Ser  Pro Leu Ser
    1100                1105                1110
```

```
Pro Met  Pro Ser Pro Ala Ser  Ser Val Gly Ser Gln  Ser Ser Ala
    1115                1120                1125

Gly Ser  Val Gly Ser Ser Gly  Val Ala Ala Thr Ile  Ser Thr Pro
    1130                1135                1140

Val Thr  Ile Gln Asn Met Thr  Ser Ser Tyr Val Thr  Ile Thr Ser
    1145                1150                1155

His Val  Leu Thr Ala Phe Asp  Leu Trp Glu Gln Ala  Glu Ala Leu
    1160                1165                1170

Thr Arg  Lys Asn Lys Glu Phe  Phe Ala Arg Leu Ser  Thr Asn Val
    1175                1180                1185

Cys Thr  Leu Ala Leu Asn Ser  Ser Leu Val Asp Leu  Val His Tyr
    1190                1195                1200

Thr Arg  Gln Gly Phe Gln Gln  Leu Gln Glu Leu Thr  Lys Thr Pro
    1205                1210                1215


<210> 3595
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      family, member 1; "

<220>
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Met Ala Phe Thr Glu Arg Val Asn Ser Ser Gly Asn Ser Leu Tyr Asn
1               5                  10                  15
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Asp Asp Arg Asn Leu Leu Arg Ile Arg Glu Lys Glu Arg Arg Asn Gln
            20                  25                  30

Glu Ala His Gln Glu Lys Glu Ala Phe Pro Glu Lys Ile Pro Leu Phe
        35                  40                  45

Gly Glu Pro Tyr Lys Thr Ala Lys Gly Asp Glu Leu Ser Ser Arg Ile
    50                  55                  60

Gln Asn Met Leu Gly Asn Tyr Glu Glu Val Lys Glu Phe Leu Ser Thr
65                  70                  75                  80

Lys Ser His Thr His Arg Leu Asp Ala Ser Glu Asn Arg Leu Gly Lys
                85                  90                  95

Pro Lys Tyr Pro Leu Ile Pro Asp Lys Gly Ser Ser Ile Pro Ser Ser
            100                 105                 110

Ser Phe His Thr Ser Val His His Gln Ser Ile His Thr Pro Ala Ser
        115                 120                 125

Gly Pro Leu Ser Val Gly Asn Ile Ser His Asn Pro Lys Met Ala Gln
    130                 135                 140

Pro Arg Thr Glu Pro Met Pro Ser Leu His Ala Lys Ser Cys Gly Pro
145                 150                 155                 160

Pro Asp Ser Gln His Leu Thr Gln Asp Arg Leu Gly Gln Glu Gly Phe
                165                 170                 175

Gly Ser Ser His His Lys Lys Gly Asp Arg Arg Ala Asp Gly Asp His
            180                 185                 190

Cys Ala Ser Val Thr Asp Ser Ala Pro Glu Arg Glu Leu Ser Pro Leu
        195                 200                 205

Ile Ser Leu Pro Ser Pro Val Pro Pro Leu Ser Pro Ile His Ser Asn
    210                 215                 220

Gln Gln Thr Leu Pro Arg Thr Gln Gly Ser Ser Lys Val His Gly Ser
225                 230                 235                 240
```

```
Ser Asn Asn Ser Lys Gly Tyr Cys Pro Ala Lys Ser Pro Lys Asp Leu
                245                 250                 255

Ala Val Lys Val His Asp Lys Glu Thr Pro Gln Asp Ser Leu Val Ala
            260                 265                 270

Pro Ala Gln Pro Pro Ser Gln Thr Phe Pro Pro Pro Ser Leu Pro Ser
        275                 280                 285

Lys Ser Val Ala Met Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met
    290                 295                 300

Asp Gly Gln Asp Gln Ala Pro Ser Glu Ser Pro Glu Leu Lys Pro Leu
305                 310                 315                 320

Pro Glu Asp Tyr Arg Gln Gln Thr Phe Glu Lys Thr Asp Leu Lys Val
                325                 330                 335

Pro Ala Lys Ala Lys Leu Thr Lys Leu Lys Met Pro Ser Gln Ser Val
            340                 345                 350

Glu Gln Thr Tyr Ser Asn Glu Val His Cys Val Glu Glu Ile Leu Lys
        355                 360                 365

Asp Ser Gln His Val Ser Ser Val Thr Gln Asn Gln Lys Gln Tyr Asp
    370                 375                 380

Thr Ser Ser Lys Thr His Ser Asn Ser Gln Gln Gly Thr Ser Ser Met
385                 390                 395                 400

Leu Glu Asp Asp Leu Gln Leu Ser Asp Ser Glu Asp Ser Asp Ser Glu
                405                 410                 415

Gln
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<210> 3596
<211> 137
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<213> Homo sapiens

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AF4/FMR2
family, member 1; "

<220>
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<400> 3596
Met Thr His Ser Trp Pro Pro Pro Leu Thr Ala Ile His Thr Pro Ser
1 5 10 15

Thr Ala Glu Pro Ser Lys Phe Pro Phe Pro Thr Lys Asp Ser Gln His
20 25 30

Val Ser Ser Val Thr Gln Asn Gln Lys Gln Tyr Asp Thr Ser Ser Lys
35 40 45

Thr His Ser Asn Ser Gln Gln Gly Thr Ser Ser Met Leu Glu Asp Asp
50 55 60

Leu Gln Leu Ser Asp Ser Glu Asp Ser Asp Ser Glu Gln Thr Pro Glu
65 70 75 80

Lys Pro Pro Ser Ser Ser Ala Pro Pro Ser Ala Pro Gln Ser Leu Pro
85 90 95

Glu Pro Val Ala Ser Ala His Ser Ser Ser Ala Glu Ser Glu Ser Thr
100 105 110

Ser Asp Ser Asp Ser Ser Ser Asp Ser Glu Ser Glu Ser Ser Ser Ser
115 120 125

Asp Ser Glu Glu Asn Glu Pro Leu Glu
130 135

<210> 3597
<211> 194
<212> PRT
<213> Homo sapiens

<220>

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<220>
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AF4/FMR2
family, member 1; "

<220>
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<400> 3597

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Thr Val Ser Ile Ser Phe Asn Ala Val Val Pro Ser Gly Leu Gly Pro
1               5                  10                  15

Ser Ser His Ala Arg Gln Arg Gln Leu Trp Tyr Gln Leu Pro Gly Ser
            20                  25                  30

Pro Val Ala Leu Leu Gln Thr Tyr Ser Asn Glu Val His Cys Val Glu
        35                  40                  45

Glu Ile Leu Lys Glu Met Thr His Ser Trp Pro Pro Pro Leu Thr Ala
    50                  55                  60

Ile His Thr Pro Ser Thr Ala Glu Pro Ser Lys Phe Pro Phe Pro Thr
65                  70                  75                  80

Lys Asp Ser Gln His Val Ser Ser Val Thr Gln Asn Gln Lys Gln Tyr
                85                  90                  95

Asp Thr Ser Ser Lys Thr His Ser Asn Ser Gln Gln Gly Thr Ser Ser
            100                 105                 110

Met Leu Glu Asp Asp Leu Gln Leu Ser Asp Ser Glu Asp Ser Asp Ser
        115                 120                 125

Glu Gln Thr Pro Glu Lys Pro Pro Ser Ser Ser Ala Pro Pro Ser Ala
    130                 135                 140

Pro Gln Ser Leu Pro Glu Pro Val Ala Ser Ala His Ser Ser Ser Ala
145                 150                 155                 160
```

```
Glu Ser Glu Ser Thr Ser Asp Ser Asp Ser Ser Ser Asp Ser Glu Ser
                165                 170                 175

Glu Ser Ser Ser Ser Asp Ser Glu Glu Asn Glu Pro Leu Glu Thr Pro
            180                 185                 190

Ala Pro
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<210> 3598
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<212> PRT
<213> Homo sapiens

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family, member 1; "

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<400> 3598

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Met Leu Gly Asn Tyr Glu Glu Val Lys Glu Phe Leu Ser Thr Lys Ser
1               5                   10                  15

His Thr His Arg Leu Asp Ala Ser Glu Asn Arg Leu Gly Lys Pro Lys
            20                  25                  30

Tyr Pro Leu Ile Pro Asp Lys Gly Ser Ser Ile Pro Ser Ser Ser Phe
        35                  40                  45

His Thr Ser Val
    50
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<210> 3599
<211> 406
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
AF4/FMR2
family, member 1; "

<220>
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<400> 3599
Met Ala Phe Thr Glu Arg Val Asn Ser Ser Gly Asn Ser Leu Tyr Asn
1 5 10 15

Asp Asp Arg Asn Leu Leu Arg Ile Arg Glu Lys Glu Arg Arg Asn Gln
20 25 30

Glu Ala His Gln Glu Lys Glu Ala Phe Pro Glu Lys Ile Pro Leu Phe
35 40 45

Gly Glu Pro Tyr Lys Thr Ala Lys Gly Asp Glu Leu Ser Ser Arg Ile
50 55 60

Gln Asn Met Leu Gly Asn Tyr Glu Glu Val Lys Glu Phe Leu Ser Thr
65 70 75 80

Lys Ser His Thr His Arg Leu Asp Ala Ser Glu Asn Arg Leu Gly Lys
85 90 95

Pro Lys Tyr Pro Leu Ile Pro Asp Lys Gly Ser Ser Ile Pro Ser Ser
100 105 110

Ser Phe His Thr Ser Val His His Gln Ser Ile His Thr Pro Ala Ser
115 120 125

Gly Pro Leu Ser Val Gly Asn Ile Ser His Asn Pro Lys Met Ala Gln
130 135 140

Pro Arg Thr Glu Pro Met Pro Ser Leu His Ala Lys Ser Cys Gly Pro

145 150 155 160

Pro Asp Ser Gln His Leu Thr Gln Asp Arg Leu Gly Gln Glu Gly Phe
165 170 175

Gly Ser Ser His His Lys Lys Gly Asp Arg Arg Ala Asp Gly Asp His
180 185 190

Cys Ala Ser Val Thr Asp Ser Ala Pro Glu Arg Glu Leu Ser Pro Leu
195 200 205

Ile Ser Leu Pro Ser Pro Val Pro Pro Leu Ser Pro Ile His Ser Asn
210 215 220

Gln Gln Thr Leu Pro Arg Thr Gln Gly Ser Ser Lys Val His Gly Ser
225 230 235 240

Ser Asn Asn Ser Lys Gly Tyr Cys Pro Ala Lys Ser Pro Lys Asp Leu
245 250 255

Ala Val Lys Val His Asp Lys Glu Thr Pro Gln Asp Ser Leu Val Ala
260 265 270

Pro Ala Gln Pro Pro Ser Gln Thr Phe Pro Pro Pro Ser Leu Pro Ser
275 280 285

Lys Ser Val Ala Met Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met
290 295 300

Asp Gly Gln Asp Gln Ala Pro Ser Glu Ser Pro Glu Leu Lys Pro Leu
305 310 315 320

Pro Glu Asp Tyr Arg Gln Gln Thr Phe Glu Lys Thr Asp Leu Lys Val
325 330 335

Pro Ala Lys Ala Lys Leu Thr Lys Leu Lys Met Pro Ser Gln Ser Val
340 345 350

Glu Thr Tyr Ser Asn Glu Val His Cys Val Glu Glu Ile Leu Lys Glu
355 360 365

Met Thr His Ser Trp Pro Pro Pro Leu Thr Ala Ile His Thr Pro Ser
370 375 380

```
Thr Ala Glu Pro Ser Lys Phe Pro Phe Pro Thr Lys Asp Ser Gln His
385                 390                 395                 400


Val Ser Ser Val Thr Gln
                405


<210> 3600
<211> 1205
<212> PRT
<213> Homo sapiens

<220>
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      family, member 1; "

<220>
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<400> 3600
Met Ala Ala Gln Ser Ser Leu Tyr Asn Asp Asp Arg Asn Leu Leu Arg
1               5                   10                  15


Ile Arg Glu Lys Glu Arg Arg Asn Gln Glu Ala His Gln Glu Lys Glu
            20                  25                  30


Ala Phe Pro Glu Lys Ile Pro Leu Phe Gly Glu Pro Tyr Lys Thr Ala
        35                  40                  45


Lys Gly Asp Glu Leu Ser Ser Arg Ile Gln Asn Met Leu Gly Asn Tyr
    50                  55                  60


Glu Glu Val Lys Glu Phe Leu Ser Thr Lys Ser His Thr His Arg Leu
65                  70                  75                  80


Asp Ala Ser Glu Asn Arg Leu Gly Lys Pro Lys Tyr Pro Leu Ile Pro
                85                  90                  95
```

```
Asp Lys Gly Ser Ser Ile Pro Ser Ser Ser Phe His Thr Ser Val His
            100                 105                 110

His Gln Ser Ile His Thr Pro Ala Ser Gly Pro Leu Ser Val Gly Asn
        115                 120                 125

Ile Ser His Asn Pro Lys Met Ala Gln Pro Arg Thr Glu Pro Met Pro
    130                 135                 140

Ser Leu His Ala Lys Ser Cys Gly Pro Pro Asp Ser Gln His Leu Thr
145                 150                 155                 160

Gln Asp Arg Leu Gly Gln Glu Gly Phe Gly Ser Ser His His Lys Lys
                165                 170                 175

Gly Asp Arg Arg Ala Asp Gly Asp His Cys Ala Ser Val Thr Asp Ser
            180                 185                 190

Ala Pro Glu Arg Glu Leu Ser Pro Leu Ile Ser Leu Pro Ser Pro Val
        195                 200                 205

Pro Pro Leu Ser Pro Ile His Ser Asn Gln Gln Thr Leu Pro Arg Thr
    210                 215                 220

Gln Gly Ser Ser Lys Val His Gly Ser Ser Asn Asn Ser Lys Gly Tyr
225                 230                 235                 240

Cys Pro Ala Lys Ser Pro Lys Asp Leu Ala Val Lys Val His Asp Lys
                245                 250                 255

Glu Thr Pro Gln Asp Ser Leu Val Ala Pro Ala Gln Pro Pro Ser Gln
            260                 265                 270

Thr Phe Pro Pro Pro Ser Leu Pro Ser Lys Ser Val Ala Met Gln Gln
        275                 280                 285

Lys Pro Thr Ala Tyr Val Arg Pro Met Asp Gly Gln Asp Gln Ala Pro
    290                 295                 300

Ser Glu Ser Pro Glu Leu Lys Pro Leu Pro Glu Asp Tyr Arg Gln Gln
305                 310                 315                 320
```

```
Thr Phe Glu Lys Thr Asp Leu Lys Val Pro Ala Lys Ala Lys Leu Thr
                325                 330                 335

Lys Leu Lys Met Pro Ser Gln Ser Val Glu Gln Thr Tyr Ser Asn Glu
            340                 345                 350

Val His Cys Val Glu Glu Ile Leu Lys Glu Met Thr His Ser Trp Pro
        355                 360                 365

Pro Pro Leu Thr Ala Ile His Thr Pro Ser Thr Ala Glu Pro Ser Lys
    370                 375                 380

Phe Pro Phe Pro Thr Lys Asp Ser Gln His Val Ser Ser Val Thr Gln
385                 390                 395                 400

Asn Gln Lys Gln Tyr Asp Thr Ser Ser Lys Thr His Ser Asn Ser Gln
                405                 410                 415

Gln Gly Thr Ser Ser Met Leu Glu Asp Asp Leu Gln Leu Ser Asp Ser
            420                 425                 430

Glu Asp Ser Asp Ser Glu Gln Thr Pro Glu Lys Pro Pro Ser Ser Ser
        435                 440                 445

Ala Pro Pro Ser Ala Pro Gln Ser Leu Pro Glu Pro Val Ala Ser Ala
    450                 455                 460

His Ser Ser Ser Ala Glu Ser Glu Ser Thr Ser Asp Ser Asp Ser Ser
465                 470                 475                 480

Ser Asp Ser Glu Ser Glu Ser Ser Ser Ser Asp Ser Glu Glu Asn Glu
                485                 490                 495

Pro Leu Glu Thr Pro Ala Pro Glu Pro Glu Pro Pro Thr Thr Asn Lys
            500                 505                 510

Trp Gln Leu Asp Asn Trp Leu Thr Lys Val Ser Gln Pro Ala Ala Pro
        515                 520                 525

Pro Glu Gly Pro Arg Ser Thr Glu Pro Pro Arg Arg His Pro Glu Ser
    530                 535                 540

Lys Gly Ser Ser Asp Ser Ala Thr Ser Gln Glu His Ser Glu Ser Lys
```

545 550 555 560

Asp Pro Pro Pro Lys Ser Ser Ser Lys Ala Pro Arg Ala Pro Pro Glu
565 570 575

Ala Pro His Pro Gly Lys Arg Ser Cys Gln Lys Ser Pro Ala Gln Gln
580 585 590

Glu Pro Pro Gln Arg Gln Thr Val Gly Thr Lys Gln Pro Lys Lys Pro
595 600 605

Val Lys Ala Ser Ala Arg Ala Gly Ser Arg Thr Ser Leu Gln Gly Glu
610 615 620

Arg Glu Pro Gly Leu Leu Pro Tyr Gly Ser Arg Asp Gln Thr Ser Lys
625 630 635 640

Asp Lys Pro Lys Val Lys Thr Lys Gly Arg Pro Arg Ala Ala Ala Ser
645 650 655

Asn Glu Pro Lys Pro Ala Val Pro Pro Ser Ser Glu Lys Lys Lys His
660 665 670

Lys Ser Ser Leu Pro Ala Pro Ser Lys Ala Leu Ser Gly Pro Glu Pro
675 680 685

Ala Lys Asp Asn Val Glu Asp Arg Thr Pro Glu His Phe Ala Leu Val
690 695 700

Pro Leu Thr Glu Ser Gln Gly Pro Pro His Ser Gly Ser Gly Ser Arg
705 710 715 720

Thr Ser Gly Cys Arg Gln Ala Val Val Val Gln Glu Asp Ser Arg Lys
725 730 735

Asp Arg Leu Pro Leu Pro Leu Arg Asp Thr Lys Leu Leu Ser Pro Leu
740 745 750

Arg Asp Thr Pro Pro Pro Gln Ser Leu Met Val Lys Ile Thr Leu Asp
755 760 765

Leu Leu Ser Arg Ile Pro Gln Pro Pro Gly Lys Gly Ser Arg Gln Arg
770 775 780

```
Lys Ala Glu Asp Lys Gln Pro Pro Ala Gly Lys Lys His Ser Ser Glu
785                 790                 795                 800

Lys Arg Ser Ser Asp Ser Ser Ser Lys Leu Ala Lys Lys Arg Lys Gly
                805                 810                 815

Glu Ala Glu Arg Asp Cys Asp Asn Lys Lys Ile Arg Leu Glu Lys Glu
            820                 825                 830

Ile Lys Ser Gln Ser Ser Ser Ser Ser Ser Ser His Lys Glu Ser Ser
        835                 840                 845

Lys Thr Lys Pro Ser Arg Pro Ser Ser Gln Ser Ser Lys Lys Glu Met
    850                 855                 860

Leu Pro Pro Pro Pro Val Ser Ser Ser Ser Gln Lys Pro Ala Lys Pro
865                 870                 875                 880

Ala Leu Lys Arg Ser Arg Arg Glu Ala Asp Thr Cys Gly Gln Asp Pro
                885                 890                 895

Pro Lys Val Pro Ala Val Pro Arg Ala Thr Thr Asp Ser Ser Ile Pro
            900                 905                 910

Lys Gln Arg Arg Val Glu Gly Lys Gly Ser Arg Ser Ser Ser Glu His
        915                 920                 925

Lys Gly Ser Ser Gly Asp Thr Ala Asn Pro Phe Pro Val Pro Ser Leu
    930                 935                 940

Pro Asn Gly Asn Ser Lys Pro Gly Lys Pro Gln Val Lys Phe Asp Lys
945                 950                 955                 960

Gln Gln Ala Asp Leu His Met Arg Glu Ala Lys Lys Met Lys Gln Lys
                965                 970                 975

Ala Glu Leu Met Thr Asp Arg Val Gly Lys Ala Phe Lys Tyr Leu Glu
            980                 985                 990

Ala Val Leu Ser Phe Ile Glu Cys  Gly Ile Ala Thr Glu  Ser Glu
Ser
        995                 1000                1005
```

```
Gln Ser  Ser Lys Ser Ala Tyr  Ser Val Tyr Ser Glu  Thr Val Asp
    1010                1015                1020

Leu Ile  Lys Phe Ile Met Ser  Leu Lys Ser Phe Ser  Asp Ala Thr
    1025                1030                1035

Ala Pro  Thr Gln Glu Lys Ile  Phe Ala Val Leu Cys  Met Arg Cys
    1040                1045                1050

Gln Ser  Ile Leu Asn Met Ala  Met Phe Arg Cys Lys  Lys Asp Ile
    1055                1060                1065

Ala Ile  Lys Tyr Ser Arg Thr  Leu Asn Lys His Phe  Glu Ser Ser
    1070                1075                1080

Ser Lys  Val Ala Gln Ala Pro  Ser Pro Cys Ile Ala  Arg Ser Thr
    1085                1090                1095

Gly Thr  Pro Ser Pro Leu Ser  Pro Met Pro Ser Pro  Ala Ser Ser
    1100                1105                1110

Val Gly  Ser Gln Ser Ser Ala  Gly Ser Val Gly Ser  Ser Gly Val
    1115                1120                1125

Ala Ala  Thr Ile Ser Thr Pro  Val Thr Ile Gln Asn  Met Thr Ser
    1130                1135                1140

Ser Tyr  Val Thr Ile Thr Ser  His Val Leu Thr Ala  Phe Asp Leu
    1145                1150                1155

Trp Glu  Gln Ala Glu Ala Leu  Thr Arg Lys Asn Lys  Glu Phe Phe
    1160                1165                1170

Ala Arg  Leu Ser Gln Met Cys  Ala Pro Trp Pro Ser  Thr Ala Val
    1175                1180                1185

Trp Trp  Thr Trp Cys Thr Ile  His Asp Arg Val Phe  Ser Ser Tyr
    1190                1195                1200

Lys Asn
    1205
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<210> 3601
<211> 952
<212> PRT
<213> Homo sapiens

<220>
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<220>
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AF4/FMR2
family, member 2; "

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<223> /note="Uniprot ID: P51816; "

<220>
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<223> /note="ENSP ID: ENSP00000286437"

<400> 3601
Met Lys Phe Lys Arg Arg His Gln Ala Phe Pro Ser Phe Phe Lys Met
1   5   10   15

Lys Val Ser Leu Pro Ser Asp Pro Ser Cys Val Glu Glu Ile Leu Arg
            20   25   30

Glu Ser Gln His Leu Thr Pro Gly Phe Thr Leu Gln Lys Trp Asn Asp
        35   40   45

Pro Thr Thr Arg Ala Ser Thr Lys Ser Val Ser Phe Lys Ser Met Leu
    50   55   60

Glu Asp Asp Leu Lys Leu Ser Ser Asp Glu Asp Asp Leu Glu Pro Val
65   70   75   80

Lys Thr Leu Thr Thr Gln Cys Thr Ala Thr Glu Leu Tyr Gln Ala Val
                85   90   95

Glu Lys Ala Lys Pro Arg Asn Asn Pro Val Asn Pro Pro Leu Ala Thr
            100   105   110

```
Pro Gln Pro Pro Pro Ala Val Gln Ala Ser Gly Gly Ser Gly Ser Ser
        115                 120                 125

Ser Glu Ser Glu Ser Ser Ser Glu Ser Asp Ser Asp Thr Glu Ser Ser
    130                 135                 140

Thr Thr Asp Ser Glu Ser Asn Glu Ala Pro Arg Val Ala Thr Pro Glu
145                 150                 155                 160

Pro Glu Pro Pro Ser Thr Asn Lys Trp Gln Leu Asp Lys Trp Leu Asn
                165                 170                 175

Lys Val Thr Ser Gln Asn Lys Ser Phe Ile Cys Gly Gln Asn Glu Thr
            180                 185                 190

Pro Met Glu Thr Ile Ser Leu Pro Pro Pro Ile Ile Gln Pro Met Glu
        195                 200                 205

Val Gln Met Lys Val Lys Thr Asn Ala Ser Gln Val Pro Ala Glu Pro
    210                 215                 220

Lys Glu Arg Pro Leu Leu Ser Leu Ile Arg Glu Lys Ala Arg Pro Arg
225                 230                 235                 240

Pro Thr Gln Lys Ile Pro Glu Thr Lys Ala Leu Lys His Lys Leu Ser
                245                 250                 255

Thr Thr Ser Glu Thr Val Ser Gln Arg Thr Ile Gly Lys Lys Gln Pro
            260                 265                 270

Lys Lys Val Glu Lys Asn Thr Ser Thr Asp Glu Phe Thr Trp Pro Lys
        275                 280                 285

Pro Asn Ile Thr Ser Ser Thr Pro Lys Glu Lys Glu Ser Val Glu Leu
    290                 295                 300

His Asp Pro Pro Arg Gly Arg Asn Lys Ala Thr Ala His Lys Pro Ala
305                 310                 315                 320

Pro Arg Lys Glu Pro Arg Pro Asn Ile Pro Leu Ala Pro Glu Lys Lys
                325                 330                 335

Lys Tyr Arg Gly Pro Gly Lys Ile Val Pro Lys Ser Arg Glu Phe Ile
```

```
            340                 345                 350

Glu Thr Asp Ser Ser Thr Ser Asp Ser Asn Thr Asp Gln Glu Glu Thr
        355                 360                 365

Leu Gln Ile Lys Val Leu Pro Pro Cys Ile Ile Ser Gly Gly Asn Thr
    370                 375                 380

Ala Lys Ser Lys Glu Ile Cys Gly Ala Ser Leu Thr Leu Ser Thr Leu
385                 390                 395                 400

Met Ser Ser Ser Gly Ser Asn Asn Asn Leu Ser Ile Ser Asn Glu Glu
                405                 410                 415

Pro Thr Phe Ser Pro Ile Pro Val Met Gln Thr Glu Ile Leu Ser Pro
            420                 425                 430

Leu Arg Asp His Glu Asn Leu Lys Asn Leu Trp Val Lys Ile Asp Leu
        435                 440                 445

Asp Leu Leu Ser Arg Val Pro Gly His Ser Ser Leu His Ala Ala Pro
    450                 455                 460

Ala Lys Pro Asp His Lys Glu Thr Ala Thr Lys Pro Lys Arg Gln Thr
465                 470                 475                 480

Ala Val Thr Ala Val Glu Lys Pro Ala Pro Lys Gly Lys Arg Lys His
                485                 490                 495

Lys Pro Ile Glu Val Ala Glu Lys Ile Pro Glu Lys Lys Gln Arg Leu
            500                 505                 510

Glu Glu Ala Thr Thr Ile Cys Leu Leu Pro Pro Cys Ile Ser Pro Ala
        515                 520                 525

Pro Pro His Lys Pro Pro Asn Thr Arg Glu Asn Asn Ser Ser Arg Arg
    530                 535                 540

Ala Asn Arg Arg Lys Glu Glu Lys Leu Phe Pro Pro Pro Leu Ser Pro
545                 550                 555                 560

Leu Pro Glu Asp Pro Pro Arg Arg Arg Asn Val Ser Gly Asn Asn Gly
                565                 570                 575
```

```
Pro Phe Gly Gln Asp Lys Asn Ile Ala Met Thr Gly Gln Ile Thr Ser
            580                 585                 590

Thr Lys Pro Lys Arg Thr Glu Gly Lys Phe Cys Ala Thr Phe Lys Gly
        595                 600                 605

Ile Ser Val Asn Glu Gly Asp Thr Pro Lys Lys Ala Ser Ser Ala Thr
    610                 615                 620

Ile Thr Val Thr Asn Thr Ala Ile Ala Thr Ala Thr Val Thr Ala Thr
625                 630                 635                 640

Ala Ile Val Thr Thr Thr Val Thr Ala Thr Ala Thr Ala Thr Ala Thr
                645                 650                 655

Thr Thr Thr Thr Thr Thr Thr Ile Ser Thr Ile Thr Ser Thr Ile Thr
            660                 665                 670

Thr Gly Leu Met Asp Ser Ser His Leu Glu Met Thr Ser Trp Ala Ala
        675                 680                 685

Leu Pro Leu Leu Ser Ser Ser Ser Thr Asn Val Arg Arg Pro Lys Leu
    690                 695                 700

Thr Phe Asp Asp Ser Val His Asn Ala Asp Tyr Tyr Met Gln Glu Ala
705                 710                 715                 720

Lys Lys Leu Lys His Lys Ala Asp Ala Leu Phe Glu Lys Phe Gly Lys
                725                 730                 735

Ala Val Asn Tyr Ala Asp Ala Ala Leu Ser Phe Thr Glu Cys Gly Asn
            740                 745                 750

Ala Met Glu Arg Asp Pro Leu Glu Ala Lys Ser Pro Tyr Thr Met Tyr
        755                 760                 765

Ser Glu Thr Val Glu Leu Leu Arg Tyr Ala Met Arg Leu Lys Asn Phe
    770                 775                 780

Ala Ser Pro Leu Ala Ser Asp Gly Asp Lys Lys Leu Ala Val Leu Cys
785                 790                 795                 800
```

```
Tyr Arg Cys Leu Ser Leu Leu Tyr Leu Arg Met Phe Lys Leu Lys Lys
                805                 810                 815

Asp His Ala Met Lys Tyr Ser Arg Ser Leu Met Glu Tyr Phe Lys Gln
            820                 825                 830

Asn Ala Ser Lys Val Ala Gln Ile Pro Ser Pro Trp Val Ser Asn Gly
        835                 840                 845

Lys Asn Thr Pro Ser Pro Val Ser Leu Asn Asn Val Ser Pro Ile Asn
    850                 855                 860

Ala Met Gly Asn Cys Asn Asn Gly Pro Val Thr Ile Pro Gln Arg Ile
865                 870                 875                 880

His His Met Ala Ala Ser His Val Asn Ile Thr Ser Asn Val Leu Arg
                885                 890                 895

Gly Tyr Glu His Trp Asp Met Ala Asp Lys Leu Thr Arg Glu Asn Lys
            900                 905                 910

Glu Phe Phe Gly Asp Leu Asp Thr Leu Met Gly Pro Leu Thr Gln His
        915                 920                 925

Ser Ser Met Thr Asn Leu Val Arg Tyr Val Arg Gln Gly Leu Cys Trp
    930                 935                 940

Leu Arg Ile Asp Ala His Leu Leu
945                 950


<210> 3602
<211> 1276
<212> PRT
<213> Homo sapiens

<220>
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AF4/FMR2
family, member 2; "

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<400> 3602

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Met Asp Leu Phe Asp Phe Phe Arg Asp Trp Asp Leu Glu Gln Gln Cys
1               5                  10                  15

His Tyr Glu Gln Asp Arg Ser Ala Leu Lys Lys Arg Glu Trp Glu Arg
            20                  25                  30

Arg Asn Gln Glu Val Gln Gln Glu Asp Asp Leu Phe Ser Ser Gly Phe
        35                  40                  45

Asp Leu Phe Gly Glu Pro Tyr Lys Thr Asn Lys Gly Asp Ala Leu Ala
    50                  55                  60

Asn Arg Val Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys Asn Leu
65                  70                  75                  80

Leu Thr Asn His Ser Asn Gln Asn His Leu Val Gly Ile Pro Lys Asn
                85                  90                  95

Ser Val Pro Gln Asn Pro Asn Asn Lys Asn Glu Pro Ser Phe Phe Pro
            100                 105                 110

Glu Gln Lys Asn Arg Ile Ile Pro Pro His Gln Asp Asn Thr His Pro
        115                 120                 125

Ser Ala Pro Met Pro Pro Pro Ser Val Val Ile Leu Asn Ser Thr Leu
    130                 135                 140

Ile His Ser Asn Arg Lys Ser Lys Pro Glu Trp Ser Arg Asp Ser His
145                 150                 155                 160

Asn Pro Ser Thr Val Leu Ala Ser Gln Ala Ser Gly Gln Pro Asn Lys
                165                 170                 175

Met Gln Thr Leu Thr Gln Asp Gln Ser Gln Ala Lys Leu Glu Asp Phe
```

```
            180                 185                 190

Phe Val Tyr Pro Ala Glu Gln Pro Gln Ile Gly Glu Val Glu Glu Ser
        195                 200                 205

Asn Pro Ser Ala Lys Glu Asp Ser Asn Pro Asn Ser Ser Gly Glu Asp
    210                 215                 220

Ala Phe Lys Glu Ile Phe Gln Ser Asn Ser Pro Glu Glu Ser Glu Phe
225                 230                 235                 240

Ala Val Gln Ala Pro Gly Ser Pro Leu Val Ala Ser Ser Leu Leu Ala
                245                 250                 255

Pro Ser Ser Gly Leu Ser Val Gln Asn Phe Pro Pro Gly Leu Tyr Cys
            260                 265                 270

Lys Thr Ser Met Gly Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met
        275                 280                 285

Asp Gly Gln Asp Gln Ala Pro Asp Ile Ser Pro Thr Leu Lys Pro Ser
    290                 295                 300

Ile Glu Phe Glu Asn Ser Phe Gly Asn Leu Ser Phe Gly Thr Leu Leu
305                 310                 315                 320

Asp Gly Lys Pro Ser Ala Ala Ser Ser Lys Thr Lys Leu Pro Lys Phe
                325                 330                 335

Thr Ile Leu Gln Thr Ser Glu Val Ser Leu Pro Ser Asp Pro Ser Cys
            340                 345                 350

Val Glu Glu Ile Leu Arg Glu Ser Gln His Leu Thr Pro Gly Phe Thr
        355                 360                 365

Leu Gln Lys Trp Asn Asp Pro Thr Thr Arg Ala Ser Thr Lys Ser Val
    370                 375                 380

Ser Phe Lys Ser Met Leu Glu Asp Asp Leu Lys Leu Ser Ser Asp Glu
385                 390                 395                 400

Asp Asp Leu Glu Pro Val Lys Thr Leu Thr Thr Gln Cys Thr Ala Thr
                405                 410                 415
```

Glu Leu Tyr Gln Ala Val Glu Lys Ala Lys Pro Arg Asn Asn Pro Val
420 425 430

Asn Pro Pro Leu Ala Thr Pro Gln Pro Pro Pro Ala Val Gln Ala Ser
435 440 445

Gly Gly Ser Gly Ser Ser Ser Glu Ser Glu Ser Ser Ser Glu Ser Asp
450 455 460

Ser Asp Thr Glu Ser Ser Thr Thr Asp Ser Glu Ser Asn Glu Ala Pro
465 470 475 480

Arg Val Ala Thr Pro Glu Pro Glu Pro Pro Ser Thr Asn Lys Trp Gln
485 490 495

Leu Asp Lys Trp Leu Asn Lys Val Thr Ser Gln Asn Lys Ser Phe Ile
500 505 510

Cys Gly Gln Asn Glu Thr Pro Met Glu Thr Ile Ser Leu Pro Pro Pro
515 520 525

Ile Ile Gln Pro Met Glu Val Gln Met Lys Val Lys Thr Asn Ala Ser
530 535 540

Gln Val Pro Ala Glu Pro Lys Glu Arg Pro Leu Leu Ser Leu Ile Arg
545 550 555 560

Glu Lys Ala Arg Pro Arg Pro Thr Gln Lys Ile Pro Glu Thr Lys Ala
565 570 575

Leu Lys His Lys Leu Ser Thr Thr Ser Glu Thr Val Ser Gln Arg Thr
580 585 590

Ile Gly Lys Lys Gln Pro Lys Lys Val Glu Lys Asn Thr Ser Thr Asp
595 600 605

Glu Phe Thr Trp Pro Lys Pro Asn Ile Thr Ser Ser Thr Pro Lys Glu
610 615 620

Lys Glu Ser Val Glu Leu His Asp Pro Pro Arg Gly Arg Asn Lys Ala
625 630 635 640

```
Thr Ala His Lys Pro Ala Pro Arg Lys Glu Pro Arg Pro Asn Ile Pro
                645                 650                 655

Leu Ala Pro Glu Lys Lys Lys Tyr Arg Gly Pro Gly Lys Ile Val Pro
            660                 665                 670

Lys Ser Arg Glu Phe Ile Glu Thr Asp Ser Ser Thr Ser Asp Ser Asn
        675                 680                 685

Thr Asp Gln Glu Glu Thr Leu Gln Ile Lys Val Leu Pro Pro Cys Ile
    690                 695                 700

Ile Ser Gly Gly Asn Thr Ala Lys Ser Lys Glu Ile Cys Gly Ala Ser
705                 710                 715                 720

Leu Thr Leu Ser Thr Leu Met Ser Ser Ser Gly Ser Asn Asn Asn Leu
                725                 730                 735

Ser Ile Ser Asn Glu Glu Pro Thr Phe Ser Pro Ile Pro Val Met Gln
            740                 745                 750

Thr Glu Ile Leu Ser Pro Leu Arg Asp His Glu Asn Leu Lys Asn Leu
        755                 760                 765

Trp Val Lys Ile Asp Leu Asp Leu Leu Ser Arg Val Pro Gly His Ser
    770                 775                 780

Ser Leu His Ala Ala Pro Ala Lys Pro Asp His Lys Glu Thr Ala Thr
785                 790                 795                 800

Lys Pro Lys Arg Gln Thr Ala Val Thr Ala Val Glu Lys Pro Ala Pro
                805                 810                 815

Lys Gly Lys Arg Lys His Lys Pro Ile Glu Val Ala Glu Lys Ile Pro
            820                 825                 830

Glu Lys Lys Gln Arg Leu Glu Glu Ala Thr Thr Ile Cys Leu Leu Pro
        835                 840                 845

Pro Cys Ile Ser Pro Ala Pro Pro His Lys Pro Pro Asn Thr Arg Glu
    850                 855                 860
```

```
Asn Asn Ser Ser Arg Arg Ala Asn Arg Arg Lys Glu Glu Lys Leu Phe
865                 870                 875                 880

Pro Pro Pro Leu Ser Pro Leu Pro Glu Asp Pro Pro Arg Arg Arg Asn
                885                 890                 895

Val Ser Gly Asn Asn Gly Pro Phe Gly Gln Asp Lys Asn Ile Ala Met
            900                 905                 910

Thr Gly Gln Ile Thr Ser Thr Lys Pro Lys Arg Thr Glu Gly Lys Phe
        915                 920                 925

Cys Ala Thr Phe Lys Gly Ile Ser Glu Gly Asp Thr Pro Lys Lys Ala
    930                 935                 940

Ser Ser Ala Thr Ile Thr Val Thr Asn Thr Ala Ile Ala Thr Ala Thr
945                 950                 955                 960

Val Thr Ala Thr Ala Ile Val Thr Thr Thr Val Thr Ala Thr Ala Thr
                965                 970                 975

Ala Thr Ala Thr Thr Thr Thr Thr Thr Thr Thr Ile Ser Thr Ile Thr
            980                 985                 990

Ser Thr Ile Thr Thr Gly Leu Met  Asp Ser Ser His Leu  Glu Met
Thr
        995                 1000                1005

Ser Trp  Ala Ala Leu Pro Leu  Leu Ser Ser Ser Ser  Thr Asn Val
    1010                1015                1020

Arg Arg  Pro Lys Leu Thr Phe  Asp Asp Ser Val His  Asn Ala Asp
    1025                1030                1035

Tyr Tyr  Met Gln Glu Ala Lys  Lys Leu Lys His Lys  Ala Asp Ala
    1040                1045                1050

Leu Phe  Glu Lys Phe Gly Lys  Ala Val Asn Tyr Ala  Asp Ala Ala
    1055                1060                1065

Leu Ser  Phe Thr Glu Cys Gly  Asn Ala Met Glu Arg  Asp Pro Leu
    1070                1075                1080
```

```
Glu Ala  Lys Ser Pro Tyr Thr  Met Tyr Ser Glu Thr  Val Glu Leu
    1085                1090                1095

Leu Arg  Tyr Ala Met Arg Leu  Lys Asn Phe Ala Ser  Pro Leu Ala
    1100                1105                1110

Ser Asp  Gly Asp Lys Lys Leu  Ala Val Leu Cys Tyr  Arg Cys Leu
    1115                1120                1125

Ser Leu  Leu Tyr Leu Arg Met  Phe Lys Leu Lys Lys  Asp His Ala
    1130                1135                1140

Met Lys  Tyr Ser Arg Ser Leu  Met Glu Tyr Phe Lys  Gln Asn Ala
    1145                1150                1155

Ser Lys  Val Ala Gln Ile Pro  Ser Pro Trp Val Ser  Asn Gly Lys
    1160                1165                1170

Asn Thr  Pro Ser Pro Val Ser  Leu Asn Asn Val Ser  Pro Ile Asn
    1175                1180                1185

Ala Met  Gly Asn Cys Asn Asn  Gly Pro Val Thr Ile  Pro Gln Arg
    1190                1195                1200

Ile His  His Met Ala Ala Ser  His Val Asn Ile Thr  Ser Asn Val
    1205                1210                1215

Leu Arg  Gly Tyr Glu His Trp  Asp Met Ala Asp Lys  Leu Thr Arg
    1220                1225                1230

Glu Asn  Lys Glu Phe Phe Gly  Asp Leu Asp Thr Leu  Met Gly Pro
    1235                1240                1245

Leu Thr  Gln His Ser Ser Met  Thr Asn Leu Val Arg  Tyr Val Arg
    1250                1255                1260

Gln Gly  Leu Cys Trp Leu Arg  Ile Asp Ala His Leu  Leu
    1265                1270                1275
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<210> 3603
<211> 1276
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<213> Homo sapiens

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family, member 2; "

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<400> 3603
Met Asp Leu Phe Asp Phe Phe Arg Asp Trp Asp Leu Glu Gln Gln Cys
1   5   10   15

His Tyr Glu Gln Asp Arg Ser Ala Leu Lys Lys Arg Glu Trp Glu Arg
            20   25   30

Arg Asn Gln Glu Val Gln Gln Glu Asp Asp Leu Phe Ser Ser Gly Phe
        35   40   45

Asp Leu Phe Gly Glu Pro Tyr Lys Val Ala Glu Tyr Thr Asn Lys Gly
    50   55   60

Asp Ala Leu Ala Asn Arg Val Gln Asn Thr Leu Gly Asn Tyr Asp Glu
65   70   75   80

Met Lys Asn Leu Leu Thr Asn His Ser Asn Gln Asn His Leu Val Gly
                85   90   95

Ile Pro Lys Asn Ser Val Pro Gln Asn Pro Asn Asn Lys Asn Glu Pro
            100   105   110

Ser Phe Phe Pro Glu Gln Lys Asn Arg Ile Ile Pro Pro His Gln Asp
        115   120   125

Asn Thr His Pro Ser Ala Pro Met Pro Pro Pro Ser Val Val Ile Leu
    130   135   140

```
Asn Ser Thr Leu Ile His Ser Asn Arg Lys Ser Lys Pro Glu Trp Ser
145                 150                 155                 160

Arg Asp Ser His Asn Pro Ser Thr Val Leu Ala Ser Gln Ala Ser Gly
                165                 170                 175

Gln Pro Asn Lys Met Gln Thr Leu Thr Gln Asp Gln Ser Gln Ala Lys
            180                 185                 190

Leu Glu Asp Phe Phe Val Tyr Pro Ala Glu Gln Pro Gln Ile Gly Glu
        195                 200                 205

Val Glu Glu Ser Asn Pro Ser Ala Lys Glu Asp Ser Asn Pro Asn Ser
    210                 215                 220

Ser Gly Glu Asp Ala Phe Lys Glu Ile Phe Gln Ser Asn Ser Pro Glu
225                 230                 235                 240

Glu Ser Glu Phe Ala Val Gln Ala Pro Gly Ser Pro Leu Val Ala Ser
                245                 250                 255

Ser Leu Leu Ala Pro Ser Ser Gly Leu Ser Val Gln Asn Phe Pro Pro
            260                 265                 270

Gly Leu Tyr Cys Lys Thr Ser Met Gly Gln Gln Lys Pro Thr Ala Tyr
        275                 280                 285

Val Arg Pro Met Asp Gly Gln Asp Gln Ala Pro Asp Ile Ser Pro Thr
    290                 295                 300

Leu Lys Pro Ser Ile Glu Phe Glu Asn Ser Phe Gly Asn Leu Ser Phe
305                 310                 315                 320

Gly Thr Leu Leu Asp Gly Lys Pro Ser Ala Ala Ser Ser Lys Thr Lys
                325                 330                 335

Leu Pro Lys Phe Thr Ile Leu Gln Thr Ser Glu Val Ser Leu Pro Ser
            340                 345                 350

Asp Pro Ser Cys Val Glu Glu Ile Leu Arg Glu Ser Gln His Leu Thr
        355                 360                 365
```

```
Pro Gly Phe Thr Leu Gln Lys Trp Asn Asp Pro Thr Thr Arg Ala Ser
    370                 375                 380

Thr Lys Met Leu Glu Asp Asp Leu Lys Leu Ser Ser Asp Glu Asp Asp
385                 390                 395                 400

Leu Glu Pro Val Lys Thr Leu Thr Thr Gln Cys Thr Ala Thr Glu Leu
                405                 410                 415

Tyr Gln Ala Val Glu Lys Ala Lys Pro Arg Asn Asn Pro Val Asn Pro
            420                 425                 430

Pro Leu Ala Thr Pro Gln Pro Pro Pro Ala Val Gln Ala Ser Gly Gly
        435                 440                 445

Ser Gly Ser Ser Ser Glu Ser Glu Ser Ser Ser Glu Ser Asp Ser Asp
    450                 455                 460

Thr Glu Ser Ser Thr Thr Asp Ser Glu Ser Asn Glu Ala Pro Arg Val
465                 470                 475                 480

Ala Thr Pro Glu Pro Glu Pro Pro Ser Thr Asn Lys Trp Gln Leu Asp
                485                 490                 495

Lys Trp Leu Asn Lys Val Thr Ser Gln Asn Lys Ser Phe Ile Cys Gly
            500                 505                 510

Gln Asn Glu Thr Pro Met Glu Thr Ile Ser Leu Pro Pro Pro Ile Ile
        515                 520                 525

Gln Pro Met Glu Val Gln Met Lys Val Lys Thr Asn Ala Ser Gln Val
    530                 535                 540

Pro Ala Glu Pro Lys Glu Arg Pro Leu Leu Ser Leu Ile Arg Glu Lys
545                 550                 555                 560

Ala Arg Pro Arg Pro Thr Gln Lys Ile Pro Glu Thr Lys Ala Leu Lys
                565                 570                 575

His Lys Leu Ser Thr Thr Ser Glu Thr Val Ser Gln Arg Thr Ile Gly
            580                 585                 590
```

```
Lys Lys Gln Pro Lys Lys Val Glu Lys Asn Thr Ser Thr Asp Glu Phe
        595                 600                 605

Thr Trp Pro Lys Pro Asn Ile Thr Ser Ser Thr Pro Lys Glu Lys Glu
    610                 615                 620

Ser Val Glu Leu His Asp Pro Pro Arg Gly Arg Asn Lys Ala Thr Ala
625                 630                 635                 640

His Lys Pro Ala Pro Arg Lys Glu Pro Arg Pro Asn Ile Pro Leu Ala
                645                 650                 655

Pro Glu Lys Lys Lys Tyr Arg Gly Pro Gly Lys Ile Val Pro Lys Ser
            660                 665                 670

Arg Glu Phe Ile Glu Thr Asp Ser Ser Thr Ser Asp Ser Asn Thr Asp
        675                 680                 685

Gln Glu Glu Thr Leu Gln Ile Lys Val Leu Pro Pro Cys Ile Ile Ser
    690                 695                 700

Gly Gly Asn Thr Ala Lys Ser Lys Glu Ile Cys Gly Ala Ser Leu Thr
705                 710                 715                 720

Leu Ser Thr Leu Met Ser Ser Ser Gly Ser Asn Asn Asn Leu Ser Ile
                725                 730                 735

Ser Asn Glu Glu Pro Thr Phe Ser Pro Ile Pro Val Met Gln Thr Glu
            740                 745                 750

Ile Leu Ser Pro Leu Arg Asp His Glu Asn Leu Lys Asn Leu Trp Val
        755                 760                 765

Lys Ile Asp Leu Asp Leu Leu Ser Arg Val Pro Gly His Ser Ser Leu
    770                 775                 780

His Ala Ala Pro Ala Lys Pro Asp His Lys Glu Thr Ala Thr Lys Pro
785                 790                 795                 800

Lys Arg Gln Thr Ala Val Thr Ala Val Glu Lys Pro Ala Pro Lys Gly
                805                 810                 815

Lys Arg Lys His Lys Pro Ile Glu Val Ala Glu Lys Ile Pro Glu Lys
```

820 825 830

Lys Gln Arg Leu Glu Glu Ala Thr Thr Ile Cys Leu Leu Pro Pro Cys
835 840 845

Ile Ser Pro Ala Pro Pro His Lys Pro Pro Asn Thr Arg Glu Asn Asn
850 855 860

Ser Ser Arg Arg Ala Asn Arg Arg Lys Glu Glu Lys Leu Phe Pro Pro
865 870 875 880

Pro Leu Ser Pro Leu Pro Glu Asp Pro Pro Arg Arg Arg Asn Val Ser
885 890 895

Gly Asn Asn Gly Pro Phe Gly Gln Asp Lys Asn Ile Ala Met Thr Gly
900 905 910

Gln Ile Thr Ser Thr Lys Pro Lys Arg Thr Glu Gly Lys Phe Cys Ala
915 920 925

Thr Phe Lys Gly Ile Ser Val Asn Glu Gly Asp Thr Pro Lys Lys Ala
930 935 940

Ser Ser Ala Thr Ile Thr Val Thr Asn Thr Ala Ile Ala Thr Ala Thr
945 950 955 960

Val Thr Ala Thr Ala Ile Val Thr Thr Thr Val Thr Ala Thr Ala Thr
965 970 975

Ala Thr Ala Thr Thr Thr Thr Thr Thr Thr Thr Ile Ser Thr Ile Thr
980 985 990

Ser Thr Ile Thr Thr Gly Leu Met Asp Ser Ser His Leu Glu Met
Thr
995 1000 1005

Ser Trp Ala Ala Leu Pro Leu Leu Ser Ser Ser Ser Thr Asn Val
1010 1015 1020

Arg Arg Pro Lys Leu Thr Phe Asp Asp Ser Val His Asn Ala Asp
1025 1030 1035

Tyr Tyr Met Gln Glu Ala Lys Lys Leu Lys His Lys Ala Asp Ala

1040 1045 1050

Leu Phe Glu Lys Phe Gly Lys Ala Val Asn Tyr Ala Asp Ala Ala
1055 1060 1065

Leu Ser Phe Thr Glu Cys Gly Asn Ala Met Glu Arg Asp Pro Leu
1070 1075 1080

Glu Ala Lys Ser Pro Tyr Thr Met Tyr Ser Glu Thr Val Glu Leu
1085 1090 1095

Leu Arg Tyr Ala Met Arg Leu Lys Asn Phe Ala Ser Pro Leu Ala
1100 1105 1110

Ser Asp Gly Asp Lys Lys Leu Ala Val Leu Cys Tyr Arg Cys Leu
1115 1120 1125

Ser Leu Leu Tyr Leu Arg Met Phe Lys Leu Lys Lys Asp His Ala
1130 1135 1140

Met Lys Tyr Ser Arg Ser Leu Met Glu Tyr Phe Lys Gln Asn Ala
1145 1150 1155

Ser Lys Val Ala Gln Ile Pro Ser Pro Trp Val Ser Asn Gly Lys
1160 1165 1170

Asn Thr Pro Ser Pro Val Ser Leu Asn Asn Val Ser Pro Ile Asn
1175 1180 1185

Ala Met Gly Asn Cys Asn Asn Gly Pro Val Thr Ile Pro Gln Arg
1190 1195 1200

Ile His His Met Ala Ala Ser His Val Asn Ile Thr Ser Asn Val
1205 1210 1215

Leu Arg Gly Tyr Glu His Trp Asp Met Ala Asp Lys Leu Thr Arg
1220 1225 1230

Glu Asn Lys Glu Phe Phe Gly Asp Leu Asp Thr Leu Met Gly Pro
1235 1240 1245

Leu Thr Gln His Ser Ser Met Thr Asn Leu Val Arg Tyr Val Arg
1250 1255 1260

Gln Gly Leu Cys Trp Leu Arg Ile Asp Ala His Leu Leu
    1265   1270   1275

<210> 3604
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<220>
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<400> 3604
Met Asp Leu Phe Asp Phe Phe Arg Asp Trp Asp Leu Glu Gln Gln Cys
1   5   10   15

His Tyr Glu Gln Asp Arg Ser Ala Leu Lys Lys Arg Glu Trp Glu Arg
            20   25   30

Arg Asn Gln Glu Val Gln Gln Glu Asp Asp Leu Phe Ser Ser Gly Phe
        35   40   45

Asp Leu Phe Gly Glu Pro Tyr Lys Thr Asn Lys Gly Asp Ala Leu Ala
    50   55   60

Asn Arg Val Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys Asn Leu
65   70   75   80

Leu Thr Asn His Ser Asn Gln Asn His Leu Val Gly Ile Pro Lys Asn
                85   90   95

```
Ser Val Pro Gln Asn Pro Asn Asn Lys Asn Glu Pro Ser Phe Phe Pro
            100                 105                 110

Glu Gln Lys Asn Arg Ile Ile Pro Pro His Gln Asp Asn Thr His Pro
        115                 120                 125

Ser Ala Pro Met Pro Pro Pro Ser Val Val Ile Leu Asn Ser Thr Leu
    130                 135                 140

Ile His Ser Asn Arg Lys Ser Lys Pro Glu Trp Ser Arg Asp Ser His
145                 150                 155                 160

Asn Pro Ser Thr Val Leu Ala Ser Gln Ala Ser Gly Gln Pro Asn Lys
                165                 170                 175

Met Gln Thr Leu Thr Gln Asp Gln Ser Gln Ala Lys Leu Glu Asp Phe
            180                 185                 190

Phe Val Tyr Pro Ala Glu Gln Pro Gln Ile Gly Glu Val Glu Glu Ser
        195                 200                 205

Asn Pro Ser Ala Lys Glu Asp Ser Asn Pro Asn Ser Ser Gly Glu Asp
    210                 215                 220

Ala Phe Lys Glu Ile Phe Gln Ser Asn Ser Pro Glu Glu Ser Glu Phe
225                 230                 235                 240

Ala Val Gln Ala Pro Gly Ser Pro Leu Val Ala Ser Ser Leu Leu Ala
                245                 250                 255

Pro Ser Ser Gly Leu Ser Val Gln Asn Phe Pro Pro Gly Leu Tyr Cys
            260                 265                 270

Lys Thr Ser Met Gly Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met
        275                 280                 285

Asp Gly Gln Asp Gln Ala Pro Asp Ile Ser Pro Thr Leu Lys Pro Ser
    290                 295                 300

Ile Glu Phe Glu Asn Ser Phe Gly Asn Leu Ser Phe Gly Thr Leu Leu
305                 310                 315                 320
```

```
Asp Gly Lys Pro Ser Ala Ala Ser Ser Lys Thr Lys Leu Pro Lys Phe
                325                 330                 335

Thr Ile Leu Gln Thr Ser Glu Val Ser Leu Pro Ser Asp Pro Ser Cys
            340                 345                 350

Val Glu Glu Ile Leu Arg Glu Ser Gln His Leu Thr Pro Gly Phe Thr
        355                 360                 365

Leu Gln Lys Trp Asn Asp Pro Thr Thr Arg Ala Ser Thr Lys Met Leu
    370                 375                 380

Glu Asp Asp Leu Lys Leu Ser Ser Asp Glu Asp Asp Leu Glu Pro Val
385                 390                 395                 400

Lys Thr Leu Thr Thr Gln Cys Thr Ala Thr Glu Leu Tyr Gln Ala Val
                405                 410                 415

Glu Lys Ala Lys Pro Arg Asn Asn Pro Val Lys
            420                 425


<210> 3605
<211> 1311
<212> PRT
<213> Homo sapiens

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<400> 3605
Met Asp Leu Phe Asp Phe Phe Arg Asp Trp Asp Leu Glu Gln Gln Cys
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1               5                   10                  15

His Tyr Glu Gln Asp Arg Ser Ala Leu Lys Lys Arg Glu Trp Glu Arg
            20                  25                  30

Arg Asn Gln Glu Val Gln Gln Glu Asp Asp Leu Phe Ser Ser Gly Phe
        35                  40                  45

Asp Leu Phe Gly Glu Pro Tyr Lys Val Ala Glu Tyr Thr Asn Lys Gly
    50                  55                  60

Asp Ala Leu Ala Asn Arg Val Gln Asn Thr Leu Gly Asn Tyr Asp Glu
65                  70                  75                  80

Met Lys Asn Leu Leu Thr Asn His Ser Asn Gln Asn His Leu Val Gly
                85                  90                  95

Ile Pro Lys Asn Ser Val Pro Gln Asn Pro Asn Asn Lys Asn Glu Pro
            100                 105                 110

Ser Phe Phe Pro Glu Gln Lys Asn Arg Ile Ile Pro Pro His Gln Asp
        115                 120                 125

Asn Thr His Pro Ser Ala Pro Met Pro Pro Pro Ser Val Val Ile Leu
    130                 135                 140

Asn Ser Thr Leu Ile His Ser Asn Arg Lys Ser Lys Pro Glu Trp Ser
145                 150                 155                 160

Arg Asp Ser His Asn Pro Ser Thr Val Leu Ala Ser Gln Ala Ser Gly
                165                 170                 175

Gln Pro Asn Lys Met Gln Thr Leu Thr Gln Asp Gln Ser Gln Ala Lys
            180                 185                 190

Leu Glu Asp Phe Phe Val Tyr Pro Ala Glu Gln Pro Gln Ile Gly Glu
        195                 200                 205

Val Glu Glu Ser Asn Pro Ser Ala Lys Glu Asp Ser Asn Pro Asn Ser
    210                 215                 220

Ser Gly Glu Asp Ala Phe Lys Glu Ile Phe Gln Ser Asn Ser Pro Glu
225                 230                 235                 240
```

```
Glu Ser Glu Phe Ala Val Gln Ala Pro Gly Ser Pro Leu Val Ala Ser
                245                 250                 255

Ser Leu Leu Ala Pro Ser Ser Gly Leu Ser Val Gln Asn Phe Pro Pro
            260                 265                 270

Gly Leu Tyr Cys Lys Thr Ser Met Gly Gln Gln Lys Pro Thr Ala Tyr
        275                 280                 285

Val Arg Pro Met Asp Gly Gln Asp Gln Ala Pro Asp Ile Ser Pro Thr
    290                 295                 300

Leu Lys Pro Ser Ile Glu Phe Glu Asn Ser Phe Gly Asn Leu Ser Phe
305                 310                 315                 320

Gly Thr Leu Leu Asp Gly Lys Pro Ser Ala Ala Ser Ser Lys Thr Lys
                325                 330                 335

Leu Pro Lys Phe Thr Ile Leu Gln Thr Ser Glu Val Ser Leu Pro Ser
            340                 345                 350

Asp Pro Ser Cys Val Glu Glu Ile Leu Arg Glu Met Thr His Ser Trp
        355                 360                 365

Pro Thr Pro Leu Thr Ser Met His Thr Ala Gly His Ser Glu Gln Ser
    370                 375                 380

Thr Phe Ser Ile Pro Gly Gln Glu Ser Gln His Leu Thr Pro Gly Phe
385                 390                 395                 400

Thr Leu Gln Lys Trp Asn Asp Pro Thr Thr Arg Ala Ser Thr Lys Ser
                405                 410                 415

Val Ser Phe Lys Ser Met Leu Glu Asp Asp Leu Lys Leu Ser Ser Asp
            420                 425                 430

Glu Asp Asp Leu Glu Pro Val Lys Thr Leu Thr Thr Gln Cys Thr Ala
        435                 440                 445

Thr Glu Leu Tyr Gln Ala Val Glu Lys Ala Lys Pro Arg Asn Asn Pro
    450                 455                 460
```

```
Val Asn Pro Pro Leu Ala Thr Pro Gln Pro Pro Pro Ala Val Gln Ala
465                 470                 475                 480

Ser Gly Gly Ser Gly Ser Ser Ser Glu Ser Glu Ser Ser Ser Glu Ser
                485                 490                 495

Asp Ser Asp Thr Glu Ser Ser Thr Thr Asp Ser Glu Ser Asn Glu Ala
            500                 505                 510

Pro Arg Val Ala Thr Pro Glu Pro Glu Pro Pro Ser Thr Asn Lys Trp
        515                 520                 525

Gln Leu Asp Lys Trp Leu Asn Lys Val Thr Ser Gln Asn Lys Ser Phe
    530                 535                 540

Ile Cys Gly Gln Asn Glu Thr Pro Met Glu Thr Ile Ser Leu Pro Pro
545                 550                 555                 560

Pro Ile Ile Gln Pro Met Glu Val Gln Met Lys Val Lys Thr Asn Ala
                565                 570                 575

Ser Gln Val Pro Ala Glu Pro Lys Glu Arg Pro Leu Leu Ser Leu Ile
            580                 585                 590

Arg Glu Lys Ala Arg Pro Arg Pro Thr Gln Lys Ile Pro Glu Thr Lys
        595                 600                 605

Ala Leu Lys His Lys Leu Ser Thr Thr Ser Glu Thr Val Ser Gln Arg
    610                 615                 620

Thr Ile Gly Lys Lys Gln Pro Lys Lys Val Glu Lys Asn Thr Ser Thr
625                 630                 635                 640

Asp Glu Phe Thr Trp Pro Lys Pro Asn Ile Thr Ser Ser Thr Pro Lys
                645                 650                 655

Glu Lys Glu Ser Val Glu Leu His Asp Pro Pro Arg Gly Arg Asn Lys
            660                 665                 670

Ala Thr Ala His Lys Pro Ala Pro Arg Lys Glu Pro Arg Pro Asn Ile
        675                 680                 685
```

```
Pro Leu Ala Pro Glu Lys Lys Lys Tyr Arg Gly Pro Gly Lys Ile Val
    690                 695                 700

Pro Lys Ser Arg Glu Phe Ile Glu Thr Asp Ser Ser Thr Ser Asp Ser
705                 710                 715                 720

Asn Thr Asp Gln Glu Glu Thr Leu Gln Ile Lys Val Leu Pro Pro Cys
                725                 730                 735

Ile Ile Ser Gly Gly Asn Thr Ala Lys Ser Lys Glu Ile Cys Gly Ala
            740                 745                 750

Ser Leu Thr Leu Ser Thr Leu Met Ser Ser Ser Gly Ser Asn Asn Asn
        755                 760                 765

Leu Ser Ile Ser Asn Glu Glu Pro Thr Phe Ser Pro Ile Pro Val Met
    770                 775                 780

Gln Thr Glu Ile Leu Ser Pro Leu Arg Asp His Glu Asn Leu Lys Asn
785                 790                 795                 800

Leu Trp Val Lys Ile Asp Leu Asp Leu Leu Ser Arg Val Pro Gly His
                805                 810                 815

Ser Ser Leu His Ala Ala Pro Ala Lys Pro Asp His Lys Glu Thr Ala
            820                 825                 830

Thr Lys Pro Lys Arg Gln Thr Ala Val Thr Ala Val Glu Lys Pro Ala
        835                 840                 845

Pro Lys Gly Lys Arg Lys His Lys Pro Ile Glu Val Ala Glu Lys Ile
    850                 855                 860

Pro Glu Lys Lys Gln Arg Leu Glu Glu Ala Thr Thr Ile Cys Leu Leu
865                 870                 875                 880

Pro Pro Cys Ile Ser Pro Ala Pro Pro His Lys Pro Pro Asn Thr Arg
                885                 890                 895

Glu Asn Asn Ser Ser Arg Arg Ala Asn Arg Arg Lys Glu Glu Lys Leu
            900                 905                 910

Phe Pro Pro Pro Leu Ser Pro Leu Pro Glu Asp Pro Pro Arg Arg Arg
```

915 920 925

Asn Val Ser Gly Asn Asn Gly Pro Phe Gly Gln Asp Lys Asn Ile Ala
930 935 940

Met Thr Gly Gln Ile Thr Ser Thr Lys Pro Lys Arg Thr Glu Gly Lys
945 950 955 960

Phe Cys Ala Thr Phe Lys Gly Ile Ser Val Asn Glu Gly Asp Thr Pro
965 970 975

Lys Lys Ala Ser Ser Ala Thr Ile Thr Val Thr Asn Thr Ala Ile Ala
980 985 990

Thr Ala Thr Val Thr Ala Thr Ala Ile Val Thr Thr Thr Val Thr Ala
995 1000 1005

Thr Ala Thr Ala Thr Ala Thr Thr Thr Thr Thr Thr Thr Thr Ile
1010 1015 1020

Ser Thr Ile Thr Ser Thr Ile Thr Thr Gly Leu Met Asp Ser Ser
1025 1030 1035

His Leu Glu Met Thr Ser Trp Ala Ala Leu Pro Leu Leu Ser Ser
1040 1045 1050

Ser Ser Thr Asn Val Arg Arg Pro Lys Leu Thr Phe Asp Asp Ser
1055 1060 1065

Val His Asn Ala Asp Tyr Tyr Met Gln Glu Ala Lys Lys Leu Lys
1070 1075 1080

His Lys Ala Asp Ala Leu Phe Glu Lys Phe Gly Lys Ala Val Asn
1085 1090 1095

Tyr Ala Asp Ala Ala Leu Ser Phe Thr Glu Cys Gly Asn Ala Met
1100 1105 1110

Glu Arg Asp Pro Leu Glu Ala Lys Ser Pro Tyr Thr Met Tyr Ser
1115 1120 1125

Glu Thr Val Glu Leu Leu Arg Tyr Ala Met Arg Leu Lys Asn Phe

1130 1135 1140

Ala Ser Pro Leu Ala Ser Asp Gly Asp Lys Lys Leu Ala Val Leu
1145 1150 1155

Cys Tyr Arg Cys Leu Ser Leu Leu Tyr Leu Arg Met Phe Lys Leu
1160 1165 1170

Lys Lys Asp His Ala Met Lys Tyr Ser Arg Ser Leu Met Glu Tyr
1175 1180 1185

Phe Lys Gln Asn Ala Ser Lys Val Ala Gln Ile Pro Ser Pro Trp
1190 1195 1200

Val Ser Asn Gly Lys Asn Thr Pro Ser Pro Val Ser Leu Asn Asn
1205 1210 1215

Val Ser Pro Ile Asn Ala Met Gly Asn Cys Asn Asn Gly Pro Val
1220 1225 1230

Thr Ile Pro Gln Arg Ile His His Met Ala Ala Ser His Val Asn
1235 1240 1245

Ile Thr Ser Asn Val Leu Arg Gly Tyr Glu His Trp Asp Met Ala
1250 1255 1260

Asp Lys Leu Thr Arg Glu Asn Lys Glu Phe Phe Gly Asp Leu Asp
1265 1270 1275

Thr Leu Met Gly Pro Leu Thr Gln His Ser Ser Met Thr Asn Leu
1280 1285 1290

Val Arg Tyr Val Arg Gln Gly Leu Cys Trp Leu Arg Ile Asp Ala
1295 1300 1305

His Leu Leu
1310

<210> 3606
<211> 1226
<212> PRT
<213> Homo sapiens

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family, member 3; "

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<223> /note="Uniprot ID: P51826; "

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<400> 3606

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Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
1               5                   10                  15


Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
            20                  25                  30


Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
        35                  40                  45


Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
    50                  55                  60


Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
65                  70                  75                  80


Asp Phe Leu Thr Asp Arg Ser Asn Gln Ser His Leu Val Gly Val Pro
                85                  90                  95


Lys Pro Gly Val Pro Gln Thr Pro Val Asn Lys Ile Asp Glu His Phe
            100                 105                 110


Val Ala Asp Ser Arg Ala Gln Asn Gln Pro Ser Ser Ile Cys Ser Thr
        115                 120                 125


Thr Thr Ser Thr Pro Ala Ala Val Pro Val Gln Gln Ser Lys Arg Gly
    130                 135                 140
```

```
Thr Met Gly Trp Gln Lys Ala Gly His Pro Pro Ser Asp Gly Gln Gln
145                 150                 155                 160

Arg Ala Thr Gln Gln Gly Ser Leu Arg Thr Leu Leu Gly Asp Gly Val
                165                 170                 175

Gly Arg Gln Gln Pro Arg Ala Lys Gln Val Cys Asn Val Glu Val Gly
            180                 185                 190

Leu Gln Thr Gln Glu Arg Pro Pro Ala Met Ala Ala Lys His Ser Ser
        195                 200                 205

Ser Gly His Cys Val Gln Asn Phe Pro Pro Ser Leu Ala Ser Lys Pro
    210                 215                 220

Ser Leu Val Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met Asp Gly
225                 230                 235                 240

Gln Asp Gln Ala Pro Asp Glu Ser Pro Lys Leu Lys Ser Ser Ser Glu
                245                 250                 255

Thr Ser Val His Cys Thr Ser Tyr Arg Gly Val Pro Ala Ser Lys Pro
            260                 265                 270

Glu Pro Ala Arg Ala Lys Ala Lys Leu Ser Lys Phe Ser Ile Pro Lys
        275                 280                 285

Gln Gly Glu Glu Ser Arg Ser Gly Glu Thr Asn Ser Cys Val Glu Glu
    290                 295                 300

Ile Ile Arg Glu Met Thr Trp Leu Pro Pro Leu Ser Ala Ile Gln Ala
305                 310                 315                 320

Pro Gly Lys Val Glu Pro Thr Lys Phe Pro Phe Pro Asn Lys Asp Ser
                325                 330                 335

Gln Leu Val Ser Ser Gly His Asn Asn Pro Lys Lys Gly Asp Ala Glu
            340                 345                 350

Pro Glu Ser Pro Asp Asn Gly Thr Ser Asn Thr Ser Met Leu Glu Asp
        355                 360                 365
```

```
Asp Leu Lys Leu Ser Ser Asp Glu Glu Glu Asn Glu Gln Gln Ala Ala
    370                 375                 380

Gln Arg Thr Ala Leu Arg Ala Leu Ser Asp Ser Ala Val Val Gln Gln
385                 390                 395                 400

Pro Asn Cys Arg Thr Ser Val Pro Ser Ser Lys Gly Ser Ser Ser Ser
                405                 410                 415

Ser Ser Ser Gly Ser Ser Ser Ser Ser Ser Asp Ser Glu Ser Ser Ser
            420                 425                 430

Gly Ser Asp Ser Glu Thr Glu Ser Ser Ser Ser Glu Ser Glu Gly Ser
        435                 440                 445

Lys Pro Pro His Phe Ser Ser Pro Glu Ala Glu Pro Ala Ser Ser Asn
    450                 455                 460

Lys Trp Gln Leu Asp Lys Trp Leu Asn Lys Val Asn Pro His Lys Pro
465                 470                 475                 480

Pro Ile Leu Ile Gln Asn Glu Ser His Gly Ser Glu Ser Asn Gln Tyr
                485                 490                 495

Tyr Asn Pro Val Lys Glu Asp Val Gln Asp Cys Gly Lys Val Pro Asp
            500                 505                 510

Val Cys Gln Pro Ser Leu Arg Glu Lys Glu Ile Lys Ser Thr Cys Lys
        515                 520                 525

Glu Glu Gln Arg Pro Arg Thr Ala Asn Lys Ala Pro Gly Ser Lys Gly
    530                 535                 540

Val Lys Gln Lys Ser Pro Pro Ala Ala Val Ala Val Ala Val Ser Ala
545                 550                 555                 560

Ala Ala Pro Pro Pro Ala Val Pro Cys Ala Pro Ala Glu Asn Ala Pro
                565                 570                 575

Ala Pro Ala Arg Arg Ser Ala Gly Lys Lys Pro Thr Arg Arg Thr Glu
            580                 585                 590

Arg Thr Ser Ala Gly Asp Gly Ala Asn Cys His Arg Pro Glu Glu Pro
```

595 600 605

Ala Ala Ala Asp Ala Leu Gly Thr Ser Val Val Val Pro Pro Glu Pro
610 615 620

Thr Lys Thr Arg Pro Cys Gly Asn Asn Arg Ala Ser His Arg Lys Glu
625 630 635 640

Leu Arg Ser Ser Val Thr Cys Glu Lys Arg Arg Thr Arg Gly Leu Ser
645 650 655

Arg Ile Val Pro Lys Ser Lys Glu Phe Ile Glu Thr Glu Ser Ser Ser
660 665 670

Ser Ser Ser Ser Ser Asp Ser Asp Leu Glu Ser Glu Gln Glu Glu Tyr
675 680 685

Pro Leu Ser Lys Ala Gln Thr Val Ala Ala Ser Ala Ser Ser Gly Asn
690 695 700

Asp Gln Arg Leu Lys Glu Ala Ala Ala Asn Gly Gly Ser Gly Pro Arg
705 710 715 720

Ala Pro Val Gly Ser Ile Asn Ala Arg Thr Thr Ser Asp Ile Ala Lys
725 730 735

Glu Leu Glu Glu Gln Phe Tyr Thr Leu Val Pro Phe Gly Arg Asn Glu
740 745 750

Leu Leu Ser Pro Leu Lys Asp Ser Asp Glu Ile Arg Ser Leu Trp Val
755 760 765

Lys Ile Asp Leu Thr Leu Leu Ser Arg Ile Pro Glu His Leu Pro Gln
770 775 780

Glu Pro Gly Val Leu Ser Ala Pro Ala Thr Lys Asp Ser Glu Ser Ala
785 790 795 800

Pro Pro Ser His Thr Ser Asp Thr Pro Ala Glu Lys Ala Leu Pro Lys
805 810 815

Ser Lys Arg Lys Arg Lys Cys Asp Asn Glu Asp Asp Tyr Arg Glu Ile
820 825 830

```
Lys Lys Ser Gln Gly Glu Lys Asp Ser Ser Ser Arg Leu Ala Thr Ser
        835                 840                 845

Thr Ser Asn Thr Leu Ser Ala Asn His Cys Asn Met Asn Ile Asn Ser
    850                 855                 860

Val Ala Ile Pro Ile Asn Lys Asn Glu Lys Met Leu Arg Ser Pro Ile
865                 870                 875                 880

Ser Pro Leu Ser Asp Ala Ser Lys His Lys Tyr Thr Ser Glu Asp Leu
                885                 890                 895

Thr Ser Ser Ser Arg Pro Asn Gly Asn Ser Leu Phe Thr Ser Ala Ser
            900                 905                 910

Ser Ser Lys Lys Pro Lys Ala Asp Ser Gln Leu Gln Pro His Gly Gly
        915                 920                 925

Asp Leu Thr Lys Ala Ala His Asn Asn Ser Glu Asn Ile Pro Leu His
    930                 935                 940

Lys Ser Arg Pro Gln Thr Lys Pro Trp Ser Pro Gly Ser Asn Gly His
945                 950                 955                 960

Arg Asp Cys Lys Arg Gln Lys Leu Val Phe Asp Asp Met Pro Arg Ser
                965                 970                 975

Ala Asp Tyr Phe Met Gln Glu Ala Lys Arg Met Lys His Lys Ala Asp
            980                 985                 990

Ala Met Val Glu Lys Phe Gly Lys  Ala Leu Asn Tyr Ala  Glu Ala
Ala
        995                 1000                1005

Leu Ser  Phe Ile Glu Cys Gly  Asn Ala Met Glu Gln  Gly Pro Met
    1010                1015                1020

Glu Ser  Lys Ser Pro Tyr Thr  Met Tyr Ser Glu Thr  Val Glu Leu
    1025                1030                1035

Ile Arg  Tyr Ala Met Arg Leu  Lys Thr His Ser Gly  Pro Asn Ala
    1040                1045                1050
```

```
Thr Pro  Glu Asp Lys Gln Leu  Ala Ala Leu Cys Tyr  Arg Cys Leu
    1055                1060                1065

Ala Leu  Leu Tyr Trp Arg Met  Phe Arg Leu Lys Arg  Asp His Ala
    1070                1075                1080

Val Lys  Tyr Ser Lys Ala Leu  Ile Asp Tyr Phe Lys  Asn Ser Ser
    1085                1090                1095

Lys Ala  Ala Gln Ala Pro Ser  Pro Trp Gly Ala Ser  Gly Lys Ser
    1100                1105                1110

Thr Gly  Thr Pro Ser Pro Met  Ser Pro Asn Pro Ser  Pro Ala Ser
    1115                1120                1125

Ser Val  Gly Ser Gln Gly Ser  Leu Ser Asn Ala Ser  Ala Leu Ser
    1130                1135                1140

Pro Ser  Thr Ile Val Ser Ile  Pro Gln Arg Ile His  Gln Met Ala
    1145                1150                1155

Ala Asn  His Val Ser Ile Thr  Asn Ser Ile Leu His  Ser Tyr Asp
    1160                1165                1170

Tyr Trp  Glu Met Ala Asp Asn  Leu Ala Lys Glu Asn  Arg Glu Phe
    1175                1180                1185

Phe Asn  Asp Leu Asp Leu Leu  Met Gly Pro Val Thr  Leu His Ser
    1190                1195                1200

Ser Met  Glu His Leu Val Gln  Tyr Ser Gln Gln Gly  Leu His Trp
    1205                1210                1215

Leu Arg  Asn Ser Ala His Leu  Ser
    1220                1225
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<210> 3607
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family, member 3; "

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<400> 3607

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1               5                  10                  15

Leu Trp Gly Glu Asp Ile Leu Asn Gln Arg Asn Asp Ser Leu Val Val
            20                  25                  30

Glu Phe Gln Ser Ser Ala Ser Arg Cys Arg Ser Val Tyr Glu Pro Asp
        35                  40                  45

Arg Asn Ala Leu Arg Arg Lys Glu Arg Glu Arg Arg Asn Gln Glu Thr
    50                  55                  60

Gln Gln Asp Asp Gly Thr Phe Asn Ser Ser Tyr Ser Leu Phe Ser Glu
65                  70                  75                  80

Pro Tyr Lys Thr Asn Lys Gly Asp Glu Leu Ser Asn Arg Ile Gln Asn
                85                  90                  95

Thr Leu Gly Asn Tyr Asp Glu Met Lys Asp Phe Leu Thr Asp Arg Ser
            100                 105                 110

Asn Gln Ser His Leu Val Gly Val Pro Lys Pro Gly Val Pro Gln Thr
        115                 120                 125

Pro Val Asn Lys Ile Asp Glu His Phe Val Ala Asp Ser Arg Ala Gln
    130                 135                 140
```

```
Asn Gln Pro Ser Ser Ile Cys Ser Thr Thr Thr Ser Thr Pro Ala Ala
145                 150                 155                 160

Val Pro Val Gln Gln Ser Lys Arg Gly Thr Met Gly Trp Gln Lys Ala
                165                 170                 175

Gly His Pro Pro Ser Asp Gly Gln Gln Arg Ala Thr Gln Gln Gly Ser
            180                 185                 190

Leu Arg Thr Leu Leu Gly Asp Gly Val Gly Arg Gln Gln Pro Arg Ala
        195                 200                 205

Lys Gln Val Cys Asn Val Glu Val Gly Leu Gln Thr Gln Glu Arg Pro
    210                 215                 220

Pro Ala Met Ala Ala Lys His Ser Ser Ser Gly His Cys Val Gln Asn
225                 230                 235                 240

Phe Pro Pro Ser Leu Ala Ser Lys Pro Ser Leu Val Gln Gln Lys Pro
                245                 250                 255

Thr Ala Tyr Val Arg Pro Met Asp Gly Gln Asp Gln Ala Pro Asp Glu
            260                 265                 270

Ser Pro Lys Leu Lys Ser Ser Ser Glu Thr Ser Val His Cys Thr Ser
        275                 280                 285

Tyr Arg Gly Val Pro Ala Ser Lys Pro Glu Pro Ala Arg Ala Lys Ala
    290                 295                 300

Lys Leu Ser Lys Phe Ser Ile Pro Lys Gln Gly Glu Glu Ser Arg Ser
305                 310                 315                 320

Gly Glu Thr Asn Ser Cys Val Glu Glu Ile Ile Arg Glu Met Thr Trp
                325                 330                 335

Leu Pro Pro Leu Ser Ala Ile Gln Ala Pro Gly Lys Val Glu Pro Thr
            340                 345                 350

Lys Phe Pro Phe Pro Asn Lys Asp Ser Gln Leu Val Ser Ser Gly His
        355                 360                 365

Asn Asn Pro Lys Lys Gly Asp Ala Glu Pro Glu Ser Pro Asp Asn Gly
```

370 375 380

Thr Ser Asn Thr Ser Met Leu Glu Asp Asp Leu Lys Leu Ser Ser Asp
385 390 395 400

Glu Glu Glu Asn Glu Gln Gln Ala Ala Gln Arg Thr Ala Leu Arg Ala
405 410 415

Leu Ser Asp Ser Ala Val Val Gln Gln Pro Asn Cys Arg Thr Ser Val
420 425 430

Pro Ser Ser Lys Gly Ser Ser Ser Ser Ser Ser Ser Gly Ser Ser Ser
435 440 445

Ser Ser Ser Asp Ser Glu Ser Ser Ser Gly Ser Asp Ser Glu Thr Glu
450 455 460

Ser Ser Ser Ser Glu Ser Glu Gly Ser Lys Pro Pro His Phe Ser Ser
465 470 475 480

Pro Glu Ala Glu Pro Ala Ser Ser Asn Lys Trp Gln Leu Asp Lys Trp
485 490 495

Leu Asn Lys Val Asn Pro His Lys Pro Pro Ile Leu Ile Gln Asn Glu
500 505 510

Ser His Gly Ser Glu Ser Asn Gln Tyr Tyr Asn Pro Val Lys Glu Asp
515 520 525

Val Gln Asp Cys Gly Lys Val Pro Asp Val Cys Gln Pro Ser Leu Arg
530 535 540

Glu Lys Glu Ile Lys Ser Thr Cys Lys Glu Glu Gln Arg Pro Arg Thr
545 550 555 560

Ala Asn Lys Ala Pro Gly Ser Lys Gly Val Lys Gln Lys Ser Pro Pro
565 570 575

Ala Ala Val Ala Val Ala Val Ser Ala Ala Ala Pro Pro Pro Ala Val
580 585 590

Pro Cys Ala Pro Ala Glu Asn Ala Pro Ala Pro Ala Arg Arg Ser Ala
595 600 605

```
Gly Lys Lys Pro Thr Arg Arg Thr Glu Arg Thr Ser Ala Gly Asp Gly
    610                 615                 620

Ala Asn Cys His Arg Pro Glu Glu Pro Ala Ala Ala Asp Ala Leu Gly
625                 630                 635                 640

Thr Ser Val Val Val Pro Pro Glu Pro Thr Lys Thr Arg Pro Cys Gly
                645                 650                 655

Asn Asn Arg Ala Ser His Arg Lys Glu Leu Arg Ser Ser Val Thr Cys
            660                 665                 670

Glu Lys Arg Arg Thr Arg Gly Leu Ser Arg Ile Val Pro Lys Ser Lys
        675                 680                 685

Glu Phe Ile Glu Thr Glu Ser Ser Ser Ser Ser Ser Ser Ser Asp Ser
    690                 695                 700

Asp Leu Glu Ser Glu Gln Glu Glu Tyr Pro Leu Ser Lys Ala Gln Thr
705                 710                 715                 720

Val Ala Ala Ser Ala Ser Ser Gly Asn Asp Gln Arg Leu Lys Glu Ala
                725                 730                 735

Ala Ala Asn Gly Gly Ser Gly Pro Arg Ala Pro Val Gly Ser Ile Asn
            740                 745                 750

Ala Arg Thr Thr Ser Asp Ile Ala Lys Glu Leu Glu Glu Gln Phe Tyr
        755                 760                 765

Thr Leu Val Pro Phe Gly Arg Asn Glu Leu Leu Ser Pro Leu Lys Asp
    770                 775                 780

Ser Asp Glu Ile Arg Ser Leu Trp Val Lys Ile Asp Leu Thr Leu Leu
785                 790                 795                 800

Ser Arg Ile Pro Glu His Leu Pro Gln Glu Pro Gly Val Leu Ser Ala
                805                 810                 815

Pro Ala Thr Lys Asp Ser Glu Ser Ala Pro Pro Ser His Thr Ser Asp
            820                 825                 830
```

```
Thr Pro Ala Glu Lys Ala Leu Pro Lys Ser Lys Arg Lys Arg Lys Cys
        835                 840                 845

Asp Asn Glu Asp Asp Tyr Arg Glu Ile Lys Lys Ser Gln Gly Glu Lys
    850                 855                 860

Asp Ser Ser Ser Arg Leu Ala Thr Ser Thr Ser Asn Thr Leu Ser Ala
865                 870                 875                 880

Asn His Cys Asn Met Asn Ile Asn Ser Val Ala Ile Pro Ile Asn Lys
                885                 890                 895

Asn Glu Lys Met Leu Arg Ser Pro Ile Ser Pro Leu Ser Asp Ala Ser
            900                 905                 910

Lys His Lys Tyr Thr Ser Glu Asp Leu Thr Ser Ser Ser Arg Pro Asn
        915                 920                 925

Gly Asn Ser Leu Phe Thr Ser Ala Ser Ser Ser Lys Lys Pro Lys Ala
    930                 935                 940

Asp Ser Gln Leu Gln Pro His Gly Gly Asp Leu Thr Lys Ala Ala His
945                 950                 955                 960

Asn Asn Ser Glu Asn Ile Pro Leu His Lys Ser Arg Pro Gln Thr Lys
                965                 970                 975

Pro Trp Ser Pro Gly Ser Asn Gly His Arg Asp Cys Lys Arg Gln Lys
            980                 985                 990

Leu Val Phe Asp Asp Met Pro Arg  Ser Ala Asp Tyr Phe  Met Gln
Glu
        995                 1000                1005

Ala Lys  Arg Met Lys His Lys  Ala Asp Ala Met Val  Glu Lys Phe
    1010                1015                1020

Gly Lys  Ala Leu Asn Tyr Ala  Glu Ala Ala Leu Ser  Phe Ile Glu
    1025                1030                1035

Cys Gly  Asn Ala Met Glu Gln  Gly Pro Met Glu Ser  Lys Ser Pro
    1040                1045                1050
```

```
Tyr Thr  Met Tyr Ser Glu Thr  Val Glu Leu Ile Arg  Tyr Ala Met
    1055                1060                1065

Arg Leu  Lys Thr His Ser Gly  Pro Asn Ala Thr Pro  Glu Asp Lys
    1070                1075                1080

Gln Leu  Ala Ala Leu Cys Tyr  Arg Cys Leu Ala Leu  Leu Tyr Trp
    1085                1090                1095

Arg Met  Phe Arg Leu Lys Arg  Asp His Ala Val Lys  Tyr Ser Lys
    1100                1105                1110

Ala Leu  Ile Asp Tyr Phe Lys  Asn Ser Ser Lys Ala  Ala Gln Ala
    1115                1120                1125

Pro Ser  Pro Trp Gly Ala Ser  Gly Lys Ser Thr Gly  Thr Pro Ser
    1130                1135                1140

Pro Met  Ser Pro Asn Pro Ser  Pro Ala Ser Ser Val  Gly Ser Gln
    1145                1150                1155

Gly Ser  Leu Ser Asn Ala Ser  Ala Leu Ser Pro Ser  Thr Ile Val
    1160                1165                1170

Ser Ile  Pro Gln Arg Ile His  Gln Met Ala Ala Asn  His Val Ser
    1175                1180                1185

Ile Thr  Asn Ser Ile Leu His  Ser Tyr Asp Tyr Trp  Glu Met Ala
    1190                1195                1200

Asp Asn  Leu Ala Lys Glu Asn  Arg Glu Phe Phe Asn  Asp Leu Asp
    1205                1210                1215

Leu Leu  Met Gly Pro Val Thr  Leu His Ser Ser Met  Glu His Leu
    1220                1225                1230

Val Gln  Tyr Ser Gln Gln Gly  Leu His Trp Leu Arg  Asn Ser Ala
    1235                1240                1245

His Leu  Ser
    1250
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<210> 3608
<211> 1226
<212> PRT
<213> Homo sapiens

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AF4/FMR2
family, member 3; "

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Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
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Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
            20   25   30

Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
        35   40   45

Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
    50   55   60

Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
65   70   75   80

Asp Phe Leu Thr Asp Arg Ser Asn Gln Ser His Leu Val Gly Val Pro
                85   90   95

Lys Pro Gly Val Pro Gln Thr Pro Val Asn Lys Ile Asp Glu His Phe
            100   105   110

Val Ala Asp Ser Arg Ala Gln Asn Gln Pro Ser Ser Ile Cys Ser Thr

```
        115                 120                 125

Thr Thr Ser Thr Pro Ala Ala Val Pro Val Gln Gln Ser Lys Arg Gly
    130                 135                 140

Thr Met Gly Trp Gln Lys Ala Gly His Pro Pro Ser Asp Gly Gln Gln
145                 150                 155                 160

Arg Ala Thr Gln Gln Gly Ser Leu Arg Thr Leu Leu Gly Asp Gly Val
                165                 170                 175

Gly Arg Gln Gln Pro Arg Ala Lys Gln Val Cys Asn Val Glu Val Gly
            180                 185                 190

Leu Gln Thr Gln Glu Arg Pro Pro Ala Met Ala Ala Lys His Ser Ser
        195                 200                 205

Ser Gly His Cys Val Gln Asn Phe Pro Pro Ser Leu Ala Ser Lys Pro
    210                 215                 220

Ser Leu Val Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met Asp Gly
225                 230                 235                 240

Gln Asp Gln Ala Pro Asp Glu Ser Pro Lys Leu Lys Ser Ser Ser Glu
                245                 250                 255

Thr Ser Val His Cys Thr Ser Tyr Arg Gly Val Pro Ala Ser Lys Pro
            260                 265                 270

Glu Pro Ala Arg Ala Lys Ala Lys Leu Ser Lys Phe Ser Ile Pro Lys
        275                 280                 285

Gln Gly Glu Glu Ser Arg Ser Gly Glu Thr Asn Ser Cys Val Glu Glu
    290                 295                 300

Ile Ile Arg Glu Met Thr Trp Leu Pro Pro Leu Ser Ala Ile Gln Ala
305                 310                 315                 320

Pro Gly Lys Val Glu Pro Thr Lys Phe Pro Phe Pro Asn Lys Asp Ser
                325                 330                 335

Gln Leu Val Ser Ser Gly His Asn Asn Pro Lys Lys Gly Asp Ala Glu
            340                 345                 350
```

```
Pro Glu Ser Pro Asp Asn Gly Thr Ser Asn Thr Ser Met Leu Glu Asp
        355                 360                 365

Asp Leu Lys Leu Ser Ser Asp Glu Glu Glu Asn Glu Gln Gln Ala Ala
    370                 375                 380

Gln Arg Thr Ala Leu Arg Ala Leu Ser Asp Ser Ala Val Val Gln Gln
385                 390                 395                 400

Pro Asn Cys Arg Thr Ser Val Pro Ser Ser Lys Gly Ser Ser Ser Ser
                405                 410                 415

Ser Ser Ser Gly Ser Ser Ser Ser Ser Ser Asp Ser Glu Ser Ser Ser
            420                 425                 430

Gly Ser Asp Ser Glu Thr Glu Ser Ser Ser Ser Glu Ser Glu Gly Ser
        435                 440                 445

Lys Pro Pro His Phe Ser Ser Pro Glu Ala Glu Pro Ala Ser Ser Asn
    450                 455                 460

Lys Trp Gln Leu Asp Lys Trp Leu Asn Lys Val Asn Pro His Lys Pro
465                 470                 475                 480

Pro Ile Leu Ile Gln Asn Glu Ser His Gly Ser Glu Ser Asn Gln Tyr
                485                 490                 495

Tyr Asn Pro Val Lys Glu Asp Val Gln Asp Cys Gly Lys Val Pro Asp
            500                 505                 510

Val Cys Gln Pro Ser Leu Arg Glu Lys Glu Ile Lys Ser Thr Cys Lys
        515                 520                 525

Glu Glu Gln Arg Pro Arg Thr Ala Asn Lys Ala Pro Gly Ser Lys Gly
    530                 535                 540

Val Lys Gln Lys Ser Pro Pro Ala Ala Val Ala Val Ala Val Ser Ala
545                 550                 555                 560

Ala Ala Pro Pro Pro Ala Val Pro Cys Ala Pro Ala Glu Asn Ala Pro
                565                 570                 575
```

```
Ala Pro Ala Arg Arg Ser Ala Gly Lys Lys Pro Thr Arg Arg Thr Glu
            580                 585                 590

Arg Thr Ser Ala Gly Asp Gly Ala Asn Cys His Arg Pro Glu Glu Pro
        595                 600                 605

Ala Ala Ala Asp Ala Leu Gly Thr Ser Val Val Val Pro Pro Glu Pro
    610                 615                 620

Thr Lys Thr Arg Pro Cys Gly Asn Asn Arg Ala Ser His Arg Lys Glu
625                 630                 635                 640

Leu Arg Ser Ser Val Thr Cys Glu Lys Arg Arg Thr Arg Gly Leu Ser
                645                 650                 655

Arg Ile Val Pro Lys Ser Lys Glu Phe Ile Glu Thr Glu Ser Ser Ser
            660                 665                 670

Ser Ser Ser Ser Ser Asp Ser Asp Leu Glu Ser Glu Gln Glu Glu Tyr
        675                 680                 685

Pro Leu Ser Lys Ala Gln Thr Val Ala Ala Ser Ala Ser Ser Gly Asn
    690                 695                 700

Asp Gln Arg Leu Lys Glu Ala Ala Ala Asn Gly Gly Ser Gly Pro Arg
705                 710                 715                 720

Ala Pro Val Gly Ser Ile Asn Ala Arg Thr Thr Ser Asp Ile Ala Lys
                725                 730                 735

Glu Leu Glu Glu Gln Phe Tyr Thr Leu Val Pro Phe Gly Arg Asn Glu
            740                 745                 750

Leu Leu Ser Pro Leu Lys Asp Ser Asp Glu Ile Arg Ser Leu Trp Val
        755                 760                 765

Lys Ile Asp Leu Thr Leu Leu Ser Arg Ile Pro Glu His Leu Pro Gln
    770                 775                 780

Glu Pro Gly Val Leu Ser Ala Pro Ala Thr Lys Asp Ser Glu Ser Ala
785                 790                 795                 800
```

```
Pro Pro Ser His Thr Ser Asp Thr Pro Ala Glu Lys Ala Leu Pro Lys
                805                 810                 815

Ser Lys Arg Lys Arg Lys Cys Asp Asn Glu Asp Asp Tyr Arg Glu Ile
            820                 825                 830

Lys Lys Ser Gln Gly Glu Lys Asp Ser Ser Ser Arg Leu Ala Thr Ser
        835                 840                 845

Thr Ser Asn Thr Leu Ser Ala Asn His Cys Asn Met Asn Ile Asn Ser
    850                 855                 860

Val Ala Ile Pro Ile Asn Lys Asn Glu Lys Met Leu Arg Ser Pro Ile
865                 870                 875                 880

Ser Pro Leu Ser Asp Ala Ser Lys His Lys Tyr Thr Ser Glu Asp Leu
                885                 890                 895

Thr Ser Ser Ser Arg Pro Asn Gly Asn Ser Leu Phe Thr Ser Ala Ser
            900                 905                 910

Ser Ser Lys Lys Pro Lys Ala Asp Ser Gln Leu Gln Pro His Gly Gly
        915                 920                 925

Asp Leu Thr Lys Ala Ala His Asn Asn Ser Glu Asn Ile Pro Leu His
    930                 935                 940

Lys Ser Arg Pro Gln Thr Lys Pro Trp Ser Pro Gly Ser Asn Gly His
945                 950                 955                 960

Arg Asp Cys Lys Arg Gln Lys Leu Val Phe Asp Asp Met Pro Arg Ser
                965                 970                 975

Ala Asp Tyr Phe Met Gln Glu Ala Lys Arg Met Lys His Lys Ala Asp
            980                 985                 990

Ala Met Val Glu Lys Phe Gly Lys  Ala Leu Asn Tyr Ala  Glu Ala
Ala
        995                 1000                1005

Leu Ser  Phe Ile Glu Cys Gly  Asn Ala Met Glu Gln  Gly Pro Met
    1010                1015                1020
```

```
Glu Ser  Lys Ser Pro Tyr Thr  Met Tyr Ser Glu Thr  Val Glu Leu
    1025                1030                1035

Ile Arg  Tyr Ala Met Arg Leu  Lys Thr His Ser Gly  Pro Asn Ala
    1040                1045                1050

Thr Pro  Glu Asp Lys Gln Leu  Ala Ala Leu Cys Tyr  Arg Cys Leu
    1055                1060                1065

Ala Leu  Leu Tyr Trp Arg Met  Phe Arg Leu Lys Arg  Asp His Ala
    1070                1075                1080

Val Lys  Tyr Ser Lys Ala Leu  Ile Asp Tyr Phe Lys  Asn Ser Ser
    1085                1090                1095

Lys Ala  Ala Gln Ala Pro Ser  Pro Trp Gly Ala Ser  Gly Lys Ser
    1100                1105                1110

Thr Gly  Thr Pro Ser Pro Met  Ser Pro Asn Pro Ser  Pro Ala Ser
    1115                1120                1125

Ser Val  Gly Ser Gln Gly Ser  Leu Ser Asn Ala Ser  Ala Leu Ser
    1130                1135                1140

Pro Ser  Thr Ile Val Ser Ile  Pro Gln Arg Ile His  Gln Met Ala
    1145                1150                1155

Ala Asn  His Val Ser Ile Thr  Asn Ser Ile Leu His  Ser Tyr Asp
    1160                1165                1170

Tyr Trp  Glu Met Ala Asp Asn  Leu Ala Lys Glu Asn  Arg Glu Phe
    1175                1180                1185

Phe Asn  Asp Leu Asp Leu Leu  Met Gly Pro Val Thr  Leu His Ser
    1190                1195                1200

Ser Met  Glu His Leu Val Gln  Tyr Ser Gln Gln Gly  Leu His Trp
    1205                1210                1215

Leu Arg  Asn Ser Ala His Leu  Ser
    1220                1225
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<210> 3609

<211> 155
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<220>
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family, member 3; "

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<400> 3609

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Met Ser Lys Lys Leu Ile Thr Cys Leu Ser Arg Pro Glu Thr Gly Gly
1               5                   10                  15


Lys Phe Glu Val Asp Thr Gln Arg Pro Val Cys Pro Pro Ser Arg Ala
            20                  25                  30


Arg Ala Ala Arg Ala Ser Ala Ala Ala Val Ala Ala Ala Ala Thr Leu
        35                  40                  45


Thr Pro Pro Thr Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp
    50                  55                  60


Asp Leu Glu Ser Leu Trp Gly Glu Asp Ile Leu Asn Gln Arg Asn Asp
65                  70                  75                  80


Ser Leu Val Val Glu Phe Gln Ser Ser Ala Ser Arg Cys Arg Ser Val
                85                  90                  95


Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg Glu Arg Arg
            100                 105                 110


Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser Ser Tyr Ser
        115                 120                 125


Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu Leu Ser Asn
    130                 135                 140
```

```
Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu
145                 150                 155


<210> 3610
<211> 99
<212> PRT
<213> Homo sapiens

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<220>
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<400> 3610
Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
1               5                   10                  15


Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
            20                  25                  30


Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
        35                  40                  45


Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
    50                  55                  60


Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
65                  70                  75                  80


Asp Phe Leu Thr Asp Arg Ser Asn Gln Ser His Leu Val Gly Val Pro
                85                  90                  95


Lys Pro Gly
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<210> 3611
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<212> PRT
<213> Homo sapiens

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AF4/FMR2
family, member 3; "

<220>
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<400> 3611
Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
1 5 10 15

Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
20 25 30

Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
35 40 45

Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
50 55 60

Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
65 70 75 80

Asp Phe Leu Thr Asp Arg Ser Asn Gln Ser His Leu Val Gly Val Pro
85 90 95

Lys Pro Gly Val Pro Gln Thr Pro Val Asn Lys Ile Asp Glu His Phe
100 105 110

Val Ala Asp Ser Arg Ala Gln Asn Gln Pro Ser Ser Ile Cys Ser Thr
115 120 125

Thr Thr Ser Thr Pro Ala Ala Val Pro Val Gln Gln Ser Lys Arg Gly
130 135 140

Thr Met Gly Trp Gln Lys Ala Gly His Pro Pro
145 150 155

<210> 3612
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<212> PRT
<213> Homo sapiens

<220>
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<220>
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family, member 3; "

<220>
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<223> /note="ENSP ID: ENSP00000399795"

<400> 3612
Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
1 5 10 15

Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
20 25 30

Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
35 40 45

Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
50 55 60

Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
65 70 75 80

Asp Phe Leu Thr Asp Arg Ser Asn Gln Ser His Leu Val Gly Val Pro
85 90 95

Lys Pro Gly Val Pro Gln Thr Pro Val Asn Lys Ile Asp Glu His Phe

```
            100                 105                 110

Val Ala Asp Ser Arg Ala Gln Asn Gln Pro Ser Ser Ile Cys Ser Thr
        115                 120                 125


<210> 3613
<211> 161
<212> PRT
<213> Homo sapiens

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      family, member 3; "

<220>
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<400> 3613
Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
1               5                   10                  15


Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
            20                  25                  30


Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
        35                  40                  45


Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
    50                  55                  60


Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
65                  70                  75                  80


Asp Phe Leu Thr Asp Arg Ser Asn Gln Ser His Leu Val Gly Val Pro
                85                  90                  95


Lys Pro Gly Val Pro Gln Thr Pro Val Asn Lys Ile Asp Glu His Phe
            100                 105                 110
```

Val Ala Asp Ser Arg Ala Gln Asn Gln Pro Ser Ser Ile Cys Ser Thr
115 120 125

Thr Thr Ser Thr Pro Ala Ala Val Pro Val Gln Gln Ser Lys Arg Gly
130 135 140

Thr Met Gly Trp Gln Lys Ala Gly His Pro Pro Ser Asp Gly Gln Gln
145 150 155 160

Arg

<210> 3614
<211> 183
<212> PRT
<213> Homo sapiens

<220>
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<220>
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AF4/FMR2
family, member 3; "

<220>
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<400> 3614
Met Thr Leu Arg Leu Asp Ala Gly Gly Ile Pro Ser Leu Ala Pro Arg
1 5 10 15

Val Tyr Ile Ser Gly Ser Pro Ser Gln Arg Phe Leu Pro Arg Lys Arg
20 25 30

Asn Lys Gly Glu Ser Ala Gly Arg Asp Ser Leu Leu Ala Gly Ser Ala
35 40 45

Arg Phe Gly Ser Arg Gly Glu Ala Gln Leu Gln Gly Ser Glu Leu Leu
50 55 60

```
Ser Arg Asn Ser Gly Glu Ser Leu Val Arg Ile Arg Ser Cys Gly Gln
65                  70                  75                  80

Glu Leu Ile Thr Cys Leu Ser Arg Pro Glu Thr Gly Gly Lys Phe Glu
                85                  90                  95

Val Asp Thr Gln Arg Pro Val Cys Pro Pro Ser Arg Ala Arg Ala Ala
            100                 105                 110

Arg Ala Ser Ala Ala Ala Val Ala Ala Ala Ala Thr Leu Thr Pro Pro
        115                 120                 125

Thr Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu
    130                 135                 140

Ser Leu Trp Gly Glu Asp Ile Leu Asn Gln Arg Asn Asp Ser Leu Val
145                 150                 155                 160

Val Glu Phe Gln Ser Ser Ala Ser Arg Cys Arg Ser Val Tyr Glu Pro
                165                 170                 175

Asp Arg Asn Ala Leu Arg Arg
            180


<210> 3615
<211> 114
<212> PRT
<213> Homo sapiens

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<400> 3615
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```
Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
1               5                  10                  15

Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
            20                  25                  30

Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
        35                  40                  45

Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
    50                  55                  60

Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
65                  70                  75                  80

Asp Phe Leu Thr Asp Arg Ser Asn Gln Ser His Leu Val Gly Val Pro
                85                  90                  95

Lys Pro Gly Val Pro Gln Thr Pro Val Asn Lys Ile Asp Glu His Phe
            100                 105                 110

Val Ala
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<210> 3616
<211> 179
<212> PRT
<213> Homo sapiens

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family, member 3; "

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<222> (1)..(1)
<223> Any amino acid

<400> 3616
Xaa Ala Ser Lys Pro Ser Leu Val Gln Gln Lys Pro Thr Ala Tyr Val
1 5 10 15

Arg Pro Met Asp Gly Gln Asp Gln Ala Pro Asp Glu Ser Pro Lys Leu
20 25 30

Lys Ser Ser Ser Glu Thr Ser Val His Cys Thr Ser Tyr Arg Gly Val
35 40 45

Pro Ala Ser Lys Pro Glu Pro Ala Arg Ala Lys Ala Lys Leu Ser Lys
50 55 60

Phe Ser Ile Pro Lys Gln Gly Glu Glu Ser Arg Ser Gly Glu Thr Asn
65 70 75 80

Ser Cys Val Glu Glu Ile Ile Arg Glu Met Thr Trp Leu Pro Pro Leu
85 90 95

Ser Ala Ile Gln Ala Pro Gly Lys Val Glu Pro Thr Lys Phe Pro Phe
100 105 110

Pro Asn Lys Asp Ser Gln Leu Val Ser Ser Gly His Asn Asn Pro Lys
115 120 125

Lys Gly Asp Ala Glu Pro Glu Ser Pro Asp Asn Gly Thr Ser Asn Thr
130 135 140

Ser Met Leu Glu Asp Asp Leu Lys Leu Ser Ser Asp Glu Glu Glu Asn
145 150 155 160

Glu Gln Gln Ala Ala Gln Arg Thr Ala Leu Arg Ala Leu Ser Asp Ser
165 170 175

Leu Ser Trp

<210> 3617
<211> 17
<212> PRT
<213> Homo sapiens

<220>
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<220>
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AF4/FMR2
family, member 3; "

<220>
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<400> 3617
Met Asp Ser Phe Asp Leu Ala Leu Leu Gln Glu Trp Asp Leu Glu Ser
1 5 10 15

Leu

<210> 3618
<211> 185
<212> PRT
<213> Homo sapiens

<220>
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AF4/FMR2
family, member 3; "

<220>
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<400> 3618
Gly His Arg Asp Cys Lys Arg Gln Lys Leu Val Phe Asp Asp Met Pro
1 5 10 15

Arg Ser Ala Asp Tyr Phe Met Gln Glu Ala Lys Arg Met Lys His Lys

```
            20                  25                  30

Ala Asp Ala Met Val Glu Lys Phe Gly Lys Ala Leu Asn Tyr Ala Glu
        35                  40                  45

Ala Ala Leu Ser Phe Ile Glu Cys Gly Asn Ala Met Glu Gln Gly Pro
    50                  55                  60

Met Glu Ser Lys Ser Pro Tyr Thr Met Tyr Ser Glu Thr Val Glu Leu
65                  70                  75                  80

Ile Arg Tyr Ala Met Arg Leu Lys Thr His Ser Gly Pro Asn Ala Thr
                85                  90                  95

Pro Glu Asp Lys Gln Leu Ala Ala Leu Cys Tyr Arg Cys Leu Ala Leu
            100                 105                 110

Leu Tyr Trp Arg Met Phe Arg Leu Lys Arg Asp His Ala Val Lys Tyr
        115                 120                 125

Ser Lys Ala Leu Ile Asp Tyr Phe Lys Asn Ser Ser Lys Ala Ala Gln
    130                 135                 140

Ala Pro Ser Pro Trp Gly Ala Ser Gly Asn Ser Val Gly Ser Gln Gly
145                 150                 155                 160

Ser Leu Ser Asn Ala Ser Ala Leu Ser Pro Ser Thr Ile Val Ser Ile
                165                 170                 175

Pro Gln Arg Ile His Gln Met Ala Ala
            180                 185


<210> 3619
<211> 1163
<212> PRT
<213> Homo sapiens

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<221> source
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family, member 4; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000265343"

<400> 3619

```
Met Asn Arg Glu Asp Arg Asn Val Leu Arg Met Lys Glu Arg Glu Arg
1               5                  10                  15

Arg Asn Gln Glu Ile Gln Gln Gly Glu Asp Ala Phe Pro Pro Ser Ser
            20                  25                  30

Pro Leu Phe Ala Glu Pro Tyr Lys Val Thr Ser Lys Glu Asp Lys Leu
        35                  40                  45

Ser Ser Arg Ile Gln Ser Met Leu Gly Asn Tyr Asp Glu Met Lys Asp
    50                  55                  60

Phe Ile Gly Asp Arg Ser Ile Pro Lys Leu Val Ala Ile Pro Lys Pro
65                  70                  75                  80

Thr Val Pro Pro Ser Ala Asp Glu Lys Ser Asn Pro Asn Phe Phe Glu
                85                  90                  95

Gln Arg His Gly Gly Ser His Gln Ser Ser Lys Trp Thr Pro Val Gly
            100                 105                 110

Pro Ala Pro Ser Thr Ser Gln Ser Gln Lys Arg Ser Ser Gly Leu Gln
        115                 120                 125

Ser Gly His Ser Ser Gln Arg Thr Ser Ala Gly Ser Ser Ser Gly Thr
    130                 135                 140

Asn Ser Ser Gly Gln Arg His Asp Arg Glu Ser Tyr Asn Asn Ser Gly
145                 150                 155                 160

Ser Ser Ser Arg Lys Lys Gly Gln His Gly Ser Glu His Ser Lys Ser
                165                 170                 175
```

```
Arg Ser Ser Ser Pro Gly Lys Pro Gln Ala Val Ser Ser Leu Asn Ser
            180                 185                 190

Ser His Ser Arg Ser His Gly Asn Asp His His Ser Lys Glu His Gln
        195                 200                 205

Arg Ser Lys Ser Pro Arg Asp Pro Asp Ala Asn Trp Asp Ser Pro Ser
    210                 215                 220

Arg Val Pro Phe Ser Ser Gly Gln His Ser Thr Gln Ser Phe Pro Pro
225                 230                 235                 240

Ser Leu Met Ser Lys Ser Asn Ser Met Leu Gln Lys Pro Thr Ala Tyr
                245                 250                 255

Val Arg Pro Met Asp Gly Gln Glu Ser Met Glu Pro Lys Leu Ser Ser
            260                 265                 270

Glu His Tyr Ser Ser Gln Ser His Gly Asn Ser Met Thr Glu Leu Lys
        275                 280                 285

Pro Ser Ser Lys Ala His Leu Thr Lys Leu Lys Ile Pro Ser Gln Pro
    290                 295                 300

Leu Asp Ala Ser Ala Ser Gly Asp Val Ser Cys Val Asp Glu Ile Leu
305                 310                 315                 320

Lys Glu Met Thr His Ser Trp Pro Pro Pro Leu Thr Ala Ile His Thr
                325                 330                 335

Pro Cys Lys Thr Glu Pro Ser Lys Phe Pro Phe Pro Thr Lys Glu Ser
            340                 345                 350

Gln Gln Ser Asn Phe Gly Thr Gly Glu Gln Lys Arg Tyr Asn Pro Ser
        355                 360                 365

Lys Thr Ser Asn Gly His Gln Ser Lys Ser Met Leu Lys Asp Asp Leu
    370                 375                 380

Lys Leu Ser Ser Ser Glu Asp Ser Asp Gly Glu Gln Asp Cys Asp Lys
385                 390                 395                 400
```

```
Thr Met Pro Arg Ser Thr Pro Gly Ser Asn Ser Glu Pro Ser His His
                405                 410                 415

Asn Ser Glu Gly Ala Asp Asn Ser Arg Asp Asp Ser Ser Ser His Ser
            420                 425                 430

Gly Ser Glu Ser Ser Ser Gly Ser Asp Ser Glu Ser Glu Ser Ser Ser
        435                 440                 445

Ser Asp Ser Glu Ala Asn Glu Pro Ser Gln Ser Ala Ser Pro Glu Pro
    450                 455                 460

Glu Pro Pro Pro Thr Asn Lys Trp Gln Leu Asp Asn Trp Leu Asn Lys
465                 470                 475                 480

Val Asn Pro His Lys Val Ser Pro Ala Ser Ser Val Asp Ser Asn Ile
                485                 490                 495

Pro Ser Ser Gln Gly Tyr Lys Lys Glu Gly Arg Glu Gln Gly Thr Gly
            500                 505                 510

Asn Ser Tyr Thr Asp Thr Ser Gly Pro Lys Glu Thr Ser Ser Ala Thr
        515                 520                 525

Pro Gly Arg Asp Ser Lys Thr Ile Gln Lys Gly Ser Glu Ser Gly Arg
    530                 535                 540

Gly Arg Gln Lys Ser Pro Ala Gln Ser Asp Ser Thr Thr Gln Arg Arg
545                 550                 555                 560

Thr Val Gly Lys Lys Gln Pro Lys Lys Ala Glu Lys Ala Ala Ala Glu
                565                 570                 575

Glu Pro Arg Gly Gly Leu Lys Ile Glu Ser Glu Thr Pro Val Asp Leu
            580                 585                 590

Ala Ser Ser Met Pro Ser Ser Arg His Lys Ala Ala Thr Lys Gly Ser
        595                 600                 605

Arg Lys Pro Asn Ile Lys Lys Glu Ser Lys Ser Ser Pro Arg Pro Thr
    610                 615                 620

Ala Glu Lys Lys Lys Tyr Lys Ser Thr Ser Lys Ser Ser Gln Lys Ser
```

625 630 635 640

Arg Glu Ile Ile Glu Thr Asp Thr Ser Ser Ser Asp Ser Asp Glu Ser
645 650 655

Glu Ser Leu Pro Pro Ser Ser Gln Thr Pro Lys Tyr Pro Glu Ser Asn
660 665 670

Arg Thr Pro Val Lys Pro Ser Ser Val Glu Glu Glu Asp Ser Phe Phe
675 680 685

Arg Gln Arg Met Phe Ser Pro Met Glu Glu Lys Glu Leu Leu Ser Pro
690 695 700

Leu Ser Glu Pro Asp Asp Arg Tyr Pro Leu Ile Val Lys Ile Asp Leu
705 710 715 720

Asn Leu Leu Thr Arg Ile Pro Gly Lys Pro Tyr Lys Glu Thr Glu Pro
725 730 735

Pro Lys Gly Glu Lys Lys Asn Val Pro Glu Lys His Thr Arg Glu Ala
740 745 750

Gln Lys Gln Ala Ser Glu Lys Val Ser Asn Lys Gly Lys Arg Lys His
755 760 765

Lys Asn Glu Asp Asp Asn Arg Ala Ser Glu Ser Lys Lys Pro Lys Thr
770 775 780

Glu Asp Lys Asn Ser Ala Gly His Lys Pro Ser Ser Asn Arg Glu Ser
785 790 795 800

Ser Lys Gln Ser Ala Ala Lys Glu Lys Asp Leu Leu Pro Ser Pro Ala
805 810 815

Gly Pro Val Pro Ser Lys Asp Pro Lys Thr Glu His Gly Ser Arg Lys
820 825 830

Arg Thr Ile Ser Gln Ser Ser Ser Leu Lys Ser Ser Ser Asn Ser Asn
835 840 845

Lys Glu Thr Ser Gly Ser Ser Lys Asn Ser Ser Ser Thr Ser Lys Gln
850 855 860

```
Lys Lys Thr Glu Gly Lys Thr Ser Ser Ser Ser Lys Glu Val Lys Glu
865                 870                 875                 880

Lys Ala Pro Ser Ser Ser Ser Asn Cys Pro Pro Ser Ala Pro Thr Leu
                885                 890                 895

Asp Ser Ser Lys Pro Arg Arg Thr Lys Leu Val Phe Asp Asp Arg Asn
            900                 905                 910

Tyr Ser Ala Asp His Tyr Leu Gln Glu Ala Lys Lys Leu Lys His Asn
        915                 920                 925

Ala Asp Ala Leu Ser Asp Arg Phe Glu Lys Ala Val Tyr Tyr Leu Asp
    930                 935                 940

Ala Val Val Ser Phe Ile Glu Cys Gly Asn Ala Leu Glu Lys Asn Ala
945                 950                 955                 960

Gln Glu Ser Lys Ser Pro Phe Pro Met Tyr Ser Glu Thr Val Asp Leu
                965                 970                 975

Ile Lys Tyr Thr Met Lys Leu Lys Asn Tyr Leu Ala Pro Asp Ala Thr
            980                 985                 990

Ala Ala Asp Lys Arg Leu Thr Val  Leu Cys Leu Arg Cys  Glu Ser
Leu
        995                 1000                1005

Leu Tyr  Leu Arg Leu Phe Lys  Leu Lys Lys Glu Asn  Ala Leu Lys
    1010                1015                1020

Tyr Ser  Lys Thr Leu Thr Glu  His Leu Lys Asn Ser  Tyr Asn Asn
    1025                1030                1035

Ser Gln  Ala Pro Ser Pro Gly  Leu Gly Ser Lys Ala  Val Gly Met
    1040                1045                1050

Pro Ser  Pro Val Ser Pro Lys  Leu Ser Pro Gly Asn  Ser Gly Asn
    1055                1060                1065

Tyr Ser  Ser Gly Ala Ser Ser  Ala Ser Ala Ser Gly  Ser Ser Val
    1070                1075                1080
```

```
Thr Ile  Pro Gln Lys Ile His  Gln Met Ala Ala Ser  Tyr Val Gln
    1085                1090                1095

Val Thr  Ser Asn Phe Leu Tyr  Ala Thr Glu Ile Trp  Asp Gln Ala
    1100                1105                1110

Glu Gln  Leu Ser Lys Glu Gln  Lys Glu Phe Phe Ala  Glu Leu Asp
    1115                1120                1125

Lys Val  Met Gly Pro Leu Ile  Phe Asn Ala Ser Ile  Met Thr Asp
    1130                1135                1140

Leu Val  Arg Tyr Thr Arg Gln  Gly Leu His Trp Leu  Arg Gln Asp
    1145                1150                1155

Ala Lys  Leu Ile Ser
    1160


<210> 3620
<211> 900
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AFF4; "

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      family, member 4; "

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<400> 3620
Met Asn Arg Glu Asp Arg Asn Val Leu Arg Met Lys Glu Arg Glu Arg
1               5                  10                  15
```

```
Arg Asn Gln Glu Ile Gln Gln Gly Glu Asp Ala Phe Pro Pro Ser Ser
            20                  25                  30

Pro Leu Phe Ala Glu Pro Tyr Lys Val Thr Ser Lys Glu Asp Lys Leu
        35                  40                  45

Ser Ser Arg Ile Gln Ser Met Leu Gly Asn Tyr Asp Glu Met Lys Asp
    50                  55                  60

Phe Ile Gly Asp Arg Ser Ile Pro Lys Leu Val Ala Ile Pro Lys Pro
65                  70                  75                  80

Thr Val Pro Pro Ser Ala Asp Glu Lys Ser Asn Pro Asn Phe Phe Glu
                85                  90                  95

Gln Arg His Gly Gly Ser His Gln Ser Ser Lys Trp Thr Pro Val Gly
            100                 105                 110

Pro Ala Pro Ser Thr Ser Gln Ser Gln Lys Arg Ser Ser Gly Leu Gln
        115                 120                 125

Ser Gly His Ser Ser Gln Arg Thr Ser Ala Gly Ser Ser Ser Gly Thr
    130                 135                 140

Asn Ser Ser Gly Gln Arg His Asp Arg Glu Ser Tyr Asn Asn Ser Gly
145                 150                 155                 160

Ser Ser Ser Arg Lys Lys Gly Gln His Gly Ser Glu His Ser Lys Ser
                165                 170                 175

Arg Ser Ser Ser Pro Gly Lys Pro Gln Ala Val Ser Ser Leu Asn Ser
            180                 185                 190

Ser His Ser Arg Ser His Gly Asn Asp His His Ser Lys Glu His Gln
        195                 200                 205

Arg Ser Lys Ser Pro Arg Asp Pro Asp Ala Asn Trp Asp Ser Pro Ser
    210                 215                 220

Arg Val Pro Phe Ser Ser Gly Gln His Ser Thr Gln Ser Phe Pro Pro
225                 230                 235                 240
```

```
Ser Leu Met Ser Lys Ser Asn Ser Met Leu Gln Lys Pro Thr Ala Tyr
                245                 250                 255

Val Arg Pro Met Asp Gly Gln Glu Ser Met Glu Pro Lys Leu Ser Ser
            260                 265                 270

Glu His Tyr Ser Ser Gln Ser His Gly Asn Ser Met Thr Glu Leu Lys
        275                 280                 285

Pro Ser Ser Lys Ala His Leu Thr Lys Leu Lys Ile Pro Ser Gln Pro
    290                 295                 300

Leu Asp Ala Ser Ala Ser Gly Asp Val Ser Cys Val Asp Glu Ile Leu
305                 310                 315                 320

Lys Glu Met Thr His Ser Trp Pro Pro Pro Leu Thr Ala Ile His Thr
                325                 330                 335

Pro Cys Lys Thr Glu Pro Ser Lys Phe Pro Phe Pro Thr Lys Glu Ser
            340                 345                 350

Gln Gln Ser Asn Phe Gly Thr Gly Glu Gln Lys Arg Tyr Asn Pro Ser
        355                 360                 365

Lys Thr Ser Asn Gly His Gln Ser Lys Ser Met Leu Lys Asp Asp Leu
    370                 375                 380

Lys Leu Ser Ser Ser Glu Asp Ser Asp Gly Glu Gln Asp Cys Asp Lys
385                 390                 395                 400

Thr Met Pro Arg Ser Thr Pro Gly Ser Asn Ser Glu Pro Ser His His
                405                 410                 415

Asn Ser Glu Gly Ala Asp Asn Ser Arg Asp Asp Ser Ser Ser His Ser
            420                 425                 430

Gly Ser Glu Ser Ser Ser Gly Ser Asp Ser Glu Ser Glu Ser Ser Ser
        435                 440                 445

Ser Asp Ser Glu Ala Asn Glu Pro Ser Gln Ser Ala Ser Pro Glu Pro
    450                 455                 460

Glu Pro Pro Pro Thr Asn Lys Trp Gln Leu Asp Asn Trp Leu Asn Lys
```

```
465                 470                 475                 480

Val Asn Pro His Lys Val Ser Pro Ala Ser Ser Val Asp Ser Asn Ile
                485                 490                 495

Pro Ser Ser Gln Gly Tyr Lys Lys Glu Gly Arg Glu Gln Gly Thr Gly
            500                 505                 510

Asn Ser Tyr Thr Asp Thr Ser Gly Pro Lys Glu Thr Ser Ser Ala Thr
        515                 520                 525

Pro Gly Arg Asp Ser Lys Thr Ile Gln Lys Gly Ser Glu Ser Gly Arg
    530                 535                 540

Gly Arg Gln Lys Ser Pro Ala Gln Ser Asp Ser Thr Thr Gln Arg Arg
545                 550                 555                 560

Thr Val Gly Lys Lys Gln Pro Lys Lys Ala Glu Lys Ala Ala Ala Glu
                565                 570                 575

Glu Pro Arg Gly Gly Leu Lys Ile Glu Ser Glu Thr Pro Val Asp Leu
            580                 585                 590

Ala Ser Ser Met Pro Ser Ser Arg His Lys Ala Ala Thr Lys Gly Ser
        595                 600                 605

Arg Lys Pro Asn Ile Lys Lys Glu Ser Lys Ser Ser Pro Arg Pro Thr
    610                 615                 620

Ala Glu Lys Lys Lys Tyr Lys Ser Thr Ser Lys Ser Ser Gln Lys Ser
625                 630                 635                 640

Arg Glu Ile Ile Glu Thr Asp Thr Ser Ser Ser Asp Ser Asp Glu Ser
                645                 650                 655

Glu Ser Leu Pro Pro Ser Ser Gln Thr Pro Lys Tyr Pro Glu Ser Asn
            660                 665                 670

Arg Thr Pro Val Lys Pro Ser Ser Val Glu Glu Glu Asp Ser Phe Phe
        675                 680                 685

Arg Gln Arg Met Phe Ser Pro Met Glu Glu Lys Glu Leu Leu Ser Pro
    690                 695                 700
```

```
Leu Ser Glu Pro Asp Asp Arg Tyr Pro Leu Ile Val Lys Ile Asp Leu
705                 710                 715                 720

Asn Leu Leu Thr Arg Ile Pro Gly Lys Pro Tyr Lys Glu Thr Glu Pro
                725                 730                 735

Pro Lys Gly Glu Lys Lys Asn Val Pro Glu Lys His Thr Arg Glu Ala
            740                 745                 750

Gln Lys Gln Ala Ser Glu Lys Val Ser Asn Lys Gly Lys Arg Lys His
        755                 760                 765

Lys Asn Glu Asp Asp Asn Arg Ala Ser Glu Ser Lys Lys Pro Lys Thr
    770                 775                 780

Glu Asp Lys Asn Ser Ala Gly His Lys Pro Ser Ser Asn Arg Glu Ser
785                 790                 795                 800

Ser Lys Gln Ser Ala Ala Lys Glu Lys Asp Leu Leu Pro Ser Pro Ala
                805                 810                 815

Gly Pro Val Pro Ser Lys Asp Pro Lys Thr Glu His Gly Ser Arg Lys
            820                 825                 830

Arg Thr Ile Ser Gln Ser Ser Ser Leu Lys Ser Ser Ser Asn Ser Asn
        835                 840                 845

Lys Glu Thr Ser Gly Ser Ser Lys Asn Ser Ser Ser Thr Ser Lys Gln
    850                 855                 860

Lys Lys Thr Glu Gly Lys Thr Ser Ser Ser Ser Lys Glu Val Lys Val
865                 870                 875                 880

Lys Cys Trp Gly Pro Gly Ala Phe Glu Asn His Ser Thr Cys His Val
                885                 890                 895

Thr Phe Pro Gly
            900
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<210> 3621
<211> 148
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AFF4; "

<220>
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<223> /note="Gene Name:
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family, member 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395268"

<400> 3621

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Met Asn Arg Glu Asp Arg Asn Val Leu Arg Met Lys Glu Arg Glu Arg
1               5                  10                  15

Arg Asn Gln Glu Ile Gln Gln Gly Glu Asp Ala Phe Pro Pro Ser Ser
            20                  25                  30

Pro Leu Phe Ala Glu Pro Tyr Lys Val Thr Ser Lys Glu Asp Lys Leu
        35                  40                  45

Ser Ser Arg Ile Gln Ser Met Leu Gly Asn Tyr Asp Glu Met Lys Asp
    50                  55                  60

Phe Ile Gly Asp Arg Ser Ile Pro Lys Leu Val Ala Ile Pro Lys Pro
65                  70                  75                  80

Thr Val Pro Pro Ser Ala Asp Glu Lys Ser Asn Pro Asn Phe Phe Glu
                85                  90                  95

Gln Arg His Gly Gly Ser His Gln Ser Ser Lys Trp Thr Pro Val Gly
            100                 105                 110

Pro Ala Pro Ser Thr Ser Gln Ser Gln Lys Arg Ser Ser Gly Leu Gln
        115                 120                 125

Ser Gly His Ser Ser Gln Arg Thr Ser Ala Gly Ser Ser Ser Gly Thr
    130                 135                 140
```

Asn Ser Ser Gly
145

<210> 3622
<211> 171
<212> PRT
<213> Homo sapiens

<220>
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<220>
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family, member 4; "

<220>
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<223> /note="ENSP ID: ENSP00000409069"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3622
Xaa Ser Gln Ser His Gly Asn Ser Met Thr Glu Leu Lys Pro Ser Ser
1 5 10 15

Lys Ala His Leu Thr Lys Leu Lys Ile Pro Ser Gln Pro Leu Asp Ala
20 25 30

Ser Ala Ser Gly Asp Val Ser Cys Val Asp Glu Ile Leu Lys Glu Ser
35 40 45

Gln Gln Ser Asn Phe Gly Thr Gly Glu Gln Lys Arg Tyr Asn Pro Ser
50 55 60

Lys Thr Ser Asn Gly His Gln Ser Lys Ser Met Leu Lys Asp Asp Leu
65 70 75 80

Lys Leu Ser Ser Ser Glu Asp Ser Asp Gly Glu Gln Asp Cys Asp Lys
85 90 95

```
Thr Met Pro Arg Ser Thr Pro Gly Ser Asn Ser Glu Pro Ser His His
            100                 105                 110

Asn Ser Glu Gly Ala Asp Asn Ser Arg Asp Asp Ser Ser Ser His Ser
        115                 120                 125

Gly Ser Glu Ser Ser Ser Gly Ser Asp Ser Glu Ser Glu Ser Ser Ser
    130                 135                 140

Ser Asp Ser Glu Ala Asn Glu Pro Ser Gln Ser Ala Ser Pro Glu Pro
145                 150                 155                 160

Glu Pro Pro Pro Thr Asn Lys Trp Gln Leu Asp
                165                 170


<210> 3623
<211> 599
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 791; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
      afamin; "

<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000226355"

<400> 3623
Met Lys Leu Leu Lys Leu Thr Gly Phe Ile Phe Phe Leu Phe Phe Leu
1               5                   10                  15

Thr Glu Ser Leu Thr Leu Pro Thr Gln Pro Arg Asp Ile Glu Asn Phe
            20                  25                  30

Asn Ser Thr Gln Lys Phe Ile Glu Asp Asn Ile Glu Tyr Ile Thr Ile
```

```
        35                  40                  45

Ile Ala Phe Ala Gln Tyr Val Gln Glu Ala Thr Phe Glu Glu Met Glu
    50                  55                  60

Lys Leu Val Lys Asp Met Val Glu Tyr Lys Asp Arg Cys Met Ala Asp
65                  70                  75                  80

Lys Thr Leu Pro Glu Cys Ser Lys Leu Pro Asn Asn Val Leu Gln Glu
                85                  90                  95

Lys Ile Cys Ala Met Glu Gly Leu Pro Gln Lys His Asn Phe Ser His
            100                 105                 110

Cys Cys Ser Lys Val Asp Ala Gln Arg Arg Leu Cys Phe Phe Tyr Asn
        115                 120                 125

Lys Lys Ser Asp Val Gly Phe Leu Pro Pro Phe Pro Thr Leu Asp Pro
    130                 135                 140

Glu Glu Lys Cys Gln Ala Tyr Glu Ser Asn Arg Glu Ser Leu Leu Asn
145                 150                 155                 160

His Phe Leu Tyr Glu Val Ala Arg Arg Asn Pro Phe Val Phe Ala Pro
                165                 170                 175

Thr Leu Leu Thr Val Ala Val His Phe Glu Glu Val Ala Lys Ser Cys
            180                 185                 190

Cys Glu Glu Gln Asn Lys Val Asn Cys Leu Gln Thr Arg Ala Ile Pro
        195                 200                 205

Val Thr Gln Tyr Leu Lys Ala Phe Ser Ser Tyr Gln Lys His Val Cys
    210                 215                 220

Gly Ala Leu Leu Lys Phe Gly Thr Lys Val Val His Phe Ile Tyr Ile
225                 230                 235                 240

Ala Ile Leu Ser Gln Lys Phe Pro Lys Ile Glu Phe Lys Glu Leu Ile
                245                 250                 255

Ser Leu Val Glu Asp Val Ser Ser Asn Tyr Asp Gly Cys Cys Glu Gly
            260                 265                 270
```

```
Asp Val Val Gln Cys Ile Arg Asp Thr Ser Lys Val Met Asn His Ile
        275                 280                 285

Cys Ser Lys Gln Asp Ser Ile Ser Ser Lys Ile Lys Glu Cys Cys Glu
    290                 295                 300

Lys Lys Ile Pro Glu Arg Gly Gln Cys Ile Ile Asn Ser Asn Lys Asp
305                 310                 315                 320

Asp Arg Pro Lys Asp Leu Ser Leu Arg Glu Gly Lys Phe Thr Asp Ser
                325                 330                 335

Glu Asn Val Cys Gln Glu Arg Asp Ala Asp Pro Asp Thr Phe Phe Ala
            340                 345                 350

Lys Phe Thr Phe Glu Tyr Ser Arg Arg His Pro Asp Leu Ser Ile Pro
        355                 360                 365

Glu Leu Leu Arg Ile Val Gln Ile Tyr Lys Asp Leu Leu Arg Asn Cys
    370                 375                 380

Cys Asn Thr Glu Asn Pro Pro Gly Cys Tyr Arg Tyr Ala Glu Asp Lys
385                 390                 395                 400

Phe Asn Glu Thr Thr Glu Lys Ser Leu Lys Met Val Gln Gln Glu Cys
                405                 410                 415

Lys His Phe Gln Asn Leu Gly Lys Asp Gly Leu Lys Tyr His Tyr Leu
            420                 425                 430

Ile Arg Leu Thr Lys Ile Ala Pro Gln Leu Ser Thr Glu Glu Leu Val
        435                 440                 445

Ser Leu Gly Glu Lys Met Val Thr Ala Phe Thr Thr Cys Cys Thr Leu
    450                 455                 460

Ser Glu Glu Phe Ala Cys Val Asp Asn Leu Ala Asp Leu Val Phe Gly
465                 470                 475                 480

Glu Leu Cys Gly Val Asn Glu Asn Arg Thr Ile Asn Pro Ala Val Asp
                485                 490                 495
```

```
His Cys Cys Lys Thr Asn Phe Ala Phe Arg Arg Pro Cys Phe Glu Ser
            500                 505                 510

Leu Lys Ala Asp Lys Thr Tyr Val Pro Pro Pro Phe Ser Gln Asp Leu
        515                 520                 525

Phe Thr Phe His Ala Asp Met Cys Gln Ser Gln Asn Glu Glu Leu Gln
    530                 535                 540

Arg Lys Thr Asp Arg Phe Leu Val Asn Leu Val Lys Leu Lys His Glu
545                 550                 555                 560

Leu Thr Asp Glu Glu Leu Gln Ser Leu Phe Thr Asn Phe Ala Asn Val
                565                 570                 575

Val Asp Lys Cys Cys Lys Ala Glu Ser Pro Glu Val Cys Phe Asn Glu
            580                 585                 590

Glu Ser Pro Lys Ile Gly Asn
        595


<210> 3624
<211> 797
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AFG3L2; "

<220>
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      AFG3-like AAA ATPase 2; "

<220>
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<220>
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<400> 3624
Met Ala His Arg Cys Leu Arg Leu Trp Gly Arg Gly Gly Cys Trp Pro
```

```
1               5                   10                  15

Arg Gly Leu Gln Gln Leu Leu Val Pro Gly Gly Val Gly Pro Gly Glu
            20                  25                  30

Gln Pro Cys Leu Arg Thr Leu Tyr Arg Phe Val Thr Thr Gln Ala Arg
        35                  40                  45

Ala Ser Arg Asn Ser Leu Leu Thr Asp Ile Ile Ala Ala Tyr Gln Arg
    50                  55                  60

Phe Cys Ser Arg Pro Pro Lys Gly Phe Glu Lys Tyr Phe Pro Asn Gly
65                  70                  75                  80

Lys Asn Gly Lys Lys Ala Ser Glu Pro Lys Glu Val Met Gly Glu Lys
                85                  90                  95

Lys Glu Ser Lys Pro Ala Ala Thr Thr Arg Ser Ser Gly Gly Gly Gly
            100                 105                 110

Gly Gly Gly Gly Lys Arg Gly Gly Lys Lys Asp Asp Ser His Trp Trp
        115                 120                 125

Ser Arg Phe Gln Lys Gly Asp Ile Pro Trp Asp Asp Lys Asp Phe Arg
    130                 135                 140

Met Phe Phe Leu Trp Thr Ala Leu Phe Trp Gly Gly Val Met Phe Tyr
145                 150                 155                 160

Leu Leu Leu Lys Arg Ser Gly Arg Glu Ile Thr Trp Lys Asp Phe Val
                165                 170                 175

Asn Asn Tyr Leu Ser Lys Gly Val Val Asp Arg Leu Glu Val Val Asn
            180                 185                 190

Lys Arg Phe Val Arg Val Thr Phe Thr Pro Gly Lys Thr Pro Val Asp
        195                 200                 205

Gly Gln Tyr Val Trp Phe Asn Ile Gly Ser Val Asp Thr Phe Glu Arg
    210                 215                 220

Asn Leu Glu Thr Leu Gln Gln Glu Leu Gly Ile Glu Gly Glu Asn Arg
225                 230                 235                 240
```

```
Val Pro Val Val Tyr Ile Ala Glu Ser Asp Gly Ser Phe Leu Leu Ser
                245                 250                 255

Met Leu Pro Thr Val Leu Ile Ile Ala Phe Leu Leu Tyr Thr Ile Arg
            260                 265                 270

Arg Gly Pro Ala Gly Ile Gly Arg Thr Gly Arg Gly Met Gly Gly Leu
        275                 280                 285

Phe Ser Val Gly Glu Thr Thr Ala Lys Val Leu Lys Asp Glu Ile Asp
    290                 295                 300

Val Lys Phe Lys Asp Val Ala Gly Cys Glu Glu Ala Lys Leu Glu Ile
305                 310                 315                 320

Met Glu Phe Val Asn Phe Leu Lys Asn Pro Lys Gln Tyr Gln Asp Leu
                325                 330                 335

Gly Ala Lys Ile Pro Lys Gly Ala Ile Leu Thr Gly Pro Pro Gly Thr
            340                 345                 350

Gly Lys Thr Leu Leu Ala Lys Ala Thr Ala Gly Glu Ala Asn Val Pro
        355                 360                 365

Phe Ile Thr Val Ser Gly Ser Glu Phe Leu Glu Met Phe Val Gly Val
    370                 375                 380

Gly Pro Ala Arg Val Arg Asp Leu Phe Ala Leu Ala Arg Lys Asn Ala
385                 390                 395                 400

Pro Cys Ile Leu Phe Ile Asp Glu Ile Asp Ala Val Gly Arg Lys Arg
                405                 410                 415

Gly Arg Gly Asn Phe Gly Gly Gln Ser Glu Gln Glu Asn Thr Leu Asn
            420                 425                 430

Gln Leu Leu Val Glu Met Asp Gly Phe Asn Thr Thr Thr Asn Val Val
        435                 440                 445

Ile Leu Ala Gly Thr Asn Arg Pro Asp Ile Leu Asp Pro Ala Leu Leu
    450                 455                 460
```

```
Arg Pro Gly Arg Phe Asp Arg Gln Ile Phe Ile Gly Pro Pro Asp Ile
465                 470                 475                 480

Lys Gly Arg Ala Ser Ile Phe Lys Val His Leu Arg Pro Leu Lys Leu
                485                 490                 495

Asp Ser Thr Leu Glu Lys Asp Lys Leu Ala Arg Lys Leu Ala Ser Leu
            500                 505                 510

Thr Pro Gly Phe Ser Gly Ala Asp Val Ala Asn Val Cys Asn Glu Ala
        515                 520                 525

Ala Leu Ile Ala Ala Arg His Leu Ser Asp Ser Ile Asn Gln Lys His
    530                 535                 540

Phe Glu Gln Ala Ile Glu Arg Val Ile Gly Gly Leu Glu Lys Lys Thr
545                 550                 555                 560

Gln Val Leu Gln Pro Glu Glu Lys Lys Thr Val Ala Tyr His Glu Ala
                565                 570                 575

Gly His Ala Val Ala Gly Trp Tyr Leu Glu His Ala Asp Pro Leu Leu
            580                 585                 590

Lys Val Ser Ile Ile Pro Arg Gly Lys Gly Leu Gly Tyr Ala Gln Tyr
        595                 600                 605

Leu Pro Lys Glu Gln Tyr Leu Tyr Thr Lys Glu Gln Leu Leu Asp Arg
    610                 615                 620

Met Cys Met Thr Leu Gly Gly Arg Val Ser Glu Glu Ile Phe Phe Gly
625                 630                 635                 640

Arg Ile Thr Thr Gly Ala Gln Asp Asp Leu Arg Lys Val Thr Gln Ser
                645                 650                 655

Ala Tyr Ala Gln Ile Val Gln Phe Gly Met Asn Glu Lys Val Gly Gln
            660                 665                 670

Ile Ser Phe Asp Leu Pro Arg Gln Gly Asp Met Val Leu Glu Lys Pro
        675                 680                 685
```

```
Tyr Ser Glu Ala Thr Ala Arg Leu Ile Asp Asp Glu Val Arg Ile Leu
    690                 695                 700

Ile Asn Asp Ala Tyr Lys Arg Thr Val Ala Leu Leu Thr Glu Lys Lys
705                 710                 715                 720

Ala Asp Val Glu Lys Val Ala Leu Leu Leu Leu Glu Lys Glu Val Leu
                725                 730                 735

Asp Lys Asn Asp Met Val Glu Leu Leu Gly Pro Arg Pro Phe Ala Glu
            740                 745                 750

Lys Ser Thr Tyr Glu Glu Phe Val Glu Gly Thr Gly Ser Leu Asp Glu
        755                 760                 765

Asp Thr Ser Leu Pro Glu Gly Leu Lys Asp Trp Asn Lys Glu Arg Glu
    770                 775                 780

Lys Glu Lys Glu Glu Pro Pro Gly Glu Lys Val Ala Asn
785                 790                 795


<210> 3625
<211> 209
<212> PRT
<213> Homo sapiens

<220>
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      AFG3-like AAA ATPase 2; "

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3625
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Xaa Val Gly Pro Gly Glu Gln Pro Cys Leu Arg Thr Gly Asp Ile Pro
1 5 10 15

Trp Asp Asp Lys Asp Phe Arg Met Phe Phe Leu Trp Thr Ala Leu Phe
20 25 30

Trp Gly Gly Val Met Phe Tyr Leu Leu Leu Lys Arg Ser Gly Arg Glu
35 40 45

Ile Thr Trp Lys Asp Phe Val Asn Asn Tyr Leu Ser Lys Gly Val Val
50 55 60

Asp Arg Leu Glu Val Val Asn Lys Arg Phe Val Arg Val Thr Phe Thr
65 70 75 80

Pro Gly Lys Thr Pro Val Asp Gly Gln Tyr Val Trp Phe Asn Ile Gly
85 90 95

Ser Val Asp Thr Phe Glu Arg Asn Leu Glu Thr Leu Gln Gln Glu Leu
100 105 110

Gly Ile Glu Gly Glu Asn Arg Val Pro Val Val Tyr Ile Ala Glu Ser
115 120 125

Asp Gly Ser Phe Leu Leu Ser Met Leu Pro Thr Val Leu Ile Ile Ala
130 135 140

Phe Leu Leu Tyr Thr Ile Arg Arg Gly Pro Ala Gly Ile Gly Arg Thr
145 150 155 160

Gly Arg Gly Met Gly Gly Leu Phe Ser Val Gly Glu Thr Thr Ala Lys
165 170 175

Val Leu Lys Asp Glu Ile Asp Val Lys Phe Lys Asp Val Ala Gly Cys
180 185 190

Glu Glu Ala Lys Leu Glu Ile Met Glu Phe Val Asn Phe Leu Lys Asn
195 200 205

Pro

<210> 3626

<211> 936
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
aftiphilin; "

<220>
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<223> /note="Uniprot ID: Q6ULP2; "

<220>
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<400> 3626

Met	Glu	Pro	Asp	Ile	Ile	Arg	Met	Tyr	Ser	Ser	Ser	Pro	Pro	Leu
1				5				10					15	

Asp	Asn	Gly	Ala	Glu	Asp	Asp	Asp	Asp	Asp	Glu	Phe	Gly	Glu	Phe	Gly
			20					25					30		

Gly	Phe	Ser	Glu	Val	Ser	Pro	Ser	Gly	Val	Gly	Phe	Val	Asp	Phe	Asp
		35					40					45			

Thr	Pro	Asp	Tyr	Thr	Arg	Pro	Lys	Glu	Glu	Phe	Val	Pro	Ser	Asn	His
	50					55					60				

Phe	Met	Pro	Ile	His	Glu	Phe	Ser	Glu	Asn	Val	Asp	Ser	Leu	Thr	Ser
65				70					75						80

Phe	Lys	Ser	Ile	Lys	Asn	Gly	Asn	Asp	Lys	Asp	Ile	Thr	Ala	Glu	Leu
				85					90					95	

Ser	Ala	Pro	Val	Lys	Gly	Gln	Ser	Asp	Val	Leu	Leu	Ser	Thr	Thr	Ser
			100					105					110		

Lys	Glu	Ile	Ile	Ser	Ser	Glu	Met	Leu	Ala	Thr	Ser	Ile	Asp	Gly	Met
		115					120					125			

```
Glu Arg Pro Gly Asn Leu Asn Lys Val Val Glu Gln Arg Gln Asn Val
    130                 135                 140

Gly Thr Leu Glu Ser Phe Ser Pro Gly Asp Phe Arg Thr Asn Met Asn
145                 150                 155                 160

Val Val His Gln Asn Lys Gln Leu Glu Ser Cys Asn Gly Glu Lys Pro
                165                 170                 175

Pro Cys Leu Glu Ile Leu Thr Asn Gly Phe Ala Val Leu Glu Thr Val
            180                 185                 190

Asn Pro Gln Gly Thr Asp Asp Leu Asp Asn Val Ala Asp Ser Lys Gly
        195                 200                 205

Arg Lys Pro Leu Ser Thr His Ser Thr Glu Tyr Asn Leu Asp Ser Val
    210                 215                 220

Pro Ser Pro Ala Glu Glu Phe Ala Asp Phe Ala Thr Phe Ser Lys Lys
225                 230                 235                 240

Glu Arg Ile Gln Leu Glu Glu Ile Glu Cys Ala Val Leu Asn Asp Arg
                245                 250                 255

Glu Ala Leu Thr Ile Arg Glu Asn Asn Lys Ile Asn Arg Val Asn Glu
            260                 265                 270

Leu Asn Ser Val Lys Glu Val Ala Leu Gly Arg Ser Leu Asp Asn Lys
        275                 280                 285

Gly Asp Thr Asp Gly Glu Asp Gln Val Cys Val Ser Glu Ile Ser Ile
    290                 295                 300

Val Thr Asn Arg Gly Phe Ser Val Glu Lys Gln Gly Leu Pro Thr Leu
305                 310                 315                 320

Gln Gln Asp Glu Phe Leu Gln Ser Gly Val Gln Ser Lys Ala Trp Ser
                325                 330                 335

Leu Val Asp Ser Ala Asp Asn Ser Glu Ala Ile Arg Arg Glu Gln Cys
            340                 345                 350
```

```
Lys Thr Glu Glu Lys Leu Asp Leu Leu Thr Ser Lys Cys Ala His Leu
        355                 360                 365

Cys Met Asp Ser Val Lys Thr Ser Asp Asp Glu Val Gly Ser Pro Lys
    370                 375                 380

Glu Glu Ser Arg Lys Phe Thr Asn Phe Gln Ser Pro Asn Ile Asp Pro
385                 390                 395                 400

Thr Glu Glu Asn Asp Leu Asp Asp Ser Leu Ser Val Lys Asn Gly Asp
                405                 410                 415

Ser Ser Asn Asp Phe Val Thr Cys Asn Asp Ile Asn Glu Asp Asp Phe
            420                 425                 430

Gly Asp Phe Gly Asp Phe Gly Ser Ala Ser Gly Ser Thr Pro Pro Phe
        435                 440                 445

Val Thr Gly Thr Gln Asp Ser Met Ser Asp Ala Thr Phe Glu Glu Ser
    450                 455                 460

Ser Glu His Phe Pro His Phe Ser Glu Pro Gly Asp Asp Phe Gly Glu
465                 470                 475                 480

Phe Gly Asp Ile Asn Ala Val Ser Cys Gln Glu Glu Thr Ile Leu Thr
                485                 490                 495

Lys Ser Asp Leu Lys Gln Thr Ser Asp Asn Leu Ser Glu Glu Cys Gln
            500                 505                 510

Leu Ala Arg Lys Ser Ser Gly Thr Gly Thr Glu Pro Val Ala Lys Leu
        515                 520                 525

Lys Asn Gly Gln Glu Gly Glu Ile Gly His Phe Asp Ser Val Pro Asn
    530                 535                 540

Ile Gln Asp Asp Cys Asn Gly Phe Gln Asp Ser Asp Asp Phe Ala Asp
545                 550                 555                 560

Phe Ser Ser Ala Gly Pro Ser Gln Val Val Asp Trp Asn Ala Phe Glu
                565                 570                 575

Asp Glu Gln Lys Asp Ser Cys Ser Trp Ala Ala Phe Gly Asp Gln Gln
```

```
            580                 585                 590

Ala Thr Glu Ser His His Arg Lys Glu Ala Trp Gln Ser His Arg Thr
        595                 600                 605

Asp Glu Asn Ile Asp Thr Pro Gly Thr Pro Lys Thr His Ser Val Pro
    610                 615                 620

Ser Ala Thr Ser Lys Gly Ala Val Ala Ser Gly His Leu Gln Glu Ser
625                 630                 635                 640

Ala Thr Ser Val Gln Thr Ala Leu Leu Asn Arg Leu Glu Arg Ile Phe
                645                 650                 655

Glu Ala Cys Phe Pro Ser Ile Leu Val Pro Asp Ala Glu Glu Glu Val
            660                 665                 670

Thr Ser Leu Lys His Leu Leu Glu Thr Ser Thr Leu Pro Ile Lys Thr
        675                 680                 685

Arg Glu Ala Leu Pro Glu Ser Gly Glu Leu Leu Asp Val Trp Thr Glu
    690                 695                 700

Leu Gln Asp Ile His Asp Ala His Gly Leu Arg Tyr Gln Trp Gly Gly
705                 710                 715                 720

Ser His Ser Asn Lys Lys Leu Leu Ser Ser Leu Gly Ile Asp Thr Arg
                725                 730                 735

Asn Ile Leu Phe Thr Gly Asn Lys Lys Gln Pro Val Ile Val Pro Met
            740                 745                 750

Tyr Ala Ala Gly Leu Gly Met Leu Glu Pro Thr Lys Glu Pro Leu Lys
        755                 760                 765

Pro Leu Ser Ala Ala Glu Lys Ile Ala Ser Ile Gly Gln Thr Ala Thr
    770                 775                 780

Met Ser Pro Asp Met Asn Thr Cys Thr Ser Asp Gln Phe Gln Glu Ser
785                 790                 795                 800

Leu Pro Pro Val Gln Phe Asp Trp Ser Ser Ser Gly Leu Thr Asn Pro
                805                 810                 815
```

```
Leu Asp Ala Ser Gly Gly Ser Thr Leu Leu Asn Leu Asp Phe Phe Gly
            820                 825                 830

Pro Val Asp Asp Ser Ser Ser Ser Ser Ser Thr Thr Ile Pro Gly Val
        835                 840                 845

Asp Pro Glu Leu Tyr Glu Leu Thr Thr Ser Lys Leu Glu Ile Ser Thr
    850                 855                 860

Ser Ser Leu Lys Val Thr Asp Ala Phe Ala Arg Leu Met Ser Thr Val
865                 870                 875                 880

Glu Lys Thr Ser Thr Ser Thr Arg Lys Pro Lys Arg Glu Glu His Leu
                885                 890                 895

Ser Glu Glu Ala Ile Lys Val Ile Ala Gly Leu Pro Asp Leu Thr Phe
            900                 905                 910

Met His Ala Lys Val Leu Met Phe Pro Ala Thr Leu Thr Pro Ser Thr
        915                 920                 925

Ser Ser Gln Glu Lys Ala Asp Gly
    930                 935


<210> 3627
<211> 909
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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<220>
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<221> source
<223> /note="ENSP ID: ENSP00000238856"

<400> 3627

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Met Glu Pro Asp Ile Ile Arg Met Tyr Ser Ser Ser Pro Pro Pro Leu
1               5                  10                  15

Asp Asn Gly Ala Glu Asp Asp Asp Asp Asp Glu Phe Gly Glu Phe Gly
            20                  25                  30

Gly Phe Ser Glu Val Ser Pro Ser Gly Val Gly Phe Val Asp Phe Asp
        35                  40                  45

Thr Pro Asp Tyr Thr Arg Pro Lys Glu Glu Phe Val Pro Ser Asn His
    50                  55                  60

Phe Met Pro Ile His Glu Phe Ser Glu Asn Val Asp Ser Leu Thr Ser
65                  70                  75                  80

Phe Lys Ser Ile Lys Asn Gly Asn Asp Lys Asp Ile Thr Ala Glu Leu
                85                  90                  95

Ser Ala Pro Val Lys Gly Gln Ser Asp Val Leu Leu Ser Thr Thr Ser
            100                 105                 110

Lys Glu Ile Ile Ser Ser Glu Met Leu Ala Thr Ser Ile Asp Gly Met
        115                 120                 125

Glu Arg Pro Gly Asn Leu Asn Lys Val Val Glu Gln Arg Gln Asn Val
    130                 135                 140

Gly Thr Leu Glu Ser Phe Ser Pro Gly Asp Phe Arg Thr Asn Met Asn
145                 150                 155                 160

Val Val His Gln Asn Lys Gln Leu Glu Ser Cys Asn Gly Glu Lys Pro
                165                 170                 175

Pro Cys Leu Glu Ile Leu Thr Asn Gly Phe Ala Val Leu Glu Thr Val
            180                 185                 190

Asn Pro Gln Gly Thr Asp Asp Leu Asp Asn Val Ala Asp Ser Lys Gly
        195                 200                 205

Arg Lys Pro Leu Ser Thr His Ser Thr Glu Tyr Asn Leu Asp Ser Val
```

```
    210                 215                 220

Pro Ser Pro Ala Glu Glu Phe Ala Asp Phe Ala Thr Phe Ser Lys Lys
225                 230                 235                 240

Glu Arg Ile Gln Leu Glu Glu Ile Glu Cys Ala Val Leu Asn Asp Arg
                245                 250                 255

Glu Ala Leu Thr Ile Arg Glu Asn Asn Lys Ile Asn Arg Val Asn Glu
            260                 265                 270

Leu Asn Ser Val Lys Glu Val Ala Leu Gly Arg Ser Leu Asp Asn Lys
        275                 280                 285

Gly Asp Thr Asp Gly Glu Asp Gln Val Cys Val Ser Glu Ile Ser Ile
    290                 295                 300

Val Thr Asn Arg Gly Phe Ser Val Glu Lys Gln Gly Leu Pro Thr Leu
305                 310                 315                 320

Gln Gln Asp Glu Phe Leu Gln Ser Gly Val Gln Ser Lys Ala Trp Ser
                325                 330                 335

Leu Val Asp Ser Ala Asp Asn Ser Glu Ala Ile Arg Arg Glu Gln Cys
            340                 345                 350

Lys Thr Glu Glu Lys Leu Asp Leu Leu Thr Ser Lys Cys Ala His Leu
        355                 360                 365

Cys Met Asp Ser Val Lys Thr Ser Asp Asp Glu Val Gly Ser Pro Lys
    370                 375                 380

Glu Glu Ser Arg Lys Phe Thr Asn Phe Gln Ser Pro Asn Ile Asp Pro
385                 390                 395                 400

Thr Glu Glu Asn Asp Leu Asp Asp Ser Leu Ser Val Lys Asn Gly Asp
                405                 410                 415

Ser Ser Asn Asp Phe Val Thr Cys Asn Asp Ile Asn Glu Asp Asp Phe
            420                 425                 430

Gly Asp Phe Gly Asp Phe Gly Ser Ala Ser Gly Ser Thr Pro Pro Phe
        435                 440                 445
```

```
Val Thr Gly Thr Gln Asp Ser Met Ser Asp Ala Thr Phe Glu Glu Ser
    450                 455                 460

Ser Glu His Phe Pro His Phe Ser Glu Pro Gly Asp Asp Phe Gly Glu
465                 470                 475                 480

Phe Gly Asp Ile Asn Ala Val Ser Cys Gln Glu Glu Thr Ile Leu Thr
                485                 490                 495

Lys Ser Asp Leu Lys Gln Thr Ser Asp Asn Leu Ser Glu Glu Cys Gln
            500                 505                 510

Leu Ala Arg Lys Ser Ser Gly Thr Gly Thr Glu Pro Val Ala Lys Leu
        515                 520                 525

Lys Asn Gly Gln Glu Gly Glu Ile Gly His Phe Asp Ser Val Pro Asn
    530                 535                 540

Ile Gln Asp Asp Cys Asn Gly Phe Gln Asp Ser Asp Asp Phe Ala Asp
545                 550                 555                 560

Phe Ser Ser Ala Gly Pro Ser Gln Val Val Asp Trp Asn Ala Phe Glu
                565                 570                 575

Asp Glu Gln Lys Asp Ser Cys Ser Trp Ala Ala Phe Gly Asp Gln Gln
            580                 585                 590

Ala Thr Glu Ser His His Arg Lys Glu Ala Trp Gln Ser His Arg Thr
        595                 600                 605

Asp Glu Asn Ile Asp Thr Pro Gly Thr Pro Lys Thr His Ser Val Pro
    610                 615                 620

Ser Ala Thr Ser Lys Gly Ala Val Ala Ser Gly His Leu Gln Glu Ser
625                 630                 635                 640

Ala Thr Ser Val Gln Thr Ala Leu Leu Asn Arg Leu Glu Arg Ile Phe
                645                 650                 655

Glu Ala Cys Phe Pro Ser Ile Leu Val Pro Asp Ala Glu Glu Glu Val
            660                 665                 670
```

```
Thr Ser Leu Lys His Leu Leu Glu Thr Ser Thr Leu Pro Ile Lys Thr
        675                 680                 685

Arg Glu Ala Leu Pro Glu Ser Gly Glu Leu Leu Asp Val Trp Thr Glu
    690                 695                 700

Leu Gln Asp Ile His Asp Ala His Gly Leu Arg Tyr Gln Trp Gly Gly
705                 710                 715                 720

Ser His Ser Asn Lys Lys Leu Leu Ser Ser Leu Gly Ile Asp Thr Arg
                725                 730                 735

Asn Ile Leu Phe Thr Gly Asn Lys Lys Gln Pro Val Ile Val Pro Met
            740                 745                 750

Tyr Ala Ala Gly Leu Gly Met Leu Glu Pro Thr Lys Glu Pro Leu Lys
        755                 760                 765

Pro Leu Ser Ala Ala Glu Lys Ile Ala Ser Ile Gly Gln Thr Ala Thr
    770                 775                 780

Met Ser Pro Asp Met Asn Thr Cys Thr Ser Asp Gln Phe Gln Glu Ser
785                 790                 795                 800

Leu Pro Pro Val Gln Phe Asp Trp Ser Ser Ser Gly Leu Thr Asn Pro
                805                 810                 815

Leu Asp Gly Val Asp Pro Glu Leu Tyr Glu Leu Thr Thr Ser Lys Leu
            820                 825                 830

Glu Ile Ser Thr Ser Ser Leu Lys Val Thr Asp Ala Phe Ala Arg Leu
        835                 840                 845

Met Ser Thr Val Glu Lys Thr Ser Thr Ser Thr Ser Arg Lys Pro Lys
    850                 855                 860

Arg Glu Glu His Leu Ser Glu Glu Ala Ile Lys Val Ile Ala Gly Leu
865                 870                 875                 880

Pro Asp Leu Thr Phe Met His Ala Lys Val Leu Met Phe Pro Ala Thr
                885                 890                 895
```

Leu Thr Pro Ser Thr Ser Ser Gln Glu Lys Ala Asp Gly
900 905

<210> 3628
<211> 592
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AFTPH; "

<220>
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aftiphilin; "

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3628
Xaa Ile Arg Arg Glu Gln Cys Lys Thr Glu Glu Lys Leu Asp Leu Leu
1 5 10 15

Thr Ser Lys Cys Ala His Leu Cys Met Asp Ser Val Lys Thr Ser Asp
20 25 30

Asp Glu Val Gly Ser Pro Lys Glu Glu Ser Arg Lys Phe Thr Asn Phe
35 40 45

Gln Ser Pro Asn Ile Asp Pro Thr Glu Glu Asn Asp Leu Asp Asp Ser
50 55 60

Leu Ser Val Lys Asn Gly Asp Ser Ser Asn Asp Phe Val Thr Cys Asn
65 70 75 80

Asp Ile Asn Glu Asp Asp Phe Gly Asp Phe Gly Asp Phe Gly Ser Ala
85 90 95

```
Ser Gly Ser Thr Pro Pro Phe Val Thr Gly Thr Gln Asp Ser Met Ser
            100                 105                 110

Asp Ala Thr Phe Glu Glu Ser Ser Glu His Phe Pro His Phe Ser Glu
        115                 120                 125

Pro Gly Asp Asp Phe Gly Glu Phe Gly Asp Ile Asn Ala Val Ser Cys
    130                 135                 140

Gln Glu Glu Thr Ile Leu Thr Lys Ser Asp Leu Lys Gln Thr Ser Asp
145                 150                 155                 160

Asn Leu Ser Glu Glu Cys Gln Leu Ala Arg Lys Ser Ser Gly Thr Gly
                165                 170                 175

Thr Glu Pro Val Ala Lys Leu Lys Asn Gly Gln Glu Gly Glu Ile Gly
            180                 185                 190

His Phe Asp Ser Val Pro Asn Ile Gln Asp Asp Cys Asn Gly Phe Gln
        195                 200                 205

Asp Ser Asp Asp Phe Ala Asp Phe Ser Ser Ala Gly Pro Ser Gln Val
    210                 215                 220

Val Asp Trp Asn Ala Phe Glu Asp Glu Gln Lys Asp Ser Cys Ser Trp
225                 230                 235                 240

Ala Ala Phe Gly Asp Gln Gln Ala Thr Glu Ser His His Arg Lys Glu
                245                 250                 255

Ala Trp Gln Ser His Arg Thr Asp Glu Asn Ile Asp Thr Pro Gly Thr
            260                 265                 270

Pro Lys Thr His Ser Val Pro Ser Ala Thr Ser Lys Gly Ala Val Ala
        275                 280                 285

Ser Gly His Leu Gln Glu Ser Ala Thr Ser Val Gln Thr Ala Leu Leu
    290                 295                 300

Asn Arg Leu Glu Arg Ile Phe Glu Ala Cys Phe Pro Ser Ile Leu Val
305                 310                 315                 320

Pro Asp Ala Glu Glu Glu Val Thr Ser Leu Lys His Leu Leu Glu Thr
```

```
                325                 330                 335

Ser Thr Leu Pro Ile Lys Thr Arg Glu Ala Leu Pro Glu Ser Gly Glu
            340                 345                 350

Leu Leu Asp Val Trp Thr Glu Leu Gln Asp Ile His Asp Ala His Gly
        355                 360                 365

Leu Arg Tyr Gln Trp Gly Gly Ser His Ser Asn Lys Lys Leu Leu Ser
    370                 375                 380

Ser Leu Gly Ile Asp Thr Arg Asn Ile Leu Phe Thr Gly Asn Lys Lys
385                 390                 395                 400

Gln Pro Val Ile Val Pro Met Tyr Ala Ala Gly Leu Gly Met Leu Glu
                405                 410                 415

Pro Thr Lys Glu Pro Leu Lys Pro Leu Ser Ala Ala Glu Lys Ile Ala
            420                 425                 430

Ser Ile Gly Gln Thr Ala Thr Met Ser Pro Asp Met Asn Thr Cys Thr
        435                 440                 445

Ser Asp Gln Phe Gln Glu Ser Leu Pro Pro Val Gln Phe Asp Trp Ser
    450                 455                 460

Ser Ser Gly Leu Thr Asn Pro Leu Asp Ala Ser Gly Gly Ser Thr Leu
465                 470                 475                 480

Leu Asn Leu Asp Phe Phe Gly Pro Val Asp Asp Ser Ser Ser Ser Ser
                485                 490                 495

Ser Thr Thr Ile Pro Gly Val Asp Pro Glu Leu Tyr Glu Leu Thr Thr
            500                 505                 510

Ser Lys Leu Glu Ile Ser Thr Ser Ser Leu Lys Val Thr Asp Ala Phe
        515                 520                 525

Ala Arg Leu Met Ser Thr Val Glu Lys Thr Ser Thr Ser Thr Ser Arg
    530                 535                 540

Lys Pro Lys Arg Glu Glu His Leu Ser Glu Glu Ala Ile Lys Val Ile
545                 550                 555                 560
```

```
Ala Gly Leu Pro Asp Leu Thr Phe Met His Ala Lys Val Leu Met Phe
                565                 570                 575

Pro Ala Thr Leu Thr Pro Ser Thr Ser Ser Gln Glu Lys Ala Asp Gly
            580                 585                 590


<210> 3629
<211> 936
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 793; "

<220>
<221> source
<223> /note="Gene Symbol: AFTPH; "

<220>
<221> source
<223> /note="Gene Name:
      aftiphilin; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6ULP2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000387071"

<400> 3629
Met Glu Pro Asp Ile Ile Arg Met Tyr Ser Ser Ser Pro Pro Pro Leu
1               5                   10                  15

Asp Asn Gly Ala Glu Asp Asp Asp Asp Asp Glu Phe Gly Glu Phe Gly
            20                  25                  30

Gly Phe Ser Glu Val Ser Pro Ser Gly Val Gly Phe Val Asp Phe Asp
        35                  40                  45

Thr Pro Asp Tyr Thr Arg Pro Lys Glu Glu Phe Val Pro Ser Asn His
    50                  55                  60

Phe Met Pro Ile His Glu Phe Ser Glu Asn Val Asp Ser Leu Thr Ser
65                  70                  75                  80
```

```
Phe Lys Ser Ile Lys Asn Gly Asn Asp Lys Asp Ile Thr Ala Glu Leu
                85                  90                  95

Ser Ala Pro Val Lys Gly Gln Ser Asp Val Leu Leu Ser Thr Thr Ser
            100                 105                 110

Lys Glu Ile Ile Ser Ser Glu Met Leu Ala Thr Ser Ile Asp Gly Met
        115                 120                 125

Glu Arg Pro Gly Asn Leu Asn Lys Val Val Glu Gln Arg Gln Asn Val
    130                 135                 140

Gly Thr Leu Glu Ser Phe Ser Pro Gly Asp Phe Arg Thr Asn Met Asn
145                 150                 155                 160

Val Val His Gln Asn Lys Gln Leu Glu Ser Cys Asn Gly Glu Lys Pro
                165                 170                 175

Pro Cys Leu Glu Ile Leu Thr Asn Gly Phe Ala Val Leu Glu Thr Val
            180                 185                 190

Asn Pro Gln Gly Thr Asp Asp Leu Asp Asn Val Ala Asp Ser Lys Gly
        195                 200                 205

Arg Lys Pro Leu Ser Thr His Ser Thr Glu Tyr Asn Leu Asp Ser Val
    210                 215                 220

Pro Ser Pro Ala Glu Glu Phe Ala Asp Phe Ala Thr Phe Ser Lys Lys
225                 230                 235                 240

Glu Arg Ile Gln Leu Glu Glu Ile Glu Cys Ala Val Leu Asn Asp Arg
                245                 250                 255

Glu Ala Leu Thr Ile Arg Glu Asn Asn Lys Ile Asn Arg Val Asn Glu
            260                 265                 270

Leu Asn Ser Val Lys Glu Val Ala Leu Gly Arg Ser Leu Asp Asn Lys
        275                 280                 285

Gly Asp Thr Asp Gly Glu Asp Gln Val Cys Val Ser Glu Ile Ser Ile
    290                 295                 300

Val Thr Asn Arg Gly Phe Ser Val Glu Lys Gln Gly Leu Pro Thr Leu
```

305 310 315 320

Gln Gln Asp Glu Phe Leu Gln Ser Gly Val Gln Ser Lys Ala Trp Ser
325 330 335

Leu Val Asp Ser Ala Asp Asn Ser Glu Ala Ile Arg Arg Glu Gln Cys
340 345 350

Lys Thr Glu Glu Lys Leu Asp Leu Leu Thr Ser Lys Cys Ala His Leu
355 360 365

Cys Met Asp Ser Val Lys Thr Ser Asp Asp Glu Val Gly Ser Pro Lys
370 375 380

Glu Glu Ser Arg Lys Phe Thr Asn Phe Gln Ser Pro Asn Ile Asp Pro
385 390 395 400

Thr Glu Glu Asn Asp Leu Asp Asp Ser Leu Ser Val Lys Asn Gly Asp
405 410 415

Ser Ser Asn Asp Phe Val Thr Cys Asn Asp Ile Asn Glu Asp Asp Phe
420 425 430

Gly Asp Phe Gly Asp Phe Gly Ser Ala Ser Gly Ser Thr Pro Pro Phe
435 440 445

Val Thr Gly Thr Gln Asp Ser Met Ser Asp Ala Thr Phe Glu Glu Ser
450 455 460

Ser Glu His Phe Pro His Phe Ser Glu Pro Gly Asp Asp Phe Gly Glu
465 470 475 480

Phe Gly Asp Ile Asn Ala Val Ser Cys Gln Glu Glu Thr Ile Leu Thr
485 490 495

Lys Ser Asp Leu Lys Gln Thr Ser Asp Asn Leu Ser Glu Glu Cys Gln
500 505 510

Leu Ala Arg Lys Ser Ser Gly Thr Gly Thr Glu Pro Val Ala Lys Leu
515 520 525

Lys Asn Gly Gln Glu Gly Glu Ile Gly His Phe Asp Ser Val Pro Asn
530 535 540

```
Ile Gln Asp Asp Cys Asn Gly Phe Gln Asp Ser Asp Asp Phe Ala Asp
545                 550                 555                 560

Phe Ser Ser Ala Gly Pro Ser Gln Val Val Asp Trp Asn Ala Phe Glu
                565                 570                 575

Asp Glu Gln Lys Asp Ser Cys Ser Trp Ala Ala Phe Gly Asp Gln Gln
            580                 585                 590

Ala Thr Glu Ser His His Arg Lys Glu Ala Trp Gln Ser His Arg Thr
        595                 600                 605

Asp Glu Asn Ile Asp Thr Pro Gly Thr Pro Lys Thr His Ser Val Pro
    610                 615                 620

Ser Ala Thr Ser Lys Gly Ala Val Ala Ser Gly His Leu Gln Glu Ser
625                 630                 635                 640

Ala Thr Ser Val Gln Thr Ala Leu Leu Asn Arg Leu Glu Arg Ile Phe
                645                 650                 655

Glu Ala Cys Phe Pro Ser Ile Leu Val Pro Asp Ala Glu Glu Glu Val
            660                 665                 670

Thr Ser Leu Lys His Leu Leu Glu Thr Ser Thr Leu Pro Ile Lys Thr
        675                 680                 685

Arg Glu Ala Leu Pro Glu Ser Gly Glu Leu Leu Asp Val Trp Thr Glu
    690                 695                 700

Leu Gln Asp Ile His Asp Ala His Gly Leu Arg Tyr Gln Trp Gly Gly
705                 710                 715                 720

Ser His Ser Asn Lys Lys Leu Leu Ser Ser Leu Gly Ile Asp Thr Arg
                725                 730                 735

Asn Ile Leu Phe Thr Gly Asn Lys Lys Gln Pro Val Ile Val Pro Met
            740                 745                 750

Tyr Ala Ala Gly Leu Gly Met Leu Glu Pro Thr Lys Glu Pro Leu Lys
        755                 760                 765
```

```
Pro Leu Ser Ala Ala Glu Lys Ile Ala Ser Ile Gly Gln Thr Ala Thr
    770                 775                 780

Met Ser Pro Asp Met Asn Thr Cys Thr Ser Asp Gln Phe Gln Glu Ser
785                 790                 795                 800

Leu Pro Pro Val Gln Phe Asp Trp Ser Ser Ser Gly Leu Thr Asn Pro
                805                 810                 815

Leu Asp Ala Ser Gly Gly Ser Thr Leu Leu Asn Leu Asp Phe Phe Gly
            820                 825                 830

Pro Val Asp Asp Ser Ser Ser Ser Ser Ser Thr Thr Ile Pro Gly Val
        835                 840                 845

Asp Pro Glu Leu Tyr Glu Leu Thr Thr Ser Lys Leu Glu Ile Ser Thr
    850                 855                 860

Ser Ser Leu Lys Val Thr Asp Ala Phe Ala Arg Leu Met Ser Thr Val
865                 870                 875                 880

Glu Lys Thr Ser Thr Ser Thr Arg Lys Pro Lys Arg Glu Glu His Leu
                885                 890                 895

Ser Glu Glu Ala Ile Lys Val Ile Ala Gly Leu Pro Asp Leu Thr Phe
            900                 905                 910

Met His Ala Lys Val Leu Met Phe Pro Ala Thr Leu Thr Pro Ser Thr
        915                 920                 925

Ser Ser Gln Glu Lys Ala Asp Gly
    930                 935


<210> 3630
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 793; "

<220>
<221> source
<223> /note="Gene Symbol: AFTPH; "
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<220>
<221> source
<223> /note="Gene Name:
aftiphilin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397726"

<400> 3630
Met Tyr Ala Ala Gly Leu Gly Met Leu Glu Pro Thr Lys Glu Pro Leu
1 5 10 15

Lys Pro Leu Ser Ala Ala Glu Lys Ile Ala Ser Ile Gly Gln Thr Ala
20 25 30

Thr Met Ser Pro Asp Met Asn Thr Cys Thr Ser Asp Gln Phe Gln Glu
35 40 45

Ser Leu Pro Pro Val Gln Phe Asp Trp Ser Ser Ser Gly Leu Thr Asn
50 55 60

Pro Leu Asp Gly Val Asp Pro Glu Leu Tyr Glu Leu Thr Thr Ser Lys
65 70 75 80

Leu Glu Ile Ser Thr Ser Ser Leu Lys Val Thr Asp Ala Phe Ala Arg
85 90 95

Leu Met Ser Thr Val Glu Lys Thr Ser Thr Ser Thr Arg Lys Pro Lys
100 105 110

Arg Glu Glu His Leu Ser Glu Glu Ala Ile Lys Val Ile Ala Gly Leu
115 120 125

Pro Asp Leu Thr Phe Met His Ala Lys Val
130 135

<210> 3631
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 793; "

<220>

<221> source
<223> /note="Gene Symbol: AFTPH; "

<220>
<221> source
<223> /note="Gene Name:
aftiphilin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489378"

<400> 3631

```
Phe Pro His Phe Ser Glu Pro Gly Asp Asp Phe Gly Glu Phe Gly Asp
1               5                  10                  15

Ile Asn Ala Val Ser Cys Gln Glu Glu Thr Ile Leu Thr Lys Ser Asp
            20                  25                  30

Leu Lys Gln Thr Ser Asp Asn Leu Ser Glu Glu Cys Gln Leu Ala Arg
        35                  40                  45

Lys Ser Ser Gly Thr Gly Thr Glu Pro Val Ala Lys Leu Lys Asn Gly
    50                  55                  60

Gln Glu Gly Glu Ile Gly His Phe Asp Ser Val Pro Asn Ile Gln Asp
65                  70                  75                  80

Asp Cys Asn Gly Phe Gln Asp Ser Asp Asp Phe Ala Asp Phe Ser Ser
                85                  90                  95

Ala Gly Pro Ser Gln Val Val Asp Trp Asn Ala Phe Glu Asp Glu Gln
            100                 105                 110

Lys Asp Ser Cys Ser Trp Ala Ala Phe Gly Asp Gln Gln Ala Thr Glu
        115                 120                 125

Ser His His Arg Lys Glu Ala Trp Gln Ser His Arg Thr Asp Glu Asn
    130                 135                 140

Ile Asp Thr Pro Gly Thr Pro Lys Thr His Ser Val Pro Ser Ala Thr
145                 150                 155                 160

Ser Lys Gly Ala Val Ala Ser Gly His Leu Gln Glu Ser Ala Thr Ser
                165                 170                 175
```

```
Val Gln Gly Met Leu Glu Pro Thr Lys Glu Pro Leu Lys Pro Leu Ser
            180                 185                 190

Ala Ala Glu Lys Ile Ala Ser Ile Gly Gln Thr Ala Thr Met Ser Pro
        195                 200                 205

Asp Met Asn Thr Cys Thr Ser Asp Gln Phe Gln Val Trp Ile Arg Ser
    210                 215                 220

Cys Met Ser
225
```

<210> 3632
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 794; "

<220>
<221> source
<223> /note="Gene Symbol: ARMS2; "

<220>
<221> source
<223> /note="Gene Name:
age-related maculopathy susceptibility 2; "

<220>
<221> source
<223> /note="Uniprot ID: P0C7Q2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436682"

<400> 3632

```
Met Leu Arg Leu Tyr Pro Gly Pro Met Val Thr Glu Ala Glu Gly Lys
1               5                   10                  15

Gly Gly Pro Glu Met Ala Ser Leu Ser Ser Ser Val Val Pro Val Ser
            20                  25                  30

Phe Ile Ser Thr Leu Arg Glu Ser Val Leu Asp Pro Gly Val Gly Gly
        35                  40                  45

Glu Gly Ala Ser Asp Lys Gln Arg Ser Lys Leu Ser Leu Ser His Ser
    50                  55                  60
```

```
Met Ile Pro Ala Ala Lys Ile His Thr Glu Leu Cys Leu Pro Ala Phe
65                  70                  75                  80


Phe Ser Pro Ala Gly Thr Gln Arg Arg Phe Gln Gln Pro Gln His His
                85                  90                  95


Leu Thr Leu Ser Ile Ile His Thr Ala Ala Arg
            100                 105


<210> 3633
<211> 2431
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 795; "

<220>
<221> source
<223> /note="Gene Symbol: ACAN; "

<220>
<221> source
<223> /note="Gene Name:
      aggrecan; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000341615"

<400> 3633
Met Thr Thr Leu Leu Trp Val Phe Val Thr Leu Arg Val Ile Thr Ala
1               5                   10                  15


Ala Val Thr Val Glu Thr Ser Asp His Asp Asn Ser Leu Ser Val Ser
            20                  25                  30


Ile Pro Gln Pro Ser Pro Leu Arg Val Leu Leu Gly Thr Ser Leu Thr
        35                  40                  45


Ile Pro Cys Tyr Phe Ile Asp Pro Met His Pro Val Thr Thr Ala Pro
    50                  55                  60


Ser Thr Ala Pro Leu Ala Pro Arg Ile Lys Trp Ser Arg Val Ser Lys
65                  70                  75                  80
```

```
Glu Lys Glu Val Val Leu Leu Val Ala Thr Glu Gly Arg Val Arg Val
                85                  90                  95

Asn Ser Ala Tyr Gln Asp Lys Val Ser Leu Pro Asn Tyr Pro Ala Ile
            100                 105                 110

Pro Ser Asp Ala Thr Leu Glu Val Gln Ser Leu Arg Ser Asn Asp Ser
        115                 120                 125

Gly Val Tyr Arg Cys Glu Val Met His Gly Ile Glu Asp Ser Glu Ala
    130                 135                 140

Thr Leu Glu Val Val Val Lys Gly Ile Val Phe His Tyr Arg Ala Ile
145                 150                 155                 160

Ser Thr Arg Tyr Thr Leu Asp Phe Asp Arg Ala Gln Arg Ala Cys Leu
                165                 170                 175

Gln Asn Ser Ala Ile Ile Ala Thr Pro Glu Gln Leu Gln Ala Ala Tyr
            180                 185                 190

Glu Asp Gly Phe His Gln Cys Asp Ala Gly Trp Leu Ala Asp Gln Thr
        195                 200                 205

Val Arg Tyr Pro Ile His Thr Pro Arg Glu Gly Cys Tyr Gly Asp Lys
    210                 215                 220

Asp Glu Phe Pro Gly Val Arg Thr Tyr Gly Ile Arg Asp Thr Asn Glu
225                 230                 235                 240

Thr Tyr Asp Val Tyr Cys Phe Ala Glu Glu Met Glu Gly Glu Val Phe
                245                 250                 255

Tyr Ala Thr Ser Pro Glu Lys Phe Thr Phe Gln Glu Ala Ala Asn Glu
            260                 265                 270

Cys Arg Arg Leu Gly Ala Arg Leu Ala Thr Thr Gly Gln Leu Tyr Leu
        275                 280                 285

Ala Trp Gln Ala Gly Met Asp Met Cys Ser Ala Gly Trp Leu Ala Asp
    290                 295                 300

Arg Ser Val Arg Tyr Pro Ile Ser Lys Ala Arg Pro Asn Cys Gly Gly
```

305 310 315 320

Asn Leu Leu Gly Val Arg Thr Val Tyr Val His Ala Asn Gln Thr Gly
325 330 335

Tyr Pro Asp Pro Ser Ser Arg Tyr Asp Ala Ile Cys Tyr Thr Gly Glu
340 345 350

Asp Phe Val Asp Ile Pro Glu Asn Phe Phe Gly Val Gly Gly Glu Glu
355 360 365

Asp Ile Thr Val Gln Thr Val Thr Trp Pro Asp Met Glu Leu Pro Leu
370 375 380

Pro Arg Asn Ile Thr Glu Gly Glu Ala Arg Gly Ser Val Ile Leu Thr
385 390 395 400

Val Lys Pro Ile Phe Glu Val Ser Pro Ser Pro Leu Glu Pro Glu Glu
405 410 415

Pro Phe Thr Phe Ala Pro Glu Ile Gly Ala Thr Ala Phe Ala Glu Val
420 425 430

Glu Asn Glu Thr Gly Glu Ala Thr Arg Pro Trp Gly Phe Pro Thr Pro
435 440 445

Gly Leu Gly Pro Ala Thr Ala Phe Thr Ser Glu Asp Leu Val Val Gln
450 455 460

Val Thr Ala Val Pro Gly Gln Pro His Leu Pro Gly Gly Val Val Phe
465 470 475 480

His Tyr Arg Pro Gly Pro Thr Arg Tyr Ser Leu Thr Phe Glu Glu Ala
485 490 495

Gln Gln Ala Cys Leu Arg Thr Gly Ala Val Ile Ala Ser Pro Glu Gln
500 505 510

Leu Gln Ala Ala Tyr Glu Ala Gly Tyr Glu Gln Cys Asp Ala Gly Trp
515 520 525

Leu Arg Asp Gln Thr Val Arg Tyr Pro Ile Val Ser Pro Arg Thr Pro
530 535 540

```
Cys Val Gly Asp Lys Asp Ser Ser Pro Gly Val Arg Thr Tyr Gly Val
545                 550                 555                 560

Arg Pro Ser Thr Glu Thr Tyr Asp Val Tyr Cys Phe Val Asp Arg Leu
                565                 570                 575

Glu Gly Glu Val Phe Phe Ala Thr Arg Leu Glu Gln Phe Thr Phe Gln
            580                 585                 590

Glu Ala Leu Glu Phe Cys Glu Ser His Asn Ala Thr Leu Ala Thr Thr
        595                 600                 605

Gly Gln Leu Tyr Ala Ala Trp Ser Arg Gly Leu Asp Lys Cys Tyr Ala
    610                 615                 620

Gly Trp Leu Ala Asp Gly Ser Leu Arg Tyr Pro Ile Val Thr Pro Arg
625                 630                 635                 640

Pro Ala Cys Gly Gly Asp Lys Pro Gly Val Arg Thr Val Tyr Leu Tyr
                645                 650                 655

Pro Asn Gln Thr Gly Leu Pro Asp Pro Leu Ser Arg His His Ala Phe
            660                 665                 670

Cys Phe Arg Gly Ile Ser Ala Val Pro Ser Pro Gly Glu Glu Glu Gly
        675                 680                 685

Gly Thr Pro Thr Ser Pro Ser Gly Val Glu Glu Trp Ile Val Thr Gln
    690                 695                 700

Val Val Pro Gly Val Ala Ala Val Pro Val Glu Glu Glu Thr Thr Ala
705                 710                 715                 720

Val Pro Ser Gly Glu Thr Thr Ala Ile Leu Glu Phe Thr Thr Glu Pro
                725                 730                 735

Glu Asn Gln Thr Glu Trp Glu Pro Ala Tyr Thr Pro Val Gly Thr Ser
            740                 745                 750

Pro Leu Pro Gly Ile Leu Pro Thr Trp Pro Pro Thr Gly Ala Ala Thr
        755                 760                 765
```

```
Glu Glu Ser Thr Glu Gly Pro Ser Ala Thr Glu Val Pro Ser Ala Ser
    770                 775                 780

Glu Glu Pro Ser Pro Ser Glu Val Pro Phe Pro Ser Glu Glu Pro Ser
785                 790                 795                 800

Pro Ser Glu Glu Pro Phe Pro Ser Val Arg Pro Phe Pro Ser Val Glu
                805                 810                 815

Leu Phe Pro Ser Glu Glu Pro Phe Pro Ser Lys Glu Pro Ser Pro Ser
            820                 825                 830

Glu Glu Pro Ser Ala Ser Glu Glu Pro Tyr Thr Pro Ser Pro Pro Val
        835                 840                 845

Pro Ser Trp Thr Glu Leu Pro Ser Ser Gly Glu Glu Ser Gly Ala Pro
    850                 855                 860

Asp Val Ser Gly Asp Phe Thr Gly Ser Gly Asp Val Ser Gly His Leu
865                 870                 875                 880

Asp Phe Ser Gly Gln Leu Ser Gly Asp Arg Ala Ser Gly Leu Pro Ser
                885                 890                 895

Gly Asp Leu Asp Ser Ser Gly Leu Thr Ser Thr Val Gly Ser Gly Leu
            900                 905                 910

Pro Val Glu Ser Gly Leu Pro Ser Gly Asp Glu Glu Arg Ile Glu Trp
        915                 920                 925

Pro Ser Thr Pro Thr Val Gly Glu Leu Pro Ser Gly Ala Glu Ile Leu
    930                 935                 940

Glu Gly Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
945                 950                 955                 960

Glu Val Leu Glu Thr Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu
                965                 970                 975

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile
            980                 985                 990
```

Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val
995 1000 1005

Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Thr
1010 1015 1020

Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val
1025 1030 1035

Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro
1040 1045 1050

Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile
1055 1060 1065

Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly
1070 1075 1080

Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr
1085 1090 1095

Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu
1100 1105 1110

Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu
1115 1120 1125

Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp
1130 1135 1140

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro
1145 1150 1155

Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu
1160 1165 1170

Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly
1175 1180 1185

Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly
1190 1195 1200

```
Leu Pro  Ser Gly Glu Val Leu  Glu Thr Ala Ala Pro  Gly Val Glu
    1205                 1210                 1215

Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val Leu Glu  Thr Ala Ala
    1220                 1225                 1230

Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro Ser Gly  Glu Val Leu
    1235                 1240                 1245

Glu Thr  Ala Ala Pro Gly Val  Glu Asp Ile Ser Gly  Leu Pro Ser
    1250                 1255                 1260

Gly Glu  Val Leu Glu Thr Ala  Ala Pro Gly Val Glu  Asp Ile Ser
    1265                 1270                 1275

Gly Leu  Pro Ser Gly Glu Val  Leu Glu Thr Ala Ala  Pro Gly Val
    1280                 1285                 1290

Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu Val Leu  Glu Thr Ala
    1295                 1300                 1305

Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val
    1310                 1315                 1320

Leu Glu  Thr Ala Ala Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro
    1325                 1330                 1335

Ser Gly  Glu Val Leu Glu Thr  Ala Ala Pro Gly Val  Glu Asp Ile
    1340                 1345                 1350

Ser Gly  Leu Pro Ser Gly Glu  Val Leu Glu Thr Ala  Ala Pro Gly
    1355                 1360                 1365

Val Glu  Asp Ile Ser Gly Leu  Pro Ser Gly Glu Val  Leu Glu Thr
    1370                 1375                 1380

Ala Ala  Pro Gly Val Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu
    1385                 1390                 1395

Val Leu  Glu Thr Thr Ala Pro  Gly Val Glu Glu Ile  Ser Gly Leu
    1400                 1405                 1410

Pro Ser  Gly Glu Val Leu Glu  Thr Thr Ala Pro Gly  Val Asp Glu
```

1415 1420 1425

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro
1430 1435 1440

Gly Val Glu Glu Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu
1445 1450 1455

Thr Ser Thr Ser Ala Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
1460 1465 1470

Gly Glu Val Leu Glu Ile Ser Val Ser Gly Val Glu Asp Ile Ser
1475 1480 1485

Gly Leu Pro Ser Gly Glu Val Val Glu Thr Ser Ala Ser Gly Ile
1490 1495 1500

Glu Asp Val Ser Glu Leu Pro Ser Gly Glu Gly Leu Glu Thr Ser
1505 1510 1515

Ala Ser Gly Val Glu Asp Leu Ser Arg Leu Pro Ser Gly Glu Glu
1520 1525 1530

Val Leu Glu Ile Ser Ala Ser Gly Phe Gly Asp Leu Ser Gly Leu
1535 1540 1545

Pro Ser Gly Gly Glu Gly Leu Glu Thr Ser Ala Ser Glu Val Gly
1550 1555 1560

Thr Asp Leu Ser Gly Leu Pro Ser Gly Arg Glu Gly Leu Glu Thr
1565 1570 1575

Ser Ala Ser Gly Ala Glu Asp Leu Ser Gly Leu Pro Ser Gly Lys
1580 1585 1590

Glu Asp Leu Val Gly Ser Ala Ser Gly Asp Leu Asp Leu Gly Lys
1595 1600 1605

Leu Pro Ser Gly Thr Leu Gly Ser Gly Gln Ala Pro Glu Thr Ser
1610 1615 1620

Gly Leu Pro Ser Gly Phe Ser Gly Glu Tyr Ser Gly Val Asp Leu
1625 1630 1635

```
Gly Ser  Gly Pro Pro Ser Gly  Leu Pro Asp Phe Ser  Gly Leu Pro
    1640                1645                1650

Ser Gly  Phe Pro Thr Val Ser  Leu Val Asp Ser Thr  Leu Val Glu
    1655                1660                1665

Val Val  Thr Ala Ser Thr Ala  Ser Glu Leu Glu Gly  Arg Gly Thr
    1670                1675                1680

Ile Gly  Ile Ser Gly Ala Gly  Glu Ile Ser Gly Leu  Pro Ser Ser
    1685                1690                1695

Glu Leu  Asp Ile Ser Gly Arg  Ala Ser Gly Leu Pro  Ser Gly Thr
    1700                1705                1710

Glu Leu  Ser Gly Gln Ala Ser  Gly Ser Pro Asp Val  Ser Gly Glu
    1715                1720                1725

Ile Pro  Gly Leu Phe Gly Val  Ser Gly Gln Pro Ser  Gly Phe Pro
    1730                1735                1740

Asp Thr  Ser Gly Glu Thr Ser  Gly Val Thr Glu Leu  Ser Gly Leu
    1745                1750                1755

Ser Ser  Gly Gln Pro Gly Ile  Ser Gly Glu Ala Ser  Gly Val Leu
    1760                1765                1770

Tyr Gly  Thr Ser Gln Pro Phe  Gly Ile Thr Asp Leu  Ser Gly Glu
    1775                1780                1785

Thr Ser  Gly Val Pro Asp Leu  Ser Gly Gln Pro Ser  Gly Leu Pro
    1790                1795                1800

Gly Phe  Ser Gly Ala Thr Ser  Gly Val Pro Asp Leu  Val Ser Gly
    1805                1810                1815

Thr Thr  Ser Gly Ser Gly Glu  Ser Ser Gly Ile Thr  Phe Val Asp
    1820                1825                1830

Thr Ser  Leu Val Glu Val Ala  Pro Thr Thr Phe Lys  Glu Glu Glu
    1835                1840                1845
```

```
Gly Leu  Gly Ser Val Glu Leu  Ser Gly Leu Pro Ser  Gly Glu Ala
    1850                 1855                 1860

Asp Leu  Ser Gly Lys Ser Gly  Met Val Asp Val Ser  Gly Gln Phe
    1865                 1870                 1875

Ser Gly  Thr Val Asp Ser Ser  Gly Phe Thr Ser Gln  Thr Pro Glu
    1880                 1885                 1890

Phe Ser  Gly Leu Pro Ser Gly  Ile Ala Glu Val Ser  Gly Glu Ser
    1895                 1900                 1905

Ser Arg  Ala Glu Ile Gly Ser  Ser Leu Pro Ser Gly  Ala Tyr Tyr
    1910                 1915                 1920

Gly Ser  Gly Thr Pro Ser Ser  Phe Pro Thr Val Ser  Leu Val Asp
    1925                 1930                 1935

Arg Thr  Leu Val Glu Ser Val  Thr Gln Ala Pro Thr  Ala Gln Glu
    1940                 1945                 1950

Ala Gly  Glu Gly Pro Ser Gly  Ile Leu Glu Leu Ser  Gly Ala His
    1955                 1960                 1965

Ser Gly  Ala Pro Asp Met Ser  Gly Glu His Ser Gly  Phe Leu Asp
    1970                 1975                 1980

Leu Ser  Gly Leu Gln Ser Gly  Leu Ile Glu Pro Ser  Gly Glu Pro
    1985                 1990                 1995

Pro Gly  Thr Pro Tyr Phe Ser  Gly Asp Phe Ala Ser  Thr Thr Asn
    2000                 2005                 2010

Val Ser  Gly Glu Ser Ser Val  Ala Met Gly Thr Ser  Gly Glu Ala
    2015                 2020                 2025

Ser Gly  Leu Pro Glu Val Thr  Leu Ile Thr Ser Glu  Phe Val Glu
    2030                 2035                 2040

Gly Val  Thr Glu Pro Thr Ile  Ser Gln Glu Leu Gly  Gln Arg Pro
    2045                 2050                 2055
```

```
Pro Val  Thr His Thr Pro Gln  Leu Phe Glu Ser Ser  Gly Lys Val
    2060                2065                2070

Ser Thr  Ala Gly Asp Ile Ser  Gly Ala Thr Pro Val  Leu Pro Gly
    2075                2080                2085

Ser Gly  Val Glu Val Ser Ser  Val Pro Glu Ser Ser  Ser Glu Thr
    2090                2095                2100

Ser Ala  Tyr Pro Glu Ala Gly  Phe Gly Ala Ser Ala  Ala Pro Glu
    2105                2110                2115

Ala Ser  Arg Glu Asp Ser Gly  Ser Pro Asp Leu Ser  Glu Thr Thr
    2120                2125                2130

Ser Ala  Phe His Glu Ala Asn  Leu Glu Arg Ser Ser  Gly Leu Gly
    2135                2140                2145

Val Ser  Gly Ser Thr Leu Thr  Phe Gln Glu Gly Glu  Ala Ser Ala
    2150                2155                2160

Ala Pro  Glu Val Ser Gly Glu  Ser Thr Thr Thr Ser  Asp Val Gly
    2165                2170                2175

Thr Glu  Ala Pro Gly Leu Pro  Ser Ala Thr Pro Thr  Ala Ser Gly
    2180                2185                2190

Asp Arg  Thr Glu Ile Ser Gly  Asp Leu Ser Gly His  Thr Ser Gln
    2195                2200                2205

Leu Gly  Val Val Ile Ser Thr  Ser Ile Pro Glu Ser  Glu Trp Thr
    2210                2215                2220

Gln Gln  Thr Gln Arg Pro Ala  Glu Thr His Leu Glu  Ile Glu Ser
    2225                2230                2235

Ser Ser  Leu Leu Tyr Ser Gly  Glu Glu Thr His Thr  Val Glu Thr
    2240                2245                2250

Ala Thr  Ser Pro Thr Asp Ala  Ser Ile Pro Ala Ser  Pro Glu Trp
    2255                2260                2265

Lys Arg  Glu Ser Glu Ser Thr  Ala Ala Asp Gln Glu  Val Cys Glu
```

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    2270                2275                2280

Glu Gly  Trp Asn Lys Tyr Gln  Gly His Cys Tyr Arg  His Phe Pro
    2285                2290                2295

Asp Arg  Glu Thr Trp Val Asp  Ala Glu Arg Arg Cys  Arg Glu Gln
    2300                2305                2310

Gln Ser  His Leu Ser Ser Ile  Val Thr Pro Glu Glu  Gln Glu Phe
    2315                2320                2325

Val Asn  Asn Asn Ala Gln Asp  Tyr Gln Trp Ile Gly  Leu Asn Asp
    2330                2335                2340

Arg Thr  Ile Glu Gly Asp Phe  Arg Trp Ser Asp Gly  His Pro Met
    2345                2350                2355

Gln Phe  Glu Asn Trp Arg Pro  Asn Gln Pro Asp Asn  Phe Phe Ala
    2360                2365                2370

Ala Gly  Glu Asp Cys Val Val  Met Ile Trp His Glu  Lys Gly Glu
    2375                2380                2385

Trp Asn  Asp Val Pro Cys Asn  Tyr His Leu Pro Phe  Thr Cys Lys
    2390                2395                2400

Lys Gly  Thr Ala Thr Thr Tyr  Lys Arg Arg Leu Gln  Lys Arg Ser
    2405                2410                2415

Ser Arg  His Pro Arg Arg Ser  Arg Pro Ser Thr Ala  His
    2420                2425                2430


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<213> Homo sapiens

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1               5                  10                  15

Ala Val Thr Val Glu Thr Ser Asp His Asp Asn Ser Leu Ser Val Ser
            20                  25                  30

Ile Pro Gln Pro Ser Pro Leu Arg Val Leu Leu Gly Thr Ser Leu Thr
        35                  40                  45

Ile Pro Cys Tyr Phe Ile Asp Pro Met His Pro Val Thr Thr Ala Pro
    50                  55                  60

Ser Thr Ala Pro Leu Ala Pro Arg Ile Lys Trp Ser Arg Val Ser Lys
65                  70                  75                  80

Glu Lys Glu Val Val Leu Leu Val Ala Thr Glu Gly Arg Val Arg Val
                85                  90                  95

Asn Ser Ala Tyr Gln Asp Lys Val Ser Leu Pro Asn Tyr Pro Ala Ile
            100                 105                 110

Pro Ser Asp Ala Thr Leu Glu Val Gln Ser Leu Arg Ser Asn Asp Ser
        115                 120                 125

Gly Val Tyr Arg Cys Glu Val Met His Gly Ile Glu Asp Ser Glu Ala
    130                 135                 140

Thr Leu Glu Val Val Val Lys Gly Ile Val Phe His Tyr Arg Ala Ile
145                 150                 155                 160

Ser Thr Arg Tyr Thr Leu Asp Phe Asp Arg Ala Gln Arg Ala Cys Leu
                165                 170                 175

Gln Asn Ser Ala Ile Ile Ala Thr Pro Glu Gln Leu Gln Ala Ala Tyr
            180                 185                 190
```

```
Glu Asp Gly Phe His Gln Cys Asp Ala Gly Trp Leu Ala Asp Gln Thr
        195                 200                 205

Val Arg Tyr Pro Ile His Thr Pro Arg Glu Gly Cys Tyr Gly Asp Lys
    210                 215                 220

Asp Glu Phe Pro Gly Val Arg Thr Tyr Gly Ile Arg Asp Thr Asn Glu
225                 230                 235                 240

Thr Tyr Asp Val Tyr Cys Phe Ala Glu Glu Met Glu Gly Glu Val Phe
                245                 250                 255

Tyr Ala Thr Ser Pro Glu Lys Phe Thr Phe Gln Glu Ala Ala Asn Glu
            260                 265                 270

Cys Arg Arg Leu Gly Ala Arg Leu Ala Thr Thr Gly Gln Leu Tyr Leu
        275                 280                 285

Ala Trp Gln Ala Gly Met Asp Met Cys Ser Ala Gly Trp Leu Ala Asp
    290                 295                 300

Arg Ser Val Arg Tyr Pro Ile Ser Lys Ala Arg Pro Asn Cys Gly Gly
305                 310                 315                 320

Asn Leu Leu Gly Val Arg Thr Val Tyr Val His Ala Asn Gln Thr Gly
                325                 330                 335

Tyr Pro Asp Pro Ser Ser Arg Tyr Asp Ala Ile Cys Tyr Thr Gly Glu
            340                 345                 350

Asp Phe Val Asp Ile Pro Glu Asn Phe Phe Gly Val Gly Gly Glu Glu
        355                 360                 365

Asp Ile Thr Val Gln Thr Val Thr Trp Pro Asp Met Glu Leu Pro Leu
    370                 375                 380

Pro Arg Asn Ile Thr Glu Gly Glu Ala Arg Gly Ser Val Ile Leu Thr
385                 390                 395                 400

Val Lys Pro Ile Phe Glu Val Ser Pro Ser Pro Leu Glu Pro Glu Glu
                405                 410                 415

Pro Phe Thr Phe Ala Pro Glu Ile Gly Ala Thr Ala Phe Ala Glu Val
```

```
            420                 425                 430

Glu Asn Glu Thr Gly Glu Ala Thr Arg Pro Trp Gly Phe Pro Thr Pro
        435                 440                 445

Gly Leu Gly Pro Ala Thr Ala Phe Thr Ser Glu Asp Leu Val Val Gln
    450                 455                 460

Val Thr Ala Val Pro Gly Gln Pro His Leu Pro Gly Gly Val Val Phe
465                 470                 475                 480

His Tyr Arg Pro Gly Pro Thr Arg Tyr Ser Leu Thr Phe Glu Glu Ala
                485                 490                 495

Gln Gln Ala Cys Leu Arg Thr Gly Ala Val Ile Ala Ser Pro Glu Gln
            500                 505                 510

Leu Gln Ala Ala Tyr Glu Ala Gly Tyr Glu Gln Cys Asp Ala Gly Trp
        515                 520                 525

Leu Arg Asp Gln Thr Val Arg Tyr Pro Ile Val Ser Pro Arg Thr Pro
    530                 535                 540

Cys Val Gly Asp Lys Asp Ser Ser Pro Gly Val Arg Thr Tyr Gly Val
545                 550                 555                 560

Arg Pro Ser Thr Glu Thr Tyr Asp Val Tyr Cys Phe Val Asp Arg Leu
                565                 570                 575

Glu Gly Glu Val Phe Phe Ala Thr Arg Leu Glu Gln Phe Thr Phe Gln
            580                 585                 590

Glu Ala Leu Glu Phe Cys Glu Ser His Asn Ala Thr Leu Ala Thr Thr
        595                 600                 605

Gly Gln Leu Tyr Ala Ala Trp Ser Arg Gly Leu Asp Lys Cys Tyr Ala
    610                 615                 620

Gly Trp Leu Ala Asp Gly Ser Leu Arg Tyr Pro Ile Val Thr Pro Arg
625                 630                 635                 640

Pro Ala Cys Gly Gly Asp Lys Pro Gly Val Arg Thr Val Tyr Leu Tyr
                645                 650                 655
```

```
Pro Asn Gln Thr Gly Leu Pro Asp Pro Leu Ser Arg His His Ala Phe
            660                 665                 670

Cys Phe Arg Gly Ile Ser Ala Val Pro Ser Pro Gly Glu Glu Glu Gly
        675                 680                 685

Gly Thr Pro Thr Ser Pro Ser Gly Val Glu Glu Trp Ile Val Thr Gln
    690                 695                 700

Val Val Pro Gly Val Ala Ala Val Pro Val Glu Glu Glu Thr Thr Ala
705                 710                 715                 720

Val Pro Ser Gly Glu Thr Thr Ala Ile Leu Glu Phe Thr Thr Glu Pro
                725                 730                 735

Glu Asn Gln Thr Glu Trp Glu Pro Ala Tyr Thr Pro Val Gly Thr Ser
            740                 745                 750

Pro Leu Pro Gly Ile Leu Pro Thr Trp Pro Pro Thr Gly Ala Ala Thr
        755                 760                 765

Glu Glu Ser Thr Glu Gly Pro Ser Ala Thr Glu Val Pro Ser Ala Ser
    770                 775                 780

Glu Glu Pro Ser Pro Ser Glu Val Pro Phe Pro Ser Glu Glu Pro Ser
785                 790                 795                 800

Pro Ser Glu Glu Pro Phe Pro Ser Val Arg Pro Phe Pro Ser Val Glu
                805                 810                 815

Leu Phe Pro Ser Glu Glu Pro Phe Pro Ser Lys Glu Pro Ser Pro Ser
            820                 825                 830

Glu Glu Pro Ser Ala Ser Glu Glu Pro Tyr Thr Pro Ser Pro Pro Val
        835                 840                 845

Pro Ser Trp Thr Glu Leu Pro Ser Ser Gly Glu Glu Ser Gly Ala Pro
    850                 855                 860

Asp Val Ser Gly Asp Phe Thr Gly Ser Gly Asp Val Ser Gly His Leu
865                 870                 875                 880
```

```
Asp Phe Ser Gly Gln Leu Ser Gly Asp Arg Ala Ser Gly Leu Pro Ser
                885                 890                 895

Gly Asp Leu Asp Ser Ser Gly Leu Thr Ser Thr Val Gly Ser Gly Leu
            900                 905                 910

Pro Val Glu Ser Gly Leu Pro Ser Gly Asp Glu Glu Arg Ile Glu Trp
        915                 920                 925

Pro Ser Thr Pro Thr Val Gly Glu Leu Pro Ser Gly Ala Glu Ile Leu
    930                 935                 940

Glu Gly Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
945                 950                 955                 960

Glu Val Leu Glu Thr Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu
                965                 970                 975

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile
            980                 985                 990

Ser Gly Leu Pro Ser Gly Glu Val  Leu Glu Thr Thr Ala  Pro Gly
Val
        995                 1000                1005

Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu Val Leu  Glu Thr Thr
    1010                1015                1020

Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val
    1025                1030                1035

Leu Glu  Thr Thr Ala Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro
    1040                1045                1050

Ser Gly  Glu Val Leu Glu Thr  Thr Ala Pro Gly Val  Glu Asp Ile
    1055                1060                1065

Ser Gly  Leu Pro Ser Gly Glu  Val Leu Glu Thr Thr  Ala Pro Gly
    1070                1075                1080

Val Glu  Asp Ile Ser Gly Leu  Pro Ser Gly Glu Val  Leu Glu Thr
    1085                1090                1095
```

```
Ala Ala  Pro Gly Val Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu
    1100                1105                1110

Val Leu  Glu Thr Ala Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu
    1115                1120                1125

Pro Ser  Gly Glu Val Leu Glu  Thr Ala Ala Pro Gly  Val Glu Asp
    1130                1135                1140

Ile Ser  Gly Leu Pro Ser Gly  Glu Val Leu Glu Thr  Ala Ala Pro
    1145                1150                1155

Gly Val  Glu Asp Ile Ser Gly  Leu Pro Ser Gly Glu  Val Leu Glu
    1160                1165                1170

Thr Ala  Ala Pro Gly Val Glu  Asp Ile Ser Gly Leu  Pro Ser Gly
    1175                1180                1185

Glu Val  Leu Glu Thr Ala Ala  Pro Gly Val Glu Asp  Ile Ser Gly
    1190                1195                1200

Leu Pro  Ser Gly Glu Val Leu  Glu Thr Ala Ala Pro  Gly Val Glu
    1205                1210                1215

Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val Leu Glu  Thr Ala Ala
    1220                1225                1230

Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro Ser Gly  Glu Val Leu
    1235                1240                1245

Glu Thr  Ala Ala Pro Gly Val  Glu Asp Ile Ser Gly  Leu Pro Ser
    1250                1255                1260

Gly Glu  Val Leu Glu Thr Ala  Ala Pro Gly Val Glu  Asp Ile Ser
    1265                1270                1275

Gly Leu  Pro Ser Gly Glu Val  Leu Glu Thr Ala Ala  Pro Gly Val
    1280                1285                1290

Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu Val Leu  Glu Thr Ala
    1295                1300                1305
```

```
Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val
    1310                 1315                 1320

Leu Glu  Thr Ala Ala Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro
    1325                 1330                 1335

Ser Gly  Glu Val Leu Glu Thr  Ala Ala Pro Gly Val  Glu Asp Ile
    1340                 1345                 1350

Ser Gly  Leu Pro Ser Gly Glu  Val Leu Glu Thr Ala  Ala Pro Gly
    1355                 1360                 1365

Val Glu  Asp Ile Ser Gly Leu  Pro Ser Gly Glu Val  Leu Glu Thr
    1370                 1375                 1380

Ala Ala  Pro Gly Val Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu
    1385                 1390                 1395

Val Leu  Glu Thr Thr Ala Pro  Gly Val Glu Glu Ile  Ser Gly Leu
    1400                 1405                 1410

Pro Ser  Gly Glu Val Leu Glu  Thr Thr Ala Pro Gly  Val Asp Glu
    1415                 1420                 1425

Ile Ser  Gly Leu Pro Ser Gly  Glu Val Leu Glu Thr  Thr Ala Pro
    1430                 1435                 1440

Gly Val  Glu Glu Ile Ser Gly  Leu Pro Ser Gly Glu  Val Leu Glu
    1445                 1450                 1455

Thr Ser  Thr Ser Ala Val Gly  Asp Leu Ser Gly Leu  Pro Ser Gly
    1460                 1465                 1470

Gly Glu  Val Leu Glu Ile Ser  Val Ser Gly Val Glu  Asp Ile Ser
    1475                 1480                 1485

Gly Leu  Pro Ser Gly Glu Val  Val Glu Thr Ser Ala  Ser Gly Ile
    1490                 1495                 1500

Glu Asp  Val Ser Glu Leu Pro  Ser Gly Glu Gly Leu  Glu Thr Ser
    1505                 1510                 1515

Ala Ser  Gly Val Glu Asp Leu  Ser Arg Leu Pro Ser  Gly Glu Glu
```

1520 1525 1530

Val Leu Glu Ile Ser Ala Ser Gly Phe Gly Asp Leu Ser Gly Leu
1535 1540 1545

Pro Ser Gly Gly Glu Gly Leu Glu Thr Ser Ala Ser Glu Val Gly
1550 1555 1560

Thr Asp Leu Ser Gly Leu Pro Ser Gly Arg Glu Gly Leu Glu Thr
1565 1570 1575

Ser Ala Ser Gly Ala Glu Asp Leu Ser Gly Leu Pro Ser Gly Lys
1580 1585 1590

Glu Asp Leu Val Gly Ser Ala Ser Gly Asp Leu Asp Leu Gly Lys
1595 1600 1605

Leu Pro Ser Gly Thr Leu Gly Ser Gly Gln Ala Pro Glu Thr Ser
1610 1615 1620

Gly Leu Pro Ser Gly Phe Ser Gly Glu Tyr Ser Gly Val Asp Leu
1625 1630 1635

Gly Ser Gly Pro Pro Ser Gly Leu Pro Asp Phe Ser Gly Leu Pro
1640 1645 1650

Ser Gly Phe Pro Thr Val Ser Leu Val Asp Ser Thr Leu Val Glu
1655 1660 1665

Val Val Thr Ala Ser Thr Ala Ser Glu Leu Glu Gly Arg Gly Thr
1670 1675 1680

Ile Gly Ile Ser Gly Ala Gly Glu Ile Ser Gly Leu Pro Ser Ser
1685 1690 1695

Glu Leu Asp Ile Ser Gly Arg Ala Ser Gly Leu Pro Ser Gly Thr
1700 1705 1710

Glu Leu Ser Gly Gln Ala Ser Gly Ser Pro Asp Val Ser Gly Glu
1715 1720 1725

Ile Pro Gly Leu Phe Gly Val Ser Gly Gln Pro Ser Gly Phe Pro
1730 1735 1740

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Asp Thr  Ser Gly Glu Thr Ser  Gly Val Thr Glu Leu  Ser Gly Leu
    1745                1750                1755

Ser Ser  Gly Gln Pro Gly Ile  Ser Gly Glu Ala Ser  Gly Val Leu
    1760                1765                1770

Tyr Gly  Thr Ser Gln Pro Phe  Gly Ile Thr Asp Leu  Ser Gly Glu
    1775                1780                1785

Thr Ser  Gly Val Pro Asp Leu  Ser Gly Gln Pro Ser  Gly Leu Pro
    1790                1795                1800

Gly Phe  Ser Gly Ala Thr Ser  Gly Val Pro Asp Leu  Val Ser Gly
    1805                1810                1815

Thr Thr  Ser Gly Ser Gly Glu  Ser Ser Gly Ile Thr  Phe Val Asp
    1820                1825                1830

Thr Ser  Leu Val Glu Val Ala  Pro Thr Thr Phe Lys  Glu Glu Glu
    1835                1840                1845

Gly Leu  Gly Ser Val Glu Leu  Ser Gly Leu Pro Ser  Gly Glu Ala
    1850                1855                1860

Asp Leu  Ser Gly Lys Ser Gly  Met Val Asp Val Ser  Gly Gln Phe
    1865                1870                1875

Ser Gly  Thr Val Asp Ser Ser  Gly Phe Thr Ser Gln  Thr Pro Glu
    1880                1885                1890

Phe Ser  Gly Leu Pro Ser Gly  Ile Ala Glu Val Ser  Gly Glu Ser
    1895                1900                1905

Ser Arg  Ala Glu Ile Gly Ser  Ser Leu Pro Ser Gly  Ala Tyr Tyr
    1910                1915                1920

Gly Ser  Gly Thr Pro Ser Ser  Phe Pro Thr Val Ser  Leu Val Asp
    1925                1930                1935

Arg Thr  Leu Val Glu Ser Val  Thr Gln Ala Pro Thr  Ala Gln Glu
    1940                1945                1950
```

```
Ala Gly  Glu Gly Pro Ser Gly  Ile Leu Glu Leu Ser  Gly Ala His
    1955                1960                1965

Ser Gly  Ala Pro Asp Met Ser  Gly Glu His Ser Gly  Phe Leu Asp
    1970                1975                1980

Leu Ser  Gly Leu Gln Ser Gly  Leu Ile Glu Pro Ser  Gly Glu Pro
    1985                1990                1995

Pro Gly  Thr Pro Tyr Phe Ser  Gly Asp Phe Ala Ser  Thr Thr Asn
    2000                2005                2010

Val Ser  Gly Glu Ser Ser Val  Ala Met Gly Thr Ser  Gly Glu Ala
    2015                2020                2025

Ser Gly  Leu Pro Glu Val Thr  Leu Ile Thr Ser Glu  Phe Val Glu
    2030                2035                2040

Gly Val  Thr Glu Pro Thr Ile  Ser Gln Glu Leu Gly  Gln Arg Pro
    2045                2050                2055

Pro Val  Thr His Thr Pro Gln  Leu Phe Glu Ser Ser  Gly Lys Val
    2060                2065                2070

Ser Thr  Ala Gly Asp Ile Ser  Gly Ala Thr Pro Val  Leu Pro Gly
    2075                2080                2085

Ser Gly  Val Glu Val Ser Ser  Val Pro Glu Ser Ser  Ser Glu Thr
    2090                2095                2100

Ser Ala  Tyr Pro Glu Ala Gly  Phe Gly Ala Ser Ala  Ala Pro Glu
    2105                2110                2115

Ala Ser  Arg Glu Asp Ser Gly  Ser Pro Asp Leu Ser  Glu Thr Thr
    2120                2125                2130

Ser Ala  Phe His Glu Ala Asn  Leu Glu Arg Ser Ser  Gly Leu Gly
    2135                2140                2145

Val Ser  Gly Ser Thr Leu Thr  Phe Gln Glu Gly Glu  Ala Ser Ala
    2150                2155                2160
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```
Ala Pro  Glu Val Ser Gly Glu  Ser Thr Thr Thr Ser  Asp Val Gly
    2165                2170                2175

Thr Glu  Ala Pro Gly Leu Pro  Ser Ala Thr Pro Thr  Ala Ser Gly
    2180                2185                2190

Asp Arg  Thr Glu Ile Ser Gly  Asp Leu Ser Gly His  Thr Ser Gln
    2195                2200                2205

Leu Gly  Val Val Ile Ser Thr  Ser Ile Pro Glu Ser  Glu Trp Thr
    2210                2215                2220

Gln Gln  Thr Gln Arg Pro Ala  Glu Thr His Leu Glu  Ile Glu Ser
    2225                2230                2235

Ser Ser  Leu Leu Tyr Ser Gly  Glu Glu Thr His Thr  Val Glu Thr
    2240                2245                2250

Ala Thr  Ser Pro Thr Asp Ala  Ser Ile Pro Ala Ser  Pro Glu Trp
    2255                2260                2265

Lys Arg  Glu Ser Glu Ser Thr  Ala Ala Ala Pro Ala  Arg Ser Cys
    2270                2275                2280

Ala Glu  Glu Pro Cys Gly Ala  Gly Thr Cys Lys Glu  Thr Glu Gly
    2285                2290                2295

His Val  Ile Cys Leu Cys Pro  Pro Gly Tyr Thr Gly  Glu His Cys
    2300                2305                2310

Asn Ile  Asp Gln Glu Val Cys  Glu Glu Gly Trp Asn  Lys Tyr Gln
    2315                2320                2325

Gly His  Cys Tyr Arg His Phe  Pro Asp Arg Glu Thr  Trp Val Asp
    2330                2335                2340

Ala Glu  Arg Arg Cys Arg Glu  Gln Gln Ser His Leu  Ser Ser Ile
    2345                2350                2355

Val Thr  Pro Glu Glu Gln Glu  Phe Val Asn Asn Asn  Ala Gln Asp
    2360                2365                2370

Tyr Gln  Trp Ile Gly Leu Asn  Asp Arg Thr Ile Glu  Gly Asp Phe
```

```
    2375                2380                2385

Arg Trp  Ser Asp Gly His Pro  Met Gln Phe Glu Asn  Trp Arg Pro
    2390                2395                2400

Asn Gln  Pro Asp Asn Phe Phe  Ala Ala Gly Glu Asp  Cys Val Val
    2405                2410                2415

Met Ile  Trp His Glu Lys Gly  Glu Trp Asn Asp Val  Pro Cys Asn
    2420                2425                2430

Tyr His  Leu Pro Phe Thr Cys  Lys Lys Gly Thr Val  Ala Cys Gly
    2435                2440                2445

Glu Pro  Pro Val Val Glu His  Ala Arg Thr Phe Gly  Gln Lys Lys
    2450                2455                2460

Asp Arg  Tyr Glu Ile Asn Ser  Leu Val Arg Tyr Gln  Cys Thr Glu
    2465                2470                2475

Gly Phe  Val Gln Arg His Met  Pro Thr Ile Arg Cys  Gln Pro Ser
    2480                2485                2490

Gly His  Trp Glu Glu Pro Gln  Ile Thr Cys Thr Asp  Pro Thr Thr
    2495                2500                2505

Tyr Lys  Arg Arg Leu Gln Lys  Arg Ser Ser Arg His  Pro Arg Arg
    2510                2515                2520

Ser Arg  Pro Ser Thr Ala His
    2525                2530


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<220>
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<222> (1)..(1)
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<400> 3635

Xaa	Trp	Asn	Asp	Val	Pro	Cys	Asn	Tyr	His	Leu	Pro	Phe	Thr	Cys	Lys
1				5				10						15	

Lys	Gly	Thr	Val	Ala	Cys	Gly	Glu	Pro	Pro	Val	Val	Glu	His	Ala	Arg
			20					25					30		

Thr	Phe	Gly	Gln	Lys	Lys	Asp	Arg	Tyr	Glu	Ile	Asn	Ser	Leu	Val	Arg
		35					40					45			

Tyr	Gln	Cys	Thr	Glu	Gly	Phe	Val	Gln	Arg	His	Met	Pro	Thr	Ile	Arg
	50					55					60				

Cys	Gln	Pro	Ser	Gly	His	Trp	Glu	Glu	Pro	Gln	Ile	Thr	Cys	Thr	Asp
65					70					75					80

Arg	Glu	His	His	Pro	Gly	His	Leu	Ala	Glu	His	Arg	Pro	Pro	Pro	Thr
				85					90					95	

Asn	Ala	Asp	Tyr	Arg	Ser	Gly	Ala	His	Gly	Thr	Leu	Gly	Gly	Ala	Ala
			100					105					110		

Pro	Ala	Gln	Pro	Thr	Glu	Lys	Ser	Phe	Gln	Asp	Ala	Pro	Arg	Thr	Leu
		115					120					125			

Ser	Pro	Gly	Ala	Cys	Gln	Ala	Asp	Val	His	Pro	Thr	Gln	Thr	Val	Ser
	130					135					140				

Ser	Ser	Cys	Arg	Phe	Leu	Ser	Tyr	Lys	Glu	Ser	His
145				150					155		

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Met Thr Thr Leu Leu Trp Val Phe Val Thr Leu Arg Val Ile Thr Ala
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Ala Val Thr Val Glu Thr Ser Asp His Asp Asn Ser Leu Ser Val Ser
20 25 30

Ile Pro Gln Pro Ser Pro Leu Arg Val Leu Leu Gly Thr Ser Leu Thr
35 40 45

Ile Pro Cys Tyr Phe Ile Asp Pro Met His Pro Val Thr Thr Ala Pro
50 55 60

Ser Thr Ala Pro Leu Ala Pro Arg Ile Lys Trp Ser Arg Val Ser Lys
65 70 75 80

Glu Lys Glu Val Val Leu Leu Val Ala Thr Glu Gly Arg Val Arg Val
85 90 95

Asn Ser Ala Tyr Gln Asp Lys Val Ser Leu Pro Asn Tyr Pro Ala Ile
100 105 110

Pro Ser Asp Ala Thr Leu Glu Val Gln Ser Leu Arg Ser Asn Asp Ser
115 120 125

Gly Val Tyr Arg Cys Glu Val Met His Gly Ile Glu Asp Ser Glu Ala
130 135 140

```
Thr Leu Glu Val Val Val Lys Gly Ile Val Phe His Tyr Arg Ala Ile
145                 150                 155                 160

Ser Thr Arg Tyr Thr Leu Asp Phe Asp Arg Ala Gln Arg Ala Cys Leu
                165                 170                 175

Gln Asn Ser Ala Ile Ile Ala Thr Pro Glu Gln Leu Gln Ala Ala Tyr
            180                 185                 190

Glu Asp Gly Phe His Gln Cys Asp Ala Gly Trp Leu Ala Asp Gln Thr
        195                 200                 205

Val Arg Tyr Pro Ile His Thr Pro Arg Glu Gly Cys Tyr Gly Asp Lys
    210                 215                 220

Asp Glu Phe Pro Gly Val Arg Thr Tyr Gly Ile Arg Asp Thr Asn Glu
225                 230                 235                 240

Thr Tyr Asp Val Tyr Cys Phe Ala Glu Glu Met Glu Gly Glu Val Phe
                245                 250                 255

Tyr Ala Thr Ser Pro Glu Lys Phe Thr Phe Gln Glu Ala Ala Asn Glu
            260                 265                 270

Cys Arg Arg Leu Gly Ala Arg Leu Ala Thr Thr Gly Gln Leu Tyr Leu
        275                 280                 285

Ala Trp Gln Ala Gly Met Asp Met Cys Ser Ala Gly Trp Leu Ala Asp
    290                 295                 300

Arg Ser Val Arg Tyr Pro Ile Ser Lys Ala Arg Pro Asn Cys Gly Gly
305                 310                 315                 320

Asn Leu Leu Gly Val Arg Thr Val Tyr Val His Ala Asn Gln Thr Gly
                325                 330                 335

Tyr Pro Asp Pro Ser Ser Arg Tyr Asp Ala Ile Cys Tyr Thr Gly Glu
            340                 345                 350

Asp Phe Val Asp Ile Pro Glu Asn Phe Phe Gly Val Gly Gly Glu Glu
        355                 360                 365

Asp Ile Thr Val Gln Thr Val Thr Trp Pro Asp Met Glu Leu Pro Leu
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370 375 380

Pro Arg Asn Ile Thr Glu Gly Glu Ala Arg Gly Ser Val Ile Leu Thr
385 390 395 400

Val Lys Pro Ile Phe Glu Val Ser Pro Ser Pro Leu Glu Pro Glu Glu
405 410 415

Pro Phe Thr Phe Ala Pro Glu Ile Gly Ala Thr Ala Phe Ala Glu Val
420 425 430

Glu Asn Glu Thr Gly Glu Ala Thr Arg Pro Trp Gly Phe Pro Thr Pro
435 440 445

Gly Leu Gly Pro Ala Thr Ala Phe Thr Ser Glu Asp Leu Val Val Gln
450 455 460

Val Thr Ala Val Pro Gly Gln Pro His Leu Pro Gly Gly Val Val Phe
465 470 475 480

His Tyr Arg Pro Gly Pro Thr Arg Tyr Ser Leu Thr Phe Glu Glu Ala
485 490 495

Gln Gln Ala Cys Leu Arg Thr Gly Ala Val Ile Ala Ser Pro Glu Gln
500 505 510

Leu Gln Ala Ala Tyr Glu Ala Gly Tyr Glu Gln Cys Asp Ala Gly Trp
515 520 525

Leu Arg Asp Gln Thr Val Arg Tyr Pro Ile Val Ser Pro Arg Thr Pro
530 535 540

Cys Val Gly Asp Lys Asp Ser Ser Pro Gly Val Arg Thr Tyr Gly Val
545 550 555 560

Arg Pro Ser Thr Glu Thr Tyr Asp Val Tyr Cys Phe Val Asp Arg Leu
565 570 575

Glu Gly Glu Val Phe Phe Ala Thr Arg Leu Glu Gln Phe Thr Phe Gln
580 585 590

Glu Ala Leu Glu Phe Cys Glu Ser His Asn Ala Thr Leu Ala Thr Thr
595 600 605

Gly Gln Leu Tyr Ala Ala Trp Ser Arg Gly Leu Asp Lys Cys Tyr Ala
610 615 620

Gly Trp Leu Ala Asp Gly Ser Leu Arg Tyr Pro Ile Val Thr Pro Arg
625 630 635 640

Pro Ala Cys Gly Gly Asp Lys Pro Gly Val Arg Thr Val Tyr Leu Tyr
645 650 655

Pro Asn Gln Thr Gly Leu Pro Asp Pro Leu Ser Arg His His Ala Phe
660 665 670

Cys Phe Arg Gly Met Gln Pro His Phe Gly Ser Asn Ser Pro Phe Cys
675 680 685

Leu Glu Arg Thr Pro Leu Gly Ser Pro Asp Pro Ala Thr Thr Gln Tyr
690 695 700

Pro Ile His Gln Ser Lys Lys Met Ser Val Pro Leu Gly Gln Ser Gln
705 710 715 720

Leu

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Met Thr Thr Leu Leu Trp Val Phe Val Thr Leu Arg Val Ile Thr Ala
1               5                  10                  15

Ala Val Thr Val Glu Thr Ser Asp His Asp Asn Ser Leu Ser Val Ser
            20                  25                  30

Ile Pro Gln Pro Ser Pro Leu Arg Val Leu Leu Gly Thr Ser Leu Thr
        35                  40                  45

Ile Pro Cys Tyr Phe Ile Asp Pro Met His Pro Val Thr Thr Ala Pro
    50                  55                  60

Ser Thr Ala Pro Leu Ala Pro Arg Ile Lys Trp Ser Arg Val Ser Lys
65                  70                  75                  80

Glu Lys Glu Val Val Leu Leu Val Ala Thr Glu Gly Arg Val Arg Val
                85                  90                  95

Asn Ser Ala Tyr Gln Asp Lys Val Ser Leu Pro Asn Tyr Pro Ala Ile
            100                 105                 110

Pro Ser Asp Ala Thr Leu Glu Val Gln Ser Leu Arg Ser Asn Asp Ser
        115                 120                 125

Gly Val Tyr Arg Cys Glu Val Met His Gly Ile Glu Asp Ser Glu Ala
    130                 135                 140

Thr Leu Glu Val Val Val Lys Gly Ile Val Phe His Tyr Arg Ala Ile
145                 150                 155                 160

Ser Thr Arg Tyr Thr Leu Asp Phe Asp Arg Ala Gln Arg Ala Cys Leu
                165                 170                 175

Gln Asn Ser Ala Ile Ile Ala Thr Pro Glu Gln Leu Gln Ala Ala Tyr
            180                 185                 190

Glu Asp Gly Phe His Gln Cys Asp Ala Gly Trp Leu Ala Asp Gln Thr
        195                 200                 205

Val Arg Tyr Pro Ile His Thr Pro Arg Glu Gly Cys Tyr Gly Asp Lys
    210                 215                 220

Asp Glu Phe Pro Gly Val Arg Thr Tyr Gly Ile Arg Asp Thr Asn Glu
```

225 230 235 240

Thr Tyr Asp Val Tyr Cys Phe Ala Glu Glu Met Glu Gly Glu Val Phe
245 250 255

Tyr Ala Thr Ser Pro Glu Lys Phe Thr Phe Gln Glu Ala Ala Asn Glu
260 265 270

Cys Arg Arg Leu Gly Ala Arg Leu Ala Thr Thr Gly Gln Leu Tyr Leu
275 280 285

Ala Trp Gln Ala Gly Met Asp Met Cys Ser Ala Gly Trp Leu Ala Asp
290 295 300

Arg Ser Val Arg Tyr Pro Ile Ser Lys Ala Arg Pro Asn Cys Gly Gly
305 310 315 320

Asn Leu Leu Gly Val Arg Thr Val Tyr Val His Ala Asn Gln Thr Gly
325 330 335

Tyr Pro Asp Pro Ser Ser Arg Tyr Asp Ala Ile Cys Tyr Thr Gly Glu
340 345 350

Asp Phe Val Asp Ile Pro Glu Asn Phe Phe Gly Val Gly Gly Glu Glu
355 360 365

Asp Ile Thr Val Gln Thr Val Thr Trp Pro Asp Met Glu Leu Pro Leu
370 375 380

Pro Arg Asn Ile Thr Glu Gly Glu Ala Arg Gly Ser Val Ile Leu Thr
385 390 395 400

Val Lys Pro Ile Phe Glu Val Ser Pro Ser Pro Leu Glu Pro Glu Glu
405 410 415

Pro Phe Thr Phe Ala Pro Glu Ile Gly Ala Thr Ala Phe Ala Glu Val
420 425 430

Glu Asn Glu Thr Gly Glu Ala Thr Arg Pro Trp Gly Phe Pro Thr Pro
435 440 445

Gly Leu Gly Pro Ala Thr Ala Phe Thr Ser Glu Asp Leu Val Val Gln
450 455 460

```
Val Thr Ala Val Pro Gly Gln Pro His Leu Pro Gly Gly Val Val Phe
465                 470                 475                 480

His Tyr Arg Pro Gly Pro Thr Arg Tyr Ser Leu Thr Phe Glu Glu Ala
                485                 490                 495

Gln Gln Ala Cys Leu Arg Thr Gly Ala Val Ile Ala Ser Pro Glu Gln
            500                 505                 510

Leu Gln Ala Ala Tyr Glu Ala Gly Tyr Glu Gln Cys Asp Ala Gly Trp
        515                 520                 525

Leu Arg Asp Gln Thr Val Arg Tyr Pro Ile Val Ser Pro Arg Thr Pro
    530                 535                 540

Cys Val Gly Asp Lys Asp Ser Ser Pro Gly Val Arg Thr Tyr Gly Val
545                 550                 555                 560

Arg Pro Ser Thr Glu Thr Tyr Asp Val Tyr Cys Phe Val Asp Arg Leu
                565                 570                 575

Glu Gly Glu Val Phe Phe Ala Thr Arg Leu Glu Gln Phe Thr Phe Gln
            580                 585                 590

Glu Ala Leu Glu Phe Cys Glu Ser His Asn Ala Thr Leu Ala Thr Thr
        595                 600                 605

Gly Gln Leu Tyr Ala Ala Trp Ser Arg Gly Leu Asp Lys Cys Tyr Ala
    610                 615                 620

Gly Trp Leu Ala Asp Gly Ser Leu Arg Tyr Pro Ile Val Thr Pro Arg
625                 630                 635                 640

Pro Ala Cys Gly Gly Asp Lys Pro Gly Val Arg Thr Val Tyr Leu Tyr
                645                 650                 655

Pro Asn Gln Thr Gly Leu Pro Asp Pro Leu Ser Arg His His Ala Phe
            660                 665                 670

Cys Phe Arg Gly Ile Ser Ala Val Pro Ser Pro Gly Glu Glu Glu Gly
        675                 680                 685
```

```
Gly Thr Pro Thr Ser Pro Ser Gly Val Glu Glu Trp Ile Val Thr Gln
    690                 695                 700

Val Val Pro Gly Val Ala Ala Val Pro Val Glu Glu Glu Thr Thr Ala
705                 710                 715                 720

Val Pro Ser Gly Glu Thr Thr Ala Ile Leu Glu Phe Thr Thr Glu Pro
                725                 730                 735

Glu Asn Gln Thr Glu Trp Glu Pro Ala Tyr Thr Pro Val Gly Thr Ser
            740                 745                 750

Pro Leu Pro Gly Ile Leu Pro Thr Trp Pro Pro Thr Gly Ala Ala Thr
        755                 760                 765

Glu Glu Ser Thr Glu Gly Pro Ser Ala Thr Glu Val Pro Ser Ala Ser
    770                 775                 780

Glu Glu Pro Ser Pro Ser Glu Val Pro Phe Pro Ser Glu Glu Pro Ser
785                 790                 795                 800

Pro Ser Glu Glu Pro Phe Pro Ser Val Arg Pro Phe Pro Ser Val Glu
                805                 810                 815

Leu Phe Pro Ser Glu Glu Pro Phe Pro Ser Lys Glu Pro Ser Pro Ser
            820                 825                 830

Glu Glu Pro Ser Ala Ser Glu Glu Pro Tyr Thr Pro Ser Pro Pro Val
        835                 840                 845

Pro Ser Trp Thr Glu Leu Pro Ser Ser Gly Glu Glu Ser Gly Ala Pro
    850                 855                 860

Asp Val Ser Gly Asp Phe Thr Gly Ser Gly Asp Val Ser Gly His Leu
865                 870                 875                 880

Asp Phe Ser Gly Gln Leu Ser Gly Asp Arg Ala Ser Gly Leu Pro Ser
                885                 890                 895

Gly Asp Leu Asp Ser Ser Gly Leu Thr Ser Thr Val Gly Ser Gly Leu
            900                 905                 910
```

```
Pro Val Glu Ser Gly Leu Pro Ser Gly Asp Glu Glu Arg Ile Glu Trp
        915                 920                 925

Pro Ser Thr Pro Thr Val Gly Glu Leu Pro Ser Gly Ala Glu Ile Leu
    930                 935                 940

Glu Gly Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
945                 950                 955                 960

Glu Val Leu Glu Thr Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu
                965                 970                 975

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile
            980                 985                 990

Ser Gly Leu Pro Ser Gly Glu Val  Leu Glu Thr Thr Ala  Pro Gly
Val
        995                 1000                1005

Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu Val Leu  Glu Thr Thr
    1010                1015                1020

Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val
    1025                1030                1035

Leu Glu  Thr Thr Ala Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro
    1040                1045                1050

Ser Gly  Glu Val Leu Glu Thr  Thr Ala Pro Gly Val  Glu Asp Ile
    1055                1060                1065

Ser Gly  Leu Pro Ser Gly Glu  Val Leu Glu Thr Thr  Ala Pro Gly
    1070                1075                1080

Val Glu  Asp Ile Ser Gly Leu  Pro Ser Gly Glu Val  Leu Glu Thr
    1085                1090                1095

Ala Ala  Pro Gly Val Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu
    1100                1105                1110

Val Leu  Glu Thr Ala Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu
    1115                1120                1125
```

Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp
1130 1135 1140

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro
1145 1150 1155

Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu
1160 1165 1170

Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly
1175 1180 1185

Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly
1190 1195 1200

Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu
1205 1210 1215

Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala
1220 1225 1230

Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu
1235 1240 1245

Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser
1250 1255 1260

Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser
1265 1270 1275

Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val
1280 1285 1290

Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala
1295 1300 1305

Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val
1310 1315 1320

Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro
1325 1330 1335

Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile

1340 1345 1350

Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly
1355 1360 1365

Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr
1370 1375 1380

Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu
1385 1390 1395

Val Leu Glu Thr Thr Ala Pro Gly Val Glu Glu Ile Ser Gly Leu
1400 1405 1410

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Asp Glu
1415 1420 1425

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro
1430 1435 1440

Gly Val Glu Glu Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu
1445 1450 1455

Thr Ser Thr Ser Ala Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
1460 1465 1470

Gly Glu Val Leu Glu Ile Ser Val Ser Gly Val Glu Asp Ile Ser
1475 1480 1485

Gly Leu Pro Ser Gly Glu Val Val Glu Thr Ser Ala Ser Gly Ile
1490 1495 1500

Glu Asp Val Ser Glu Leu Pro Ser Gly Glu Gly Leu Glu Thr Ser
1505 1510 1515

Ala Ser Gly Val Glu Asp Leu Ser Arg Leu Pro Ser Gly Glu Glu
1520 1525 1530

Val Leu Glu Ile Ser Ala Ser Gly Phe Gly Asp Leu Ser Gly Leu
1535 1540 1545

Pro Ser Gly Gly Glu Gly Leu Glu Thr Ser Ala Ser Glu Val Gly
1550 1555 1560

```
Thr Asp  Leu Ser Gly Leu Pro  Ser Gly Arg Glu Gly  Leu Glu Thr
    1565                1570                1575

Ser Ala  Ser Gly Ala Glu Asp  Leu Ser Gly Leu Pro  Ser Gly Lys
    1580                1585                1590

Glu Asp  Leu Val Gly Ser Ala  Ser Gly Asp Leu Asp  Leu Gly Lys
    1595                1600                1605

Leu Pro  Ser Gly Thr Leu Gly  Ser Gly Gln Ala Pro  Glu Thr Ser
    1610                1615                1620

Gly Leu  Pro Ser Gly Phe Ser  Gly Glu Tyr Ser Gly  Val Asp Leu
    1625                1630                1635

Gly Ser  Gly Pro Pro Ser Gly  Leu Pro Asp Phe Ser  Gly Leu Pro
    1640                1645                1650

Ser Gly  Phe Pro Thr Val Ser  Leu Val Asp Ser Thr  Leu Val Glu
    1655                1660                1665

Val Val  Thr Ala Ser Thr Ala  Ser Glu Leu Glu Gly  Arg Gly Thr
    1670                1675                1680

Ile Gly  Ile Ser Gly Ala Gly  Glu Ile Ser Gly Leu  Pro Ser Ser
    1685                1690                1695

Glu Leu  Asp Ile Ser Gly Arg  Ala Ser Gly Leu Pro  Ser Gly Thr
    1700                1705                1710

Glu Leu  Ser Gly Gln Ala Ser  Gly Ser Pro Asp Val  Ser Gly Glu
    1715                1720                1725

Ile Pro  Gly Leu Phe Gly Val  Ser Gly Gln Pro Ser  Gly Phe Pro
    1730                1735                1740

Asp Thr  Ser Gly Glu Thr Ser  Gly Val Thr Glu Leu  Ser Gly Leu
    1745                1750                1755

Ser Ser  Gly Gln Pro Gly Ile  Ser Gly Glu Ala Ser  Gly Val Leu
    1760                1765                1770
```

```
Tyr Gly  Thr Ser Gln Pro Phe  Gly Ile Thr Asp Leu  Ser Gly Glu
    1775                1780                1785

Thr Ser  Gly Val Pro Asp Leu  Ser Gly Gln Pro Ser  Gly Leu Pro
    1790                1795                1800

Gly Phe  Ser Gly Ala Thr Ser  Gly Val Pro Asp Leu  Val Ser Gly
    1805                1810                1815

Thr Thr  Ser Gly Ser Gly Glu  Ser Ser Gly Ile Thr  Phe Val Asp
    1820                1825                1830

Thr Ser  Leu Val Glu Val Ala  Pro Thr Thr Phe Lys  Glu Glu Glu
    1835                1840                1845

Gly Leu  Gly Ser Val Glu Leu  Ser Gly Leu Pro Ser  Gly Glu Ala
    1850                1855                1860

Asp Leu  Ser Gly Lys Ser Gly  Met Val Asp Val Ser  Gly Gln Phe
    1865                1870                1875

Ser Gly  Thr Val Asp Ser Ser  Gly Phe Thr Ser Gln  Thr Pro Glu
    1880                1885                1890

Phe Ser  Gly Leu Pro Ser Gly  Ile Ala Glu Val Ser  Gly Glu Ser
    1895                1900                1905

Ser Arg  Ala Glu Ile Gly Ser  Ser Leu Pro Ser Gly  Ala Tyr Tyr
    1910                1915                1920

Gly Ser  Gly Thr Pro Ser Ser  Phe Pro Thr Val Ser  Leu Val Asp
    1925                1930                1935

Arg Thr  Leu Val Glu Ser Val  Thr Gln Ala Pro Thr  Ala Gln Glu
    1940                1945                1950

Ala Gly  Glu Gly Pro Ser Gly  Ile Leu Glu Leu Ser  Gly Ala His
    1955                1960                1965

Ser Gly  Ala Pro Asp Met Ser  Gly Glu His Ser Gly  Phe Leu Asp
    1970                1975                1980
```

```
Leu Ser  Gly Leu Gln Ser Gly  Leu Ile Glu Pro Ser  Gly Glu Pro
    1985                1990                1995

Pro Gly  Thr Pro Tyr Phe Ser  Gly Asp Phe Ala Ser  Thr Thr Asn
    2000                2005                2010

Val Ser  Gly Glu Ser Ser Val  Ala Met Gly Thr Ser  Gly Glu Ala
    2015                2020                2025

Ser Gly  Leu Pro Glu Val Thr  Leu Ile Thr Ser Glu  Phe Val Glu
    2030                2035                2040

Gly Val  Thr Glu Pro Thr Ile  Ser Gln Glu Leu Gly  Gln Arg Pro
    2045                2050                2055

Pro Val  Thr His Thr Pro Gln  Leu Phe Glu Ser Ser  Gly Lys Val
    2060                2065                2070

Ser Thr  Ala Gly Asp Ile Ser  Gly Ala Thr Pro Val  Leu Pro Gly
    2075                2080                2085

Ser Gly  Val Glu Val Ser Ser  Val Pro Glu Ser Ser  Ser Glu Thr
    2090                2095                2100

Ser Ala  Tyr Pro Glu Ala Gly  Phe Gly Ala Ser Ala  Ala Pro Glu
    2105                2110                2115

Ala Ser  Arg Glu Asp Ser Gly  Ser Pro Asp Leu Ser  Glu Thr Thr
    2120                2125                2130

Ser Ala  Phe His Glu Ala Asn  Leu Glu Arg Ser Ser  Gly Leu Gly
    2135                2140                2145

Val Ser  Gly Ser Thr Leu Thr  Phe Gln Glu Gly Glu  Ala Ser Ala
    2150                2155                2160

Ala Pro  Glu Val Ser Gly Glu  Ser Thr Thr Thr Ser  Asp Val Gly
    2165                2170                2175

Thr Glu  Ala Pro Gly Leu Pro  Ser Ala Thr Pro Thr  Ala Ser Gly
    2180                2185                2190

Asp Arg  Thr Glu Ile Ser Gly  Asp Leu Ser Gly His  Thr Ser Gln
```

2195 2200 2205

Leu Gly Val Val Ile Ser Thr Ser Ile Pro Glu Ser Glu Trp Thr
2210 2215 2220

Gln Gln Thr Gln Arg Pro Ala Glu Thr His Leu Glu Ile Glu Ser
2225 2230 2235

Ser Ser Leu Leu Tyr Ser Gly Glu Glu Thr His Thr Val Glu Thr
2240 2245 2250

Ala Thr Ser Pro Thr Asp Ala Ser Ile Pro Ala Ser Pro Glu Trp
2255 2260 2265

Lys Arg Glu Ser Glu Ser Thr Ala Ala Ala Pro Ala Arg Ser Cys
2270 2275 2280

Ala Glu Glu Pro Cys Gly Ala Gly Thr Cys Lys Glu Thr Glu Gly
2285 2290 2295

His Val Ile Cys Leu Cys Pro Pro Gly Tyr Thr Gly Glu His Cys
2300 2305 2310

Asn Ile Asp Gln Glu Val Cys Glu Glu Gly Trp Asn Lys Tyr Gln
2315 2320 2325

Gly His Cys Tyr Arg His Phe Pro Asp Arg Glu Thr Trp Val Asp
2330 2335 2340

Ala Glu Arg Arg Cys Arg Glu Gln Gln Ser His Leu Ser Ser Ile
2345 2350 2355

Val Thr Pro Glu Glu Gln Glu Phe Val Asn Asn Asn Ala Gln Asp
2360 2365 2370

Tyr Gln Trp Ile Gly Leu Asn Asp Arg Thr Ile Glu Gly Asp Phe
2375 2380 2385

Arg Trp Ser Asp Gly His Pro Met Gln Phe Glu Asn Trp Arg Pro
2390 2395 2400

Asn Gln Pro Asp Asn Phe Phe Ala Ala Gly Glu Asp Cys Val Val
2405 2410 2415

```
Met Ile  Trp His Glu Lys Gly  Glu Trp Asn Asp Val  Pro Cys Asn
    2420                 2425                 2430

Tyr His  Leu Pro Phe Thr Cys  Lys Lys Gly Thr Val  Ala Cys Gly
    2435                 2440                 2445

Glu Pro  Pro Val Val Glu His  Ala Arg Thr Phe Gly  Gln Lys Lys
    2450                 2455                 2460

Asp Arg  Tyr Glu Ile Asn Ser  Leu Val Arg Tyr Gln  Cys Thr Glu
    2465                 2470                 2475

Gly Phe  Val Gln Arg His Met  Pro Thr Ile Arg Cys  Gln Pro Ser
    2480                 2485                 2490

Gly His  Trp Glu Glu Pro Gln  Ile Thr Cys Thr Asp  Pro Thr Thr
    2495                 2500                 2505

Tyr Lys  Arg Arg Leu Gln Lys  Arg Ser Ser Arg His  Pro Arg Arg
    2510                 2515                 2520

Ser Arg  Pro Ser Thr Ala His
    2525                 2530


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Met Thr Thr Leu Leu Trp Val Phe Val Thr Leu Arg Val Ile Thr Ala
1               5                  10                  15

Ala Val Thr Val Glu Thr Ser Asp His Asp Asn Ser Leu Ser Val Ser
            20                  25                  30

Ile Pro Gln Pro Ser Pro Leu Arg Val Leu Leu Gly Thr Ser Leu Thr
        35                  40                  45

Ile Pro Cys Tyr Phe Ile Asp Pro Met His Pro Val Thr Thr Ala Pro
    50                  55                  60

Ser Thr Ala Pro Leu Ala Pro Arg Ile Lys Trp Ser Arg Val Ser Lys
65                  70                  75                  80

Glu Lys Glu Val Val Leu Leu Val Ala Thr Glu Gly Arg Val Arg Val
                85                  90                  95

Asn Ser Ala Tyr Gln Asp Lys Val Ser Leu Pro Asn Tyr Pro Ala Ile
            100                 105                 110

Pro Ser Asp Ala Thr Leu Glu Val Gln Ser Leu Arg Ser Asn Asp Ser
        115                 120                 125

Gly Val Tyr Arg Cys Glu Val Met His Gly Ile Glu Asp Ser Glu Ala
    130                 135                 140

Thr Leu Glu Val Val Val Lys Gly Ile Val Phe His Tyr Arg Ala Ile
145                 150                 155                 160

Ser Thr Arg Tyr Thr Leu Asp Phe Asp Arg Ala Gln Arg Ala Cys Leu
                165                 170                 175

Gln Asn Ser Ala Ile Ile Ala Thr Pro Glu Gln Leu Gln Ala Ala Tyr
            180                 185                 190

Glu Asp Gly Phe His Gln Cys Asp Ala Gly Trp Leu Ala Asp Gln Thr
        195                 200                 205

Val Arg Tyr Pro Ile His Thr Pro Arg Glu Gly Cys Tyr Gly Asp Lys
    210                 215                 220

Asp Glu Phe Pro Gly Val Arg Thr Tyr Gly Ile Arg Asp Thr Asn Glu
```

225 230 235 240

Thr Tyr Asp Val Tyr Cys Phe Ala Glu Glu Met Glu Gly Glu Val Phe
245 250 255

Tyr Ala Thr Ser Pro Glu Lys Phe Thr Phe Gln Glu Ala Ala Asn Glu
260 265 270

Cys Arg Arg Leu Gly Ala Arg Leu Ala Thr Thr Gly Gln Leu Tyr Leu
275 280 285

Ala Trp Gln Ala Gly Met Asp Met Cys Ser Ala Gly Trp Leu Ala Asp
290 295 300

Arg Ser Val Arg Tyr Pro Ile Ser Lys Ala Arg Pro Asn Cys Gly Gly
305 310 315 320

Asn Leu Leu Gly Val Arg Thr Val Tyr Val His Ala Asn Gln Thr Gly
325 330 335

Tyr Pro Asp Pro Ser Ser Arg Tyr Asp Ala Ile Cys Tyr Thr Gly Glu
340 345 350

Asp Phe Val Asp Ile Pro Glu Asn Phe Phe Gly Val Gly Gly Glu Glu
355 360 365

Asp Ile Thr Val Gln Thr Val Thr Trp Pro Asp Met Glu Leu Pro Leu
370 375 380

Pro Arg Asn Ile Thr Glu Gly Glu Ala Arg Gly Ser Val Ile Leu Thr
385 390 395 400

Val Lys Pro Ile Phe Glu Val Ser Pro Ser Pro Leu Glu Pro Glu Glu
405 410 415

Pro Phe Thr Phe Ala Pro Glu Ile Gly Ala Thr Ala Phe Ala Glu Val
420 425 430

Glu Asn Glu Thr Gly Glu Ala Thr Arg Pro Trp Gly Phe Pro Thr Pro
435 440 445

Gly Leu Gly Pro Ala Thr Ala Phe Thr Ser Glu Asp Leu Val Val Gln
450 455 460

```
Val Thr Ala Val Pro Gly Gln Pro His Leu Pro Gly Gly Val Val Phe
465                 470                 475                 480

His Tyr Arg Pro Gly Pro Thr Arg Tyr Ser Leu Thr Phe Glu Glu Ala
                485                 490                 495

Gln Gln Ala Cys Leu Arg Thr Gly Ala Val Ile Ala Ser Pro Glu Gln
            500                 505                 510

Leu Gln Ala Ala Tyr Glu Ala Gly Tyr Glu Gln Cys Asp Ala Gly Trp
        515                 520                 525

Leu Arg Asp Gln Thr Val Arg Tyr Pro Ile Val Ser Pro Arg Thr Pro
    530                 535                 540

Cys Val Gly Asp Lys Asp Ser Ser Pro Gly Val Arg Thr Tyr Gly Val
545                 550                 555                 560

Arg Pro Ser Thr Glu Thr Tyr Asp Val Tyr Cys Phe Val Asp Arg Leu
                565                 570                 575

Glu Gly Glu Val Phe Phe Ala Thr Arg Leu Glu Gln Phe Thr Phe Gln
            580                 585                 590

Glu Ala Leu Glu Phe Cys Glu Ser His Asn Ala Thr Leu Ala Thr Thr
        595                 600                 605

Gly Gln Leu Tyr Ala Ala Trp Ser Arg Gly Leu Asp Lys Cys Tyr Ala
    610                 615                 620

Gly Trp Leu Ala Asp Gly Ser Leu Arg Tyr Pro Ile Val Thr Pro Arg
625                 630                 635                 640

Pro Ala Cys Gly Gly Asp Lys Pro Gly Val Arg Thr Val Tyr Leu Tyr
                645                 650                 655

Pro Asn Gln Thr Gly Leu Pro Asp Pro Leu Ser Arg His His Ala Phe
            660                 665                 670

Cys Phe Arg Gly Ile Ser Ala Val Pro Ser Pro Gly Glu Glu Glu Gly
        675                 680                 685
```

```
Gly Thr Pro Thr Ser Pro Ser Gly Val Glu Glu Trp Ile Val Thr Gln
    690                 695                 700

Val Val Pro Gly Val Ala Ala Val Pro Val Glu Glu Glu Thr Thr Ala
705                 710                 715                 720

Val Pro Ser Gly Glu Thr Thr Ala Ile Leu Glu Phe Thr Thr Glu Pro
                725                 730                 735

Glu Asn Gln Thr Glu Trp Glu Pro Ala Tyr Thr Pro Val Gly Thr Ser
            740                 745                 750

Pro Leu Pro Gly Ile Leu Pro Thr Trp Pro Pro Thr Gly Ala Ala Thr
        755                 760                 765

Glu Glu Ser Thr Glu Gly Pro Ser Ala Thr Glu Val Pro Ser Ala Ser
    770                 775                 780

Glu Glu Pro Ser Pro Ser Glu Val Pro Phe Pro Ser Glu Glu Pro Ser
785                 790                 795                 800

Pro Ser Glu Glu Pro Phe Pro Ser Val Arg Pro Phe Pro Ser Val Glu
                805                 810                 815

Leu Phe Pro Ser Glu Glu Pro Phe Pro Ser Lys Glu Pro Ser Pro Ser
            820                 825                 830

Glu Glu Pro Ser Ala Ser Glu Glu Pro Tyr Thr Pro Ser Pro Pro Val
        835                 840                 845

Pro Ser Trp Thr Glu Leu Pro Ser Ser Gly Glu Glu Ser Gly Ala Pro
    850                 855                 860

Asp Val Ser Gly Asp Phe Thr Gly Ser Gly Asp Val Ser Gly His Leu
865                 870                 875                 880

Asp Phe Ser Gly Gln Leu Ser Gly Asp Arg Ala Ser Gly Leu Pro Ser
                885                 890                 895

Gly Asp Leu Asp Ser Ser Gly Leu Thr Ser Thr Val Gly Ser Gly Leu
            900                 905                 910
```

```
Pro Val Glu Ser Gly Leu Pro Ser Gly Asp Glu Glu Arg Ile Glu Trp
        915                 920                 925

Pro Ser Thr Pro Thr Val Gly Glu Leu Pro Ser Gly Ala Glu Ile Leu
    930                 935                 940

Glu Gly Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
945                 950                 955                 960

Glu Val Leu Glu Thr Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu
                965                 970                 975

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile
            980                 985                 990

Ser Gly Leu Pro Ser Gly Glu Val  Leu Glu Thr Thr Ala  Pro Gly
Val
        995                 1000                1005

Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu Val Leu  Glu Thr Thr
    1010                1015                1020

Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val
    1025                1030                1035

Leu Glu  Thr Thr Ala Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro
    1040                1045                1050

Ser Gly  Glu Val Leu Glu Thr  Thr Ala Pro Gly Val  Glu Asp Ile
    1055                1060                1065

Ser Gly  Leu Pro Ser Gly Glu  Val Leu Glu Thr Thr  Ala Pro Gly
    1070                1075                1080

Val Glu  Asp Ile Ser Gly Leu  Pro Ser Gly Glu Val  Leu Glu Thr
    1085                1090                1095

Ala Ala  Pro Gly Val Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu
    1100                1105                1110

Val Leu  Glu Thr Ala Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu
    1115                1120                1125
```

Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp
1130 1135 1140

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro
1145 1150 1155

Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu
1160 1165 1170

Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly
1175 1180 1185

Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly
1190 1195 1200

Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu
1205 1210 1215

Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala
1220 1225 1230

Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu
1235 1240 1245

Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser
1250 1255 1260

Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser
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Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val
1280 1285 1290

Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala
1295 1300 1305

Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val
1310 1315 1320

Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro
1325 1330 1335

Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile

1340 1345 1350

Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly
1355 1360 1365

Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr
1370 1375 1380

Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu
1385 1390 1395

Val Leu Glu Thr Thr Ala Pro Gly Val Glu Glu Ile Ser Gly Leu
1400 1405 1410

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Asp Glu
1415 1420 1425

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro
1430 1435 1440

Gly Val Glu Glu Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu
1445 1450 1455

Thr Ser Thr Ser Ala Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
1460 1465 1470

Gly Glu Val Leu Glu Ile Ser Val Ser Gly Val Glu Asp Ile Ser
1475 1480 1485

Gly Leu Pro Ser Gly Glu Val Val Glu Thr Ser Ala Ser Gly Ile
1490 1495 1500

Glu Asp Val Ser Glu Leu Pro Ser Gly Glu Gly Leu Glu Thr Ser
1505 1510 1515

Ala Ser Gly Val Glu Asp Leu Ser Arg Leu Pro Ser Gly Glu Glu
1520 1525 1530

Val Leu Glu Ile Ser Ala Ser Gly Phe Gly Asp Leu Ser Gly Leu
1535 1540 1545

Pro Ser Gly Gly Glu Gly Leu Glu Thr Ser Ala Ser Glu Val Gly
1550 1555 1560

```
Thr Asp  Leu Ser Gly Leu Pro  Ser Gly Arg Glu Gly  Leu Glu Thr
    1565                1570                1575

Ser Ala  Ser Gly Ala Glu Asp  Leu Ser Gly Leu Pro  Ser Gly Lys
    1580                1585                1590

Glu Asp  Leu Val Gly Ser Ala  Ser Gly Asp Leu Asp  Leu Gly Lys
    1595                1600                1605

Leu Pro  Ser Gly Thr Leu Gly  Ser Gly Gln Ala Pro  Glu Thr Ser
    1610                1615                1620

Gly Leu  Pro Ser Gly Phe Ser  Gly Glu Tyr Ser Gly  Val Asp Leu
    1625                1630                1635

Gly Ser  Gly Pro Pro Ser Gly  Leu Pro Asp Phe Ser  Gly Leu Pro
    1640                1645                1650

Ser Gly  Phe Pro Thr Val Ser  Leu Val Asp Ser Thr  Leu Val Glu
    1655                1660                1665

Val Val  Thr Ala Ser Thr Ala  Ser Glu Leu Glu Gly  Arg Gly Thr
    1670                1675                1680

Ile Gly  Ile Ser Gly Ala Gly  Glu Ile Ser Gly Leu  Pro Ser Ser
    1685                1690                1695

Glu Leu  Asp Ile Ser Gly Arg  Ala Ser Gly Leu Pro  Ser Gly Thr
    1700                1705                1710

Glu Leu  Ser Gly Gln Ala Ser  Gly Ser Pro Asp Val  Ser Gly Glu
    1715                1720                1725

Ile Pro  Gly Leu Phe Gly Val  Ser Gly Gln Pro Ser  Gly Phe Pro
    1730                1735                1740

Asp Thr  Ser Gly Glu Thr Ser  Gly Val Thr Glu Leu  Ser Gly Leu
    1745                1750                1755

Ser Ser  Gly Gln Pro Gly Ile  Ser Gly Glu Ala Ser  Gly Val Leu
    1760                1765                1770
```

```
Tyr Gly  Thr Ser Gln Pro Phe  Gly Ile Thr Asp Leu  Ser Gly Glu
    1775                1780                1785

Thr Ser  Gly Val Pro Asp Leu  Ser Gly Gln Pro Ser  Gly Leu Pro
    1790                1795                1800

Gly Phe  Ser Gly Ala Thr Ser  Gly Val Pro Asp Leu  Val Ser Gly
    1805                1810                1815

Thr Thr  Ser Gly Ser Gly Glu  Ser Ser Gly Ile Thr  Phe Val Asp
    1820                1825                1830

Thr Ser  Leu Val Glu Val Ala  Pro Thr Thr Phe Lys  Glu Glu Glu
    1835                1840                1845

Gly Leu  Gly Ser Val Glu Leu  Ser Gly Leu Pro Ser  Gly Glu Ala
    1850                1855                1860

Asp Leu  Ser Gly Lys Ser Gly  Met Val Asp Val Ser  Gly Gln Phe
    1865                1870                1875

Ser Gly  Thr Val Asp Ser Ser  Gly Phe Thr Ser Gln  Thr Pro Glu
    1880                1885                1890

Phe Ser  Gly Leu Pro Ser Gly  Ile Ala Glu Val Ser  Gly Glu Ser
    1895                1900                1905

Ser Arg  Ala Glu Ile Gly Ser  Ser Leu Pro Ser Gly  Ala Tyr Tyr
    1910                1915                1920

Gly Ser  Gly Thr Pro Ser Ser  Phe Pro Thr Val Ser  Leu Val Asp
    1925                1930                1935

Arg Thr  Leu Val Glu Ser Val  Thr Gln Ala Pro Thr  Ala Gln Glu
    1940                1945                1950

Ala Gly  Glu Gly Pro Ser Gly  Ile Leu Glu Leu Ser  Gly Ala His
    1955                1960                1965

Ser Gly  Ala Pro Asp Met Ser  Gly Glu His Ser Gly  Phe Leu Asp
    1970                1975                1980
```

```
Leu Ser  Gly Leu Gln Ser Gly  Leu Ile Glu Pro Ser  Gly Glu Pro
    1985                1990                1995

Pro Gly  Thr Pro Tyr Phe Ser  Gly Asp Phe Ala Ser  Thr Thr Asn
    2000                2005                2010

Val Ser  Gly Glu Ser Ser Val  Ala Met Gly Thr Ser  Gly Glu Ala
    2015                2020                2025

Ser Gly  Leu Pro Glu Val Thr  Leu Ile Thr Ser Glu  Phe Val Glu
    2030                2035                2040

Gly Val  Thr Glu Pro Thr Ile  Ser Gln Glu Leu Gly  Gln Arg Pro
    2045                2050                2055

Pro Val  Thr His Thr Pro Gln  Leu Phe Glu Ser Ser  Gly Lys Val
    2060                2065                2070

Ser Thr  Ala Gly Asp Ile Ser  Gly Ala Thr Pro Val  Leu Pro Gly
    2075                2080                2085

Ser Gly  Val Glu Val Ser Ser  Val Pro Glu Ser Ser  Ser Glu Thr
    2090                2095                2100

Ser Ala  Tyr Pro Glu Ala Gly  Phe Gly Ala Ser Ala  Ala Pro Glu
    2105                2110                2115

Ala Ser  Arg Glu Asp Ser Gly  Ser Pro Asp Leu Ser  Glu Thr Thr
    2120                2125                2130

Ser Ala  Phe His Glu Ala Asn  Leu Glu Arg Ser Ser  Gly Leu Gly
    2135                2140                2145

Val Ser  Gly Ser Thr Leu Thr  Phe Gln Glu Gly Glu  Ala Ser Ala
    2150                2155                2160

Ala Pro  Glu Val Ser Gly Glu  Ser Thr Thr Thr Ser  Asp Val Gly
    2165                2170                2175

Thr Glu  Ala Pro Gly Leu Pro  Ser Ala Thr Pro Thr  Ala Ser Gly
    2180                2185                2190

Asp Arg  Thr Glu Ile Ser Gly  Asp Leu Ser Gly His  Thr Ser Gln
```

2195 2200 2205

Leu Gly Val Val Ile Ser Thr Ser Ile Pro Glu Ser Glu Trp Thr
2210 2215 2220

Gln Gln Thr Gln Arg Pro Ala Glu Thr His Leu Glu Ile Glu Ser
2225 2230 2235

Ser Ser Leu Leu Tyr Ser Gly Glu Glu Thr His Thr Val Glu Thr
2240 2245 2250

Ala Thr Ser Pro Thr Asp Ala Ser Ile Pro Ala Ser Pro Glu Trp
2255 2260 2265

Lys Arg Glu Ser Glu Ser Thr Ala Ala Asp Gln Glu Val Cys Glu
2270 2275 2280

Glu Gly Trp Asn Lys Tyr Gln Gly His Cys Tyr Arg His Phe Pro
2285 2290 2295

Asp Arg Glu Thr Trp Val Asp Ala Glu Arg Arg Cys Arg Glu Gln
2300 2305 2310

Gln Ser His Leu Ser Ser Ile Val Thr Pro Glu Glu Gln Glu Phe
2315 2320 2325

Val Asn Asn Asn Ala Gln Asp Tyr Gln Trp Ile Gly Leu Asn Asp
2330 2335 2340

Arg Thr Ile Glu Gly Asp Phe Arg Trp Ser Asp Gly His Pro Met
2345 2350 2355

Gln Phe Glu Asn Trp Arg Pro Asn Gln Pro Asp Asn Phe Phe Ala
2360 2365 2370

Ala Gly Glu Asp Cys Val Val Met Ile Trp His Glu Lys Gly Glu
2375 2380 2385

Trp Asn Asp Val Pro Cys Asn Tyr His Leu Pro Phe Thr Cys Lys
2390 2395 2400

Lys Gly Thr Val Ala Cys Gly Glu Pro Pro Val Val Glu His Ala
2405 2410 2415

```
Arg Thr  Phe Gly Gln Lys Lys  Asp Arg Tyr Glu Ile  Asn Ser Leu
    2420                2425                2430

Val Arg  Tyr Gln Cys Thr Glu  Gly Phe Val Gln Arg  His Met Pro
    2435                2440                2445

Thr Ile  Arg Cys Gln Pro Ser  Gly His Trp Glu Glu  Pro Gln Ile
    2450                2455                2460

Thr Cys  Thr Asp Pro Thr Thr  Tyr Lys Arg Arg Leu  Gln Lys Arg
    2465                2470                2475

Ser Ser  Arg His Pro Arg Arg  Ser Arg Pro Ser Thr  Ala His
    2480                2485                2490


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<220>
<221> source
<223> /note="Gene Symbol: ACAN; "

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<221> source
<223> /note="Gene Name:
      aggrecan; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453581"


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<222> (1)..(1)
<223> Any amino acid

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1               5                  10                  15

Glu Ala Pro Gly Leu Pro Ser Ala Thr Pro Thr Ala Ser Gly Asp Arg
            20                  25                  30
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Thr Glu Ile Ser Gly Asp Leu Ser Gly His Thr Ser Gln Leu Gly Val
35 40 45

Val Ile Ser Thr Ser Ile Pro Glu Ser Glu Trp Thr Gln Gln Thr Gln
50 55 60

Arg Pro Ala Glu Thr His Leu Glu Ile Glu Ser Ser Ser Leu Leu Tyr
65 70 75 80

Ser Gly Glu Glu Thr His Thr Val Glu Thr Ala Thr Ser Pro Thr Asp
85 90 95

Ala Ser Ile Pro Ala Ser Pro Glu Trp Lys Arg Glu Ser Glu Ser Thr
100 105 110

Ala Ala Ala Pro Ala Arg Ser Cys Ala Glu Glu Pro Cys Gly Ala Gly
115 120 125

Thr Cys Lys Glu Thr Glu Gly His Val Ile Cys Leu Cys Pro Pro Gly
130 135 140

Tyr Thr Gly Glu His Cys Asn Ile Asp Ile Asp Glu Cys Leu Ser Ser
145 150 155 160

Pro Cys Leu Asn Gly Ala Thr Cys Val Asp Ala Ile Asp Ser Phe Thr
165 170 175

Cys Leu Cys Leu Pro Ser Tyr Glu Gly Asp Leu Cys Glu Ile Asp Gln
180 185 190

Glu Val Cys Glu Glu Gly Trp Asn Lys Tyr Gln Gly His Cys Tyr Arg
195 200 205

His Phe Pro Asp Arg Glu Thr Trp Val Asp Ala Glu Arg Arg Cys Arg
210 215 220

Glu Gln
225

<210> 3640
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<212> PRT

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1 5 10 15

Ala Val Thr Val Glu Thr Ser Asp His Asp Asn Ser Leu Ser Val Ser
20 25 30

Ile Pro Gln Pro Ser Pro Leu Arg Val Leu Leu Gly Thr Ser Leu Thr
35 40 45

Ile Pro Cys Tyr Phe Ile Asp Pro Met His Pro Val Thr Thr Ala Pro
50 55 60

Ser Thr Ala Pro Leu Ala Pro Arg Ile Lys Trp Ser Arg Val Ser Lys
65 70 75 80

Glu Lys Glu Val Val Leu Leu Val Ala Thr Glu Gly Arg Val Arg Val
85 90 95

Asn Ser Ala Tyr Gln Asp Lys Val Ser Leu Pro Asn Tyr Pro Ala Ile
100 105 110

Pro Ser Asp Ala Thr Leu Glu Val Gln Ser Leu Arg Ser Asn Asp Ser
115 120 125

Gly Val Tyr Arg Cys Glu Val Met His Gly Ile Glu Asp Ser Glu Ala
130 135 140

Thr Leu Glu Val Val Val Lys Gly Ile Val Phe His Tyr Arg Ala Ile

```
145                 150                 155                 160

Ser Thr Arg Tyr Thr Leu Asp Phe Asp Arg Ala Gln Arg Ala Cys Leu
                165                 170                 175

Gln Asn Ser Ala Ile Ile Ala Thr Pro Glu Gln Leu Gln Ala Ala Tyr
            180                 185                 190

Glu Asp Gly Phe His Gln Cys Asp Ala Gly Trp Leu Ala Asp Gln Thr
        195                 200                 205

Val Arg Tyr Pro Ile His Thr Pro Arg Glu Gly Cys Tyr Gly Asp Lys
    210                 215                 220

Asp Glu Phe Pro Gly Val Arg Thr Tyr Gly Ile Arg Asp Thr Asn Glu
225                 230                 235                 240

Thr Tyr Asp Val Tyr Cys Phe Ala Glu Glu Met Glu Gly Glu Val Phe
                245                 250                 255

Tyr Ala Thr Ser Pro Glu Lys Phe Thr Phe Gln Glu Ala Ala Asn Glu
            260                 265                 270

Cys Arg Arg Leu Gly Ala Arg Leu Ala Thr Thr Gly Gln Leu Tyr Leu
        275                 280                 285

Ala Trp Gln Ala Gly Met Asp Met Cys Ser Ala Gly Trp Leu Ala Asp
    290                 295                 300

Arg Ser Val Arg Tyr Pro Ile Ser Lys Ala Arg Pro Asn Cys Gly Gly
305                 310                 315                 320

Asn Leu Leu Gly Val Arg Thr Val Tyr Val His Ala Asn Gln Thr Gly
                325                 330                 335

Tyr Pro Asp Pro Ser Ser Arg Tyr Asp Ala Ile Cys Tyr Thr Gly Glu
            340                 345                 350

Asp Phe Val Asp Ile Pro Glu Asn Phe Phe Gly Val Gly Gly Glu Glu
        355                 360                 365

Asp Ile Thr Val Gln Thr Val Thr Trp Pro Asp Met Glu Leu Pro Leu
    370                 375                 380
```

```
Pro Arg Asn Ile Thr Glu Gly Glu Ala Arg Gly Ser Val Ile Leu Thr
385                 390                 395                 400

Val Lys Pro Ile Phe Glu Val Ser Pro Ser Pro Leu Glu Pro Glu Glu
                405                 410                 415

Pro Phe Thr Phe Ala Pro Glu Ile Gly Ala Thr Ala Phe Ala Glu Val
            420                 425                 430

Glu Asn Glu Thr Gly Glu Ala Thr Arg Pro Trp Gly Phe Pro Thr Pro
        435                 440                 445

Gly Leu Gly Pro Ala Thr Ala Phe Thr Ser Glu Asp Leu Val Val Gln
    450                 455                 460

Val Thr Ala Val Pro Gly Gln Pro His Leu Pro Gly Gly Val Val Phe
465                 470                 475                 480

His Tyr Arg Pro Gly Pro Thr Arg Tyr Ser Leu Thr Phe Glu Glu Ala
                485                 490                 495

Gln Gln Ala Cys Leu Arg Thr Gly Ala Val Ile Ala Ser Pro Glu Gln
            500                 505                 510

Leu Gln Ala Ala Tyr Glu Ala Gly Tyr Glu Gln Cys Asp Ala Gly Trp
        515                 520                 525

Leu Arg Asp Gln Thr Val Arg Tyr Pro Ile Val Ser Pro Arg Thr Pro
    530                 535                 540

Cys Val Gly Asp Lys Asp Ser Ser Pro Gly Val Arg Thr Tyr Gly Val
545                 550                 555                 560

Arg Pro Ser Thr Glu Thr Tyr Asp Val Tyr Cys Phe Val Asp Arg Leu
                565                 570                 575

Glu Gly Glu Val Phe Phe Ala Thr Arg Leu Glu Gln Phe Thr Phe Gln
            580                 585                 590

Glu Ala Leu Glu Phe Cys Glu Ser His Asn Ala Thr Leu Ala Thr Thr
        595                 600                 605
```

```
Gly Gln Leu Tyr Ala Ala Trp Ser Arg Gly Leu Asp Lys Cys Tyr Ala
    610                 615                 620

Gly Trp Leu Ala Asp Gly Ser Leu Arg Tyr Pro Ile Val Thr Pro Arg
625                 630                 635                 640

Pro Ala Cys Gly Gly Asp Lys Pro Gly Val Arg Thr Val Tyr Leu Tyr
                645                 650                 655

Pro Asn Gln Thr Gly Leu Pro Asp Pro Leu Ser Arg His His Ala Phe
            660                 665                 670

Cys Phe Arg Gly Ile Ser Ala Val Pro Ser Pro Gly Glu Glu Glu Gly
        675                 680                 685

Gly Thr Pro Thr Ser Pro Ser Gly Val Glu Glu Trp Ile Val Thr Gln
    690                 695                 700

Val Val Pro Gly Val Ala Ala Val Pro Val Glu Glu Glu Thr Thr Ala
705                 710                 715                 720

Val Pro Ser Gly Glu Thr Thr Ala Ile Leu Glu Phe Thr Thr Glu Pro
                725                 730                 735

Glu Asn Gln Thr Glu Trp Glu Pro Ala Tyr Thr Pro Val Gly Thr Ser
            740                 745                 750

Pro Leu Pro Gly Ile Leu Pro Thr Trp Pro Pro Thr Gly Ala Ala Thr
        755                 760                 765

Glu Glu Ser Thr Glu Gly Pro Ser Ala Thr Glu Val Pro Ser Ala Ser
    770                 775                 780

Glu Glu Pro Ser Pro Ser Glu Val Pro Phe Pro Ser Glu Glu Pro Ser
785                 790                 795                 800

Pro Ser Glu Glu Pro Phe Pro Ser Val Arg Pro Phe Pro Ser Val Glu
                805                 810                 815

Leu Phe Pro Ser Glu Glu Pro Phe Pro Ser Lys Glu Pro Ser Pro Ser
            820                 825                 830
```

```
Glu Glu Pro Ser Ala Ser Glu Glu Pro Tyr Thr Pro Ser Pro Pro Val
        835                 840                 845

Pro Ser Trp Thr Glu Leu Pro Ser Ser Gly Glu Glu Ser Gly Ala Pro
    850                 855                 860

Asp Val Ser Gly Asp Phe Thr Gly Ser Gly Asp Val Ser Gly His Leu
865                 870                 875                 880

Asp Phe Ser Gly Gln Leu Ser Gly Asp Arg Ala Ser Gly Leu Pro Ser
                885                 890                 895

Gly Asp Leu Asp Ser Ser Gly Leu Thr Ser Thr Val Gly Ser Gly Leu
            900                 905                 910

Pro Val Glu Ser Gly Leu Pro Ser Gly Asp Glu Glu Arg Ile Glu Trp
        915                 920                 925

Pro Ser Thr Pro Thr Val Gly Glu Leu Pro Ser Gly Ala Glu Ile Leu
    930                 935                 940

Glu Gly Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu Pro Ser Gly
945                 950                 955                 960

Glu Val Leu Glu Thr Ser Ala Ser Gly Val Gly Asp Leu Ser Gly Leu
                965                 970                 975

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile
            980                 985                 990

Ser Gly Leu Pro Ser Gly Glu Val  Leu Glu Thr Thr Ala  Pro Gly
Val
        995                 1000                1005

Glu Asp  Ile Ser Gly Leu Pro  Ser Gly Glu Val Leu  Glu Thr Thr
    1010                1015                1020

Ala Pro  Gly Val Glu Asp Ile  Ser Gly Leu Pro Ser  Gly Glu Val
    1025                1030                1035

Leu Glu  Thr Thr Ala Pro Gly  Val Glu Asp Ile Ser  Gly Leu Pro
    1040                1045                1050
```

Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Asp Ile
1055 1060 1065

Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly
1070 1075 1080

Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr
1085 1090 1095

Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu
1100 1105 1110

Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu
1115 1120 1125

Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp
1130 1135 1140

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro
1145 1150 1155

Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu
1160 1165 1170

Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly
1175 1180 1185

Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly
1190 1195 1200

Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu
1205 1210 1215

Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala
1220 1225 1230

Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu
1235 1240 1245

Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser
1250 1255 1260

Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser

1265 1270 1275

Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val
1280 1285 1290

Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala
1295 1300 1305

Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val
1310 1315 1320

Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile Ser Gly Leu Pro
1325 1330 1335

Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly Val Glu Asp Ile
1340 1345 1350

Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ala Ala Pro Gly
1355 1360 1365

Val Glu Asp Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr
1370 1375 1380

Thr Ala Pro Gly Val Glu Glu Ile Ser Gly Leu Pro Ser Gly Glu
1385 1390 1395

Val Leu Glu Thr Thr Ala Pro Gly Val Asp Glu Ile Ser Gly Leu
1400 1405 1410

Pro Ser Gly Glu Val Leu Glu Thr Thr Ala Pro Gly Val Glu Glu
1415 1420 1425

Ile Ser Gly Leu Pro Ser Gly Glu Val Leu Glu Thr Ser Thr Ser
1430 1435 1440

Ala Val Gly Asp Leu Ser Gly Leu Pro Ser Gly Gly Glu Val Leu
1445 1450 1455

Glu Ile Ser Val Ser Gly Val Glu Asp Ile Ser Gly Leu Pro Ser
1460 1465 1470

Gly Glu Val Val Glu Thr Ser Ala Ser Gly Ile Glu Asp Val Ser
1475 1480 1485

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Glu Leu  Pro Ser Gly Glu Gly  Leu Glu Thr Ser Ala  Ser Gly Val
    1490                 1495                 1500

Glu Asp  Leu Ser Arg Leu Pro  Ser Gly Glu Glu Val  Leu Glu Ile
    1505                 1510                 1515

Ser Ala  Ser Gly Phe Gly Asp  Leu Ser Gly Leu Pro  Ser Gly Gly
    1520                 1525                 1530

Glu Gly  Leu Glu Thr Ser Ala  Ser Glu Val Gly Thr  Asp Leu Ser
    1535                 1540                 1545

Gly Leu  Pro Ser Gly Arg Glu  Gly Leu Glu Thr Ser  Ala Ser Gly
    1550                 1555                 1560

Ala Glu  Asp Leu Ser Gly Leu  Pro Ser Gly Lys Glu  Asp Leu Val
    1565                 1570                 1575

Gly Ser  Ala Ser Gly Asp Leu  Asp Leu Gly Lys Leu  Pro Ser Gly
    1580                 1585                 1590

Thr Leu  Gly Ser Gly Gln Ala  Pro Glu Thr Ser Gly  Leu Pro Ser
    1595                 1600                 1605

Gly Phe  Ser Gly Glu Tyr Ser  Gly Val Asp Leu Gly  Ser Gly Pro
    1610                 1615                 1620

Pro Ser  Gly Leu Pro Asp Phe  Ser Gly Leu Pro Ser  Gly Phe Pro
    1625                 1630                 1635

Thr Val  Ser Leu Val Asp Ser  Thr Leu Val Glu Val  Val Thr Ala
    1640                 1645                 1650

Ser Thr  Ala Ser Glu Leu Glu  Gly Arg Gly Thr Ile  Gly Ile Ser
    1655                 1660                 1665

Gly Ala  Gly Glu Ile Ser Gly  Leu Pro Ser Ser Glu  Leu Asp Ile
    1670                 1675                 1680

Ser Gly  Arg Ala Ser Gly Leu  Pro Ser Gly Thr Glu  Leu Ser Gly
    1685                 1690                 1695
```

```
Gln Ala  Ser Gly Ser Pro Asp  Val Ser Gly Glu Ile  Pro Gly Leu
    1700                1705                1710

Phe Gly  Val Ser Gly Gln Pro  Ser Gly Phe Pro Asp  Thr Ser Gly
    1715                1720                1725

Glu Thr  Ser Gly Val Thr Glu  Leu Ser Gly Leu Ser  Ser Gly Gln
    1730                1735                1740

Pro Gly  Ile Ser Gly Glu Ala  Ser Gly Val Leu Tyr  Gly Thr Ser
    1745                1750                1755

Gln Pro  Phe Gly Ile Thr Asp  Leu Ser Gly Glu Thr  Ser Gly Val
    1760                1765                1770

Pro Asp  Leu Ser Gly Gln Pro  Ser Gly Leu Pro Gly  Phe Ser Gly
    1775                1780                1785

Ala Thr  Ser Gly Val Pro Asp  Leu Val Ser Gly Thr  Thr Ser Gly
    1790                1795                1800

Ser Gly  Glu Ser Ser Gly Ile  Thr Phe Val Asp Thr  Ser Leu Val
    1805                1810                1815

Glu Val  Ala Pro Thr Thr Phe  Lys Glu Glu Glu Gly  Leu Gly Ser
    1820                1825                1830

Val Glu  Leu Ser Gly Leu Pro  Ser Gly Glu Ala Asp  Leu Ser Gly
    1835                1840                1845

Lys Ser  Gly Met Val Asp Val  Ser Gly Gln Phe Ser  Gly Thr Val
    1850                1855                1860

Asp Ser  Ser Gly Phe Thr Ser  Gln Thr Pro Glu Phe  Ser Gly Leu
    1865                1870                1875

Pro Ser  Gly Ile Ala Glu Val  Ser Gly Glu Ser Ser  Arg Ala Glu
    1880                1885                1890

Ile Gly  Ser Ser Leu Pro Ser  Gly Ala Tyr Tyr Gly  Ser Gly Thr
    1895                1900                1905
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```
Pro Ser  Ser Phe Pro Thr Val  Ser Leu Val Asp Arg  Thr Leu Val
    1910                1915                1920

Glu Ser  Val Thr Gln Ala Pro  Thr Ala Gln Glu Ala  Gly Glu Gly
    1925                1930                1935

Pro Ser  Gly Ile Leu Glu Leu  Ser Gly Ala His Ser  Gly Ala Pro
    1940                1945                1950

Asp Met  Ser Gly Glu His Ser  Gly Phe Leu Asp Leu  Ser Gly Leu
    1955                1960                1965

Gln Ser  Gly Leu Ile Glu Pro  Ser Gly Glu Pro Pro  Gly Thr Pro
    1970                1975                1980

Tyr Phe  Ser Gly Asp Phe Ala  Ser Thr Thr Asn Val  Ser Gly Glu
    1985                1990                1995

Ser Ser  Val Ala Met Gly Thr  Ser Gly Glu Ala Ser  Gly Leu Pro
    2000                2005                2010

Glu Val  Thr Leu Ile Thr Ser  Glu Phe Val Glu Gly  Val Thr Glu
    2015                2020                2025

Pro Thr  Ile Ser Gln Glu Leu  Gly Gln Arg Pro Pro  Val Thr His
    2030                2035                2040

Thr Pro  Gln Leu Phe Glu Ser  Ser Gly Lys Val Ser  Thr Ala Gly
    2045                2050                2055

Asp Ile  Ser Gly Ala Thr Pro  Val Leu Pro Gly Ser  Gly Val Glu
    2060                2065                2070

Val Ser  Ser Val Pro Glu Ser  Ser Ser Glu Thr Ser  Ala Tyr Pro
    2075                2080                2085

Glu Ala  Gly Phe Gly Ala Ser  Ala Ala Pro Glu Ala  Ser Arg Glu
    2090                2095                2100

Asp Ser  Gly Ser Pro Asp Leu  Ser Glu Thr Thr Ser  Ala Phe His
    2105                2110                2115

Glu Ala  Asn Leu Glu Arg Ser  Ser Gly Leu Gly Val  Ser Gly Ser
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2120 2125 2130

Thr Leu Thr Phe Gln Glu Gly Glu Ala Ser Ala Ala Pro Glu Val
2135 2140 2145

Ser Gly Glu Ser Thr Thr Thr Ser Asp Val Gly Thr Glu Ala Pro
2150 2155 2160

Gly Leu Pro Ser Ala Thr Pro Thr Ala Ser Gly Asp Arg Thr Glu
2165 2170 2175

Ile Ser Gly Asp Leu Ser Gly His Thr Ser Gln Leu Gly Val Val
2180 2185 2190

Ile Ser Thr Ser Ile Pro Glu Ser Glu Trp Thr Gln Gln Thr Gln
2195 2200 2205

Arg Pro Ala Glu Thr His Leu Glu Ile Glu Ser Ser Ser Leu Leu
2210 2215 2220

Tyr Ser Gly Glu Glu Thr His Thr Val Glu Thr Ala Thr Ser Pro
2225 2230 2235

Thr Asp Ala Ser Ile Pro Ala Ser Pro Glu Trp Lys Arg Glu Ser
2240 2245 2250

Glu Ser Thr Ala Ala Asp Gln Glu Val Cys Glu Glu Gly Trp Asn
2255 2260 2265

Lys Tyr Gln Gly His Cys Tyr Arg His Phe Pro Asp Arg Glu Thr
2270 2275 2280

Trp Val Asp Ala Glu Arg Arg Cys Arg Glu Gln Gln Ser His Leu
2285 2290 2295

Ser Ser Ile Val Thr Pro Glu Glu Gln Glu Phe Val Asn Asn Asn
2300 2305 2310

Ala Gln Asp Tyr Gln Trp Ile Gly Leu Asn Asp Arg Thr Ile Glu
2315 2320 2325

Gly Asp Phe Arg Trp Ser Asp Gly His Pro Met Gln Phe Glu Asn
2330 2335 2340

```
Trp Arg  Pro Asn Gln Pro Asp  Asn Phe Phe Ala Ala  Gly Glu Asp
    2345                2350                2355

Cys Val  Val Met Ile Trp His  Glu Lys Gly Glu Trp  Asn Asp Val
    2360                2365                2370

Pro Cys  Asn Tyr His Leu Pro  Phe Thr Cys Lys Lys  Gly Thr Val
    2375                2380                2385

Ala Cys  Gly Glu Pro Pro Val  Val Glu His Ala Arg  Thr Phe Gly
    2390                2395                2400

Gln Lys  Lys Asp Arg Tyr Glu  Ile Asn Ser Leu Val  Arg Tyr Gln
    2405                2410                2415

Cys Thr  Glu Gly Phe Val Gln  Arg His Met Pro Thr  Ile Arg Cys
    2420                2425                2430

Gln Pro  Ser Gly His Trp Glu  Glu Pro Gln Ile Thr  Cys Thr Asp
    2435                2440                2445

Pro Thr  Thr Tyr Lys Arg Arg  Leu Gln Lys Arg Ser  Ser Arg His
    2450                2455                2460

Pro Arg  Arg Ser Arg Pro Ser  Thr Ala His
    2465                2470


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Val Gly Ala Arg Pro Ala Ala Gly Leu Phe His Pro Gly Arg Arg Gln
            20   25   30

Ser Arg Gln Ala Ser Asp Ala Pro Arg Asn Gln Pro Pro Ser Pro Glu
        35   40   45

Phe Val Ala Arg Pro Val Gly Val Cys Ser Met Met Arg Leu Pro Val
    50   55   60

Gln Thr Ser Pro Glu Gly Leu Asp Ala Ala Phe Ile Gly Val Pro Leu
65   70   75   80

Asp Thr Gly Thr Ser Asn Arg Pro Gly Ala Arg Phe Gly Pro Arg Arg
                85   90   95

Ile Arg Glu Glu Ser Val Met Leu Gly Thr Val Asn Pro Ser Thr Gly
            100   105   110

Ala Leu Pro Phe Gln Ser Leu Met Val Ala Asp Leu Gly Asp Val Asn
        115   120   125

Val Asn Leu Tyr Asn Leu Gln Asp Ser Cys Arg Arg Ile Gln Glu Ala
    130   135   140

Tyr Glu Lys Ile Val Ala Ala Gly Cys Ile Pro Leu Thr Leu Gly Gly
145   150   155   160

Asp His Thr Ile Thr Tyr Pro Ile Leu Gln Ala Met Ala Lys Lys His
                165   170   175

Gly Pro Val Gly Leu Leu His Val Asp Ala His Thr Asp Thr Thr Asp
            180   185   190

Lys Ala Leu Gly Glu Lys Leu Tyr His Gly Ala Pro Phe Arg Arg Cys

```
        195                 200                 205

Val Asp Glu Gly Leu Leu Asp Cys Lys Arg Val Val Gln Ile Gly Ile
    210                 215                 220

Arg Gly Ser Ser Thr Thr Leu Asp Pro Tyr Arg Tyr Asn Arg Ser Gln
225                 230                 235                 240

Gly Phe Arg Val Val Leu Ala Glu Asp Cys Trp Met Lys Ser Leu Val
                245                 250                 255

Pro Leu Met Gly Glu Val Arg Gln Gln Met Gly Gly Lys Pro Ile Tyr
            260                 265                 270

Ile Ser Phe Asp Ile Asp Ala Leu Asp Pro Ala Tyr Ala Pro Gly Thr
        275                 280                 285

Gly Thr Pro Glu Ile Ala Gly Leu Thr Pro Ser Gln Ala Leu Glu Ile
    290                 295                 300

Ile Arg Gly Cys Gln Gly Leu Asn Val Met Gly Cys Asp Leu Val Glu
305                 310                 315                 320

Val Ser Pro Pro Tyr Asp Leu Ser Gly Asn Thr Ala Leu Leu Ala Ala
                325                 330                 335

Asn Leu Leu Phe Glu Met Leu Cys Ala Leu Pro Lys Val Thr Thr Val
            340                 345                 350
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<210> 3642
<211> 132
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 797; "

<220>
<221> source
<223> /note="Gene Symbol: AGRP; "

<220>
<221> source
<223> /note="Gene Name:
agouti related neuropeptide; "

<220>
<221> source
<223> /note="Uniprot ID: O00253; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000290953"

<400> 3642
Met Leu Thr Ala Ala Val Leu Ser Cys Ala Leu Leu Leu Ala Leu Pro
1   5   10   15

Ala Thr Arg Gly Ala Gln Met Gly Leu Ala Pro Met Glu Gly Ile Arg
            20   25   30

Arg Pro Asp Gln Ala Leu Leu Pro Glu Leu Pro Gly Leu Gly Leu Arg
        35   40   45

Ala Pro Leu Lys Lys Thr Thr Ala Glu Gln Ala Glu Glu Asp Leu Leu
    50   55   60

Gln Glu Ala Gln Ala Leu Ala Glu Val Leu Asp Leu Gln Asp Arg Glu
65   70   75   80

Pro Arg Ser Ser Arg Arg Cys Val Arg Leu His Glu Ser Cys Leu Gly
                85   90   95

Gln Gln Val Pro Cys Cys Asp Pro Cys Ala Thr Cys Tyr Cys Arg Phe
            100   105   110

Phe Asn Ala Phe Cys Tyr Cys Arg Lys Leu Gly Thr Ala Met Asn Pro
        115   120   125

Cys Ser Arg Thr
    130

<210> 3643
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 798; "

<220>
<221> source
<223> /note="Gene Symbol: ASIP; "

<220>
<221> source
<223> /note="Gene Name:
agouti signaling prt; "

<220>
<221> source
<223> /note="Uniprot ID: P42127; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364092"

<400> 3643
Met Asp Val Thr Arg Leu Leu Leu Ala Thr Leu Leu Val Phe Leu Cys
1   5   10   15

Phe Phe Thr Ala Asn Ser His Leu Pro Pro Glu Glu Lys Leu Arg Asp
            20   25   30

Asp Arg Ser Leu Arg Ser Asn Ser Ser Val Asn Leu Leu Asp Val Pro
        35   40   45

Ser Val Ser Ile Val Ala Leu Asn Lys Lys Ser Lys Gln Ile Gly Arg
    50   55   60

Lys Ala Ala Glu Lys Lys Arg Ser Ser Lys Lys Glu Ala Ser Met Lys
65   70   75   80

Lys Val Val Arg Pro Arg Thr Pro Leu Ser Ala Pro Cys Val Ala Thr
                85   90   95

Arg Asn Ser Cys Lys Pro Pro Ala Pro Ala Cys Cys Asp Pro Cys Ala
            100   105   110

Ser Cys Gln Cys Arg Phe Phe Arg Ser Ala Cys Ser Cys Arg Val Leu
        115   120   125

Ser Leu Asn Cys
    130

<210> 3644
<211> 132
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 798; "

<220>
<221> source
<223> /note="Gene Symbol: ASIP; "

<220>
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<223> /note="Gene Name:
agouti signaling prt; "

<220>
<221> source
<223> /note="Uniprot ID: P42127; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454804"

<400> 3644

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Met Asp Val Thr Arg Leu Leu Leu Ala Thr Leu Leu Val Phe Leu Cys
1               5                  10                  15


Phe Phe Thr Ala Asn Ser His Leu Pro Pro Glu Glu Lys Leu Arg Asp
            20                  25                  30


Asp Arg Ser Leu Arg Ser Asn Ser Ser Val Asn Leu Leu Asp Val Pro
        35                  40                  45


Ser Val Ser Ile Val Ala Leu Asn Lys Lys Ser Lys Gln Ile Gly Arg
    50                  55                  60


Lys Ala Ala Glu Lys Lys Arg Ser Ser Lys Lys Glu Ala Ser Met Lys
65                  70                  75                  80


Lys Val Val Arg Pro Arg Thr Pro Leu Ser Ala Pro Cys Val Ala Thr
                85                  90                  95


Arg Asn Ser Cys Lys Pro Pro Ala Pro Ala Cys Cys Asp Pro Cys Ala
            100                 105                 110


Ser Cys Gln Cys Arg Phe Phe Arg Ser Ala Cys Ser Cys Arg Val Leu
        115                 120                 125


Ser Leu Asn Cys
    130
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<210> 3645
<211> 2045
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 799; "

<220>
<221> source
<223> /note="Gene Symbol: AGRN; "

<220>
<221> source
<223> /note="Gene Name:
agrin; "

<220>
<221> source
<223> /note="Uniprot ID: O00468; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368678"

<400> 3645
Met Ala Gly Arg Ser His Pro Gly Pro Leu Arg Pro Leu Leu Pro Leu
1   5   10   15

Leu Val Val Ala Ala Cys Val Leu Pro Gly Ala Gly Gly Thr Cys Pro
            20   25   30

Glu Arg Ala Leu Glu Arg Arg Glu Glu Glu Ala Asn Val Val Leu Thr
        35   40   45

Gly Thr Val Glu Glu Ile Leu Asn Val Asp Pro Val Gln His Thr Tyr
    50   55   60

Ser Cys Lys Val Arg Val Trp Arg Tyr Leu Lys Gly Lys Asp Leu Val
65   70   75   80

Ala Arg Glu Ser Leu Leu Asp Gly Gly Asn Lys Val Val Ile Ser Gly
                85   90   95

Phe Gly Asp Pro Leu Ile Cys Asp Asn Gln Val Ser Thr Gly Asp Thr
            100   105   110

Arg Ile Phe Phe Val Asn Pro Ala Pro Pro Tyr Leu Trp Pro Ala His
        115   120   125

```
Lys Asn Glu Leu Met Leu Asn Ser Ser Leu Met Arg Ile Thr Leu Arg
    130                 135                 140

Asn Leu Glu Glu Val Glu Phe Cys Val Glu Asp Lys Pro Gly Thr His
145                 150                 155                 160

Phe Thr Pro Val Pro Pro Thr Pro Pro Asp Ala Cys Arg Gly Met Leu
                165                 170                 175

Cys Gly Phe Gly Ala Val Cys Glu Pro Asn Ala Glu Gly Pro Gly Arg
            180                 185                 190

Ala Ser Cys Val Cys Lys Lys Ser Pro Cys Pro Ser Val Val Ala Pro
        195                 200                 205

Val Cys Gly Ser Asp Ala Ser Thr Tyr Ser Asn Glu Cys Glu Leu Gln
    210                 215                 220

Arg Ala Gln Cys Ser Gln Gln Arg Arg Ile Arg Leu Leu Ser Arg Gly
225                 230                 235                 240

Pro Cys Gly Ser Arg Asp Pro Cys Ser Asn Val Thr Cys Ser Phe Gly
                245                 250                 255

Ser Thr Cys Ala Arg Ser Ala Asp Gly Leu Thr Ala Ser Cys Leu Cys
            260                 265                 270

Pro Ala Thr Cys Arg Gly Ala Pro Glu Gly Thr Val Cys Gly Ser Asp
        275                 280                 285

Gly Ala Asp Tyr Pro Gly Glu Cys Gln Leu Leu Arg Arg Ala Cys Ala
    290                 295                 300

Arg Gln Glu Asn Val Phe Lys Lys Phe Asp Gly Pro Cys Asp Pro Cys
305                 310                 315                 320

Gln Gly Ala Leu Pro Asp Pro Ser Arg Ser Cys Arg Val Asn Pro Arg
                325                 330                 335

Thr Arg Arg Pro Glu Met Leu Leu Arg Pro Glu Ser Cys Pro Ala Arg
            340                 345                 350
```

```
Gln Ala Pro Val Cys Gly Asp Asp Gly Val Thr Tyr Glu Asn Asp Cys
        355                 360                 365

Val Met Gly Arg Ser Gly Ala Ala Arg Gly Leu Leu Leu Gln Lys Val
    370                 375                 380

Arg Ser Gly Gln Cys Gln Gly Arg Asp Gln Cys Pro Glu Pro Cys Arg
385                 390                 395                 400

Phe Asn Ala Val Cys Leu Ser Arg Arg Gly Arg Pro Arg Cys Ser Cys
                405                 410                 415

Asp Arg Val Thr Cys Asp Gly Ala Tyr Arg Pro Val Cys Ala Gln Asp
            420                 425                 430

Gly Arg Thr Tyr Asp Ser Asp Cys Trp Arg Gln Gln Ala Glu Cys Arg
        435                 440                 445

Gln Gln Arg Ala Ile Pro Ser Lys His Gln Gly Pro Cys Asp Gln Ala
    450                 455                 460

Pro Ser Pro Cys Leu Gly Val Gln Cys Ala Phe Gly Ala Thr Cys Ala
465                 470                 475                 480

Val Lys Asn Gly Gln Ala Ala Cys Glu Cys Leu Gln Ala Cys Ser Ser
                485                 490                 495

Leu Tyr Asp Pro Val Cys Gly Ser Asp Gly Val Thr Tyr Gly Ser Ala
            500                 505                 510

Cys Glu Leu Glu Ala Thr Ala Cys Thr Leu Gly Arg Glu Ile Gln Val
        515                 520                 525

Ala Arg Lys Gly Pro Cys Asp Arg Cys Gly Gln Cys Arg Phe Gly Ala
    530                 535                 540

Leu Cys Glu Ala Glu Thr Gly Arg Cys Val Cys Pro Ser Glu Cys Val
545                 550                 555                 560

Ala Leu Ala Gln Pro Val Cys Gly Ser Asp Gly His Thr Tyr Pro Ser
                565                 570                 575
```

```
Glu Cys Met Leu His Val His Ala Cys Thr His Gln Ile Ser Leu His
            580                 585                 590

Val Ala Ser Ala Gly Pro Cys Glu Thr Cys Gly Asp Ala Val Cys Ala
        595                 600                 605

Phe Gly Ala Val Cys Ser Ala Gly Gln Cys Val Cys Pro Arg Cys Glu
    610                 615                 620

His Pro Pro Pro Gly Pro Val Cys Gly Ser Asp Gly Val Thr Tyr Gly
625                 630                 635                 640

Ser Ala Cys Glu Leu Arg Glu Ala Ala Cys Leu Gln Gln Thr Gln Ile
                645                 650                 655

Glu Glu Ala Arg Ala Gly Pro Cys Glu Gln Ala Glu Cys Gly Ser Gly
            660                 665                 670

Gly Ser Gly Ser Gly Glu Asp Gly Asp Cys Glu Gln Glu Leu Cys Arg
        675                 680                 685

Gln Arg Gly Gly Ile Trp Asp Glu Asp Ser Glu Asp Gly Pro Cys Val
    690                 695                 700

Cys Asp Phe Ser Cys Gln Ser Val Pro Gly Ser Pro Val Cys Gly Ser
705                 710                 715                 720

Asp Gly Val Thr Tyr Ser Thr Glu Cys Glu Leu Lys Lys Ala Arg Cys
                725                 730                 735

Glu Ser Gln Arg Gly Leu Tyr Val Ala Ala Gln Gly Ala Cys Arg Gly
            740                 745                 750

Pro Thr Phe Ala Pro Leu Pro Pro Val Ala Pro Leu His Cys Ala Gln
        755                 760                 765

Thr Pro Tyr Gly Cys Cys Gln Asp Asn Ile Thr Ala Ala Arg Gly Val
    770                 775                 780

Gly Leu Ala Gly Cys Pro Ser Ala Cys Gln Cys Asn Pro His Gly Ser
785                 790                 795                 800

Tyr Gly Gly Thr Cys Asp Pro Ala Thr Gly Gln Cys Ser Cys Arg Pro
```

805 810 815

Gly Val Gly Gly Leu Arg Cys Asp Arg Cys Glu Pro Gly Phe Trp Asn
820 825 830

Phe Arg Gly Ile Val Thr Asp Gly Arg Ser Gly Cys Thr Pro Cys Ser
835 840 845

Cys Asp Pro Gln Gly Ala Val Arg Asp Asp Cys Glu Gln Met Thr Gly
850 855 860

Leu Cys Ser Cys Lys Pro Gly Val Ala Gly Pro Lys Cys Gly Gln Cys
865 870 875 880

Pro Asp Gly Arg Ala Leu Gly Pro Ala Gly Cys Glu Ala Asp Ala Ser
885 890 895

Ala Pro Ala Thr Cys Ala Glu Met Arg Cys Glu Phe Gly Ala Arg Cys
900 905 910

Val Glu Glu Ser Gly Ser Ala His Cys Val Cys Pro Met Leu Thr Cys
915 920 925

Pro Glu Ala Asn Ala Thr Lys Val Cys Gly Ser Asp Gly Val Thr Tyr
930 935 940

Gly Asn Glu Cys Gln Leu Lys Thr Ile Ala Cys Arg Gln Gly Leu Gln
945 950 955 960

Ile Ser Ile Gln Ser Leu Gly Pro Cys Gln Glu Ala Val Ala Pro Ser
965 970 975

Thr His Pro Thr Ser Ala Ser Val Thr Val Thr Thr Pro Gly Leu Leu
980 985 990

Leu Ser Gln Ala Leu Pro Ala Pro Pro Gly Ala Leu Pro Leu Ala
Pro
995 1000 1005

Ser Ser Thr Ala His Ser Gln Thr Thr Pro Pro Pro Ser Ser Arg
1010 1015 1020

Pro Arg Thr Thr Ala Ser Val Pro Arg Thr Thr Val Trp Pro Val

1025 1030 1035

Leu Thr Val Pro Pro Thr Ala Pro Ser Pro Ala Pro Ser Leu Val
1040 1045 1050

Ala Ser Ala Phe Gly Glu Ser Gly Ser Thr Asp Gly Ser Ser Asp
1055 1060 1065

Glu Glu Leu Ser Gly Asp Gln Glu Ala Ser Gly Gly Gly Ser Gly
1070 1075 1080

Gly Leu Glu Pro Leu Glu Gly Ser Ser Val Ala Thr Pro Gly Pro
1085 1090 1095

Pro Val Glu Arg Ala Ser Cys Tyr Asn Ser Ala Leu Gly Cys Cys
1100 1105 1110

Ser Asp Gly Lys Thr Pro Ser Leu Asp Ala Glu Gly Ser Asn Cys
1115 1120 1125

Pro Ala Thr Lys Val Phe Gln Gly Val Leu Glu Leu Glu Gly Val
1130 1135 1140

Glu Gly Gln Glu Leu Phe Tyr Thr Pro Glu Met Ala Asp Pro Lys
1145 1150 1155

Ser Glu Leu Phe Gly Glu Thr Ala Arg Ser Ile Glu Ser Thr Leu
1160 1165 1170

Asp Asp Leu Phe Arg Asn Ser Asp Val Lys Lys Asp Phe Arg Ser
1175 1180 1185

Val Arg Leu Arg Asp Leu Gly Pro Gly Lys Ser Val Arg Ala Ile
1190 1195 1200

Val Asp Val His Phe Asp Pro Thr Thr Ala Phe Arg Ala Pro Asp
1205 1210 1215

Val Ala Arg Ala Leu Leu Arg Gln Ile Gln Val Ser Arg Arg Arg
1220 1225 1230

Ser Leu Gly Val Arg Arg Pro Leu Gln Glu His Val Arg Phe Met
1235 1240 1245

```
Asp Phe  Asp Trp Phe Pro Ala  Phe Ile Thr Gly Ala  Thr Ser Gly
    1250                1255                1260

Ala Ile  Ala Ala Gly Ala Thr  Ala Arg Ala Thr Thr  Ala Ser Arg
    1265                1270                1275

Leu Pro  Ser Ser Ala Val Thr  Pro Arg Ala Pro His  Pro Ser His
    1280                1285                1290

Thr Ser  Gln Pro Val Ala Lys  Thr Thr Ala Ala Pro  Thr Thr Arg
    1295                1300                1305

Arg Pro  Pro Thr Thr Ala Pro  Ser Arg Val Pro Gly  Arg Arg Pro
    1310                1315                1320

Pro Ala  Pro Gln Gln Pro Pro  Lys Pro Cys Asp Ser  Gln Pro Cys
    1325                1330                1335

Phe His  Gly Gly Thr Cys Gln  Asp Trp Ala Leu Gly  Gly Gly Phe
    1340                1345                1350

Thr Cys  Ser Cys Pro Ala Gly  Arg Gly Gly Ala Val  Cys Glu Lys
    1355                1360                1365

Val Leu  Gly Ala Pro Val Pro  Ala Phe Glu Gly Arg  Ser Phe Leu
    1370                1375                1380

Ala Phe  Pro Thr Leu Arg Ala  Tyr His Thr Leu Arg  Leu Ala Leu
    1385                1390                1395

Glu Phe  Arg Ala Leu Glu Pro  Gln Gly Leu Leu Leu  Tyr Asn Gly
    1400                1405                1410

Asn Ala  Arg Gly Lys Asp Phe  Leu Ala Leu Ala Leu  Leu Asp Gly
    1415                1420                1425

Arg Val  Gln Leu Arg Phe Asp  Thr Gly Ser Gly Pro  Ala Val Leu
    1430                1435                1440

Thr Ser  Ala Val Pro Val Glu  Pro Gly Gln Trp His  Arg Leu Glu
    1445                1450                1455
```

```
Leu Ser  Arg His Trp Arg Arg  Gly Thr Leu Ser Val  Asp Gly Glu
    1460                1465                1470

Thr Pro  Val Leu Gly Glu Ser  Pro Ser Gly Thr Asp  Gly Leu Asn
    1475                1480                1485

Leu Asp  Thr Asp Leu Phe Val  Gly Gly Val Pro Glu  Asp Gln Ala
    1490                1495                1500

Ala Val  Ala Leu Glu Arg Thr  Phe Val Gly Ala Gly  Leu Arg Gly
    1505                1510                1515

Cys Ile  Arg Leu Leu Asp Val  Asn Asn Gln Arg Leu  Glu Leu Gly
    1520                1525                1530

Ile Gly  Pro Gly Ala Ala Thr  Arg Gly Ser Gly Val  Gly Glu Cys
    1535                1540                1545

Gly Asp  His Pro Cys Leu Pro  Asn Pro Cys His Gly  Gly Ala Pro
    1550                1555                1560

Cys Gln  Asn Leu Glu Ala Gly  Arg Phe His Cys Gln  Cys Pro Pro
    1565                1570                1575

Gly Arg  Val Gly Pro Thr Cys  Ala Asp Glu Lys Ser  Pro Cys Gln
    1580                1585                1590

Pro Asn  Pro Cys His Gly Ala  Ala Pro Cys Arg Val  Leu Pro Glu
    1595                1600                1605

Gly Gly  Ala Gln Cys Glu Cys  Pro Leu Gly Arg Glu  Gly Thr Phe
    1610                1615                1620

Cys Gln  Thr Ala Ser Gly Gln  Asp Gly Ser Gly Pro  Phe Leu Ala
    1625                1630                1635

Asp Phe  Asn Gly Phe Ser His  Leu Glu Leu Arg Gly  Leu His Thr
    1640                1645                1650

Phe Ala  Arg Asp Leu Gly Glu  Lys Met Ala Leu Glu  Val Val Phe
    1655                1660                1665
```

```
Leu Ala  Arg Gly Pro Ser Gly  Leu Leu Leu Tyr Asn  Gly Gln Lys
    1670                 1675                 1680

Thr Asp  Gly Lys Gly Asp Phe  Val Ser Leu Ala Leu  Arg Asp Arg
    1685                 1690                 1695

Arg Leu  Glu Phe Arg Tyr Asp  Leu Gly Lys Gly Ala  Ala Val Ile
    1700                 1705                 1710

Arg Ser  Arg Glu Pro Val Thr  Leu Gly Ala Trp Thr  Arg Val Ser
    1715                 1720                 1725

Leu Glu  Arg Asn Gly Arg Lys  Gly Ala Leu Arg Val  Gly Asp Gly
    1730                 1735                 1740

Pro Arg  Val Leu Gly Glu Ser  Pro Val Pro His Thr  Val Leu Asn
    1745                 1750                 1755

Leu Lys  Glu Pro Leu Tyr Val  Gly Gly Ala Pro Asp  Phe Ser Lys
    1760                 1765                 1770

Leu Ala  Arg Ala Ala Ala Val  Ser Ser Gly Phe Asp  Gly Ala Ile
    1775                 1780                 1785

Gln Leu  Val Ser Leu Gly Gly  Arg Gln Leu Leu Thr  Pro Glu His
    1790                 1795                 1800

Val Leu  Arg Gln Val Asp Val  Thr Ser Phe Ala Gly  His Pro Cys
    1805                 1810                 1815

Thr Arg  Ala Ser Gly His Pro  Cys Leu Asn Gly Ala  Ser Cys Val
    1820                 1825                 1830

Pro Arg  Glu Ala Ala Tyr Val  Cys Leu Cys Pro Gly  Gly Phe Ser
    1835                 1840                 1845

Gly Pro  His Cys Glu Lys Gly  Leu Val Glu Lys Ser  Ala Gly Asp
    1850                 1855                 1860

Val Asp  Thr Leu Ala Phe Asp  Gly Arg Thr Phe Val  Glu Tyr Leu
    1865                 1870                 1875

Asn Ala  Val Thr Glu Ser Glu  Lys Ala Leu Gln Ser  Asn His Phe
```

```
    1880                1885                1890

Glu Leu  Ser Leu Arg Thr Glu  Ala Thr Gln Gly Leu  Val Leu Trp
    1895                1900                1905

Ser Gly  Lys Ala Thr Glu Arg  Ala Asp Tyr Val Ala  Leu Ala Ile
    1910                1915                1920

Val Asp  Gly His Leu Gln Leu  Ser Tyr Asn Leu Gly  Ser Gln Pro
    1925                1930                1935

Val Val  Leu Arg Ser Thr Val  Pro Val Asn Thr Asn  Arg Trp Leu
    1940                1945                1950

Arg Val  Val Ala His Arg Glu  Gln Arg Glu Gly Ser  Leu Gln Val
    1955                1960                1965

Gly Asn  Glu Ala Pro Val Thr  Gly Ser Ser Pro Leu  Gly Ala Thr
    1970                1975                1980

Gln Leu  Asp Thr Asp Gly Ala  Leu Trp Leu Gly Gly  Leu Pro Glu
    1985                1990                1995

Leu Pro  Val Gly Pro Ala Leu  Pro Lys Ala Tyr Gly  Thr Gly Phe
    2000                2005                2010

Val Gly  Cys Leu Arg Asp Val  Val Val Gly Arg His  Pro Leu His
    2015                2020                2025

Leu Leu  Glu Asp Ala Val Thr  Lys Pro Glu Leu Arg  Pro Cys Pro
    2030                2035                2040

Thr Pro
    2045


<210> 3646
<211> 271
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 799; "

<220>
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<221> source
<223> /note="Gene Symbol: AGRN; "

<220>
<221> source
<223> /note="Gene Name:
agrin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400771"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3646
Xaa Arg Tyr Asp Leu Gly Lys Gly Ala Ala Val Ile Arg Ser Arg Glu
1 5 10 15

Pro Val Thr Leu Gly Ala Trp Thr Arg Val Ser Leu Glu Arg Asn Gly
20 25 30

Arg Lys Gly Ala Leu Arg Val Gly Asp Gly Pro Arg Val Leu Gly Glu
35 40 45

Ser Pro Lys Ser Arg Lys Val Pro His Thr Val Leu Asn Leu Lys Glu
50 55 60

Pro Leu Tyr Val Gly Gly Ala Pro Asp Phe Ser Lys Leu Ala Arg Ala
65 70 75 80

Ala Ala Val Ser Ser Gly Phe Asp Gly Ala Ile Gln Leu Val Ser Leu
85 90 95

Gly Gly Arg Gln Leu Leu Thr Pro Glu His Val Leu Arg Gln Val Asp
100 105 110

Val Thr Ser Phe Ala Gly His Pro Cys Thr Arg Ala Ser Gly His Pro
115 120 125

Cys Leu Asn Gly Ala Ser Cys Val Pro Arg Glu Ala Ala Tyr Val Cys
130 135 140

Leu Cys Pro Gly Gly Phe Ser Gly Pro His Cys Glu Lys Gly Leu Val
145 150 155 160

```
Glu Lys Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg Thr
                165                 170                 175

Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala Asn Glu
            180                 185                 190

Ile Pro Val Pro Glu Thr Leu Asp Ser Gly Ala Leu His Ser Glu Lys
        195                 200                 205

Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr Glu Ala Thr
    210                 215                 220

Gln Gly Leu Val Leu Trp Ser Gly Lys Ala Thr Glu Arg Ala Asp Tyr
225                 230                 235                 240

Val Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser Tyr Asn Leu
                245                 250                 255

Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Pro Val Asn Thr
            260                 265                 270


<210> 3647
<211> 1930
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 799; "

<220>
<221> source
<223> /note="Gene Symbol: AGRN; "

<220>
<221> source
<223> /note="Gene Name:
      agrin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484607"

<400> 3647
Met Arg Ile Thr Leu Arg Asn Leu Glu Glu Val Glu Phe Cys Val Glu
1               5                   10                  15
```

```
Asp Lys Pro Gly Thr His Phe Thr Pro Val Pro Pro Thr Pro Pro Asp
            20                  25                  30

Ala Cys Arg Gly Met Leu Cys Gly Phe Gly Ala Val Cys Glu Pro Asn
        35                  40                  45

Ala Glu Gly Pro Gly Arg Ala Ser Cys Val Cys Lys Lys Ser Pro Cys
    50                  55                  60

Pro Ser Val Val Ala Pro Val Cys Gly Ser Asp Ala Ser Thr Tyr Ser
65                  70                  75                  80

Asn Glu Cys Glu Leu Gln Arg Ala Gln Cys Ser Gln Gln Arg Arg Ile
                85                  90                  95

Arg Leu Leu Ser Arg Gly Pro Cys Gly Ser Arg Asp Pro Cys Ser Asn
            100                 105                 110

Val Thr Cys Ser Phe Gly Ser Thr Cys Ala Arg Ser Ala Asp Gly Leu
        115                 120                 125

Thr Ala Ser Cys Leu Cys Pro Ala Thr Cys Arg Gly Ala Pro Glu Gly
    130                 135                 140

Thr Val Cys Gly Ser Asp Gly Ala Asp Tyr Pro Gly Glu Cys Gln Leu
145                 150                 155                 160

Leu Arg Arg Ala Cys Ala Arg Gln Glu Asn Val Phe Lys Lys Phe Asp
                165                 170                 175

Gly Pro Cys Asp Pro Cys Gln Gly Ala Leu Pro Asp Pro Ser Arg Ser
            180                 185                 190

Cys Arg Val Asn Pro Arg Thr Arg Arg Pro Glu Met Leu Leu Arg Pro
        195                 200                 205

Glu Ser Cys Pro Ala Arg Gln Ala Pro Val Cys Gly Asp Asp Gly Val
    210                 215                 220

Thr Tyr Glu Asn Asp Cys Val Met Gly Arg Ser Gly Ala Ala Arg Gly
225                 230                 235                 240

Leu Leu Leu Gln Lys Val Arg Ser Gly Gln Cys Gln Gly Arg Asp Gln
```

```
                245                 250                 255

Cys Pro Glu Pro Cys Arg Phe Asn Ala Val Cys Leu Ser Arg Arg Gly
            260                 265                 270

Arg Pro Arg Cys Ser Cys Asp Arg Val Thr Cys Asp Gly Ala Tyr Arg
        275                 280                 285

Pro Val Cys Ala Gln Asp Gly Arg Thr Tyr Asp Ser Asp Cys Trp Arg
    290                 295                 300

Gln Gln Ala Glu Cys Arg Gln Gln Arg Ala Ile Pro Ser Lys His Gln
305                 310                 315                 320

Gly Pro Cys Asp Gln Ala Pro Ser Pro Cys Leu Gly Val Gln Cys Ala
                325                 330                 335

Phe Gly Ala Thr Cys Ala Val Lys Asn Gly Gln Ala Ala Cys Glu Cys
            340                 345                 350

Leu Gln Ala Cys Ser Ser Leu Tyr Asp Pro Val Cys Gly Ser Asp Gly
        355                 360                 365

Val Thr Tyr Gly Ser Ala Cys Glu Leu Glu Ala Thr Ala Cys Thr Leu
    370                 375                 380

Gly Arg Glu Ile Gln Val Ala Arg Lys Gly Pro Cys Asp Arg Cys Gly
385                 390                 395                 400

Gln Cys Arg Phe Gly Ala Leu Cys Glu Ala Glu Thr Gly Arg Cys Val
                405                 410                 415

Cys Pro Ser Glu Cys Val Ala Leu Ala Gln Pro Val Cys Gly Ser Asp
            420                 425                 430

Gly His Thr Tyr Pro Ser Glu Cys Met Leu His Val His Ala Cys Thr
        435                 440                 445

His Gln Ile Ser Leu His Val Ala Ser Ala Gly Pro Cys Glu Thr Cys
    450                 455                 460

Gly Asp Ala Val Cys Ala Phe Gly Ala Val Cys Ser Ala Gly Gln Cys
465                 470                 475                 480
```

```
Val Cys Pro Arg Cys Glu His Pro Pro Pro Gly Pro Val Cys Gly Ser
                485                 490                 495

Asp Gly Val Thr Tyr Gly Ser Ala Cys Glu Leu Arg Glu Ala Ala Cys
            500                 505                 510

Leu Gln Gln Thr Gln Ile Glu Glu Ala Arg Ala Gly Pro Cys Glu Gln
        515                 520                 525

Ala Glu Cys Gly Ser Gly Gly Ser Gly Ser Gly Glu Asp Gly Asp Cys
    530                 535                 540

Glu Gln Glu Leu Cys Arg Gln Arg Gly Gly Ile Trp Asp Glu Asp Ser
545                 550                 555                 560

Glu Asp Gly Pro Cys Val Cys Asp Phe Ser Cys Gln Ser Val Pro Gly
                565                 570                 575

Ser Pro Val Cys Gly Ser Asp Gly Val Thr Tyr Ser Thr Glu Cys Glu
            580                 585                 590

Leu Lys Lys Ala Arg Cys Glu Ser Gln Arg Gly Leu Tyr Val Ala Ala
        595                 600                 605

Gln Gly Ala Cys Arg Gly Pro Thr Phe Ala Pro Leu Pro Pro Val Ala
    610                 615                 620

Pro Leu His Cys Ala Gln Thr Pro Tyr Gly Cys Cys Gln Asp Asn Ile
625                 630                 635                 640

Thr Ala Ala Arg Gly Val Gly Leu Ala Gly Cys Pro Ser Ala Cys Gln
                645                 650                 655

Cys Asn Pro His Gly Ser Tyr Gly Gly Thr Cys Asp Pro Ala Thr Gly
            660                 665                 670

Gln Cys Ser Cys Arg Pro Gly Val Gly Gly Leu Arg Cys Asp Arg Cys
        675                 680                 685

Glu Pro Gly Phe Trp Asn Phe Arg Gly Ile Val Thr Asp Gly Arg Ser
    690                 695                 700
```

```
Gly Cys Thr Pro Cys Ser Cys Asp Pro Gln Gly Ala Val Arg Asp Asp
705                 710                 715                 720

Cys Glu Gln Met Thr Gly Leu Cys Ser Cys Lys Pro Gly Val Ala Gly
                725                 730                 735

Pro Lys Cys Gly Gln Cys Pro Asp Gly Arg Ala Leu Gly Pro Ala Gly
            740                 745                 750

Cys Glu Ala Asp Ala Ser Ala Pro Ala Thr Cys Ala Glu Met Arg Cys
        755                 760                 765

Glu Phe Gly Ala Arg Cys Val Glu Glu Ser Gly Ser Ala His Cys Val
    770                 775                 780

Cys Pro Met Leu Thr Cys Pro Glu Ala Asn Ala Thr Lys Val Cys Gly
785                 790                 795                 800

Ser Asp Gly Val Thr Tyr Gly Asn Glu Cys Gln Leu Lys Thr Ile Ala
                805                 810                 815

Cys Arg Gln Gly Leu Gln Ile Ser Ile Gln Ser Leu Gly Pro Cys Gln
            820                 825                 830

Glu Ala Val Ala Pro Ser Thr His Pro Thr Ser Ala Ser Val Thr Val
        835                 840                 845

Thr Thr Pro Gly Leu Leu Leu Ser Gln Ala Leu Pro Ala Pro Pro Gly
    850                 855                 860

Ala Leu Pro Leu Ala Pro Ser Ser Thr Ala His Ser Gln Thr Thr Pro
865                 870                 875                 880

Pro Pro Ser Ser Arg Pro Arg Thr Thr Ala Ser Val Pro Arg Thr Thr
                885                 890                 895

Val Trp Pro Val Leu Thr Val Pro Pro Thr Ala Pro Ser Pro Ala Pro
            900                 905                 910

Ser Leu Val Ala Ser Ala Phe Gly Glu Ser Gly Ser Thr Asp Gly Ser
        915                 920                 925
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```
Ser Asp Glu Glu Leu Ser Gly Asp Gln Glu Ala Ser Gly Gly Gly Ser
    930                 935                 940

Gly Gly Leu Glu Pro Leu Glu Gly Ser Ser Val Ala Thr Pro Gly Pro
945                 950                 955                 960

Pro Val Glu Arg Ala Ser Cys Tyr Asn Ser Ala Leu Gly Cys Cys Ser
                965                 970                 975

Asp Gly Lys Thr Pro Ser Leu Asp Ala Glu Gly Ser Asn Cys Pro Ala
            980                 985                 990

Thr Lys Val Phe Gln Gly Val Leu  Glu Leu Glu Gly Val  Glu Gly
Gln
        995                 1000                1005

Glu Leu  Phe Tyr Thr Pro Glu  Met Ala Asp Pro Lys  Ser Glu Leu
    1010                1015                1020

Phe Gly  Glu Thr Ala Arg Ser  Ile Glu Ser Thr Leu  Asp Asp Leu
    1025                1030                1035

Phe Arg  Asn Ser Asp Val Lys  Lys Asp Phe Arg Ser  Val Arg Leu
    1040                1045                1050

Arg Asp  Leu Gly Pro Gly Lys  Ser Val Arg Ala Ile  Val Asp Val
    1055                1060                1065

His Phe  Asp Pro Thr Thr Ala  Phe Arg Ala Pro Asp  Val Ala Arg
    1070                1075                1080

Ala Leu  Leu Arg Gln Ile Gln  Val Ser Arg Arg Arg  Ser Leu Gly
    1085                1090                1095

Val Arg  Arg Pro Leu Gln Glu  His Val Arg Phe Met  Asp Phe Asp
    1100                1105                1110

Trp Phe  Pro Ala Phe Ile Thr  Gly Ala Thr Ser Gly  Ala Ile Ala
    1115                1120                1125

Ala Gly  Ala Thr Ala Arg Ala  Thr Thr Ala Ser Arg  Leu Pro Ser
    1130                1135                1140
```

```
Ser Ala  Val Thr Pro Arg Ala  Pro His Pro Ser His  Thr Ser Gln
    1145                1150                1155

Pro Val  Ala Lys Thr Thr Ala  Ala Pro Thr Thr Arg  Arg Pro Pro
    1160                1165                1170

Thr Thr  Ala Pro Ser Arg Val  Pro Gly Arg Arg Pro  Pro Ala Pro
    1175                1180                1185

Gln Gln  Pro Pro Lys Pro Cys  Asp Ser Gln Pro Cys  Phe His Gly
    1190                1195                1200

Gly Thr  Cys Gln Asp Trp Ala  Leu Gly Gly Gly Phe  Thr Cys Ser
    1205                1210                1215

Cys Pro  Ala Gly Arg Gly Gly  Ala Val Cys Glu Lys  Val Leu Gly
    1220                1225                1230

Ala Pro  Val Pro Ala Phe Glu  Gly Arg Ser Phe Leu  Ala Phe Pro
    1235                1240                1245

Thr Leu  Arg Ala Tyr His Thr  Leu Arg Leu Ala Leu  Glu Phe Arg
    1250                1255                1260

Ala Leu  Glu Pro Gln Gly Leu  Leu Leu Tyr Asn Gly  Asn Ala Arg
    1265                1270                1275

Gly Lys  Asp Phe Leu Ala Leu  Ala Leu Leu Asp Gly  Arg Val Gln
    1280                1285                1290

Leu Arg  Phe Asp Thr Gly Ser  Gly Pro Ala Val Leu  Thr Ser Ala
    1295                1300                1305

Val Pro  Val Glu Pro Gly Gln  Trp His Arg Leu Glu  Leu Ser Arg
    1310                1315                1320

His Trp  Arg Arg Gly Thr Leu  Ser Val Asp Gly Glu  Thr Pro Val
    1325                1330                1335

Leu Gly  Glu Ser Pro Ser Gly  Thr Asp Gly Leu Asn  Leu Asp Thr
    1340                1345                1350

Asp Leu  Phe Val Gly Gly Val  Pro Glu Asp Gln Ala  Ala Val Ala
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1355 1360 1365

Leu Glu Arg Thr Phe Val Gly Ala Gly Leu Arg Gly Cys Ile Arg
1370 1375 1380

Leu Leu Asp Val Asn Asn Gln Arg Leu Glu Leu Gly Ile Gly Pro
1385 1390 1395

Gly Ala Ala Thr Arg Gly Ser Gly Val Gly Glu Cys Gly Asp His
1400 1405 1410

Pro Cys Leu Pro Asn Pro Cys His Gly Gly Ala Pro Cys Gln Asn
1415 1420 1425

Leu Glu Ala Gly Arg Phe His Cys Gln Cys Pro Pro Gly Arg Val
1430 1435 1440

Gly Pro Thr Cys Ala Asp Glu Lys Ser Pro Cys Gln Pro Asn Pro
1445 1450 1455

Cys His Gly Ala Ala Pro Cys Arg Val Leu Pro Glu Gly Gly Ala
1460 1465 1470

Gln Cys Glu Cys Pro Leu Gly Arg Glu Gly Thr Phe Cys Gln Thr
1475 1480 1485

Ala Ser Gly Gln Asp Gly Ser Gly Pro Phe Leu Ala Asp Phe Asn
1490 1495 1500

Gly Phe Ser His Leu Glu Leu Arg Gly Leu His Thr Phe Ala Arg
1505 1510 1515

Asp Leu Gly Glu Lys Met Ala Leu Glu Val Val Phe Leu Ala Arg
1520 1525 1530

Gly Pro Ser Gly Leu Leu Leu Tyr Asn Gly Gln Lys Thr Asp Gly
1535 1540 1545

Lys Gly Asp Phe Val Ser Leu Ala Leu Arg Asp Arg Arg Leu Glu
1550 1555 1560

Phe Arg Tyr Asp Leu Gly Lys Gly Ala Ala Val Ile Arg Ser Arg
1565 1570 1575

```
Glu Pro  Val Thr Leu Gly Ala  Trp Thr Arg Val Ser  Leu Glu Arg
    1580                1585                1590

Asn Gly  Arg Lys Gly Ala Leu  Arg Val Gly Asp Gly  Pro Arg Val
    1595                1600                1605

Leu Gly  Glu Ser Pro Lys Ser  Arg Lys Val Pro His  Thr Val Leu
    1610                1615                1620

Asn Leu  Lys Glu Pro Leu Tyr  Val Gly Gly Ala Pro  Asp Phe Ser
    1625                1630                1635

Lys Leu  Ala Arg Ala Ala Ala  Val Ser Ser Gly Phe  Asp Gly Ala
    1640                1645                1650

Ile Gln  Leu Val Ser Leu Gly  Gly Arg Gln Leu Leu  Thr Pro Glu
    1655                1660                1665

His Val  Leu Arg Gln Val Asp  Val Thr Ser Phe Ala  Gly His Pro
    1670                1675                1680

Cys Thr  Arg Ala Ser Gly His  Pro Cys Leu Asn Gly  Ala Ser Cys
    1685                1690                1695

Val Pro  Arg Glu Ala Ala Tyr  Val Cys Leu Cys Pro  Gly Gly Phe
    1700                1705                1710

Ser Gly  Pro His Cys Glu Lys  Gly Leu Val Glu Lys  Ser Ala Gly
    1715                1720                1725

Asp Val  Asp Thr Leu Ala Phe  Asp Gly Arg Thr Phe  Val Glu Tyr
    1730                1735                1740

Leu Asn  Ala Val Thr Glu Ser  Glu Leu Ala Asn Glu  Ile Pro Val
    1745                1750                1755

Pro Glu  Thr Leu Asp Ser Gly  Ala Leu His Ser Glu  Lys Ala Leu
    1760                1765                1770

Gln Ser  Asn His Phe Glu Leu  Ser Leu Arg Thr Glu  Ala Thr Gln
    1775                1780                1785
```

```
Gly Leu  Val Leu Trp Ser Gly  Lys Ala Thr Glu Arg  Ala Asp Tyr
    1790                 1795                 1800

Val Ala  Leu Ala Ile Val Asp  Gly His Leu Gln Leu  Ser Tyr Asn
    1805                 1810                 1815

Leu Gly  Ser Gln Pro Val Val  Leu Arg Ser Thr Val  Pro Val Asn
    1820                 1825                 1830

Thr Asn  Arg Trp Leu Arg Val  Val Ala His Arg Glu  Gln Arg Glu
    1835                 1840                 1845

Gly Ser  Leu Gln Val Gly Asn  Glu Ala Pro Val Thr  Gly Ser Ser
    1850                 1855                 1860

Pro Leu  Gly Ala Thr Gln Leu  Asp Thr Asp Gly Ala  Leu Trp Leu
    1865                 1870                 1875

Gly Gly  Leu Pro Glu Leu Pro  Val Gly Pro Ala Leu  Pro Lys Ala
    1880                 1885                 1890

Tyr Gly  Thr Gly Phe Val Gly  Cys Leu Arg Asp Val  Val Val Gly
    1895                 1900                 1905

Arg His  Pro Leu His Leu Leu  Glu Asp Ala Val Thr  Lys Pro Glu
    1910                 1915                 1920

Leu Arg  Pro Cys Pro Thr Pro
    1925                 1930


<210> 3648
<211> 338
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 800; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA1; "

<220>
<221> source
<223> /note="Gene Name:
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AHA1, activator of heat shock 90kDa prt ATPase
homolog 1
(yeast); "

<220>
<221> source
<223> /note="Uniprot ID: O95433; "

<220>
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<223> /note="ENSP ID: ENSP00000216479"

<400> 3648

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Met Ala Lys Trp Gly Glu Gly Asp Pro Arg Trp Ile Val Glu Glu Arg
1               5                  10                  15

Ala Asp Ala Thr Asn Val Asn Asn Trp His Trp Thr Glu Arg Asp Ala
            20                  25                  30

Ser Asn Trp Ser Thr Asp Lys Leu Lys Thr Leu Phe Leu Ala Val Gln
        35                  40                  45

Val Gln Asn Glu Glu Gly Lys Cys Glu Val Thr Glu Val Ser Lys Leu
    50                  55                  60

Asp Gly Glu Ala Ser Ile Asn Asn Arg Lys Gly Lys Leu Ile Phe Phe
65                  70                  75                  80

Tyr Glu Trp Ser Val Lys Leu Asn Trp Thr Gly Thr Ser Lys Ser Gly
                85                  90                  95

Val Gln Tyr Lys Gly His Val Glu Ile Pro Asn Leu Ser Asp Glu Asn
            100                 105                 110

Ser Val Asp Glu Val Glu Ile Ser Val Ser Leu Ala Lys Asp Glu Pro
        115                 120                 125

Asp Thr Asn Leu Val Ala Leu Met Lys Glu Glu Gly Val Lys Leu Leu
    130                 135                 140

Arg Glu Ala Met Gly Ile Tyr Ile Ser Thr Leu Lys Thr Glu Phe Thr
145                 150                 155                 160

Gln Gly Met Ile Leu Pro Thr Met Asn Gly Glu Ser Val Asp Pro Val
                165                 170                 175
```

```
Gly Gln Pro Ala Leu Lys Thr Glu Glu Arg Lys Ala Lys Pro Ala Pro
            180                 185                 190

Ser Lys Thr Gln Ala Arg Pro Val Gly Val Lys Ile Pro Thr Cys Lys
        195                 200                 205

Ile Thr Leu Lys Glu Thr Phe Leu Thr Ser Pro Glu Glu Leu Tyr Arg
    210                 215                 220

Val Phe Thr Thr Gln Glu Leu Val Gln Ala Phe Thr His Ala Pro Ala
225                 230                 235                 240

Thr Leu Glu Ala Asp Arg Gly Gly Lys Phe His Met Val Asp Gly Asn
                245                 250                 255

Val Ser Gly Glu Phe Thr Asp Leu Val Pro Glu Lys His Ile Val Met
            260                 265                 270

Lys Trp Arg Phe Lys Ser Trp Pro Glu Gly His Phe Ala Thr Ile Thr
        275                 280                 285

Leu Thr Phe Ile Asp Lys Asn Gly Glu Thr Glu Leu Cys Met Glu Gly
    290                 295                 300

Arg Gly Ile Pro Ala Pro Glu Glu Glu Arg Thr Arg Gln Gly Trp Gln
305                 310                 315                 320

Arg Tyr Tyr Phe Glu Gly Ile Lys Gln Thr Phe Gly Tyr Gly Ala Arg
                325                 330                 335

Leu Phe
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<210> 3649
<211> 288
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 800; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA1; "

<220>
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<223> /note="Gene Name:
AHA1, activator of heat shock 90kDa prt ATPase
homolog 1
(yeast); "

<220>
<221> source
<223> /note="Uniprot ID: O95433; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440108"

<400> 3649
Met Ala Lys Trp Gly Glu Gly Asp Pro Arg Trp Ile Val Glu Glu Arg
1 5 10 15

Ala Asp Ala Thr Asn Val Asn Asn Trp His Trp Thr Glu Arg Asp Ala
20 25 30

Ser Asn Trp Ser Thr Asp Lys Leu Lys Thr Leu Phe Leu Ala Val Gln
35 40 45

Val Gln Asn Glu Glu Gly Lys Cys Glu Val Thr Glu Val Ser Lys Leu
50 55 60

Asp Gly Glu Ala Ser Ile Asn Asn Arg Lys Gly Lys Leu Ile Phe Phe
65 70 75 80

Tyr Glu Trp Ser Val Lys Leu Asn Trp Thr Gly Thr Ser Lys Ser Gly
85 90 95

Val Gln Tyr Lys Gly His Val Glu Ile Pro Asn Leu Ser Asp Glu Asn
100 105 110

Ser Val Asp Glu Val Glu Ile Ser Val Ser Leu Ala Lys Asp Glu Pro
115 120 125

Asp Thr Asn Leu Val Ala Leu Met Lys Glu Glu Gly Val Lys Leu Leu
130 135 140

Arg Glu Ala Met Gly Ile Tyr Ile Ser Thr Leu Lys Thr Glu Phe Thr
145 150 155 160

Gln Gly Met Ile Leu Pro Thr Met Asn Gly Glu Ser Val Asp Pro Val

```
                165                 170                 175

Gly Gln Pro Ala Leu Lys Thr Glu Glu Arg Lys Ala Lys Pro Ala Pro
            180                 185                 190

Ser Lys Thr Gln Ala Arg Pro Val Gly Val Lys Ile Pro Thr Cys Lys
        195                 200                 205

Ile Thr Leu Lys Glu Thr Phe Leu Thr Ser Pro Glu Glu Leu Tyr Arg
    210                 215                 220

Val Phe Thr Thr Gln Glu Leu Val Gln Ala Phe Thr His Ala Pro Ala
225                 230                 235                 240

Thr Leu Glu Ala Asp Arg Gly Gly Lys Phe His Met Val Asp Gly Asn
                245                 250                 255

Val Ser Gly Glu Phe Thr Asp Leu Val Pro Glu Lys His Ile Val Met
            260                 265                 270

Lys Trp Arg Phe Lys Ser Trp Pro Glu Gly Ser His Cys His Ser Gly
        275                 280                 285


<210> 3650
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 800; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA1; "

<220>
<221> source
<223> /note="Gene Name:
      AHA1, activator of heat shock 90kDa prt ATPase
      homolog 1
      (yeast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450890"


<220>
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<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3650
Xaa Val Gly Val Lys Ile Pro Thr Cys Lys Ile Thr Leu Lys Glu Thr
1 5 10 15

Phe Leu Thr Ser Pro Glu Glu Leu Tyr Arg Val Phe Thr Thr Gln Glu
            20 25 30

Leu Val Gln Ala Phe Thr His Ala Pro Ala Thr Leu Glu Ala Asp Arg
        35 40 45

Gly Gly Lys Phe His Met Val Asp Gly Asn Val Ser Gly Glu Phe Thr
    50 55 60

Asp Leu Val Pro Glu Lys His Ile Val Met Lys Trp Arg Phe Lys Ser
65 70 75 80

Trp Pro Glu Gly Ser His Cys His Ser Gly
                85 90

<210> 3651
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 800; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA1; "

<220>
<221> source
<223> /note="Gene Name:
      AHA1, activator of heat shock 90kDa prt ATPase
      homolog 1
      (yeast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451467"

<400> 3651
Met Ala Lys Trp Gly Glu Gly Asp Pro Arg Trp Ile Val Glu Glu Arg
1 5 10 15

```
Ala Asp Ala Thr Asn Val Asn Asn Trp His Trp Thr Glu Arg Asp Ala
            20                  25                  30

Ser Asn Trp Ser Thr Asp Lys Leu Lys Thr Leu Phe Leu Ala Val Gln
        35                  40                  45

Val Gln Asn Glu Glu Gly Lys Cys Glu Val Thr Glu Val Ser Lys Leu
    50                  55                  60

Asp Gly Glu Ala Ser Ile Asn Asn Arg Lys Gly Lys Leu Ile Phe Phe
65                  70                  75                  80

Tyr Glu Trp Ser Val Lys Leu Asn Trp Thr Gly Lys Ser Lys Leu Gly
                85                  90                  95

Cys Gln Arg Asp
            100


<210> 3652
<211> 216
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 800; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA1; "

<220>
<221> source
<223> /note="Gene Name:
      AHA1, activator of heat shock 90kDa prt ATPase
      homolog 1
      (yeast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451475"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3652
Xaa Cys Glu Val Thr Glu Val Ser Lys Leu Asp Gly Glu Ala Ser Ile
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1               5                   10                  15

Asn Asn Arg Lys Gly Lys Leu Ile Phe Phe Tyr Glu Trp Ser Val Lys
            20                  25                  30

Leu Asn Trp Thr Gly Thr Ser Lys Ser Gly Val Gln Tyr Lys Gly His
        35                  40                  45

Val Glu Ile Pro Asn Leu Ser Asp Glu Asn Ser Val Asp Glu Val Glu
    50                  55                  60

Ile Ser Val Ser Leu Ala Lys Asp Glu Pro Asp Thr Asn Leu Val Ala
65                  70                  75                  80

Leu Met Lys Glu Glu Gly Val Lys Leu Leu Arg Glu Ala Met Gly Ile
                85                  90                  95

Tyr Ile Ser Thr Leu Lys Thr Glu Phe Thr Gln Gly Met Ile Leu Pro
            100                 105                 110

Thr Met Asn Gly Glu Ser Val Asp Pro Val Gly Gln Pro Ala Leu Lys
        115                 120                 125

Thr Glu Glu Arg Lys Ala Lys Pro Ala Pro Ser Lys Thr Gln Ala Arg
    130                 135                 140

Pro Val Gly Val Lys Ile Pro Thr Cys Lys Ile Thr Leu Lys Glu Thr
145                 150                 155                 160

Phe Leu Thr Ser Pro Glu Glu Leu Tyr Arg Val Phe Thr Thr Gln Glu
                165                 170                 175

Leu Val Gln Ala Phe Thr His Ala Pro Ala Thr Leu Glu Ala Asp Arg
            180                 185                 190

Gly Gly Lys Phe His Met Val Asp Gly Asn Val Ser Gly Glu Phe Thr
        195                 200                 205

Asp Leu Val Ser Thr Cys Arg Pro
    210                 215
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<210> 3653
<211> 203

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 800; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA1; "

<220>
<221> source
<223> /note="Gene Name:
AHA1, activator of heat shock 90kDa prt ATPase
homolog 1
(yeast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451569"

<400> 3653
Met Lys Glu Glu Gly Val Lys Leu Leu Arg Glu Ala Met Gly Ile Tyr
1 5 10 15

Ile Ser Thr Leu Lys Thr Glu Phe Thr Gln Gly Met Ile Leu Pro Thr
20 25 30

Met Asn Gly Glu Ser Val Asp Pro Val Gly Gln Pro Ala Leu Lys Thr
35 40 45

Glu Glu Arg Lys Ala Lys Pro Ala Pro Ser Lys Thr Gln Ala Arg Pro
50 55 60

Val Gly Val Lys Ile Pro Thr Cys Lys Ile Thr Leu Lys Glu Thr Phe
65 70 75 80

Leu Thr Ser Pro Glu Glu Leu Tyr Arg Val Phe Thr Thr Gln Glu Leu
85 90 95

Val Gln Ala Phe Thr His Ala Pro Ala Thr Leu Glu Ala Asp Arg Gly
100 105 110

Gly Lys Phe His Met Val Asp Gly Asn Val Ser Gly Glu Phe Thr Asp
115 120 125

Leu Val Pro Glu Lys His Ile Val Met Lys Trp Arg Phe Lys Ser Trp
130 135 140

```
Pro Glu Gly His Phe Ala Thr Ile Thr Leu Thr Phe Ile Asp Lys Asn
145                 150                 155                 160


Gly Glu Thr Glu Leu Cys Met Glu Gly Arg Gly Ile Pro Ala Pro Glu
                165                 170                 175


Glu Glu Arg Thr Arg Gln Gly Trp Gln Arg Tyr Tyr Phe Glu Gly Ile
            180                 185                 190


Lys Gln Thr Phe Gly Tyr Gly Ala Arg Leu Phe
        195                 200


<210> 3654
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 800; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA1; "

<220>
<221> source
<223> /note="Gene Name:
      AHA1, activator of heat shock 90kDa prt ATPase
      homolog 1
      (yeast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452127"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3654
Xaa Trp Ser Val Lys Leu Asn Trp Thr Gly Thr Ser Lys Ser Gly Val
1               5                   10                  15


Gln Tyr Lys Gly His Val Glu Ile Pro Asn Leu Ser Asp Glu Asn Ser
            20                  25                  30
```

```
Val Asp Glu Val Glu Ile Ser Val Ser Leu Ala Lys Asp Glu Pro Asp
        35                  40                  45

Thr Asn Leu Val Ala Leu Met Lys Glu Glu Gly Val Lys Leu Leu Arg
    50                  55                  60

Glu Ala Met Gly Ile Tyr Ile Ser Thr Leu Lys Thr Gly His Phe Ala
65                  70                  75                  80

Thr Ile Thr Leu Thr Phe Ile Asp Lys Asn Gly Glu Thr Glu Leu Cys
                85                  90                  95

Met Glu Gly Arg Gly Ile Pro Ala Pro Glu Glu Glu Arg Thr Arg Gln
            100                 105                 110

Gly Trp Gln Arg Tyr Tyr Phe Glu Gly Ile Lys Gln Thr Phe Gly Tyr
        115                 120                 125

Gly Ala Arg Leu Phe
    130


<210> 3655
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 801; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA2; "

<220>
<221> source
<223> /note="Gene Name:
      AHA1, activator of heat shock 90kDa prt ATPase homolog
      2
      (yeast); "

<220>
<221> source
<223> /note="Uniprot ID:  Q719I0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349525"

<400> 3655
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Met Ile Leu Pro Thr Lys Ala Met Ala Thr Gln Glu Leu Thr Val Lys
1               5                   10                  15

Arg Lys Leu Ser Gly Asn Thr Leu Gln Val Gln Ala Ser Ser Pro Val
            20                  25                  30

Ala Leu Gly Val Arg Ile Pro Thr Val Ala Leu His Met Met Glu Leu
        35                  40                  45

Phe Asp Thr Thr Val Glu Gln Leu Tyr Ser Ile Phe Thr Val Lys Glu
    50                  55                  60

Leu Thr Asn Lys Lys Ile Ile Met Lys Trp Arg Cys Gly Asn Trp Pro
65                  70                  75                  80

Glu Glu His Tyr Ala Met Val Ala Leu Asn Phe Val Pro Thr Leu Gly
                85                  90                  95

Gln Thr Glu Leu Gln Leu Lys Glu Phe Leu Ser Ile Cys Lys Glu Glu
            100                 105                 110

Asn Met Lys Phe Cys Trp Gln Lys Gln His Phe Glu Glu Ile Lys Gly
        115                 120                 125

Ser Leu Gln Leu Thr Pro Leu Asn Gly
    130                 135


<210> 3656
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 801; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA2; "

<220>
<221> source
<223> /note="Gene Name:
      AHA1, activator of heat shock 90kDa prt ATPase homolog
      2
      (yeast); "

<220>
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<221> source
<223> /note="Uniprot ID: Q719I0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377970"

<400> 3656
Met Ile Leu Pro Thr Lys Ala Met Ala Thr Gln Glu Leu Thr Val Lys
1   5   10   15

Arg Lys Leu Ser Gly Asn Thr Leu Gln Val Gln Ala Ser Ser Pro Val
            20   25   30

Ala Leu Gly Val Arg Ile Pro Thr Val Ala Leu His Met Met Glu Leu
        35   40   45

Phe Asp Thr Thr Val Glu Gln Leu Tyr Ser Ile Phe Thr Val Lys Glu
    50   55   60

Leu Thr Asn Lys Lys Ile Ile Met Lys Trp Arg Cys Gly Asn Trp Pro
65   70   75   80

Glu Glu His Tyr Ala Met Val Ala Leu Asn Phe Val Pro Thr Leu Gly
                85   90   95

Gln Thr Glu Leu Gln Leu Lys Glu Phe Leu Ser Ile Cys Lys Glu Glu
            100   105   110

Asn Met Lys Phe Cys Trp Gln Lys Gln His Phe Glu Glu Ile Lys Gly
        115   120   125

Ser Leu Gln Leu Thr Pro Leu Asn Gly
    130   135

<210> 3657
<211> 146
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 801; "

<220>
<221> source
<223> /note="Gene Symbol: AHSA2; "

<220>
<221> source
<223> /note="Gene Name:
AHA1, activator of heat shock 90kDa prt ATPase homolog
2
(yeast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386721"

<400> 3657
Met Ile Leu Pro Thr Lys Ala Met Ala Thr Gln Glu Leu Thr Val Lys
1 5 10 15

Arg Lys Leu Ser Gly Asn Thr Leu Gln Val Gln Ala Ser Ser Pro Val
20 25 30

Ala Leu Gly Val Arg Ile Pro Thr Val Ala Leu His Met Met Glu Leu
35 40 45

Phe Asp Thr Thr Val Glu Gln Leu Tyr Ser Ile Phe Thr Val Lys Glu
50 55 60

Glu Glu Arg Val Cys Val Leu Phe Ser Leu Thr Asn Lys Lys Ile Ile
65 70 75 80

Met Lys Trp Arg Cys Gly Asn Trp Pro Glu Glu His Tyr Ala Met Val
85 90 95

Ala Leu Asn Phe Val Pro Thr Leu Gly Gln Thr Glu Leu Gln Leu Lys
100 105 110

Glu Phe Leu Ser Ile Cys Lys Glu Glu Asn Met Lys Phe Cys Trp Gln
115 120 125

Lys Gln His Phe Glu Glu Ile Lys Gly Ser Leu Gln Leu Thr Pro Leu
130 135 140

Asn Gly
145

<210> 3658
<211> 149
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 802; "

<220>
<221> source
<223> /note="Gene Symbol: AHNAK; "

<220>
<221> source
<223> /note="Gene Name:
AHNAK nucleoprt; "

<220>
<221> source
<223> /note="Uniprot ID: Q09666; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000257247"

<400> 3658
Met Glu Lys Glu Glu Thr Thr Arg Glu Leu Leu Leu Pro Asn Trp Gln
1   5   10   15

Gly Ser Gly Ser His Gly Leu Thr Ile Ala Gln Arg Asp Asp Gly Val
            20   25   30

Phe Val Gln Glu Val Thr Gln Asn Ser Pro Ala Ala Arg Thr Gly Val
        35   40   45

Val Lys Glu Gly Asp Gln Ile Val Gly Ala Thr Ile Tyr Phe Asp Asn
    50   55   60

Leu Gln Ser Gly Glu Val Thr Gln Leu Leu Asn Thr Met Gly His His
65   70   75   80

Thr Val Gly Leu Lys Leu His Arg Lys Gly Asp Arg Ser Pro Glu Pro
                85   90   95

Gly Gln Thr Trp Thr Arg Glu Val Phe Ser Ser Cys Ser Ser Glu Val
            100   105   110

Val Leu Asn Thr Pro Gln Pro Ser Ala Leu Glu Cys Lys Asp Gln Asn
        115   120   125

Lys Gln Lys Glu Ala Ser Ser Gln Ala Gly Ala Val Ser Val Ser Thr
    130   135   140

Pro Asn Ala Gly Leu
145

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Gly Ser Gly Ser His Gly Leu Thr Ile Ala Gln Arg Asp Asp Gly Val
            20   25   30

Phe Val Gln Glu Val Thr Gln Asn Ser Pro Ala Ala Arg Thr Gly Val
        35   40   45

Val Lys Glu Gly Asp Gln Ile Val Gly Ala Thr Ile Tyr Phe Asp Asn
    50   55   60

Leu Gln Ser Gly Glu Val Thr Gln Leu Leu Asn Thr Met Gly His His
65   70   75   80

Thr Val Gly Leu Lys Leu His Arg Lys Gly Asp Arg Ser Pro Glu Pro
                85   90   95

Gly Gln Thr Trp Thr Arg Glu Val Phe Ser Ser Cys Ser Ser Glu Val

```
            100                 105                 110

Val Leu Ser Gly Asp Asp Glu Glu Tyr Gln Arg Ile Tyr Thr Thr Lys
        115                 120                 125

Ile Lys Pro Arg Leu Lys Ser Glu Asp Gly Val Glu Gly Asp Leu Gly
    130                 135                 140

Glu Thr Gln Ser Arg Thr Ile Thr Val Thr Arg Arg Val Thr Ala Tyr
145                 150                 155                 160

Thr Val Asp Val Thr Gly Arg Glu Gly Ala Lys Asp Ile Asp Ile Ser
                165                 170                 175

Ser Pro Glu Phe Lys Ile Lys Ile Pro Arg His Glu Leu Thr Glu Ile
            180                 185                 190

Ser Asn Val Asp Val Glu Thr Gln Ser Gly Lys Thr Val Ile Arg Leu
        195                 200                 205

Pro Ser Gly Ser Gly Ala Ala Ser Pro Thr Gly Ser Ala Val Asp Ile
    210                 215                 220

Arg Ala Gly Ala Ile Ser Ala Ser Gly Pro Glu Leu Gln Gly Ala Gly
225                 230                 235                 240

His Ser Lys Leu Gln Val Thr Met Pro Gly Ile Lys Val Gly Gly Ser
                245                 250                 255

Gly Val Asn Val Asn Ala Lys Gly Leu Asp Leu Gly Gly Arg Gly Gly
            260                 265                 270

Val Gln Val Pro Ala Val Asp Ile Ser Ser Ser Leu Gly Gly Arg Ala
        275                 280                 285

Val Glu Val Gln Gly Pro Ser Leu Glu Ser Gly Asp His Gly Lys Ile
    290                 295                 300

Lys Phe Pro Thr Met Lys Val Pro Lys Phe Gly Val Ser Thr Gly Arg
305                 310                 315                 320

Glu Gly Gln Thr Pro Lys Ala Gly Leu Arg Val Ser Ala Pro Glu Val
                325                 330                 335
```

```
Ser Val Gly His Lys Gly Gly Lys Pro Gly Leu Thr Ile Gln Ala Pro
            340                 345                 350

Gln Leu Glu Val Ser Val Pro Ser Ala Asn Ile Glu Gly Leu Glu Gly
        355                 360                 365

Lys Leu Lys Gly Pro Gln Ile Thr Gly Pro Ser Leu Glu Gly Asp Leu
    370                 375                 380

Gly Leu Lys Gly Ala Lys Pro Gln Gly His Ile Gly Val Asp Ala Ser
385                 390                 395                 400

Ala Pro Gln Ile Gly Gly Ser Ile Thr Gly Pro Ser Val Glu Val Gln
                405                 410                 415

Ala Pro Asp Ile Asp Val Gln Gly Pro Gly Ser Lys Leu Asn Val Pro
            420                 425                 430

Lys Met Lys Val Pro Lys Phe Ser Val Ser Gly Ala Lys Gly Glu Glu
        435                 440                 445

Thr Gly Ile Asp Val Thr Leu Pro Thr Gly Glu Val Thr Val Pro Gly
    450                 455                 460

Val Ser Gly Asp Val Ser Leu Pro Glu Ile Ala Thr Gly Gly Leu Glu
465                 470                 475                 480

Gly Lys Met Lys Gly Thr Lys Val Lys Thr Pro Glu Met Ile Ile Gln
                485                 490                 495

Lys Pro Lys Ile Ser Met Gln Asp Val Asp Leu Ser Leu Gly Ser Pro
            500                 505                 510

Lys Leu Lys Gly Asp Ile Lys Val Ser Ala Pro Gly Val Gln Gly Asp
        515                 520                 525

Val Lys Gly Pro Gln Val Ala Leu Lys Gly Ser Arg Val Asp Ile Glu
    530                 535                 540

Thr Pro Asn Leu Glu Gly Thr Leu Thr Gly Pro Arg Leu Gly Ser Pro
545                 550                 555                 560
```

Ser Gly Lys Thr Gly Thr Cys Arg Ile Ser Met Ser Glu Val Asp Leu
565 570 575

Asn Val Ala Ala Pro Lys Val Lys Gly Gly Val Asp Val Thr Leu Pro
580 585 590

Arg Val Glu Gly Lys Val Lys Val Pro Glu Val Asp Val Arg Gly Pro
595 600 605

Lys Val Asp Val Ser Ala Pro Asp Val Glu Ala His Gly Pro Glu Trp
610 615 620

Asn Leu Lys Met Pro Lys Met Lys Met Pro Thr Phe Ser Thr Pro Gly
625 630 635 640

Ala Lys Gly Glu Gly Pro Asp Val His Met Thr Leu Pro Lys Gly Asp
645 650 655

Ile Ser Ile Ser Gly Pro Lys Val Asn Val Glu Ala Pro Asp Val Asn
660 665 670

Leu Glu Gly Leu Gly Gly Lys Leu Lys Gly Pro Asp Val Lys Leu Pro
675 680 685

Asp Met Ser Val Lys Thr Pro Lys Ile Ser Met Pro Asp Val Asp Leu
690 695 700

His Val Lys Gly Thr Lys Val Lys Gly Glu Tyr Asp Val Thr Val Pro
705 710 715 720

Lys Leu Glu Gly Glu Leu Lys Gly Pro Lys Val Asp Ile Asp Ala Pro
725 730 735

Asp Val Asp Val His Gly Pro Asp Trp His Leu Lys Met Pro Lys Met
740 745 750

Lys Met Pro Lys Phe Ser Val Pro Gly Phe Lys Ala Glu Gly Pro Glu
755 760 765

Val Asp Val Asn Leu Pro Lys Ala Asp Val Asp Ile Ser Gly Pro Lys
770 775 780

```
Ile Asp Val Thr Ala Pro Asp Val Ser Ile Glu Glu Pro Glu Gly Lys
785                 790                 795                 800

Leu Lys Gly Pro Lys Phe Lys Met Pro Glu Met Asn Ile Lys Val Pro
                805                 810                 815

Lys Ile Ser Met Pro Asp Val Asp Leu His Leu Lys Gly Pro Asn Val
            820                 825                 830

Lys Gly Glu Tyr Asp Val Thr Met Pro Lys Val Glu Ser Glu Ile Lys
        835                 840                 845

Val Pro Asp Val Glu Leu Lys Ser Ala Lys Met Asp Ile Asp Val Pro
    850                 855                 860

Asp Val Glu Val Gln Gly Pro Asp Trp His Leu Lys Met Pro Lys Met
865                 870                 875                 880

Lys Met Pro Lys Phe Ser Met Pro Gly Phe Lys Ala Glu Gly Pro Glu
                885                 890                 895

Val Asp Val Asn Leu Pro Lys Ala Asp Val Asp Ile Ser Gly Pro Lys
            900                 905                 910

Val Gly Val Glu Val Pro Asp Val Asn Ile Glu Gly Pro Glu Gly Lys
        915                 920                 925

Leu Lys Gly Pro Lys Phe Lys Met Pro Glu Met Asn Ile Lys Ala Pro
    930                 935                 940

Lys Ile Ser Met Pro Asp Val Asp Leu His Met Lys Gly Pro Lys Val
945                 950                 955                 960

Lys Gly Glu Tyr Asp Met Thr Val Pro Lys Leu Glu Gly Asp Leu Lys
                965                 970                 975

Gly Pro Lys Val Asp Val Ser Ala Pro Asp Val Glu Met Gln Gly Pro
            980                 985                 990

Asp Trp Asn Leu Lys Met Pro Lys  Ile Lys Met Pro Lys  Phe Ser
Met
        995                 1000                1005
```

```
Pro Ser  Leu Lys Gly Glu Gly  Pro Glu Phe Asp Val  Asn Leu Ser
    1010                 1015                 1020

Lys Ala  Asn Val Asp Ile Ser  Ala Pro Lys Val Asp  Thr Asn Ala
    1025                 1030                 1035

Pro Asp  Leu Ser Leu Glu Gly  Pro Glu Gly Lys Leu  Lys Gly Pro
    1040                 1045                 1050

Lys Phe  Lys Met Pro Glu Met  His Phe Arg Ala Pro  Lys Met Ser
    1055                 1060                 1065

Leu Pro  Asp Val Asp Leu Asp  Leu Lys Gly Pro Lys  Met Lys Gly
    1070                 1075                 1080

Asn Val  Asp Ile Ser Ala Pro  Lys Ile Glu Gly Glu  Met Gln Val
    1085                 1090                 1095

Pro Asp  Val Asp Ile Arg Gly  Pro Lys Val Asp Ile  Lys Ala Pro
    1100                 1105                 1110

Asp Val  Glu Gly Gln Gly Leu  Asp Trp Ser Leu Lys  Ile Pro Lys
    1115                 1120                 1125

Met Lys  Met Pro Lys Phe Ser  Met Pro Ser Leu Lys  Gly Glu Gly
    1130                 1135                 1140

Pro Glu  Val Asp Val Asn Leu  Pro Lys Ala Asp Val  Val Val Ser
    1145                 1150                 1155

Gly Pro  Lys Val Asp Ile Glu  Ala Pro Asp Val Ser  Leu Glu Gly
    1160                 1165                 1170

Pro Glu  Gly Lys Leu Lys Gly  Pro Lys Phe Lys Met  Pro Glu Met
    1175                 1180                 1185

His Phe  Lys Thr Pro Lys Ile  Ser Met Pro Asp Val  Asp Leu His
    1190                 1195                 1200

Leu Lys  Gly Pro Lys Val Lys  Gly Asp Val Asp Val  Ser Val Pro
    1205                 1210                 1215

Lys Val  Glu Gly Glu Met Lys  Val Pro Asp Val Glu  Ile Lys Gly
```

1220 1225 1230

Pro Lys Met Asp Ile Asp Ala Pro Asp Val Glu Val Gln Gly Pro
1235 1240 1245

Asp Trp His Leu Lys Met Pro Lys Met Lys Met Pro Lys Phe Ser
1250 1255 1260

Met Pro Gly Phe Lys Gly Glu Gly Arg Glu Val Asp Val Asn Leu
1265 1270 1275

Pro Lys Ala Asp Ile Asp Val Ser Gly Pro Lys Val Asp Val Glu
1280 1285 1290

Val Pro Asp Val Ser Leu Glu Gly Pro Glu Gly Lys Leu Lys Gly
1295 1300 1305

Pro Lys Phe Lys Met Pro Glu Met His Phe Lys Ala Pro Lys Ile
1310 1315 1320

Ser Met Pro Asp Val Asp Leu Asn Leu Lys Gly Pro Lys Leu Lys
1325 1330 1335

Gly Asp Val Asp Val Ser Leu Pro Glu Val Glu Gly Glu Met Lys
1340 1345 1350

Val Pro Asp Val Asp Ile Lys Gly Pro Lys Val Asp Ile Ser Ala
1355 1360 1365

Pro Asp Val Asp Val His Gly Pro Asp Trp His Leu Lys Met Pro
1370 1375 1380

Lys Val Lys Met Pro Lys Phe Ser Met Pro Gly Phe Lys Gly Glu
1385 1390 1395

Gly Pro Glu Val Asp Val Lys Leu Pro Lys Ala Asp Val Asp Val
1400 1405 1410

Ser Gly Pro Lys Met Asp Ala Glu Val Pro Asp Val Asn Ile Glu
1415 1420 1425

Gly Pro Asp Ala Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Glu
1430 1435 1440

```
Met Ser  Ile Lys Pro Gln Lys  Ile Ser Ile Pro Asp  Val Gly Leu
    1445                1450                1455

His Leu  Lys Gly Pro Lys Met  Lys Gly Asp Tyr Asp  Val Thr Val
    1460                1465                1470

Pro Lys  Val Glu Gly Glu Ile  Lys Ala Pro Asp Val  Asp Ile Lys
    1475                1480                1485

Gly Pro  Lys Val Asp Ile Asn  Ala Pro Asp Val Glu  Val His Gly
    1490                1495                1500

Pro Asp  Trp His Leu Lys Met  Pro Lys Val Lys Met  Pro Lys Phe
    1505                1510                1515

Ser Met  Pro Gly Phe Lys Gly  Glu Gly Pro Glu Val  Asp Met Asn
    1520                1525                1530

Leu Pro  Lys Ala Asp Leu Gly  Val Ser Gly Pro Lys  Val Asp Ile
    1535                1540                1545

Asp Val  Pro Asp Val Asn Leu  Glu Ala Pro Glu Gly  Lys Leu Lys
    1550                1555                1560

Gly Pro  Lys Phe Lys Met Pro  Ser Met Asn Ile Gln  Thr His Lys
    1565                1570                1575

Ile Ser  Met Pro Asp Val Gly  Leu Asn Leu Lys Ala  Pro Lys Leu
    1580                1585                1590

Lys Thr  Asp Val Asp Val Ser  Leu Pro Lys Val Glu  Gly Asp Leu
    1595                1600                1605

Lys Gly  Pro Glu Ile Asp Val  Lys Ala Pro Lys Met  Asp Val Asn
    1610                1615                1620

Val Gly  Asp Ile Asp Ile Glu  Gly Pro Glu Gly Lys  Leu Lys Gly
    1625                1630                1635

Pro Lys  Phe Lys Met Pro Glu  Met His Phe Lys Ala  Pro Lys Ile
    1640                1645                1650
```

```
Ser Met  Pro Asp Val Asp Leu  His Leu Lys Gly Pro  Lys Val Lys
    1655                1660                1665

Gly Asp  Met Asp Val Ser Val  Pro Lys Val Glu Gly  Glu Met Lys
    1670                1675                1680

Val Pro  Asp Val Asp Ile Lys  Gly Pro Lys Val Asp  Ile Asp Ala
    1685                1690                1695

Pro Asp  Val Glu Val His Asp  Pro Asp Trp His Leu  Lys Met Pro
    1700                1705                1710

Lys Met  Lys Met Pro Lys Phe  Ser Met Pro Gly Phe  Lys Ala Glu
    1715                1720                1725

Gly Pro  Glu Val Asp Val Asn  Leu Pro Lys Ala Asp  Ile Asp Val
    1730                1735                1740

Ser Gly  Pro Ser Val Asp Thr  Asp Ala Pro Asp Leu  Asp Ile Glu
    1745                1750                1755

Gly Pro  Glu Gly Lys Leu Lys  Gly Ser Lys Phe Lys  Met Pro Lys
    1760                1765                1770

Leu Asn  Ile Lys Ala Pro Lys  Val Ser Met Pro Asp  Val Asp Leu
    1775                1780                1785

Asn Leu  Lys Gly Pro Lys Leu  Lys Gly Glu Ile Asp  Ala Ser Val
    1790                1795                1800

Pro Glu  Leu Glu Gly Asp Leu  Arg Gly Pro Gln Val  Asp Val Lys
    1805                1810                1815

Gly Pro  Phe Val Glu Ala Glu  Val Pro Asp Val Asp  Leu Glu Cys
    1820                1825                1830

Pro Asp  Ala Lys Leu Lys Gly  Pro Lys Phe Lys Met  Pro Glu Met
    1835                1840                1845

His Phe  Lys Ala Pro Lys Ile  Ser Met Pro Asp Val  Asp Leu His
    1850                1855                1860
```

```
Leu Lys  Gly Pro Lys Val Lys  Gly Asp Ala Asp Val  Ser Val Pro
    1865                 1870                 1875

Lys Leu  Glu Gly Asp Leu Thr  Gly Pro Ser Val Gly  Val Glu Val
    1880                 1885                 1890

Pro Asp  Val Glu Leu Glu Cys  Pro Asp Ala Lys Leu  Lys Gly Pro
    1895                 1900                 1905

Lys Phe  Lys Met Pro Asp Met  His Phe Lys Ala Pro  Lys Ile Ser
    1910                 1915                 1920

Met Pro  Asp Val Asp Leu His  Leu Lys Gly Pro Lys  Val Lys Gly
    1925                 1930                 1935

Asp Val  Asp Val Ser Val Pro  Lys Leu Glu Gly Asp  Leu Thr Gly
    1940                 1945                 1950

Pro Ser  Val Gly Val Glu Val  Pro Asp Val Glu Leu  Glu Cys Pro
    1955                 1960                 1965

Asp Ala  Lys Leu Lys Gly Pro  Lys Phe Lys Met Pro  Glu Met His
    1970                 1975                 1980

Phe Lys  Thr Pro Lys Ile Ser  Met Pro Asp Val Asp  Leu His Leu
    1985                 1990                 1995

Lys Gly  Pro Lys Val Lys Gly  Asp Met Asp Val Ser  Val Pro Lys
    2000                 2005                 2010

Val Glu  Gly Glu Met Lys Val  Pro Asp Val Asp Ile  Lys Gly Pro
    2015                 2020                 2025

Lys Met  Asp Ile Asp Ala Pro  Asp Val Asp Val His  Gly Pro Asp
    2030                 2035                 2040

Trp His  Leu Lys Met Pro Lys  Met Lys Met Pro Lys  Phe Ser Met
    2045                 2050                 2055

Pro Gly  Phe Lys Ala Glu Gly  Pro Glu Val Asp Val  Asn Leu Pro
    2060                 2065                 2070

Lys Ala  Asp Val Val Val Ser  Gly Pro Lys Val Asp  Val Glu Val
```

2075 2080 2085

Pro Asp Val Ser Leu Glu Gly Pro Glu Gly Lys Leu Lys Gly Pro
2090 2095 2100

Lys Leu Lys Met Pro Glu Met His Phe Lys Ala Pro Lys Ile Ser
2105 2110 2115

Met Pro Asp Val Asp Leu His Leu Lys Gly Pro Lys Val Lys Gly
2120 2125 2130

Asp Val Asp Val Ser Leu Pro Lys Leu Glu Gly Asp Leu Thr Gly
2135 2140 2145

Pro Ser Val Asp Val Glu Val Pro Asp Val Glu Leu Glu Cys Pro
2150 2155 2160

Asp Ala Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Glu Met His
2165 2170 2175

Phe Lys Thr Pro Lys Ile Ser Met Pro Asp Val Asn Leu Asn Leu
2180 2185 2190

Lys Gly Pro Lys Val Lys Gly Asp Met Asp Val Ser Val Pro Lys
2195 2200 2205

Val Glu Gly Glu Met Lys Val Pro Asp Val Asp Ile Arg Gly Pro
2210 2215 2220

Lys Val Asp Ile Asp Ala Pro Asp Val Asp Val His Gly Pro Asp
2225 2230 2235

Trp His Leu Lys Met Pro Lys Met Lys Met Pro Lys Phe Ser Met
2240 2245 2250

Pro Gly Phe Lys Gly Glu Gly Pro Glu Val Asp Val Asn Leu Pro
2255 2260 2265

Lys Ala Asp Val Asp Val Ser Gly Pro Lys Val Asp Val Glu Val
2270 2275 2280

Pro Asp Val Ser Leu Glu Gly Pro Glu Gly Lys Leu Lys Gly Pro
2285 2290 2295

Lys Phe Lys Met Pro Glu Met His Phe Lys Thr Pro Lys Ile Ser
2300 2305 2310

Met Pro Asp Val Asp Phe Asn Leu Lys Gly Pro Lys Ile Lys Gly
2315 2320 2325

Asp Val Asp Val Ser Ala Pro Lys Leu Glu Gly Glu Leu Lys Gly
2330 2335 2340

Pro Glu Leu Asp Val Lys Gly Pro Lys Leu Asp Ala Asp Met Pro
2345 2350 2355

Glu Val Ala Val Glu Gly Pro Asn Gly Lys Trp Lys Thr Pro Lys
2360 2365 2370

Phe Lys Met Pro Asp Met His Phe Lys Ala Pro Lys Ile Ser Met
2375 2380 2385

Pro Asp Leu Asp Leu His Leu Lys Ser Pro Lys Ala Lys Gly Glu
2390 2395 2400

Val Asp Val Asp Val Pro Lys Leu Glu Gly Asp Leu Lys Gly Pro
2405 2410 2415

His Val Asp Val Ser Gly Pro Asp Ile Asp Ile Glu Gly Pro Glu
2420 2425 2430

Gly Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Asp Met His Phe
2435 2440 2445

Lys Ala Pro Asn Ile Ser Met Pro Asp Val Asp Leu Asn Leu Lys
2450 2455 2460

Gly Pro Lys Ile Lys Gly Asp Val Asp Val Ser Val Pro Glu Val
2465 2470 2475

Glu Gly Lys Leu Glu Val Pro Asp Met Asn Ile Arg Gly Pro Lys
2480 2485 2490

Val Asp Val Asn Ala Pro Asp Val Gln Ala Pro Asp Trp His Leu
2495 2500 2505

Lys Met Pro Lys Met Lys Met Pro Lys Phe Ser Met Pro Gly Phe
2510 2515 2520

Lys Ala Glu Gly Pro Glu Val Asp Val Asn Leu Pro Lys Ala Asp
2525 2530 2535

Val Asp Ile Ser Gly Pro Lys Val Asp Ile Glu Gly Pro Asp Val
2540 2545 2550

Asn Ile Glu Gly Pro Glu Gly Lys Leu Lys Gly Pro Lys Leu Lys
2555 2560 2565

Met Pro Glu Met Asn Ile Lys Ala Pro Lys Ile Ser Met Pro Asp
2570 2575 2580

Phe Asp Leu His Leu Lys Gly Pro Lys Val Lys Gly Asp Val Asp
2585 2590 2595

Val Ser Leu Pro Lys Val Glu Gly Asp Leu Lys Gly Pro Glu Val
2600 2605 2610

Asp Ile Lys Gly Pro Lys Val Asp Ile Asn Ala Pro Asp Val Gly
2615 2620 2625

Val Gln Gly Pro Asp Trp His Leu Lys Met Pro Lys Val Lys Met
2630 2635 2640

Pro Lys Phe Ser Met Pro Gly Phe Lys Gly Glu Gly Pro Asp Gly
2645 2650 2655

Asp Val Lys Leu Pro Lys Ala Asp Ile Asp Val Ser Gly Pro Lys
2660 2665 2670

Val Asp Ile Glu Gly Pro Asp Val Asn Ile Glu Gly Pro Glu Gly
2675 2680 2685

Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Glu Met Asn Ile Lys
2690 2695 2700

Ala Pro Lys Ile Ser Met Pro Asp Ile Asp Leu Asn Leu Lys Gly
2705 2710 2715

Pro Lys Val Lys Gly Asp Val Asp Val Ser Leu Pro Lys Val Glu
2720 2725 2730

Gly Asp Leu Lys Gly Pro Glu Val Asp Ile Lys Gly Pro Lys Val
2735 2740 2745

Asp Ile Asp Ala Pro Asp Val Asp Val His Gly Pro Asp Trp His
2750 2755 2760

Leu Lys Met Pro Lys Ile Lys Met Pro Lys Ile Ser Met Pro Gly
2765 2770 2775

Phe Lys Gly Glu Gly Pro Asp Val Asp Val Asn Leu Pro Lys Ala
2780 2785 2790

Asp Ile Asp Val Ser Gly Pro Lys Val Asp Val Glu Cys Pro Asp
2795 2800 2805

Val Asn Ile Glu Gly Pro Glu Gly Lys Trp Lys Ser Pro Lys Phe
2810 2815 2820

Lys Met Pro Glu Met His Phe Lys Thr Pro Lys Ile Ser Met Pro
2825 2830 2835

Asp Ile Asp Leu Asn Leu Thr Gly Pro Lys Ile Lys Gly Asp Val
2840 2845 2850

Asp Val Thr Gly Pro Lys Val Glu Gly Asp Leu Lys Gly Pro Glu
2855 2860 2865

Val Asp Leu Lys Gly Pro Lys Val Asp Ile Asp Val Pro Asp Val
2870 2875 2880

Asn Val Gln Gly Pro Asp Trp His Leu Lys Met Pro Lys Met Lys
2885 2890 2895

Met Pro Lys Phe Ser Met Pro Gly Phe Lys Ala Glu Gly Pro Glu
2900 2905 2910

Val Asp Val Asn Leu Pro Lys Ala Asp Val Asp Val Ser Gly Pro
2915 2920 2925

Lys Val Asp Val Glu Gly Pro Asp Val Asn Ile Glu Gly Pro Glu

2930 2935 2940

Gly Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Glu Met Asn Ile
2945 2950 2955

Lys Ala Pro Lys Ile Pro Met Pro Asp Phe Asp Leu His Leu Lys
2960 2965 2970

Gly Pro Lys Val Lys Gly Asp Val Asp Ile Ser Leu Pro Lys Val
2975 2980 2985

Glu Gly Asp Leu Lys Gly Pro Glu Val Asp Ile Arg Gly Pro Gln
2990 2995 3000

Val Asp Ile Asp Val Pro Asp Val Gly Val Gln Gly Pro Asp Trp
3005 3010 3015

His Leu Lys Met Pro Lys Val Lys Met Pro Lys Phe Ser Met Pro
3020 3025 3030

Gly Phe Lys Gly Glu Gly Pro Asp Val Asp Val Asn Leu Pro Lys
3035 3040 3045

Ala Asp Leu Asp Val Ser Gly Pro Lys Val Asp Ile Asp Val Pro
3050 3055 3060

Asp Val Asn Ile Glu Gly Pro Glu Gly Lys Leu Lys Gly Pro Lys
3065 3070 3075

Phe Lys Met Pro Glu Met Asn Ile Lys Ala Pro Lys Ile Ser Met
3080 3085 3090

Pro Asp Ile Asp Leu Asn Leu Lys Gly Pro Lys Val Lys Gly Asp
3095 3100 3105

Met Asp Val Ser Leu Pro Lys Val Glu Gly Asp Met Lys Val Pro
3110 3115 3120

Asp Val Asp Ile Lys Gly Pro Lys Val Asp Ile Asn Ala Pro Asp
3125 3130 3135

Val Asp Val Gln Gly Pro Asp Trp His Leu Lys Met Pro Lys Ile
3140 3145 3150

```
Lys Met  Pro Lys Ile Ser Met  Pro Gly Phe Lys Gly  Glu Gly Pro
    3155                3160                3165

Glu Val  Asp Val Asn Leu Pro  Lys Ala Asp Leu Asp  Val Ser Gly
    3170                3175                3180

Pro Lys  Val Asp Val Asp Val  Pro Asp Val Asn Ile  Glu Gly Pro
    3185                3190                3195

Asp Ala  Lys Leu Lys Gly Pro  Lys Phe Lys Met Pro  Glu Met Asn
    3200                3205                3210

Ile Lys  Ala Pro Lys Ile Ser  Met Pro Asp Leu Asp  Leu Asn Leu
    3215                3220                3225

Lys Gly  Pro Lys Met Lys Gly  Glu Val Asp Val Ser  Leu Ala Asn
    3230                3235                3240

Val Glu  Gly Asp Leu Lys Gly  Pro Ala Leu Asp Ile  Lys Gly Pro
    3245                3250                3255

Lys Ile  Asp Val Asp Ala Pro  Asp Ile Asp Ile His  Gly Pro Asp
    3260                3265                3270

Ala Lys  Leu Lys Gly Pro Lys  Leu Lys Met Pro Asp  Met His Val
    3275                3280                3285

Asn Met  Pro Lys Ile Ser Met  Pro Glu Ile Asp Leu  Asn Leu Lys
    3290                3295                3300

Gly Ser  Lys Leu Lys Gly Asp  Val Asp Val Ser Gly  Pro Lys Leu
    3305                3310                3315

Glu Gly  Asp Ile Lys Ala Pro  Ser Leu Asp Ile Lys  Gly Pro Glu
    3320                3325                3330

Val Asp  Val Ser Gly Pro Lys  Leu Asn Ile Glu Gly  Lys Ser Lys
    3335                3340                3345

Lys Ser  Arg Phe Lys Leu Pro  Lys Phe Asn Phe Ser  Gly Ser Lys
    3350                3355                3360
```

```
Val Gln  Thr Pro Glu Val Asp  Val Lys Gly Lys Lys  Pro Asp Ile
    3365                3370                3375

Asp Ile  Thr Gly Pro Lys Val  Asp Ile Asn Ala Pro  Asp Val Glu
    3380                3385                3390

Val Gln  Gly Lys Val Lys Gly  Ser Lys Phe Lys Met  Pro Phe Leu
    3395                3400                3405

Ser Ile  Ser Ser Pro Lys Val  Ser Met Pro Asp Val  Glu Leu Asn
    3410                3415                3420

Leu Lys  Ser Pro Lys Val Lys  Gly Asp Leu Asp Ile  Ala Gly Pro
    3425                3430                3435

Asn Leu  Glu Gly Asp Phe Lys  Gly Pro Lys Val Asp  Ile Lys Ala
    3440                3445                3450

Pro Glu  Val Asn Leu Asn Ala  Pro Asp Val Asp Val  His Gly Pro
    3455                3460                3465

Asp Trp  Asn Leu Lys Met Pro  Lys Met Lys Met Pro  Lys Phe Ser
    3470                3475                3480

Val Ser  Gly Leu Lys Ala Glu  Gly Pro Asp Val Ala  Val Asp Leu
    3485                3490                3495

Pro Lys  Gly Asp Ile Asn Ile  Glu Gly Pro Ser Met  Asn Ile Glu
    3500                3505                3510

Gly Pro  Asp Leu Asn Val Glu  Gly Pro Glu Gly Gly  Leu Lys Gly
    3515                3520                3525

Pro Lys  Phe Lys Met Pro Asp  Met Asn Ile Lys Ala  Pro Lys Ile
    3530                3535                3540

Ser Met  Pro Asp Ile Asp Leu  Asn Leu Lys Gly Pro  Lys Val Lys
    3545                3550                3555

Gly Asp  Val Asp Ile Ser Leu  Pro Lys Leu Glu Gly  Asp Leu Lys
    3560                3565                3570
```

Gly Pro Glu Val Asp Ile Lys Gly Pro Lys Val Asp Ile Asn Ala
3575 3580 3585

Pro Asp Val Asp Val His Gly Pro Asp Trp His Leu Lys Met Pro
3590 3595 3600

Lys Val Lys Met Pro Lys Phe Ser Met Pro Gly Phe Lys Gly Glu
3605 3610 3615

Gly Pro Glu Val Asp Val Thr Leu Pro Lys Ala Asp Ile Asp Ile
3620 3625 3630

Ser Gly Pro Asn Val Asp Val Asp Val Pro Asp Val Asn Ile Glu
3635 3640 3645

Gly Pro Asp Ala Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Glu
3650 3655 3660

Met Asn Ile Lys Ala Pro Lys Ile Ser Met Pro Asp Phe Asp Leu
3665 3670 3675

Asn Leu Lys Gly Pro Lys Met Lys Gly Asp Val Val Val Ser Leu
3680 3685 3690

Pro Lys Val Glu Gly Asp Leu Lys Gly Pro Glu Val Asp Ile Lys
3695 3700 3705

Gly Pro Lys Val Asp Ile Asp Thr Pro Asp Ile Asn Ile Glu Gly
3710 3715 3720

Ser Glu Gly Lys Phe Lys Gly Pro Lys Phe Lys Ile Pro Glu Met
3725 3730 3735

His Leu Lys Ala Pro Lys Ile Ser Met Pro Asp Ile Asp Leu Asn
3740 3745 3750

Leu Lys Gly Pro Lys Val Lys Gly Asp Val Asp Val Ser Leu Pro
3755 3760 3765

Lys Met Glu Gly Asp Leu Lys Gly Pro Glu Val Asp Ile Lys Gly
3770 3775 3780

Pro Lys Val Asp Ile Asn Ala Pro Asp Val Asp Val Gln Gly Pro

3785 3790 3795

Asp Trp His Leu Lys Met Pro Lys Val Lys Met Pro Lys Phe Ser
3800 3805 3810

Met Pro Gly Phe Lys Gly Glu Gly Pro Asp Val Asp Val Asn Leu
3815 3820 3825

Pro Lys Ala Asp Leu Asp Val Ser Gly Pro Lys Val Asp Ile Asp
3830 3835 3840

Val Pro Asp Val Asn Ile Glu Gly Pro Glu Gly Lys Leu Lys Gly
3845 3850 3855

Pro Lys Phe Lys Met Pro Glu Met Asn Ile Lys Ala Pro Lys Ile
3860 3865 3870

Ser Met Pro Asp Ile Asp Leu Asn Leu Lys Gly Pro Lys Val Lys
3875 3880 3885

Gly Asp Met Asp Val Ser Leu Pro Lys Val Glu Gly Asp Met Gln
3890 3895 3900

Val Pro Asp Leu Asp Ile Lys Gly Pro Lys Val Asp Ile Asn Ala
3905 3910 3915

Pro Asp Val Asp Val Arg Gly Pro Asp Trp His Leu Lys Met Pro
3920 3925 3930

Lys Ile Lys Met Pro Lys Ile Ser Met Pro Gly Phe Lys Gly Glu
3935 3940 3945

Gly Pro Glu Val Asp Val Asn Leu Pro Lys Ala Asp Leu Asp Val
3950 3955 3960

Ser Gly Pro Lys Val Asp Val Asp Val Pro Asp Val Asn Ile Glu
3965 3970 3975

Gly Pro Asp Ala Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Glu
3980 3985 3990

Met Asn Ile Lys Ala Pro Lys Ile Ser Met Pro Asp Phe Asp Leu
3995 4000 4005

```
His Leu  Lys Gly Pro Lys Val  Lys Gly Asp Val Asp  Val Ser Leu
    4010                4015                4020

Pro Lys  Met Glu Gly Asp Leu  Lys Ala Pro Glu Val  Asp Ile Lys
    4025                4030                4035

Gly Pro  Lys Val Asp Ile Asp  Ala Pro Asp Val Asp  Val His Gly
    4040                4045                4050

Pro Asp  Trp His Leu Lys Met  Pro Lys Val Lys Met  Pro Lys Phe
    4055                4060                4065

Ser Met  Pro Gly Phe Lys Gly  Glu Gly Pro Glu Val  Asp Val Asn
    4070                4075                4080

Leu Pro  Lys Ala Asp Ile Asp  Val Ser Gly Pro Lys  Val Asp Ile
    4085                4090                4095

Asp Thr  Pro Asp Ile Asp Ile  His Gly Pro Glu Gly  Lys Leu Lys
    4100                4105                4110

Gly Pro  Lys Phe Lys Met Pro  Asp Leu His Leu Lys  Ala Pro Lys
    4115                4120                4125

Ile Ser  Met Pro Glu Val Asp  Leu Asn Leu Lys Gly  Pro Lys Met
    4130                4135                4140

Lys Gly  Asp Val Asp Val Ser  Leu Pro Lys Val Glu  Gly Asp Leu
    4145                4150                4155

Lys Gly  Pro Glu Val Asp Ile  Lys Gly Pro Lys Val  Asp Ile Asp
    4160                4165                4170

Val Pro  Asp Val Asp Val Gln  Gly Pro Asp Trp His  Leu Lys Met
    4175                4180                4185

Pro Lys  Val Lys Met Pro Lys  Phe Ser Met Pro Gly  Phe Lys Gly
    4190                4195                4200

Glu Gly  Pro Asp Val Asp Val  Asn Leu Pro Lys Ala  Asp Leu Asp
    4205                4210                4215
```

Val Ser Gly Pro Lys Val Asp Ile Asp Val Pro Asp Val Asn Ile
4220 4225 4230

Glu Gly Pro Asp Ala Lys Leu Lys Gly Pro Lys Phe Lys Met Pro
4235 4240 4245

Glu Met Asn Ile Lys Ala Pro Lys Ile Ser Met Pro Asp Phe Asp
4250 4255 4260

Leu His Leu Lys Gly Pro Lys Val Lys Gly Asp Val Asp Val Ser
4265 4270 4275

Leu Pro Lys Val Glu Gly Asp Leu Lys Gly Pro Glu Val Asp Ile
4280 4285 4290

Lys Gly Pro Lys Val Asp Ile Asp Ala Pro Asp Val Asp Val His
4295 4300 4305

Gly Pro Asp Trp His Leu Lys Met Pro Lys Val Lys Met Pro Lys
4310 4315 4320

Phe Ser Met Pro Gly Phe Lys Gly Glu Gly Pro Asp Val Asp Val
4325 4330 4335

Thr Leu Pro Lys Ala Asp Ile Glu Ile Ser Gly Pro Lys Val Asp
4340 4345 4350

Ile Asp Ala Pro Asp Val Ser Ile Glu Gly Pro Asp Ala Lys Leu
4355 4360 4365

Lys Gly Pro Lys Phe Lys Met Pro Glu Met Asn Ile Lys Ala Pro
4370 4375 4380

Lys Ile Ser Met Pro Asp Ile Asp Phe Asn Leu Lys Gly Pro Lys
4385 4390 4395

Val Lys Gly Asp Val Asp Val Ser Leu Pro Lys Val Glu Gly Asp
4400 4405 4410

Leu Lys Gly Pro Glu Ile Asp Ile Lys Gly Pro Ser Leu Asp Ile
4415 4420 4425

```
Asp Thr  Pro Asp Val Asn Ile  Glu Gly Pro Glu Gly  Lys Leu Lys
    4430                 4435                 4440

Gly Pro  Lys Phe Lys Met Pro  Glu Met Asn Ile Lys  Ala Pro Lys
    4445                 4450                 4455

Ile Ser  Met Pro Asp Phe Asp  Leu His Leu Lys Gly  Pro Lys Val
    4460                 4465                 4470

Lys Gly  Asp Val Asp Val Ser  Leu Pro Lys Val Glu  Ser Asp Leu
    4475                 4480                 4485

Lys Gly  Pro Glu Val Asp Ile  Glu Gly Pro Glu Gly  Lys Leu Lys
    4490                 4495                 4500

Gly Pro  Lys Phe Lys Met Pro  Asp Val His Phe Lys  Ser Pro Gln
    4505                 4510                 4515

Ile Ser  Met Ser Asp Ile Asp  Leu Asn Leu Lys Gly  Pro Lys Ile
    4520                 4525                 4530

Lys Gly  Asp Met Asp Ile Ser  Val Pro Lys Leu Glu  Gly Asp Leu
    4535                 4540                 4545

Lys Gly  Pro Lys Val Asp Val  Lys Gly Pro Lys Val  Gly Ile Asp
    4550                 4555                 4560

Thr Pro  Asp Ile Asp Ile His  Gly Pro Glu Gly Lys  Leu Lys Gly
    4565                 4570                 4575

Pro Lys  Phe Lys Met Pro Asp  Leu His Leu Lys Ala  Pro Lys Ile
    4580                 4585                 4590

Ser Met  Pro Glu Val Asp Leu  Asn Leu Lys Gly Pro  Lys Val Lys
    4595                 4600                 4605

Gly Asp  Met Asp Ile Ser Leu  Pro Lys Val Glu Gly  Asp Leu Lys
    4610                 4615                 4620

Gly Pro  Glu Val Asp Ile Arg  Asp Pro Lys Val Asp  Ile Asp Val
    4625                 4630                 4635

Pro Asp  Val Asp Val Gln Gly  Pro Asp Trp His Leu  Lys Met Pro
```

4640 4645 4650

Lys Val Lys Met Pro Lys Phe Ser Met Pro Gly Phe Lys Gly Glu
4655 4660 4665

Gly Pro Asp Val Asp Val Asn Leu Pro Lys Ala Asp Ile Asp Val
4670 4675 4680

Ser Gly Pro Lys Val Asp Val Asp Val Pro Asp Val Asn Ile Glu
4685 4690 4695

Gly Pro Asp Ala Lys Leu Lys Gly Pro Lys Phe Lys Met Pro Glu
4700 4705 4710

Met Ser Ile Lys Ala Pro Lys Ile Ser Met Pro Asp Ile Asp Leu
4715 4720 4725

Asn Leu Lys Gly Pro Lys Val Lys Gly Asp Val Asp Val Thr Leu
4730 4735 4740

Pro Lys Val Glu Gly Asp Leu Lys Gly Pro Glu Ala Asp Ile Lys
4745 4750 4755

Gly Pro Lys Val Asp Ile Asn Thr Pro Asp Val Asp Val His Gly
4760 4765 4770

Pro Asp Trp His Leu Lys Met Pro Lys Val Lys Met Pro Lys Phe
4775 4780 4785

Ser Met Pro Gly Phe Lys Gly Glu Gly Pro Asp Val Asp Val Ser
4790 4795 4800

Leu Pro Lys Ala Asp Ile Asp Val Ser Gly Pro Lys Val Asp Val
4805 4810 4815

Asp Ile Pro Asp Val Asn Ile Glu Gly Pro Asp Ala Lys Leu Lys
4820 4825 4830

Gly Pro Lys Phe Lys Met Pro Glu Ile Asn Ile Lys Ala Pro Lys
4835 4840 4845

Ile Ser Ile Pro Asp Val Asp Leu Asp Leu Lys Gly Pro Lys Val
4850 4855 4860

```
Lys Gly  Asp Phe Asp Val Ser  Val Pro Lys Val Glu  Gly Thr Leu
    4865                4870                4875

Lys Gly  Pro Glu Val Asp Leu  Lys Gly Pro Arg Leu  Asp Phe Glu
    4880                4885                4890

Gly Pro  Asp Ala Lys Leu Ser  Gly Pro Ser Leu Lys  Met Pro Ser
    4895                4900                4905

Leu Glu  Ile Ser Ala Pro Lys  Val Thr Ala Pro Asp  Val Asp Leu
    4910                4915                4920

His Leu  Lys Ala Pro Lys Ile  Gly Phe Ser Gly Pro  Lys Leu Glu
    4925                4930                4935

Gly Gly  Glu Val Asp Leu Lys  Gly Pro Lys Val Glu  Ala Pro Ser
    4940                4945                4950

Leu Asp  Val His Met Asp Ser  Pro Asp Ile Asn Ile  Glu Gly Pro
    4955                4960                4965

Asp Val  Lys Ile Pro Lys Phe  Lys Lys Pro Lys Phe  Gly Phe Gly
    4970                4975                4980

Ala Lys  Ser Pro Lys Ala Asp  Ile Lys Ser Pro Ser  Leu Asp Val
    4985                4990                4995

Thr Val  Pro Glu Ala Glu Leu  Asn Leu Glu Thr Pro  Glu Ile Ser
    5000                5005                5010

Val Gly  Gly Lys Gly Lys Lys  Ser Lys Phe Lys Met  Pro Lys Ile
    5015                5020                5025

His Met  Ser Gly Pro Lys Ile  Lys Ala Lys Lys Gln  Gly Phe Asp
    5030                5035                5040

Leu Asn  Val Pro Gly Gly Glu  Ile Asp Ala Ser Leu  Lys Ala Pro
    5045                5050                5055

Asp Val  Asp Val Asn Ile Ala  Gly Pro Asp Ala Ala  Leu Lys Val
    5060                5065                5070
```

Asp Val Lys Ser Pro Lys Thr Lys Lys Thr Met Phe Gly Lys Met
5075 5080 5085

Tyr Phe Pro Asp Val Glu Phe Asp Ile Lys Ser Pro Lys Phe Lys
5090 5095 5100

Ala Glu Ala Pro Leu Pro Ser Pro Lys Leu Glu Gly Glu Leu Gln
5105 5110 5115

Ala Pro Asp Leu Glu Leu Ser Leu Pro Ala Ile His Val Glu Gly
5120 5125 5130

Leu Asp Ile Lys Ala Lys Ala Pro Lys Val Lys Met Pro Asp Val
5135 5140 5145

Asp Ile Ser Val Pro Lys Ile Glu Gly Asp Leu Lys Gly Pro Lys
5150 5155 5160

Val Gln Ala Asn Leu Gly Ala Pro Asp Ile Asn Ile Glu Gly Leu
5165 5170 5175

Asp Ala Lys Val Lys Thr Pro Ser Phe Gly Ile Ser Ala Pro Gln
5180 5185 5190

Val Ser Ile Pro Asp Val Asn Val Asn Leu Lys Gly Pro Lys Ile
5195 5200 5205

Lys Gly Asp Val Pro Ser Val Gly Leu Glu Gly Pro Asp Val Asp
5210 5215 5220

Leu Gln Gly Pro Glu Ala Lys Ile Lys Phe Pro Lys Phe Ser Met
5225 5230 5235

Pro Lys Ile Gly Ile Pro Gly Val Lys Met Glu Gly Gly Gly Ala
5240 5245 5250

Glu Val His Ala Gln Leu Pro Ser Leu Glu Gly Asp Leu Arg Gly
5255 5260 5265

Pro Asp Val Lys Leu Glu Gly Pro Asp Val Ser Leu Lys Gly Pro
5270 5275 5280

Gly Val Asp Leu Pro Ser Val Asn Leu Ser Met Pro Lys Val Ser
5285 5290 5295

Gly Pro Asp Leu Asp Leu Asn Leu Lys Gly Pro Ser Leu Lys Gly
5300 5305 5310

Asp Leu Asp Ala Ser Val Pro Ser Met Lys Val His Ala Pro Gly
5315 5320 5325

Leu Asn Leu Ser Gly Val Gly Gly Lys Met Gln Val Gly Gly Asp
5330 5335 5340

Gly Val Lys Val Pro Gly Ile Asp Ala Thr Thr Lys Leu Asn Val
5345 5350 5355

Gly Ala Pro Asp Val Thr Leu Arg Gly Pro Ser Leu Gln Gly Asp
5360 5365 5370

Leu Ala Val Ser Gly Asp Ile Lys Cys Pro Lys Val Ser Val Gly
5375 5380 5385

Ala Pro Asp Leu Ser Leu Glu Ala Ser Glu Gly Ser Ile Lys Leu
5390 5395 5400

Pro Lys Met Lys Leu Pro Gln Phe Gly Ile Ser Thr Pro Gly Ser
5405 5410 5415

Asp Leu His Val Asn Ala Lys Gly Pro Gln Val Ser Gly Glu Leu
5420 5425 5430

Lys Gly Pro Gly Val Asp Val Asn Leu Lys Gly Pro Arg Ile Ser
5435 5440 5445

Ala Pro Asn Val Asp Phe Asn Leu Glu Gly Pro Lys Val Lys Gly
5450 5455 5460

Ser Leu Gly Ala Thr Gly Glu Ile Lys Gly Pro Thr Val Gly Gly
5465 5470 5475

Gly Leu Pro Gly Ile Gly Val Gln Gly Leu Glu Gly Asn Leu Gln
5480 5485 5490

Met Pro Gly Ile Lys Ser Ser Gly Cys Asp Val Asn Leu Pro Gly

5495 5500 5505

Val Asn Val Lys Leu Pro Thr Gly Gln Ile Ser Gly Pro Glu Ile
5510 5515 5520

Lys Gly Gly Leu Lys Gly Ser Glu Val Gly Phe His Gly Ala Ala
5525 5530 5535

Pro Asp Ile Ser Val Lys Gly Pro Ala Phe Asn Met Ala Ser Pro
5540 5545 5550

Glu Ser Asp Phe Gly Ile Asn Leu Lys Gly Pro Lys Ile Lys Gly
5555 5560 5565

Gly Ala Asp Val Ser Gly Gly Val Ser Ala Pro Asp Ile Ser Leu
5570 5575 5580

Gly Glu Gly His Leu Ser Val Lys Gly Ser Gly Gly Glu Trp Lys
5585 5590 5595

Gly Pro Gln Val Ser Ser Ala Leu Asn Leu Asp Thr Ser Lys Phe
5600 5605 5610

Ala Gly Gly Leu His Phe Ser Gly Pro Lys Val Glu Gly Gly Val
5615 5620 5625

Lys Gly Gly Gln Ile Gly Leu Gln Ala Pro Gly Leu Ser Val Ser
5630 5635 5640

Gly Pro Gln Gly His Leu Glu Ser Gly Ser Gly Lys Val Thr Phe
5645 5650 5655

Pro Lys Met Lys Ile Pro Lys Phe Thr Phe Ser Gly Arg Glu Leu
5660 5665 5670

Val Gly Arg Glu Met Gly Val Asp Val His Phe Pro Lys Ala Glu
5675 5680 5685

Ala Ser Ile Gln Ala Gly Ala Gly Asp Gly Glu Trp Glu Glu Ser
5690 5695 5700

Glu Val Lys Leu Lys Lys Ser Lys Ile Lys Met Pro Lys Phe Asn
5705 5710 5715

```
Phe Ser  Lys Pro Lys Gly Lys  Gly Gly Val Thr Gly  Ser Pro Glu
    5720                 5725                 5730

Ala Ser  Ile Ser Gly Ser Lys  Gly Asp Leu Lys Ser  Ser Lys Ala
    5735                 5740                 5745

Ser Leu  Gly Ser Leu Glu Gly  Glu Ala Glu Ala Glu  Ala Ser Ser
    5750                 5755                 5760

Pro Lys  Gly Lys Phe Ser Leu  Phe Lys Ser Lys Lys  Pro Arg His
    5765                 5770                 5775

Arg Ser  Asn Ser Phe Ser Asp  Glu Arg Glu Phe Ser  Gly Pro Ser
    5780                 5785                 5790

Thr Pro  Thr Gly Thr Leu Glu  Phe Glu Gly Gly Glu  Val Ser Leu
    5795                 5800                 5805

Glu Gly  Gly Lys Val Lys Gly  Lys His Gly Lys Leu  Lys Phe Gly
    5810                 5815                 5820

Thr Phe  Gly Gly Leu Gly Ser  Lys Ser Lys Gly His  Tyr Glu Val
    5825                 5830                 5835

Thr Gly  Ser Asp Asp Glu Thr  Gly Lys Leu Gln Gly  Ser Gly Val
    5840                 5845                 5850

Ser Leu  Ala Ser Lys Lys Ser  Arg Leu Ser Ser Ser  Ser Ser Asn
    5855                 5860                 5865

Asp Ser  Gly Asn Lys Val Gly  Ile Gln Leu Pro Glu  Val Glu Leu
    5870                 5875                 5880

Ser Val  Ser Thr Lys Lys Glu
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<211> 144
<212> PRT
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<220>
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<223> /note="Payload ID: 802; "

<220>
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<223> /note="Gene Symbol: AHNAK; "

<220>
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<223> /note="Gene Name:
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<223> /note="ENSP ID: ENSP00000433286"

<400> 3660
Met Glu Lys Glu Glu Thr Thr Arg Glu Leu Leu Leu Pro Asn Trp Gln
1 5 10 15

Gly Ser Gly Ser His Gly Leu Thr Ile Ala Gln Arg Asp Asp Gly Val
20 25 30

Phe Val Gln Glu Val Thr Gln Asn Ser Pro Ala Ala Arg Thr Gly Val
35 40 45

Val Lys Glu Gly Asp Gln Ile Val Gly Ala Thr Ile Tyr Phe Asp Asn
50 55 60

Leu Gln Ser Gly Glu Val Thr Gln Leu Leu Asn Thr Met Gly His His
65 70 75 80

Thr Val Gly Leu Lys Leu His Arg Lys Gly Asp Arg Ser Pro Glu Pro
85 90 95

Gly Gln Thr Trp Thr Arg Glu Val Phe Ser Ser Cys Ser Ser Glu Val
100 105 110

Val Leu Ser Gly Asp Asp Glu Glu Tyr Gln Arg Ile Tyr Thr Thr Lys
115 120 125

Ile Lys Pro Arg Leu Lys Ser Glu Asp Gly Val Glu Gly Asp Leu Gly
130 135 140

<210> 3661
<211> 121
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000433635"

<400> 3661
Met Glu Lys Glu Glu Thr Thr Arg Glu Leu Leu Leu Pro Asn Trp Gln
1 5 10 15

Gly Ser Gly Ser His Gly Leu Thr Ile Ala Gln Arg Asp Asp Gly Val
20 25 30

Phe Val Gln Glu Val Thr Gln Asn Ser Pro Ala Ala Arg Thr Gly Val
35 40 45

Val Lys Glu Gly Asp Gln Ile Val Gly Ala Thr Ile Tyr Phe Asp Asn
50 55 60

Leu Gln Ser Gly Glu Val Thr Gln Leu Leu Asn Thr Met Gly His His
65 70 75 80

Thr Val Gly Leu Lys Leu His Arg Lys Gly Asp Arg Ser Pro Glu Pro
85 90 95

Gly Gln Thr Trp Thr Arg Glu Val Phe Ser Ser Cys Ser Ser Glu Val
100 105 110

Val Leu Asn Thr Pro Gln Pro Ser Ala
115 120

<210> 3662
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 802; "

<220>
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<223> /note="Gene Name:
AHNAK nucleoprt; "

<220>
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<223> /note="ENSP ID: ENSP00000433789"

<400> 3662

Met	Glu	Lys	Glu	Glu	Thr	Thr	Arg	Glu	Leu	Leu	Leu	Pro	Asn	Trp	Gln
1			5					10						15	

Gly	Ser	Gly	Ser	His	Gly	Leu	Thr	Ile	Ala	Gln	Arg	Asp	Asp	Gly	Val
		20						25					30		

Phe	Val	Gln	Glu	Val	Thr	Gln	Asn	Ser	Pro	Ala	Ala	Arg	Thr	Gly	Val
	35						40					45			

Val	Lys	Glu	Gly	Asp	Gln	Ile	Val	Gly	Ala	Thr	Ile	Tyr	Phe	Asp	Asn
	50					55					60				

Leu	Gln	Ser	Gly	Glu	Val	Thr	Gln	Leu	Leu	Asn	Thr	Met	Gly	His	His
65				70					75					80	

Thr	Val	Gly	Leu	Lys	Leu	His	Arg	Lys	Gly	Asp	Arg	Ser	Pro	Glu	Pro
			85					90					95		

Gly	Gln	Thr	Trp	Thr	Arg	Glu	Val	Phe	Ser	Ser	Cys	Ser	Ser	Glu	Val
		100					105					110			

Val	Leu	Asp	Cys	Arg	Ser	Gly	Gln	Glu	Glu	Asn	His	Pro	Leu	Leu	Arg
	115					120					125				

Leu	Phe	Leu													
	130														

<210> 3663
<211> 123
<212> PRT
<213> Homo sapiens

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<220>
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<400> 3663
Met Glu Lys Glu Glu Thr Thr Arg Glu Leu Leu Leu Pro Asn Trp Gln
1 5 10 15

Gly Ser Gly Ser His Gly Leu Thr Ile Ala Gln Arg Asp Asp Gly Val
20 25 30

Phe Val Gln Glu Val Thr Gln Asn Ser Pro Ala Ala Arg Thr Gly Val
35 40 45

Val Lys Glu Gly Asp Gln Ile Val Gly Ala Thr Ile Tyr Phe Asp Asn
50 55 60

Leu Gln Ser Gly Glu Val Thr Gln Leu Leu Asn Thr Met Gly His His
65 70 75 80

Thr Val Gly Leu Lys Leu His Arg Lys Gly Asp Arg Ser Pro Glu Pro
85 90 95

Gly Gln Thr Trp Thr Arg Glu Val Phe Ser Ser Cys Ser Ser Glu Val
100 105 110

Val Leu Ser Gly Asp Asp Glu Glu Tyr Gln Arg
115 120

<210> 3664
<211> 85
<212> PRT
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<220>
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<223> /note="Payload ID: 802; "

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AHNAK nucleoprt; "

<220>
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<400> 3664
Met Glu Lys Glu Glu Thr Thr Arg Glu Leu Leu Leu Pro Asn Trp Gln
1 5 10 15

Gly Ser Gly Ser His Gly Leu Thr Ile Ala Gln Arg Asp Asp Gly Val
20 25 30

Phe Val Gln Glu Val Thr Gln Asn Ser Pro Ala Ala Arg Thr Gly Val
35 40 45

Val Lys Glu Gly Asp Gln Ile Val Gly Ala Thr Ile Tyr Phe Asp Asn
50 55 60

Leu Gln Ser Gly Glu Val Thr Gln Leu Leu Asn Thr Met Gly His His
65 70 75 80

Thr Val Gly Leu Lys
85

<210> 3665
<211> 5795
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<220>
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<223> /note="Uniprot ID: Q8IVF2; "

<220>
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<223> /note="ENSP ID: ENSP00000353114"

<400> 3665
Met Cys Asp Cys Phe His Met Val Leu Pro Thr Trp Pro Gly Thr Pro
1   5   10   15

Gly Ser Val Ser Gly Arg Gln Leu Gln Pro Gly Glu Pro Gly Ala Glu
            20   25   30

Thr Glu Asp Asp His Ser Val Thr Glu Gly Pro Ala Asp Glu Gly Ile
        35   40   45

Arg Pro Arg Pro Gln Gly Ser Ser Pro Val Tyr Glu Tyr Thr Thr Glu
    50   55   60

Ala Ala Asp Phe Gly Leu Gln Glu Asp Ala Pro Gly Arg Gln Gly Ser
65   70   75   80

Ala Gly Arg Arg Arg Ser Trp Trp Lys Arg Asp Ser Gly Asp Ser Arg
                85   90   95

Thr Phe Phe Arg Met Ser Arg Pro Glu Ala Val Gln Glu Ala Thr Glu
            100   105   110

Val Thr Leu Lys Thr Glu Val Glu Ala Gly Ala Ser Gly Tyr Ser Val
        115   120   125

Thr Gly Gly Gly Asp Gln Gly Ile Phe Val Lys Gln Val Leu Lys Asp
    130   135   140

Ser Ser Ala Ala Lys Leu Phe Asn Leu Arg Glu Gly Asp Gln Leu Leu
145   150   155   160

Ser Thr Thr Val Phe Phe Glu Asn Ile Lys Tyr Glu Asp Ala Leu Lys
                165   170   175

Ile Leu Gln Tyr Ser Glu Pro Tyr Lys Val Gln Phe Lys Ile Arg Arg
            180   185   190

```
Gln Leu Pro Ala Pro Gln Asp Glu Glu Trp Ala Ser Ser Asp Ala Gln
        195                 200                 205

His Gly Pro Gln Gly Lys Glu Lys Glu Asp Thr Asp Val Ala Asp Gly
    210                 215                 220

Cys Arg Glu Thr Pro Thr Lys Thr Leu Glu Gly Asp Gly Asp Gln Glu
225                 230                 235                 240

Arg Leu Ile Ser Lys Pro Arg Val Gly Arg Gly Arg Gln Ser Gln Arg
                245                 250                 255

Glu Arg Leu Ser Trp Pro Lys Phe Gln Ser Ile Lys Ser Lys Arg Gly
            260                 265                 270

Pro Gly Pro Gln Arg Ser His Ser Ser Ser Glu Ala Tyr Glu Pro Arg
        275                 280                 285

Asp Ala His Asp Val Ser Pro Thr Ser Thr Asp Thr Glu Ala Gln Leu
    290                 295                 300

Thr Val Glu Arg Gln Glu Gln Lys Ala Gly Pro Gly Ser Gln Arg Arg
305                 310                 315                 320

Arg Lys Phe Leu Asn Leu Arg Phe Arg Thr Gly Ser Gly Gln Gly Pro
                325                 330                 335

Ser Ser Thr Gly Gln Pro Gly Arg Gly Phe Gln Ser Gly Val Gly Arg
            340                 345                 350

Ala Gly Val Leu Glu Glu Leu Gly Pro Trp Gly Asp Ser Leu Glu Glu
        355                 360                 365

Thr Gly Ala Ala Thr Gly Ser Arg Arg Glu Glu Arg Ala Glu Gln Asp
    370                 375                 380

Arg Glu Val Met Pro Ala Gln Ser Met Pro Leu Pro Thr Glu Leu Gly
385                 390                 395                 400

Asp Pro Arg Leu Cys Glu Gly Thr Pro Gln Glu Gly Gly Leu Arg Ala
                405                 410                 415
```

```
Ala Arg Leu His Gly Lys Thr Leu Glu Gly Gln Ala Gln Glu Thr Ala
            420                 425                 430

Val Ala Gln Arg Lys Pro Arg Ala Gln Pro Thr Pro Gly Met Ser Arg
        435                 440                 445

Glu Gly Glu Gly Glu Gly Leu Gln Ser Leu Glu Ile Gly Ile Ala Arg
    450                 455                 460

Leu Ser Leu Arg Asp Thr Thr Glu Gly Gly Thr Gln Ile Gly Pro Pro
465                 470                 475                 480

Glu Ile Arg Val Arg Val His Asp Leu Lys Thr Pro Lys Phe Ala Phe
                485                 490                 495

Ser Thr Glu Lys Glu Pro Glu Arg Glu Arg Arg Leu Ser Thr Pro Gln
            500                 505                 510

Arg Gly Lys Arg Gln Asp Ala Ser Ser Lys Ala Gly Thr Gly Leu Lys
        515                 520                 525

Gly Glu Glu Val Glu Gly Ala Gly Trp Met Pro Gly Arg Glu Pro Thr
    530                 535                 540

Thr His Ala Glu Ala Gln Gly Asp Glu Gly Asp Gly Glu Glu Gly Leu
545                 550                 555                 560

Gln Arg Thr Arg Ile Thr Glu Glu Gln Asp Lys Gly Arg Glu Asp Thr
                565                 570                 575

Glu Gly Gln Ile Arg Met Pro Lys Phe Lys Ile Pro Ser Leu Gly Trp
            580                 585                 590

Ser Pro Ser Lys His Thr Lys Thr Gly Arg Glu Lys Ala Thr Glu Asp
        595                 600                 605

Thr Glu Gln Gly Arg Glu Gly Glu Ala Thr Ala Thr Ala Asp Arg Arg
    610                 615                 620

Glu Gln Arg Arg Thr Glu Glu Gly Leu Lys Asp Lys Glu Asp Ser Asp
625                 630                 635                 640

Ser Met Thr Asn Thr Thr Lys Ile Gln Leu Ile His Asp Glu Lys Arg
```

645 650 655

Leu Lys Lys Glu Gln Ile Leu Thr Glu Lys Glu Val Ala Thr Lys Asp
660 665 670

Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Leu Phe Gly Ala Ser
675 680 685

Ala Pro Gly Lys Ser Met Glu Ala Ser Val Asp Val Ser Ala Pro Lys
690 695 700

Val Glu Ala Asp Val Ser Leu Leu Ser Met Gln Gly Asp Leu Lys Thr
705 710 715 720

Thr Asp Leu Ser Val Gln Thr Pro Ser Ala Asp Leu Glu Val Gln Asp
725 730 735

Gly Gln Val Asp Val Lys Leu Pro Glu Gly Pro Leu Pro Glu Gly Ala
740 745 750

Ser Leu Lys Gly His Leu Pro Lys Val Gln Arg Pro Ser Leu Lys Met
755 760 765

Pro Lys Val Asp Leu Lys Gly Pro Lys Leu Asp Leu Lys Gly Pro Lys
770 775 780

Ala Glu Val Thr Ala Pro Asp Val Lys Met Ser Leu Ser Ser Met Glu
785 790 795 800

Val Asp Val Gln Ala Pro Arg Ala Lys Leu Asp Gly Ala Arg Leu Glu
805 810 815

Gly Asp Leu Ser Leu Ala Asp Lys Glu Val Thr Ala Lys Asp Ser Lys
820 825 830

Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe Gly Val Ser Ala Pro
835 840 845

Gly Lys Ser Met Glu Asp Ser Val Asp Val Ser Ala Pro Lys Val Glu
850 855 860

Ala Asp Val Ser Leu Ser Ser Met Gln Gly Asp Leu Lys Ala Thr Asp
865 870 875 880

```
Leu Ser Ile Gln Pro Pro Ser Ala Asp Leu Glu Val Gln Ala Gly Gln
                885                 890                 895

Val Asp Val Lys Leu Pro Glu Gly Pro Val Pro Glu Gly Ala Gly Pro
            900                 905                 910

Lys Val His Leu Pro Lys Val Glu Met Pro Ser Phe Lys Met Pro Lys
        915                 920                 925

Val Asp Leu Lys Gly Pro Gln Ile Asp Val Lys Gly Pro Lys Leu Asp
    930                 935                 940

Leu Lys Gly Pro Lys Ala Glu Val Thr Ala Pro Asp Gly Glu Val Ser
945                 950                 955                 960

Leu Pro Ser Met Glu Val Asp Val Gln Ala Gln Lys Ala Lys Leu Asp
                965                 970                 975

Gly Ala Trp Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Asp Val Thr
            980                 985                 990

Ala Lys Asp Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser
Phe
        995                 1000                1005

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Lys Ala Leu  Val Asp Val
    1010                1015                1020

Ser Ala  Pro Lys Val Glu Ala  Asp Leu Ser Leu Pro  Ser Met Gln
    1025                1030                1035

Gly Asp  Leu Lys Thr Thr Asp  Leu Ser Ile Gln Pro  Ala Ser Thr
    1040                1045                1050

Asp Leu  Lys Val Gln Ala Asp  Gln Val Asp Val Lys  Leu Pro Glu
    1055                1060                1065

Gly His  Leu Pro Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    1070                1075                1080

Val Glu  Met Pro Ser Phe Lys  Met Pro Lys Val Ala  Leu Lys Gly
    1085                1090                1095
```

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Pro Gln  Val Asp Val Lys Gly  Pro Lys Leu Asp Leu  Lys Ser Pro
    1100                1105                1110

Lys Ala  Glu Val Thr Ala Pro  Asp Val Glu Val Ser  Leu Pro Ser
    1115                1120                1125

Val Glu  Val Asp Val Glu Ala  Pro Gly Ala Lys Leu  Asp Ser Ala
    1130                1135                1140

Arg Leu  Glu Gly Glu Leu Ser  Leu Ala Asp Lys Asp  Val Thr Ala
    1145                1150                1155

Lys Asp  Ser Arg Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    1160                1165                1170

Gly Ala  Ser Ala Pro Gly Lys  Ser Ile Glu Ala Ser  Val Asp Val
    1175                1180                1185

Ser Ala  Pro Lys Val Glu Ala  Asp Val Ser Leu Pro  Ser Met Gln
    1190                1195                1200

Gly Asp  Leu Lys Thr Thr Asp  Leu Ser Ile Gln Pro  Pro Ser Ala
    1205                1210                1215

Asp Leu  Glu Val His Ala Gly  Gln Val Asp Val Lys  Leu Leu Glu
    1220                1225                1230

Gly His  Val Pro Glu Gly Ala  Gly Phe Lys Gly His  Leu Pro Lys
    1235                1240                1245

Val Gln  Met Pro Ser Leu Lys  Met Pro Lys Val Asp  Leu Lys Gly
    1250                1255                1260

Pro Gln  Val Glu Val Arg Gly  Pro Lys Leu Asp Leu  Lys Gly His
    1265                1270                1275

Lys Ala  Glu Val Thr Ala His  Glu Val Ala Val Ser  Leu Pro Ser
    1280                1285                1290

Val Glu  Val Asp Met Gln Ala  Pro Gly Ala Lys Leu  Asp Gly Ala
    1295                1300                1305
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Gln Leu  Asp Gly Asp Leu Ser  Leu Ala Asp Lys Asp  Val Thr Ala
    1310                 1315                 1320

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    1325                 1330                 1335

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Glu Ala Ser  Val Asp Leu
    1340                 1345                 1350

Ser Ala  Pro Lys Val Glu Ala  Asp Met Ser Leu Pro  Ser Met Gln
    1355                 1360                 1365

Gly Asp  Leu Lys Thr Thr Asp  Leu Ser Ile Gln Pro  Pro Ser Thr
    1370                 1375                 1380

Asp Leu  Glu Leu Gln Ala Gly  Gln Leu Asp Val Lys  Leu Pro Glu
    1385                 1390                 1395

Gly Pro  Val Pro Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    1400                 1405                 1410

Leu Gln  Met Pro Ser Phe Lys  Val Pro Lys Val Asp  Leu Lys Gly
    1415                 1420                 1425

Pro Glu  Ile Asp Ile Lys Gly  Pro Lys Leu Asp Leu  Lys Asp Pro
    1430                 1435                 1440

Lys Val  Glu Val Thr Ala Pro  Asp Val Glu Val Ser  Leu Pro Ser
    1445                 1450                 1455

Val Glu  Val Asp Val Glu Ala  Pro Gly Ala Lys Leu  Asp Gly Gly
    1460                 1465                 1470

Arg Leu  Glu Glu Asp Met Ser  Leu Ala Asp Lys Asp  Leu Thr Thr
    1475                 1480                 1485

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    1490                 1495                 1500

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Glu Ala Ser  Val Asp Val
    1505                 1510                 1515
```

Ser Ala Pro Lys Val Glu Ala Asp Val Ser Leu Pro Ser Met Gln
1520 1525 1530

Gly Asp Leu Lys Ala Thr Asp Leu Ser Ile Gln Pro Pro Ser Ala
1535 1540 1545

Asp Leu Glu Val Gln Ala Gly Gln Val Asp Val Lys Leu Pro Glu
1550 1555 1560

Gly Pro Val Ser Glu Gly Ala Gly Leu Lys Gly His Leu Pro Lys
1565 1570 1575

Val Gln Met Pro Ser Phe Lys Met Pro Lys Val Asp Leu Lys Gly
1580 1585 1590

Pro Gln Ile Asp Val Lys Gly Pro Lys Leu Asp Leu Lys Gly Pro
1595 1600 1605

Lys Val Glu Val Thr Ala Pro Asp Val Lys Met Ser Leu Ser Ser
1610 1615 1620

Met Glu Val Asp Val Gln Ala Pro Arg Ala Lys Leu Asp Gly Ala
1625 1630 1635

Gln Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Ala Val Thr Ala
1640 1645 1650

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe
1655 1660 1665

Gly Val Ser Ala Pro Gly Lys Ser Ile Glu Ala Ser Val Asp Val
1670 1675 1680

Ser Glu Pro Lys Val Glu Ala Asp Val Ser Leu Pro Ser Met Gln
1685 1690 1695

Gly Asp Leu Lys Thr Thr Asp Leu Ser Ile Gln Ser Pro Ser Ala
1700 1705 1710

Asp Leu Glu Val Gln Ala Gly Gln Val Asn Val Lys Leu Pro Glu
1715 1720 1725

Gly Pro Leu Pro Glu Gly Ala Gly Phe Lys Gly His Leu Pro Lys

1730 1735 1740

Val Gln Met Pro Ser Leu Lys Met Pro Lys Val Ala Leu Lys Gly
1745 1750 1755

Pro Gln Met Asp Val Lys Gly Pro Lys Leu Asp Leu Lys Gly Pro
1760 1765 1770

Lys Ala Glu Val Met Ala Pro Asp Val Glu Val Ser Leu Pro Ser
1775 1780 1785

Val Glu Val Asp Val Glu Ala Pro Gly Ala Lys Leu Asp Ser Val
1790 1795 1800

Arg Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Asp Val Thr Ala
1805 1810 1815

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe
1820 1825 1830

Gly Val Ser Ala Pro Gly Lys Ser Ile Glu Ala Ser Val Asp Val
1835 1840 1845

Ser Ala Pro Lys Val Glu Ala Glu Val Ser Leu Pro Ser Met Gln
1850 1855 1860

Gly Asp Leu Lys Thr Thr Asp Leu Cys Ile Pro Leu Pro Ser Ala
1865 1870 1875

Asp Leu Val Val Gln Ala Gly Gln Val Asp Met Lys Leu Pro Glu
1880 1885 1890

Gly Gln Val Pro Glu Gly Ala Gly Leu Lys Gly His Leu Pro Lys
1895 1900 1905

Val Asp Met Pro Ser Phe Lys Met Pro Lys Val Asp Leu Lys Gly
1910 1915 1920

Pro Gln Thr Asp Val Lys Gly Ala Lys Leu Asp Leu Lys Gly Pro
1925 1930 1935

Lys Ala Glu Val Thr Ala Pro Asp Val Glu Val Ser Leu Pro Ser
1940 1945 1950

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Met Glu  Val Asp Val Gln Ala  Gln Lys Ala Lys Leu  Asp Gly Ala
    1955                1960                1965

Arg Leu  Glu Gly Asp Leu Ser  Leu Ala Asp Lys Asp  Met Thr Ala
    1970                1975                1980

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    1985                1990                1995

Gly Val  Ser Ala Pro Gly Arg  Ser Ile Glu Ala Ser  Val Asp Val
    2000                2005                2010

Pro Ala  Pro Lys Val Glu Ala  Asp Val Ser Leu Pro  Ser Met Gln
    2015                2020                2025

Gly Asp  Leu Lys Thr Thr Asp  Leu Ser Ile Gln Pro  Pro Ser Ala
    2030                2035                2040

Asp Leu  Lys Val Gln Thr Gly  Gln Val Asp Val Lys  Leu Pro Glu
    2045                2050                2055

Gly His  Val Pro Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    2060                2065                2070

Val Glu  Met Pro Ser Leu Lys  Met Pro Lys Val Asp  Leu Lys Gly
    2075                2080                2085

Pro Gln  Val Asp Ile Lys Gly  Pro Lys Leu Asp Leu  Lys Asp Pro
    2090                2095                2100

Lys Val  Glu Met Arg Val Pro  Asp Val Glu Val Ser  Leu Pro Ser
    2105                2110                2115

Met Glu  Val Asp Val Gln Ala  Pro Arg Ala Lys Leu  Asp Ser Ala
    2120                2125                2130

His Leu  Gln Gly Asp Leu Thr  Leu Ala Asn Lys Asp  Leu Thr Thr
    2135                2140                2145

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    2150                2155                2160
```

Gly Val Ser Ala Pro Gly Lys Ser Ile Glu Ala Ser Val Asp Val
2165 2170 2175

Ser Pro Pro Lys Val Glu Ala Asp Met Ser Leu Pro Ser Met Gln
2180 2185 2190

Gly Asp Leu Lys Thr Thr Asp Leu Ser Ile Gln Pro Leu Ser Ala
2195 2200 2205

Asp Val Lys Val Gln Ala Gly Gln Val Asp Val Lys Leu Leu Glu
2210 2215 2220

Gly Pro Val Pro Glu Glu Val Gly Leu Lys Gly His Leu Pro Lys
2225 2230 2235

Leu Gln Met Pro Ser Phe Lys Val Pro Lys Val Asp Leu Lys Gly
2240 2245 2250

Pro Glu Ile Asp Ile Lys Gly Pro Lys Leu Asp Leu Lys Asp Pro
2255 2260 2265

Lys Val Glu Val Thr Ala Pro Asp Val Glu Val Ser Leu Pro Ser
2270 2275 2280

Val Glu Val Asp Val Lys Ala Pro Gly Ala Lys Leu Asp Gly Ala
2285 2290 2295

Arg Leu Glu Gly Asp Met Ser Leu Ala Asp Lys Asp Val Thr Ala
2300 2305 2310

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Leu Ser Phe
2315 2320 2325

Gly Val Ser Ala Leu Gly Lys Ser Ile Glu Ala Ser Ala Asp Val
2330 2335 2340

Ser Ala Leu Lys Val Glu Ala Asp Val Ser Leu Pro Ser Met Gln
2345 2350 2355

Gly Asp Leu Lys Thr Thr Asp Leu Ser Val Gln Pro Pro Ser Ala
2360 2365 2370

```
Asp Leu  Glu Val Gln Ala Gly  Gln Val Asp Val Lys  Leu Pro Glu
    2375                 2380                 2385

Gly Pro  Val Pro Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    2390                 2395                 2400

Leu Gln  Met Pro Ser Phe Lys  Met Pro Lys Val Asp  Leu Lys Gly
    2405                 2410                 2415

Pro Gln  Ile Asp Val Lys Gly  Pro Lys Leu Asp Leu  Lys Gly Pro
    2420                 2425                 2430

Lys Thr  Asp Val Met Ala Pro  Asp Val Glu Val Ser  Gln Pro Ser
    2435                 2440                 2445

Val Glu  Val Asp Val Glu Ala  Pro Gly Ala Lys Leu  Asp Gly Ala
    2450                 2455                 2460

Trp Leu  Glu Gly Asp Leu Ser  Val Ala Asp Lys Asp  Val Thr Thr
    2465                 2470                 2475

Lys Asp  Ser Arg Phe Lys Ile  Pro Lys Phe Lys Met  Pro Ser Phe
    2480                 2485                 2490

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Glu Ala Ser  Val Asp Val
    2495                 2500                 2505

Ser Ala  Pro Lys Val Glu Ala  Asp Gly Ser Leu Ser  Ser Met Gln
    2510                 2515                 2520

Gly Asp  Leu Lys Ala Thr Asp  Leu Ser Ile Gln Pro  Pro Ser Ala
    2525                 2530                 2535

Asp Leu  Glu Val Gln Ala Gly  Gln Val Asp Val Lys  Leu Pro Glu
    2540                 2545                 2550

Gly Pro  Val Pro Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    2555                 2560                 2565

Val Gln  Met Pro Ser Phe Lys  Met Pro Glu Met Asp  Leu Lys Gly
    2570                 2575                 2580

Pro Gln  Leu Asp Val Lys Gly  Pro Lys Leu Asp Leu  Lys Gly Pro
```

2585 2590 2595

Lys Ala Glu Val Thr Ala Pro Asp Val Glu Met Ser Leu Ser Ser
2600 2605 2610

Met Glu Val Asp Val Gln Ala Pro Arg Ala Lys Leu Asp Gly Ala
2615 2620 2625

Arg Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Gly Val Thr Ala
2630 2635 2640

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe
2645 2650 2655

Arg Val Ser Ala Pro Gly Glu Ser Ile Glu Ala Leu Val Asp Val
2660 2665 2670

Ser Glu Leu Lys Val Glu Ala Asp Met Ser Leu Pro Ser Met Gln
2675 2680 2685

Gly Asp Leu Lys Thr Thr Asp Ile Ser Ile Gln Pro Pro Ser Ala
2690 2695 2700

Gln Leu Glu Val Gln Ala Gly Gln Val Asp Val Lys Leu Pro Glu
2705 2710 2715

Gly His Val Pro Glu Gly Ala Gly Leu Lys Gly His Leu Pro Lys
2720 2725 2730

Leu Gln Met Pro Ser Phe Lys Met Pro Glu Val Asp Leu Lys Gly
2735 2740 2745

Pro Gln Ile Asp Val Lys Gly Pro Asn Val Asp Leu Lys Gly Pro
2750 2755 2760

Lys Ala Glu Val Thr Ala Pro Asp Val Lys Met Ser Leu Ser Ser
2765 2770 2775

Met Glu Val Asp Val Gln Ala Pro Arg Ala Lys Leu Asp Gly Ala
2780 2785 2790

Arg Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Gly Met Thr Ala
2795 2800 2805

```
Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    2810                 2815                 2820

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Glu Ala Ser  Val Asp Val
    2825                 2830                 2835

Ser Glu  Leu Lys Val Glu Ala  Asp Gly Ser Phe Pro  Ser Met Gln
    2840                 2845                 2850

Gly Asp  Leu Lys Thr Thr Asp  Ile Arg Ile Gln Pro  Pro Ser Ala
    2855                 2860                 2865

Gln Leu  Glu Val Gln Ala Gly  Gln Val Asp Val Lys  Leu Pro Glu
    2870                 2875                 2880

Gly His  Val Pro Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    2885                 2890                 2895

Val Gln  Met Pro Ser Phe Lys  Met Pro Lys Val Asp  Leu Lys Gly
    2900                 2905                 2910

Pro Gln  Ile Asp Val Lys Gly  Pro Lys Leu Asp Leu  Lys Gly Pro
    2915                 2920                 2925

Lys Ala  Glu Val Thr Ala Pro  Asp Val Glu Val Ser  Leu Pro Ser
    2930                 2935                 2940

Val Glu  Val Asp Val Glu Ala  Pro Arg Ala Lys Leu  Asp Gly Ala
    2945                 2950                 2955

Arg Leu  Glu Gly Asp Leu Ser  Leu Ala Asp Lys Asp  Val Thr Ala
    2960                 2965                 2970

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    2975                 2980                 2985

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Glu Val Ser  Val Asp Val
    2990                 2995                 3000

Ser Ala  Pro Lys Val Glu Ala  Glu Val Ser Leu Pro  Ser Met Gln
    3005                 3010                 3015
```

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Gly Asp  Leu Lys Thr Thr Asp  Ile Ser Ile Glu Pro  Pro Ser Ala
    3020                3025                3030

Gln Leu  Glu Val Gln Ala Gly  Gln Val Asp Leu Lys  Leu Pro Glu
    3035                3040                3045

Gly His  Val Pro Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    3050                3055                3060

Leu Gln  Met Pro Ser Phe Lys  Met Pro Lys Val Asp  Arg Lys Gly
    3065                3070                3075

Pro Gln  Ile Asp Val Lys Gly  Pro Lys Leu Asp Leu  Lys Gly Pro
    3080                3085                3090

Lys Thr  Asp Val Thr Ala Pro  Asp Val Glu Val Ser  Gln Pro Gly
    3095                3100                3105

Met Glu  Val Asp Val Glu Ala  Pro Gly Ala Lys Leu  Asp Gly Ala
    3110                3115                3120

Arg Leu  Glu Gly Asp Leu Ser  Leu Ala Asp Lys Asp  Val Thr Ala
    3125                3130                3135

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    3140                3145                3150

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Glu Val Leu  Val Asp Val
    3155                3160                3165

Ser Ala  Pro Lys Val Glu Ala  Asp Leu Ser Leu Pro  Ser Met Gln
    3170                3175                3180

Gly Asp  Leu Lys Asn Thr Asp  Ile Ser Ile Glu Pro  Pro Ser Ala
    3185                3190                3195

Gln Leu  Glu Val Gln Ala Gly  Gln Val Asp Val Lys  Leu Pro Glu
    3200                3205                3210

Gly His  Val Leu Glu Gly Ala  Gly Leu Lys Gly His  Leu Pro Lys
    3215                3220                3225
```

Leu Gln Met Pro Ser Phe Lys Met Pro Lys Val Asp Arg Lys Gly
3230 3235 3240

Pro Gln Ile Asp Ile Lys Gly Pro Lys Leu Asp Leu Lys Gly Pro
3245 3250 3255

Lys Met Asp Val Thr Ala Pro Asp Val Glu Val Ser Gln Pro Ser
3260 3265 3270

Met Glu Val Asp Val Glu Ala Pro Gly Ala Lys Leu Asp Gly Ala
3275 3280 3285

Arg Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Asp Val Thr Ala
3290 3295 3300

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Tyr
3305 3310 3315

Arg Ala Ser Ala Pro Gly Lys Ser Ile Gln Ala Ser Val Asp Val
3320 3325 3330

Ser Ala Pro Lys Ala Glu Ala Asp Val Ser Leu Pro Ser Met Gln
3335 3340 3345

Gly Asp Leu Lys Thr Thr Asp Leu Ser Ile Gln Leu Pro Ser Val
3350 3355 3360

Asp Leu Glu Val Gln Ala Gly Gln Val Asp Val Lys Leu Pro Glu
3365 3370 3375

Gly His Val Pro Glu Gly Ala Gly Leu Lys Gly His Leu Pro Lys
3380 3385 3390

Val Glu Met Pro Ser Phe Lys Met Pro Lys Val Asp Leu Lys Ser
3395 3400 3405

Pro Gln Val Asp Ile Lys Gly Pro Lys Leu Asp Leu Lys Val Pro
3410 3415 3420

Lys Ala Glu Val Thr Val Pro Asp Val Glu Val Ser Leu Pro Ser
3425 3430 3435

Val Glu Val Asp Val Gln Ala Pro Arg Ala Lys Leu Asp Gly Ala

3440 3445 3450

Arg Leu Glu Gly Asp Leu Ser Leu Ala Glu Lys Asp Val Thr Ala
3455 3460 3465

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe
3470 3475 3480

Gly Val Ser Ala Pro Gly Arg Ser Ile Glu Ala Ser Leu Asp Val
3485 3490 3495

Ser Ala Pro Lys Val Glu Ala Asp Val Ser Leu Ser Ser Met Gln
3500 3505 3510

Gly Asp Leu Lys Ala Thr Asp Leu Ser Ile Gln Pro Pro Ser Ala
3515 3520 3525

Asp Leu Glu Val Gln Ala Val Gln Val Asp Val Glu Leu Leu Glu
3530 3535 3540

Gly Pro Val Pro Glu Gly Ala Gly Leu Lys Gly His Leu Pro Lys
3545 3550 3555

Val Glu Met Pro Ser Leu Lys Thr Pro Lys Val Asp Leu Lys Gly
3560 3565 3570

Pro Gln Ile Asp Val Lys Gly Pro Lys Leu Asp Leu Lys Gly Pro
3575 3580 3585

Lys Ala Glu Val Arg Val Pro Asp Val Glu Val Ser Leu Pro Ser
3590 3595 3600

Val Glu Val Asp Val Gln Ala Pro Lys Ala Lys Leu Asp Ala Gly
3605 3610 3615

Arg Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Asp Val Thr Ala
3620 3625 3630

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe
3635 3640 3645

Arg Val Ser Ala Pro Gly Lys Ser Met Glu Ala Ser Val Asp Val
3650 3655 3660

```
Ser Ala  Pro Lys Val Glu Ala  Asp Val Ser Leu Pro  Ser Met Gln
    3665                 3670                 3675

Gly Asp  Leu Lys Thr Thr Asp  Leu Ser Ile Gln Pro  Pro Ser Ala
    3680                 3685                 3690

Asp Leu  Lys Val Gln Ala Gly  Gln Met Asp Val Lys  Leu Pro Glu
    3695                 3700                 3705

Gly Gln  Val Pro Glu Gly Ala  Gly Leu Lys Glu His  Leu Pro Lys
    3710                 3715                 3720

Val Glu  Met Pro Ser Leu Lys  Met Pro Lys Val Asp  Leu Lys Gly
    3725                 3730                 3735

Pro Gln  Val Asp Ile Lys Gly  Pro Lys Leu Asp Leu  Lys Val Ser
    3740                 3745                 3750

Lys Ala  Glu Val Thr Ala Pro  Asp Val Glu Val Ser  Leu Pro Ser
    3755                 3760                 3765

Val Glu  Val Asp Val Gln Ala  Pro Arg Ala Lys Leu  Asp Ser Ala
    3770                 3775                 3780

Gln Leu  Glu Gly Asp Leu Ser  Leu Ala Asp Lys Asp  Val Thr Ala
    3785                 3790                 3795

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    3800                 3805                 3810

Gly Val  Ser Ala Pro Gly Lys  Ser Ile Glu Ala Ser  Val His Val
    3815                 3820                 3825

Ser Ala  Pro Lys Val Glu Ala  Asp Val Ser Leu Pro  Ser Met Gln
    3830                 3835                 3840

Gly Asp  Leu Lys Thr Thr Asp  Leu Ser Ile Gln Pro  His Ser Ala
    3845                 3850                 3855

Asp Leu  Thr Val Gln Ala Arg  Gln Val Asp Met Lys  Leu Leu Glu
    3860                 3865                 3870
```

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Gly His  Val Pro Glu Glu Ala  Gly Leu Lys Gly His  Leu Pro Lys
    3875                 3880                 3885

Val Gln  Met Pro Ser Phe Lys  Met Pro Lys Val Asp  Leu Lys Gly
    3890                 3895                 3900

Pro Glu  Ile Asp Ile Lys Gly  Pro Lys Leu Asp Leu  Lys Asp Pro
    3905                 3910                 3915

Lys Val  Glu Val Thr Ala Pro  Asp Val Glu Val Ser  Leu Pro Ser
    3920                 3925                 3930

Val Glu  Val Asp Val Glu Ala  Pro Gly Ala Lys Leu  Asp Gly Ala
    3935                 3940                 3945

Arg Leu  Glu Gly Asp Leu Ser  Leu Ala Asp Lys Asp  Met Thr Ala
    3950                 3955                 3960

Lys Asp  Ser Lys Phe Lys Met  Pro Lys Phe Lys Met  Pro Ser Phe
    3965                 3970                 3975

Gly Val  Ser Ala Pro Gly Lys  Ser Met Glu Ala Ser  Val Asp Val
    3980                 3985                 3990

Thr Ala  Pro Lys Val Glu Ala  Asp Val Ser Leu Pro  Ser Met Gln
    3995                 4000                 4005

Gly Asp  Leu Lys Ala Thr Asp  Leu Ser Val Gln Pro  Pro Ser Ala
    4010                 4015                 4020

Asp Leu  Glu Val Gln Ala Gly  Gln Val Asp Val Lys  Leu Pro Glu
    4025                 4030                 4035

Gly Pro  Val Pro Glu Gly Ala  Ser Leu Lys Gly His  Leu Pro Lys
    4040                 4045                 4050

Val Gln  Met Pro Ser Phe Lys  Met Pro Lys Val Asp  Leu Lys Gly
    4055                 4060                 4065

Pro Gln  Ile Asp Val Lys Gly  Pro Lys Leu Asp Leu  Lys Gly Pro
    4070                 4075                 4080
```

Lys Ala Glu Val Thr Ala Pro Asp Val Lys Met Ser Leu Ser Ser
4085 4090 4095

Met Glu Val Asp Val Gln Ala Pro Arg Ala Lys Leu Asp Gly Val
4100 4105 4110

Gln Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Asp Val Thr Ala
4115 4120 4125

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe
4130 4135 4140

Gly Val Ser Ala Pro Gly Lys Ser Met Glu Ala Ser Val Asp Val
4145 4150 4155

Ser Glu Leu Lys Ala Lys Ala Asp Val Ser Leu Pro Ser Met Gln
4160 4165 4170

Gly Asp Leu Lys Thr Thr Asp Leu Ser Ile Gln Ser Pro Ser Ala
4175 4180 4185

Asp Leu Glu Val Gln Ala Gly Gln Val Asp Val Lys Leu Pro Glu
4190 4195 4200

Gly Pro Leu Pro Lys Gly Ala Gly Leu Lys Gly His Leu Pro Lys
4205 4210 4215

Val Gln Met Pro Cys Leu Lys Met Pro Lys Val Ala Leu Lys Gly
4220 4225 4230

Pro Gln Val Asp Val Lys Gly Pro Lys Leu Asp Leu Lys Gly Pro
4235 4240 4245

Lys Ala Asp Val Met Thr Pro Val Val Glu Val Ser Leu Pro Ser
4250 4255 4260

Met Glu Val Asp Val Glu Ala Pro Gly Ala Lys Leu Asp Ser Val
4265 4270 4275

Arg Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Asp Met Thr Ala
4280 4285 4290

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe

4295 4300 4305

Gly Val Ser Ala Pro Gly Lys Ser Ile Glu Ala Ser Leu Asp Val
4310 4315 4320

Ser Ala Leu Lys Val Glu Ala Asp Val Ser Leu Pro Ser Met Gln
4325 4330 4335

Gly Asp Leu Lys Thr Thr His Leu Ser Ile Gln Pro Pro Ser Ala
4340 4345 4350

Asp Leu Glu Val Gln Ala Gly Gln Glu Asp Val Lys Leu Pro Glu
4355 4360 4365

Gly Pro Val His Glu Gly Ala Gly Leu Lys Gly His Leu Pro Lys
4370 4375 4380

Leu Gln Met Pro Ser Phe Lys Val Pro Lys Val Asp Leu Lys Gly
4385 4390 4395

Pro Gln Ile Asp Val Asn Val Pro Lys Leu Asp Leu Lys Gly Pro
4400 4405 4410

Lys Val Glu Val Thr Ser Pro Asn Leu Asp Val Ser Leu Pro Ser
4415 4420 4425

Met Glu Val Asp Ile Gln Ala Pro Gly Ala Lys Leu Asp Ser Thr
4430 4435 4440

Arg Leu Glu Gly Asp Leu Ser Leu Ala Asp Lys Asp Val Thr Ala
4445 4450 4455

Lys Asp Ser Lys Phe Lys Met Pro Lys Phe Lys Met Pro Ser Phe
4460 4465 4470

Gly Met Leu Ser Pro Gly Lys Ser Ile Glu Val Ser Val Asp Val
4475 4480 4485

Ser Ala Pro Lys Met Glu Ala Asp Met Ser Ile Pro Ser Met Gln
4490 4495 4500

Gly Asp Leu Lys Thr Thr Asp Leu Arg Ile Gln Ala Pro Ser Ala
4505 4510 4515

```
Asp Leu  Glu Val Gln Ala Gly  Gln Val Asp Leu Lys  Leu Pro Glu
    4520                 4525                 4530

Gly His  Met Pro Glu Val Ala  Gly Leu Lys Gly His  Leu Pro Lys
    4535                 4540                 4545

Val Glu  Met Pro Ser Phe Lys  Met Pro Lys Val Asp  Leu Lys Gly
    4550                 4555                 4560

Pro Gln  Val Asp Val Lys Gly  Pro Lys Leu Asp Leu  Lys Gly Pro
    4565                 4570                 4575

Lys Ala  Glu Val Met Ala Pro  Asp Val Glu Val Ser  Leu Pro Ser
    4580                 4585                 4590

Val Glu  Thr Asp Val Gln Ala  Pro Gly Ser Met Leu  Asp Gly Ala
    4595                 4600                 4605

Arg Leu  Glu Gly Asp Leu Ser  Leu Ala His Glu Asp  Val Ala Gly
    4610                 4615                 4620

Lys Asp  Ser Lys Phe Gln Gly  Pro Lys Leu Ser Thr  Ser Gly Phe
    4625                 4630                 4635

Glu Trp  Ser Ser Lys Lys Val  Ser Met Ser Ser Ser  Glu Ile Glu
    4640                 4645                 4650

Gly Asn  Val Thr Phe His Glu  Lys Thr Ser Thr Phe  Pro Ile Val
    4655                 4660                 4665

Glu Ser  Val Val His Glu Gly  Asp Leu His Asp Pro  Ser Arg Asp
    4670                 4675                 4680

Gly Asn  Leu Gly Leu Ala Val  Gly Glu Val Gly Met  Asp Ser Lys
    4685                 4690                 4695

Phe Lys  Lys Leu His Phe Lys  Val Pro Lys Val Ser  Phe Ser Ser
    4700                 4705                 4710

Thr Lys  Thr Pro Lys Asp Ser  Leu Val Pro Gly Ala  Lys Ser Ser
    4715                 4720                 4725
```

```
Ile Gly  Leu Ser Thr Ile Pro  Leu Ser Ser Ser Glu  Cys Ser Ser
    4730                4735                4740

Phe Glu  Leu Gln Gln Val Ser  Ala Cys Ser Glu Pro  Ser Met Gln
    4745                4750                4755

Met Pro  Lys Val Gly Phe Ala  Gly Phe Pro Ser Ser  Arg Leu Asp
    4760                4765                4770

Leu Thr  Gly Pro His Phe Glu  Ser Ser Ile Leu Ser  Pro Cys Glu
    4775                4780                4785

Asp Val  Thr Leu Thr Lys Tyr  Gln Val Thr Val Pro  Arg Ala Ala
    4790                4795                4800

Leu Ala  Pro Glu Leu Ala Leu  Glu Ile Pro Ser Gly  Ser Gln Ala
    4805                4810                4815

Asp Ile  Pro Leu Pro Lys Thr  Glu Cys Ser Thr Asp  Leu Gln Pro
    4820                4825                4830

Pro Glu  Gly Val Pro Thr Ser  Gln Ala Glu Ser His  Ser Gly Pro
    4835                4840                4845

Leu Asn  Ser Met Ile Pro Val  Ser Leu Gly Gln Val  Ser Phe Pro
    4850                4855                4860

Lys Phe  Tyr Lys Pro Lys Phe  Val Phe Ser Val Pro  Gln Met Ala
    4865                4870                4875

Val Pro  Glu Gly Asp Leu His  Ala Ala Val Gly Ala  Pro Val Met
    4880                4885                4890

Ser Pro  Leu Ser Pro Gly Glu  Arg Val Gln Cys Pro  Leu Pro Ser
    4895                4900                4905

Thr Gln  Leu Pro Ser Pro Gly  Thr Cys Val Ser Gln  Gly Pro Glu
    4910                4915                4920

Glu Leu  Val Ala Ser Leu Gln  Thr Ser Val Val Ala  Pro Gly Glu
    4925                4930                4935
```

Ala Pro Ser Glu Asp Ala Asp His Glu Gly Lys Gly Ser Pro Leu
4940 4945 4950

Lys Met Pro Lys Ile Lys Leu Pro Ser Phe Arg Trp Ser Pro Lys
4955 4960 4965

Lys Glu Thr Gly Pro Lys Val Asp Pro Glu Cys Ser Val Glu Asp
4970 4975 4980

Ser Lys Leu Ser Leu Val Leu Asp Lys Asp Glu Val Ala Pro Gln
4985 4990 4995

Ser Ala Ile His Met Asp Leu Pro Pro Glu Arg Asp Gly Glu Lys
5000 5005 5010

Gly Arg Ser Thr Lys Pro Gly Phe Ala Met Pro Lys Leu Ala Leu
5015 5020 5025

Pro Lys Met Lys Ala Ser Lys Ser Gly Val Ser Leu Pro Gln Arg
5030 5035 5040

Asp Val Asp Pro Ser Leu Ser Ser Ala Thr Ala Gly Gly Ser Phe
5045 5050 5055

Gln Asp Thr Glu Lys Ala Ser Ser Asp Gly Gly Arg Gly Gly Leu
5060 5065 5070

Gly Ala Thr Ala Ser Ala Thr Gly Ser Glu Gly Val Asn Leu His
5075 5080 5085

Arg Pro Gln Val His Ile Pro Ser Leu Gly Phe Ala Lys Pro Asp
5090 5095 5100

Leu Arg Ser Ser Lys Ala Lys Val Glu Val Ser Gln Pro Glu Ala
5105 5110 5115

Asp Leu Pro Leu Pro Lys His Asp Leu Ser Thr Glu Gly Asp Ser
5120 5125 5130

Arg Gly Cys Gly Leu Gly Asp Val Pro Val Ser Gln Pro Cys Gly
5135 5140 5145

Glu Gly Ile Ala Pro Thr Pro Glu Asp Pro Leu Gln Pro Ser Cys

5150 5155 5160

Arg Lys Pro Asp Ala Glu Val Leu Thr Val Glu Ser Pro Glu Glu
5165 5170 5175

Glu Ala Met Thr Lys Tyr Ser Gln Glu Ser Trp Phe Lys Met Pro
5180 5185 5190

Lys Phe Arg Met Pro Ser Leu Arg Arg Ser Phe Arg Asp Arg Gly
5195 5200 5205

Gly Ala Gly Lys Leu Glu Val Ala Gln Thr Gln Ala Pro Ala Ala
5210 5215 5220

Thr Gly Gly Glu Ala Ala Ala Lys Val Lys Glu Phe Leu Val Ser
5225 5230 5235

Gly Ser Asn Val Glu Ala Ala Met Ser Leu Gln Leu Pro Glu Ala
5240 5245 5250

Asp Ala Glu Val Thr Ala Ser Glu Ser Lys Ser Ser Thr Asp Ile
5255 5260 5265

Leu Arg Cys Asp Leu Asp Ser Thr Gly Leu Lys Leu His Leu Ser
5270 5275 5280

Thr Ala Gly Met Thr Gly Asp Glu Leu Ser Thr Ser Glu Val Arg
5285 5290 5295

Ile His Pro Ser Lys Gly Pro Leu Pro Phe Gln Met Pro Gly Met
5300 5305 5310

Arg Leu Pro Glu Thr Gln Val Leu Pro Gly Glu Ile Asp Glu Thr
5315 5320 5325

Pro Leu Ser Lys Pro Gly His Asp Leu Ala Ser Met Glu Asp Lys
5330 5335 5340

Thr Glu Lys Trp Ser Ser Gln Pro Glu Gly Pro Leu Lys Leu Lys
5345 5350 5355

Ala Ser Ser Thr Asp Met Pro Ser Gln Ile Ser Val Val Asn Val
5360 5365 5370

```
Asp Gln  Leu Trp Glu Asp Ser  Val Leu Thr Val Lys  Phe Pro Lys
    5375                5380                5385

Leu Met  Val Pro Arg Phe Ser  Phe Pro Ala Pro Ser  Ser Glu Asp
    5390                5395                5400

Asp Val  Phe Ile Pro Thr Val  Arg Glu Val Gln Cys  Pro Glu Ala
    5405                5410                5415

Asn Ile  Asp Thr Ala Leu Cys  Lys Glu Ser Pro Gly  Leu Trp Gly
    5420                5425                5430

Ala Ser  Ile Leu Lys Ala Gly  Ala Gly Val Pro Gly  Glu Gln Pro
    5435                5440                5445

Val Asp  Leu Asn Leu Pro Leu  Glu Ala Pro Pro Ile  Ser Lys Val
    5450                5455                5460

Arg Val  His Ile Gln Gly Ala  Gln Val Glu Ser Gln  Glu Val Thr
    5465                5470                5475

Ile His  Ser Ile Val Thr Pro  Glu Phe Val Asp Leu  Ser Val Pro
    5480                5485                5490

Arg Thr  Phe Ser Thr Gln Ile  Val Arg Glu Ser Glu  Ile Pro Thr
    5495                5500                5505

Ser Glu  Ile Gln Thr Pro Ser  Tyr Gly Phe Ser Leu  Leu Lys Val
    5510                5515                5520

Lys Ile  Pro Glu Pro His Thr  Gln Ala Arg Val Tyr  Thr Thr Met
    5525                5530                5535

Thr Gln  His Ser Arg Thr Gln  Glu Gly Thr Glu Glu  Ala Pro Ile
    5540                5545                5550

Gln Ala  Thr Pro Gly Val Asp  Ser Ile Ser Gly Asp  Leu Gln Pro
    5555                5560                5565

Asp Thr  Gly Glu Pro Phe Glu  Met Ile Ser Ser Ser  Val Asn Val
    5570                5575                5580
```

```
Leu Gly  Gln Gln Thr Leu Thr  Phe Glu Val Pro Ser  Gly His Gln
    5585                5590                5595

Leu Ala  Asp Ser Cys Ser Asp  Glu Glu Pro Ala Glu  Ile Leu Glu
    5600                5605                5610

Phe Pro  Pro Asp Asp Ser Gln  Glu Ala Thr Thr Pro  Leu Ala Asp
    5615                5620                5625

Glu Gly  Arg Ala Pro Lys Asp  Lys Pro Glu Ser Lys  Lys Ser Gly
    5630                5635                5640

Leu Leu  Trp Phe Trp Leu Pro  Asn Ile Gly Phe Ser  Ser Ser Val
    5645                5650                5655

Asp Glu  Thr Gly Val Asp Ser  Lys Asn Asp Val Gln  Arg Ser Ala
    5660                5665                5670

Pro Ile  Gln Thr Gln Pro Glu  Ala Arg Pro Glu Ala  Glu Leu Pro
    5675                5680                5685

Lys Lys  Gln Glu Lys Ala Gly  Trp Phe Arg Phe Pro  Lys Leu Gly
    5690                5695                5700

Phe Ser  Ser Ser Pro Thr Lys  Lys Ser Lys Ser Thr  Glu Asp Gly
    5705                5710                5715

Ala Glu  Leu Glu Glu Gln Lys  Leu Gln Glu Glu Thr  Ile Thr Phe
    5720                5725                5730

Phe Asp  Ala Arg Glu Ser Phe  Ser Pro Glu Glu Lys  Glu Glu Gly
    5735                5740                5745

Glu Leu  Ile Gly Pro Val Gly  Thr Gly Leu Asp Ser  Arg Val Met
    5750                5755                5760

Val Thr  Ser Ala Ala Arg Thr  Glu Leu Ile Leu Pro  Glu Gln Asp
    5765                5770                5775

Arg Lys  Ala Asp Asp Glu Ser  Lys Gly Ser Gly Leu  Gly Pro Asn
    5780                5785                5790
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Glu Gly
5795

<210> 3666
<211> 793
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 803; "

<220>
<221> source
<223> /note="Gene Symbol: AHNAK2; "

<220>
<221> source
<223> /note="Gene Name:
AHNAK nucleoprt 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IVF2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450998"

<400> 3666
Met Asp Leu Pro Pro Glu Arg Asp Gly Glu Lys Gly Arg Ser Thr Lys
1 5 10 15

Pro Gly Phe Ala Met Pro Lys Leu Ala Leu Pro Lys Met Lys Ala Ser
20 25 30

Lys Ser Gly Val Ser Leu Pro Gln Arg Asp Val Asp Pro Ser Leu Ser
35 40 45

Ser Ala Thr Ala Gly Gly Ser Phe Gln Asp Thr Glu Lys Ala Ser Ser
50 55 60

Asp Gly Gly Arg Gly Gly Leu Gly Ala Thr Ala Ser Ala Thr Gly Ser
65 70 75 80

Glu Gly Val Asn Leu His Arg Pro Gln Val His Ile Pro Ser Leu Gly
85 90 95

Phe Ala Lys Pro Asp Leu Arg Ser Ser Lys Ala Lys Val Glu Val Ser
100 105 110

```
Gln Pro Glu Ala Asp Leu Pro Leu Pro Lys His Asp Leu Ser Thr Glu
        115                 120                 125

Gly Asp Ser Arg Gly Cys Gly Leu Gly Asp Val Pro Val Ser Gln Pro
    130                 135                 140

Cys Gly Glu Gly Ile Ala Pro Thr Pro Glu Asp Pro Leu Gln Pro Ser
145                 150                 155                 160

Cys Arg Lys Pro Asp Ala Glu Val Leu Thr Val Glu Ser Pro Glu Glu
                165                 170                 175

Glu Ala Met Thr Lys Tyr Ser Gln Glu Ser Trp Phe Lys Met Pro Lys
            180                 185                 190

Phe Arg Met Pro Ser Leu Arg Arg Ser Phe Arg Asp Arg Gly Gly Ala
        195                 200                 205

Gly Lys Leu Glu Val Ala Gln Thr Gln Ala Pro Ala Ala Thr Gly Gly
    210                 215                 220

Glu Ala Ala Ala Lys Val Lys Glu Phe Leu Val Ser Gly Ser Asn Val
225                 230                 235                 240

Glu Ala Ala Met Ser Leu Gln Leu Pro Glu Ala Asp Ala Glu Val Thr
                245                 250                 255

Ala Ser Glu Ser Lys Ser Ser Thr Asp Ile Leu Arg Cys Asp Leu Asp
            260                 265                 270

Ser Thr Gly Leu Lys Leu His Leu Ser Thr Ala Gly Met Thr Gly Asp
        275                 280                 285

Glu Leu Ser Thr Ser Glu Val Arg Ile His Pro Ser Lys Gly Pro Leu
    290                 295                 300

Pro Phe Gln Met Pro Gly Met Arg Leu Pro Glu Thr Gln Val Leu Pro
305                 310                 315                 320

Gly Glu Ile Asp Glu Thr Pro Leu Ser Lys Pro Gly His Asp Leu Ala
                325                 330                 335
```

```
Ser Met Glu Asp Lys Thr Glu Lys Trp Ser Ser Gln Pro Glu Gly Pro
            340                 345                 350

Leu Lys Leu Lys Ala Ser Ser Thr Asp Met Pro Ser Gln Ile Ser Val
        355                 360                 365

Val Asn Val Asp Gln Leu Trp Glu Asp Ser Val Leu Thr Val Lys Phe
    370                 375                 380

Pro Lys Leu Met Val Pro Arg Phe Ser Phe Pro Ala Pro Ser Ser Glu
385                 390                 395                 400

Asp Asp Val Phe Ile Pro Thr Val Arg Glu Val Gln Cys Pro Glu Ala
                405                 410                 415

Asn Ile Asp Thr Ala Leu Cys Lys Glu Ser Pro Gly Leu Trp Gly Ala
            420                 425                 430

Ser Ile Leu Lys Ala Gly Ala Gly Val Pro Gly Glu Gln Pro Val Asp
        435                 440                 445

Leu Asn Leu Pro Leu Glu Ala Pro Pro Ile Ser Lys Val Arg Val His
    450                 455                 460

Ile Gln Gly Ala Gln Val Glu Ser Gln Glu Val Thr Ile His Ser Ile
465                 470                 475                 480

Val Thr Pro Glu Phe Val Asp Leu Ser Val Pro Arg Thr Phe Ser Thr
                485                 490                 495

Gln Ile Val Arg Glu Ser Glu Ile Pro Thr Ser Glu Ile Gln Thr Pro
            500                 505                 510

Ser Tyr Gly Phe Ser Leu Leu Lys Val Lys Ile Pro Glu Pro His Thr
        515                 520                 525

Gln Ala Arg Val Tyr Thr Thr Met Thr Gln His Ser Arg Thr Gln Glu
    530                 535                 540

Gly Thr Glu Glu Ala Pro Ile Gln Ala Thr Pro Gly Val Asp Ser Ile
545                 550                 555                 560
```

```
Ser Gly Asp Leu Gln Pro Asp Thr Gly Glu Pro Phe Glu Met Ile Ser
                565                 570                 575

Ser Ser Val Asn Val Leu Gly Gln Gln Thr Leu Thr Phe Glu Val Pro
            580                 585                 590

Ser Gly His Gln Leu Ala Asp Ser Cys Ser Asp Glu Glu Pro Ala Glu
        595                 600                 605

Ile Leu Glu Phe Pro Pro Asp Asp Ser Gln Glu Ala Thr Thr Pro Leu
    610                 615                 620

Ala Asp Glu Gly Arg Ala Pro Lys Asp Lys Pro Glu Ser Lys Lys Ser
625                 630                 635                 640

Gly Leu Leu Trp Phe Trp Leu Pro Asn Ile Gly Phe Ser Ser Ser Val
                645                 650                 655

Asp Glu Thr Gly Val Asp Ser Lys Asn Asp Val Gln Arg Ser Ala Pro
            660                 665                 670

Ile Gln Thr Gln Pro Glu Ala Arg Pro Glu Ala Glu Leu Pro Lys Lys
        675                 680                 685

Gln Glu Lys Ala Gly Trp Phe Arg Phe Pro Lys Leu Gly Phe Ser Ser
    690                 695                 700

Ser Pro Thr Lys Lys Ser Lys Ser Thr Glu Asp Gly Ala Glu Leu Glu
705                 710                 715                 720

Glu Gln Lys Leu Gln Glu Glu Thr Ile Thr Phe Phe Asp Ala Arg Glu
                725                 730                 735

Ser Phe Ser Pro Glu Glu Lys Glu Glu Gly Glu Leu Ile Gly Pro Val
            740                 745                 750

Gly Thr Gly Leu Asp Ser Arg Val Met Val Thr Ser Ala Ala Arg Thr
        755                 760                 765

Glu Leu Ile Leu Pro Glu Gln Asp Arg Lys Ala Asp Asp Glu Ser Lys
    770                 775                 780

Gly Ser Gly Leu Gly Pro Asn Glu Gly
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785 790

<210> 3667
<211> 226
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 804; "

<220>
<221> source
<223> /note="Gene Symbol: AAED1; "

<220>
<221> source
<223> /note="Gene Name:
AhpC/TSA antioxidant enzyme
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q7RTV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364382"

<400> 3667
Met Ala Ala Pro Ala Pro Val Thr Arg Gln Val Ser Gly Ala Ala Ala
1 5 10 15

Leu Val Pro Ala Pro Ser Gly Pro Asp Ser Gly Gln Pro Leu Ala Ala
20 25 30

Ala Val Ala Glu Leu Pro Val Leu Asp Ala Arg Gly Gln Arg Val Pro
35 40 45

Phe Gly Ala Leu Phe Arg Glu Arg Arg Ala Val Val Val Phe Val Arg
50 55 60

His Phe Leu Cys Tyr Ile Cys Lys Glu Tyr Val Glu Asp Leu Ala Lys
65 70 75 80

Ile Pro Arg Ser Phe Leu Gln Glu Ala Asn Val Thr Leu Ile Val Ile
85 90 95

Gly Gln Ser Ser Tyr His His Ile Glu Pro Phe Cys Lys Leu Thr Gly
100 105 110

```
Tyr Ser His Glu Ile Tyr Val Asp Pro Glu Arg Glu Ile Tyr Lys Arg
        115                 120                 125

Leu Gly Met Lys Arg Gly Glu Glu Ile Ala Ser Ser Gly Gln Ser Pro
    130                 135                 140

His Ile Lys Ser Asn Leu Leu Ser Gly Ser Leu Gln Ser Leu Trp Arg
145                 150                 155                 160

Ala Val Thr Gly Pro Leu Phe Asp Phe Gln Gly Asp Pro Ala Gln Gln
                165                 170                 175

Gly Gly Thr Leu Ile Leu Gly Pro Gly Asn Asn Ile His Phe Ile His
            180                 185                 190

Arg Asp Arg Asn Arg Leu Asp His Lys Pro Ile Asn Ser Val Leu Gln
        195                 200                 205

Leu Val Gly Val Gln His Val Asn Phe Thr Asn Arg Pro Ser Val Ile
    210                 215                 220

His Val
225
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<210> 3668
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 804; "

<220>
<221> source
<223> /note="Gene Symbol: AAED1; "

<220>
<221> source
<223> /note="Gene Name:
AhpC/TSA antioxidant enzyme
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398933"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3668
Xaa Gly Pro Arg Pro Pro Arg Val Met Ala Ala Pro Ala Pro Val Thr
1 5 10 15

Arg Gln His Phe Leu Cys Tyr Ile Cys Lys Glu Tyr Val Glu Asp Leu
20 25 30

Ala Lys Ile Pro Arg Ser Phe Leu Gln Glu Ala Asn Val Thr Leu Ile
35 40 45

Val Ile Gly Gln Ser Ser Tyr His His Ile Glu Pro Phe Cys Lys Leu
50 55 60

Thr Gly Tyr Ser His Glu Ile Tyr Val Asp Pro Glu Arg Glu Ile Tyr
65 70 75 80

Lys Arg Leu Gly Met Lys Arg Gly Glu Glu Ile Ala Ser Ser Gly Gln
85 90 95

Ser Pro His Ile Lys Ser Asn Leu Leu Ser Gly Ser Leu Gln Ser Leu
100 105 110

Trp Arg Ala Val Thr Gly Pro Leu Phe Asp Phe Gln Gly Asp Pro Ala
115 120 125

Gln Gln Gly Gly Thr Leu Ile Leu Gly Pro Gly Asn Asn Ile His Phe
130 135 140

Ile His Arg Asp Arg Asn Arg Leu Asp His Lys Pro Ile Asn Ser Val
145 150 155 160

Leu Gln Leu Val Gly Val Gln His Val Asn Phe Thr Asn Arg Pro Ser
165 170 175

Val Ile His Val
180

<210> 3669
<211> 110

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 804; "

<220>
<221> source
<223> /note="Gene Symbol: AAED1; "

<220>
<221> source
<223> /note="Gene Name:
AhpC/TSA antioxidant enzyme
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412378"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3669
Xaa Tyr Val Glu Asp Leu Ala Lys Ile Pro Arg Ser Phe Leu Gln Glu
1 5 10 15

Ala Asn Val Thr Leu Ile Val Ile Gly Gln Ser Ser Tyr His His Ile
20 25 30

Glu Pro Phe Cys Lys Leu Thr Gly Tyr Ser His Glu Ile Tyr Val Asp
35 40 45

Pro Glu Arg Glu Ile Tyr Lys Arg Leu Gly Met Lys Arg Gly Glu Glu
50 55 60

Ile Ala Ser Ser Gly Asn Asn Ile His Phe Ile His Arg Asp Arg Asn
65 70 75 80

Arg Leu Asp His Lys Pro Ile Asn Ser Val Leu Gln Leu Val Gly Val
85 90 95

Gln His Val Asn Phe Thr Asn Arg Pro Ser Val Ile His Val
100 105 110

<210> 3670

<211> 62
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 805; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AJ239318.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485142"

<400> 3670
Met Leu Lys Ile Ala Val Met Glu Val Pro Gln Ser Ala Trp Lys Thr
1 5 10 15

Val Trp Met Glu Val Ala Trp Ser His Cys His Val Pro Leu Ser Leu
20 25 30

Lys Lys Arg His Ile Cys Leu Cys Ala Arg Gln Tyr Ile His Leu Ile
35 40 45

Tyr Val Tyr Thr Leu Val Tyr Ala Phe Cys Tyr Leu Thr Phe
50 55 60

<210> 3671
<211> 538
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 806; "

<220>
<221> source
<223> /note="Gene Symbol: AJUBA; "

<220>
<221> source
<223> /note="Gene Name:
ajuba LIM prt; "

<220>

<221> source
<223> /note="Uniprot ID: Q96IF1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000262713"

<400> 3671
Met Glu Arg Leu Gly Glu Lys Ala Ser Arg Leu Leu Glu Lys Phe Gly
1   5   10   15

Arg Arg Lys Gly Glu Ser Ser Arg Ser Gly Ser Asp Gly Thr Pro Gly
            20   25   30

Pro Gly Lys Gly Arg Leu Ser Gly Leu Gly Gly Pro Arg Lys Ser Gly
        35   40   45

Pro Arg Gly Ala Thr Gly Gly Pro Gly Asp Glu Pro Leu Glu Pro Ala
    50   55   60

Arg Glu Gln Gly Ser Leu Asp Ala Glu Arg Asn Gln Arg Gly Ser Phe
65   70   75   80

Glu Ala Pro Arg Tyr Glu Gly Ser Phe Pro Ala Gly Pro Pro Pro Thr
                85   90   95

Arg Ala Leu Pro Leu Pro Gln Ser Leu Pro Pro Asp Phe Arg Leu Glu
            100   105   110

Pro Thr Ala Pro Ala Leu Ser Pro Arg Ser Ser Phe Ala Ser Ser Ser
        115   120   125

Ala Ser Asp Ala Ser Lys Pro Ser Ser Pro Arg Gly Ser Leu Leu Leu
    130   135   140

Asp Gly Ala Gly Ala Gly Gly Ala Gly Gly Ser Arg Pro Cys Ser Asn
145   150   155   160

Arg Thr Ser Gly Ile Ser Met Gly Tyr Asp Gln Arg His Gly Ser Pro
                165   170   175

Leu Pro Ala Gly Pro Cys Leu Phe Gly Pro Pro Leu Ala Gly Ala Pro
            180   185   190

Ala Gly Tyr Ser Pro Gly Gly Val Pro Ser Ala Tyr Pro Glu Leu His

```
        195                 200                 205

Ala Ala Leu Asp Arg Leu Tyr Ala Gln Arg Pro Ala Gly Phe Gly Cys
    210                 215                 220

Gln Glu Ser Arg His Ser Tyr Pro Pro Ala Leu Gly Ser Pro Gly Ala
225                 230                 235                 240

Leu Ala Gly Ala Gly Val Gly Ala Ala Gly Pro Leu Glu Arg Arg Gly
                245                 250                 255

Ala Gln Pro Gly Arg His Ser Val Thr Gly Tyr Gly Asp Cys Ala Val
            260                 265                 270

Gly Ala Arg Tyr Gln Asp Glu Leu Thr Ala Leu Leu Arg Leu Thr Val
        275                 280                 285

Gly Thr Gly Gly Arg Glu Ala Gly Ala Arg Gly Glu Pro Ser Gly Ile
    290                 295                 300

Glu Pro Ser Gly Leu Glu Glu Pro Pro Gly Pro Phe Val Pro Glu Ala
305                 310                 315                 320

Ala Arg Ala Arg Met Arg Glu Pro Glu Ala Arg Glu Asp Tyr Phe Gly
                325                 330                 335

Thr Cys Ile Lys Cys Asn Lys Gly Ile Tyr Gly Gln Ser Asn Ala Cys
            340                 345                 350

Gln Ala Leu Asp Ser Leu Tyr His Thr Gln Cys Phe Val Cys Cys Ser
        355                 360                 365

Cys Gly Arg Thr Leu Arg Cys Lys Ala Phe Tyr Ser Val Asn Gly Ser
    370                 375                 380

Val Tyr Cys Glu Glu Asp Tyr Leu Phe Ser Gly Phe Gln Glu Ala Ala
385                 390                 395                 400

Glu Lys Cys Cys Val Cys Gly His Leu Ile Leu Glu Lys Ile Leu Gln
                405                 410                 415

Ala Met Gly Lys Ser Tyr His Pro Gly Cys Phe Arg Cys Ile Val Cys
            420                 425                 430
```

```
Asn Lys Cys Leu Asp Gly Ile Pro Phe Thr Val Asp Phe Ser Asn Gln
        435                 440                 445

Val Tyr Cys Val Thr Asp Tyr His Lys Asn Tyr Ala Pro Lys Cys Ala
    450                 455                 460

Ala Cys Gly Gln Pro Ile Leu Pro Ser Glu Gly Cys Glu Asp Ile Val
465                 470                 475                 480

Arg Val Ile Ser Met Asp Arg Asp Tyr His Phe Glu Cys Tyr His Cys
                485                 490                 495

Glu Asp Cys Arg Met Gln Leu Ser Asp Glu Glu Gly Cys Cys Cys Phe
            500                 505                 510

Pro Leu Asp Gly His Leu Leu Cys His Gly Cys His Met Gln Arg Leu
        515                 520                 525

Asn Ala Arg Gln Pro Pro Ala Asn Tyr Ile
    530                 535
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<210> 3672
<211> 538
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 806; "

<220>
<221> source
<223> /note="Gene Symbol: AJUBA; "

<220>
<221> source
<223> /note="Gene Name:
ajuba LIM prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q96IF1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354491"

<400> 3672

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Met Glu Arg Leu Gly Glu Lys Ala Ser Arg Leu Leu Glu Lys Phe Gly
1               5                  10                  15

Arg Arg Lys Gly Glu Ser Ser Arg Ser Gly Ser Asp Gly Thr Pro Gly
            20                  25                  30

Pro Gly Lys Gly Arg Leu Ser Gly Leu Gly Gly Pro Arg Lys Ser Gly
        35                  40                  45

Pro Arg Gly Ala Thr Gly Gly Pro Gly Asp Glu Pro Leu Glu Pro Ala
    50                  55                  60

Arg Glu Gln Gly Ser Leu Asp Ala Glu Arg Asn Gln Arg Gly Ser Phe
65                  70                  75                  80

Glu Ala Pro Arg Tyr Glu Gly Ser Phe Pro Ala Gly Pro Pro Pro Thr
                85                  90                  95

Arg Ala Leu Pro Leu Pro Gln Ser Leu Pro Pro Asp Phe Arg Leu Glu
            100                 105                 110

Pro Thr Ala Pro Ala Leu Ser Pro Arg Ser Ser Phe Ala Ser Ser Ser
        115                 120                 125

Ala Ser Asp Ala Ser Lys Pro Ser Ser Pro Arg Gly Ser Leu Leu Leu
    130                 135                 140

Asp Gly Ala Gly Ala Gly Gly Ala Gly Gly Ser Arg Pro Cys Ser Asn
145                 150                 155                 160

Arg Thr Ser Gly Ile Ser Met Gly Tyr Asp Gln Arg His Gly Ser Pro
                165                 170                 175

Leu Pro Ala Gly Pro Cys Leu Phe Gly Pro Pro Leu Ala Gly Ala Pro
            180                 185                 190

Ala Gly Tyr Ser Pro Gly Gly Val Pro Ser Ala Tyr Pro Glu Leu His
        195                 200                 205

Ala Ala Leu Asp Arg Leu Tyr Ala Gln Arg Pro Ala Gly Phe Gly Cys
    210                 215                 220

Gln Glu Ser Arg His Ser Tyr Pro Pro Ala Leu Gly Ser Pro Gly Ala
```

225 230 235 240

Leu Ala Gly Ala Gly Val Gly Ala Ala Gly Pro Leu Glu Arg Arg Gly
245 250 255

Ala Gln Pro Gly Arg His Ser Val Thr Gly Tyr Gly Asp Cys Ala Val
260 265 270

Gly Ala Arg Tyr Gln Asp Glu Leu Thr Ala Leu Leu Arg Leu Thr Val
275 280 285

Gly Thr Gly Gly Arg Glu Ala Gly Ala Arg Gly Glu Pro Ser Gly Ile
290 295 300

Glu Pro Ser Gly Leu Glu Glu Pro Pro Gly Pro Phe Val Pro Glu Ala
305 310 315 320

Ala Arg Ala Arg Met Arg Glu Pro Glu Ala Arg Glu Asp Tyr Phe Gly
325 330 335

Thr Cys Ile Lys Cys Asn Lys Gly Ile Tyr Gly Gln Ser Asn Ala Cys
340 345 350

Gln Ala Leu Asp Ser Leu Tyr His Thr Gln Cys Phe Val Cys Cys Ser
355 360 365

Cys Gly Arg Thr Leu Arg Cys Lys Ala Phe Tyr Ser Val Asn Gly Ser
370 375 380

Val Tyr Cys Glu Glu Asp Tyr Leu Phe Ser Gly Phe Gln Glu Ala Ala
385 390 395 400

Glu Lys Cys Cys Val Cys Gly His Leu Ile Leu Glu Lys Ile Leu Gln
405 410 415

Ala Met Gly Lys Ser Tyr His Pro Gly Cys Phe Arg Cys Ile Val Cys
420 425 430

Asn Lys Cys Leu Asp Gly Ile Pro Phe Thr Val Asp Phe Ser Asn Gln
435 440 445

Val Tyr Cys Val Thr Asp Tyr His Lys Asn Tyr Ala Pro Lys Cys Ala
450 455 460

```
Ala Cys Gly Gln Pro Ile Leu Pro Ser Glu Gly Cys Glu Asp Ile Val
465                 470                 475                 480


Arg Val Ile Ser Met Asp Arg Asp Tyr His Phe Glu Cys Tyr His Cys
                485                 490                 495


Glu Asp Cys Arg Met Gln Leu Ser Asp Glu Glu Gly Cys Cys Cys Phe
            500                 505                 510


Pro Leu Asp Gly His Leu Leu Cys His Gly Cys His Met Gln Arg Leu
        515                 520                 525


Asn Ala Arg Gln Pro Pro Ala Asn Tyr Ile
    530                 535


<210> 3673
<211> 121
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 806; "

<220>
<221> source
<223> /note="Gene Symbol: AJUBA; "

<220>
<221> source
<223> /note="Gene Name:
      ajuba LIM prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96IF1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380543"

<400> 3673
Met Gly Lys Ser Tyr His Pro Gly Cys Phe Arg Cys Ile Val Cys Asn
1               5                   10                  15


Lys Cys Leu Asp Gly Ile Pro Phe Thr Val Asp Phe Ser Asn Gln Val
            20                  25                  30
```

```
Tyr Cys Val Thr Asp Tyr His Lys Asn Tyr Ala Pro Lys Cys Ala Ala
        35                  40                  45

Cys Gly Gln Pro Ile Leu Pro Ser Glu Gly Cys Glu Asp Ile Val Arg
    50                  55                  60

Val Ile Ser Met Asp Arg Asp Tyr His Phe Glu Cys Tyr His Cys Glu
65                  70                  75                  80

Asp Cys Arg Met Gln Leu Ser Asp Glu Glu Gly Cys Cys Cys Phe Pro
                85                  90                  95

Leu Asp Gly His Leu Leu Cys His Gly Cys His Met Gln Arg Leu Asn
            100                 105                 110

Ala Arg Gln Pro Pro Ala Asn Tyr Ile
        115                 120


<210> 3674
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 806; "

<220>
<221> source
<223> /note="Gene Symbol: AJUBA; "

<220>
<221> source
<223> /note="Gene Name:
      ajuba LIM prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451649"

<400> 3674
Met Gly Lys Ser Tyr His Pro Gly Cys Phe Arg Cys Ile Val Cys Asn
1               5                   10                  15

Lys Cys Leu Asp Gly Ile Pro Phe Thr Val Asp Phe Ser Asn Gln Val
            20                  25                  30

Tyr Cys Val Thr Asp Tyr His Lys Asn Tyr Ala Pro Lys Cys Ala Ala
        35                  40                  45
```

```
Cys Gly Gln Pro Ile Leu Pro Ser Glu Gly Cys Glu Asp Ile Val Arg
    50                  55                  60

Val Ile Ser Met Asp Arg Asp Tyr His Phe Glu Cys Tyr His Cys Glu
65                  70                  75                  80


<210> 3675
<211> 143
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 806; "

<220>
<221> source
<223> /note="Gene Symbol: AJUBA; "

<220>
<221> source
<223> /note="Gene Name:
      ajuba LIM prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451772"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3675
Xaa Arg His Ser Tyr Pro Pro Ala Leu Gly Ser Pro Gly Ala Leu Ala
1               5                   10                  15

Gly Ala Gly Val Gly Ala Ala Gly Pro Leu Glu Arg Arg Gly Ala Gln
            20                  25                  30

Pro Gly Arg His Ser Val Thr Gly Tyr Gly Asp Cys Ala Val Gly Ala
        35                  40                  45

Arg Tyr Gln Asp Glu Leu Thr Ala Leu Leu Arg Leu Thr Val Gly Thr
    50                  55                  60

Gly Gly Arg Glu Ala Gly Ala Arg Gly Glu Pro Ser Gly Ile Glu Pro
65                  70                  75                  80
```

Ser Gly Leu Glu Glu Pro Pro Gly Pro Phe Val Pro Glu Ala Ala Arg
85 90 95

Ala Arg Met Arg Glu Pro Glu Ala Arg Glu Asp Tyr Phe Gly Ile Met
100 105 110

Leu Thr Trp Ser Pro Leu His Gly Ala Leu Cys Gln Ala Arg Ser Phe
115 120 125

Ser Pro Ser Leu Glu Val Cys Ser Gly Glu Lys Ser Phe Tyr Asn
130 135 140

<210> 3676
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 806; "

<220>
<221> source
<223> /note="Gene Symbol: AJUBA; "

<220>
<221> source
<223> /note="Gene Name:
ajuba LIM prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452325"

<400> 3676
Met Gly Lys Ser Tyr His Pro Gly Cys Phe Arg Cys Ile Val Cys Asn
1 5 10 15

Lys Cys Leu Asp Gly Ile Pro Phe Thr Val Asp Phe Ser Asn Gln Val
20 25 30

Tyr Cys Val Thr Asp Tyr His Lys Asn Tyr Ala Pro Lys Cys Ala Ala
35 40 45

Cys Gly Gln Pro Ile Leu Pro Ser Glu Gly Cys Glu Asp Ile Val Arg
50 55 60

<210> 3677
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AJUBA; "

<220>
<221> source
<223> /note="Gene Name:
ajuba LIM prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452369"

<400> 3677
Met Gly Lys Ser Tyr His Pro Gly Cys Phe Arg Cys Ile Val Cys Asn
1 5 10 15

Lys Cys Leu Asp Gly Ile Pro Phe Thr Val Asp Phe Ser Asn Gln Val
20 25 30

Tyr Cys Val Thr Asp Tyr His Lys Asn Tyr Ala Pro Lys Cys Ala Ala
35 40 45

Cys Gly Gln Pro Ile Leu Pro Ser Glu Gly Cys Glu Asp Ile Val Arg
50 55 60

Val Ile Ser Met Asp Arg Asp Tyr His Phe Glu Cys Tyr His Cys Glu
65 70 75 80

<210> 3678
<211> 145
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 807; "

<220>
<221> source
<223> /note="Gene Symbol: AKIRIN1; "

<220>

<221> source
<223> /note="Gene Name:
akirin 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362075"

<400> 3678
Met Ala Cys Gly Ala Thr Leu Lys Arg Pro Met Glu Phe Glu Ala Ala
1 5 10 15

Leu Leu Ser Pro Gly Ser Pro Lys Arg Arg Arg Cys Ala Pro Leu Pro
20 25 30

Gly Pro Thr Pro Gly Leu Arg Pro Pro Asp Ala Glu Pro Pro Pro Pro
35 40 45

Phe Gln Thr Gln Thr Pro Pro Gln Ser Leu Gln Gln Pro Ala Pro Pro
50 55 60

Gly Ser Glu Arg Arg Leu Pro Thr Pro Gly Ser Ser Trp Met Lys Lys
65 70 75 80

Asp Gln Pro Thr Phe Thr Leu Arg Gln Val Gly Ile Ile Cys Glu Arg
85 90 95

Leu Leu Lys Asp Tyr Glu Asp Lys Ile Arg Glu Glu Tyr Glu Gln Ile
100 105 110

Leu Asn Thr Lys Leu Ala Glu Gln Tyr Glu Ser Phe Val Lys Phe Thr
115 120 125

His Asp Gln Ile Met Arg Arg Tyr Gly Thr Arg Pro Thr Ser Tyr Val
130 135 140

Ser
145

<210> 3679
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 807; "

<220>
<221> source
<223> /note="Gene Symbol: AKIRIN1; "

<220>
<221> source
<223> /note="Gene Name:
akirin 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H9L7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000389866"

<400> 3679
Met Ala Cys Gly Ala Thr Leu Lys Arg Pro Met Glu Phe Glu Ala Ala
1   5   10   15

Leu Leu Ser Pro Gly Ser Pro Lys Arg Arg Arg Cys Ala Pro Leu Pro
            20   25   30

Gly Pro Thr Pro Gly Leu Arg Pro Pro Asp Ala Glu Pro Pro Pro Pro
        35   40   45

Phe Gln Thr Gln Thr Pro Pro Gln Ser Leu Gln Gln Pro Ala Pro Pro
    50   55   60

Gly Ser Glu Arg Arg Leu Pro Thr Pro Glu Gln Ile Phe Gln Asn Ile
65   70   75   80

Lys Gln Glu Tyr Ser Arg Tyr Gln Arg Trp Arg His Leu Glu Val Val
                85   90   95

Leu Asn Gln Ser Glu Ala Cys Ala Ser Glu Ser Gln Pro His Ser Ser
            100   105   110

Ala Leu Thr Ala Pro Ser Ser Pro Glu Gln Tyr Glu Ser Phe Val Lys
        115   120   125

Phe Thr His Asp Gln Ile Met Arg Arg Tyr Gly Thr Arg Pro Thr Ser
    130   135   140

Tyr Val Ser
145

<210> 3680
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 807; "

<220>
<221> source
<223> /note="Gene Symbol: AKIRIN1; "

<220>
<221> source
<223> /note="Gene Name:
akirin 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H9L7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392678"

<400> 3680
Met Ala Cys Gly Ala Thr Leu Lys Arg Pro Met Glu Phe Glu Ala Ala
1   5   10   15

Leu Leu Ser Pro Gly Ser Pro Lys Arg Arg Arg Cys Ala Pro Leu Pro
            20   25   30

Gly Pro Thr Pro Gly Leu Arg Pro Pro Asp Ala Glu Pro Pro Pro Pro
        35   40   45

Phe Gln Thr Gln Thr Pro Pro Gln Ser Leu Gln Gln Pro Ala Pro Pro
    50   55   60

Gly Ser Glu Arg Arg Leu Pro Thr Pro Glu Gln Ile Phe Gln Asn Ile
65   70   75   80

Lys Gln Glu Tyr Ser Arg Tyr Gln Arg Trp Arg His Leu Glu Val Val
                85   90   95

Leu Asn Gln Ser Glu Ala Cys Ala Ser Glu Ser Gln Pro His Ser Ser
            100   105   110

```
Ala Leu Thr Ala Pro Ser Ser Pro Gly Ser Ser Trp Met Lys Lys Asp
        115                 120                 125

Gln Pro Thr Phe Thr Leu Arg Gln Val Gly Ile Ile Cys Glu Arg Leu
    130                 135                 140

Leu Lys Asp Tyr Glu Asp Lys Ile Arg Glu Glu Tyr Glu Gln Ile Leu
145                 150                 155                 160

Asn Thr Lys Leu Ala Glu Gln Tyr Glu Ser Phe Val Lys Phe Thr His
                165                 170                 175

Asp Gln Ile Met Arg Arg Tyr Gly Thr Arg Pro Thr Ser Tyr Val Ser
            180                 185                 190


<210> 3681
<211> 130
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 807; "

<220>
<221> source
<223> /note="Gene Symbol: AKIRIN1; "

<220>
<221> source
<223> /note="Gene Name:
      akirin 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436372"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3681
Xaa Pro Pro Asp Ala Glu Pro Pro Pro Pro Phe Gln Thr Gln Thr Pro
1               5                   10                  15

Pro Gln Ser Leu Gln Gln Pro Ala Pro Pro Gly Ser Glu Arg Arg Leu
            20                  25                  30
```

```
Pro Thr Pro Glu Gln Ile Phe Gln Asn Ile Lys Gln Glu Tyr Ser Arg
        35                  40                  45

Tyr Gln Arg Trp Arg His Leu Glu Val Val Leu Asn Gln Ser Glu Ala
    50                  55                  60

Cys Ala Ser Glu Ser Gln Pro His Ser Ser Ala Leu Thr Ala Pro Ser
65                  70                  75                  80

Ser Pro Gly Ser Ser Trp Met Lys Lys Asp Gln Pro Thr Phe Thr Leu
                85                  90                  95

Arg Gln Val Gly Ile Ile Cys Glu Arg Leu Leu Lys Asp Tyr Glu Asp
            100                 105                 110

Lys Ile Arg Glu Glu Tyr Glu Gln Ile Leu Asn Thr Lys Leu Ala Asp
        115                 120                 125

Val Ser
    130


<210> 3682
<211> 203
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 808; "

<220>
<221> source
<223> /note="Gene Symbol: AKIRIN2; "

<220>
<221> source
<223> /note="Gene Name:
      akirin 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q53H80; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000257787"

<400> 3682
Met Ala Cys Gly Ala Thr Leu Lys Arg Thr Leu Asp Phe Asp Pro Leu
1               5                   10                  15
```

```
Leu Ser Pro Ala Ser Pro Lys Arg Arg Arg Cys Ala Pro Leu Ser Ala
            20                  25                  30

Pro Thr Ser Ala Ala Ala Ser Pro Leu Ser Ala Ala Ala Ala Thr Ala
        35                  40                  45

Ala Ser Phe Ser Ala Ala Ala Ala Ser Pro Gln Lys Tyr Leu Arg Met
    50                  55                  60

Glu Pro Ser Pro Phe Gly Asp Val Ser Ser Arg Leu Thr Thr Glu Gln
65                  70                  75                  80

Ile Leu Tyr Asn Ile Lys Gln Glu Tyr Lys Arg Met Gln Lys Arg Arg
                85                  90                  95

His Leu Glu Thr Ser Phe Gln Gln Thr Asp Pro Cys Cys Thr Ser Asp
            100                 105                 110

Ala Gln Pro His Ala Phe Leu Leu Ser Gly Pro Ala Ser Pro Gly Thr
        115                 120                 125

Ser Ser Ala Ala Ser Ser Pro Leu Lys Lys Glu Gln Pro Leu Phe Thr
    130                 135                 140

Leu Arg Gln Val Gly Met Ile Cys Glu Arg Leu Leu Lys Glu Arg Glu
145                 150                 155                 160

Glu Lys Val Arg Glu Glu Tyr Glu Glu Ile Leu Asn Thr Lys Leu Ala
                165                 170                 175

Glu Gln Tyr Asp Ala Phe Val Lys Phe Thr His Asp Gln Ile Met Arg
            180                 185                 190

Arg Tyr Gly Glu Gln Pro Ala Ser Tyr Val Ser
        195                 200
```

<210> 3683
<211> 722
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 809; "

<220>
<221> source
<223> /note="Gene Symbol: AKNAD1; "

<220>
<221> source
<223> /note="Gene Name:
AKNA
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359011"

<400> 3683

Met	Asp	Glu	Ala	Asp	Phe	Ser	Glu	His	Thr	Thr	Tyr	Lys	Gln	Glu	Asp
1				5				10						15	
Leu	Pro	Tyr	Asp	Gly	Asp	Leu	Ser	Gln	Ile	Lys	Ile	Gly	Asn	Asp	Tyr
			20					25					30		
Ser	Phe	Thr	Ser	Lys	Lys	Asp	Gly	Leu	Glu	Val	Leu	Asn	Gln	Ile	Ile
		35					40					45			
Phe	Ile	Ala	Asp	Asp	Pro	Gln	Glu	Lys	Ala	Met	His	Ser	Glu	Thr	Cys
	50					55					60				
Gly	Asn	Thr	Ala	Val	Thr	Ile	Pro	Leu	Gly	Lys	Ile	Thr	Glu	Asn	Ala
65					70					75					80
Ala	Asn	Lys	Lys	Asp	Glu	Lys	Glu	Lys	Gln	Cys	Thr	Ala	Ala	Leu	His
				85					90					95	
Ile	Pro	Ala	Asn	Glu	Gly	Asp	Ala	Ser	Lys	Ser	Ser	Ile	Ser	Asp	Ile
			100					105					110		
Leu	Leu	His	His	Leu	Ser	Lys	Glu	Pro	Phe	Leu	Arg	Gly	Gln	Gly	Ile
		115					120					125			
Asp	Cys	Glu	Thr	Leu	Pro	Glu	Ile	Ser	Asn	Ala	Asp	Ser	Phe	Glu	Glu
	130					135					140				
Glu	Ala	Ile	Ile	Lys	Ser	Ile	Ile	Ser	Cys	Tyr	Asn	Lys	Asn	Ser	Trp
145					150					155					160

```
Pro Lys Glu Gln Thr Pro Glu Leu Thr Asp Gln Leu Asn Pro Lys Arg
                165                 170                 175

Asp Gly Glu Asn Ser Asn Lys Pro Gly Ser Ala Thr Thr Thr Glu Glu
            180                 185                 190

Asn Thr Ser Asp Leu Glu Gly Pro Val Ala Ala Gly Asp Ser Ser His
        195                 200                 205

Gln Glu Asn Val Asn Val Leu Thr Lys Thr Lys Gly Pro Gly Asp Lys
    210                 215                 220

Gln Lys Ser Tyr Gln Gly Gln Ser Pro Gln Lys Gln Gln Thr Glu Lys
225                 230                 235                 240

Ala Asn Ser Gly Asn Thr Phe Lys Tyr Gly Gln Gly Gln Val His Tyr
                245                 250                 255

Gln Leu Pro Asp Phe Ser Lys Ile Ala Pro Lys Val Lys Ile Pro Lys
            260                 265                 270

Asn Lys Ile Ile Asn Lys Pro Leu Ala Ile Ala Lys Gln Ala Ser Phe
        275                 280                 285

Ser Ser Lys Ser Arg Asp Lys Pro Thr Leu Val Gln Asp Ser Leu Glu
    290                 295                 300

Thr Thr Pro Glu Ser Asn Cys Val Glu Lys Gln His Gln Glu Gln Lys
305                 310                 315                 320

Gly Lys Ile Thr Glu Pro Ser Gln Gln Ile Gln Met Glu Pro Ile Val
                325                 330                 335

His Ile His Gln Glu Leu Leu Thr Gly Ile Glu Ser Glu Ala Ser Leu
            340                 345                 350

Ser Lys Leu Ser Pro Thr Ser Gln Lys Gly Thr Ser Ser Ser Ser Ser
        355                 360                 365

Tyr Ile Phe Gln Lys Ile Ser Gln Gly Lys Gln Met Cys Gln Lys Leu
    370                 375                 380

Lys Glu Gln Thr Asp Gln Leu Lys Thr Lys Val Gln Glu Phe Ser Lys
```

385 390 395 400

Arg Ile Lys Gln Asp Ser Pro Tyr His Leu Gln Asp Lys Lys Leu Val
405 410 415

Leu Glu Lys Leu Gln Gly His Leu Glu Leu Leu Glu Gln Asn Phe Leu
420 425 430

Ala Thr Lys Asp Lys His Leu Thr Leu Gln Gln Gln Val His Lys His
435 440 445

Glu Ser Thr Ile Val Gly Asp Phe Asp Pro Glu Arg Lys Val Glu Gly
450 455 460

Glu Ile Phe Lys Leu Glu Met Leu Leu Glu Asp Val Lys Glu Lys Met
465 470 475 480

Asp Glu Ser Lys Tyr Thr Ser Ala Pro Ser Leu Pro Val Ser Ser Pro
485 490 495

Val Thr Leu Asp Asp Leu Ala Ser Thr Phe Ser Ser Leu Ser Asn Glu
500 505 510

Ala Pro Asn Glu Glu Leu Cys Glu Leu Ala Pro Gln Thr Tyr Leu Asn
515 520 525

Gly His Tyr Gly Asp Ala Ala Ala Gln Asn Lys Pro Asp Gln Val Ala
530 535 540

Met Arg Leu Ser Ser Asn Ser Gly Glu Asp Pro Asn Gly Thr Pro Arg
545 550 555 560

Arg Gln Asp Cys Ala Glu Met Thr Ala Pro Ser Pro Ser Cys Ala Phe
565 570 575

Cys Arg Arg Leu Leu Glu Trp Lys Gln Asn Val Glu Lys Lys Gly His
580 585 590

Gly Arg Ile Asn Cys Gly Arg Phe Ser Ile Val Leu His Glu Lys Ala
595 600 605

Pro His Ser Asp Ser Thr Pro Asn Ser Asp Thr Gly His Ser Phe Cys
610 615 620

Ser Asp Ser Gly Thr Glu Met Gln Ser Asn Lys Cys Gln Asp Cys Gly
625 630 635 640

Thr Lys Ile Pro Thr Ser Arg Arg Ala Cys Arg Lys Glu Pro Thr Lys
645 650 655

Glu Phe His Tyr Arg Tyr Asn Thr Pro Gly Gln Asn Tyr Ser Asn His
660 665 670

Ser Lys Arg Gly Ala Phe Val Gln Pro His Ser Leu Asp Glu Ser Lys
675 680 685

Asn Ser Ser Pro Cys Leu Val His Ser Pro Asp Thr Ser Lys Ser Ser
690 695 700

Pro Thr Ser Gly Trp Gln Glu Ala Glu Leu Gly Leu Glu Asn Met Lys
705 710 715 720

Ser Gln

<210> 3684
<211> 761
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 809; "

<220>
<221> source
<223> /note="Gene Symbol: AKNAD1; "

<220>
<221> source
<223> /note="Gene Name:
AKNA
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5T1N1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359012"

<400> 3684
Met Asp Glu Ala Asp Phe Ser Glu His Thr Thr Tyr Lys Gln Glu Asp
1 5 10 15

Leu Pro Tyr Asp Gly Asp Leu Ser Gln Ile Lys Ile Gly Asn Asp Tyr
20 25 30

Ser Phe Thr Ser Lys Lys Asp Gly Leu Glu Val Leu Asn Gln Ile Ile
35 40 45

Phe Ile Ala Asp Asp Pro Gln Glu Lys Ala Met His Ser Glu Thr Cys
50 55 60

Gly Asn Thr Ala Val Thr Ile Pro Leu Gly Lys Ile Thr Glu Asn Ala
65 70 75 80

Ala Asn Lys Lys Asp Glu Lys Glu Lys Gln Cys Thr Ala Ala Leu His
85 90 95

Ile Pro Ala Asn Glu Gly Asp Ala Ser Lys Ser Ser Ile Ser Asp Ile
100 105 110

Leu Leu His His Leu Ser Lys Glu Pro Phe Leu Arg Gly Gln Gly Ile
115 120 125

Asp Cys Glu Thr Leu Pro Glu Ile Ser Asn Ala Asp Ser Phe Glu Glu
130 135 140

Glu Ala Ile Ile Lys Ser Ile Ile Ser Cys Tyr Asn Lys Asn Ser Trp
145 150 155 160

Pro Lys Glu Gln Thr Pro Glu Leu Thr Asp Gln Leu Asn Pro Lys Arg
165 170 175

Asp Gly Glu Asn Ser Asn Lys Pro Gly Ser Ala Thr Thr Thr Glu Glu
180 185 190

Asn Thr Ser Asp Leu Glu Gly Pro Val Ala Ala Gly Asp Ser Ser His
195 200 205

Gln Glu Asn Val Asn Val Leu Thr Lys Thr Lys Gly Pro Gly Asp Lys
210 215 220

```
Gln Lys Ser Tyr Gln Gly Gln Ser Pro Gln Lys Gln Gln Thr Glu Lys
225                 230                 235                 240

Ala Asn Ser Gly Asn Thr Phe Lys Tyr Gly Gln Gly Gln Val His Tyr
                245                 250                 255

Gln Leu Pro Asp Phe Ser Lys Ile Ala Pro Lys Val Lys Ile Pro Lys
            260                 265                 270

Asn Lys Ile Ile Asn Lys Pro Leu Ala Ile Ala Lys Gln Ala Ser Phe
        275                 280                 285

Ser Ser Lys Ser Arg Asp Lys Pro Thr Leu Val Gln Asp Ser Leu Glu
    290                 295                 300

Thr Thr Pro Glu Ser Asn Cys Val Glu Lys Gln His Gln Glu Gln Lys
305                 310                 315                 320

Gly Lys Ile Thr Glu Pro Ser Gln Gln Ile Gln Met Glu Pro Ile Val
                325                 330                 335

His Ile His Gln Glu Leu Leu Thr Gly Ile Glu Ser Glu Ala Ser Leu
            340                 345                 350

Ser Lys Leu Ser Pro Thr Ser Gln Lys Gly Thr Ser Ser Ser Ser Ser
        355                 360                 365

Tyr Ile Phe Gln Lys Ile Ser Gln Gly Lys Gln Met Cys Gln Lys Leu
    370                 375                 380

Lys Glu Gln Thr Asp Gln Leu Lys Thr Lys Val Gln Glu Phe Ser Lys
385                 390                 395                 400

Arg Ile Lys Gln Asp Ser Pro Tyr His Leu Gln Asp Lys Lys Leu Val
                405                 410                 415

Leu Glu Lys Leu Gln Gly His Leu Glu Leu Leu Glu Gln Asn Phe Leu
            420                 425                 430

Ala Thr Lys Asp Lys His Leu Thr Leu Gln Gln Gln Val His Lys His
        435                 440                 445

Glu Ser Thr Ile Val Gly Asp Phe Asp Pro Glu Arg Lys Val Glu Gly
```

```
    450                 455                 460

Glu Ile Phe Lys Leu Glu Met Leu Leu Glu Asp Val Lys Glu Lys Met
465                 470                 475                 480

Asp Glu Ser Lys Tyr Thr Ser Ala Pro Ser Leu Pro Val Ser Ser Pro
                485                 490                 495

Val Thr Leu Asp Asp Leu Ala Ser Thr Phe Ser Ser Leu Ser Asn Glu
            500                 505                 510

Ile Pro Lys Glu His Pro Gly His Pro Ser Gly Pro Arg Gly Ser Gly
        515                 520                 525

Gly Ser Glu Val Thr Gly Thr Pro Gln Gly Gly Pro Gln Glu Ala Pro
    530                 535                 540

Asn Glu Glu Leu Cys Glu Leu Ala Pro Gln Thr Tyr Leu Asn Gly His
545                 550                 555                 560

Tyr Gly Asp Ala Ala Ala Gln Asn Lys Pro Asp Gln Val Ala Met Arg
                565                 570                 575

Leu Ser Ser Asn Ser Gly Glu Asp Pro Asn Gly Thr Pro Arg Arg Gln
            580                 585                 590

Asp Cys Ala Glu Met Thr Ala Pro Ser Pro Ser Cys Ala Phe Cys Arg
        595                 600                 605

Arg Leu Leu Glu Trp Lys Gln Asn Val Glu Lys Lys Gly His Gly Arg
    610                 615                 620

Ile Asn Cys Gly Arg Phe Ser Ile Val Leu His Glu Lys Ala Pro His
625                 630                 635                 640

Ser Asp Ser Thr Pro Asn Ser Asp Thr Gly His Ser Phe Cys Ser Asp
                645                 650                 655

Ser Gly Thr Glu Met Gln Ser Asn Lys Cys Gln Asp Cys Gly Thr Lys
            660                 665                 670

Ile Pro Thr Ser Arg Arg Ala Cys Arg Lys Glu Pro Thr Lys Glu Phe
        675                 680                 685
```

```
His Tyr Arg Tyr Asn Thr Pro Gly Gln Asn Tyr Ser Asn His Ser Lys
    690                 695                 700

Arg Gly Ala Phe Val Gln Pro His Ser Leu Asp Glu Ser Lys Asn Ser
705                 710                 715                 720

Ser Pro Ser Leu Ala Ser Pro Phe Cys Cys Pro Gly Leu Val His Ser
                725                 730                 735

Pro Asp Thr Ser Lys Ser Ser Pro Thr Ser Gly Trp Gln Glu Ala Glu
            740                 745                 750

Leu Gly Leu Glu Asn Met Lys Ser Gln
        755                 760
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<210> 3685
<211> 836
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 809; "

<220>
<221> source
<223> /note="Gene Symbol: AKNAD1; "

<220>
<221> source
<223> /note="Gene Name:
AKNA
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5T1N1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359018"

<400> 3685

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Met Asp Glu Ala Asp Phe Ser Glu His Thr Thr Tyr Lys Gln Glu Asp
1               5                   10                  15

Leu Pro Tyr Asp Gly Asp Leu Ser Gln Ile Lys Ile Gly Asn Asp Tyr
            20                  25                  30
```

```
Ser Phe Thr Ser Lys Lys Asp Gly Leu Glu Val Leu Asn Gln Ile Ile
        35                  40                  45

Phe Ile Ala Asp Asp Pro Gln Glu Lys Ala Met His Ser Glu Thr Cys
    50                  55                  60

Gly Asn Thr Ala Val Thr Ile Pro Leu Gly Lys Ile Thr Glu Asn Ala
65                  70                  75                  80

Ala Asn Lys Lys Asp Glu Lys Glu Lys Gln Cys Thr Ala Ala Leu His
                85                  90                  95

Ile Pro Ala Asn Glu Gly Asp Ala Ser Lys Ser Ser Ile Ser Asp Ile
            100                 105                 110

Leu Leu His His Leu Ser Lys Glu Pro Phe Leu Arg Gly Gln Gly Ile
        115                 120                 125

Asp Cys Glu Thr Leu Pro Glu Ile Ser Asn Ala Asp Ser Phe Glu Glu
    130                 135                 140

Glu Ala Ile Ile Lys Ser Ile Ile Ser Cys Tyr Asn Lys Asn Ser Trp
145                 150                 155                 160

Pro Lys Glu Gln Thr Pro Glu Leu Thr Asp Gln Leu Asn Pro Lys Arg
                165                 170                 175

Asp Gly Glu Asn Ser Asn Lys Pro Gly Ser Ala Thr Thr Thr Glu Glu
            180                 185                 190

Asn Thr Ser Asp Leu Glu Gly Pro Val Ala Ala Gly Asp Ser Ser His
        195                 200                 205

Gln Glu Asn Val Asn Val Leu Thr Lys Thr Lys Gly Pro Gly Asp Lys
    210                 215                 220

Gln Lys Ser Tyr Gln Gly Gln Ser Pro Gln Lys Gln Gln Thr Glu Lys
225                 230                 235                 240

Ala Asn Ser Gly Asn Thr Phe Lys Tyr Gly Gln Gly Gln Val His Tyr
                245                 250                 255
```

```
Gln Leu Pro Asp Phe Ser Lys Ile Ala Pro Lys Val Lys Ile Pro Lys
            260                 265                 270

Asn Lys Ile Ile Asn Lys Pro Leu Ala Ile Ala Lys Gln Ala Ser Phe
        275                 280                 285

Ser Ser Lys Ser Arg Asp Lys Pro Thr Leu Val Gln Asp Ser Leu Glu
    290                 295                 300

Thr Thr Pro Glu Ser Asn Cys Val Glu Lys Gln His Gln Glu Gln Lys
305                 310                 315                 320

Gly Lys Ile Thr Glu Pro Ser Gln Gln Ile Gln Met Glu Pro Ile Val
                325                 330                 335

His Ile His Gln Glu Leu Leu Thr Gly Ile Glu Ser Glu Ala Ser Leu
            340                 345                 350

Ser Lys Leu Ser Pro Thr Ser Gln Lys Gly Thr Ser Ser Ser Ser Ser
        355                 360                 365

Tyr Ile Phe Gln Lys Ile Ser Gln Gly Lys Gln Met Cys Gln Lys Leu
    370                 375                 380

Lys Glu Gln Thr Asp Gln Leu Lys Thr Lys Val Gln Glu Phe Ser Lys
385                 390                 395                 400

Arg Ile Lys Gln Asp Ser Pro Tyr His Leu Gln Asp Lys Lys Leu Val
                405                 410                 415

Leu Glu Lys Leu Gln Gly His Leu Glu Leu Leu Glu Gln Asn Phe Leu
            420                 425                 430

Ala Thr Lys Asp Lys His Leu Thr Leu Gln Gln Gln Val His Lys His
        435                 440                 445

Glu Ser Thr Ile Val Gly Asp Phe Asp Pro Glu Arg Lys Val Glu Gly
    450                 455                 460

Glu Ile Phe Lys Leu Glu Met Leu Leu Glu Asp Val Lys Glu Lys Met
465                 470                 475                 480

Asp Glu Ser Lys Tyr Thr Ser Ala Pro Ser Leu Pro Val Ser Ser Pro
```

485 490 495

Val Thr Leu Asp Asp Leu Ala Ser Thr Phe Ser Ser Leu Ser Asn Glu
500 505 510

Ile Pro Lys Glu His Pro Gly His Pro Ser Gly Pro Arg Gly Ser Gly
515 520 525

Gly Ser Glu Val Thr Gly Thr Pro Gln Gly Gly Pro Gln Glu Ala Pro
530 535 540

Asn Glu Glu Leu Cys Glu Leu Ala Pro Gln Thr Tyr Leu Asn Gly His
545 550 555 560

Tyr Gly Asp Ala Ala Ala Gln Asn Lys Pro Asp Gln Val Ala Met Arg
565 570 575

Leu Ser Ser Asn Ser Gly Glu Asp Pro Asn Gly Thr Pro Arg Arg Gln
580 585 590

Asp Cys Ala Glu Met Thr Ala Pro Ser Pro Ser Cys Ala Phe Cys Arg
595 600 605

Arg Leu Leu Glu Trp Lys Gln Asn Val Glu Lys Lys Gly His Gly Arg
610 615 620

Ile Asn Cys Gly Arg Phe Ser Ile Val Leu His Glu Lys Ala Pro His
625 630 635 640

Ser Asp Ser Thr Pro Asn Ser Asp Thr Gly His Ser Phe Cys Ser Asp
645 650 655

Ser Gly Thr Glu Met Gln Ser Asn Lys Cys Gln Asp Cys Gly Thr Lys
660 665 670

Ile Pro Thr Ser Arg Arg Ala Cys Arg Lys Glu Pro Thr Lys Glu Phe
675 680 685

His Tyr Arg Tyr Asn Thr Pro Gly Gln Asn Tyr Ser Asn His Ser Lys
690 695 700

Arg Gly Ala Phe Val Gln Pro His Ser Leu Asp Glu Ser Lys Asn Ser
705 710 715 720

```
Ser Pro Ser Phe Leu Lys Pro Lys Arg Ile Cys Ser Gln Arg Val Asn
                725                 730                 735

Ser Lys Ser Phe Lys Gly Glu His Glu Pro Thr Pro Gly Lys Lys Lys
            740                 745                 750

Leu Gln Ala Phe Met Thr Tyr Ser Ser Asp Pro Ala Thr Pro Ser Pro
        755                 760                 765

His Phe Tyr Ser Cys Arg Ile Ser Gly Ser Lys Ser Leu Cys Asp Phe
    770                 775                 780

Asp Ser Thr Glu Glu Ile Lys Ser Glu Ile Leu Asn Ser Ala Leu Asp
785                 790                 795                 800

His Ala Leu Arg Thr Ala Thr Ile Leu Lys Glu Thr Thr Asp Gln Met
                805                 810                 815

Ile Lys Thr Ile Ala Glu Asp Leu Ala Lys Ala Gln Arg Trp Arg Asn
            820                 825                 830

Arg Leu Lys Tyr
        835


<210> 3686
<211> 415
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 809; "

<220>
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<223> /note="Gene Symbol: AKNAD1; "

<220>
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<223> /note="Gene Name:
      AKNA
      domain containing 1; "

<220>
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<223> /note="Uniprot ID:  Q5T1N1; "
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<220>
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<400> 3686
Met Asp Glu Ala Asp Phe Ser Glu His Thr Thr Tyr Lys Gln Glu Asp
1 5 10 15

Leu Pro Tyr Asp Gly Asp Leu Ser Gln Ile Lys Ile Gly Asn Asp Tyr
20 25 30

Ser Phe Thr Ser Lys Lys Asp Gly Leu Glu Val Leu Asn Gln Ile Ile
35 40 45

Phe Ile Ala Asp Asp Pro Gln Glu Lys Ala Met His Ser Glu Thr Cys
50 55 60

Gly Asn Thr Ala Val Thr Ile Pro Leu Gly Lys Ile Thr Glu Asn Ala
65 70 75 80

Ala Asn Lys Lys Asp Glu Lys Glu Lys Gln Cys Thr Ala Ala Leu His
85 90 95

Ile Pro Ala Asn Glu Gly Asp Ala Ser Lys Ser Ser Ile Ser Asp Ile
100 105 110

Leu Leu His His Leu Ser Lys Glu Pro Phe Leu Arg Gly Gln Gly Ile
115 120 125

Asp Cys Glu Thr Leu Pro Glu Ile Ser Asn Ala Asp Ser Phe Glu Glu
130 135 140

Glu Ala Ile Ile Lys Ser Ile Ile Ser Cys Tyr Asn Lys Asn Ser Trp
145 150 155 160

Pro Lys Glu Gln Thr Pro Glu Leu Thr Asp Gln Leu Asn Pro Lys Arg
165 170 175

Asp Gly Glu Asn Ser Asn Lys Pro Gly Ser Ala Thr Thr Thr Glu Glu
180 185 190

Asn Thr Ser Asp Leu Glu Gly Pro Val Ala Ala Gly Asp Ser Ser His
195 200 205

```
Gln Glu Asn Val Asn Val Leu Thr Lys Thr Lys Gly Pro Gly Asp Lys
    210                 215                 220

Gln Lys Ser Tyr Gln Gly Gln Ser Pro Gln Lys Gln Gln Thr Glu Lys
225                 230                 235                 240

Ala Asn Ser Gly Asn Thr Phe Lys Tyr Gly Gln Gly Gln Val His Tyr
                245                 250                 255

Gln Leu Pro Asp Phe Ser Lys Ile Ala Pro Lys Val Lys Ile Pro Lys
            260                 265                 270

Asn Lys Ile Ile Asn Lys Pro Leu Ala Ile Ala Lys Gln Ala Ser Phe
        275                 280                 285

Ser Ser Lys Ser Arg Asp Lys Pro Thr Leu Val Gln Asp Ser Leu Glu
    290                 295                 300

Thr Thr Pro Glu Ser Asn Cys Val Glu Lys Gln His Gln Glu Gln Lys
305                 310                 315                 320

Gly Lys Ile Thr Glu Pro Ser Gln Gln Ile Gln Met Glu Pro Ile Val
                325                 330                 335

His Ile His Gln Glu Leu Leu Thr Gly Ile Glu Ser Glu Ala Ser Leu
            340                 345                 350

Ser Lys Leu Ser Pro Thr Ser Gln Lys Gly Thr Ser Ser Ser Ser Ser
        355                 360                 365

Tyr Ile Phe Gln Lys Ile Ser Gln Gly Lys Gln Met Cys Gln Lys Leu
    370                 375                 380

Lys Glu Gln Thr Asp Gln Leu Lys Thr Lys Val Gln Glu Phe Ser Lys
385                 390                 395                 400

Arg Ile Lys Gln Asp Ser Pro Tyr His Leu Gln Asp Lys Lys Leu
                405                 410                 415
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<210> 3687
<211> 569
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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AKNA
domain containing 1; "

<220>
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<400> 3687
Met Asp Glu Ala Asp Phe Ser Glu His Thr Thr Tyr Lys Gln Glu Asp
1 5 10 15

Leu Pro Tyr Asp Gly Asp Leu Ser Gln Ile Lys Ile Gly Asn Asp Tyr
20 25 30

Ser Phe Thr Ser Lys Lys Asp Gly Leu Glu Val Leu Asn Gln Ile Ile
35 40 45

Phe Ile Ala Asp Asp Pro Gln Glu Lys Ala Met His Ser Glu Thr Cys
50 55 60

Gly Asn Thr Ala Val Thr Ile Pro Leu Gly Lys Ile Thr Glu Asn Ala
65 70 75 80

Ala Asn Lys Lys Asp Glu Lys Glu Lys Gln Cys Thr Ala Ala Leu His
85 90 95

Ile Pro Ala Asn Glu Gly Asp Ala Ser Lys Ser Ser Ile Ser Asp Ile
100 105 110

Leu Leu His His Leu Ser Lys Glu Pro Phe Leu Arg Gly Gln Gly Ile
115 120 125

Asp Cys Glu Thr Leu Pro Glu Ile Ser Asn Ala Asp Ser Phe Glu Glu
130 135 140

Glu Ala Ile Ile Lys Ser Ile Ile Ser Cys Tyr Asn Lys Asn Ser Trp
145 150 155 160

```
Pro Lys Glu Gln Thr Pro Glu Leu Thr Asp Gln Leu Asn Pro Lys Arg
                165                 170                 175

Asp Gly Glu Asn Ser Asn Lys Pro Gly Ser Ala Thr Thr Thr Glu Glu
            180                 185                 190

Asn Thr Ser Asp Leu Glu Gly Pro Val Ala Ala Gly Asp Ser Ser His
        195                 200                 205

Gln Glu Asn Val Asn Val Leu Thr Lys Thr Lys Gly Pro Gly Asp Lys
    210                 215                 220

Gln Lys Ser Tyr Gln Gly Gln Ser Pro Gln Lys Gln Gln Thr Glu Lys
225                 230                 235                 240

Ala Asn Ser Gly Asn Thr Phe Lys Tyr Gly Gln Gly Gln Val His Tyr
                245                 250                 255

Gln Leu Pro Asp Phe Ser Lys Ile Ala Pro Lys Val Lys Ile Pro Lys
            260                 265                 270

Asn Lys Ile Ile Asn Lys Pro Leu Ala Ile Ala Lys Gln Ala Ser Phe
        275                 280                 285

Ser Ser Lys Ser Arg Asp Lys Pro Thr Leu Val Gln Asp Ser Leu Glu
    290                 295                 300

Thr Thr Pro Glu Ser Asn Cys Val Glu Lys Gln His Gln Glu Gln Lys
305                 310                 315                 320

Gly Lys Ile Thr Glu Pro Ser Gln Gln Ile Gln Met Glu Pro Ile Val
                325                 330                 335

His Ile His Gln Glu Leu Leu Thr Gly Ile Glu Ser Glu Ala Ser Leu
            340                 345                 350

Ser Lys Leu Ser Pro Thr Ser Gln Lys Gly Thr Ser Ser Ser Ser Ser
        355                 360                 365

Tyr Ile Phe Gln Lys Ile Ser Gln Gly Lys Gln Met Cys Gln Lys Leu
    370                 375                 380
```

```
Lys Glu Gln Thr Asp Gln Leu Lys Thr Lys Val Gln Glu Phe Ser Lys
385                 390                 395                 400

Arg Ile Lys Gln Asp Ser Pro Tyr His Leu Gln Asp Lys Lys Leu Val
                405                 410                 415

Leu Glu Lys Leu Gln Gly His Leu Glu Leu Leu Glu Gln Asn Phe Leu
            420                 425                 430

Ala Thr Lys Asp Lys His Leu Thr Leu Gln Gln Gln Val His Lys His
        435                 440                 445

Glu Ser Thr Ile Val Gly Asp Phe Asp Pro Glu Arg Lys Val Glu Gly
    450                 455                 460

Glu Ile Phe Lys Leu Glu Met Leu Leu Glu Asp Val Lys Glu Lys Met
465                 470                 475                 480

Asp Glu Ser Lys Tyr Thr Ser Ala Pro Ser Leu Pro Val Ser Ser Pro
                485                 490                 495

Val Thr Leu Asp Asp Leu Ala Ser Thr Phe Ser Ser Leu Ser Asn Glu
            500                 505                 510

Ile Pro Lys Glu His Pro Gly His Pro Ser Gly Pro Arg Gly Ser Gly
        515                 520                 525

Gly Ser Glu Val Thr Gly Thr Pro Gln Gly Gly Pro Gln Glu Ala Pro
    530                 535                 540

Asn Glu Glu Leu Cys Glu Leu Ala Pro Gln Thr Arg Ile Pro Thr Ala
545                 550                 555                 560

Leu Gln Glu Gly Arg Ile Val Gln Arg
                565


<210> 3688
<211> 652
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 809; "
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<220>
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AKNA
domain containing 1; "

<220>
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<223> /note="Uniprot ID: Q5T1N1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436835"

<400> 3688

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Met Asp Glu Ala Asp Phe Ser Glu His Thr Thr Tyr Lys Gln Glu Asp
1               5                  10                  15

Leu Pro Tyr Asp Gly Asp Leu Ser Gln Ile Lys Ile Gly Asn Asp Tyr
            20                  25                  30

Ser Phe Thr Ser Lys Lys Asp Gly Leu Glu Val Leu Asn Gln Ile Ile
        35                  40                  45

Phe Ile Ala Asp Asp Pro Gln Glu Lys Ala Met His Ser Glu Thr Cys
    50                  55                  60

Gly Asn Thr Ala Val Thr Ile Pro Leu Gly Lys Ile Thr Glu Asn Ala
65                  70                  75                  80

Ala Asn Lys Lys Asp Glu Lys Glu Lys Gln Cys Thr Ala Ala Leu His
                85                  90                  95

Ile Pro Ala Asn Glu Gly Asp Ala Ser Lys Ser Ser Ile Ser Asp Ile
            100                 105                 110

Leu Leu His His Leu Ser Lys Glu Pro Phe Leu Arg Gly Gln Gly Ile
        115                 120                 125

Asp Cys Glu Thr Leu Pro Glu Ile Ser Asn Ala Asp Ser Phe Glu Glu
    130                 135                 140

Glu Ala Ile Ile Lys Ser Ile Ile Ser Cys Tyr Asn Lys Asn Ser Trp
```

145 150 155 160

Pro Lys Glu Gln Thr Pro Glu Leu Thr Asp Gln Leu Asn Pro Lys Arg
165 170 175

Asp Gly Glu Asn Ser Asn Lys Pro Gly Ser Ala Thr Thr Thr Glu Glu
180 185 190

Asn Thr Ser Asp Leu Glu Gly Pro Val Ala Ala Gly Asp Ser Ser His
195 200 205

Gln Glu Asn Val Asn Val Leu Thr Lys Thr Lys Gly Pro Gly Asp Lys
210 215 220

Gln Lys Ser Tyr Gln Gly Gln Ser Pro Gln Lys Gln Gln Thr Glu Lys
225 230 235 240

Ala Asn Ser Gly Asn Thr Phe Lys Tyr Gly Gln Gly Gln Val His Tyr
245 250 255

Gln Leu Pro Asp Phe Ser Lys Ile Ala Pro Lys Val Lys Ile Pro Lys
260 265 270

Asn Lys Ile Ile Asn Lys Pro Leu Ala Ile Ala Lys Gln Ala Ser Phe
275 280 285

Ser Ser Lys Ser Arg Asp Lys Pro Thr Leu Val Gln Asp Ser Leu Glu
290 295 300

Thr Thr Pro Glu Ser Asn Cys Val Glu Lys Gln His Gln Glu Gln Lys
305 310 315 320

Gly Lys Ile Thr Glu Pro Ser Gln Gln Ile Gln Met Glu Pro Ile Val
325 330 335

His Ile His Gln Glu Leu Leu Thr Gly Ile Glu Ser Glu Ala Ser Leu
340 345 350

Ser Lys Leu Ser Pro Thr Ser Gln Lys Gly Thr Ser Ser Ser Ser Ser
355 360 365

Tyr Ile Phe Gln Lys Ile Ser Gln Gly Lys Gln Met Cys Gln Lys Leu
370 375 380

```
Lys Glu Gln Thr Asp Gln Leu Lys Thr Lys Val Gln Glu Phe Ser Lys
385                 390                 395                 400

Arg Ile Lys Gln Asp Ser Pro Tyr His Leu Gln Asp Lys Lys Leu Val
                405                 410                 415

Leu Glu Lys Leu Gln Gly His Leu Glu Leu Leu Glu Gln Asn Phe Leu
            420                 425                 430

Ala Thr Lys Asp Lys His Leu Thr Leu Gln Gln Gln Val His Lys His
        435                 440                 445

Glu Ser Thr Ile Val Gly Asp Phe Asp Pro Glu Arg Lys Val Glu Gly
    450                 455                 460

Glu Ile Phe Lys Leu Glu Met Leu Leu Glu Asp Val Lys Glu Lys Met
465                 470                 475                 480

Asp Glu Ser Lys Tyr Thr Ser Ala Pro Ser Leu Pro Val Ser Ser Pro
                485                 490                 495

Val Thr Leu Asp Asp Leu Ala Ser Thr Phe Ser Ser Leu Ser Asn Glu
            500                 505                 510

Glu Asp Pro Asn Gly Thr Pro Arg Arg Gln Asp Cys Ala Glu Met Thr
        515                 520                 525

Ala Pro Ser Pro Ser Cys Ala Phe Cys Arg Arg Leu Leu Glu Trp Lys
    530                 535                 540

Gln Asn Val Glu Lys Lys Gly His Gly Arg Ile Asn Cys Gly Arg Phe
545                 550                 555                 560

Ser Ile Val Leu His Glu Lys Ala Pro His Ser Asp Ser Thr Pro Asn
                565                 570                 575

Ser Asp Thr Gly His Ser Phe Cys Ser Asp Ser Gly Thr Glu Met Gln
            580                 585                 590

Ser Asn Lys Cys Gln Asp Cys Gly Thr Lys Ile Pro Thr Ser Arg Arg
        595                 600                 605
```

```
Ala Cys Arg Lys Glu Pro Thr Lys Glu Phe His Tyr Arg Tyr Asn Thr
    610                 615                 620

Pro Gly Gln Asn Tyr Ser Asn His Ser Lys Arg Gly Ala Phe Val Gln
625                 630                 635                 640

Pro His Ser Leu Asp Glu Ser Lys Asn Ser Ser Pro
                645                 650

<210> 3689
<211> 293
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 810; "

<220>
<221> source
<223> /note="Gene Symbol: AKTIP; "

<220>
<221> source
<223> /note="Gene Name:
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<221> source
<223> /note="Uniprot ID:  Q9H8T0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000300245"

<400> 3689
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1               5                   10                  15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
            20                  25                  30

Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu
        35                  40                  45

Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn
    50                  55                  60

Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu
```

65 70 75 80

Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val
85 90 95

Gln Pro Ser Tyr Arg Ser Ala Leu Met Trp Phe Gly Val Ile Phe Ile
100 105 110

Arg His Gly Leu Tyr Gln Asp Gly Val Phe Lys Phe Thr Val Tyr Ile
115 120 125

Pro Asp Asn Tyr Pro Asp Gly Asp Cys Pro Arg Leu Val Phe Asp Ile
130 135 140

Pro Val Phe His Pro Leu Val Asp Pro Thr Ser Gly Glu Leu Asp Val
145 150 155 160

Lys Arg Ala Phe Ala Lys Trp Arg Arg Asn His Asn His Ile Trp Gln
165 170 175

Val Leu Met Tyr Ala Arg Arg Val Phe Tyr Lys Ile Asp Thr Ala Ser
180 185 190

Pro Leu Asn Pro Glu Ala Ala Val Leu Tyr Glu Lys Asp Ile Gln Leu
195 200 205

Phe Lys Ser Lys Val Val Asp Ser Val Lys Val Cys Thr Ala Arg Leu
210 215 220

Phe Asp Gln Pro Lys Ile Glu Asp Pro Tyr Ala Ile Ser Phe Ser Pro
225 230 235 240

Trp Asn Pro Ser Val His Asp Glu Ala Arg Glu Lys Met Leu Thr Gln
245 250 255

Lys Lys Lys Pro Glu Glu Gln His Asn Lys Ser Val His Val Ala Gly
260 265 270

Leu Ser Trp Val Lys Pro Gly Ser Val Gln Pro Phe Ser Lys Glu Glu
275 280 285

Lys Thr Val Ala Thr
290

<210> 3690
<211> 292
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 810; "

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<223> /note="Gene Name:
AKT interacting prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H8T0; "

<220>
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<223> /note="ENSP ID: ENSP00000378152"

<400> 3690
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1   5   10   15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
            20   25   30

Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu
        35   40   45

Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn
    50   55   60

Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu
65   70   75   80

Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val
                85   90   95

Gln Pro Ser Tyr Arg Ser Ala Leu Met Trp Phe Gly Val Ile Phe Ile
            100   105   110

```
Arg His Gly Leu Tyr Gln Asp Gly Val Phe Lys Phe Thr Val Tyr Ile
        115                 120                 125

Pro Asp Asn Tyr Pro Asp Gly Asp Cys Pro Arg Leu Val Phe Asp Ile
    130                 135                 140

Pro Val Phe His Pro Leu Val Asp Pro Thr Ser Gly Glu Leu Asp Val
145                 150                 155                 160

Lys Arg Ala Phe Ala Lys Trp Arg Arg Asn His Asn His Ile Trp Gln
                165                 170                 175

Val Leu Met Tyr Ala Arg Arg Val Phe Tyr Lys Ile Asp Thr Ala Ser
            180                 185                 190

Pro Leu Asn Pro Glu Ala Ala Val Leu Tyr Glu Lys Asp Ile Gln Leu
        195                 200                 205

Phe Lys Ser Lys Val Val Asp Ser Val Lys Val Cys Thr Ala Arg Leu
    210                 215                 220

Phe Asp Gln Pro Lys Ile Glu Asp Pro Tyr Ala Ile Ser Phe Ser Pro
225                 230                 235                 240

Trp Asn Pro Ser Val His Asp Glu Ala Arg Glu Lys Met Leu Thr Gln
                245                 250                 255

Lys Lys Pro Glu Glu Gln His Asn Lys Ser Val His Val Ala Gly Leu
            260                 265                 270

Ser Trp Val Lys Pro Gly Ser Val Gln Pro Phe Ser Lys Glu Glu Lys
        275                 280                 285

Thr Val Ala Thr
    290


<210> 3691
<211> 249
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 810; "
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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: ENSP00000454269"

<400> 3691
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1 5 10 15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
20 25 30

Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu
35 40 45

Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn
50 55 60

Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu
65 70 75 80

Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val
85 90 95

Gln Pro Ser Tyr Arg Ser Ala Leu Met Trp Phe Gly Val Ile Phe Ile
100 105 110

Arg His Gly Leu Tyr Gln Asp Gly Val Phe Lys Phe Thr Val Tyr Ile
115 120 125

Pro Asp Asn Tyr Pro Asp Gly Asp Cys Pro Leu Ser Arg Gly Thr Ser
130 135 140

Val Leu Cys Ser Ser Phe Arg His Ala Ile Arg Ala Leu Phe Leu Cys
145 150 155 160

Ser Gly Ser Ala Arg Glu Ala Gly Cys Leu Pro Ser Cys Ser Thr His
165 170 175

```
Gln Arg Leu Val Phe Asp Ile Pro Val Phe His Pro Leu Val Asp Pro
            180                 185                 190

Thr Ser Gly Glu Leu Asp Val Lys Arg Ala Phe Ala Lys Trp Arg Arg
        195                 200                 205

Asn His Asn His Ile Trp Gln Val Leu Met Tyr Ala Arg Arg Val Phe
    210                 215                 220

Tyr Lys Ile Asp Thr Ala Ser Pro Leu Asn Pro Glu Ala Ala Val Leu
225                 230                 235                 240

Tyr Glu Lys Asp Ile Gln Leu Phe Lys
                245
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<210> 3692
<211> 127
<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: ENSP00000454771"

<400> 3692

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Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1               5                   10                  15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
            20                  25                  30

Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu
        35                  40                  45

Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn
```

```
    50                  55                  60

Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu
65                  70                  75                  80

Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val
                85                  90                  95

Gln Pro Ser Tyr Arg Ser Ala Leu Met Trp Phe Gly Val Ile Phe Ile
            100                 105                 110

Arg His Gly Leu Tyr Gln Asp Gly Val Phe Lys Phe Thr Val Tyr
        115                 120                 125


<210> 3693
<211> 292
<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="Uniprot ID:  Q9H8T0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455874"

<400> 3693
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1               5                   10                  15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
            20                  25                  30

Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu
        35                  40                  45
```

```
Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn
    50                  55                  60

Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu
65                  70                  75                  80

Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val
                85                  90                  95

Gln Pro Ser Tyr Arg Ser Ala Leu Met Trp Phe Gly Val Ile Phe Ile
            100                 105                 110

Arg His Gly Leu Tyr Gln Asp Gly Val Phe Lys Phe Thr Val Tyr Ile
        115                 120                 125

Pro Asp Asn Tyr Pro Asp Gly Asp Cys Pro Arg Leu Val Phe Asp Ile
    130                 135                 140

Pro Val Phe His Pro Leu Val Asp Pro Thr Ser Gly Glu Leu Asp Val
145                 150                 155                 160

Lys Arg Ala Phe Ala Lys Trp Arg Arg Asn His Asn His Ile Trp Gln
                165                 170                 175

Val Leu Met Tyr Ala Arg Arg Val Phe Tyr Lys Ile Asp Thr Ala Ser
            180                 185                 190

Pro Leu Asn Pro Glu Ala Ala Val Leu Tyr Glu Lys Asp Ile Gln Leu
        195                 200                 205

Phe Lys Ser Lys Val Val Asp Ser Val Lys Val Cys Thr Ala Arg Leu
    210                 215                 220

Phe Asp Gln Pro Lys Ile Glu Asp Pro Tyr Ala Ile Ser Phe Ser Pro
225                 230                 235                 240

Trp Asn Pro Ser Val His Asp Glu Ala Arg Glu Lys Met Leu Thr Gln
                245                 250                 255

Lys Lys Pro Glu Glu Gln His Asn Lys Ser Val His Val Ala Gly Leu
            260                 265                 270
```

```
Ser Trp Val Lys Pro Gly Ser Val Gln Pro Phe Ser Lys Glu Glu Lys
        275                 280                 285


Thr Val Ala Thr
    290


<210> 3694
<211> 14
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AKTIP; "

<220>
<221> source
<223> /note="Gene Name:
      AKT interacting prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456398"

<400> 3694
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys
1               5                   10


<210> 3695
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AKTIP; "

<220>
<221> source
<223> /note="Gene Name:
      AKT interacting prt; "

<220>
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<223> /note="ENSP ID: ENSP00000456418"
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<400> 3695
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1 5 10 15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
20 25 30

Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu
35 40 45

Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn
50 55 60

Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu
65 70 75 80

Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val
85 90 95

Gln Pro Ser Tyr Arg Ser Ala Leu Met Trp Phe Gly Val Ile Phe Ile
100 105 110

Arg His Gly Leu Tyr Gln Asp Gly Val Phe Lys Phe Thr Val Tyr Ile
115 120 125

Pro Asp Asn Tyr Pro Asp Gly Asp Cys Pro Arg Leu Val Phe Asp Ile
130 135 140

Pro Val Phe His Pro
145

<210> 3696
<211> 40
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AKTIP; "

<220>
<221> source
<223> /note="Gene Name:

AKT interacting prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456922"

<400> 3696
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1   5   10   15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
            20   25   30

Arg Thr Ala Pro Lys Lys Gln Leu
        35   40

<210> 3697
<211> 136
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 810; "

<220>
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<223> /note="Gene Symbol: AKTIP; "

<220>
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<223> /note="Gene Name:
AKT interacting prt; "

<220>
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<223> /note="ENSP ID: ENSP00000458118"

<400> 3697
Met Asn Pro Phe Trp Ser Met Ser Thr Ser Ser Val Arg Lys Arg Ser
1   5   10   15

Glu Gly Glu Glu Lys Thr Leu Thr Gly Asp Val Lys Thr Ser Pro Pro
            20   25   30

Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu
        35   40   45

Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn
    50   55   60

```
Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu
65                  70                  75                  80


Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val
                85                  90                  95


Gln Pro Ser Tyr Arg Ser Ala Leu Met Trp Phe Gly Val Ile Phe Ile
            100                 105                 110


Arg His Gly Leu Tyr Gln Asp Gly Val Phe Lys Phe Thr Val Tyr Ile
        115                 120                 125


Pro Asp Asn Tyr Pro Asp Gly Asp
    130                 135


<210> 3698
<211> 256
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 811; "

<220>
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<223> /note="Gene Symbol: AKT1S1; "

<220>
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<223> /note="Gene Name:
      AKT1 substrate 1 (proline-rich); "

<220>
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<223> /note="Uniprot ID:  Q96B36; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000341698"

<400> 3698
Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala Val Val Gly Ala
1               5                   10                  15


Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu Val Leu Leu Thr
            20                  25                  30


Ala Ala Pro Pro Pro Pro Pro Arg Pro Gly Pro Cys Ala Tyr Ala Ala
```

```
        35                  40                  45

His Gly Arg Gly Ala Leu Ala Glu Ala Ala Arg Arg Cys Leu His Asp
    50                  55                  60

Ile Ala Leu Ala His Arg Ala Ala Thr Ala Ala Arg Pro Pro Ala Pro
65                  70                  75                  80

Pro Pro Ala Pro Gln Pro Pro Ser Pro Thr Pro Ser Pro Pro Arg Pro
                85                  90                  95

Thr Leu Ala Arg Glu Asp Asn Glu Glu Asp Glu Asp Glu Pro Thr Glu
            100                 105                 110

Thr Glu Thr Ser Gly Glu Gln Leu Gly Ile Ser Asp Asn Gly Gly Leu
        115                 120                 125

Phe Val Met Asp Glu Asp Ala Thr Leu Gln Asp Leu Pro Pro Phe Cys
    130                 135                 140

Glu Ser Asp Pro Glu Ser Thr Asp Asp Gly Ser Leu Ser Glu Glu Thr
145                 150                 155                 160

Pro Ala Gly Pro Pro Thr Cys Ser Val Pro Pro Ala Ser Ala Leu Pro
                165                 170                 175

Thr Gln Gln Tyr Ala Lys Ser Leu Pro Val Ser Val Pro Val Trp Gly
            180                 185                 190

Phe Lys Glu Lys Arg Thr Glu Ala Arg Ser Ser Asp Glu Glu Asn Gly
        195                 200                 205

Pro Pro Ser Ser Pro Asp Leu Asp Arg Ile Ala Ala Ser Met Arg Ala
    210                 215                 220

Leu Val Leu Arg Glu Ala Glu Asp Thr Gln Val Phe Gly Asp Leu Pro
225                 230                 235                 240

Arg Pro Arg Leu Asn Thr Ser Asp Phe Gln Lys Leu Lys Arg Lys Tyr
                245                 250                 255
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<210> 3699
<211> 108

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 811; "

<220>
<221> source
<223> /note="Gene Symbol: AKT1S1; "

<220>
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<223> /note="Gene Name:
AKT1 substrate 1 (proline-rich); "

<220>
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<223> /note="ENSP ID: ENSP00000375706"

<400> 3699
Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala Val Val Gly Ala
1 5 10 15

Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu Val Leu Leu Thr
20 25 30

Ala Ala Pro Pro Pro Pro Pro Arg Pro Gly Pro Cys Ala Tyr Ala Ala
35 40 45

His Gly Arg Gly Ala Leu Ala Glu Ala Ala Arg Arg Cys Leu His Asp
50 55 60

Ile Ala Leu Ala His Arg Ala Ala Thr Ala Ala Arg Pro Pro Ala Pro
65 70 75 80

Pro Pro Ala Pro Gln Pro Pro Ser Pro Thr Pro Ser Pro Pro Arg Pro
85 90 95

Thr Leu Ala Arg Glu Asp Asn Glu Glu Asp Glu Asp
100 105

<210> 3700
<211> 256
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 811; "

<220>
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<223> /note="Gene Symbol: AKT1S1; "

<220>
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AKT1 substrate 1 (proline-rich); "

<220>
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<223> /note="Uniprot ID: Q96B36; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375707"

<400> 3700
Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala Val Val Gly Ala
1   5   10   15

Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu Val Leu Leu Thr
            20   25   30

Ala Ala Pro Pro Pro Pro Pro Arg Pro Gly Pro Cys Ala Tyr Ala Ala
        35   40   45

His Gly Arg Gly Ala Leu Ala Glu Ala Ala Arg Arg Cys Leu His Asp
    50   55   60

Ile Ala Leu Ala His Arg Ala Ala Thr Ala Ala Arg Pro Pro Ala Pro
65   70   75   80

Pro Pro Ala Pro Gln Pro Pro Ser Pro Thr Pro Ser Pro Pro Arg Pro
                85   90   95

Thr Leu Ala Arg Glu Asp Asn Glu Glu Asp Glu Asp Glu Pro Thr Glu
            100   105   110

Thr Glu Thr Ser Gly Glu Gln Leu Gly Ile Ser Asp Asn Gly Gly Leu
        115   120   125

Phe Val Met Asp Glu Asp Ala Thr Leu Gln Asp Leu Pro Pro Phe Cys
    130   135   140

Glu Ser Asp Pro Glu Ser Thr Asp Asp Gly Ser Leu Ser Glu Glu Thr
145   150   155   160

```
Pro Ala Gly Pro Pro Thr Cys Ser Val Pro Pro Ala Ser Ala Leu Pro
                165                 170                 175

Thr Gln Gln Tyr Ala Lys Ser Leu Pro Val Ser Val Pro Val Trp Gly
            180                 185                 190

Phe Lys Glu Lys Arg Thr Glu Ala Arg Ser Ser Asp Glu Glu Asn Gly
        195                 200                 205

Pro Pro Ser Ser Pro Asp Leu Asp Arg Ile Ala Ala Ser Met Arg Ala
    210                 215                 220

Leu Val Leu Arg Glu Ala Glu Asp Thr Gln Val Phe Gly Asp Leu Pro
225                 230                 235                 240

Arg Pro Arg Leu Asn Thr Ser Asp Phe Gln Lys Leu Lys Arg Lys Tyr
                245                 250                 255
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<210> 3701
<211> 256
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AKT1S1; "

<220>
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<223> /note="Gene Name:
AKT1 substrate 1 (proline-rich); "

<220>
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<223> /note="Uniprot ID: Q96B36; "

<220>
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<223> /note="ENSP ID: ENSP00000375708"

<400> 3701

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Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala Val Val Gly Ala
1               5                   10                  15
```

```
Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu Val Leu Leu Thr
            20                  25                  30

Ala Ala Pro Pro Pro Pro Pro Arg Pro Gly Pro Cys Ala Tyr Ala Ala
        35                  40                  45

His Gly Arg Gly Ala Leu Ala Glu Ala Ala Arg Arg Cys Leu His Asp
    50                  55                  60

Ile Ala Leu Ala His Arg Ala Ala Thr Ala Ala Arg Pro Pro Ala Pro
65                  70                  75                  80

Pro Pro Ala Pro Gln Pro Pro Ser Pro Thr Pro Ser Pro Pro Arg Pro
                85                  90                  95

Thr Leu Ala Arg Glu Asp Asn Glu Glu Asp Glu Asp Glu Pro Thr Glu
            100                 105                 110

Thr Glu Thr Ser Gly Glu Gln Leu Gly Ile Ser Asp Asn Gly Gly Leu
        115                 120                 125

Phe Val Met Asp Glu Asp Ala Thr Leu Gln Asp Leu Pro Pro Phe Cys
    130                 135                 140

Glu Ser Asp Pro Glu Ser Thr Asp Asp Gly Ser Leu Ser Glu Glu Thr
145                 150                 155                 160

Pro Ala Gly Pro Pro Thr Cys Ser Val Pro Pro Ala Ser Ala Leu Pro
                165                 170                 175

Thr Gln Gln Tyr Ala Lys Ser Leu Pro Val Ser Val Pro Val Trp Gly
            180                 185                 190

Phe Lys Glu Lys Arg Thr Glu Ala Arg Ser Ser Asp Glu Glu Asn Gly
        195                 200                 205

Pro Pro Ser Ser Pro Asp Leu Asp Arg Ile Ala Ala Ser Met Arg Ala
    210                 215                 220

Leu Val Leu Arg Glu Ala Glu Asp Thr Gln Val Phe Gly Asp Leu Pro
225                 230                 235                 240

Arg Pro Arg Leu Asn Thr Ser Asp Phe Gln Lys Leu Lys Arg Lys Tyr
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245 250 255

<210> 3702
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 811; "

<220>
<221> source
<223> /note="Gene Symbol: AKT1S1; "

<220>
<221> source
<223> /note="Gene Name:
AKT1 substrate 1 (proline-rich); "

<220>
<221> source
<223> /note="Uniprot ID: Q96B36; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375709"

<400> 3702
Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala Val Val Gly Ala
1 5 10 15

Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu Val Leu Leu Thr
20 25 30

Ala Ala Pro Pro Pro Pro Pro Arg Pro Gly Pro Cys Ala Tyr Ala Ala
35 40 45

His Gly Arg Gly Ala Leu Ala Glu Ala Ala Arg Arg Cys Leu His Asp
50 55 60

Ile Ala Leu Ala His Arg Ala Ala Thr Ala Ala Arg Pro Pro Ala Pro
65 70 75 80

Pro Pro Ala Pro Gln Pro Pro Ser Pro Thr Pro Ser Pro Pro Arg Pro
85 90 95

Thr Leu Ala Arg Glu Asp Asn Glu Glu Asp Glu Asp Glu Pro Thr Glu
100 105 110

```
Thr Glu Thr Ser Gly Glu Gln Leu Gly Ile Ser Asp Asn Gly Gly Leu
        115                 120                 125

Phe Val Met Asp Glu Asp Ala Thr Leu Gln Asp Leu Pro Pro Phe Cys
    130                 135                 140

Glu Ser Asp Pro Glu Ser Thr Asp Asp Gly Ser Leu Ser Glu Glu Thr
145                 150                 155                 160

Pro Ala Gly Pro Pro Thr Cys Ser Val Pro Pro Ala Ser Ala Leu Pro
                165                 170                 175

Thr Gln Gln Tyr Ala Lys Ser Leu Pro Val Ser Val Pro Val Trp Gly
            180                 185                 190

Phe Lys Glu Lys Arg Thr Glu Ala Arg Ser Ser Asp Glu Glu Asn Gly
        195                 200                 205

Pro Pro Ser Ser Pro Asp Leu Asp Arg Ile Ala Ala Ser Met Arg Ala
    210                 215                 220

Leu Val Leu Arg Glu Ala Glu Asp Thr Gln Val Phe Gly Asp Leu Pro
225                 230                 235                 240

Arg Pro Arg Leu Asn Thr Ser Asp Phe Gln Lys Leu Lys Arg Lys Tyr
                245                 250                 255


<210> 3703
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 811; "

<220>
<221> source
<223> /note="Gene Symbol: AKT1S1; "

<220>
<221> source
<223> /note="Gene Name:
      AKT1 substrate 1 (proline-rich); "

<220>
<221> source
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<223> /note="Uniprot ID: Q96B36; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375710"

<400> 3703
Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala Val Val Gly Ala
1   5   10   15

Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu Val Leu Leu Thr
            20   25   30

Ala Ala Pro Pro Pro Pro Pro Arg Pro Gly Pro Cys Ala Tyr Ala Ala
        35   40   45

His Gly Arg Gly Ala Leu Ala Glu Ala Ala Arg Arg Cys Leu His Asp
    50   55   60

Ile Ala Leu Ala His Arg Ala Ala Thr Ala Ala Arg Pro Pro Ala Pro
65   70   75   80

Pro Pro Ala Pro Gln Pro Pro Ser Pro Thr Pro Ser Pro Pro Arg Pro
                85   90   95

Thr Leu Ala Arg Glu Asp Asn Glu Glu Asp Glu Asp Glu Pro Thr Glu
            100   105   110

Thr Glu Thr Ser Gly Glu Gln Leu Gly Ile Ser Asp Asn Gly Gly Leu
        115   120   125

Phe Val Met Asp Glu Asp Ala Thr Leu Gln Asp Leu Pro Pro Phe Cys
    130   135   140

Glu Ser Asp Pro Glu Ser Thr Asp Asp Gly Ser Leu Ser Glu Glu Thr
145   150   155   160

Pro Ala Gly Pro Pro Thr Cys Ser Val Pro Pro Ala Ser Ala Leu Pro
                165   170   175

Thr Gln Gln Tyr Ala Lys Ser Leu Pro Val Ser Val Pro Val Trp Gly
            180   185   190

Phe Lys Glu Lys Arg Thr Glu Ala Arg Ser Ser Asp Glu Glu Asn Gly
        195   200   205

```
Pro Pro Ser Ser Pro Asp Leu Asp Arg Ile Ala Ala Ser Met Arg Ala
    210                 215                 220

Leu Val Leu Arg Glu Ala Glu Asp Thr Gln Val Phe Gly Asp Leu Pro
225                 230                 235                 240

Arg Pro Arg Leu Asn Thr Ser Asp Phe Gln Lys Leu Lys Arg Lys Tyr
                245                 250                 255


<210> 3704
<211> 276
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 811; "

<220>
<221> source
<223> /note="Gene Symbol: AKT1S1; "

<220>
<221> source
<223> /note="Gene Name:
      AKT1 substrate 1 (proline-rich); "

<220>
<221> source
<223> /note="Uniprot ID:  Q96B36; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375711"

<400> 3704
Met Ser Phe Glu Gly Gly Asp Gly Ala Gly Pro Ala Met Leu Ala Thr
1               5                   10                  15

Gly Thr Ala Arg Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala
            20                  25                  30

Val Val Gly Ala Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu
        35                  40                  45

Val Leu Leu Thr Ala Ala Pro Pro Pro Pro Pro Arg Pro Gly Pro Cys
    50                  55                  60
```

Ala Tyr Ala Ala His Gly Arg Gly Ala Leu Ala Glu Ala Ala Arg Arg
65 70 75 80

Cys Leu His Asp Ile Ala Leu Ala His Arg Ala Ala Thr Ala Ala Arg
85 90 95

Pro Pro Ala Pro Pro Pro Ala Pro Gln Pro Pro Ser Pro Thr Pro Ser
100 105 110

Pro Pro Arg Pro Thr Leu Ala Arg Glu Asp Asn Glu Glu Asp Glu Asp
115 120 125

Glu Pro Thr Glu Thr Glu Thr Ser Gly Glu Gln Leu Gly Ile Ser Asp
130 135 140

Asn Gly Gly Leu Phe Val Met Asp Glu Asp Ala Thr Leu Gln Asp Leu
145 150 155 160

Pro Pro Phe Cys Glu Ser Asp Pro Glu Ser Thr Asp Asp Gly Ser Leu
165 170 175

Ser Glu Glu Thr Pro Ala Gly Pro Pro Thr Cys Ser Val Pro Pro Ala
180 185 190

Ser Ala Leu Pro Thr Gln Gln Tyr Ala Lys Ser Leu Pro Val Ser Val
195 200 205

Pro Val Trp Gly Phe Lys Glu Lys Arg Thr Glu Ala Arg Ser Ser Asp
210 215 220

Glu Glu Asn Gly Pro Pro Ser Ser Pro Asp Leu Asp Arg Ile Ala Ala
225 230 235 240

Ser Met Arg Ala Leu Val Leu Arg Glu Ala Glu Asp Thr Gln Val Phe
245 250 255

Gly Asp Leu Pro Arg Pro Arg Leu Asn Thr Ser Asp Phe Gln Lys Leu
260 265 270

Lys Arg Lys Tyr
275

<210> 3705

<211> 33
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 811; "

<220>
<221> source
<223> /note="Gene Symbol: AKT1S1; "

<220>
<221> source
<223> /note="Gene Name:
AKT1 substrate 1 (proline-rich); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472839"

<400> 3705
Met Ala Ser Gly Arg Pro Glu Glu Leu Trp Glu Ala Val Val Gly Ala
1 5 10 15

Ala Glu Arg Phe Arg Ala Arg Thr Gly Thr Glu Leu Val Leu Leu Thr
20 25 30

Ala

<210> 3706
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 812; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL008723.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485273"

<400> 3706

```
Leu Asp Pro Pro Phe Ala Val Asn Arg Phe Ser Ala Asp Ser Gln Val
1               5                   10                  15

Pro Phe Cys Ala Cys Ser His Val His Leu Pro Ala Val Ala Ala Thr
            20                  25                  30

Gly Lys Ala Arg Gly Ala Gln Asp Ala Asn Gly His Val Lys Ser Leu
        35                  40                  45

Gly Lys Val Leu Pro Ile Leu Ser Asp Ala Pro Thr Ser Asp Ala Pro
    50                  55                  60

Glu Val Val Arg Asn Glu Glu Glu Val Val Gly Cys Val Gly Ile Gln
65                  70                  75                  80

Gly His Ile His Cys Glu Lys Glu Lys Lys Leu Leu Ser Lys Trp Thr
                85                  90                  95

Glu Thr Asn Pro Met Pro Leu Phe Tyr Phe Lys Gly Pro Asn Ile Ser
            100                 105                 110
```

<210> 3707
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 813; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL021546.6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450281"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3707

```
Xaa Ser Ser Gly Ala His Gly Glu Glu Gly Ser Ala Arg Met Trp Lys
1               5                  10                  15

Thr Leu Thr Phe Phe Val Ala Leu Pro Gly Val Ala Val Ser Met Leu
            20                  25                  30

Asn Val Tyr Leu Lys Ser His His Gly Glu His Glu Arg Pro Glu Phe
        35                  40                  45

Ile Ala Tyr Pro His Leu Arg Ile Arg Thr Lys Gly Ser Gly Arg Ile
    50                  55                  60

Thr Ala Ala Val Ile Glu His Leu Glu Arg Leu Ala Leu Val Asp Phe
65                  70                  75                  80

Gly Ser Arg Glu Ala Val Ala Arg Leu Glu Lys Ala Ile Ala Phe Ala
                85                  90                  95

Asp Arg Leu Arg Ala Val Asp Thr Asp Gly Val Glu Pro Met Glu Ser
            100                 105                 110

Val Leu Glu Asp Arg Cys Leu Tyr Leu Arg Ser Asp Asn Val Val Glu
        115                 120                 125

Gly Asn Cys Ala Asp Glu Leu Leu Gln Asn Ser His Arg Val Val Glu
    130                 135                 140

Glu Tyr Phe Val Ala Pro Pro Gly Asn Ile Ser Leu Pro Lys Leu Asp
145                 150                 155                 160

Glu Gln Glu Pro Phe Pro His Ser
                165


<210> 3708
<211> 243
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 814; "

<220>
<221> source
<223> /note="Gene Symbol:; "
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<220>
<221> source
<223> /note="Gene Name:
AL022578.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485673"

<400> 3708

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Met Glu Lys Leu Arg Lys Trp Val Leu Trp Asp Val Arg Tyr Pro Ser
1               5                  10                  15

Ala Ala Trp Ser Gly Gly Glu His Gly Arg Ala His Val Ala Leu Pro
            20                  25                  30

His Gly Ile His His Val Gly Gly Val Ser Ile Arg Ile Glu Asp Glu
        35                  40                  45

Asp Thr Ser Glu Leu Thr Glu Gln Ala Val Ser Leu Glu Leu Ser Ala
    50                  55                  60

Leu Asn Ser Gly Gly Ala Val Pro Leu Val Ala Gly Ser Thr Gly Gly
65                  70                  75                  80

Asp Val Ser Leu Gly Gly Leu Thr Gly Gly Gly Gly Leu Trp Thr Cys
                85                  90                  95

Ser Leu Trp Ile Cys Val Ile Pro Leu Arg Glu Thr Glu Gly Pro Leu
            100                 105                 110

Gly Lys Asn Gln Gly Arg Pro Arg Leu Ser Pro Gly Arg Tyr His Arg
        115                 120                 125

Met Arg Ser Gly Glu Met Ser Gly Trp Leu Gln Ala Ser Pro Arg Thr
    130                 135                 140

Tyr His Lys Gly Arg Arg Arg Arg Arg Asn His Gly Tyr Ala Ser Pro
145                 150                 155                 160

Pro Arg Ile Cys His Glu Val Gly Lys Arg Glu Asn Ser Glu Cys Trp
                165                 170                 175

Val Pro Leu Leu Leu Cys Leu Trp Gly Leu Asp Ala Arg Phe Glu Cys
            180                 185                 190
```

Cys Ser Asn Leu Pro Tyr Leu Pro Leu His Leu Pro Gln Leu Lys Arg
195 200 205

Asp Tyr Val Val Pro Ile Leu Ile Ile Phe Asn Val Ser Leu Val Gln
210 215 220

Cys Asn Met Ser Ile Lys Ile Phe Arg Lys Leu Tyr Tyr Phe Tyr Phe
225 230 235 240

Leu Met Lys

<210> 3709
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 815; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL023806.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485232"

<400> 3709
Met Ala Leu Thr Lys Met Leu Ile Met Ile Trp Thr Met Lys Ser Arg
1 5 10 15

Leu Ser Trp Ser Gln Met Glu Met Arg Asn Leu Leu Gly Ile Gly Ala
20 25 30

Lys Val Thr Arg Tyr Val Leu Ala Lys Arg Leu Val Ala Phe Cys Pro
35 40 45

Cys Pro Lys Asp Leu Trp Asn Phe Glu Leu Glu Arg Asp Asp Leu Gly
50 55 60

Tyr Leu Val Glu Glu Val Ser Lys Gln Gln Ser Ile Gln Glu Val Thr

65 70 75 80

Trp Val Leu Leu Lys Ala Phe Ser Phe Ile Arg Glu Ala Glu His Lys
85 90 95

Arg Leu Glu Asn Leu Gln Pro Asp Asn Val Ile Glu Lys Lys Ile Leu
100 105 110

Phe Ser Glu Glu Lys Phe Lys Leu Ala Ala Lys Ile Trp Ile Ser Asn
115 120 125

Glu Glu Leu Asn Ile Asn Pro Gln Asp Asn Gly Glu Asn Val Cys Arg
130 135 140

Ala Cys Gln Arg Ser Ser Gln Gln Leu Leu Leu Ser Gln Thr Trp Arg
145 150 155 160

Pro Arg Arg Lys Lys Trp Phe His Gly Leu Gly Pro Arg Pro Pro Cys
165 170 175

Ser Val Gln Pro Lys Asp Leu Val Pro Cys Val Pro Ala Thr Pro Ala
180 185 190

Met Ala Lys Arg Gly Gln Gly Thr Val
195 200

<210> 3710
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 816; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL023875.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485038"

<400> 3710
Met Thr Leu Asn Glu His Ala Ala Phe Lys His Leu Phe Asn Lys Ala
1   5   10   15

His Leu Ala Pro Pro Leu Ile His Leu Thr Leu Ser Gly His Ser Thr
            20   25   30

Cys Phe Arg Glu His Arg Val Gly Gly Lys Val Thr Asp Gln Gln Asp
        35   40   45

Pro Lys Ala Glu Glu Phe Phe Leu Val Pro Asn Lys Met Lys Ser Leu
    50   55   60

Pro Cys Leu Pro Leu Ser Thr Gln Thr Arg Gln Pro Ser Asp Phe Ser
65   70   75   80

Ile Phe Ser Pro Pro Phe Pro Pro Phe Tyr Ser Thr Lys Pro Pro Leu
                85   90   95

Ser Ser Trp Pro Val Leu Asn Glu Leu Leu Gly Thr Pro Pro Arg Trp
            100   105   110

Gly Gly Gly Leu Ala Glu Gly Leu Leu Thr Ser Gln
        115   120

<210> 3711
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 817; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AL049794.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485558"

<400> 3711
Met Ile Ser Glu Gly Phe Leu Thr Ser Ser Pro Ser Gly Leu Arg Thr

1 5 10 15

Arg Leu Phe Leu Ser Phe Leu Ser Ala Asn Cys Gly Ser Val Phe Asp
20 25 30

Phe Lys Asp Ser Gly Met Asn Ser Ser Met Ile Arg Thr Cys Tyr Tyr
35 40 45

Cys Pro Cys Phe Thr Ala Pro Gly Ile Gly Ser Leu Ile Leu Gln Lys
50 55 60

Leu His Thr Phe Arg Ala Leu Gly Gly Thr Gly Thr Ser Lys Glu Ser
65 70 75 80

Glu Gly Met Lys Ala Gly Glu Met Arg Pro Thr Leu Glu Arg Gln Glu
85 90 95

Glu Arg Arg Glu Lys Ala Pro Arg Pro Gly Thr Val Ala His Ala Cys
100 105 110

Asn Pro Ser Thr Leu Gly Gly
115

<210> 3712
<211> 21
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 818; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL049872.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485197"

<400> 3712
Ser Ser Ile Phe His Phe Pro Gly Gly Pro Pro Ala Ala Ala Ala Ala
1 5 10 15

Ala Ala Val Ala Ala
20

<210> 3713
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 819; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL109927.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485497"

<400> 3713
Met Ile Leu Glu Ser Gly Arg Lys Lys Gly Gly Ser Gly Arg Pro Arg
1 5 10 15

Lys Glu Pro Gly Gln Ser Ile Glu Lys Asp Ile Arg Ser Leu Ser Leu
20 25 30

Gln Cys Lys Cys Cys Glu Asp Arg Ser Leu Trp Ala Ile Ser Thr Pro
35 40 45

Pro Pro Ile Val Ile Leu His Gly
50 55

<210> 3714
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 820; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL133335.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485134"

<400> 3714
Met Thr Leu Asn Glu His Ala Ala Phe Lys His Leu Phe Asn Lys Ala
1 5 10 15

His Leu Ala Pro Pro Leu Ile His Leu Thr Leu Ser Gly His Ser Thr
20 25 30

Cys Phe Arg Glu His Arg Val Gly Asp Lys Val Thr Asp Gln Gln Asp
35 40 45

Pro Lys Ala Glu Glu Phe Phe Leu Val Gln Asn Lys Met Lys Ser Leu
50 55 60

Pro Cys Leu Leu Leu Ser Thr Gln Thr Arg Gln Pro Ser Asp Phe Ser
65 70 75 80

Ile Phe Ser Pro Pro Phe Pro Pro Phe Tyr Ser Thr Lys Pro Pro Leu
85 90 95

Ser Ser Trp Pro Ile Pro Asn Glu Pro Leu Gly Thr Pro Pro Arg Arg
100 105 110

Gly Arg Gly Arg Ala Glu Gly Leu Leu Thr Ser Gln
115 120

<210> 3715
<211> 33
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
AL133475.1; "

<220>
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<223> /note="ENSP ID: ENSP00000486845"

<400> 3715
Glu Cys Lys Leu His Asn Thr Gly Ile Phe Val Tyr Phe Val His Tyr
1 5 10 15

Ser Ile Asn Ser Ala Trp Tyr Ile Leu Leu Arg Ser Leu Leu His Lys
20 25 30

Leu

<210> 3716
<211> 124
<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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<400> 3716
Met Thr Leu Asn Glu His Ala Ala Phe Lys His Leu Phe Asn Lys Ala
1 5 10 15

His Leu Ala Pro Pro Leu Ile His Leu Thr Leu Ser Gly His Ser Thr
20 25 30

Cys Phe Arg Glu His Arg Val Gly Asp Lys Val Thr Asp Gln Gln Asp
35 40 45

Pro Lys Ala Glu Glu Phe Phe Leu Val Gln Asn Lys Met Lys Ser Leu
50 55 60

Pro Cys Leu Leu Leu Ser Thr Gln Thr Arg Gln Pro Ser Asp Phe Ser
65 70 75 80

Ile Phe Ser Pro Pro Phe Pro Pro Phe Tyr Ser Thr Lys Pro Pro Leu
85 90 95

Ser Ser Trp Pro Ile Pro Asn Glu Pro Leu Gly Thr Pro Pro Arg Arg
100 105 110

Gly Arg Gly Arg Ala Glu Gly Leu Leu Thr Ser Gln
115 120

<210> 3717
<211> 31
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 823; "

<220>
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<223> /note="Gene Symbol:; "

<220>
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<223> /note="Gene Name:
AL135842.1; "

<220>
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<223> /note="ENSP ID: ENSP00000485213"

<400> 3717
Arg Gln Ser Leu Gln Arg Arg Val Gln Ser Pro Gln Ser Cys Gly Ser
1 5 10 15

Ser Trp Ser Pro Gln Thr Ala Gly His Cys His Cys His Ser Ser
20 25 30

<210> 3718
<211> 124
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
AL136097.1; "

<220>
<221> source
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<400> 3718
Met Thr Leu Asn Glu His Ala Ala Phe Lys His Leu Phe Asn Lys Ala
1 5 10 15

His Leu Ala Pro Pro Leu Ile His Ser Thr Leu Ser Gly His Ser Thr
20 25 30

Cys Phe Arg Glu His Arg Val Gly Gly Lys Val Thr Asp Gln Gln Asp
35 40 45

Pro Lys Ala Glu Glu Phe Phe Leu Val Gln Asn Lys Met Lys Ser Leu
50 55 60

Pro Cys Leu Pro Leu Ser Thr Gln Thr Arg Gln Pro Ser Asp Phe Ser
65 70 75 80

Ile Phe Ser Pro Pro Phe Pro Pro Phe Tyr Ser Thr Lys Pro Pro Leu
85 90 95

Ser Ser Trp Pro Val Leu Asn Glu Leu Leu Gly Thr Pro Pro Arg Arg
100 105 110

Gly Gly Gly Arg Ala Glu Val Leu Leu Thr Ser Gln
115 120

<210> 3719
<211> 23
<212> PRT
<213> Homo sapiens

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<221> source
<223> /note="Gene Symbol:; "

<220>
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<223> /note="Gene Name:
AL137164.1; "

<220>
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<400> 3719
Glu Tyr Gln Lys Tyr Ile Ile Met Ser Asp Ile Pro Val Cys Ser Lys
1 5 10 15

Gln Lys Thr Gln Ile His Phe
20

<210> 3720
<211> 124
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 826; "

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<223> /note="Gene Symbol:; "

<220>
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<223> /note="Gene Name:
AL137860.1; "

<220>
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<223> /note="ENSP ID: ENSP00000485435"

<400> 3720
Met Thr Leu Asn Glu His Ala Ala Phe Lys His Leu Phe Asn Lys Ala
1 5 10 15

His Leu Ala Pro Pro Leu Ile His Leu Thr Leu Ser Gly His Ser Thr
20 25 30

Cys Phe Arg Glu His Arg Val Gly Asp Lys Val Thr Asp Gln Gln Asp
35 40 45

Pro Lys Ala Glu Glu Phe Phe Leu Val Gln Asn Lys Met Lys Ser Leu

```
    50                  55                  60

Pro Cys Leu Leu Leu Ser Thr Gln Thr Arg Gln Pro Ser Asp Phe Ser
65                  70                  75                  80

Ile Phe Ser Pro Pro Phe Pro Pro Phe Tyr Ser Thr Lys Pro Pro Leu
                85                  90                  95

Ser Ser Trp Pro Ile Pro Asn Glu Pro Leu Gly Thr Pro Pro Arg Arg
            100                 105                 110

Gly Cys Gly Arg Ala Glu Gly Leu Leu Thr Ser Gln
        115                 120


<210> 3721
<211> 19
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 827; "

<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="ENSP ID: ENSP00000485148"

<400> 3721
Leu Val Gln Leu Val Val Thr Cys Lys Tyr Leu Leu His Phe Ser Ser
1               5                   10                  15

Ser Glu Thr



<210> 3722
<211> 11
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Payload ID: 828; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL138751.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486495"

<400> 3722
Ile Ser Thr Lys Lys Gly Lys Val Thr Arg Ser
1 5 10

<210> 3723
<211> 18
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 829; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
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<223> /note="Gene Name:
AL139333.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487357"

<400> 3723
Ser Thr Val Leu Ala Leu Lys Asp Arg Leu Ser Leu Phe Cys Pro Gly
1 5 10 15

Trp Ser

<210> 3724
<211> 19
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 830; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL158839.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485251"

<400> 3724
Leu Glu Glu Ile Tyr Ser Gln Pro Asn Phe Thr Glu Asp Leu Leu Arg
1 5 10 15

Ala Val Leu

<210> 3725
<211> 18
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 831; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL162426.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485384"

<400> 3725
Ser Arg Ser Arg Arg Ser Cys Arg Pro Trp Gly Arg Leu Leu Gly Arg
1 5 10 15

Leu Gly

<210> 3726

<211> 243
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 832; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL354822.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480106"

<400> 3726

Met	Arg	Ser	Ala	Ala	Phe	Thr	Ile	Pro	Ser	Leu	Lys	Gln	Arg	Ser	Pro
1				5				10						15	
Arg	Cys	Ser	Thr	Gly	Arg	Ala	Glu	Leu	Gly	Lys	Gly	Glu	Pro	Ser	Pro
			20					25					30		
Cys	Thr	Gly	Arg	Pro	Glu	Gln	Arg	Gly	Arg	Arg	Lys	Ser	Ser	Leu	Ala
		35					40					45			
Pro	Pro	Ala	Pro	Thr	Pro	Asp	Ala	Gly	Pro	Gln	Thr	Ser	Lys	Asp	Leu
	50					55					60				
Glu	Pro	Pro	Pro	His	Gly	Cys	Gln	Glu	Ala	Asp	Arg	Gly	Gly	Ser	Trp
65					70					75					80
Gly	Ala	Thr	Thr	Ser	Arg	Pro	Phe	Arg	Gln	Asn	Leu	Ser	Asp	Leu	Gly
				85					90					95	
Arg	His	Ser	Val	Leu	Pro	Leu	Lys	Arg	Asn	Leu	Cys	Pro	Gly	Gly	Ser
			100					105					110		
Ser	Leu	Gly	Ala	Pro	Pro	Leu	Arg	Thr	Pro	Gln	Arg	Arg	Val	Thr	Leu
		115					120					125			
Ala	Ala	Gln	Arg	Trp	Leu	Ser	Arg	Pro	Gln	Arg	Arg	Ala	Val	Gly	Leu
	130					135					140				

```
Gly Glu Leu Asp Gln Gly Ala Gln Leu Ala Ala Leu Gly Leu Arg Trp
145                 150                 155                 160


Gly Val Asp Ser Leu Gly Gly Cys Pro Arg Ala Ser Gln Pro Ala Gly
                165                 170                 175


His Ser Gly Leu His His Thr Leu Thr Cys Leu Arg Arg His Leu Ala
            180                 185                 190


Leu Gln Ala Gly Ala Ser Gly His Ala Gly Gln Leu Pro Gln Arg Ala
        195                 200                 205


Ser Ala Ala Trp Glu Gln Gln Gly Gln Ser Tyr Thr Ala Leu His Leu
    210                 215                 220


Ala Ala Met Tyr Leu Gly Asp Gly Glu Ala Ala Ser Gly Asn Ile Gly
225                 230                 235                 240


Arg Arg Cys



<210> 3727
<211> 404
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 833; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AL354828.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485488"

<400> 3727
Ile Phe Leu Arg Val Ser Ser Ser Asp Lys Gln Leu Asp Phe Leu Leu
1               5                   10                  15


Gln Ala Lys Ile Asn Lys Ser Gln Arg Phe Pro Arg Arg Gln Asn Val
```

```
            20                  25                  30

Pro Ile Leu Trp His Arg Cys Ser Leu Pro Thr His Ile Arg Thr Gln
        35                  40                  45

Arg Trp Asn Val Leu Ile Ser Asn Leu Leu Cys Ile Ser Tyr Gln Thr
    50                  55                  60

Met Gly Phe Phe Ser Leu Ser Phe Leu Phe Leu Cys Phe Leu Arg Asp
65                  70                  75                  80

Leu Leu Lys Thr Glu Val Leu Leu Lys Ser Asn Glu Asn His Asn Gly
                85                  90                  95

Asn Leu Lys Val Pro Asp Val Arg Val Met Leu Glu Cys Ser Gly Ala
            100                 105                 110

Ile Ser Ala His Cys Lys Leu Arg Leu Pro Gly Ser Arg His Ser Pro
        115                 120                 125

Ala Ser Ala Ser Arg Val Ala Gly Thr Thr Gly Ala His His His Ala
    130                 135                 140

Arg Leu Ile Phe Cys Ile Phe Ser Arg Gly Arg Val Ser Pro Cys Tyr
145                 150                 155                 160

His Lys Val Arg Arg Ser Arg Ala Phe Trp Leu Thr Arg Glu Asn His
                165                 170                 175

Pro Lys Lys Tyr Lys Thr Lys Leu Ala Gly Arg Gly Gly Gly Arg Leu
            180                 185                 190

Pro Ala Thr Arg Glu Ala Glu Ala Gly Glu Trp Arg Glu Pro Arg Arg
        195                 200                 205

Gln Ser Leu Gln Arg Arg Ser Gly His Cys Thr Pro Ala Trp Ala Thr
    210                 215                 220

Gly Arg Asp Ser Ile Ser Lys Lys Val Gly Gln His Cys Arg Lys Gln
225                 230                 235                 240

Arg Ala Thr Asp Cys Leu Lys Val Asp Val Gly Gln Ala Gln Trp Leu
                245                 250                 255
```

```
Met Pro Val Ile Pro Ala Leu Leu Gly Gly Gln Gly Ser Gln Ile Thr
            260                 265                 270

Arg Asp Gln Ser Gly Lys His Ser Glu Thr Pro Ser Leu Leu Lys Ile
        275                 280                 285

Gln Lys Ile Ser Arg Val Trp Gln Cys Ala Pro Val Ile Pro Ala Thr
    290                 295                 300

Arg Glu Ala Glu Ala Gly Glu Ser Arg Glu Pro Arg Arg Arg Arg Leu
305                 310                 315                 320

Gln Pro Arg Ser Gln His Cys Thr Pro Ala Gln Val Thr Thr Met His
                325                 330                 335

Gly Ser Arg Ile Tyr Met Ala Lys Glu Gly Glu Val Gly Met Gly Trp
            340                 345                 350

Gly Glu Asp Lys Ile Leu Leu Pro Val Thr His Ile Thr Pro Pro Pro
        355                 360                 365

Pro Leu Leu Ser Ser Thr Ser Ser Leu Pro Thr Pro Thr Asn Thr Ile
    370                 375                 380

Thr Ala Ile Ile Thr Thr Ile Thr Ile Asn Thr Lys Thr Glu Thr Thr
385                 390                 395                 400

Thr Thr Thr Thr
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<210> 3728
<211> 227
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 834; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source

<223> /note="Gene Name:
AL354828.2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485090"

<400> 3728

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Arg Leu Glu Cys Ser Gly Leu Ile Ser Ala His Cys Lys Leu Cys Leu
1               5                  10                  15

Leu Gly Ser Arg His Ser Pro Ala Ser Ala Ser Arg Val Ala Gly Thr
            20                  25                  30

Ile Gly Ala His His His Ala Gln Leu Ile Phe Cys Ile Phe Ser Arg
        35                  40                  45

Asp Gly Val Ser Pro Cys Tyr His Glu Val Ser Arg Ser Arg Pro Ser
    50                  55                  60

Trp Leu Thr Arg Cys Thr Tyr Ile Arg Lys Tyr Lys Lys Leu Ala Gly
65                  70                  75                  80

Arg Gly Gly Gly Arg Leu Pro Ala Thr Arg Glu Ala Glu Ala Gly Glu
                85                  90                  95

Trp Arg Glu Pro Gly Arg Arg Ser Leu Gln Pro Arg Ser Arg His Cys
            100                 105                 110

Thr Pro Ala Trp Ala Thr Glu Arg Asp Ser Val Ser Ile Lys Lys Lys
        115                 120                 125

Asp His Gly Arg Leu Gln Asn Lys Glu Asp Thr Leu Lys Leu Cys Ser
    130                 135                 140

Gly Lys Val Arg Trp Ser Met Pro Val Ile Ser Leu Asn Thr Gly Gly
145                 150                 155                 160

Lys Ala Thr Ala Leu Arg Met Ser Gly Ala Gly Ser Ala Leu His Gly
                165                 170                 175

Glu Thr Pro Ser Leu Leu Lys Ile Gln Lys Ile Ser Trp Ala Trp Trp
            180                 185                 190

Gln Ala Pro Val Val Pro Ala Ala Gly Glu Ala Glu Ala Gly Glu Trp
```

195 200 205

Arg Glu Pro Arg Arg Arg Ser Leu His Glu Arg Arg Leu Arg His Cys
210 215 220

Thr Pro Ala
225

<210> 3729
<211> 170
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 835; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
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<223> /note="Gene Name:
AL356131.3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489278"

<400> 3729
Met Gly Lys Asp Ile Met Asn Lys Thr Pro Lys Ala Met Ala Thr Lys
1 5 10 15

Ala Arg Ile Asp Lys Trp Asp Leu Ile Lys Leu Lys Ser Phe Cys Thr
20 25 30

Ala Lys Glu Thr Ile Ile Arg Thr Asn Arg Gln Pro Thr Glu Trp Glu
35 40 45

Lys Phe Leu Ala Ile Tyr Pro Ser Asp Lys Gly Leu Ile Ser Arg Ile
50 55 60

Tyr Met Asp Lys Asn Arg Asn Tyr Lys Lys Leu Lys Ser Arg Val Thr
65 70 75 80

Lys Gln Arg Val Gln Pro Met Lys Val Asp Leu Lys Trp Asp Lys Lys
85 90 95

```
Gly Arg Glu Arg Leu Leu Arg Pro Val Ile Pro Ala Leu Trp Glu Ala
            100                 105                 110

Glu Ala Gly Arg Ser Pro Glu Ala Arg Ser Trp Arg Pro Pro Trp Pro
        115                 120                 125

Thr Trp Gln Asn Pro Val Ser Thr Lys Asn Thr Lys Ile Ser Trp Val
    130                 135                 140

Trp Trp Gln Leu Pro Val Ile Ala Ala Thr Arg Glu Ala Lys Ala Gly
145                 150                 155                 160

Glu Trp Ile Glu Pro Gly Arg Gln Arg Leu
                165                 170


<210> 3730
<211> 11
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 836; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000485371"

<400> 3730
Met Ala Arg Arg Lys Leu Ser Cys Phe Leu Ile
1               5                   10


<210> 3731
<211> 190
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 837; "
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
AL356289.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485411"

<400> 3731
Met Cys Leu Cys Val Cys Leu Tyr Val Cys Ile Cys Val Tyr Val Cys
1 5 10 15

Val Cys His Phe Val Cys Phe Trp Val Cys Leu Pro Leu Arg Val Ser
20 25 30

Val Tyr Leu Tyr Leu Arg Val Cys Val Cys Val Cys Val Phe Val Cys
35 40 45

Leu Cys Met Cys Val Arg Gly Cys Val Ser Val Cys Val Cys Val Cys
50 55 60

Ile Glu Arg Glu Gly Glu Arg Lys Gly Ala Thr Asp Gly Ser Ala Trp
65 70 75 80

Lys Val Tyr Pro His Ser Gln Pro Trp Glu Glu Ser Val Asn Pro Pro
85 90 95

Thr Gly Gln Asp Gln Leu Trp Trp Cys Leu Ala Asp Ser Gly Asn Val
100 105 110

Thr Phe His Leu Arg Met Gly Leu His Phe Leu Gly Lys Glu Cys Arg
115 120 125

Ser Trp Ser Leu Lys Glu Cys Phe Phe Phe Pro Phe Val Ile Glu Arg
130 135 140

Ala Gln Pro Cys Val His Trp Leu Thr Val Thr Asn Leu Arg Val Gly
145 150 155 160

Asp Ser His Arg Glu Glu Thr Glu Gly Thr Ala Asp Ser Glu Gln Glu
165 170 175

```
Ser Gly Gly Thr Ser Leu Pro Leu Gly Pro Asn Pro Gln Leu
            180                 185                 190


<210> 3732
<211> 299
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 838; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AL356585.2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486163"

<400> 3732
Ser Gln Thr Leu Ala Ser Ala Gln Ala Pro Val Gln Thr Pro Ala Pro
1               5                   10                  15


Thr Leu Pro Gly Pro Ala Leu Pro Gly Pro Phe Pro Gly Gly Arg Val
            20                  25                  30


Val Arg Leu His Pro Val Leu Leu Ala Ser Thr Val Asp Ser Tyr Glu
        35                  40                  45


Arg Arg Asn Lys Gly Ala Ala Arg Val Ile Gly Thr Leu Leu Gly Thr
    50                  55                  60


Val Asn Lys His Ser Val Glu Val Thr Asn Cys Phe Ser Val Ser Tyr
65                  70                  75                  80


Asn Glu Ser Asp Glu Val Val Val Asp Met Glu Phe Ala Lys Asn Met
                85                  90                  95


Tyr Glu Leu His Lys Lys Val Ser Pro Asn Glu Leu Ile Leu Gly Trp
            100                 105                 110


Tyr Ala Ala Gly His Asp Ile Thr Glu His Ser Val Leu Ile His Glu
```

```
        115                 120                 125

Tyr Tyr Ser Arg Glu Ala Pro Asn Pro Ile His Leu Thr Val Asp Thr
    130                 135                 140

Ser Leu Gln Asn Gly His Met Ser Ile Lys Ala Tyr Val Ser Thr Leu
145                 150                 155                 160

Met Gly Val Pro Gly Arg Thr Val Gly Val Phe Thr Pro Leu Thr Val
                165                 170                 175

Lys Tyr Ala Tyr Tyr Asp Thr Glu Cys Ile Arg Val Asp Leu Ile Met
            180                 185                 190

Lys Thr Cys Phe Ser Pro Asn Arg Val Val Gly Leu Ser Ser Asp Leu
        195                 200                 205

Gln Gln Val Gly Gly Ala Ser Ala His Ile Gln Asp Ala Leu Ser Ile
    210                 215                 220

Val Leu Gln Tyr Ala Glu Asp Ile Leu Ser Ala Lys Val Ser Ala Asp
225                 230                 235                 240

Asn Thr Ile Arg Lys Val Gly His Phe Leu Met Ser Leu Val Asn Gln
                245                 250                 255

Val Pro Lys Ile Val Pro Asp Asp Phe Glu Thr Met Leu His Ser Asn
            260                 265                 270

Ile Asn Asp Leu Leu Met Val Ala Tyr Leu Ala Asn Leu Thr Gln Ser
        275                 280                 285

Gln Ile Ala Leu Asn Glu Lys Arg Val Asn Leu
    290                 295


<210> 3733
<211> 299
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<221> source
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<220>
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<223> /note="Gene Name:
AL356585.3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485744"

<400> 3733

```
Ser Gln Thr Leu Ala Ser Ala Gln Ala Pro Val Gln Thr Pro Ala Pro
1               5                   10                  15

Thr Leu Pro Gly Pro Ala Leu Pro Gly Pro Phe Pro Gly Gly Arg Val
            20                  25                  30

Val Arg Leu His Pro Val Leu Leu Ala Ser Thr Val Asp Ser Tyr Glu
        35                  40                  45

Arg Arg Asn Lys Gly Ala Ala Arg Val Ile Gly Thr Leu Leu Gly Thr
    50                  55                  60

Val Asn Lys His Ser Val Glu Val Thr Asn Cys Phe Ser Val Ser Tyr
65                  70                  75                  80

Asn Glu Ser Asp Glu Val Val Val Asp Met Glu Phe Ala Lys Asn Met
                85                  90                  95

Tyr Glu Leu His Lys Lys Val Ser Pro Asn Glu Leu Ile Leu Gly Trp
            100                 105                 110

Tyr Ala Ala Gly His Asp Ile Thr Glu His Ser Val Leu Ile His Glu
        115                 120                 125

Tyr Tyr Ser Arg Glu Ala Pro Asn Pro Ile His Leu Thr Val Asp Thr
    130                 135                 140

Ser Leu Gln Asn Gly His Met Ser Ile Lys Ala Tyr Val Ser Thr Leu
145                 150                 155                 160

Met Gly Val Pro Gly Arg Thr Val Gly Val Phe Thr Pro Leu Thr Val
                165                 170                 175
```

```
Lys Tyr Ala Tyr Tyr Asp Thr Glu Cys Ile Arg Val Asp Leu Ile Met
            180                 185                 190

Lys Thr Cys Phe Ser Pro Asn Arg Val Val Gly Leu Ser Ser Asp Leu
        195                 200                 205

Gln Gln Val Gly Gly Ala Ser Ala His Ile Gln Asp Ala Leu Ser Ile
    210                 215                 220

Val Leu Gln Tyr Ala Glu Asp Ile Leu Ser Ala Lys Val Ser Ala Asp
225                 230                 235                 240

Asn Thr Ile Arg Lys Val Gly His Phe Leu Met Ser Leu Val Asn Gln
                245                 250                 255

Val Pro Lys Ile Val Pro Asp Asp Phe Glu Thr Met Leu His Ser Asn
            260                 265                 270

Ile Asn Asp Leu Leu Met Val Ala Tyr Leu Ala Asn Leu Thr Gln Ser
        275                 280                 285

Gln Ile Ala Leu Asn Glu Lys Arg Val Asn Leu
    290                 295


<210> 3734
<211> 127
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 840; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000485186"

<400> 3734
Met Asp Leu His His Ser Val Gln Pro Glu Ser Leu Leu Leu Ser Thr
1               5                   10                  15
```

```
Ala Ser Phe Ser Phe Ser Leu Ile Ile Pro Phe Asn Ser Asn Glu Met
            20                  25                  30

Thr Trp Pro Ala His Glu Asn Thr Glu Met Arg Pro His Leu Val Ile
        35                  40                  45

Ser Gly Val Leu Arg Gly Thr Leu Val Val Val Leu Gly Ala Ala Val
    50                  55                  60

Leu Ser Val Lys Asn Phe Gln Glu Phe Leu Ile Ser Cys Phe His Gln
65                  70                  75                  80

Asp Ser His Asn Leu Leu Leu Leu Pro Leu Ser Ser Gly Phe Val Pro
                85                  90                  95

Glu His Ile Ile Arg Lys Ala Ala Ile Ile Thr Ala Tyr Leu Pro Pro
            100                 105                 110

Ala Pro Leu His Lys His Pro Pro Ser Pro His Cys Ala Lys Gln
        115                 120                 125


<210> 3735
<211> 182
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 841; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AL358852.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485235"

<400> 3735
Met Gln Pro Ala Lys Ser Gly Pro Glu Arg Ala Gly Ser Ala Arg Gln
1               5                   10                  15
```

```
Ser Lys Pro Leu Asp Pro Arg Gln Arg Gly Trp Ala Trp Ala Pro Ala
            20                  25                  30

Ala Thr Ala Pro Pro Thr Arg Ala Leu Glu Glu Arg Thr Arg Tyr Ala
        35                  40                  45

Ser Pro Gly Pro Thr Trp Arg Gly Glu Gln Ser Ser Trp Thr Ala Ala
    50                  55                  60

Thr Gly Leu Arg Ala Asp Ala Glu Ala Ala Arg Val Arg Pro Ser Asn
65                  70                  75                  80

Pro Lys Tyr Pro Trp Trp Gly Arg Ala Gly Arg Arg Thr Gly Gly Leu
                85                  90                  95

Pro Arg Ala Ser Ala Ala Arg Pro Arg Gly Arg Glu Asp Leu Ala Leu
            100                 105                 110

Pro Leu Thr Pro Gly His Arg Arg Arg Arg Arg His Phe Ala Phe His
        115                 120                 125

Ser Val Ser Pro Pro Pro His Ser Ala Ala Gly Phe Pro Asp Val Gly
    130                 135                 140

Ile Ser Arg Arg Arg Leu Arg Gly Gly Arg Gly Leu Gly Ala Phe Ala
145                 150                 155                 160

Arg Pro Ala Ala Ala Arg Glu Arg Ala Ala Cys Gly Leu Arg Ala Ser
                165                 170                 175

Leu Arg Arg Pro Gln Leu
            180


<210> 3736
<211> 182
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 842; "

<220>
<221> source
<223> /note="Gene Symbol:; "
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<220>
<221> source
<223> /note="Gene Name:
AL360294.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485122"

<400> 3736

```
Met Lys Ser Ser Glu Glu Leu Gln Cys Leu Lys Gln Met Glu Glu Glu
1               5                  10                  15

Leu Leu Phe Leu Lys Ala Gly Gln Gly Ser Gln Arg Ala Arg Leu Thr
            20                  25                  30

Pro Pro Leu Pro Arg Ala Leu Gln Gly Asn Phe Gly Ala Pro Ala Leu
        35                  40                  45

Cys Gly Ile Trp Phe Ala Glu His Leu His Pro Ala Val Gly Met Pro
    50                  55                  60

Pro Asn Tyr Asn Ser Ser Met Leu Ser Leu Ser Pro Glu Arg Thr Ile
65                  70                  75                  80

Leu Ser Gly Gly Trp Ser Gly Lys Gln Thr Gln Gln Pro Val Pro Pro
                85                  90                  95

Leu Arg Thr Leu Leu Leu Arg Ser Pro Phe Ser Leu His Lys Ser Ser
            100                 105                 110

Gln Pro Gly Ser Pro Lys Ala Ser Gln Arg Ile His Pro Leu Phe His
        115                 120                 125

Ser Ile Pro Arg Ser Gln Leu His Ser Val Leu Leu Gly Leu Pro Leu
    130                 135                 140

Leu Phe Ile Gln Thr Arg Pro Ser Pro Pro Ala Gln Tyr Gly Ala Gln
145                 150                 155                 160

Met Pro Leu Arg Tyr Ile Cys Phe Gly Pro Asn Ile Phe Trp Gly Ser
                165                 170                 175

Lys Lys Pro Gln Lys Glu
            180
```

<210> 3737
<211> 139
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 843; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL365181.2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485562"

<400> 3737
Met Ser Ser Glu Cys Leu Pro His Leu Pro Ser Arg Val Pro Ser Pro
1 5 10 15

Thr His Ala Asn Leu Pro His Lys Ala Pro Pro Thr Gln Ala Ser Cys
20 25 30

His Ser Thr His Leu Thr Leu Gly Tyr Thr Leu Tyr Leu Ser Glu Asp
35 40 45

Leu Leu Ala His Phe Phe Leu Val Pro Leu His Ile Val Pro Cys Leu
50 55 60

Cys Val Ser Leu Asn Tyr Leu Phe Leu Gln Ile Leu Leu Val Glu Ser
65 70 75 80

Pro Tyr Leu Phe Phe Pro Pro Leu Val Leu Pro Thr Thr Thr Ser Ser
85 90 95

Leu Ser Thr Val Lys Phe Leu Pro Phe Phe Pro Phe Leu Gly Lys Leu
100 105 110

Glu Ile Phe Phe Cys Lys Phe Pro Phe Lys Leu Ala Phe Pro Pro Leu
115 120 125

Ile Lys Trp Thr Thr Trp Gly Gly Asn Pro Gly

130 135

<210> 3738
<211> 98
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 844; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL365202.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485257"

<400> 3738
Leu Phe Ile Lys Lys Ser Leu Ala Leu Leu Pro Arg Leu Glu Tyr Ser
1 5 10 15

Gly Thr Ile Leu Ala His Cys Asn Leu Cys Leu Leu Gly Ser Ser Asn
20 25 30

Ser His Ala Ser Ala Ser Gln Val Ala Gly Ile Thr Gly Met Cys His
35 40 45

His Val Trp Leu Ile Phe Val Phe Leu Val Glu Thr Gly Phe His His
50 55 60

Val Ala Gln Ala Gly Leu Glu Leu Leu Val Ser Ser Ser Ser Pro Ala
65 70 75 80

Leu Ala Ser Gln Ser Thr Glu Ile Thr Gly Met Ser Gln Cys Ala Trp
85 90 95

Pro Leu

<210> 3739
<211> 16
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 845; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL445183.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485528"

<400> 3739
Leu Gly Lys Pro Ser Ala Thr Ser Thr Phe Ser Thr His Gln Leu Gln
1 5 10 15

<210> 3740
<211> 835
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 846; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL513412.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442382"

<400> 3740
Met Lys His Tyr Gly Leu Pro Trp Lys Arg Thr Glu Glu Ala Ala Ala
1 5 10 15

Asp Thr Ala Leu Thr Ile Met Glu Val Ala Glu Val Glu Ser Pro Leu
20 25 30

Asn Pro Ser Cys Lys Ile Met Thr Phe Arg Pro Ser Met Glu Glu Phe
35 40 45

```
Arg Glu Phe Asn Lys Tyr Leu Ala Tyr Met Glu Ser Lys Gly Ala His
    50                  55                  60

Arg Ala Gly Leu Ala Lys Val Ile Pro Pro Lys Glu Trp Lys Pro Arg
65                  70                  75                  80

Gln Cys Tyr Asp Asp Ile Asp Asn Leu Leu Ile Pro Ala Pro Ile Gln
                85                  90                  95

Gln Met Val Thr Gly Gln Ser Gly Leu Phe Thr Gln Tyr Asn Ile Gln
            100                 105                 110

Lys Lys Ala Met Thr Val Lys Glu Phe Arg Gln Leu Ala Asn Ser Gly
        115                 120                 125

Lys Tyr Cys Thr Pro Arg Tyr Leu Asp Tyr Glu Asp Leu Glu Arg Lys
    130                 135                 140

Tyr Trp Lys Asn Leu Thr Phe Val Ala Pro Ile Tyr Gly Ala Asp Ile
145                 150                 155                 160

Asn Gly Ser Ile Tyr Asp Glu Gly Val Asp Glu Trp Asn Ile Ala Arg
                165                 170                 175

Leu Asn Thr Val Leu Asp Val Val Glu Glu Glu Cys Gly Ile Ser Ile
            180                 185                 190

Glu Gly Val Asn Thr Pro Tyr Leu Tyr Phe Gly Met Trp Lys Thr Thr
        195                 200                 205

Phe Ala Trp His Thr Glu Asp Met Asp Leu Tyr Ser Ile Asn Tyr Leu
    210                 215                 220

His Phe Gly Glu Pro Lys Ser Trp Tyr Ala Ile Pro Pro Glu His Gly
225                 230                 235                 240

Lys Arg Leu Glu Arg Leu Ala Gln Gly Phe Phe Pro Ser Ser Ser Gln
                245                 250                 255

Gly Cys Asp Ala Phe Leu Arg His Lys Met Thr Leu Ile Ser Pro Ser
            260                 265                 270
```

```
Val Leu Lys Lys Tyr Gly Ile Pro Phe Asp Lys Ile Thr Gln Glu Ala
        275                 280                 285

Gly Glu Phe Met Ile Thr Phe Pro Tyr Gly Tyr His Ala Gly Phe Asn
    290                 295                 300

His Gly Phe Asn Cys Ala Glu Ser Thr Asn Phe Ala Thr Val Arg Trp
305                 310                 315                 320

Ile Asp Tyr Gly Lys Val Ala Lys Leu Cys Thr Cys Arg Lys Asp Met
                325                 330                 335

Val Lys Ile Ser Met Asp Ile Phe Val Arg Lys Phe Gln Pro Asp Arg
            340                 345                 350

Tyr Gln Leu Trp Lys Gln Gly Lys Asp Ile Tyr Thr Ile Asp His Thr
        355                 360                 365

Lys Pro Thr Pro Ala Ser Thr Pro Glu Val Lys Ala Trp Leu Gln Arg
    370                 375                 380

Arg Arg Lys Val Arg Lys Ala Ser Arg Ser Phe Gln Cys Ala Arg Ser
385                 390                 395                 400

Thr Ser Lys Arg Pro Lys Ala Asp Glu Glu Glu Glu Val Ser Asp Glu
                405                 410                 415

Val Asp Gly Ala Glu Val Pro Asn Pro Asp Ser Val Thr Asp Asp Leu
            420                 425                 430

Lys Val Ser Glu Lys Ser Glu Ala Ala Val Lys Leu Arg Asn Thr Glu
        435                 440                 445

Ala Ser Ser Glu Glu Glu Ser Ser Ala Ser Arg Met Gln Val Glu Gln
    450                 455                 460

Asn Leu Ser Asp His Ile Lys Leu Ser Gly Asn Ser Cys Leu Ser Thr
465                 470                 475                 480

Ser Val Thr Glu Asp Ile Lys Thr Glu Asp Asp Lys Ala Tyr Ala Tyr
                485                 490                 495
```

```
Arg Ser Val Pro Ser Ile Ser Ser Glu Ala Asp Asp Ser Ile Pro Leu
            500                 505                 510

Ser Ser Gly Tyr Glu Lys Pro Glu Lys Ser Asp Pro Ser Glu Leu Ser
        515                 520                 525

Trp Pro Lys Ser Pro Glu Ser Cys Ser Ser Val Ala Glu Ser Asn Gly
    530                 535                 540

Val Leu Thr Glu Gly Glu Glu Ser Asp Val Glu Ser His Gly Asn Gly
545                 550                 555                 560

Leu Glu Pro Gly Glu Ile Pro Ala Val Pro Ser Gly Glu Arg Asn Ser
                565                 570                 575

Phe Lys Val Pro Ser Ile Ala Glu Gly Glu Asn Lys Thr Ser Lys Ser
            580                 585                 590

Trp Arg His Pro Leu Ser Arg Pro Pro Ala Arg Ser Pro Met Thr Leu
        595                 600                 605

Val Lys Gln Gln Ala Pro Ser Asp Glu Glu Leu Pro Glu Val Leu Ser
    610                 615                 620

Ile Glu Glu Glu Val Glu Glu Thr Glu Ser Trp Ala Lys Pro Leu Ile
625                 630                 635                 640

His Leu Trp Gln Thr Lys Ser Pro Asn Phe Ala Ala Glu Gln Glu Tyr
                645                 650                 655

Asn Ala Thr Val Ala Arg Met Lys Pro His Cys Ala Ile Cys Thr Leu
            660                 665                 670

Leu Met Pro Tyr His Lys Pro Asp Ser Ser Asn Glu Glu Asn Asp Ala
        675                 680                 685

Arg Trp Glu Thr Lys Leu Asp Glu Val Val Thr Ser Glu Gly Lys Thr
    690                 695                 700

Lys Pro Leu Ile Pro Glu Met Cys Phe Ile Tyr Ser Glu Glu Asn Ile
705                 710                 715                 720

Glu Tyr Ser Pro Pro Asn Ala Phe Leu Glu Glu Asp Gly Thr Ser Leu
```

```
                725                 730                 735

Leu Ile Ser Cys Ala Lys Cys Cys Val Arg Val His Ala Ser Cys Tyr
            740                 745                 750

Gly Ile Pro Ser His Glu Ile Cys Asp Gly Trp Leu Cys Ala Arg Cys
        755                 760                 765

Lys Arg Asn Ala Trp Thr Ala Glu Cys Cys Leu Cys Asn Leu Arg Gly
    770                 775                 780

Gly Ala Leu Lys Gln Thr Lys Asn Asn Lys Trp Ala His Val Met Cys
785                 790                 795                 800

Ala Val Ala Val Pro Glu Val Arg Phe Thr Asn Val Pro Glu Arg Thr
                805                 810                 815

Gln Ile Asp Val Gly Arg Ile Pro Leu Gln Arg Leu Lys Leu Gly Arg
            820                 825                 830

Leu Gly Ile
        835


<210> 3741
<211> 140
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 847; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AL513523.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000471409"

<400> 3741
Met Ala Leu Trp Glu Thr Gly Gly Gly Asp Cys Gly Arg Gly Gln Gly
1               5                   10                  15
```

```
Ala Glu Asp Phe His Tyr Gly Leu Ile Leu Gln Ser Leu Trp Leu Gln
            20                  25                  30

Ser Asp Pro Lys Tyr His Trp Glu Gln Gln Cys Glu Gly Leu Glu Ala
        35                  40                  45

Pro Gly Gly Gly Lys Gly Leu Gly Ala Ala Trp Gln Leu Leu Lys Leu
    50                  55                  60

Ser Gln Arg Arg Lys Leu Leu Leu Pro Pro Gly Glu Leu Gly Asp Ala
65                  70                  75                  80

Ala Arg Val Phe Pro Leu Gln Ser Pro Gln Pro Leu Leu Thr Phe Glu
                85                  90                  95

Ser Pro Arg Arg Arg Gly Gln Ser Ser Arg Gly Trp Asp Gly Glu Cys
            100                 105                 110

Arg Ala Ser Val Thr Val Arg Ala His Cys Arg Gly Pro Phe Ser Phe
        115                 120                 125

Pro Leu Gly Arg Leu Arg Phe Arg Val Phe Leu Phe
    130                 135                 140


<210> 3742
<211> 140
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 848; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AL513523.2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485583"

<400> 3742
Met Ala Leu Trp Glu Thr Gly Gly Gly Asp Cys Gly Arg Gly Gln Gly
```

```
1               5                   10                  15

Ala Glu Asp Phe His Tyr Gly Leu Ile Leu Gln Ser Leu Trp Leu Gln
            20                  25                  30

Ser Asp Pro Lys Tyr His Trp Glu Gln Gln Cys Glu Gly Leu Glu Ala
        35                  40                  45

Pro Gly Gly Gly Lys Gly Leu Gly Ala Ala Trp Gln Leu Leu Lys Leu
    50                  55                  60

Ser Gln Arg Arg Lys Leu Leu Leu Pro Pro Gly Glu Leu Gly Asp Ala
65                  70                  75                  80

Ala Arg Val Phe Pro Leu Gln Ser Pro Gln Pro Leu Leu Thr Phe Glu
                85                  90                  95

Ser Pro Arg Arg Arg Gly Gln Ser Ser Arg Gly Trp Asp Gly Glu Cys
            100                 105                 110

Arg Ala Ser Val Thr Val Arg Ala His Cys Arg Gly Pro Phe Ser Phe
        115                 120                 125

Pro Leu Gly Arg Leu Arg Phe Arg Val Phe Leu Phe
    130                 135                 140


<210> 3743
<211> 210
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 849; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      AL589743.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485043"
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<400> 3743
Met Ser Arg Ala Gly Ser His Pro Lys Pro Ala Ile Pro Gly Arg Gly
1 5 10 15

Gly Glu Lys Leu Ala Leu Leu Leu Ala Met Leu Gly Gly Arg Cys Cys
20 25 30

Pro Ala Gly Gly Pro Glu Ser His Thr Pro Arg Lys Pro Trp Pro Pro
35 40 45

Ile Arg Arg Glu Arg Pro Gly Leu Arg Ser Pro Lys Pro Arg Glu Glu
50 55 60

Ala Gly Pro Arg Ala Asp Ser Lys Ala Ala Ser Pro Ala Leu Phe Met
65 70 75 80

Gly Pro Gly Ser Arg Gly Arg Arg Arg Pro Pro Ser Trp Ala Arg Arg
85 90 95

Arg Ala Arg Gly Gly Arg Gly Ser Cys Pro Glu Pro His Val Arg Ala
100 105 110

Gly Pro Arg Phe Phe Ile Ala Leu Ala Ala Pro Ala Ala Arg Gly Leu
115 120 125

Arg Val Ser Ser Gln Gly Pro Gly Leu Trp Arg Gly Pro Ala Ala Arg
130 135 140

Lys Glu Gly Val Ala Arg Val Gly Val Ala Ala Gly Leu Arg Leu Arg
145 150 155 160

Pro Arg Gly Arg Gly Arg Lys Thr Thr Pro Ala Leu Ser Gly His Pro
165 170 175

Ala Arg Phe Pro Leu Gln Pro Gly Asp Ser Arg Glu Arg Ser Arg Asn
180 185 190

His Arg Ala Leu Glu Leu Thr Trp Gln Pro Arg Gly Ala Lys Ala Gly
195 200 205

Gly Ala
210

<210> 3744
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 850; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL590235.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485158"

<400> 3744
Met Thr Leu Asn Glu His Ala Ala Phe Lys His Leu Phe Asn Lys Ala
1   5   10   15

His Leu Ala Pro Pro Leu Ile His Ser Thr Leu Arg Gly His Ser Thr
            20   25   30

Cys Phe Arg Glu His Arg Val Gly Gly Lys Val Thr Asp Gln Gln Asp
        35   40   45

Pro Lys Ala Glu Glu Phe Phe Leu Val Gln Asn Lys Met Lys Ser Leu
    50   55   60

Pro Cys Leu Pro Leu Ser Thr Gln Thr Trp Gln Pro Ser Asp Phe Ser
65   70   75   80

Ile Phe Ser Pro Pro Phe Pro Pro Phe Tyr Ser Thr Lys Pro Pro Leu
                85   90   95

Ser Ser Trp Pro Val Leu Asn Glu Leu Leu Ser Thr Pro Pro Arg Arg
            100   105   110

Gly Gly Gly Arg Ala Asp Gly Leu Leu Thr Ser Gln
        115   120

<210> 3745
<211> 50

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 851; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL591806.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485345"

<400> 3745
Pro Leu Ile Tyr Leu Phe Ile Tyr Leu Phe Ile Tyr Leu Phe Ile Glu
1 5 10 15

Thr Glu Ser His His Val Gly Gln Ala Gly Leu Lys Leu Leu Thr Ser
20 25 30

Ser Asp Pro Pro Ala Leu Ala Ser Gln Ser Ala Gly Ile Thr Gly Val
35 40 45

Ser His
50

<210> 3746
<211> 123
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 852; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL592183.1; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000479921"

<400> 3746
Met Ala Leu Leu Ala Ser Asn Gly Cys Phe Ile Arg Cys Asn Glu Ala
1   5   10   15

Gly Asp Ile Glu Ala Lys Ser Lys Thr Ala Gly Glu Glu Glu Met Ile
            20   25   30

Lys Ile Arg Ser Cys Ala Glu Arg Glu Thr Lys Lys Lys Asp Asp Ile
        35   40   45

Pro Glu Glu Asp Lys Gly Asn Val Lys Gln Cys Glu Ile Asn Tyr Val
    50   55   60

Lys Lys Phe Gln Ser Phe Gln Glu His Lys Leu Lys Ile Ser Lys Glu
65   70   75   80

Asp Ser Lys Ile Leu Lys Lys Ala Gln Lys Asp Gly Phe Leu Gln Glu
                85   90   95

Thr Leu Leu Asp Ser Leu Gly Tyr Glu His Arg Trp Lys Arg Trp Leu
            100   105   110

Leu Tyr Trp Ile Lys Asp Met Ser Arg Asp Gly
        115   120

<210> 3747
<211> 44
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 853; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL596220.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485451"

<400> 3747
Met Cys Val Tyr Thr Tyr Ile Tyr Leu Ser Ile Tyr Leu Ser Ile Tyr
1 5 10 15

Leu Ser Ile Ile Leu Tyr Thr His Ile Leu Lys Lys Arg Gly Ile Phe
20 25 30

Leu Val Gly Cys Tyr Asn Phe Ile Leu Leu Ile Lys
35 40

<210> 3748
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 854; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL645728.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485620"

<400> 3748
Gly Val Ile Ser Ala His Cys Asn Leu His Leu Pro Gly Ser Ser Asp
1 5 10 15

Ser Pro Ala Ser Ala Ser Arg Val Ala Gly Ile Thr Gly Thr His His
20 25 30

His Ala Trp Leu Ile Phe Val Phe Leu Val Glu Thr Gly Phe His His
35 40 45

Val Gly Gln Asp Gly Leu Asp Leu Leu Thr Ser Asp Pro Pro Thr Ser
50 55 60

Ala Ser His Ser Ala Gly Ile Thr Asp Val Ser His His Ala Trp Pro
65 70 75 80

Trp Ile Leu Ile Phe Phe Phe Phe Glu Met Glu Ser

85 90

<210> 3749
<211> 23
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 855; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL645922.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485579"

<400> 3749
Pro Thr Leu Cys Cys Leu Ser Cys Phe Ser Ser Leu Trp Pro Arg Trp
1 5 10 15

Glu Asp His Leu Arg Pro Gly
20

<210> 3750
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 856; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL662852.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481180"

<400> 3750

```
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> 3751
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 857; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
AL929561.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479324"

<400> 3751
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> 3752
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 858; "

<220>
<221> source
<223> /note="Gene Symbol: AARD; "

<220>
<221> source
<223> /note="Gene Name:
      alanine and arginine rich
      domain containing prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q4LEZ3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367528"

<400> 3752
Met Gly Pro Gly Asp Phe Arg Arg Cys Arg Glu Arg Ile Ser Gln Gly
1   5   10   15

Leu Gln Gly Leu Pro Gly Arg Ala Glu Leu Trp Phe Pro Pro Arg Pro
            20   25   30

Ala Cys Asp Phe Phe Gly Asp Gly Arg Ser Thr Asp Ile Gln Glu Glu
        35   40   45

Ala Leu Ala Ala Ser Pro Leu Leu Glu Asp Leu Arg Arg Arg Leu Thr
    50   55   60

Arg Ala Phe Gln Trp Ala Val Gln Arg Ala Ile Ser Arg Arg Val Gln
65   70   75   80

Glu Ala Ala Ala Ala Ala Ala Ala Arg Glu Glu Gln Ser Trp Thr Gly
                85   90   95

Val Glu Ala Thr Leu Ala Arg Leu Arg Ala Glu Leu Val Glu Met His
            100   105   110

Phe Gln Asn His Gln Leu Ala Arg Thr Leu Leu Asp Leu Asn Met Lys
        115   120   125

Val Gln Gln Leu Lys Lys Glu Tyr Glu Leu Glu Ile Thr Ser Asp Ser
    130   135   140

Gln Ser Pro Lys Asp Asp Ala Ala Asn Pro Glu
145   150   155

<210> 3753
<211> 392
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 859; "

<220>
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<223> /note="Gene Symbol: AGXT; "

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<223> /note="Gene Name:
alanine-glyoxylate aminotransferase; "

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<223> /note="Uniprot ID: P21549; "

<220>
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<400> 3753
Met Ala Ser His Lys Leu Leu Val Thr Pro Pro Lys Ala Leu Leu Lys
1   5   10   15

Pro Leu Ser Ile Pro Asn Gln Leu Leu Leu Gly Pro Gly Pro Ser Asn
            20   25   30

Leu Pro Pro Arg Ile Met Ala Ala Gly Gly Leu Gln Met Ile Gly Ser
        35   40   45

Met Ser Lys Asp Met Tyr Gln Ile Met Asp Glu Ile Lys Glu Gly Ile
    50   55   60

Gln Tyr Val Phe Gln Thr Arg Asn Pro Leu Thr Leu Val Ile Ser Gly
65   70   75   80

Ser Gly His Cys Ala Leu Glu Ala Ala Leu Val Asn Val Leu Glu Pro
                85   90   95

Gly Asp Ser Phe Leu Val Gly Ala Asn Gly Ile Trp Gly Gln Arg Ala
            100   105   110

Val Asp Ile Gly Glu Arg Ile Gly Ala Arg Val His Pro Met Thr Lys
        115   120   125

Asp Pro Gly Gly His Tyr Thr Leu Gln Glu Val Glu Glu Gly Leu Ala
    130   135   140

Gln His Lys Pro Val Leu Leu Phe Leu Thr His Gly Glu Ser Ser Thr
145   150   155   160

```
Gly Val Leu Gln Pro Leu Asp Gly Phe Gly Glu Leu Cys His Arg Tyr
                165                 170                 175

Lys Cys Leu Leu Leu Val Asp Ser Val Ala Ser Leu Gly Gly Thr Pro
            180                 185                 190

Leu Tyr Met Asp Arg Gln Gly Ile Asp Ile Leu Tyr Ser Gly Ser Gln
        195                 200                 205

Lys Ala Leu Asn Ala Pro Pro Gly Thr Ser Leu Ile Ser Phe Ser Asp
    210                 215                 220

Lys Ala Lys Lys Lys Met Tyr Ser Arg Lys Thr Lys Pro Phe Ser Phe
225                 230                 235                 240

Tyr Leu Asp Ile Lys Trp Leu Ala Asn Phe Trp Gly Cys Asp Asp Gln
                245                 250                 255

Pro Arg Met Tyr His His Thr Ile Pro Val Ile Ser Leu Tyr Ser Leu
            260                 265                 270

Arg Glu Ser Leu Ala Leu Ile Ala Glu Gln Gly Leu Glu Asn Ser Trp
        275                 280                 285

Arg Gln His Arg Glu Ala Ala Ala Tyr Leu His Gly Arg Leu Gln Ala
    290                 295                 300

Leu Gly Leu Gln Leu Phe Val Lys Asp Pro Ala Leu Arg Leu Pro Thr
305                 310                 315                 320

Val Thr Thr Val Ala Val Pro Ala Gly Tyr Asp Trp Arg Asp Ile Val
                325                 330                 335

Ser Tyr Val Ile Asp His Phe Asp Ile Glu Ile Met Gly Gly Leu Gly
            340                 345                 350

Pro Ser Thr Gly Lys Val Leu Arg Ile Gly Leu Leu Gly Cys Asn Ala
        355                 360                 365

Thr Arg Glu Asn Val Asp Arg Val Thr Glu Ala Leu Arg Ala Ala Leu
    370                 375                 380
```

Gln His Cys Pro Lys Lys Lys Leu
385 390

<210> 3754
<211> 514
<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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<220>
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<400> 3754
Met Thr Leu Ile Trp Arg His Leu Leu Arg Pro Leu Cys Leu Val Thr
1 5 10 15

Ser Ala Pro Arg Ile Leu Glu Met His Pro Phe Leu Ser Leu Gly Thr
20 25 30

Ser Arg Thr Ser Val Thr Lys Leu Ser Leu His Thr Lys Pro Arg Met
35 40 45

Pro Pro Cys Asp Phe Met Pro Glu Arg Tyr Gln Ser Leu Gly Tyr Asn
50 55 60

Arg Val Leu Glu Ile His Lys Glu His Leu Ser Pro Val Val Thr Ala
65 70 75 80

Tyr Phe Gln Lys Pro Leu Leu Leu His Gln Gly His Met Glu Trp Leu
85 90 95

Phe Asp Ala Glu Gly Ser Arg Tyr Leu Asp Phe Phe Ser Gly Ile Val

```
            100                 105                 110

Thr Val Ser Val Gly His Cys His Pro Lys Val Asn Ala Val Ala Gln
        115                 120                 125

Lys Gln Leu Gly Arg Leu Trp His Thr Ser Thr Val Phe Phe His Pro
    130                 135                 140

Pro Met His Glu Tyr Ala Glu Lys Leu Ala Ala Leu Leu Pro Glu Pro
145                 150                 155                 160

Leu Lys Val Ile Phe Leu Val Asn Ser Gly Ser Glu Ala Asn Glu Leu
                165                 170                 175

Ala Met Leu Met Ala Arg Ala His Ser Asn Asn Ile Asp Ile Ile Ser
            180                 185                 190

Phe Arg Gly Ala Tyr His Gly Cys Ser Pro Tyr Thr Leu Gly Leu Thr
        195                 200                 205

Asn Val Gly Thr Tyr Lys Met Glu Leu Pro Gly Gly Thr Gly Cys Gln
    210                 215                 220

Pro Thr Met Cys Pro Asp Val Phe Arg Gly Pro Trp Gly Gly Ser His
225                 230                 235                 240

Cys Arg Asp Ser Pro Val Gln Thr Ile Arg Lys Cys Ser Cys Ala Pro
                245                 250                 255

Asp Cys Cys Gln Ala Lys Asp Gln Tyr Ile Glu Gln Phe Lys Asp Thr
            260                 265                 270

Leu Ser Thr Ser Val Ala Lys Ser Ile Ala Gly Phe Phe Ala Glu Pro
        275                 280                 285

Ile Gln Gly Val Asn Gly Val Val Gln Tyr Pro Lys Gly Phe Leu Lys
    290                 295                 300

Glu Ala Phe Glu Leu Val Arg Ala Arg Gly Gly Val Cys Ile Ala Asp
305                 310                 315                 320

Glu Val Gln Thr Gly Phe Gly Arg Leu Gly Ser His Phe Trp Gly Phe
                325                 330                 335
```

```
Gln Thr His Asp Val Leu Pro Asp Ile Val Thr Met Ala Lys Gly Ile
            340                 345                 350

Gly Asn Gly Phe Pro Met Ala Ala Val Ile Thr Thr Pro Glu Ile Ala
        355                 360                 365

Lys Ser Leu Ala Lys Cys Leu Gln His Phe Asn Thr Phe Gly Gly Asn
    370                 375                 380

Pro Met Ala Cys Ala Ile Gly Ser Ala Val Leu Glu Val Ile Lys Glu
385                 390                 395                 400

Glu Asn Leu Gln Glu Asn Ser Gln Glu Val Gly Thr Tyr Met Leu Leu
                405                 410                 415

Lys Phe Ala Lys Leu Arg Asp Glu Phe Glu Ile Val Gly Asp Val Arg
            420                 425                 430

Gly Lys Gly Leu Met Ile Gly Ile Glu Met Val Gln Asp Lys Ile Ser
        435                 440                 445

Cys Arg Pro Leu Pro Arg Glu Glu Val Asn Gln Ile His Glu Asp Cys
    450                 455                 460

Lys His Met Gly Leu Leu Val Gly Arg Gly Ser Ile Phe Ser Gln Thr
465                 470                 475                 480

Phe Arg Ile Ala Pro Ser Met Cys Ile Thr Lys Pro Glu Val Asp Phe
                485                 490                 495

Ala Val Glu Val Phe Arg Ser Ala Leu Thr Gln His Met Glu Arg Arg
            500                 505                 510

Ala Lys
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<210> 3755
<211> 439
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 860; "

<220>
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<220>
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<223> /note="Gene Name:
alanine--glyoxylate aminotransferase 2; "

<220>
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<223> /note="Uniprot ID: Q9BYV1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422799"

<400> 3755

```
Met Thr Leu Ile Trp Arg His Leu Leu Arg Pro Leu Cys Leu Val Thr
1               5                  10                  15

Ser Ala Pro Arg Ile Leu Glu Met His Pro Phe Leu Ser Leu Gly Thr
            20                  25                  30

Ser Arg Thr Ser Val Thr Lys Leu Ser Leu His Thr Lys Pro Arg Met
        35                  40                  45

Pro Pro Cys Asp Phe Met Pro Glu Arg Tyr Gln Ser Leu Gly Tyr Asn
    50                  55                  60

Arg Val Leu Glu Ile His Lys Glu His Leu Ser Pro Val Val Thr Ala
65                  70                  75                  80

Tyr Phe Gln Lys Pro Leu Leu Leu His Gln Gly His Met Glu Trp Leu
                85                  90                  95

Phe Asp Ala Glu Gly Ser Arg Tyr Leu Asp Phe Phe Ser Gly Ile Val
            100                 105                 110

Thr Val Ser Val Gly His Cys His Pro Lys Val Asn Ala Val Ala Gln
        115                 120                 125

Lys Gln Leu Gly Arg Leu Trp His Thr Ser Thr Val Phe Phe His Pro
    130                 135                 140

Pro Met His Glu Tyr Ala Glu Lys Leu Ala Ala Leu Leu Pro Glu Pro
```

145 150 155 160

Leu Lys Val Ile Phe Leu Val Asn Ser Gly Ser Glu Ala Asn Glu Leu
165 170 175

Ala Met Leu Met Ala Arg Ala His Ser Asn Asn Ile Asp Ile Ile Ser
180 185 190

Phe Arg Gly Ala Tyr His Gly Cys Ser Pro Tyr Thr Leu Gly Leu Thr
195 200 205

Asn Val Gly Thr Tyr Lys Met Glu Leu Pro Gly Gly Thr Gly Cys Gln
210 215 220

Pro Thr Met Cys Pro Asp Val Phe Arg Gly Pro Trp Gly Gly Ser His
225 230 235 240

Cys Arg Asp Ser Pro Val Gln Thr Ile Arg Lys Cys Ser Cys Ala Pro
245 250 255

Asp Cys Cys Gln Ala Lys Asp Gln Tyr Ile Glu Gln Phe Lys Asp Thr
260 265 270

Leu Ser Thr Ser Val Ala Lys Ser Ile Ala Gly Phe Phe Ala Glu Pro
275 280 285

Ile Gln Gly Val Asn Gly Val Val Gln Tyr Pro Lys Gly Phe Leu Lys
290 295 300

Glu Ala Phe Glu Leu Val Arg Ala Arg Gly Gly Val Cys Ile Ala Asp
305 310 315 320

Glu Val Ile Lys Glu Glu Asn Leu Gln Glu Asn Ser Gln Glu Val Gly
325 330 335

Thr Tyr Met Leu Leu Lys Phe Ala Lys Leu Arg Asp Glu Phe Glu Ile
340 345 350

Val Gly Asp Val Arg Gly Lys Gly Leu Met Ile Gly Ile Glu Met Val
355 360 365

Gln Asp Lys Ile Ser Cys Arg Pro Leu Pro Arg Glu Glu Val Asn Gln
370 375 380

```
Ile His Glu Asp Cys Lys His Met Gly Leu Leu Val Gly Arg Gly Ser
385                 390                 395                 400


Ile Phe Ser Gln Thr Phe Arg Ile Ala Pro Ser Met Cys Ile Thr Lys
                405                 410                 415


Pro Glu Val Asp Phe Ala Val Glu Val Phe Arg Ser Ala Leu Thr Gln
            420                 425                 430


His Met Glu Arg Arg Ala Lys
        435


<210> 3756
<211> 439
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 860; "

<220>
<221> source
<223> /note="Gene Symbol: AGXT2; "

<220>
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<223> /note="Gene Name:
      alanine--glyoxylate aminotransferase 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BYV1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479154"

<400> 3756
Met Thr Leu Ile Trp Arg His Leu Leu Arg Pro Leu Cys Leu Val Thr
1               5                   10                  15


Ser Ala Pro Arg Ile Leu Glu Met His Pro Phe Leu Ser Leu Gly Thr
            20                  25                  30


Ser Arg Thr Ser Val Thr Lys Leu Ser Leu His Thr Lys Pro Arg Met
        35                  40                  45
```

```
Pro Pro Cys Asp Phe Met Pro Glu Arg Tyr Gln Ser Leu Gly Tyr Asn
    50                  55                  60

Arg Val Leu Glu Ile His Lys Glu His Leu Ser Pro Val Val Thr Ala
65                  70                  75                  80

Tyr Phe Gln Lys Pro Leu Leu Leu His Gln Gly His Met Glu Trp Leu
                85                  90                  95

Phe Asp Ala Glu Gly Ser Arg Tyr Leu Asp Phe Phe Ser Gly Ile Val
            100                 105                 110

Thr Val Ser Val Gly His Cys His Pro Lys Val Asn Ala Val Ala Gln
        115                 120                 125

Lys Gln Leu Gly Arg Leu Trp His Thr Ser Thr Val Phe Phe His Pro
    130                 135                 140

Pro Met His Glu Tyr Ala Glu Lys Leu Ala Ala Leu Leu Pro Glu Pro
145                 150                 155                 160

Leu Lys Val Ile Phe Leu Val Asn Ser Gly Ser Glu Ala Asn Glu Leu
                165                 170                 175

Ala Met Leu Met Ala Arg Ala His Ser Asn Asn Ile Asp Ile Ile Ser
            180                 185                 190

Phe Arg Gly Ala Tyr His Gly Cys Ser Pro Tyr Thr Leu Gly Leu Thr
        195                 200                 205

Asn Val Gly Thr Tyr Lys Met Glu Leu Pro Gly Gly Thr Gly Cys Gln
    210                 215                 220

Pro Thr Met Cys Pro Asp Val Phe Arg Gly Pro Trp Gly Gly Ser His
225                 230                 235                 240

Cys Arg Asp Ser Pro Val Gln Thr Ile Arg Lys Cys Ser Cys Ala Pro
                245                 250                 255

Asp Cys Cys Gln Ala Lys Asp Gln Tyr Ile Glu Gln Phe Lys Asp Thr
            260                 265                 270

Leu Ser Thr Ser Val Ala Lys Ser Ile Ala Gly Phe Phe Ala Glu Pro
```

```
        275                 280                 285

Ile Gln Gly Val Asn Gly Val Val Gln Tyr Pro Lys Gly Phe Leu Lys
    290                 295                 300

Glu Ala Phe Glu Leu Val Arg Ala Arg Gly Gly Val Cys Ile Ala Asp
305                 310                 315                 320

Glu Val Ile Lys Glu Glu Asn Leu Gln Glu Asn Ser Gln Glu Val Gly
                325                 330                 335

Thr Tyr Met Leu Leu Lys Phe Ala Lys Leu Arg Asp Glu Phe Glu Ile
            340                 345                 350

Val Gly Asp Val Arg Gly Lys Gly Leu Met Ile Gly Ile Glu Met Val
        355                 360                 365

Gln Asp Lys Ile Ser Cys Arg Pro Leu Pro Arg Glu Glu Val Asn Gln
    370                 375                 380

Ile His Glu Asp Cys Lys His Met Gly Leu Leu Val Gly Arg Gly Ser
385                 390                 395                 400

Ile Phe Ser Gln Thr Phe Arg Ile Ala Pro Ser Met Cys Ile Thr Lys
                405                 410                 415

Pro Glu Val Asp Phe Ala Val Glu Val Phe Arg Ser Ala Leu Thr Gln
            420                 425                 430

His Met Glu Arg Arg Ala Lys
        435


<210> 3757
<211> 967
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 861; "

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<221> source
<223> /note="Gene Symbol: ANPEP; "

<220>
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<221> source
<223> /note="Gene Name:
alanyl (membrane) aminopeptidase; "

<220>
<221> source
<223> /note="Uniprot ID: P15144; "

<220>
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<223> /note="ENSP ID: ENSP00000300060"

<400> 3757

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Met Ala Lys Gly Phe Tyr Ile Ser Lys Ser Leu Gly Ile Leu Gly Ile
1               5                  10                  15

Leu Leu Gly Val Ala Ala Val Cys Thr Ile Ile Ala Leu Ser Val Val
            20                  25                  30

Tyr Ser Gln Glu Lys Asn Lys Asn Ala Asn Ser Ser Pro Val Ala Ser
        35                  40                  45

Thr Thr Pro Ser Ala Ser Ala Thr Thr Asn Pro Ala Ser Ala Thr Thr
    50                  55                  60

Leu Asp Gln Ser Lys Ala Trp Asn Arg Tyr Arg Leu Pro Asn Thr Leu
65                  70                  75                  80

Lys Pro Asp Ser Tyr Arg Val Thr Leu Arg Pro Tyr Leu Thr Pro Asn
                85                  90                  95

Asp Arg Gly Leu Tyr Val Phe Lys Gly Ser Ser Thr Val Arg Phe Thr
            100                 105                 110

Cys Lys Glu Ala Thr Asp Val Ile Ile Ile His Ser Lys Lys Leu Asn
        115                 120                 125

Tyr Thr Leu Ser Gln Gly His Arg Val Val Leu Arg Gly Val Gly Gly
    130                 135                 140

Ser Gln Pro Pro Asp Ile Asp Lys Thr Glu Leu Val Glu Pro Thr Glu
145                 150                 155                 160

Tyr Leu Val Val His Leu Lys Gly Ser Leu Val Lys Asp Ser Gln Tyr
                165                 170                 175
```

```
Glu Met Asp Ser Glu Phe Glu Gly Glu Leu Ala Asp Asp Leu Ala Gly
            180                 185                 190

Phe Tyr Arg Ser Glu Tyr Met Glu Gly Asn Val Arg Lys Val Val Ala
        195                 200                 205

Thr Thr Gln Met Gln Ala Ala Asp Ala Arg Lys Ser Phe Pro Cys Phe
    210                 215                 220

Asp Glu Pro Ala Met Lys Ala Glu Phe Asn Ile Thr Leu Ile His Pro
225                 230                 235                 240

Lys Asp Leu Thr Ala Leu Ser Asn Met Leu Pro Lys Gly Pro Ser Thr
                245                 250                 255

Pro Leu Pro Glu Asp Pro Asn Trp Asn Val Thr Glu Phe His Thr Thr
            260                 265                 270

Pro Lys Met Ser Thr Tyr Leu Leu Ala Phe Ile Val Ser Glu Phe Asp
        275                 280                 285

Tyr Val Glu Lys Gln Ala Ser Asn Gly Val Leu Ile Arg Ile Trp Ala
    290                 295                 300

Arg Pro Ser Ala Ile Ala Ala Gly His Gly Asp Tyr Ala Leu Asn Val
305                 310                 315                 320

Thr Gly Pro Ile Leu Asn Phe Phe Ala Gly His Tyr Asp Thr Pro Tyr
                325                 330                 335

Pro Leu Pro Lys Ser Asp Gln Ile Gly Leu Pro Asp Phe Asn Ala Gly
            340                 345                 350

Ala Met Glu Asn Trp Gly Leu Val Thr Tyr Arg Glu Asn Ser Leu Leu
        355                 360                 365

Phe Asp Pro Leu Ser Ser Ser Ser Ser Asn Lys Glu Arg Val Val Thr
    370                 375                 380

Val Ile Ala His Glu Leu Ala His Gln Trp Phe Gly Asn Leu Val Thr
385                 390                 395                 400

Ile Glu Trp Trp Asn Asp Leu Trp Leu Asn Glu Gly Phe Ala Ser Tyr
```

405 410 415

Val Glu Tyr Leu Gly Ala Asp Tyr Ala Glu Pro Thr Trp Asn Leu Lys
420 425 430

Asp Leu Met Val Leu Asn Asp Val Tyr Arg Val Met Ala Val Asp Ala
435 440 445

Leu Ala Ser Ser His Pro Leu Ser Thr Pro Ala Ser Glu Ile Asn Thr
450 455 460

Pro Ala Gln Ile Ser Glu Leu Phe Asp Ala Ile Ser Tyr Ser Lys Gly
465 470 475 480

Ala Ser Val Leu Arg Met Leu Ser Ser Phe Leu Ser Glu Asp Val Phe
485 490 495

Lys Gln Gly Leu Ala Ser Tyr Leu His Thr Phe Ala Tyr Gln Asn Thr
500 505 510

Ile Tyr Leu Asn Leu Trp Asp His Leu Gln Glu Ala Val Asn Asn Arg
515 520 525

Ser Ile Gln Leu Pro Thr Thr Val Arg Asp Ile Met Asn Arg Trp Thr
530 535 540

Leu Gln Met Gly Phe Pro Val Ile Thr Val Asp Thr Ser Thr Gly Thr
545 550 555 560

Leu Ser Gln Glu His Phe Leu Leu Asp Pro Asp Ser Asn Val Thr Arg
565 570 575

Pro Ser Glu Phe Asn Tyr Val Trp Ile Val Pro Ile Thr Ser Ile Arg
580 585 590

Asp Gly Arg Gln Gln Gln Asp Tyr Trp Leu Ile Asp Val Arg Ala Gln
595 600 605

Asn Asp Leu Phe Ser Thr Ser Gly Asn Glu Trp Val Leu Leu Asn Leu
610 615 620

Asn Val Thr Gly Tyr Tyr Arg Val Asn Tyr Asp Glu Glu Asn Trp Arg
625 630 635 640

```
Lys Ile Gln Thr Gln Leu Gln Arg Asp His Ser Ala Ile Pro Val Ile
                645                 650                 655

Asn Arg Ala Gln Ile Ile Asn Asp Ala Phe Asn Leu Ala Ser Ala His
            660                 665                 670

Lys Val Pro Val Thr Leu Ala Leu Asn Asn Thr Leu Phe Leu Ile Glu
        675                 680                 685

Glu Arg Gln Tyr Met Pro Trp Glu Ala Ala Leu Ser Ser Leu Ser Tyr
    690                 695                 700

Phe Lys Leu Met Phe Asp Arg Ser Glu Val Tyr Gly Pro Met Lys Asn
705                 710                 715                 720

Tyr Leu Lys Lys Gln Val Thr Pro Leu Phe Ile His Phe Arg Asn Asn
                725                 730                 735

Thr Asn Asn Trp Arg Glu Ile Pro Glu Asn Leu Met Asp Gln Tyr Ser
            740                 745                 750

Glu Val Asn Ala Ile Ser Thr Ala Cys Ser Asn Gly Val Pro Glu Cys
        755                 760                 765

Glu Glu Met Val Ser Gly Leu Phe Lys Gln Trp Met Glu Asn Pro Asn
    770                 775                 780

Asn Asn Pro Ile His Pro Asn Leu Arg Ser Thr Val Tyr Cys Asn Ala
785                 790                 795                 800

Ile Ala Gln Gly Gly Glu Glu Glu Trp Asp Phe Ala Trp Glu Gln Phe
                805                 810                 815

Arg Asn Ala Thr Leu Val Asn Glu Ala Asp Lys Leu Arg Ala Ala Leu
            820                 825                 830

Ala Cys Ser Lys Glu Leu Trp Ile Leu Asn Arg Tyr Leu Ser Tyr Thr
        835                 840                 845

Leu Asn Pro Asp Leu Ile Arg Lys Gln Asp Ala Thr Ser Thr Ile Ile
    850                 855                 860
```

```
Ser Ile Thr Asn Asn Val Ile Gly Gln Gly Leu Val Trp Asp Phe Val
865                 870                 875                 880

Gln Ser Asn Trp Lys Lys Leu Phe Asn Asp Tyr Gly Gly Gly Ser Phe
                885                 890                 895

Ser Phe Ser Asn Leu Ile Gln Ala Val Thr Arg Arg Phe Ser Thr Glu
            900                 905                 910

Tyr Glu Leu Gln Gln Leu Glu Gln Phe Lys Lys Asp Asn Glu Glu Thr
        915                 920                 925

Gly Phe Gly Ser Gly Thr Arg Ala Leu Glu Gln Ala Leu Glu Lys Thr
    930                 935                 940

Lys Ala Asn Ile Lys Trp Val Lys Glu Asn Lys Glu Val Val Leu Gln
945                 950                 955                 960

Trp Phe Thr Glu Asn Ser Lys
                965


<210> 3758
<211> 103
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 861; "

<220>
<221> source
<223> /note="Gene Symbol: ANPEP; "

<220>
<221> source
<223> /note="Gene Name:
      alanyl (membrane) aminopeptidase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452934"

<400> 3758
Met Ala Lys Gly Phe Tyr Ile Ser Lys Ser Leu Gly Ile Leu Gly Ile
1               5                   10                  15

Leu Leu Gly Val Ala Ala Val Cys Thr Ile Ile Ala Leu Ser Val Val
```

```
            20                  25                  30

Tyr Ser Gln Glu Lys Asn Lys Asn Ala Asn Ser Ser Pro Val Ala Ser
        35                  40                  45

Thr Thr Pro Ser Ala Ser Ala Thr Thr Asn Pro Ala Ser Ala Thr Thr
    50                  55                  60

Leu Asp Gln Ser Lys Ala Trp Asn Arg Tyr Arg Leu Pro Asn Thr Leu
65                  70                  75                  80

Lys Pro Asp Ser Tyr Arg Val Thr Leu Arg Pro Tyr Leu Thr Pro Asn
                85                  90                  95

Asp Arg Gly Leu Tyr Val Phe
            100


<210> 3759
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 861; "

<220>
<221> source
<223> /note="Gene Symbol: ANPEP; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000453405"

<400> 3759
Thr Leu Ile His Pro Lys Asp Leu Thr Ala Leu Ser Asn Met Leu Pro
1               5                   10                  15

Lys Gly Pro Ser Thr Pro Leu Pro Glu Asp Pro Asn Trp Asn Val Thr
            20                  25                  30

Glu Phe His Thr Thr Pro Lys Met Ser Thr Tyr Leu Leu Ala Phe Ile
        35                  40                  45
```

Val Ser Glu Phe Asp Tyr Val Glu Lys Gln Ala Ser Asn Gly Val Leu
    50   55   60

Val
65

<210> 3760
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ANPEP; "

<220>
<221> source
<223> /note="Gene Name:
      alanyl (membrane) aminopeptidase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453413"

<400> 3760
Met Ala Lys Gly Phe Tyr Ile Ser Lys Ser Leu Gly Ile Leu Gly Ile
1   5   10   15

Leu Leu Gly Val Ala Ala Val Cys Thr Ile Ile Ala Leu Ser Val Val
            20   25   30

Tyr Ser Gln Glu Lys Asn Lys Asn Ala Asn Ser Ser Pro Val Ala Ser
        35   40   45

Thr Thr Pro Ser Ala Ser Ala Thr Thr Asn Pro Ala Ser
    50   55   60

<210> 3761
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ANPEP; "

<220>
<221> source
<223> /note="Gene Name:
alanyl (membrane) aminopeptidase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453545"

<400> 3761
Asn Asp Leu Trp Leu Asn Glu Gly Phe Ala Ser Tyr Val Glu Tyr Leu
1 5 10 15

Gly Ala Asp Tyr Ala Glu Pro Thr Trp Asn Leu Lys Asp Leu Met Val
20 25 30

Leu Asn Asp Val Tyr Arg Val Met Ala Val Asp Ala Leu Ala Ser Ser
35 40 45

His Pro Leu Ser Thr Pro Ala Ser Glu Ile Asn Thr Pro Ala Gln Ile
50 55 60

Ser Glu Leu Phe Asp Ala Ile Ser Tyr Ser Lys Val Gln Pro Ala Pro
65 70 75 80

Arg Gly Ala Arg Gly Arg Arg Ala Pro Gln Ser Ser Gly Cys Ser Pro
85 90 95

Ala Ser Cys Pro Arg Thr Tyr Ser Ser Arg Ala Trp Arg Pro Thr Ser
100 105 110

Thr Pro Leu Pro Thr Arg Thr Pro Ser Thr
115 120

<210> 3762
<211> 968
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 862; "

<220>
<221> source

<223> /note="Gene Symbol: AARS; "

<220>
<221> source
<223> /note="Gene Name:
alanyl-tRNA
synthetase; "

<220>
<221> source
<223> /note="Uniprot ID: P49588; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000261772"

<400> 3762

```
Met Asp Ser Thr Leu Thr Ala Ser Glu Ile Arg Gln Arg Phe Ile Asp
1               5                  10                  15

Phe Phe Lys Arg Asn Glu His Thr Tyr Val His Ser Ser Ala Thr Ile
            20                  25                  30

Pro Leu Asp Asp Pro Thr Leu Leu Phe Ala Asn Ala Gly Met Asn Gln
        35                  40                  45

Phe Lys Pro Ile Phe Leu Asn Thr Ile Asp Pro Ser His Pro Met Ala
    50                  55                  60

Lys Leu Ser Arg Ala Ala Asn Thr Gln Lys Cys Ile Arg Ala Gly Gly
65                  70                  75                  80

Lys His Asn Asp Leu Asp Asp Val Gly Lys Asp Val Tyr His His Thr
                85                  90                  95

Phe Phe Glu Met Leu Gly Ser Trp Ser Phe Gly Asp Tyr Phe Lys Glu
            100                 105                 110

Leu Ala Cys Lys Met Ala Leu Glu Leu Leu Thr Gln Glu Phe Gly Ile
        115                 120                 125

Pro Ile Glu Arg Leu Tyr Val Thr Tyr Phe Gly Gly Asp Glu Ala Ala
    130                 135                 140

Gly Leu Glu Ala Asp Leu Glu Cys Lys Gln Ile Trp Gln Asn Leu Gly
145                 150                 155                 160
```

```
Leu Asp Asp Thr Lys Ile Leu Pro Gly Asn Met Lys Asp Asn Phe Trp
                165                 170                 175

Glu Met Gly Asp Thr Gly Pro Cys Gly Pro Cys Ser Glu Ile His Tyr
            180                 185                 190

Asp Arg Ile Gly Gly Arg Asp Ala Ala His Leu Val Asn Gln Asp Asp
        195                 200                 205

Pro Asn Val Leu Glu Ile Trp Asn Leu Val Phe Ile Gln Tyr Asn Arg
    210                 215                 220

Glu Ala Asp Gly Ile Leu Lys Pro Leu Pro Lys Lys Ser Ile Asp Thr
225                 230                 235                 240

Gly Met Gly Leu Glu Arg Leu Val Ser Val Leu Gln Asn Lys Met Ser
                245                 250                 255

Asn Tyr Asp Thr Asp Leu Phe Val Pro Tyr Phe Glu Ala Ile Gln Lys
            260                 265                 270

Gly Thr Gly Ala Arg Pro Tyr Thr Gly Lys Val Gly Ala Glu Asp Ala
        275                 280                 285

Asp Gly Ile Asp Met Ala Tyr Arg Val Leu Ala Asp His Ala Arg Thr
    290                 295                 300

Ile Thr Val Ala Leu Ala Asp Gly Gly Arg Pro Asp Asn Thr Gly Arg
305                 310                 315                 320

Gly Tyr Val Leu Arg Arg Ile Leu Arg Arg Ala Val Arg Tyr Ala His
                325                 330                 335

Glu Lys Leu Asn Ala Ser Arg Gly Phe Phe Ala Thr Leu Val Asp Val
            340                 345                 350

Val Val Gln Ser Leu Gly Asp Ala Phe Pro Glu Leu Lys Lys Asp Pro
        355                 360                 365

Asp Met Val Lys Asp Ile Ile Asn Glu Glu Glu Val Gln Phe Leu Lys
    370                 375                 380

Thr Leu Ser Arg Gly Arg Arg Ile Leu Asp Arg Lys Ile Gln Ser Leu
```

385 390 395 400

Gly Asp Ser Lys Thr Ile Pro Gly Asp Thr Ala Trp Leu Leu Tyr Asp
405 410 415

Thr Tyr Gly Phe Pro Val Asp Leu Thr Gly Leu Ile Ala Glu Glu Lys
420 425 430

Gly Leu Val Val Asp Met Asp Gly Phe Glu Glu Glu Arg Lys Leu Ala
435 440 445

Gln Leu Lys Ser Gln Gly Lys Gly Ala Gly Gly Glu Asp Leu Ile Met
450 455 460

Leu Asp Ile Tyr Ala Ile Glu Glu Leu Arg Ala Arg Gly Leu Glu Val
465 470 475 480

Thr Asp Asp Ser Pro Lys Tyr Asn Tyr His Leu Asp Ser Ser Gly Ser
485 490 495

Tyr Val Phe Glu Asn Thr Val Ala Thr Val Met Ala Leu Arg Arg Glu
500 505 510

Lys Met Phe Val Glu Glu Val Ser Thr Gly Gln Glu Cys Gly Val Val
515 520 525

Leu Asp Lys Thr Cys Phe Tyr Ala Glu Gln Gly Gly Gln Ile Tyr Asp
530 535 540

Glu Gly Tyr Leu Val Lys Val Asp Asp Ser Ser Glu Asp Lys Thr Glu
545 550 555 560

Phe Thr Val Lys Asn Ala Gln Val Arg Gly Gly Tyr Val Leu His Ile
565 570 575

Gly Thr Ile Tyr Gly Asp Leu Lys Val Gly Asp Gln Val Trp Leu Phe
580 585 590

Ile Asp Glu Pro Arg Arg Arg Pro Ile Met Ser Asn His Thr Ala Thr
595 600 605

His Ile Leu Asn Phe Ala Leu Arg Ser Val Leu Gly Glu Ala Asp Gln
610 615 620

```
Lys Gly Ser Leu Val Ala Pro Asp Arg Leu Arg Phe Asp Phe Thr Ala
625                 630                 635                 640

Lys Gly Ala Met Ser Thr Gln Gln Ile Lys Lys Ala Glu Glu Ile Ala
                645                 650                 655

Asn Glu Met Ile Glu Ala Ala Lys Ala Val Tyr Thr Gln Asp Cys Pro
            660                 665                 670

Leu Ala Ala Ala Lys Ala Ile Gln Gly Leu Arg Ala Val Phe Asp Glu
        675                 680                 685

Thr Tyr Pro Asp Pro Val Arg Val Val Ser Ile Gly Val Pro Val Ser
    690                 695                 700

Glu Leu Leu Asp Asp Pro Ser Gly Pro Ala Gly Ser Leu Thr Ser Val
705                 710                 715                 720

Glu Phe Cys Gly Gly Thr His Leu Arg Asn Ser Ser His Ala Gly Ala
                725                 730                 735

Phe Val Ile Val Thr Glu Glu Ala Ile Ala Lys Gly Ile Arg Arg Ile
            740                 745                 750

Val Ala Val Thr Gly Ala Glu Ala Gln Lys Ala Leu Arg Lys Ala Glu
        755                 760                 765

Ser Leu Lys Lys Cys Leu Ser Val Met Glu Ala Lys Val Lys Ala Gln
    770                 775                 780

Thr Ala Pro Asn Lys Asp Val Gln Arg Glu Ile Ala Asp Leu Gly Glu
785                 790                 795                 800

Ala Leu Ala Thr Ala Val Ile Pro Gln Trp Gln Lys Asp Glu Leu Arg
                805                 810                 815

Glu Thr Leu Lys Ser Leu Lys Lys Val Met Asp Asp Leu Asp Arg Ala
            820                 825                 830

Ser Lys Ala Asp Val Gln Lys Arg Val Leu Glu Lys Thr Lys Gln Phe
        835                 840                 845
```

```
Ile Asp Ser Asn Pro Asn Gln Pro Leu Val Ile Leu Glu Met Glu Ser
    850                 855                 860

Gly Ala Ser Ala Lys Ala Leu Asn Glu Ala Leu Lys Leu Phe Lys Met
865                 870                 875                 880

His Ser Pro Gln Thr Ser Ala Met Leu Phe Thr Val Asp Asn Glu Ala
                885                 890                 895

Gly Lys Ile Thr Cys Leu Cys Gln Val Pro Gln Asn Ala Ala Asn Arg
            900                 905                 910

Gly Leu Lys Ala Ser Glu Trp Val Gln Gln Val Ser Gly Leu Met Asp
        915                 920                 925

Gly Lys Gly Gly Gly Lys Asp Val Ser Ala Gln Ala Thr Gly Lys Asn
    930                 935                 940

Val Gly Cys Leu Gln Glu Ala Leu Gln Leu Ala Thr Ser Phe Ala Gln
945                 950                 955                 960

Leu Arg Leu Gly Asp Val Lys Asn
                965
```

<210> 3763
<211> 280
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 862; "

<220>
<221> source
<223> /note="Gene Symbol: AARS; "

<220>
<221> source
<223> /note="Gene Name:
alanyl-tRNA
synthetase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455360"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3763
Xaa Asp Ser Ser Glu Asp Lys Thr Glu Phe Thr Val Lys Asn Ala Gln
1 5 10 15

Val Arg Gly Gly Tyr Val Leu His Ile Gly Thr Ile Tyr Gly Asp Leu
20 25 30

Lys Val Gly Asp Gln Val Trp Leu Phe Ile Asp Glu Pro Arg Arg Arg
35 40 45

Pro Ile Met Ser Asn His Thr Ala Thr His Ile Leu Asn Phe Ala Leu
50 55 60

Arg Ser Val Leu Gly Glu Ala Asp Gln Lys Gly Ser Leu Val Ala Pro
65 70 75 80

Asp Arg Leu Arg Phe Asp Phe Thr Ala Lys Gly Ala Met Ser Thr Gln
85 90 95

Gln Ile Lys Lys Ala Glu Glu Ile Ala Asn Glu Met Ile Glu Ala Ala
100 105 110

Lys Ala Val Tyr Thr Gln Asp Cys Pro Leu Ala Ala Ala Lys Ala Ile
115 120 125

Gln Gly Leu Arg Ala Val Phe Asp Glu Thr Tyr Pro Asp Pro Val Arg
130 135 140

Val Val Ser Ile Gly Val Pro Val Ser Glu Leu Leu Asp Asp Pro Ser
145 150 155 160

Gly Pro Ala Gly Ser Leu Thr Ser Val Glu Phe Cys Gly Gly Thr His
165 170 175

Leu Arg Asn Ser Ser His Ala Gly Ala Phe Val Ile Val Thr Glu Glu
180 185 190

Ala Ile Ala Lys Gly Ile Arg Arg Ile Val Ala Val Thr Gly Ala Glu
195 200 205

```
Ala Gln Lys Ala Leu Arg Lys Ala Glu Ser Leu Lys Lys Cys Leu Ser
    210                 215                 220

Val Met Glu Ala Lys Val Lys Ala Gln Thr Ala Pro Asn Lys Asp Val
225                 230                 235                 240

Gln Arg Glu Ile Ala Asp Leu Gly Glu Pro Cys Ser Arg Asp Pro Met
                245                 250                 255

Asp Pro Val Leu Gly Pro Trp Thr Phe Pro Ala Ala Pro Ser Ala Ala
            260                 265                 270

Ser Arg Arg Ala Leu Pro Lys His
        275                 280
```

<210> 3764
<211> 985
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 863; "

<220>
<221> source
<223> /note="Gene Symbol: AARS2; "

<220>
<221> source
<223> /note="Gene Name:
alanyl-tRNA synthetase 2,
mitochondrial; "

<220>
<221> source
<223> /note="Uniprot ID: Q5JTZ9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000244571"

<400> 3764

```
Met Ala Ala Ser Val Ala Ala Ala Ala Arg Arg Leu Arg Arg Ala Ile
1               5                   10                  15

Arg Arg Ser Pro Ala Trp Arg Gly Leu Ser His Arg Pro Leu Ser Ser
            20                  25                  30
```

```
Glu Pro Pro Ala Ala Lys Ala Ser Ala Val Arg Ala Ala Phe Leu Asn
        35                  40                  45

Phe Phe Arg Asp Arg His Gly His Arg Leu Val Pro Ser Ala Ser Val
    50                  55                  60

Arg Pro Arg Gly Asp Pro Ser Leu Leu Phe Val Asn Ala Gly Met Asn
65                  70                  75                  80

Gln Phe Lys Pro Ile Phe Leu Gly Thr Val Asp Pro Arg Ser Glu Met
                85                  90                  95

Ala Gly Phe Arg Arg Val Ala Asn Ser Gln Lys Cys Val Arg Ala Gly
            100                 105                 110

Gly His His Asn Asp Leu Glu Asp Val Gly Arg Asp Leu Ser His His
        115                 120                 125

Thr Phe Phe Glu Met Leu Gly Asn Trp Ala Phe Gly Gly Glu Tyr Phe
    130                 135                 140

Lys Glu Glu Ala Cys Asn Met Ala Trp Glu Leu Leu Thr Gln Val Tyr
145                 150                 155                 160

Gly Ile Pro Glu Glu Arg Leu Trp Ile Ser Tyr Phe Asp Gly Asp Pro
                165                 170                 175

Lys Ala Gly Leu Asp Pro Asp Leu Glu Thr Arg Asp Ile Trp Leu Ser
            180                 185                 190

Leu Gly Val Pro Ala Ser Arg Val Leu Ser Phe Gly Pro Gln Glu Asn
        195                 200                 205

Phe Trp Glu Met Gly Asp Thr Gly Pro Cys Gly Pro Cys Thr Glu Ile
    210                 215                 220

His Tyr Asp Leu Ala Gly Gly Val Gly Ala Pro Gln Leu Val Glu Leu
225                 230                 235                 240

Trp Asn Leu Val Phe Met Gln His Asn Arg Glu Ala Asp Gly Ser Leu
                245                 250                 255

Gln Pro Leu Pro Gln Arg His Val Asp Thr Gly Met Gly Leu Glu Arg
```

260 265 270

Leu Val Ala Val Leu Gln Gly Lys His Ser Thr Tyr Asp Thr Asp Leu
275 280 285

Phe Ser Pro Leu Leu Asn Ala Ile Gln Gln Gly Cys Arg Ala Pro Pro
290 295 300

Tyr Leu Gly Arg Val Gly Val Ala Asp Glu Gly Arg Thr Asp Thr Ala
305 310 315 320

Tyr Arg Val Val Ala Asp His Ile Arg Thr Leu Ser Val Cys Ile Ser
325 330 335

Asp Gly Ile Phe Pro Gly Met Ser Gly Pro Pro Leu Val Leu Arg Arg
340 345 350

Ile Leu Arg Arg Ala Val Arg Phe Ser Met Glu Ile Leu Lys Ala Pro
355 360 365

Pro Gly Phe Leu Gly Ser Leu Val Pro Val Val Val Glu Thr Leu Gly
370 375 380

Asp Ala Tyr Pro Glu Leu Gln Arg Asn Ser Ala Gln Ile Ala Asn Leu
385 390 395 400

Val Ser Glu Asp Glu Ala Ala Phe Leu Ala Ser Leu Glu Arg Gly Arg
405 410 415

Arg Ile Ile Asp Arg Thr Leu Arg Thr Leu Gly Pro Ser Asp Met Phe
420 425 430

Pro Ala Glu Val Ala Trp Ser Leu Ser Leu Cys Gly Asp Leu Gly Leu
435 440 445

Pro Leu Asp Met Val Glu Leu Met Leu Glu Glu Lys Gly Val Gln Leu
450 455 460

Asp Ser Ala Gly Leu Glu Arg Leu Ala Gln Glu Glu Ala Gln His Arg
465 470 475 480

Ala Arg Gln Ala Glu Pro Val Gln Lys Gln Gly Leu Trp Leu Asp Val
485 490 495

```
His Ala Leu Gly Glu Leu Gln Arg Gln Gly Val Pro Pro Thr Asp Asp
            500                 505                 510

Ser Pro Lys Tyr Asn Tyr Ser Leu Arg Pro Ser Gly Ser Tyr Glu Phe
        515                 520                 525

Gly Thr Cys Glu Ala Gln Val Leu Gln Leu Tyr Thr Glu Asp Gly Thr
    530                 535                 540

Ala Val Ala Ser Val Gly Lys Gly Gln Arg Cys Gly Leu Leu Leu Asp
545                 550                 555                 560

Arg Thr Asn Phe Tyr Ala Glu Gln Gly Gly Gln Ala Ser Asp Arg Gly
                565                 570                 575

Tyr Leu Val Arg Ala Gly Gln Glu Asp Val Leu Phe Pro Val Ala Arg
            580                 585                 590

Ala Gln Val Cys Gly Gly Phe Ile Leu His Glu Ala Val Ala Pro Glu
        595                 600                 605

Cys Leu Arg Leu Gly Asp Gln Val Gln Leu His Val Asp Glu Ala Trp
    610                 615                 620

Arg Leu Gly Cys Met Ala Lys His Thr Ala Thr His Leu Leu Asn Trp
625                 630                 635                 640

Ala Leu Arg Gln Thr Leu Gly Pro Gly Thr Glu Gln Gln Gly Ser His
                645                 650                 655

Leu Asn Pro Glu Gln Leu Arg Leu Asp Val Thr Thr Gln Thr Pro Leu
            660                 665                 670

Thr Pro Glu Gln Leu Arg Ala Val Glu Asn Thr Val Gln Glu Ala Val
        675                 680                 685

Gly Gln Asp Glu Ala Val Tyr Met Glu Glu Val Pro Leu Ala Leu Thr
    690                 695                 700

Ala Gln Val Pro Gly Leu Arg Ser Leu Asp Glu Val Tyr Pro Asp Pro
705                 710                 715                 720
```

```
Val Arg Val Val Ser Val Gly Val Pro Val Ala His Ala Leu Asp Pro
                725                 730                 735

Ala Ser Gln Ala Ala Leu Gln Thr Ser Val Glu Leu Cys Cys Gly Thr
            740                 745                 750

His Leu Leu Arg Thr Gly Ala Val Gly Asp Leu Val Ile Ile Gly Asp
        755                 760                 765

Arg Gln Leu Ser Lys Gly Thr Thr Arg Leu Leu Ala Val Thr Gly Glu
    770                 775                 780

Gln Ala Gln Gln Ala Arg Glu Leu Gly Gln Ser Leu Ala Gln Glu Val
785                 790                 795                 800

Lys Ala Ala Thr Glu Arg Leu Ser Leu Gly Ser Arg Asp Val Ala Glu
                805                 810                 815

Ala Leu Arg Leu Ser Lys Asp Ile Gly Arg Leu Ile Glu Ala Val Glu
            820                 825                 830

Thr Ala Val Met Pro Gln Trp Gln Arg Arg Glu Leu Leu Ala Thr Val
        835                 840                 845

Lys Met Leu Gln Arg Arg Ala Asn Thr Ala Ile Arg Lys Leu Gln Met
    850                 855                 860

Gly Gln Ala Ala Lys Lys Thr Gln Glu Leu Leu Glu Arg His Ser Lys
865                 870                 875                 880

Gly Pro Leu Ile Val Asp Thr Val Ser Ala Glu Ser Leu Ser Val Leu
                885                 890                 895

Val Lys Val Val Arg Gln Leu Cys Glu Gln Ala Pro Ser Thr Ser Val
            900                 905                 910

Leu Leu Leu Ser Pro Gln Pro Met Gly Lys Val Leu Cys Ala Cys Gln
        915                 920                 925

Val Ala Gln Gly Ala Met Pro Thr Phe Thr Ala Glu Ala Trp Ala Leu
    930                 935                 940
```

```
Ala Val Cys Ser His Met Gly Gly Lys Ala Trp Gly Ser Arg Val Val
945                 950                 955                 960


Ala Gln Gly Thr Gly Ser Thr Thr Asp Leu Glu Ala Ala Leu Ser Ile
                965                 970                 975


Ala Gln Thr Tyr Ala Leu Ser Gln Leu
            980                 985


<210> 3765
<211> 84
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 864; "

<220>
<221> source
<223> /note="Gene Symbol: AARSD1; "

<220>
<221> source
<223> /note="Gene Name:
      alanyl-tRNA synthetase
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000387415"

<400> 3765
Met Gln Gln His Ser Gly Gln His Leu Ile Thr Ala Val Ala Asp His
1               5                   10                  15


Leu Phe Lys Leu Lys Thr Thr Ser Trp Glu Leu Gly Arg Phe Arg Ser
            20                  25                  30


Ala Ile Glu Leu Asp Thr Pro Ser Met Thr Ala Glu Gln Val Ala Ala
        35                  40                  45


Ile Glu Gln Ser Val Asn Glu Lys Ile Arg Asp Arg Leu Pro Val Asn
    50                  55                  60


Val Arg Glu Leu Ser Leu Asp Asp Pro Glu Val Glu Gln Val Arg Trp
65                  70                  75                  80


Pro Gly Phe Ala
```

<210> 3766
<211> 140
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 864; "

<220>
<221> source
<223> /note="Gene Symbol: AARSD1; "

<220>
<221> source
<223> /note="Gene Name:
alanyl-tRNA synthetase
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400735"

<400> 3766
Met Gln Gln His Ser Gly Gln His Leu Ile Thr Ala Val Ala Asp His
1 5 10 15

Leu Phe Lys Leu Lys Thr Thr Ser Trp Glu Leu Gly Arg Phe Arg Ser
20 25 30

Ala Ile Glu Leu Asp Thr Pro Ser Met Thr Ala Glu Gln Val Ala Ala
35 40 45

Ile Glu Gln Ser Val Asn Glu Lys Ile Arg Asp Arg Leu Pro Val Asn
50 55 60

Val Arg Glu Leu Ser Leu Asp Asp Pro Glu Val Glu Gln Val Ser Gly
65 70 75 80

Arg Gly Leu Pro Asp Asp His Ala Gly Pro Ile Arg Val Val Asn Ile
85 90 95

Glu Gly Val Asp Ser Asn Met Cys Cys Gly Thr His Val Ser Asn Leu
100 105 110

Ser Asp Leu Gln Val Ile Lys Ile Leu Gly Thr Glu Lys Gly Lys Lys
115 120 125

```
Asn Arg Thr Asn Leu Ile Phe Leu Ser Gly Asn Arg
    130                 135                 140


<210> 3767
<211> 412
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 864; "

<220>
<221> source
<223> /note="Gene Symbol: AARSD1; "

<220>
<221> source
<223> /note="Gene Name:
      alanyl-tRNA synthetase
      domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BTE6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400870"

<400> 3767
Met Ala Phe Trp Cys Gln Arg Asp Ser Tyr Ala Arg Glu Phe Thr Thr
1               5                   10                  15


Thr Val Val Ser Cys Cys Pro Ala Glu Leu Gln Thr Glu Gly Ser Asn
            20                  25                  30


Gly Lys Lys Glu Val Leu Ser Gly Phe Gln Val Val Leu Glu Asp Thr
        35                  40                  45


Val Leu Phe Pro Glu Gly Gly Gly Gln Pro Asp Asp Arg Gly Thr Ile
    50                  55                  60


Asn Asp Ile Ser Val Leu Arg Val Thr Arg Arg Gly Glu Gln Ala Asp
65                  70                  75                  80


His Phe Thr Gln Thr Pro Leu Asp Pro Gly Ser Gln Val Leu Val Arg
                85                  90                  95
```

```
Val Asp Trp Glu Arg Arg Phe Asp His Met Gln Gln His Ser Gly Gln
            100                 105                 110

His Leu Ile Thr Ala Val Ala Asp His Leu Phe Lys Leu Lys Thr Thr
        115                 120                 125

Ser Trp Glu Leu Gly Arg Phe Arg Ser Ala Ile Glu Leu Asp Thr Pro
    130                 135                 140

Ser Met Thr Ala Glu Gln Val Ala Ala Ile Glu Gln Ser Val Asn Glu
145                 150                 155                 160

Lys Ile Arg Asp Arg Leu Pro Val Asn Val Arg Glu Leu Ser Leu Asp
                165                 170                 175

Asp Pro Glu Val Glu Gln Val Ser Gly Arg Gly Leu Pro Asp Asp His
            180                 185                 190

Ala Gly Pro Ile Arg Val Val Asn Ile Glu Gly Val Asp Ser Asn Met
        195                 200                 205

Cys Cys Gly Thr His Val Ser Asn Leu Ser Asp Leu Gln Val Ile Lys
    210                 215                 220

Ile Leu Gly Thr Glu Lys Gly Lys Lys Asn Arg Thr Asn Leu Ile Phe
225                 230                 235                 240

Leu Ser Gly Asn Arg Val Leu Lys Trp Met Glu Arg Ser His Gly Thr
                245                 250                 255

Glu Lys Ala Leu Thr Ala Leu Leu Lys Cys Gly Ala Glu Asp His Val
            260                 265                 270

Glu Ala Val Lys Lys Leu Gln Asn Ser Thr Lys Ile Leu Gln Lys Asn
        275                 280                 285

Asn Leu Asn Leu Leu Arg Asp Leu Ala Val His Ile Ala His Ser Leu
    290                 295                 300

Arg Asn Ser Pro Asp Trp Gly Gly Val Val Ile Leu His Arg Lys Glu
305                 310                 315                 320
```

```
Gly Asp Ser Glu Phe Met Asn Ile Ile Ala Asn Glu Ile Gly Ser Glu
                325                 330                 335

Glu Thr Leu Leu Phe Leu Thr Val Gly Asp Glu Lys Gly Gly Gly Leu
            340                 345                 350

Phe Leu Leu Ala Gly Pro Pro Ala Ser Val Glu Thr Leu Gly Pro Arg
        355                 360                 365

Val Ala Glu Val Leu Glu Gly Lys Gly Ala Gly Lys Lys Gly Arg Phe
    370                 375                 380

Gln Gly Lys Ala Thr Lys Met Ser Arg Arg Met Glu Ala Gln Ala Leu
385                 390                 395                 400

Leu Gln Asp Tyr Ile Ser Thr Gln Ser Ala Lys Glu
                405                 410
```

<210> 3768
<211> 98
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 864; "

<220>
<221> source
<223> /note="Gene Symbol: AARSD1; "

<220>
<221> source
<223> /note="Gene Name:
alanyl-tRNA synthetase
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404894"

<400> 3768

```
Met Ala Phe Trp Cys Gln Arg Asp Ser Tyr Ala Arg Glu Phe Thr Thr
1               5                   10                  15

Thr Val Val Ser Cys Cys Pro Ala Glu Leu Gln Thr Glu Gly Ser Asn
            20                  25                  30

Gly Lys Lys Glu Val Leu Ser Gly Phe Gln Val Val Leu Glu Asp Thr
```

35 40 45

Val Leu Phe Pro Glu Gly Gly Gly Gln Met Val Ser Cys Ser Val Ala
50 55 60

Arg Leu Glu Arg Ser Gly Val Ile Ser Ala Tyr Cys Asn Leu Arg Leu
65 70 75 80

Pro Gly Ser Ser Asn Ser Pro Ala Ser Val Ser Arg Val Ala Arg Thr
85 90 95

Thr Ala

<210> 3769
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 864; "

<220>
<221> source
<223> /note="Gene Symbol: AARSD1; "

<220>
<221> source
<223> /note="Gene Name:
alanyl-tRNA synthetase
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467696"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3769
Xaa Ser Tyr Ala Arg Glu Phe Thr Thr Thr Val Val Ser Cys Cys Pro
1 5 10 15

Ala Glu Leu Gln Thr Glu Gly Ser Asn Gly Lys Lys Glu Val Leu Ser
20 25 30

Gly Phe Gln Val Val Leu Glu Asp Thr Val Leu Phe Pro Glu Gly Gly
        35   40   45

Gly Gln Ala Gly Ala Gln Arg Arg Asp Leu Gly Leu Leu Gln Ser Pro
    50   55   60

Ser Ala Arg Phe Lys Gln Phe Pro Cys Leu Ser Leu Pro Ser Ser
65   70   75

<210> 3770
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 864; "

<220>
<221> source
<223> /note="Gene Symbol: AARSD1; "

<220>
<221> source
<223> /note="Gene Name:
      alanyl-tRNA synthetase
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467714"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3770
Xaa Gly Lys Lys Asn Arg Thr Asn Leu Ile Phe Leu Ser Gly Asn Arg
1   5   10   15

Val Leu Lys Trp Met Glu Arg Ser His Gly Thr Glu Lys Ala Leu Thr
            20   25   30

Ala Leu Leu Lys Cys Gly Ala Glu Asp His Val Glu Ala Val Lys Lys
        35   40   45

Leu Gln Asn Ser Thr Lys Ile Leu Gln Lys Asn Asn Leu Asn Leu Leu
    50   55   60

```
Arg Asp Leu Ala Val His Ile Ala His Ser Leu Arg Asn Ser Pro Asp
65                  70                  75                  80


Trp Gly Gly Val Val Ile Leu His Arg Arg Pro Ser Cys Ser
                85                  90


<210> 3771
<211> 609
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 865; "

<220>
<221> source
<223> /note="Gene Symbol: ALB; "

<220>
<221> source
<223> /note="Gene Name:
      albumin; "

<220>
<221> source
<223> /note="Uniprot ID:  P02768; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295897"

<400> 3771
Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1               5                   10                  15


Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala
            20                  25                  30


His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Val Leu
        35                  40                  45


Ile Ala Phe Ala Gln Tyr Leu Gln Gln Cys Pro Phe Glu Asp His Val
    50                  55                  60


Lys Leu Val Asn Glu Val Thr Glu Phe Ala Lys Thr Cys Val Ala Asp
65                  70                  75                  80


Glu Ser Ala Glu Asn Cys Asp Lys Ser Leu His Thr Leu Phe Gly Asp
```

```
                85                  90                  95

Lys Leu Cys Thr Val Ala Thr Leu Arg Glu Thr Tyr Gly Glu Met Ala
            100                 105                 110

Asp Cys Cys Ala Lys Gln Glu Pro Glu Arg Asn Glu Cys Phe Leu Gln
        115                 120                 125

His Lys Asp Asp Asn Pro Asn Leu Pro Arg Leu Val Arg Pro Glu Val
    130                 135                 140

Asp Val Met Cys Thr Ala Phe His Asp Asn Glu Glu Thr Phe Leu Lys
145                 150                 155                 160

Lys Tyr Leu Tyr Glu Ile Ala Arg Arg His Pro Tyr Phe Tyr Ala Pro
                165                 170                 175

Glu Leu Leu Phe Phe Ala Lys Arg Tyr Lys Ala Ala Phe Thr Glu Cys
            180                 185                 190

Cys Gln Ala Ala Asp Lys Ala Ala Cys Leu Leu Pro Lys Leu Asp Glu
        195                 200                 205

Leu Arg Asp Glu Gly Lys Ala Ser Ser Ala Lys Gln Arg Leu Lys Cys
    210                 215                 220

Ala Ser Leu Gln Lys Phe Gly Glu Arg Ala Phe Lys Ala Trp Ala Val
225                 230                 235                 240

Ala Arg Leu Ser Gln Arg Phe Pro Lys Ala Glu Phe Ala Glu Val Ser
                245                 250                 255

Lys Leu Val Thr Asp Leu Thr Lys Val His Thr Glu Cys Cys His Gly
            260                 265                 270

Asp Leu Leu Glu Cys Ala Asp Asp Arg Ala Asp Leu Ala Lys Tyr Ile
        275                 280                 285

Cys Glu Asn Gln Asp Ser Ile Ser Ser Lys Leu Lys Glu Cys Cys Glu
    290                 295                 300

Lys Pro Leu Leu Glu Lys Ser His Cys Ile Ala Glu Val Glu Asn Asp
305                 310                 315                 320
```

```
Glu Met Pro Ala Asp Leu Pro Ser Leu Ala Ala Asp Phe Val Glu Ser
                325                 330                 335

Lys Asp Val Cys Lys Asn Tyr Ala Glu Ala Lys Asp Val Phe Leu Gly
            340                 345                 350

Met Phe Leu Tyr Glu Tyr Ala Arg Arg His Pro Asp Tyr Ser Val Val
        355                 360                 365

Leu Leu Leu Arg Leu Ala Lys Thr Tyr Glu Thr Thr Leu Glu Lys Cys
    370                 375                 380

Cys Ala Ala Ala Asp Pro His Glu Cys Tyr Ala Lys Val Phe Asp Glu
385                 390                 395                 400

Phe Lys Pro Leu Val Glu Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys
                405                 410                 415

Glu Leu Phe Glu Gln Leu Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu
            420                 425                 430

Val Arg Tyr Thr Lys Lys Val Pro Gln Val Ser Thr Pro Thr Leu Val
        435                 440                 445

Glu Val Ser Arg Asn Leu Gly Lys Val Gly Ser Lys Cys Cys Lys His
    450                 455                 460

Pro Glu Ala Lys Arg Met Pro Cys Ala Glu Asp Tyr Leu Ser Val Val
465                 470                 475                 480

Leu Asn Gln Leu Cys Val Leu His Glu Lys Thr Pro Val Ser Asp Arg
                485                 490                 495

Val Thr Lys Cys Cys Thr Glu Ser Leu Val Asn Arg Arg Pro Cys Phe
            500                 505                 510

Ser Ala Leu Glu Val Asp Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala
        515                 520                 525

Glu Thr Phe Thr Phe His Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu
    530                 535                 540
```

```
Arg Gln Ile Lys Lys Gln Thr Ala Leu Val Glu Leu Val Lys His Lys
545                 550                 555                 560

Pro Lys Ala Thr Lys Glu Gln Leu Lys Ala Val Met Asp Asp Phe Ala
                565                 570                 575

Ala Phe Val Glu Lys Cys Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe
            580                 585                 590

Ala Glu Glu Gly Lys Lys Leu Val Ala Ala Ser Gln Ala Ala Leu Gly
        595                 600                 605

Leu
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<210> 3772
<211> 494
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
albumin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384695"

<400> 3772

```
Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1               5                   10                  15

Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala
            20                  25                  30

His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Tyr Leu
        35                  40                  45

Tyr Glu Ile Ala Arg Arg His Pro Tyr Phe Tyr Ala Pro Glu Leu Leu
```

```
    50                  55                  60

Phe Phe Ala Lys Arg Tyr Lys Ala Ala Phe Thr Glu Cys Cys Gln Ala
65                  70                  75                  80

Ala Asp Lys Ala Ala Cys Leu Leu Pro Lys Leu Asp Glu Leu Arg Asp
                85                  90                  95

Glu Gly Lys Ala Ser Ser Ala Lys Gln Arg Leu Lys Cys Ala Ser Leu
            100                 105                 110

Gln Lys Phe Gly Glu Arg Ala Phe Lys Ala Trp Ala Val Ala Arg Leu
        115                 120                 125

Ser Gln Arg Phe Pro Lys Ala Glu Phe Ala Glu Val Ser Lys Leu Val
    130                 135                 140

Thr Asp Leu Thr Lys Val His Thr Glu Cys Cys His Gly Asp Leu Leu
145                 150                 155                 160

Glu Cys Ala Asp Asp Arg Ala Asp Leu Ala Lys Tyr Ile Cys Glu Asn
                165                 170                 175

Gln Asp Ser Ile Ser Ser Lys Leu Lys Glu Cys Cys Glu Lys Pro Leu
            180                 185                 190

Leu Glu Lys Ser His Cys Ile Ala Glu Val Glu Asn Asp Glu Met Pro
        195                 200                 205

Ala Asp Leu Pro Ser Leu Ala Ala Asp Phe Val Glu Ser Lys Asp Val
    210                 215                 220

Cys Lys Asn Tyr Ala Glu Ala Lys Asp Val Phe Leu Gly Met Phe Leu
225                 230                 235                 240

Tyr Glu Tyr Ala Arg Arg His Pro Asp Tyr Ser Val Val Leu Leu Leu
                245                 250                 255

Arg Leu Ala Lys Thr Tyr Glu Thr Thr Leu Glu Lys Cys Cys Ala Ala
            260                 265                 270

Ala Asp Pro His Glu Cys Tyr Ala Lys Val Phe Asp Glu Phe Lys Pro
        275                 280                 285
```

```
Leu Val Glu Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys Glu Leu Phe
    290                 295                 300

Glu Gln Leu Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu Val Arg Tyr
305                 310                 315                 320

Thr Lys Lys Val Pro Gln Val Ser Thr Pro Thr Leu Val Glu Val Ser
                325                 330                 335

Arg Asn Leu Gly Lys Val Gly Ser Lys Cys Cys Lys His Pro Glu Ala
            340                 345                 350

Lys Arg Met Pro Cys Ala Glu Asp Tyr Leu Ser Val Val Leu Asn Gln
        355                 360                 365

Leu Cys Val Leu His Glu Lys Thr Pro Val Ser Asp Arg Val Thr Lys
    370                 375                 380

Cys Cys Thr Glu Ser Leu Val Asn Arg Arg Pro Cys Phe Ser Ala Leu
385                 390                 395                 400

Glu Val Asp Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala Glu Thr Phe
                405                 410                 415

Thr Phe His Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile
            420                 425                 430

Lys Lys Gln Thr Ala Leu Val Glu Leu Val Lys His Lys Pro Lys Ala
        435                 440                 445

Thr Lys Glu Gln Leu Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val
    450                 455                 460

Glu Lys Cys Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe Ala Glu Glu
465                 470                 475                 480

Gly Lys Lys Leu Val Ala Ala Ser Gln Ala Ala Leu Gly Leu
                485                 490
```

<210> 3773
<211> 197
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ALB; "

<220>
<221> source
<223> /note="Gene Name:
albumin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392541"

<400> 3773
Gly Phe Glu Trp Gly Gly Gln Arg Arg Ala Ser His Asn Ser Thr Phe
1 5 10 15

Ser Ala Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu
20 25 30

Val Ala His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu
35 40 45

Val Leu Ile Ala Phe Ala Gln Tyr Leu Gln Gln Cys Pro Phe Glu Asp
50 55 60

His Val Lys Leu Val Asn Glu Val Thr Glu Phe Ala Lys Thr Cys Val
65 70 75 80

Ala Asp Glu Ser Ala Glu Asn Cys Asp Lys Ser Leu His Thr Leu Phe
85 90 95

Gly Asp Lys Leu Cys Thr Val Ala Thr Leu Arg Glu Thr Tyr Gly Glu
100 105 110

Met Ala Asp Cys Cys Ala Lys Gln Glu Pro Glu Arg Asn Glu Cys Phe
115 120 125

Leu Gln His Lys Asp Asp Asn Pro Asn Leu Pro Arg Leu Val Arg Pro
130 135 140

Glu Val Asp Val Met Cys Thr Ala Phe His Asp Asn Glu Glu Thr Phe

145 150 155 160

Leu Lys Lys Tyr Leu Tyr Glu Ile Ala Arg Arg His Pro Tyr Phe Tyr
165 170 175

Ala Pro Glu Leu Leu Phe Phe Ala Lys Arg Tyr Lys Ala Ala Phe Thr
180 185 190

Glu Cys Cys Gln Ala
195

<210> 3774
<211> 417
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
albumin; "

<220>
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<223> /note="ENSP ID: ENSP00000401820"

<400> 3774
Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1 5 10 15

Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala
20 25 30

His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Ala Val
35 40 45

Ala Arg Leu Ser Gln Arg Phe Pro Lys Ala Glu Phe Ala Glu Val Ser
50 55 60

Lys Leu Val Thr Asp Leu Thr Lys Val His Thr Glu Cys Cys His Gly
65 70 75 80

```
Asp Leu Leu Glu Cys Ala Asp Asp Arg Ala Asp Leu Ala Lys Tyr Ile
                85                  90                  95

Cys Glu Asn Gln Asp Ser Ile Ser Ser Lys Leu Lys Glu Cys Cys Glu
            100                 105                 110

Lys Pro Leu Leu Glu Lys Ser His Cys Ile Ala Glu Val Glu Asn Asp
        115                 120                 125

Glu Met Pro Ala Asp Leu Pro Ser Leu Ala Ala Asp Phe Val Glu Ser
    130                 135                 140

Lys Asp Val Cys Lys Asn Tyr Ala Glu Ala Lys Asp Val Phe Leu Gly
145                 150                 155                 160

Met Phe Leu Tyr Glu Tyr Ala Arg Arg His Pro Asp Tyr Ser Val Val
                165                 170                 175

Leu Leu Leu Arg Leu Ala Lys Thr Tyr Glu Thr Thr Leu Glu Lys Cys
            180                 185                 190

Cys Ala Ala Ala Asp Pro His Glu Cys Tyr Ala Lys Val Phe Asp Glu
        195                 200                 205

Phe Lys Pro Leu Val Glu Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys
    210                 215                 220

Glu Leu Phe Glu Gln Leu Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu
225                 230                 235                 240

Val Arg Tyr Thr Lys Lys Val Pro Gln Val Ser Thr Pro Thr Leu Val
                245                 250                 255

Glu Val Ser Arg Asn Leu Gly Lys Val Gly Ser Lys Cys Cys Lys His
            260                 265                 270

Pro Glu Ala Lys Arg Met Pro Cys Ala Glu Asp Tyr Leu Ser Val Val
        275                 280                 285

Leu Asn Gln Leu Cys Val Leu His Glu Lys Thr Pro Val Ser Asp Arg
    290                 295                 300
```

```
Val Thr Lys Cys Cys Thr Glu Ser Leu Val Asn Arg Arg Pro Cys Phe
305                 310                 315                 320

Ser Ala Leu Glu Val Asp Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala
                325                 330                 335

Glu Thr Phe Thr Phe His Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu
            340                 345                 350

Arg Gln Ile Lys Lys Gln Thr Ala Leu Val Glu Leu Val Lys His Lys
        355                 360                 365

Pro Lys Ala Thr Lys Glu Gln Leu Lys Ala Val Met Asp Asp Phe Ala
    370                 375                 380

Ala Phe Val Glu Lys Cys Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe
385                 390                 395                 400

Ala Glu Glu Gly Lys Lys Leu Val Ala Ala Ser Gln Ala Ala Leu Gly
                405                 410                 415

Leu
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<210> 3775
<211> 459
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
albumin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421027"

<400> 3775

```
Met Ser Gln Leu Lys Ile Val Thr Asn His Leu Tyr Leu Tyr Glu Ile
1               5                   10                  15
```

```
Ala Arg Arg His Pro Tyr Phe Tyr Ala Pro Glu Leu Leu Phe Phe Ala
            20                  25                  30

Lys Arg Tyr Lys Ala Ala Phe Thr Glu Cys Cys Gln Ala Ala Asp Lys
        35                  40                  45

Ala Ala Cys Leu Leu Pro Lys Leu Asp Glu Leu Arg Asp Glu Gly Lys
    50                  55                  60

Ala Ser Ser Ala Lys Gln Arg Leu Lys Cys Ala Ser Leu Gln Lys Phe
65                  70                  75                  80

Gly Glu Arg Ala Phe Lys Ala Trp Ala Val Ala Arg Leu Ser Gln Arg
                85                  90                  95

Phe Pro Lys Ala Glu Phe Ala Glu Val Ser Lys Leu Val Thr Asp Leu
            100                 105                 110

Thr Lys Val His Thr Glu Cys Cys His Gly Asp Leu Leu Glu Cys Ala
        115                 120                 125

Asp Asp Arg Ala Asp Leu Ala Lys Tyr Ile Cys Glu Asn Gln Asp Ser
    130                 135                 140

Ile Ser Ser Lys Leu Lys Glu Cys Cys Glu Lys Pro Leu Leu Glu Lys
145                 150                 155                 160

Ser His Cys Ile Ala Glu Val Glu Asn Asp Glu Met Pro Ala Asp Leu
                165                 170                 175

Pro Ser Leu Ala Ala Asp Phe Val Glu Ser Lys Asp Val Cys Lys Asn
            180                 185                 190

Tyr Ala Glu Ala Lys Asp Val Phe Leu Gly Met Phe Leu Tyr Glu Tyr
        195                 200                 205

Ala Arg Arg His Pro Asp Tyr Ser Val Val Leu Leu Leu Arg Leu Ala
    210                 215                 220

Lys Thr Tyr Glu Thr Thr Leu Glu Lys Cys Cys Ala Ala Ala Asp Pro
225                 230                 235                 240
```

```
His Glu Cys Tyr Ala Lys Val Phe Asp Glu Phe Lys Pro Leu Val Glu
                245                 250                 255

Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys Glu Leu Phe Glu Gln Leu
            260                 265                 270

Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu Val Arg Tyr Thr Lys Lys
        275                 280                 285

Val Pro Gln Val Ser Thr Pro Thr Leu Val Glu Val Ser Arg Asn Leu
    290                 295                 300

Gly Lys Val Gly Ser Lys Cys Cys Lys His Pro Glu Ala Lys Arg Met
305                 310                 315                 320

Pro Cys Ala Glu Asp Tyr Leu Ser Val Val Leu Asn Gln Leu Cys Val
                325                 330                 335

Leu His Glu Lys Thr Pro Val Ser Asp Arg Val Thr Lys Cys Cys Thr
            340                 345                 350

Glu Ser Leu Val Asn Arg Arg Pro Cys Phe Ser Ala Leu Glu Val Asp
        355                 360                 365

Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala Glu Thr Phe Thr Phe His
    370                 375                 380

Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys Gln
385                 390                 395                 400

Thr Ala Leu Val Glu Leu Val Lys His Lys Pro Lys Ala Thr Lys Glu
                405                 410                 415

Gln Leu Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val Glu Lys Cys
            420                 425                 430

Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe Ala Glu Glu Gly Lys Lys
        435                 440                 445

Leu Val Ala Ala Ser Gln Ala Ala Leu Gly Leu
    450                 455
```

<210> 3776
<211> 604
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Name:
albumin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422784"

<400> 3776
Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1 5 10 15

Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala
20 25 30

His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Val Leu
35 40 45

Ile Ala Phe Ala Gln Tyr Leu Gln Gln Cys Pro Phe Glu Asp His Val
50 55 60

Lys Leu Val Asn Glu Val Thr Glu Phe Ala Lys Thr Cys Val Ala Asp
65 70 75 80

Glu Ser Ala Glu Asn Cys Asp Lys Ser Leu His Thr Leu Phe Gly Asp
85 90 95

Lys Leu Cys Thr Val Ala Thr Leu Arg Glu Thr Tyr Gly Glu Met Ala
100 105 110

Asp Cys Cys Ala Lys Gln Glu Pro Glu Arg Asn Glu Cys Phe Leu Gln
115 120 125

His Lys Asp Asp Asn Pro Asn Leu Pro Arg Leu Val Arg Pro Glu Val
130 135 140

```
Asp Val Met Cys Thr Ala Phe His Asp Asn Glu Glu Thr Phe Leu Lys
145                 150                 155                 160

Lys Tyr Leu Tyr Glu Ile Ala Arg Arg His Pro Tyr Phe Tyr Ala Pro
                165                 170                 175

Glu Leu Leu Phe Phe Ala Lys Arg Tyr Lys Ala Ala Phe Thr Glu Cys
            180                 185                 190

Cys Gln Ala Ala Asp Lys Ala Ala Cys Leu Leu Pro Lys Leu Asp Glu
        195                 200                 205

Leu Arg Asp Glu Gly Lys Ala Ser Ser Ala Lys Gln Arg Leu Lys Cys
    210                 215                 220

Ala Ser Leu Gln Lys Phe Gly Glu Arg Ala Phe Lys Ala Trp Ala Val
225                 230                 235                 240

Ala Arg Leu Ser Gln Arg Phe Pro Lys Ala Glu Phe Ala Glu Val Ser
                245                 250                 255

Lys Leu Val Thr Asp Leu Thr Lys Val His Thr Glu Cys Cys His Gly
            260                 265                 270

Asp Leu Leu Glu Cys Ala Asp Asp Arg Ala Asp Leu Ala Lys Tyr Ile
        275                 280                 285

Cys Glu Asn Gln Asp Ser Ile Ser Ser Lys Leu Lys Glu Cys Cys Glu
    290                 295                 300

Lys Pro Leu Leu Glu Lys Ser His Cys Ile Ala Glu Val Glu Asn Asp
305                 310                 315                 320

Glu Met Pro Ala Asp Leu Pro Ser Leu Ala Ala Asp Phe Val Glu Ser
                325                 330                 335

Lys Asp Val Cys Lys Asn Tyr Ala Glu Ala Lys Asp Val Phe Leu Gly
            340                 345                 350

Met Phe Leu Tyr Glu Tyr Ala Arg Arg His Pro Asp Tyr Ser Val Val
        355                 360                 365
```

```
Leu Leu Leu Arg Leu Ala Lys Thr Tyr Glu Thr Thr Leu Glu Lys Cys
    370                 375                 380

Cys Ala Ala Ala Asp Pro His Glu Cys Tyr Ala Lys Val Phe Asp Glu
385                 390                 395                 400

Phe Lys Pro Leu Val Glu Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys
                405                 410                 415

Glu Leu Phe Glu Gln Leu Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu
            420                 425                 430

Val Arg Tyr Thr Lys Lys Val Pro Gln Val Ser Thr Pro Thr Leu Val
        435                 440                 445

Glu Val Ser Arg Asn Leu Gly Lys Val Gly Ser Lys Cys Cys Lys His
    450                 455                 460

Pro Glu Ala Lys Arg Met Pro Cys Ala Glu Asp Tyr Leu Ser Val Val
465                 470                 475                 480

Leu Asn Gln Leu Cys Val Leu His Glu Lys Thr Pro Val Ser Asp Arg
                485                 490                 495

Val Thr Lys Cys Cys Thr Glu Ser Leu Val Asn Arg Arg Pro Cys Phe
            500                 505                 510

Ser Ala Leu Glu Val Asp Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala
        515                 520                 525

Glu Thr Phe Thr Phe His Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu
    530                 535                 540

Arg Gln Ile Lys Lys Gln Thr Ala Leu Val Glu Leu Val Lys His Lys
545                 550                 555                 560

Pro Lys Ala Thr Lys Glu Gln Leu Lys Ala Val Met Asp Asp Phe Ala
                565                 570                 575

Ala Phe Val Glu Lys Cys Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe
            580                 585                 590
```

Ala Glu Glu Pro Thr Met Arg Ile Arg Glu Arg Lys
595 600

<210> 3777
<211> 105
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALB; "

<220>
<221> source
<223> /note="Gene Name:
albumin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423727"

<400> 3777
Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1 5 10 15

Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Thr Tyr Met Lys Leu
20 25 30

Pro Glu Asp Ile Leu Thr Phe Met Pro Arg Asn Ser Phe Ser Leu Leu
35 40 45

Lys Gly Ile Lys Leu Leu Leu Gln Asn Val Ala Lys Leu Leu Ile Lys
50 55 60

Leu Pro Ala Cys Cys Gln Ser Ser Met Asn Phe Gly Met Lys Gly Arg
65 70 75 80

Leu Arg Leu Pro Asn Arg Asp Ser Ser Val Pro Val Ser Lys Asn Leu
85 90 95

Glu Lys Glu Leu Ser Lys His Gly Gln
100 105

<210> 3778
<211> 454

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
albumin; "

<220>
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<223> /note="ENSP ID: ENSP00000426179"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3778
Xaa Phe Ser Lys Phe Arg Tyr Leu Tyr Glu Ile Ala Arg Arg His Pro
1 5 10 15

Tyr Phe Tyr Ala Pro Glu Leu Leu Phe Phe Ala Lys Arg Tyr Lys Ala
20 25 30

Ala Phe Thr Glu Cys Cys Gln Ala Ala Asp Lys Ala Ala Cys Leu Leu
35 40 45

Pro Lys Leu Asp Glu Leu Arg Asp Glu Gly Lys Ala Ser Ser Ala Lys
50 55 60

Gln Arg Leu Lys Cys Ala Ser Leu Gln Lys Phe Gly Glu Arg Ala Phe
65 70 75 80

Lys Ala Trp Ala Val Ala Arg Leu Ser Gln Arg Phe Pro Lys Ala Glu
85 90 95

Phe Ala Glu Val Ser Lys Leu Val Thr Asp Leu Thr Lys Val His Thr
100 105 110

Glu Cys Cys His Gly Asp Leu Leu Glu Cys Ala Asp Asp Arg Ala Asp
115 120 125

```
Leu Ala Lys Tyr Ile Cys Glu Asn Gln Asp Ser Ile Ser Ser Lys Leu
    130                 135                 140

Lys Glu Cys Cys Glu Lys Pro Leu Leu Glu Lys Ser His Cys Ile Ala
145                 150                 155                 160

Glu Val Glu Asn Asp Glu Met Pro Ala Asp Leu Pro Ser Leu Ala Ala
                165                 170                 175

Asp Phe Val Glu Ser Lys Asp Val Cys Lys Asn Tyr Ala Glu Ala Lys
            180                 185                 190

Asp Val Phe Leu Gly Met Phe Leu Tyr Glu Tyr Ala Arg Arg His Pro
        195                 200                 205

Asp Tyr Ser Val Val Leu Leu Leu Arg Leu Ala Lys Thr Tyr Glu Thr
    210                 215                 220

Thr Leu Glu Lys Cys Cys Ala Ala Ala Asp Pro His Glu Cys Tyr Ala
225                 230                 235                 240

Lys Val Phe Asp Glu Phe Lys Pro Leu Val Glu Glu Pro Gln Asn Leu
                245                 250                 255

Ile Lys Gln Asn Cys Glu Leu Phe Glu Gln Leu Gly Glu Tyr Lys Phe
            260                 265                 270

Gln Asn Ala Leu Leu Val Arg Tyr Thr Lys Lys Val Pro Gln Val Ser
        275                 280                 285

Thr Pro Thr Leu Val Glu Val Ser Arg Asn Leu Gly Lys Val Gly Ser
    290                 295                 300

Lys Cys Cys Lys His Pro Glu Ala Lys Arg Met Pro Cys Ala Glu Asp
305                 310                 315                 320

Tyr Leu Ser Val Val Leu Asn Gln Leu Cys Val Leu His Glu Lys Thr
                325                 330                 335

Pro Val Ser Asp Arg Val Thr Lys Cys Cys Thr Glu Ser Leu Val Asn
            340                 345                 350
```

```
Arg Arg Pro Cys Phe Ser Ala Leu Glu Val Asp Glu Thr Tyr Val Pro
        355                 360                 365

Lys Glu Phe Asn Ala Glu Thr Phe Thr Phe His Ala Asp Ile Cys Thr
    370                 375                 380

Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys Gln Thr Ala Leu Val Glu
385                 390                 395                 400

Leu Val Lys His Lys Pro Lys Ala Thr Lys Glu Gln Leu Lys Ala Val
                405                 410                 415

Met Asp Asp Phe Ala Ala Phe Val Glu Lys Cys Cys Lys Ala Asp Asp
            420                 425                 430

Lys Glu Thr Cys Phe Ala Glu Glu Gly Lys Lys Leu Val Ala Ala Ser
        435                 440                 445

Gln Ala Ala Leu Gly Leu
    450
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<210> 3779
<211> 396
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALB; "

<220>
<221> source
<223> /note="Gene Name:
albumin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480485"

<400> 3779

```
Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1               5                   10                  15

Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala
```

```
            20                  25                  30

His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Val Leu
        35                  40                  45

Ile Ala Phe Ala Gln Tyr Leu Gln Gln Cys Pro Phe Glu Asp His Val
    50                  55                  60

Lys Leu Val Asn Glu Val Thr Glu Phe Ala Lys Thr Cys Val Ala Asp
65                  70                  75                  80

Glu Ser Ala Glu Asn Cys Asp Lys Ser Leu His Thr Leu Phe Gly Asp
                85                  90                  95

Lys Leu Cys Thr Val Ala Thr Leu Arg Glu Thr Tyr Gly Glu Met Ala
            100                 105                 110

Asp Cys Cys Ala Lys Gln Glu Pro Glu Arg Asn Glu Cys Phe Leu Gln
        115                 120                 125

His Lys Asp Asp Asn Pro Asn Leu Pro Arg Leu Val Arg Pro Glu Val
    130                 135                 140

Asp Val Met Cys Thr Ala Phe His Asp Asn Glu Glu Thr Phe Leu Lys
145                 150                 155                 160

Lys Tyr Thr Tyr Glu Thr Thr Leu Glu Lys Cys Cys Ala Ala Ala Asp
                165                 170                 175

Pro His Glu Cys Tyr Ala Lys Val Phe Asp Glu Phe Lys Pro Leu Val
            180                 185                 190

Glu Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys Glu Leu Phe Glu Gln
        195                 200                 205

Leu Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu Val Arg Tyr Thr Lys
    210                 215                 220

Lys Val Pro Gln Val Ser Thr Pro Thr Leu Val Glu Val Ser Arg Asn
225                 230                 235                 240

Leu Gly Lys Val Gly Ser Lys Cys Cys Lys His Pro Glu Ala Lys Arg
                245                 250                 255
```

```
Met Pro Cys Ala Glu Asp Tyr Leu Ser Val Val Leu Asn Gln Leu Cys
            260                 265                 270

Val Leu His Glu Lys Thr Pro Val Ser Asp Arg Val Thr Lys Cys Cys
        275                 280                 285

Thr Glu Ser Leu Val Asn Arg Arg Pro Cys Phe Ser Ala Leu Glu Val
    290                 295                 300

Asp Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala Glu Thr Phe Thr Phe
305                 310                 315                 320

His Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys
                325                 330                 335

Gln Thr Ala Leu Val Glu Leu Val Lys His Lys Pro Lys Ala Thr Lys
            340                 345                 350

Glu Gln Leu Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val Glu Lys
        355                 360                 365

Cys Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe Ala Glu Glu Gly Lys
    370                 375                 380

Lys Leu Val Ala Ala Ser Gln Ala Ala Leu Gly Leu
385                 390                 395


<210> 3780
<211> 396
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
      albumin; "

<220>
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<221> source
<223> /note="Uniprot ID: P02768; "

<220>
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<223> /note="ENSP ID: ENSP00000483421"

<400> 3780
Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1   5   10   15

Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala
            20   25   30

His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Val Leu
        35   40   45

Ile Ala Phe Ala Gln Tyr Leu Gln Gln Cys Pro Phe Glu Asp His Val
    50   55   60

Lys Leu Val Asn Glu Val Thr Glu Phe Ala Lys Thr Cys Val Ala Asp
65   70   75   80

Glu Ser Ala Glu Asn Cys Asp Lys Ser Leu His Thr Leu Phe Gly Asp
                85   90   95

Lys Leu Cys Thr Val Ala Thr Leu Arg Glu Thr Tyr Gly Glu Met Ala
            100   105   110

Asp Cys Cys Ala Lys Gln Glu Pro Glu Arg Asn Glu Cys Phe Leu Gln
        115   120   125

His Lys Asp Asp Asn Pro Asn Leu Pro Arg Leu Val Arg Pro Glu Val
    130   135   140

Asp Val Met Cys Thr Ala Phe His Asp Asn Glu Glu Thr Phe Leu Lys
145   150   155   160

Lys Tyr Leu Tyr Glu Thr Thr Leu Glu Lys Cys Cys Ala Ala Ala Asp
                165   170   175

Pro His Glu Cys Tyr Ala Lys Val Phe Asp Glu Phe Lys Pro Leu Val
            180   185   190

Glu Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys Glu Leu Phe Glu Gln

195 200 205

Leu Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu Val Arg Tyr Thr Lys
210 215 220

Lys Val Pro Gln Val Ser Thr Pro Thr Leu Val Glu Val Ser Arg Asn
225 230 235 240

Leu Gly Lys Val Gly Ser Lys Cys Cys Lys His Pro Glu Ala Lys Arg
245 250 255

Met Pro Cys Ala Glu Asp Tyr Leu Ser Val Val Leu Asn Gln Leu Cys
260 265 270

Val Leu His Glu Lys Thr Pro Val Ser Asp Arg Val Thr Lys Cys Cys
275 280 285

Thr Glu Ser Leu Val Asn Arg Arg Pro Cys Phe Ser Ala Leu Glu Val
290 295 300

Asp Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala Glu Thr Phe Thr Phe
305 310 315 320

His Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys
325 330 335

Gln Thr Ala Leu Val Glu Leu Val Lys His Lys Pro Lys Ala Thr Lys
340 345 350

Glu Gln Leu Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val Glu Lys
355 360 365

Cys Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe Ala Glu Glu Gly Lys
370 375 380

Lys Leu Val Ala Ala Ser Gln Ala Ala Leu Gly Leu
385 390 395

<210> 3781
<211> 375
<212> PRT
<213> Homo sapiens

<220>

<221> source
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<223> /note="Gene Symbol: ADH1A; "

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<223> /note="Gene Name:
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polypeptide; "

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<223> /note="Uniprot ID: P07327; "

<220>
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<400> 3781

```
Met Ser Thr Ala Gly Lys Val Ile Lys Cys Lys Ala Ala Val Leu Trp
1               5                  10                  15

Glu Leu Lys Lys Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro
            20                  25                  30

Lys Ala His Glu Val Arg Ile Lys Met Val Ala Val Gly Ile Cys Gly
        35                  40                  45

Thr Asp Asp His Val Val Ser Gly Thr Met Val Thr Pro Leu Pro Val
    50                  55                  60

Ile Leu Gly His Glu Ala Ala Gly Ile Val Glu Ser Val Gly Glu Gly
65                  70                  75                  80

Val Thr Thr Val Lys Pro Gly Asp Lys Val Ile Pro Leu Ala Ile Pro
                85                  90                  95

Gln Cys Gly Lys Cys Arg Ile Cys Lys Asn Pro Glu Ser Asn Tyr Cys
            100                 105                 110

Leu Lys Asn Asp Val Ser Asn Pro Gln Gly Thr Leu Gln Asp Gly Thr
        115                 120                 125

Ser Arg Phe Thr Cys Arg Arg Lys Pro Ile His His Phe Leu Gly Ile
    130                 135                 140
```

```
Ser Thr Phe Ser Gln Tyr Thr Val Val Asp Glu Asn Ala Val Ala Lys
145                 150                 155                 160

Ile Asp Ala Ala Ser Pro Leu Glu Lys Val Cys Leu Ile Gly Cys Gly
                165                 170                 175

Phe Ser Thr Gly Tyr Gly Ser Ala Val Asn Val Ala Lys Val Thr Pro
            180                 185                 190

Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Ala
        195                 200                 205

Ile Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Ala Val Asp
    210                 215                 220

Ile Asn Lys Asp Lys Phe Ala Lys Ala Lys Glu Leu Gly Ala Thr Glu
225                 230                 235                 240

Cys Ile Asn Pro Gln Asp Tyr Lys Lys Pro Ile Gln Glu Val Leu Lys
                245                 250                 255

Glu Met Thr Asp Gly Gly Val Asp Phe Ser Phe Glu Val Ile Gly Arg
            260                 265                 270

Leu Asp Thr Met Met Ala Ser Leu Leu Cys Cys His Glu Ala Cys Gly
        275                 280                 285

Thr Ser Val Ile Val Gly Val Pro Pro Asp Ser Gln Asn Leu Ser Met
    290                 295                 300

Asn Pro Met Leu Leu Leu Thr Gly Arg Thr Trp Lys Gly Ala Ile Leu
305                 310                 315                 320

Gly Gly Phe Lys Ser Lys Glu Cys Val Pro Lys Leu Val Ala Asp Phe
                325                 330                 335

Met Ala Lys Lys Phe Ser Leu Asp Ala Leu Ile Thr His Val Leu Pro
            340                 345                 350

Phe Glu Lys Ile Asn Glu Gly Phe Asp Leu Leu His Ser Gly Lys Ser
        355                 360                 365
```

```
Ile Arg Thr Ile Leu Met Phe
    370                 375


<210> 3782
<211> 375
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADH1B; "

<220>
<221> source
<223> /note="Gene Name:
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      polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID:  P00325; "

<220>
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<223> /note="ENSP ID: ENSP00000306606"

<400> 3782
Met Ser Thr Ala Gly Lys Val Ile Lys Cys Lys Ala Ala Val Leu Trp
1               5                   10                  15


Glu Val Lys Lys Pro Phe Ser Ile Glu Asp Val Glu Val Ala Pro Pro
            20                  25                  30


Lys Ala Tyr Glu Val Arg Ile Lys Met Val Ala Val Gly Ile Cys His
        35                  40                  45


Thr Asp Asp His Val Val Ser Gly Asn Leu Val Thr Pro Leu Pro Val
    50                  55                  60


Ile Leu Gly His Glu Ala Ala Gly Ile Val Glu Ser Val Gly Glu Gly
65                  70                  75                  80


Val Thr Thr Val Lys Pro Gly Asp Lys Val Ile Pro Leu Phe Thr Pro
                85                  90                  95


Gln Cys Gly Lys Cys Arg Val Cys Lys Asn Pro Glu Ser Asn Tyr Cys
```

```
            100                 105                 110

Leu Lys Asn Asp Leu Gly Asn Pro Arg Gly Thr Leu Gln Asp Gly Thr
        115                 120                 125

Arg Arg Phe Thr Cys Arg Gly Lys Pro Ile His His Phe Leu Gly Thr
    130                 135                 140

Ser Thr Phe Ser Gln Tyr Thr Val Val Asp Glu Asn Ala Val Ala Lys
145                 150                 155                 160

Ile Asp Ala Ala Ser Pro Leu Glu Lys Val Cys Leu Ile Gly Cys Gly
                165                 170                 175

Phe Ser Thr Gly Tyr Gly Ser Ala Val Asn Val Ala Lys Val Thr Pro
            180                 185                 190

Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Ala
        195                 200                 205

Val Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Ala Val Asp
    210                 215                 220

Ile Asn Lys Asp Lys Phe Ala Lys Ala Lys Glu Leu Gly Ala Thr Glu
225                 230                 235                 240

Cys Ile Asn Pro Gln Asp Tyr Lys Lys Pro Ile Gln Glu Val Leu Lys
                245                 250                 255

Glu Met Thr Asp Gly Gly Val Asp Phe Ser Phe Glu Val Ile Gly Arg
            260                 265                 270

Leu Asp Thr Met Met Ala Ser Leu Leu Cys Cys His Glu Ala Cys Gly
        275                 280                 285

Thr Ser Val Ile Val Gly Val Pro Pro Ala Ser Gln Asn Leu Ser Ile
    290                 295                 300

Asn Pro Met Leu Leu Leu Thr Gly Arg Thr Trp Lys Gly Ala Val Tyr
305                 310                 315                 320

Gly Gly Phe Lys Ser Lys Glu Gly Ile Pro Lys Leu Val Ala Asp Phe
                325                 330                 335
```

```
Met Ala Lys Lys Phe Ser Leu Asp Ala Leu Ile Thr His Val Leu Pro
            340                 345                 350

Phe Glu Lys Ile Asn Glu Gly Phe Asp Leu Leu His Ser Gly Lys Ser
        355                 360                 365

Ile Arg Thr Val Leu Thr Phe
    370                 375


<210> 3783
<211> 335
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADH1B; "

<220>
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<223> /note="Gene Name:
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      polypeptide; "

<220>
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<223> /note="ENSP ID: ENSP00000425998"

<400> 3783
Met Val Ala Val Gly Ile Cys His Thr Asp Asp His Val Val Ser Gly
1               5                   10                  15

Asn Leu Val Thr Pro Leu Pro Val Ile Leu Gly His Glu Ala Ala Gly
            20                  25                  30

Ile Val Glu Ser Val Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp
        35                  40                  45

Lys Val Ile Pro Leu Phe Thr Pro Gln Cys Gly Lys Cys Arg Val Cys
    50                  55                  60

Lys Asn Pro Glu Ser Asn Tyr Cys Leu Lys Asn Asp Leu Gly Asn Pro
65                  70                  75                  80
```

```
Arg Gly Thr Leu Gln Asp Gly Thr Arg Arg Phe Thr Cys Arg Gly Lys
                85                  90                  95

Pro Ile His His Phe Leu Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val
            100                 105                 110

Val Asp Glu Asn Ala Val Ala Lys Ile Asp Ala Ala Ser Pro Leu Glu
        115                 120                 125

Lys Val Cys Leu Ile Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ser Ala
    130                 135                 140

Val Asn Val Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly
145                 150                 155                 160

Leu Gly Gly Val Gly Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly
                165                 170                 175

Ala Ala Arg Ile Ile Ala Val Asp Ile Asn Lys Asp Lys Phe Ala Lys
            180                 185                 190

Ala Lys Glu Leu Gly Ala Thr Glu Cys Ile Asn Pro Gln Asp Tyr Lys
        195                 200                 205

Lys Pro Ile Gln Glu Val Leu Lys Glu Met Thr Asp Gly Gly Val Asp
    210                 215                 220

Phe Ser Phe Glu Val Ile Gly Arg Leu Asp Thr Met Met Ala Ser Leu
225                 230                 235                 240

Leu Cys Cys His Glu Ala Cys Gly Thr Ser Val Ile Val Gly Val Pro
                245                 250                 255

Pro Ala Ser Gln Asn Leu Ser Ile Asn Pro Met Leu Leu Leu Thr Gly
            260                 265                 270

Arg Thr Trp Lys Gly Ala Val Tyr Gly Gly Phe Lys Ser Lys Glu Gly
        275                 280                 285

Ile Pro Lys Leu Val Ala Asp Phe Met Ala Lys Lys Phe Ser Leu Asp
    290                 295                 300
```

```
Ala Leu Ile Thr His Val Leu Pro Phe Glu Lys Ile Asn Glu Gly Phe
305                 310                 315                 320


Asp Leu Leu His Ser Gly Lys Ser Ile Arg Thr Val Leu Thr Phe
                325                 330                 335


<210> 3784
<211> 335
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 867; "

<220>
<221> source
<223> /note="Gene Symbol: ADH1B; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 1B (class I), beta
      polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486614"

<400> 3784
Met Val Ala Val Gly Ile Cys His Thr Asp Asp His Val Val Ser Gly
1               5                   10                  15


Asn Leu Val Thr Pro Leu Pro Val Ile Leu Gly His Glu Ala Ala Gly
            20                  25                  30


Ile Val Glu Ser Val Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp
        35                  40                  45


Lys Val Ile Pro Leu Phe Thr Pro Gln Cys Gly Lys Cys Arg Val Cys
    50                  55                  60


Lys Asn Pro Glu Ser Asn Tyr Cys Leu Lys Asn Asp Leu Gly Asn Pro
65                  70                  75                  80


Arg Gly Thr Leu Gln Asp Gly Thr Arg Arg Phe Thr Cys Arg Gly Lys
                85                  90                  95


Pro Ile His His Phe Leu Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val
```

```
            100                 105                 110

Val Asp Glu Asn Ala Val Ala Lys Ile Asp Ala Ala Ser Pro Leu Glu
        115                 120                 125

Lys Val Cys Leu Ile Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ser Ala
    130                 135                 140

Val Asn Val Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly
145                 150                 155                 160

Leu Gly Gly Val Gly Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly
                165                 170                 175

Ala Ala Arg Ile Ile Ala Val Asp Ile Asn Lys Asp Lys Phe Ala Lys
            180                 185                 190

Ala Lys Glu Leu Gly Ala Thr Glu Cys Ile Asn Pro Gln Asp Tyr Lys
        195                 200                 205

Lys Pro Ile Gln Glu Val Leu Lys Glu Met Thr Asp Gly Gly Val Asp
    210                 215                 220

Phe Ser Phe Glu Val Ile Gly Arg Leu Asp Thr Met Met Ala Ser Leu
225                 230                 235                 240

Leu Cys Cys His Glu Ala Cys Gly Thr Ser Val Ile Val Gly Val Pro
                245                 250                 255

Pro Ala Ser Gln Asn Leu Ser Ile Asn Pro Met Leu Leu Leu Thr Gly
            260                 265                 270

Arg Thr Trp Lys Gly Ala Val Tyr Gly Gly Phe Lys Ser Lys Glu Gly
        275                 280                 285

Ile Pro Lys Leu Val Ala Asp Phe Met Ala Lys Lys Phe Ser Leu Asp
    290                 295                 300

Ala Leu Ile Thr His Val Leu Pro Phe Glu Lys Ile Asn Glu Gly Phe
305                 310                 315                 320

Asp Leu Leu His Ser Gly Lys Ser Ile Arg Thr Val Leu Thr Phe
                325                 330                 335
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<210> 3785
<211> 375
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 868; "

<220>
<221> source
<223> /note="Gene Symbol: ADH1C; "

<220>
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<223> /note="Gene Name:
alcohol dehydrogenase 1C (class I), gamma
polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID: P00326; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426083"

<400> 3785
Met Ser Thr Ala Gly Lys Val Ile Lys Cys Lys Ala Ala Val Leu Trp
1   5   10   15

Glu Leu Lys Lys Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro
            20   25   30

Lys Ala His Glu Val Arg Ile Lys Met Val Ala Ala Gly Ile Cys Arg
        35   40   45

Ser Asp Glu His Val Val Ser Gly Asn Leu Val Thr Pro Leu Pro Val
    50   55   60

Ile Leu Gly His Glu Ala Ala Gly Ile Val Glu Ser Val Gly Glu Gly
65   70   75   80

Val Thr Thr Val Lys Pro Gly Asp Lys Val Ile Pro Leu Phe Thr Pro
                85   90   95

Gln Cys Gly Lys Cys Arg Ile Cys Lys Asn Pro Glu Ser Asn Tyr Cys
            100   105   110

```
Leu Lys Asn Asp Leu Gly Asn Pro Arg Gly Thr Leu Gln Asp Gly Thr
        115                 120                 125

Arg Arg Phe Thr Cys Ser Gly Lys Pro Ile His His Phe Val Gly Val
    130                 135                 140

Ser Thr Phe Ser Gln Tyr Thr Val Val Asp Glu Asn Ala Val Ala Lys
145                 150                 155                 160

Ile Asp Ala Ala Ser Pro Leu Glu Lys Val Cys Leu Ile Gly Cys Gly
                165                 170                 175

Phe Ser Thr Gly Tyr Gly Ser Ala Val Lys Val Ala Lys Val Thr Pro
            180                 185                 190

Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val
        195                 200                 205

Val Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Ala Val Asp
    210                 215                 220

Ile Asn Lys Asp Lys Phe Ala Lys Ala Lys Glu Leu Gly Ala Thr Glu
225                 230                 235                 240

Cys Ile Asn Pro Gln Asp Tyr Lys Lys Pro Ile Gln Glu Val Leu Lys
                245                 250                 255

Glu Met Thr Asp Gly Gly Val Asp Phe Ser Phe Glu Val Ile Gly Arg
            260                 265                 270

Leu Asp Thr Met Met Ala Ser Leu Leu Cys Cys His Glu Ala Cys Gly
        275                 280                 285

Thr Ser Val Ile Val Gly Val Pro Pro Asp Ser Gln Asn Leu Ser Ile
    290                 295                 300

Asn Pro Met Leu Leu Leu Thr Gly Arg Thr Trp Lys Gly Ala Ile Phe
305                 310                 315                 320

Gly Gly Phe Lys Ser Lys Glu Ser Val Pro Lys Leu Val Ala Asp Phe
                325                 330                 335
```

```
Met Ala Lys Lys Phe Ser Leu Asp Ala Leu Ile Thr Asn Ile Leu Pro
            340                 345                 350

Phe Glu Lys Ile Asn Glu Gly Phe Asp Leu Leu Arg Ser Gly Lys Ser
        355                 360                 365

Ile Arg Thr Val Leu Thr Phe
    370                 375


<210> 3786
<211> 192
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: ADH1C; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 1C (class I), gamma
      polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478439"

<400> 3786
Met Val Ala Ala Gly Ile Cys Arg Ser Asp Glu His Val Val Ser Gly
1               5                   10                  15

Asn Leu Val Thr Pro Leu Pro Val Ile Leu Gly His Glu Ala Ala Gly
            20                  25                  30

Ile Val Glu Ser Val Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp
        35                  40                  45

Lys Val Ile Pro Leu Phe Thr Pro Gln Cys Gly Lys Cys Arg Ile Cys
    50                  55                  60

Lys Asn Pro Glu Ser Asn Tyr Cys Leu Lys Asn Asp Leu Gly Asn Pro
65                  70                  75                  80

Arg Gly Thr Leu Gln Asp Gly Thr Arg Arg Phe Thr Cys Ser Gly Lys
```

```
                85                  90                  95

Pro Ile His His Phe Val Gly Val Ser Thr Phe Ser Gln Tyr Thr Val
            100                 105                 110

Val Asp Glu Asn Ala Val Ala Lys Ile Asp Ala Ala Ser Pro Leu Glu
        115                 120                 125

Lys Val Cys Leu Ile Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ser Ala
    130                 135                 140

Val Lys Val Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly
145                 150                 155                 160

Leu Gly Gly Val Gly Leu Ser Val Val Met Gly Cys Lys Ala Ala Gly
                165                 170                 175

Ala Ala Arg Ile Ile Ala Val Asp Ile Asn Lys Asp Lys Phe Ala Lys
            180                 185                 190


<210> 3787
<211> 170
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 868; "

<220>
<221> source
<223> /note="Gene Symbol: ADH1C; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 1C (class I), gamma
      polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478545"

<400> 3787
Met Ser Thr Ala Gly Lys Met Val Ala Ala Gly Ile Cys Arg Ser Asp
1               5                   10                  15

Glu His Val Val Ser Gly Asn Leu Val Thr Pro Leu Pro Val Ile Leu
            20                  25                  30
```

```
Gly His Glu Ala Ala Gly Ile Val Glu Ser Val Gly Glu Gly Val Thr
        35                  40                  45

Thr Val Lys Pro Gly Asp Lys Val Ile Pro Leu Phe Thr Pro Gln Cys
    50                  55                  60

Gly Lys Cys Arg Ile Cys Lys Asn Pro Glu Ser Asn Tyr Cys Leu Lys
65                  70                  75                  80

Asn Asp Leu Gly Asn Pro Arg Gly Thr Leu Gln Asp Gly Thr Arg Arg
                85                  90                  95

Phe Thr Cys Ser Gly Lys Pro Ile His His Phe Val Gly Val Ser Thr
            100                 105                 110

Phe Ser Gln Tyr Thr Val Val Asp Glu Asn Ala Val Ala Lys Ile Asp
        115                 120                 125

Ala Ala Ser Pro Leu Glu Lys Val Cys Leu Ile Gly Cys Gly Phe Ser
    130                 135                 140

Thr Gly Tyr Gly Ser Ala Val Lys Val Ala Lys Val Thr Pro Gly Ser
145                 150                 155                 160

Thr Cys Ala Val Phe Gly Leu Gly Gly Val
                165                 170
```

<210> 3788
<211> 380
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ADH4; "

<220>
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<223> /note="Gene Name:
alcohol dehydrogenase 4 (class II), pi
polypeptide; "

<220>
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<223> /note="Uniprot ID: P08319; "

<220>
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<223> /note="ENSP ID: ENSP00000265512"

<400> 3788
Met Gly Thr Lys Gly Lys Val Ile Lys Cys Lys Ala Ala Ile Ala Trp
1   5   10   15

Glu Ala Gly Lys Pro Leu Cys Ile Glu Glu Val Glu Val Ala Pro Pro
            20   25   30

Lys Ala His Glu Val Arg Ile Gln Ile Ile Ala Thr Ser Leu Cys His
        35   40   45

Thr Asp Ala Thr Val Ile Asp Ser Lys Phe Glu Gly Leu Ala Phe Pro
    50   55   60

Val Ile Val Gly His Glu Ala Ala Gly Ile Val Glu Ser Ile Gly Pro
65   70   75   80

Gly Val Thr Asn Val Lys Pro Gly Asp Lys Val Ile Pro Leu Tyr Ala
                85   90   95

Pro Leu Cys Arg Lys Cys Lys Phe Cys Leu Ser Pro Leu Thr Asn Leu
            100   105   110

Cys Gly Lys Ile Ser Asn Leu Lys Ser Pro Ala Ser Asp Gln Gln Leu
        115   120   125

Met Glu Asp Lys Thr Ser Arg Phe Thr Cys Lys Gly Lys Pro Val Tyr
    130   135   140

His Phe Phe Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val Val Ser Asp
145   150   155   160

Ile Asn Leu Ala Lys Ile Asp Asp Asp Ala Asn Leu Glu Arg Val Cys
                165   170   175

Leu Leu Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala Ile Asn Asn
            180   185   190

```
Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly
        195                 200                 205

Val Gly Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly Ala Ser Arg
    210                 215                 220

Ile Ile Gly Ile Asp Ile Asn Ser Glu Lys Phe Val Lys Ala Lys Ala
225                 230                 235                 240

Leu Gly Ala Thr Asp Cys Leu Asn Pro Arg Asp Leu His Lys Pro Ile
                245                 250                 255

Gln Glu Val Ile Ile Glu Leu Thr Lys Gly Gly Val Asp Phe Ala Leu
            260                 265                 270

Asp Cys Ala Gly Gly Ser Glu Thr Met Lys Ala Ala Leu Asp Cys Thr
        275                 280                 285

Thr Ala Gly Trp Gly Ser Cys Thr Phe Ile Gly Val Ala Ala Gly Ser
    290                 295                 300

Lys Gly Leu Thr Ile Phe Pro Glu Glu Leu Ile Ile Gly Arg Thr Ile
305                 310                 315                 320

Asn Gly Thr Phe Phe Gly Gly Trp Lys Ser Val Asp Ser Ile Pro Lys
                325                 330                 335

Leu Val Thr Asp Tyr Lys Asn Lys Lys Phe Asn Leu Asp Ala Leu Val
            340                 345                 350

Thr His Thr Leu Pro Phe Asp Lys Ile Ser Glu Ala Phe Asp Leu Met
        355                 360                 365

Asn Gln Gly Lys Ser Val Arg Thr Ile Leu Ile Phe
    370                 375                 380


<210> 3789
<211> 257
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 869; "
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<220>
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<223> /note="Gene Symbol: ADH4; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 4 (class II), pi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423571"

<400> 3789

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Met Leu Val Arg Gly Pro His Phe Glu Leu Gln Arg Cys Lys Thr His
1               5                   10                  15

Leu Phe Ser Ser Asn Tyr Leu Thr Gln Val Ile Lys Cys Lys Ala Ala
            20                  25                  30

Ile Ala Trp Glu Ala Gly Lys Pro Leu Cys Ile Glu Glu Val Glu Val
        35                  40                  45

Ala Pro Pro Lys Ala His Glu Val Arg Ile Gln Ile Ile Ala Thr Ser
    50                  55                  60

Leu Cys His Thr Asp Ala Thr Val Ile Asp Ser Lys Phe Glu Gly Leu
65                  70                  75                  80

Ala Phe Pro Val Ile Val Gly His Glu Ala Ala Gly Ile Val Glu Ser
                85                  90                  95

Ile Gly Pro Gly Val Thr Asn Val Lys Pro Gly Asp Lys Val Ile Pro
            100                 105                 110

Leu Tyr Ala Pro Leu Cys Arg Lys Cys Lys Phe Cys Leu Ser Pro Leu
        115                 120                 125

Thr Asn Leu Cys Gly Lys Ile Ser Asn Leu Lys Ser Pro Ala Ser Asp
    130                 135                 140

Gln Gln Leu Met Glu Asp Lys Thr Ser Arg Phe Thr Cys Lys Gly Lys
145                 150                 155                 160

Pro Val Tyr His Phe Phe Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val
                165                 170                 175
```

```
Val Ser Asp Ile Asn Leu Ala Lys Ile Asp Asp Asp Ala Asn Leu Glu
            180                 185                 190

Arg Val Cys Leu Leu Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala
        195                 200                 205

Ile Asn Asn Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly
    210                 215                 220

Leu Gly Gly Val Gly Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly
225                 230                 235                 240

Ala Ser Arg Ile Ile Gly Ile Asp Ile Asn Ser Glu Lys Phe Val Lys
                245                 250                 255

Ala
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<210> 3790
<211> 115
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 869; "

<220>
<221> source
<223> /note="Gene Symbol: ADH4; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 4 (class II), pi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424583"

<400> 3790

```
Asn Leu Glu Arg Val Cys Leu Leu Gly Cys Gly Phe Ser Thr Gly Tyr
1               5                   10                  15

Gly Ala Ala Ile Asn Asn Ala Lys Val Thr Pro Gly Ser Thr Cys Ala
            20                  25                  30
```

```
Val Phe Gly Leu Gly Gly Val Gly Leu Ser Ala Val Met Gly Cys Lys
        35                  40                  45

Ala Ala Gly Ala Ser Arg Ile Ile Gly Ile Asp Ile Asn Ser Glu Lys
    50                  55                  60

Phe Val Lys Ala Lys Ala Leu Gly Ala Thr Asp Cys Leu Asn Pro Arg
65                  70                  75                  80

Asp Leu His Lys Pro Ile Gln Glu Val Ile Ile Glu Leu Thr Lys Gly
                85                  90                  95

Gly Val Asp Phe Ala Leu Asp Cys Ala Gly Gly Ser Glu Thr Met Val
            100                 105                 110

Gly Lys Val
        115


<210> 3791
<211> 399
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 869; "

<220>
<221> source
<223> /note="Gene Symbol: ADH4; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 4 (class II), pi
      polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID:  P08319; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424630"

<400> 3791
Met Leu Val Arg Gly Pro His Phe Glu Leu Gln Arg Cys Lys Thr His
1               5                   10                  15
```

```
Leu Phe Ser Ser Asn Tyr Leu Thr Gln Val Ile Lys Cys Lys Ala Ala
            20                  25                  30

Ile Ala Trp Glu Ala Gly Lys Pro Leu Cys Ile Glu Glu Val Glu Val
        35                  40                  45

Ala Pro Pro Lys Ala His Glu Val Arg Ile Gln Ile Ile Ala Thr Ser
    50                  55                  60

Leu Cys His Thr Asp Ala Thr Val Ile Asp Ser Lys Phe Glu Gly Leu
65                  70                  75                  80

Ala Phe Pro Val Ile Val Gly His Glu Ala Ala Gly Ile Val Glu Ser
                85                  90                  95

Ile Gly Pro Gly Val Thr Asn Val Lys Pro Gly Asp Lys Val Ile Pro
            100                 105                 110

Leu Tyr Ala Pro Leu Cys Arg Lys Cys Lys Phe Cys Leu Ser Pro Leu
        115                 120                 125

Thr Asn Leu Cys Gly Lys Ile Ser Asn Leu Lys Ser Pro Ala Ser Asp
    130                 135                 140

Gln Gln Leu Met Glu Asp Lys Thr Ser Arg Phe Thr Cys Lys Gly Lys
145                 150                 155                 160

Pro Val Tyr His Phe Phe Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val
                165                 170                 175

Val Ser Asp Ile Asn Leu Ala Lys Ile Asp Asp Asp Ala Asn Leu Glu
            180                 185                 190

Arg Val Cys Leu Leu Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala
        195                 200                 205

Ile Asn Asn Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly
    210                 215                 220

Leu Gly Gly Val Gly Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly
225                 230                 235                 240

Ala Ser Arg Ile Ile Gly Ile Asp Ile Asn Ser Glu Lys Phe Val Lys
```

```
                245                 250                 255

Ala Lys Ala Leu Gly Ala Thr Asp Cys Leu Asn Pro Arg Asp Leu His
            260                 265                 270

Lys Pro Ile Gln Glu Val Ile Ile Glu Leu Thr Lys Gly Gly Val Asp
        275                 280                 285

Phe Ala Leu Asp Cys Ala Gly Gly Ser Glu Thr Met Lys Ala Ala Leu
    290                 295                 300

Asp Cys Thr Thr Ala Gly Trp Gly Ser Cys Thr Phe Ile Gly Val Ala
305                 310                 315                 320

Ala Gly Ser Lys Gly Leu Thr Ile Phe Pro Glu Glu Leu Ile Ile Gly
                325                 330                 335

Arg Thr Ile Asn Gly Thr Phe Phe Gly Gly Trp Lys Ser Val Asp Ser
            340                 345                 350

Ile Pro Lys Leu Val Thr Asp Tyr Lys Asn Lys Lys Phe Asn Leu Asp
        355                 360                 365

Ala Leu Val Thr His Thr Leu Pro Phe Asp Lys Ile Ser Glu Ala Phe
    370                 375                 380

Asp Leu Met Asn Gln Gly Lys Ser Val Arg Thr Ile Leu Ile Phe
385                 390                 395


<210> 3792
<211> 399
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 869; "

<220>
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<223> /note="Gene Symbol: ADH4; "

<220>
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<223> /note="Gene Name:
      alcohol dehydrogenase 4 (class II), pi
      polypeptide; "
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<220>
<221> source
<223> /note="Uniprot ID: P08319; "

<220>
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<400> 3792
Met Leu Val Arg Gly Pro His Phe Glu Leu Gln Arg Cys Lys Thr His
1   5   10   15

Leu Phe Ser Ser Asn Tyr Leu Thr Gln Val Ile Lys Cys Lys Ala Ala
            20   25   30

Ile Ala Trp Glu Ala Gly Lys Pro Leu Cys Ile Glu Glu Val Glu Val
        35   40   45

Ala Pro Pro Lys Ala His Glu Val Arg Ile Gln Ile Ile Ala Thr Ser
    50   55   60

Leu Cys His Thr Asp Ala Thr Val Ile Asp Ser Lys Phe Glu Gly Leu
65   70   75   80

Ala Phe Pro Val Ile Val Gly His Glu Ala Ala Gly Ile Val Glu Ser
                85   90   95

Ile Gly Pro Gly Val Thr Asn Val Lys Pro Gly Asp Lys Val Ile Pro
            100   105   110

Leu Tyr Ala Pro Leu Cys Arg Lys Cys Lys Phe Cys Leu Ser Pro Leu
        115   120   125

Thr Asn Leu Cys Gly Lys Ile Ser Asn Leu Lys Ser Pro Ala Ser Asp
    130   135   140

Gln Gln Leu Met Glu Asp Lys Thr Ser Arg Phe Thr Cys Lys Gly Lys
145   150   155   160

Pro Val Tyr His Phe Phe Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val
                165   170   175

Val Ser Asp Ile Asn Leu Ala Lys Ile Asp Asp Asp Ala Asn Leu Glu
            180   185   190

```
Arg Val Cys Leu Leu Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala
        195                 200                 205

Ile Asn Asn Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly
    210                 215                 220

Leu Gly Gly Val Gly Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly
225                 230                 235                 240

Ala Ser Arg Ile Ile Gly Ile Asp Ile Asn Ser Glu Lys Phe Val Lys
                245                 250                 255

Ala Lys Ala Leu Gly Ala Thr Asp Cys Leu Asn Pro Arg Asp Leu His
            260                 265                 270

Lys Pro Ile Gln Glu Val Ile Ile Glu Leu Thr Lys Gly Gly Val Asp
        275                 280                 285

Phe Ala Leu Asp Cys Ala Gly Gly Ser Glu Thr Met Lys Ala Ala Leu
    290                 295                 300

Asp Cys Thr Thr Ala Gly Trp Gly Ser Cys Thr Phe Ile Gly Val Ala
305                 310                 315                 320

Ala Gly Ser Lys Gly Leu Thr Ile Phe Pro Glu Glu Leu Ile Ile Gly
                325                 330                 335

Arg Thr Ile Asn Gly Thr Phe Phe Gly Gly Trp Lys Ser Val Asp Ser
            340                 345                 350

Ile Pro Lys Leu Val Thr Asp Tyr Lys Asn Lys Lys Phe Asn Leu Asp
        355                 360                 365

Ala Leu Val Thr His Thr Leu Pro Phe Asp Lys Ile Ser Glu Ala Phe
    370                 375                 380

Asp Leu Met Asn Gln Gly Lys Ser Val Arg Thr Ile Leu Ile Phe
385                 390                 395
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<210> 3793
<211> 36
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADH4; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 4 (class II), pi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426667"

<400> 3793
Met Leu Val Arg Gly Pro His Phe Glu Leu Gln Arg Cys Lys Thr His
1 5 10 15

Leu Phe Ser Ser Asn Tyr Leu Thr Gln Arg Glu Lys Leu Glu Thr Leu
20 25 30

Tyr Gln Gly Tyr
35

<210> 3794
<211> 36
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADH4; "

<220>
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<223> /note="Gene Name:
alcohol dehydrogenase 4 (class II), pi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427261"

<400> 3794
Met Leu Val Arg Gly Pro His Phe Glu Leu Gln Arg Cys Lys Thr His

```
1               5                   10                  15

Leu Phe Ser Ser Asn Tyr Leu Thr Gln Arg Glu Lys Leu Glu Thr Leu
            20                  25                  30

Tyr Gln Gly Tyr
        35
```

<210> 3795
<211> 206
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADH4; "

<220>
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<223> /note="Gene Name:
alcohol dehydrogenase 4 (class II), pi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427525"

<400> 3795

```
Met Gly Thr Lys Gly Lys Val Ile Lys Cys Lys Ala Ala Ile Ala Trp
1               5                   10                  15

Glu Ala Gly Lys Pro Leu Cys Ile Glu Glu Val Glu Val Ala Pro Pro
            20                  25                  30

Lys Ala His Glu Val Arg Ile Gln Ile Ile Ala Thr Ser Leu Cys His
        35                  40                  45

Thr Asp Ala Thr Val Ile Asp Ser Lys Phe Glu Gly Leu Ala Phe Pro
    50                  55                  60

Val Ile Val Gly His Glu Ala Ala Gly Ile Val Glu Ser Ile Gly Pro
65                  70                  75                  80

Gly Val Thr Asn Val Lys Pro Gly Asp Lys Val Ile Pro Leu Tyr Ala
                85                  90                  95
```

```
Pro Leu Cys Arg Lys Cys Lys Phe Cys Leu Ser Pro Leu Thr Asn Leu
            100                 105                 110

Cys Gly Lys Ile Arg Phe Thr Cys Lys Gly Lys Pro Val Tyr His Phe
        115                 120                 125

Phe Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val Val Ser Asp Ile Asn
    130                 135                 140

Leu Ala Lys Ile Asp Asp Asp Ala Asn Leu Glu Arg Val Cys Leu Leu
145                 150                 155                 160

Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala Ile Asn Asn Ala Lys
                165                 170                 175

Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly
            180                 185                 190

Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly Ala Ser Arg
        195                 200                 205


<210> 3796
<211> 391
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 869; "

<220>
<221> source
<223> /note="Gene Symbol: ADH4; "

<220>
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<223> /note="Gene Name:
      alcohol dehydrogenase 4 (class II), pi
      polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486450"

<400> 3796
Met Gly Thr Lys Gly Lys Val Ile Lys Cys Lys Ala Ala Ile Ala Trp
1               5                   10                  15
```

```
Glu Ala Gly Lys Pro Leu Cys Ile Glu Glu Val Glu Val Ala Pro Pro
            20                  25                  30

Lys Ala His Glu Val Arg Ile Gln Ile Ile Ala Thr Ser Leu Cys His
        35                  40                  45

Thr Asp Ala Thr Val Ile Asp Ser Lys Phe Glu Gly Leu Ala Phe Pro
    50                  55                  60

Val Ile Val Gly His Glu Ala Ala Gly Ile Val Glu Ser Ile Gly Pro
65                  70                  75                  80

Gly Val Thr Asn Val Lys Pro Gly Asp Lys Val Ile Pro Leu Tyr Ala
                85                  90                  95

Pro Leu Cys Arg Lys Cys Lys Phe Cys Leu Ser Pro Leu Thr Asn Leu
            100                 105                 110

Cys Gly Lys Ile Ser Asn Leu Lys Ser Pro Ala Ser Asp Gln Gln Leu
        115                 120                 125

Met Glu Asp Lys Thr Ser Arg Phe Thr Cys Lys Gly Lys Pro Val Tyr
    130                 135                 140

His Phe Phe Gly Thr Ser Thr Phe Ser Gln Tyr Thr Val Val Ser Asp
145                 150                 155                 160

Ile Asn Leu Ala Lys Ile Asp Asp Asp Ala Asn Leu Glu Arg Val Cys
                165                 170                 175

Leu Leu Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala Ile Asn Asn
            180                 185                 190

Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly
        195                 200                 205

Val Gly Leu Ser Ala Val Met Gly Cys Lys Ala Ala Gly Ala Ser Arg
    210                 215                 220

Ile Ile Gly Ile Asp Ile Asn Ser Glu Lys Phe Val Lys Ala Lys Ala
225                 230                 235                 240
```

```
Leu Gly Ala Thr Asp Cys Leu Asn Pro Arg Asp Leu His Lys Pro Ile
                245                 250                 255

Gln Glu Val Ile Ile Glu Leu Thr Lys Gly Gly Val Asp Phe Ala Leu
            260                 265                 270

Asp Cys Ala Gly Gly Ser Glu Thr Met Lys Ala Ala Leu Asp Cys Thr
        275                 280                 285

Thr Ala Gly Trp Gly Ser Cys Thr Phe Ile Gly Val Ala Ala Gly Ser
    290                 295                 300

Lys Gly Leu Thr Ile Phe Pro Glu Glu Leu Ile Ile Gly Arg Thr Ile
305                 310                 315                 320

Asn Gly Thr Phe Phe Gly Gly Trp Lys Ser Val Asp Ser Ile Pro Lys
                325                 330                 335

Leu Val Thr Asp Tyr Lys Asn Lys Lys Phe Asn Leu Asp Ala Leu Val
            340                 345                 350

Thr His Thr Leu Pro Phe Asp Lys Ile Ser Glu Ala Phe Asp Leu Met
        355                 360                 365

Asn Gln Gly Lys Ser Val Arg Thr Ile Leu Ile Phe Arg Cys Gln Glu
    370                 375                 380

Gln Phe Arg Ile Leu Ser Asp
385                 390


<210> 3797
<211> 374
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 870; "

<220>
<221> source
<223> /note="Gene Symbol: ADH5; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 5 (class III), chi
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polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID: P11766; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000296412"

<400> 3797
Met Ala Asn Glu Val Ile Lys Cys Lys Ala Ala Val Ala Trp Glu Ala
1   5   10   15

Gly Lys Pro Leu Ser Ile Glu Glu Ile Glu Val Ala Pro Pro Lys Ala
            20   25   30

His Glu Val Arg Ile Lys Ile Ile Ala Thr Ala Val Cys His Thr Asp
        35   40   45

Ala Tyr Thr Leu Ser Gly Ala Asp Pro Glu Gly Cys Phe Pro Val Ile
    50   55   60

Leu Gly His Glu Gly Ala Gly Ile Val Glu Ser Val Gly Glu Gly Val
65   70   75   80

Thr Lys Leu Lys Ala Gly Asp Thr Val Ile Pro Leu Tyr Ile Pro Gln
                85   90   95

Cys Gly Glu Cys Lys Phe Cys Leu Asn Pro Lys Thr Asn Leu Cys Gln
            100   105   110

Lys Ile Arg Val Thr Gln Gly Lys Gly Leu Met Pro Asp Gly Thr Ser
        115   120   125

Arg Phe Thr Cys Lys Gly Lys Thr Ile Leu His Tyr Met Gly Thr Ser
    130   135   140

Thr Phe Ser Glu Tyr Thr Val Val Ala Asp Ile Ser Val Ala Lys Ile
145   150   155   160

Asp Pro Leu Ala Pro Leu Asp Lys Val Cys Leu Leu Gly Cys Gly Ile
                165   170   175

Ser Thr Gly Tyr Gly Ala Ala Val Asn Thr Ala Lys Leu Glu Pro Gly
            180   185   190

```
Ser Val Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ala Val Ile
        195                 200                 205

Met Gly Cys Lys Val Ala Gly Ala Ser Arg Ile Ile Gly Val Asp Ile
    210                 215                 220

Asn Lys Asp Lys Phe Ala Arg Ala Lys Glu Phe Gly Ala Thr Glu Cys
225                 230                 235                 240

Ile Asn Pro Gln Asp Phe Ser Lys Pro Ile Gln Glu Val Leu Ile Glu
                245                 250                 255

Met Thr Asp Gly Gly Val Asp Tyr Ser Phe Glu Cys Ile Gly Asn Val
            260                 265                 270

Lys Val Met Arg Ala Ala Leu Glu Ala Cys His Lys Gly Trp Gly Val
        275                 280                 285

Ser Val Val Val Gly Val Ala Ala Ser Gly Glu Glu Ile Ala Thr Arg
    290                 295                 300

Pro Phe Gln Leu Val Thr Gly Arg Thr Trp Lys Gly Thr Ala Phe Gly
305                 310                 315                 320

Gly Trp Lys Ser Val Glu Ser Val Pro Lys Leu Val Ser Glu Tyr Met
                325                 330                 335

Ser Lys Lys Ile Lys Val Asp Glu Phe Val Thr His Asn Leu Ser Phe
            340                 345                 350

Asp Glu Ile Asn Lys Ala Phe Glu Leu Met His Ser Gly Lys Ser Ile
        355                 360                 365

Arg Thr Val Val Lys Ile
    370
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<210> 3798
<211> 115
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 870; "

<220>
<221> source
<223> /note="Gene Symbol: ADH5; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 5 (class III), chi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421556"

<400> 3798
Met Ala Asn Glu Val Ile Lys Cys Lys Ala Ala Val Ala Trp Glu Ala
1 5 10 15

Gly Lys Pro Leu Ser Ile Glu Glu Ile Glu Val Ala Pro Pro Lys Ala
20 25 30

His Glu Val Arg Ile Lys Ile Ile Ala Thr Ala Val Cys His Thr Asp
35 40 45

Ala Tyr Thr Leu Ser Gly Ala Asp Pro Glu Gly Cys Phe Pro Val Ile
50 55 60

Leu Gly His Glu Gly Ala Gly Ile Val Glu Ser Val Gly Glu Gly Val
65 70 75 80

Thr Lys Leu Lys Ala Gly Asp Thr Val Ile Pro Leu Tyr Ile Pro Gln
85 90 95

Cys Gly Glu Cys Lys Phe Cys Leu Asn Pro Lys Thr Asn Leu Cys Gln
100 105 110

Lys Ile Arg
115

<210> 3799
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 870; "

<220>
<221> source
<223> /note="Gene Symbol: ADH5; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 5 (class III), chi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422119"

<400> 3799
Met Ala Asn Glu Val Ile Lys Cys Lys Ala Ala Val Ala Trp Glu Ala
1 5 10 15

Gly Lys Pro Leu Ser Ile Glu Glu Ile Glu Val Ala Pro Pro Lys Ala
20 25 30

His Glu Val Arg Ile Lys Ile Ile Ala Thr Ala Val Cys His Thr Asp
35 40 45

Ala Tyr Thr Leu Ser Gly Ala Asp Pro Glu Gly Cys Phe Pro Val Ile
50 55 60

Leu Gly His Glu Gly Ala Gly Ile Val Glu Ser Val Gly Glu Gly Val
65 70 75 80

Thr Lys Leu Lys Ala Val Trp Arg Met Gln Ile Leu Ser Lys Ser
85 90 95

<210> 3800
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 870; "

<220>
<221> source
<223> /note="Gene Symbol: ADH5; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 5 (class III), chi

polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424650"

<400> 3800
Met Ala Asn Glu Val Ile Lys Cys Lys Ala Ala Val Ala Trp Glu Ala
1   5   10   15

Gly Lys Pro Leu Ser Ile Glu Glu Ile Glu Val Ala Pro Pro Lys Ala
            20   25   30

His Glu Val Arg Ile Lys Val Thr Leu Ser Ser His Phe Thr Ser His
        35   40   45

Ser Val Glu Asn Ala Asn Phe Val
    50   55

<210> 3801
<211> 15
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 870; "

<220>
<221> source
<223> /note="Gene Symbol: ADH5; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 5 (class III), chi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427026"

<400> 3801
Met Ala Asn Glu Phe Cys Thr Lys Pro Val Val Phe Arg Thr Ala
1   5   10   15

<210> 3802
<211> 262
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 870; "

<220>
<221> source
<223> /note="Gene Symbol: ADH5; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 5 (class III), chi
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427049"

<400> 3802

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Val Ile Lys Cys Lys Ala Ala Val Ala Trp Glu Ala Gly Lys Pro Leu
1               5                  10                  15

Ser Ile Glu Glu Ile Glu Val Ala Pro Pro Lys Ala His Glu Val Arg
            20                  25                  30

Ile Lys Ile Ile Ala Thr Ala Val Cys His Thr Asp Ala Tyr Thr Leu
        35                  40                  45

Ser Gly Ala Asp Pro Glu Gly Cys Phe Pro Val Ile Leu Gly His Glu
    50                  55                  60

Gly Ala Gly Ile Val Glu Ser Val Gly Asp Thr Val Ile Pro Leu Tyr
65                  70                  75                  80

Ile Pro Gln Cys Gly Glu Cys Lys Phe Cys Leu Asn Pro Lys Thr Asn
                85                  90                  95

Leu Cys Gln Lys Ile Arg Val Thr Gln Gly Lys Gly Leu Met Pro Asp
            100                 105                 110

Gly Thr Ser Arg Phe Thr Cys Lys Gly Lys Thr Ile Leu His Tyr Met
        115                 120                 125

Gly Thr Ser Thr Phe Ser Glu Tyr Thr Val Val Ala Asp Ile Ser Val
    130                 135                 140

Ala Lys Ile Asp Pro Leu Ala Pro Leu Asp Lys Val Cys Leu Leu Gly
145                 150                 155                 160
```

```
Cys Gly Ile Ser Thr Gly Tyr Gly Ala Ala Val Asn Thr Ala Lys Leu
                165                 170                 175

Glu Pro Gly Ser Val Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu
            180                 185                 190

Ala Val Ile Met Gly Cys Lys Val Ala Gly Ala Ser Arg Ile Ile Gly
        195                 200                 205

Val Asp Ile Asn Lys Asp Lys Phe Ala Arg Ala Lys Glu Phe Gly Ala
    210                 215                 220

Thr Glu Cys Ile Asn Pro Gln Asp Phe Ser Lys Pro Ile Gln Glu Val
225                 230                 235                 240

Leu Ile Glu Met Thr Asp Gly Gly Val Asp Tyr Ser Phe Glu Cys Ile
                245                 250                 255

Gly Asn Val Lys Val Met
            260


<210> 3803
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 870; "

<220>
<221> source
<223> /note="Gene Symbol: ADH5; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 5 (class III), chi
      polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487496"

<400> 3803
Met Ala Asn Glu Val Ile Lys Cys Lys Ala Ala Val Ala Trp Glu Ala
1               5                   10                  15
```

```
Gly Lys Pro Leu Ser Ile Glu Glu Ile Glu Val Ala Pro Pro Lys Ala
            20                  25                  30

His Glu Val Arg Ile Lys Val Thr Leu Ser Ser His Phe Thr Ser His
        35                  40                  45

Ser Val Glu Asn Ala Asn Phe Val
    50                  55


<210> 3804
<211> 368
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 871; "

<220>
<221> source
<223> /note="Gene Symbol: ADH6; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 6 (class V); "

<220>
<221> source
<223> /note="Uniprot ID:  P28332; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000237653"

<400> 3804
Met Ser Thr Thr Gly Gln Val Ile Arg Cys Lys Ala Ala Ile Leu Trp
1               5                   10                  15

Lys Pro Gly Ala Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro
            20                  25                  30

Lys Ala Lys Glu Val Arg Ile Lys Val Val Ala Thr Gly Leu Cys Gly
        35                  40                  45

Thr Glu Met Lys Val Leu Gly Ser Lys His Leu Asp Leu Leu Tyr Pro
    50                  55                  60

Thr Ile Leu Gly His Glu Gly Ala Gly Ile Val Glu Ser Ile Gly Glu
65                  70                  75                  80
```

```
Gly Val Ser Thr Val Lys Pro Gly Asp Lys Val Ile Thr Leu Phe Leu
                85                  90                  95

Pro Gln Cys Gly Glu Cys Thr Ser Cys Leu Asn Ser Glu Gly Asn Phe
            100                 105                 110

Cys Ile Gln Phe Lys Gln Ser Lys Thr Gln Leu Met Ser Asp Gly Thr
        115                 120                 125

Ser Arg Phe Thr Cys Lys Gly Lys Ser Ile Tyr His Phe Gly Asn Thr
    130                 135                 140

Ser Thr Phe Cys Glu Tyr Thr Val Ile Lys Glu Ile Ser Val Ala Lys
145                 150                 155                 160

Ile Asp Ala Val Ala Pro Leu Glu Lys Val Cys Leu Ile Ser Cys Gly
                165                 170                 175

Phe Ser Thr Gly Phe Gly Ala Ala Ile Asn Thr Ala Lys Val Thr Pro
            180                 185                 190

Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val
        195                 200                 205

Val Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Gly Val Asp
    210                 215                 220

Val Asn Lys Glu Lys Phe Lys Lys Ala Gln Glu Leu Gly Ala Thr Glu
225                 230                 235                 240

Cys Leu Asn Pro Gln Asp Leu Lys Lys Pro Ile Gln Glu Val Leu Phe
                245                 250                 255

Asp Met Thr Asp Ala Gly Ile Asp Phe Cys Phe Glu Ala Ile Gly Asn
            260                 265                 270

Leu Asp Val Leu Ala Ala Ala Leu Ala Ser Cys Asn Glu Ser Tyr Gly
        275                 280                 285

Val Cys Val Val Val Gly Val Leu Pro Ala Ser Val Gln Leu Lys Ile
    290                 295                 300
```

```
Ser Gly Gln Leu Phe Phe Ser Gly Arg Ser Leu Lys Gly Ser Val Phe
305                 310                 315                 320

Gly Gly Trp Lys Ser Arg Gln His Ile Pro Lys Leu Val Ala Asp Tyr
                325                 330                 335

Met Ala Glu Lys Leu Asn Leu Asp Pro Leu Ile Thr His Thr Leu Asn
            340                 345                 350

Leu Asp Lys Ile Asn Glu Ala Val Glu Leu Met Lys Thr Gly Lys Trp
        355                 360                 365


<210> 3805
<211> 295
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 871; "

<220>
<221> source
<223> /note="Gene Symbol: ADH6; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 6 (class V); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378358"

<400> 3805
Met Ser Thr Thr Gly Gln Val Ile Arg Cys Lys Ala Ala Ile Leu Trp
1               5                   10                  15

Lys Pro Gly Ala Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro
            20                  25                  30

Lys Ala Lys Glu Val Arg Ile Lys Val Val Ala Thr Gly Leu Cys Gly
        35                  40                  45

Thr Glu Met Lys Val Leu Gly Ser Lys His Leu Asp Leu Leu Tyr Pro
    50                  55                  60

Thr Ile Leu Gly His Glu Gly Ala Gly Ile Val Glu Ser Ile Gly Glu
```

65 70 75 80

Gly Val Ser Thr Val Lys Pro Gly Asp Lys Val Ile Thr Leu Phe Leu
85 90 95

Pro Gln Cys Gly Glu Cys Thr Ser Cys Leu Asn Ser Glu Gly Asn Phe
100 105 110

Cys Ile Gln Phe Lys Gln Ser Lys Thr Gln Leu Met Ser Asp Gly Thr
115 120 125

Ser Arg Phe Thr Cys Lys Gly Lys Ser Ile Tyr His Phe Gly Asn Thr
130 135 140

Ser Thr Phe Cys Glu Tyr Thr Val Ile Lys Glu Ile Ser Val Ala Lys
145 150 155 160

Ile Asp Ala Val Ala Pro Leu Glu Lys Val Cys Leu Ile Ser Cys Gly
165 170 175

Phe Ser Thr Gly Phe Gly Ala Ala Ile Asn Thr Ala Lys Val Thr Pro
180 185 190

Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val
195 200 205

Val Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Gly Val Asp
210 215 220

Val Asn Lys Glu Lys Phe Lys Lys Ala Gln Glu Leu Gly Ala Thr Glu
225 230 235 240

Cys Leu Asn Pro Gln Asp Leu Lys Lys Pro Ile Gln Glu Val Leu Phe
245 250 255

Asp Met Thr Asp Ala Gly Ile Asp Phe Cys Phe Glu Ala Ile Gly Asn
260 265 270

Leu Asp Val Leu Ala Gly Arg Ala Asp Ser Thr Ser Leu Asn Trp Leu
275 280 285

Leu Ile Ile Trp Gln Arg Ser
290 295

<210> 3806
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 871; "

<220>
<221> source
<223> /note="Gene Symbol: ADH6; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 6 (class V); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378359"

<400> 3806

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Met Ser Thr Thr Gly Gln Val Ile Arg Cys Lys Ala Ala Ile Leu Trp
1               5                  10                  15

Lys Pro Gly Ala Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro
            20                  25                  30

Lys Ala Lys Glu Val Arg Ile Lys Val Val Ala Thr Gly Leu Cys Gly
        35                  40                  45

Thr Glu Met Lys Val Leu Gly Ser Lys His Leu Asp Leu Leu Tyr Pro
    50                  55                  60

Thr Ile Leu Gly His Glu Gly Ala Gly Ile Val Glu Ser Ile Gly Glu
65                  70                  75                  80

Gly Val Ser Thr Val Lys Pro Gly Asp Lys Val Ile Thr Leu Phe Leu
                85                  90                  95

Pro Gln Cys Gly Glu Cys Thr Ser Cys Leu Asn Ser Glu Gly Asn Phe
            100                 105                 110

Cys Ile Gln Phe Lys Gln Ser Lys Thr Gln Leu Met Ser Asp Gly Thr
        115                 120                 125
```

```
Ser Arg Phe Thr Cys Lys Gly Lys Ser Ile Tyr His Phe Gly Asn Thr
    130                 135                 140

Ser Thr Phe Cys Glu Tyr Thr Val Ile Lys Glu Ile Ser Val Ala Lys
145                 150                 155                 160

Ile Asp Ala Val Ala Pro Leu Glu Lys Val Cys Leu Ile Ser Cys Gly
                165                 170                 175

Phe Ser Thr Gly Phe Gly Ala Ala Ile Asn Thr Ala Lys Val Thr Pro
            180                 185                 190

Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val
        195                 200                 205

Val Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Gly Val Asp
    210                 215                 220

Val Asn Lys Glu Lys Phe Lys Lys Ala Gln Glu Leu Gly Ala Thr Glu
225                 230                 235                 240

Cys Leu Asn Pro Gln Asp Leu Lys Lys Pro Ile Gln Glu Val Leu Phe
                245                 250                 255

Asp Met Thr Asp Ala Gly Ile Asp Phe Cys Phe Glu Ala Ile Gly Asn
            260                 265                 270

Leu Asp Val Leu Ala Ala Ala Leu Ala Ser Cys Asn Glu Ser Tyr Gly
        275                 280                 285

Val Cys Val Val Val Gly Val Leu Pro Ala Ser Val Gln Leu Lys Ile
    290                 295                 300

Ser Gly Gln Leu Phe Phe Ser Gly Arg Ser Leu Lys Gly Ser Val Phe
305                 310                 315                 320

Gly Gly Trp Lys Ser Arg Gln His Ile Pro Lys Leu Val Ala Asp Tyr
                325                 330                 335

Met Ala Glu Lys Leu Asn Leu Asp Pro Leu Ile Thr His Thr Leu Asn
            340                 345                 350

Leu Asp Lys Ile Asn Glu Ala Val Glu Leu Met Lys Thr Gly Lys Cys
```

```
        355                 360                 365

Ile Arg Cys Ile Leu Leu Leu
    370                 375


<210> 3807
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 871; "

<220>
<221> source
<223> /note="Gene Symbol: ADH6; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 6 (class V); "

<220>
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<223> /note="ENSP ID: ENSP00000422124"

<400> 3807
Glu Lys Phe Lys Lys Ala Gln Glu Leu Gly Ala Thr Glu Cys Leu Asn
1               5                   10                  15


Pro Gln Asp Leu Lys Lys Pro Ile Gln Glu Val Leu Phe Asp Met Thr
            20                  25                  30


Asp Ala Gly Ile Asp Phe Cys Phe Glu Ala Ile Gly Asn Leu Asp Val
        35                  40                  45


Leu Ala Gly Arg Ala Asp Ser Thr Ser Leu Asn Trp Leu Leu Ile Ile
    50                  55                  60


Trp Gln Arg Ser
65


<210> 3808
<211> 58
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 871; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
alcohol dehydrogenase 6 (class V); "

<220>
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<223> /note="ENSP ID: ENSP00000425275"

<400> 3808
Met Ser Thr Thr Gly Gln Val Ile Arg Cys Lys Ala Ala Ile Leu Trp
1 5 10 15

Lys Pro Gly Ala Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro
20 25 30

Lys Ala Lys Glu Val Arg Ile Lys Val Thr Lys Leu Ser His Ser Phe
35 40 45

Cys His Ser Val Glu Asn Val Pro Leu Ala
50 55

<210> 3809
<211> 257
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
alcohol dehydrogenase 6 (class V); "

<220>
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<223> /note="ENSP ID: ENSP00000426187"

<400> 3809
Met Ser Thr Thr Gly Gln Val Ile Arg Cys Lys Ala Ala Ile Leu Trp
1 5 10 15

```
Lys Pro Gly Ala Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro
            20                  25                  30

Lys Ala Lys Glu Val Arg Ile Lys Val Val Ala Thr Gly Leu Cys Gly
        35                  40                  45

Thr Glu Met Lys Val Leu Gly Ser Lys His Leu Asp Leu Leu Tyr Pro
    50                  55                  60

Thr Ile Leu Gly His Glu Gly Ala Gly Ile Val Glu Ser Ile Gly Glu
65                  70                  75                  80

Gly Val Ser Thr Val Lys Pro Val Ile Lys Glu Ile Ser Val Ala Lys
                85                  90                  95

Ile Asp Ala Val Ala Pro Leu Glu Lys Val Cys Leu Ile Ser Cys Gly
            100                 105                 110

Phe Ser Thr Gly Phe Gly Ala Ala Ile Asn Thr Ala Lys Val Thr Pro
        115                 120                 125

Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val
    130                 135                 140

Val Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Gly Val Asp
145                 150                 155                 160

Val Asn Lys Glu Lys Phe Lys Lys Ala Gln Glu Leu Gly Ala Thr Glu
                165                 170                 175

Cys Leu Asn Pro Gln Asp Leu Lys Lys Pro Ile Gln Glu Val Leu Phe
            180                 185                 190

Asp Met Thr Asp Ala Gly Ile Asp Phe Cys Phe Glu Ala Ile Gly Asn
        195                 200                 205

Leu Asp Val Leu Ala Ala Ala Leu Ala Ser Cys Asn Glu Ser Tyr Gly
    210                 215                 220

Val Cys Val Val Val Gly Val Leu Pro Ala Ser Val Gln Leu Lys Ile
225                 230                 235                 240
```

Ser Gly Gln Leu Phe Phe Ser Gly Arg Ser Leu Lys Gly Ser Val Phe
245 250 255

Gly

<210> 3810
<211> 386
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ADH7; "

<220>
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<223> /note="Gene Name:
alcohol dehydrogenase 7 (class IV), mu or sigma
polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID: P40394; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000209665"

<400> 3810
Met Phe Ala Glu Ile Gln Ile Gln Asp Lys Asp Arg Met Gly Thr Ala
1 5 10 15

Gly Lys Val Ile Lys Cys Lys Ala Ala Val Leu Trp Glu Gln Lys Gln
20 25 30

Pro Phe Ser Ile Glu Glu Ile Glu Val Ala Pro Pro Lys Thr Lys Glu
35 40 45

Val Arg Ile Lys Ile Leu Ala Thr Gly Ile Cys Arg Thr Asp Asp His
50 55 60

Val Ile Lys Gly Thr Met Val Ser Lys Phe Pro Val Ile Val Gly His
65 70 75 80

```
Glu Ala Thr Gly Ile Val Glu Ser Ile Gly Glu Gly Val Thr Thr Val
                85                  90                  95

Lys Pro Gly Asp Lys Val Ile Pro Leu Phe Leu Pro Gln Cys Arg Glu
            100                 105                 110

Cys Asn Ala Cys Arg Asn Pro Asp Gly Asn Leu Cys Ile Arg Ser Asp
        115                 120                 125

Ile Thr Gly Arg Gly Val Leu Ala Asp Gly Thr Thr Arg Phe Thr Cys
    130                 135                 140

Lys Gly Lys Pro Val His His Phe Met Asn Thr Ser Thr Phe Thr Glu
145                 150                 155                 160

Tyr Thr Val Val Asp Glu Ser Ser Val Ala Lys Ile Asp Asp Ala Ala
                165                 170                 175

Pro Pro Glu Lys Val Cys Leu Ile Gly Cys Gly Phe Ser Thr Gly Tyr
            180                 185                 190

Gly Ala Ala Val Lys Thr Gly Lys Val Lys Pro Gly Ser Thr Cys Val
        195                 200                 205

Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val Ile Met Gly Cys Lys
    210                 215                 220

Ser Ala Gly Ala Ser Arg Ile Ile Gly Ile Asp Leu Asn Lys Asp Lys
225                 230                 235                 240

Phe Glu Lys Ala Met Ala Val Gly Ala Thr Glu Cys Ile Ser Pro Lys
                245                 250                 255

Asp Ser Thr Lys Pro Ile Ser Glu Val Leu Ser Glu Met Thr Gly Asn
            260                 265                 270

Asn Val Gly Tyr Thr Phe Glu Val Ile Gly His Leu Glu Thr Met Ile
        275                 280                 285

Asp Ala Leu Ala Ser Cys His Met Asn Tyr Gly Thr Ser Val Val Val
    290                 295                 300

Gly Val Pro Pro Ser Ala Lys Met Leu Thr Tyr Asp Pro Met Leu Leu
```

```
305                 310                 315                 320

Phe Thr Gly Arg Thr Trp Lys Gly Cys Val Phe Gly Gly Leu Lys Ser
                325                 330                 335

Arg Asp Asp Val Pro Lys Leu Val Thr Glu Phe Leu Ala Lys Lys Phe
            340                 345                 350

Asp Leu Asp Gln Leu Ile Thr His Val Leu Pro Phe Lys Lys Ile Ser
        355                 360                 365

Glu Gly Phe Glu Leu Leu Asn Ser Gly Gln Ser Ile Arg Thr Val Leu
    370                 375                 380

Thr Phe
385
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<210> 3811
<211> 374
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 872; "

<220>
<221> source
<223> /note="Gene Symbol: ADH7; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 7 (class IV), mu or sigma
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414254"

<400> 3811

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Met Gly Thr Ala Gly Lys Val Ile Lys Cys Lys Ala Ala Val Leu Trp
1               5                   10                  15

Glu Gln Lys Gln Pro Phe Ser Ile Glu Glu Ile Glu Val Ala Pro Pro
            20                  25                  30

Lys Thr Lys Glu Val Arg Ile Lys Ile Leu Ala Thr Gly Ile Cys Arg
        35                  40                  45
```

```
Thr Asp Asp His Val Ile Lys Gly Thr Met Val Ser Lys Phe Pro Val
    50                  55                  60

Ile Val Gly His Glu Ala Thr Gly Ile Val Glu Ser Ile Gly Glu Gly
65                  70                  75                  80

Val Thr Thr Val Lys Pro Gly Asp Lys Val Ile Pro Leu Phe Leu Pro
                85                  90                  95

Gln Cys Arg Glu Cys Asn Ala Cys Arg Asn Pro Asp Gly Asn Leu Cys
            100                 105                 110

Ile Arg Ser Asp Ile Thr Gly Arg Gly Val Leu Ala Asp Gly Thr Thr
        115                 120                 125

Arg Phe Thr Cys Lys Gly Lys Pro Val His His Phe Met Asn Thr Ser
    130                 135                 140

Thr Phe Thr Glu Tyr Thr Val Val Asp Glu Ser Ser Val Ala Lys Ile
145                 150                 155                 160

Asp Asp Ala Ala Pro Pro Glu Lys Val Cys Leu Ile Gly Cys Gly Phe
                165                 170                 175

Ser Thr Gly Tyr Gly Ala Ala Val Lys Thr Gly Lys Val Lys Pro Gly
            180                 185                 190

Ser Thr Cys Val Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val Ile
        195                 200                 205

Met Gly Cys Lys Ser Ala Gly Ala Ser Arg Ile Ile Gly Ile Asp Leu
    210                 215                 220

Asn Lys Asp Lys Phe Glu Lys Ala Met Ala Val Gly Ala Thr Glu Cys
225                 230                 235                 240

Ile Ser Pro Lys Asp Ser Thr Lys Pro Ile Ser Glu Val Leu Ser Glu
                245                 250                 255

Met Thr Gly Asn Asn Val Gly Tyr Thr Phe Glu Val Ile Gly His Leu
            260                 265                 270
```

```
Glu Thr Met Ile Asp Ala Leu Ala Ser Cys His Met Asn Tyr Gly Thr
        275                 280                 285

Ser Val Val Val Gly Val Pro Pro Ser Ala Lys Met Leu Thr Tyr Asp
    290                 295                 300

Pro Met Leu Leu Phe Thr Gly Arg Thr Trp Lys Gly Cys Val Phe Gly
305                 310                 315                 320

Gly Leu Lys Ser Arg Asp Asp Val Pro Lys Leu Val Thr Glu Phe Leu
                325                 330                 335

Ala Lys Lys Phe Asp Leu Asp Gln Leu Ile Thr His Val Leu Pro Phe
            340                 345                 350

Lys Lys Ile Ser Glu Gly Phe Glu Leu Leu Asn Ser Gly Gln Ser Ile
        355                 360                 365

Arg Thr Val Leu Thr Phe
    370


<210> 3812
<211> 394
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 872; "

<220>
<221> source
<223> /note="Gene Symbol: ADH7; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase 7 (class IV), mu or sigma
      polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID:  P40394; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420269"

<400> 3812
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```
Met Lys Cys Leu Val Ser Arg His Thr Val Arg Glu Thr Leu Asp Met
1               5                  10                  15

Val Phe Gln Arg Met Ser Val Glu Ala Gly Val Ile Lys Cys Lys Ala
            20                  25                  30

Ala Val Leu Trp Glu Gln Lys Gln Pro Phe Ser Ile Glu Glu Ile Glu
        35                  40                  45

Val Ala Pro Pro Lys Thr Lys Glu Val Arg Ile Lys Ile Leu Ala Thr
    50                  55                  60

Gly Ile Cys Arg Thr Asp Asp His Val Ile Lys Gly Thr Met Val Ser
65                  70                  75                  80

Lys Phe Pro Val Ile Val Gly His Glu Ala Thr Gly Ile Val Glu Ser
                85                  90                  95

Ile Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp Lys Val Ile Pro
            100                 105                 110

Leu Phe Leu Pro Gln Cys Arg Glu Cys Asn Ala Cys Arg Asn Pro Asp
        115                 120                 125

Gly Asn Leu Cys Ile Arg Ser Asp Ile Thr Gly Arg Gly Val Leu Ala
    130                 135                 140

Asp Gly Thr Thr Arg Phe Thr Cys Lys Gly Lys Pro Val His His Phe
145                 150                 155                 160

Met Asn Thr Ser Thr Phe Thr Glu Tyr Thr Val Val Asp Glu Ser Ser
                165                 170                 175

Val Ala Lys Ile Asp Asp Ala Ala Pro Pro Glu Lys Val Cys Leu Ile
            180                 185                 190

Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala Val Lys Thr Gly Lys
        195                 200                 205

Val Lys Pro Gly Ser Thr Cys Val Val Phe Gly Leu Gly Gly Val Gly
    210                 215                 220

Leu Ser Val Ile Met Gly Cys Lys Ser Ala Gly Ala Ser Arg Ile Ile
```

```
225                 230                 235                 240

Gly Ile Asp Leu Asn Lys Asp Lys Phe Glu Lys Ala Met Ala Val Gly
                245                 250                 255

Ala Thr Glu Cys Ile Ser Pro Lys Asp Ser Thr Lys Pro Ile Ser Glu
            260                 265                 270

Val Leu Ser Glu Met Thr Gly Asn Asn Val Gly Tyr Thr Phe Glu Val
        275                 280                 285

Ile Gly His Leu Glu Thr Met Ile Asp Ala Leu Ala Ser Cys His Met
    290                 295                 300

Asn Tyr Gly Thr Ser Val Val Val Gly Val Pro Pro Ser Ala Lys Met
305                 310                 315                 320

Leu Thr Tyr Asp Pro Met Leu Leu Phe Thr Gly Arg Thr Trp Lys Gly
                325                 330                 335

Cys Val Phe Gly Gly Leu Lys Ser Arg Asp Asp Val Pro Lys Leu Val
            340                 345                 350

Thr Glu Phe Leu Ala Lys Lys Phe Asp Leu Asp Gln Leu Ile Thr His
        355                 360                 365

Val Leu Pro Phe Lys Lys Ile Ser Glu Gly Phe Glu Leu Leu Asn Ser
    370                 375                 380

Gly Gln Ser Ile Arg Thr Val Leu Thr Phe
385                 390


<210> 3813
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 872; "

<220>
<221> source
<223> /note="Gene Symbol: ADH7; "

<220>
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<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 7 (class IV), mu or sigma
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420300"

<400> 3813
Met Val Ser Lys Phe Pro Val Ile Val Gly His Glu Ala Thr Gly Ile
1 5 10 15

Val Glu Ser Ile Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp Lys
20 25 30

Val Ile Pro Leu Phe Leu Pro Gln Cys Arg Glu Cys Asn Ala Cys Arg
35 40 45

Asn Pro Asp Gly Asn Leu Cys Ile Arg Ser Asp Ile Thr Gly Arg Gly
50 55 60

Val Leu Ala Asp Gly Thr Thr Arg Phe Thr Cys Lys Gly Lys Pro Val
65 70 75 80

His His Phe Met Asn Thr Ser Thr Phe Thr Glu Tyr Thr Val Val Asp
85 90 95

Glu Ser Ser Val Ala Lys Ile Asp Asp Ala Ala
100 105

<210> 3814
<211> 317
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 872; "

<220>
<221> source
<223> /note="Gene Symbol: ADH7; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase 7 (class IV), mu or sigma
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420613"

<400> 3814
Met Val Ser Lys Phe Pro Val Ile Val Gly His Glu Ala Thr Gly Ile
1 5 10 15

Val Glu Ser Ile Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp Lys
20 25 30

Val Ile Pro Leu Phe Leu Pro Gln Cys Arg Glu Cys Asn Ala Cys Arg
35 40 45

Asn Pro Asp Gly Asn Leu Cys Ile Arg Ser Asp Ile Thr Gly Arg Gly
50 55 60

Val Leu Ala Asp Gly Thr Thr Arg Phe Thr Cys Lys Gly Lys Pro Val
65 70 75 80

His His Phe Met Asn Thr Ser Thr Phe Thr Glu Tyr Thr Val Val Asp
85 90 95

Glu Ser Ser Val Ala Lys Ile Asp Asp Ala Ala Pro Pro Glu Lys Val
100 105 110

Cys Leu Ile Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ala Ala Val Lys
115 120 125

Thr Gly Lys Val Lys Pro Gly Ser Thr Cys Val Val Phe Gly Leu Gly
130 135 140

Gly Val Gly Leu Ser Val Ile Met Gly Cys Lys Ser Ala Gly Ala Ser
145 150 155 160

Arg Ile Ile Gly Ile Asp Leu Asn Lys Asp Lys Phe Glu Lys Ala Met
165 170 175

Ala Val Gly Ala Thr Glu Cys Ile Ser Pro Lys Asp Ser Thr Lys Pro
180 185 190

Ile Ser Glu Val Leu Ser Glu Met Thr Gly Asn Asn Val Gly Tyr Thr
195 200 205

```
Phe Glu Val Ile Gly His Leu Glu Thr Met Ile Asp Ala Leu Ala Ser
    210                 215                 220

Cys His Met Asn Tyr Gly Thr Ser Val Val Val Gly Val Pro Pro Ser
225                 230                 235                 240

Ala Lys Met Leu Thr Tyr Asp Pro Met Leu Leu Phe Thr Gly Arg Thr
                245                 250                 255

Trp Lys Gly Cys Val Phe Gly Gly Leu Lys Ser Arg Asp Asp Val Pro
            260                 265                 270

Lys Leu Val Thr Glu Phe Leu Ala Lys Lys Phe Asp Leu Asp Gln Leu
        275                 280                 285

Ile Thr His Val Leu Pro Phe Lys Lys Ile Ser Glu Gly Phe Glu Leu
    290                 295                 300

Leu Asn Ser Gly Gln Ser Ile Arg Thr Val Leu Thr Phe
305                 310                 315


<210> 3815
<211> 38
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 873; "

<220>
<221> source
<223> /note="Gene Symbol: ADHFE1; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000276576"

<400> 3815
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1               5                   10                  15

Gln Arg Ala Ala Cys Gln Cys Pro Thr His Ser His Thr Tyr Ser Gln
            20                  25                  30
```

Asp Gly Cys Phe Lys Tyr
        35

<210> 3816
<211> 126
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 873; "

<220>
<221> source
<223> /note="Gene Symbol: ADHFE1; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379864"

<400> 3816
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1   5   10   15

Gln Arg Ala Ala Cys Gln Cys Pro Thr His Ser His Thr Tyr Ser Gln
            20   25   30

Ala Pro Gly Leu Ser Pro Ser Gly Lys Thr Thr Asp Tyr Ala Phe Glu
        35   40   45

Met Ala Val Ser Asn Ile Arg Tyr Gly Ala Ala Val Thr Lys Glu Val
    50   55   60

Gly Met Asp Leu Lys Asn Met Gly Ala Lys Asn Val Cys Leu Met Thr
65   70   75   80

Asp Lys Asn Leu Ser Lys Leu Pro Pro Val Gln Val Ala Met Asp Ser
                85   90   95

Leu Val Lys Asn Gly Ile Pro Phe Thr Val Tyr Asp Asn Val Arg Val
            100   105   110

Glu Pro Thr Asp Ser Ser Ala Asn Tyr Leu Arg Asn Arg Glu
        115   120   125

<210> 3817
<211> 467
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 873; "

<220>
<221> source
<223> /note="Gene Symbol: ADHFE1; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IWW8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379865"

<400> 3817
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1   5   10   15

Gln Arg Ala Ala Cys Gln Cys Pro Thr His Ser His Thr Tyr Ser Gln
            20   25   30

Ala Pro Gly Leu Ser Pro Ser Gly Lys Thr Thr Asp Tyr Ala Phe Glu
        35   40   45

Met Ala Val Ser Asn Ile Arg Tyr Gly Ala Ala Val Thr Lys Glu Val
    50   55   60

Gly Met Asp Leu Lys Asn Met Gly Ala Lys Asn Val Cys Leu Met Thr
65   70   75   80

Asp Lys Asn Leu Ser Lys Leu Pro Pro Val Gln Val Ala Met Asp Ser
                85   90   95

Leu Val Lys Asn Gly Ile Pro Phe Thr Val Tyr Asp Asn Val Arg Val
            100   105   110

```
Glu Pro Thr Asp Ser Ser Phe Met Glu Ala Ile Glu Phe Ala Gln Lys
        115                 120                 125

Gly Ala Phe Asp Ala Tyr Val Ala Val Gly Gly Gly Ser Thr Met Asp
    130                 135                 140

Thr Cys Lys Ala Ala Asn Leu Tyr Ala Ser Ser Pro His Ser Asp Phe
145                 150                 155                 160

Leu Asp Tyr Val Ser Ala Pro Ile Gly Lys Gly Lys Pro Val Ser Val
                165                 170                 175

Pro Leu Lys Pro Leu Ile Ala Val Pro Thr Thr Ser Gly Thr Gly Ser
            180                 185                 190

Glu Thr Thr Gly Val Ala Ile Phe Asp Tyr Glu His Leu Lys Val Lys
        195                 200                 205

Ile Gly Ile Thr Ser Arg Ala Ile Lys Pro Thr Leu Gly Leu Ile Asp
    210                 215                 220

Pro Leu His Thr Leu His Met Pro Ala Arg Val Val Ala Asn Ser Gly
225                 230                 235                 240

Phe Asp Val Leu Cys His Ala Leu Glu Ser Tyr Thr Thr Leu Pro Tyr
                245                 250                 255

His Leu Arg Ser Pro Cys Pro Ser Asn Pro Ile Thr Arg Pro Ala Tyr
            260                 265                 270

Gln Gly Ser Asn Pro Ile Ser Asp Ile Trp Ala Ile His Ala Leu Arg
        275                 280                 285

Ile Val Ala Lys Tyr Leu Lys Arg Ala Val Arg Asn Pro Asp Asp Leu
    290                 295                 300

Glu Ala Arg Ser His Met His Leu Ala Ser Ala Phe Ala Gly Ile Gly
305                 310                 315                 320

Phe Gly Asn Ala Gly Val His Leu Cys His Gly Met Ser Tyr Pro Ile
                325                 330                 335
```

```
Ser Gly Leu Val Lys Met Tyr Lys Ala Lys Asp Tyr Asn Val Asp His
            340                 345                 350

Pro Leu Val Pro His Gly Leu Ser Val Val Leu Thr Ser Pro Ala Val
        355                 360                 365

Phe Thr Phe Thr Ala Gln Met Phe Pro Glu Arg His Leu Glu Met Ala
    370                 375                 380

Glu Ile Leu Gly Ala Asp Thr Arg Thr Ala Arg Ile Gln Asp Ala Gly
385                 390                 395                 400

Leu Val Leu Ala Asp Thr Leu Arg Lys Phe Leu Phe Asp Leu Asp Val
                405                 410                 415

Asp Asp Gly Leu Ala Ala Val Gly Tyr Ser Lys Ala Asp Ile Pro Ala
            420                 425                 430

Leu Val Lys Gly Thr Leu Pro Gln Glu Arg Val Thr Lys Leu Ala Pro
        435                 440                 445

Cys Pro Gln Ser Glu Glu Asp Leu Ala Ala Leu Phe Glu Ala Ser Met
    450                 455                 460

Lys Leu Tyr
465
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<210> 3818
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 873; "

<220>
<221> source
<223> /note="Gene Symbol: ADHFE1; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000387956"

<400> 3818
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1   5   10   15

Gln Arg Ala Ala Cys Gln Cys Pro Thr His Ser His Thr Tyr Ser Gln
            20   25   30

Ala Pro Gly Leu Ser Pro Ser Gly Lys Thr Thr Asp Tyr Ala Phe Glu
        35   40   45

Met Ala Val Ser Asn Ile Arg Tyr Gly Ala Ala Val Thr Lys Glu Val
    50   55   60

Gly Met Asp Leu Lys Asn Met Gly Ala Lys Asn Val Cys Leu Met Thr
65   70   75   80

Asp Lys Asn Leu Ser Lys Leu Pro Pro Val Gln Val Ala Met Asp Ser
                85   90   95

Leu Val Lys Asn Gly Ile Pro Phe Thr Val Tyr Asp Asn Val Arg Val
            100   105   110

Glu Pro Thr Asp Ser Arg His His Phe Glu Ser His Gln Thr His Thr
        115   120   125

Gly Thr Asp
    130

<210> 3819
<211> 34
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 873; "

<220>
<221> source
<223> /note="Gene Symbol: ADHFE1; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392040"

<400> 3819
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1   5   10   15

Gln Arg Ala Ala Pro Trp Thr Phe Thr Phe Trp Glu Asn Asn Arg Leu
            20   25   30

Cys Leu

<210> 3820
<211> 34
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 873; "

<220>
<221> source
<223> /note="Gene Symbol: ADHFE1; "

<220>
<221> source
<223> /note="Gene Name:
      alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392925"

<400> 3820
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1   5   10   15

Gln Arg Ala Ala Pro Trp Thr Phe Thr Phe Trp Glu Asn Asn Arg Leu
            20   25   30

Cys Leu

<210> 3821
<211> 38
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 873; "

<220>
<221> source
<223> /note="Gene Symbol: ADHFE1; "

<220>
<221> source
<223> /note="Gene Name:
alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406905"

<400> 3821
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1 5 10 15

Gln Arg Ala Ala Cys Gln Cys Pro Thr His Ser His Thr Tyr Ser Gln
20 25 30

Asp Gly Cys Phe Lys Tyr
35

<210> 3822
<211> 419
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<400> 3822

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Met Ala Val Ser Asn Ile Arg Tyr Gly Ala Ala Val Thr Lys Glu Val
1               5                  10                  15

Gly Met Asp Leu Lys Asn Met Gly Ala Lys Asn Val Cys Leu Met Thr
            20                  25                  30

Asp Lys Asn Leu Ser Lys Leu Pro Pro Val Gln Val Ala Met Asp Ser
        35                  40                  45

Leu Val Lys Asn Gly Ile Pro Phe Thr Val Tyr Asp Asn Val Arg Val
    50                  55                  60

Glu Pro Thr Asp Ser Ser Phe Met Glu Ala Ile Glu Phe Ala Gln Lys
65                  70                  75                  80

Gly Ala Phe Asp Ala Tyr Val Ala Val Gly Gly Gly Ser Thr Met Asp
                85                  90                  95

Thr Cys Lys Ala Ala Asn Leu Tyr Ala Ser Ser Pro His Ser Asp Phe
            100                 105                 110

Leu Asp Tyr Val Ser Ala Pro Ile Gly Lys Gly Lys Pro Val Ser Val
        115                 120                 125

Pro Leu Lys Pro Leu Ile Ala Val Pro Thr Thr Ser Gly Thr Gly Ser
    130                 135                 140

Glu Thr Thr Gly Val Ala Ile Phe Asp Tyr Glu His Leu Lys Val Lys
145                 150                 155                 160

Ile Gly Ile Thr Ser Arg Ala Ile Lys Pro Thr Leu Gly Leu Ile Asp
                165                 170                 175

Pro Leu His Thr Leu His Met Pro Ala Arg Val Val Ala Asn Ser Gly
            180                 185                 190

Phe Asp Val Leu Cys His Ala Leu Glu Ser Tyr Thr Thr Leu Pro Tyr
        195                 200                 205

His Leu Arg Ser Pro Cys Pro Ser Asn Pro Ile Thr Arg Pro Ala Tyr
    210                 215                 220

Gln Gly Ser Asn Pro Ile Ser Asp Ile Trp Ala Ile His Ala Leu Arg
```

225 230 235 240

Ile Val Ala Lys Tyr Leu Lys Arg Ala Val Arg Asn Pro Asp Asp Leu
245 250 255

Glu Ala Arg Ser His Met His Leu Ala Ser Ala Phe Ala Gly Ile Gly
260 265 270

Phe Gly Asn Ala Gly Val His Leu Cys His Gly Met Ser Tyr Pro Ile
275 280 285

Ser Gly Leu Val Lys Met Tyr Lys Ala Lys Asp Tyr Asn Val Asp His
290 295 300

Pro Leu Val Pro His Gly Leu Ser Val Val Leu Thr Ser Pro Ala Val
305 310 315 320

Phe Thr Phe Thr Ala Gln Met Phe Pro Glu Arg His Leu Glu Met Ala
325 330 335

Glu Ile Leu Gly Ala Asp Thr Arg Thr Ala Arg Ile Gln Asp Ala Gly
340 345 350

Leu Val Leu Ala Asp Thr Leu Arg Lys Phe Leu Phe Asp Leu Asp Val
355 360 365

Asp Asp Gly Leu Ala Ala Val Gly Tyr Ser Lys Ala Asp Ile Pro Ala
370 375 380

Leu Val Lys Gly Thr Leu Pro Gln Glu Arg Val Thr Lys Leu Ala Pro
385 390 395 400

Cys Pro Gln Ser Glu Glu Asp Leu Ala Ala Leu Phe Glu Ala Ser Met
405 410 415

Lys Leu Tyr

<210> 3823
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<213> Homo sapiens

<220>

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<220>
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<400> 3823
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1 5 10 15

Gln Arg Ala Ala Trp Leu Phe Gln Ile Leu Asp Met Glu Gln Gln Leu
20 25 30

Gln Arg Lys
35

<210> 3824
<211> 303
<212> PRT
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<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000410883"

<400> 3824
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu

```
1               5                   10                  15

Gln Arg Ala Ala Cys Gln Cys Pro Thr His Ser His Thr Tyr Ser Gln
            20                  25                  30

Ala Pro Gly Leu Ser Pro Ser Gly Lys Thr Thr Asp Tyr Ala Phe Glu
        35                  40                  45

Met Ala Val Ser Asn Ile Arg Tyr Gly Ala Ala Val Thr Lys Glu Val
    50                  55                  60

Gly Met Asp Leu Lys Asn Met Gly Ala Lys Asn Val Cys Leu Met Thr
65                  70                  75                  80

Asp Lys Asn Leu Ser Lys Leu Pro Pro Val Gln Val Ala Met Asp Ser
                85                  90                  95

Leu Val Lys Asn Gly Ile Pro Phe Thr Val Tyr Asp Asn Val Arg Val
            100                 105                 110

Glu Pro Thr Asp Ser Ser Phe Met Glu Ala Ile Glu Phe Ala Gln Lys
        115                 120                 125

Gly Ala Phe Asp Ala Tyr Val Ala Val Gly Gly Gly Ser Thr Met Asp
    130                 135                 140

Thr Cys Lys Ala Ala Asn Leu Tyr Ala Ser Ser Pro His Ser Asp Phe
145                 150                 155                 160

Leu Asp Tyr Val Ser Ala Pro Ile Gly Lys Gly Lys Pro Val Ser Val
                165                 170                 175

Pro Leu Lys Pro Leu Ile Ala Val Pro Thr Thr Ser Gly Thr Gly Ser
            180                 185                 190

Glu Thr Thr Gly Val Ala Ile Phe Asp Tyr Glu His Leu Lys Val Lys
        195                 200                 205

Ile Gly Ile Thr Ser Arg Ala Ile Lys Pro Thr Leu Gly Leu Ile Asp
    210                 215                 220

Pro Leu His Thr Leu His Met Pro Ala Arg Val Val Ala Asn Ser Gly
225                 230                 235                 240
```

```
Phe Asp Val Leu Cys His Ala Leu Glu Ser Tyr Thr Thr Leu Pro Tyr
                245                 250                 255

His Leu Arg Ser Pro Cys Pro Ser Asn Pro Ile Thr Arg Pro Ala Tyr
            260                 265                 270

Gln Gly Ser Asn Pro Ile Ser Asp Ile Trp Ala Ile His Ala Leu Arg
        275                 280                 285

Ile Val Ala Lys Tyr Leu Lys Arg Ala Val Asn Ser Thr Asp Lys
    290                 295                 300


<210> 3825
<211> 35
<212> PRT
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<220>
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<220>
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<400> 3825
Met Ala Ala Ala Ala Arg Ala Arg Val Ala Tyr Leu Leu Arg Gln Leu
1               5                   10                  15

Gln Arg Ala Ala Trp Leu Phe Gln Ile Leu Asp Met Glu Gln Gln Leu
            20                  25                  30

Gln Arg Lys
        35


<210> 3826
<211> 88
<212> PRT
<213> Homo sapiens
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<220>
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<223> /note="Payload ID: 873; "

<220>
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<220>
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alcohol dehydrogenase, iron containing, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428055"

<400> 3826
Met Asp Leu Lys Asn Met Gly Ala Lys Asn Val Cys Leu Met Thr Asp
1 5 10 15

Lys Asn Leu Ser Lys Leu Pro Pro Val Gln Val Ala Met Asp Ser Leu
20 25 30

Val Lys Asn Gly Ile Pro Phe Thr Val Tyr Asp Asn Val Arg Val Glu
35 40 45

Pro Thr Asp Ser Ser Phe Met Glu Ala Ile Glu Phe Ala Gln Lys Gly
50 55 60

Ala Phe Asp Ala Tyr Val Ala Val Gly Gly Gly Ser Thr Met Asp Thr
65 70 75 80

Cys Lys Ala Ala Asn Leu Tyr Ala
85

<210> 3827
<211> 501
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 874; "

<220>
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<223> /note="Gene Symbol: ALDH1A1; "

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<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A1; "

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<221> source
<223> /note="Uniprot ID: P00352; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000297785"

<400> 3827

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Met Ser Ser Ser Gly Thr Pro Asp Leu Pro Val Leu Leu Thr Asp Leu
1               5                  10                  15

Lys Ile Gln Tyr Thr Lys Ile Phe Ile Asn Asn Glu Trp His Asp Ser
            20                  25                  30

Val Ser Gly Lys Lys Phe Pro Val Phe Asn Pro Ala Thr Glu Glu Glu
        35                  40                  45

Leu Cys Gln Val Glu Glu Gly Asp Lys Glu Asp Val Asp Lys Ala Val
    50                  55                  60

Lys Ala Ala Arg Gln Ala Phe Gln Ile Gly Ser Pro Trp Arg Thr Met
65                  70                  75                  80

Asp Ala Ser Glu Arg Gly Arg Leu Leu Tyr Lys Leu Ala Asp Leu Ile
                85                  90                  95

Glu Arg Asp Arg Leu Leu Leu Ala Thr Met Glu Ser Met Asn Gly Gly
            100                 105                 110

Lys Leu Tyr Ser Asn Ala Tyr Leu Asn Asp Leu Ala Gly Cys Ile Lys
        115                 120                 125

Thr Leu Arg Tyr Cys Ala Gly Trp Ala Asp Lys Ile Gln Gly Arg Thr
    130                 135                 140

Ile Pro Ile Asp Gly Asn Phe Phe Thr Tyr Thr Arg His Glu Pro Ile
145                 150                 155                 160

Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Val Met Leu
                165                 170                 175
```

```
Ile Trp Lys Ile Gly Pro Ala Leu Ser Cys Gly Asn Thr Val Val Val
            180                 185                 190

Lys Pro Ala Glu Gln Thr Pro Leu Thr Ala Leu His Val Ala Ser Leu
        195                 200                 205

Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly
    210                 215                 220

Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ser Ser His Met Asp Ile Asp
225                 230                 235                 240

Lys Val Ala Phe Thr Gly Ser Thr Glu Val Gly Lys Leu Ile Lys Glu
                245                 250                 255

Ala Ala Gly Lys Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly
            260                 265                 270

Lys Ser Pro Cys Ile Val Leu Ala Asp Ala Asp Leu Asp Asn Ala Val
        275                 280                 285

Glu Phe Ala His His Gly Val Phe Tyr His Gln Gly Gln Cys Cys Ile
    290                 295                 300

Ala Ala Ser Arg Ile Phe Val Glu Glu Ser Ile Tyr Asp Glu Phe Val
305                 310                 315                 320

Arg Arg Ser Val Glu Arg Ala Lys Lys Tyr Ile Leu Gly Asn Pro Leu
                325                 330                 335

Thr Pro Gly Val Thr Gln Gly Pro Gln Ile Asp Lys Glu Gln Tyr Asp
            340                 345                 350

Lys Ile Leu Asp Leu Ile Glu Ser Gly Lys Lys Glu Gly Ala Lys Leu
        355                 360                 365

Glu Cys Gly Gly Gly Pro Trp Gly Asn Lys Gly Tyr Phe Val Gln Pro
    370                 375                 380

Thr Val Phe Ser Asn Val Thr Asp Glu Met Arg Ile Ala Lys Glu Glu
385                 390                 395                 400
```

```
Ile Phe Gly Pro Val Gln Gln Ile Met Lys Phe Lys Ser Leu Asp Asp
                405                 410                 415

Val Ile Lys Arg Ala Asn Asn Thr Phe Tyr Gly Leu Ser Ala Gly Val
            420                 425                 430

Phe Thr Lys Asp Ile Asp Lys Ala Ile Thr Ile Ser Ser Ala Leu Gln
        435                 440                 445

Ala Gly Thr Val Trp Val Asn Cys Tyr Gly Val Val Ser Ala Gln Cys
    450                 455                 460

Pro Phe Gly Gly Phe Lys Met Ser Gly Asn Gly Arg Glu Leu Gly Glu
465                 470                 475                 480

Tyr Gly Phe His Glu Tyr Thr Glu Val Lys Thr Val Thr Val Lys Ile
                485                 490                 495

Ser Gln Lys Asn Ser
            500


<210> 3828
<211> 230
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ALDH1A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366138"

<400> 3828
Met Ser Ser Ser Gly Thr Pro Asp Leu Pro Val Leu Leu Thr Asp Leu
1               5                   10                  15

Lys Ile Gln Tyr Thr Lys Ile Phe Ile Asn Asn Glu Trp His Asp Ser
```

20 25 30

Val Ser Gly Lys Lys Phe Pro Val Phe Asn Pro Ala Thr Glu Glu Glu
35 40 45

Leu Cys Gln Val Glu Glu Gly Asp Lys Glu Asp Val Asp Lys Ala Val
50 55 60

Lys Ala Ala Arg Gln Ala Phe Gln Ile Gly Ser Pro Trp Arg Thr Met
65 70 75 80

Asp Ala Ser Glu Arg Gly Arg Leu Leu Tyr Lys Leu Ala Asp Leu Ile
85 90 95

Glu Arg Asp Arg Leu Leu Leu Ala Thr Met Glu Ser Met Asn Gly Gly
100 105 110

Lys Leu Tyr Ser Asn Ala Tyr Leu Asn Asp Leu Ala Gly Cys Ile Lys
115 120 125

Thr Leu Arg Tyr Cys Ala Gly Trp Ala Asp Lys Ile Gln Gly Arg Thr
130 135 140

Ile Pro Ile Asp Gly Asn Phe Phe Thr Tyr Thr Arg His Glu Pro Ile
145 150 155 160

Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Val Met Leu
165 170 175

Ile Trp Lys Ile Gly Pro Ala Leu Ser Cys Gly Asn Thr Val Val Val
180 185 190

Lys Pro Ala Glu Gln Thr Pro Leu Thr Ala Leu His Val Ala Ser Leu
195 200 205

Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly
210 215 220

Tyr Gly Ala Ser Val Val
225 230

<210> 3829
<211> 238

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 874; "

<220>
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<223> /note="Gene Symbol: ALDH1A1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388026"

<400> 3829

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Met Ser Ser Ser Gly Thr Pro Asp Leu Pro Val Leu Leu Thr Asp Leu
1               5                  10                  15

Lys Ile Gln Tyr Thr Lys Ile Phe Ile Asn Asn Glu Trp His Asp Ser
            20                  25                  30

Val Ser Gly Lys Lys Phe Pro Val Phe Asn Pro Ala Thr Glu Glu Glu
        35                  40                  45

Leu Cys Gln Val Glu Glu Gly Asp Lys Glu Asp Val Asp Lys Ala Val
    50                  55                  60

Lys Ala Ala Arg Gln Ala Phe Gln Ile Gly Ser Pro Trp Arg Thr Met
65                  70                  75                  80

Asp Ala Ser Glu Arg Gly Arg Leu Leu Tyr Lys Leu Ala Asp Leu Ile
                85                  90                  95

Glu Arg Asp Arg Leu Leu Leu Ala Thr Met Glu Ser Met Asn Gly Gly
            100                 105                 110

Lys Leu Tyr Ser Asn Ala Tyr Leu Asn Asp Leu Ala Gly Cys Ile Lys
        115                 120                 125

Thr Leu Arg Tyr Cys Ala Gly Trp Ala Asp Lys Ile Gln Gly Arg Thr
    130                 135                 140
```

```
Ile Pro Ile Asp Gly Asn Phe Phe Thr Tyr Thr Arg His Glu Pro Ile
145                 150                 155                 160


Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Val Met Leu
                165                 170                 175


Ile Trp Lys Ile Gly Pro Ala Leu Ser Cys Gly Asn Thr Val Val Val
            180                 185                 190


Lys Pro Ala Glu Gln Thr Pro Leu Thr Ala Leu His Val Ala Ser Leu
        195                 200                 205


Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly
    210                 215                 220


Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ser Ser His Met Asp
225                 230                 235


<210> 3830
<211> 203
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ALDH1A1; "

<220>
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<223> /note="Gene Name:
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      family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401361"

<400> 3830
Met Ser Ser Ser Gly Thr Pro Asp Leu Pro Val Leu Leu Thr Asp Leu
1               5                   10                  15


Lys Ile Gln Tyr Thr Lys Ile Phe Ile Asn Asn Glu Trp His Asp Ser
            20                  25                  30
```

```
Val Ser Gly Lys Lys Phe Pro Val Phe Asn Pro Ala Thr Glu Glu Glu
        35                  40                  45

Leu Cys Gln Val Glu Glu Gly Asp Lys Glu Asp Val Asp Lys Ala Val
    50                  55                  60

Lys Ala Ala Arg Gln Ala Phe Gln Ile Gly Ser Pro Trp Arg Thr Met
65                  70                  75                  80

Asp Ala Ser Glu Arg Gly Arg Leu Leu Tyr Lys Leu Ala Asp Leu Ile
                85                  90                  95

Glu Arg Asp Arg Leu Leu Leu Ala Thr Met Glu Ser Met Asn Gly Gly
            100                 105                 110

Lys Leu Tyr Ser Asn Ala Tyr Leu Asn Asp Leu Ala Gly Cys Ile Lys
        115                 120                 125

Thr Leu Arg Tyr Cys Ala Gly Trp Ala Asp Lys Ile Gln Gly Arg Thr
    130                 135                 140

Ile Pro Ile Asp Gly Asn Phe Phe Thr Tyr Thr Arg His Glu Pro Ile
145                 150                 155                 160

Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Val Met Leu
                165                 170                 175

Ile Trp Lys Ile Gly Pro Ala Leu Ser Cys Gly Asn Thr Val Val Val
            180                 185                 190

Lys Pro Ala Glu Gln Thr Pro Leu Thr Ala Leu
        195                 200


<210> 3831
<211> 518
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "
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<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A2; "

<220>
<221> source
<223> /note="Uniprot ID: O94788; "

<220>
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<400> 3831

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Met Thr Ser Ser Lys Ile Glu Met Pro Gly Glu Val Lys Ala Asp Pro
1               5                  10                  15

Ala Ala Leu Met Ala Ser Leu His Leu Leu Pro Ser Pro Thr Pro Asn
            20                  25                  30

Leu Glu Ile Lys Tyr Thr Lys Ile Phe Ile Asn Asn Glu Trp Gln Asn
        35                  40                  45

Ser Glu Ser Gly Arg Val Phe Pro Val Tyr Asn Pro Ala Thr Gly Glu
    50                  55                  60

Gln Val Cys Glu Val Gln Glu Ala Asp Lys Ala Asp Ile Asp Lys Ala
65                  70                  75                  80

Val Gln Ala Ala Arg Leu Ala Phe Ser Leu Gly Ser Val Trp Arg Arg
                85                  90                  95

Met Asp Ala Ser Glu Arg Gly Arg Leu Leu Asp Lys Leu Ala Asp Leu
            100                 105                 110

Val Glu Arg Asp Arg Ala Val Leu Ala Thr Met Glu Ser Leu Asn Gly
        115                 120                 125

Gly Lys Pro Phe Leu Gln Ala Phe Tyr Val Asp Leu Gln Gly Val Ile
    130                 135                 140

Lys Thr Phe Arg Tyr Tyr Ala Gly Trp Ala Asp Lys Ile His Gly Met
145                 150                 155                 160

Thr Ile Pro Val Asp Gly Asp Tyr Phe Thr Phe Thr Arg His Glu Pro
                165                 170                 175
```

```
Ile Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Leu Met
            180                 185                 190

Phe Ala Trp Lys Ile Ala Pro Ala Leu Cys Cys Gly Asn Thr Val Val
        195                 200                 205

Ile Lys Pro Ala Glu Gln Thr Pro Leu Ser Ala Leu Tyr Met Gly Ala
    210                 215                 220

Leu Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Ile Asn Ile Leu Pro
225                 230                 235                 240

Gly Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ala Ser His Ile Gly Ile
                245                 250                 255

Asp Lys Ile Ala Phe Thr Gly Ser Thr Glu Val Gly Lys Leu Ile Gln
            260                 265                 270

Glu Ala Ala Gly Arg Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly
        275                 280                 285

Gly Lys Ser Pro Asn Ile Ile Phe Ala Asp Ala Asp Leu Asp Tyr Ala
    290                 295                 300

Val Glu Gln Ala His Gln Gly Val Phe Phe Asn Gln Gly Gln Cys Cys
305                 310                 315                 320

Thr Ala Gly Ser Arg Ile Phe Val Glu Glu Ser Ile Tyr Glu Glu Phe
                325                 330                 335

Val Arg Arg Ser Val Glu Arg Ala Lys Arg Arg Val Val Gly Ser Pro
            340                 345                 350

Phe Asp Pro Thr Thr Glu Gln Gly Pro Gln Ile Asp Lys Lys Gln Tyr
        355                 360                 365

Asn Lys Ile Leu Glu Leu Ile Gln Ser Gly Val Ala Glu Gly Ala Lys
    370                 375                 380

Leu Glu Cys Gly Gly Lys Gly Leu Gly Arg Lys Gly Phe Phe Ile Glu
385                 390                 395                 400
```

```
Pro Thr Val Phe Ser Asn Val Thr Asp Asp Met Arg Ile Ala Lys Glu
                405                 410                 415

Glu Ile Phe Gly Pro Val Gln Glu Ile Leu Arg Phe Lys Thr Met Asp
            420                 425                 430

Glu Val Ile Glu Arg Ala Asn Asn Ser Asp Phe Gly Leu Val Ala Ala
        435                 440                 445

Val Phe Thr Asn Asp Ile Asn Lys Ala Leu Thr Val Ser Ser Ala Met
    450                 455                 460

Gln Ala Gly Thr Val Trp Ile Asn Cys Tyr Asn Ala Leu Asn Ala Gln
465                 470                 475                 480

Ser Pro Phe Gly Gly Phe Lys Met Ser Gly Asn Gly Arg Glu Met Gly
                485                 490                 495

Glu Phe Gly Leu Arg Glu Tyr Ser Glu Val Lys Thr Val Thr Val Lys
            500                 505                 510

Ile Pro Gln Lys Asn Ser
        515


<210> 3832
<211> 480
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member A2; "

<220>
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<223> /note="Uniprot ID:  O94788; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000309623"

<400> 3832
Met Thr Ser Ser Lys Ile Glu Met Pro Gly Glu Val Lys Ala Asp Pro
1 5 10 15

Ala Ala Leu Met Ala Ser Leu His Leu Leu Pro Ser Pro Thr Pro Asn
20 25 30

Leu Glu Ile Lys Tyr Thr Lys Ile Phe Ile Asn Asn Glu Trp Gln Asn
35 40 45

Ser Glu Ser Gly Arg Val Phe Pro Val Tyr Asn Pro Ala Thr Gly Glu
50 55 60

Gln Val Cys Glu Val Gln Glu Ala Asp Lys Ala Asp Ile Asp Lys Ala
65 70 75 80

Val Gln Ala Ala Arg Leu Ala Phe Ser Leu Gly Ser Val Trp Arg Arg
85 90 95

Met Asp Ala Ser Glu Arg Gly Arg Leu Leu Asp Lys Leu Ala Asp Leu
100 105 110

Val Glu Arg Asp Arg Ala Val Leu Ala Thr Met Glu Ser Leu Asn Gly
115 120 125

Gly Lys Pro Phe Leu Gln Ala Phe Tyr Val Asp Leu Gln Gly Val Ile
130 135 140

Lys Thr Phe Arg Tyr Tyr Ala Gly Trp Ala Asp Lys Ile His Gly Met
145 150 155 160

Thr Ile Pro Val Asp Gly Asp Tyr Phe Thr Phe Thr Arg His Glu Pro
165 170 175

Ile Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Leu Met
180 185 190

Phe Ala Trp Lys Ile Ala Pro Ala Leu Cys Cys Gly Asn Thr Val Val
195 200 205

Ile Lys Pro Ala Glu Gln Thr Pro Leu Ser Ala Leu Tyr Met Gly Ala

```
    210                 215                 220

Leu Ile Lys Glu Val Gly Lys Leu Ile Gln Glu Ala Ala Gly Arg Ser
225                 230                 235                 240

Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly Lys Ser Pro Asn Ile
                245                 250                 255

Ile Phe Ala Asp Ala Asp Leu Asp Tyr Ala Val Glu Gln Ala His Gln
            260                 265                 270

Gly Val Phe Phe Asn Gln Gly Gln Cys Cys Thr Ala Gly Ser Arg Ile
        275                 280                 285

Phe Val Glu Glu Ser Ile Tyr Glu Glu Phe Val Arg Arg Ser Val Glu
    290                 295                 300

Arg Ala Lys Arg Arg Val Val Gly Ser Pro Phe Asp Pro Thr Thr Glu
305                 310                 315                 320

Gln Gly Pro Gln Ile Asp Lys Lys Gln Tyr Asn Lys Ile Leu Glu Leu
                325                 330                 335

Ile Gln Ser Gly Val Ala Glu Gly Ala Lys Leu Glu Cys Gly Gly Lys
            340                 345                 350

Gly Leu Gly Arg Lys Gly Phe Phe Ile Glu Pro Thr Val Phe Ser Asn
        355                 360                 365

Val Thr Asp Asp Met Arg Ile Ala Lys Glu Glu Ile Phe Gly Pro Val
    370                 375                 380

Gln Glu Ile Leu Arg Phe Lys Thr Met Asp Glu Val Ile Glu Arg Ala
385                 390                 395                 400

Asn Asn Ser Asp Phe Gly Leu Val Ala Ala Val Phe Thr Asn Asp Ile
                405                 410                 415

Asn Lys Ala Leu Thr Val Ser Ser Ala Met Gln Ala Gly Thr Val Trp
            420                 425                 430

Ile Asn Cys Tyr Asn Ala Leu Asn Ala Gln Ser Pro Phe Gly Gly Phe
        435                 440                 445
```

Lys Met Ser Gly Asn Gly Arg Glu Met Gly Glu Phe Gly Leu Arg Glu
    450   455   460

Tyr Ser Glu Val Lys Thr Val Thr Val Lys Ile Pro Gln Lys Asn Ser
465   470   475   480

<210> 3833
<211> 40
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416754"

<400> 3833
Met Thr Ser Ser Lys Ile Glu Met Pro Gly Glu Val Lys Ala Asp Pro
1   5   10   15

Ala Ala Leu Met Ala Ser Leu His Leu Leu Pro Ser Pro Thr Pro Asn
            20   25   30

Leu Glu Ile Lys Tyr Thr Lys Val
        35   40

<210> 3834
<211> 497
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source

<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A2; "

<220>
<221> source
<223> /note="Uniprot ID: O94788; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438296"

<400> 3834

```
Met Lys Asn Gln Cys Glu Thr Val Trp Leu Lys Ser Pro Ile Lys Leu
1               5                  10                  15

Lys Leu Ile Phe Ile Asn Asn Glu Trp Gln Asn Ser Glu Ser Gly Arg
            20                  25                  30

Val Phe Pro Val Tyr Asn Pro Ala Thr Gly Glu Gln Val Cys Glu Val
        35                  40                  45

Gln Glu Ala Asp Lys Ala Asp Ile Asp Lys Ala Val Gln Ala Ala Arg
    50                  55                  60

Leu Ala Phe Ser Leu Gly Ser Val Trp Arg Arg Met Asp Ala Ser Glu
65                  70                  75                  80

Arg Gly Arg Leu Leu Asp Lys Leu Ala Asp Leu Val Glu Arg Asp Arg
                85                  90                  95

Ala Val Leu Ala Thr Met Glu Ser Leu Asn Gly Gly Lys Pro Phe Leu
            100                 105                 110

Gln Ala Phe Tyr Val Asp Leu Gln Gly Val Ile Lys Thr Phe Arg Tyr
        115                 120                 125

Tyr Ala Gly Trp Ala Asp Lys Ile His Gly Met Thr Ile Pro Val Asp
    130                 135                 140

Gly Asp Tyr Phe Thr Phe Thr Arg His Glu Pro Ile Gly Val Cys Gly
145                 150                 155                 160
```

```
Gln Ile Ile Pro Trp Asn Phe Pro Leu Leu Met Phe Ala Trp Lys Ile
                165                 170                 175

Ala Pro Ala Leu Cys Cys Gly Asn Thr Val Val Ile Lys Pro Ala Glu
            180                 185                 190

Gln Thr Pro Leu Ser Ala Leu Tyr Met Gly Ala Leu Ile Lys Glu Ala
        195                 200                 205

Gly Phe Pro Pro Gly Val Ile Asn Ile Leu Pro Gly Tyr Gly Pro Thr
    210                 215                 220

Ala Gly Ala Ala Ile Ala Ser His Ile Gly Ile Asp Lys Ile Ala Phe
225                 230                 235                 240

Thr Gly Ser Thr Glu Val Gly Lys Leu Ile Gln Glu Ala Ala Gly Arg
                245                 250                 255

Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly Lys Ser Pro Asn
            260                 265                 270

Ile Ile Phe Ala Asp Ala Asp Leu Asp Tyr Ala Val Glu Gln Ala His
        275                 280                 285

Gln Gly Val Phe Phe Asn Gln Gly Gln Cys Cys Thr Ala Gly Ser Arg
    290                 295                 300

Ile Phe Val Glu Glu Ser Ile Tyr Glu Glu Phe Val Arg Arg Ser Val
305                 310                 315                 320

Glu Arg Ala Lys Arg Arg Val Val Gly Ser Pro Phe Asp Pro Thr Thr
                325                 330                 335

Glu Gln Gly Pro Gln Ile Asp Lys Lys Gln Tyr Asn Lys Ile Leu Glu
            340                 345                 350

Leu Ile Gln Ser Gly Val Ala Glu Gly Ala Lys Leu Glu Cys Gly Gly
        355                 360                 365

Lys Gly Leu Gly Arg Lys Gly Phe Phe Ile Glu Pro Thr Val Phe Ser
    370                 375                 380

Asn Val Thr Asp Asp Met Arg Ile Ala Lys Glu Glu Ile Phe Gly Pro
```

385 390 395 400

Val Gln Glu Ile Leu Arg Phe Lys Thr Met Asp Glu Val Ile Glu Arg
405 410 415

Ala Asn Asn Ser Asp Phe Gly Leu Val Ala Ala Val Phe Thr Asn Asp
420 425 430

Ile Asn Lys Ala Leu Thr Val Ser Ser Ala Met Gln Ala Gly Thr Val
435 440 445

Trp Ile Asn Cys Tyr Asn Ala Leu Asn Ala Gln Ser Pro Phe Gly Gly
450 455 460

Phe Lys Met Ser Gly Asn Gly Arg Glu Met Gly Glu Phe Gly Leu Arg
465 470 475 480

Glu Tyr Ser Glu Val Lys Thr Val Thr Val Lys Ile Pro Gln Lys Asn
485 490 495

Ser

<210> 3835
<211> 85
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452850"

<400> 3835
Met Asp Ala Ser Glu Arg Gly Arg Leu Leu Asp Lys Leu Ala Asp Leu
1 5 10 15

Val Glu Arg Asp Arg Ala Val Leu Ala Thr Met Glu Ser Leu Asn Gly
            20   25   30

Gly Lys Pro Phe Leu Gln Ala Phe Tyr Val Asp Leu Gln Gly Val Ile
        35   40   45

Lys Thr Phe Arg Tyr Tyr Ala Gly Trp Ala Asp Lys Ile His Gly Met
    50   55   60

Thr Ile Pro Val Asp Gly Asp Tyr Phe Thr Phe Thr Arg His Glu Pro
65   70   75   80

Ile Gly Val Cys Gly
                85

<210> 3836
<211> 25
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453292"

<400> 3836
Met Asp Ala Ser Glu Arg Gly Arg Leu Leu Asp Lys Leu Ala Asp Leu
1   5   10   15

Val Glu Arg Asp Arg Ala Val Leu Ala
            20   25

<210> 3837
<211> 422
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A2; "

<220>
<221> source
<223> /note="Uniprot ID: O94788; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453408"

<400> 3837

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Met Asp Ala Ser Glu Arg Gly Arg Leu Leu Asp Lys Leu Ala Asp Leu
1               5                  10                  15

Val Glu Arg Asp Arg Ala Val Leu Ala Thr Met Glu Ser Leu Asn Gly
            20                  25                  30

Gly Lys Pro Phe Leu Gln Ala Phe Tyr Val Asp Leu Gln Gly Val Ile
        35                  40                  45

Lys Thr Phe Arg Tyr Tyr Ala Gly Trp Ala Asp Lys Ile His Gly Met
    50                  55                  60

Thr Ile Pro Val Asp Gly Asp Tyr Phe Thr Phe Thr Arg His Glu Pro
65                  70                  75                  80

Ile Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Leu Met
                85                  90                  95

Phe Ala Trp Lys Ile Ala Pro Ala Leu Cys Cys Gly Asn Thr Val Val
            100                 105                 110

Ile Lys Pro Ala Glu Gln Thr Pro Leu Ser Ala Leu Tyr Met Gly Ala
        115                 120                 125
```

```
Leu Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Ile Asn Ile Leu Pro
    130                 135                 140

Gly Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ala Ser His Ile Gly Ile
145                 150                 155                 160

Asp Lys Ile Ala Phe Thr Gly Ser Thr Glu Val Gly Lys Leu Ile Gln
                165                 170                 175

Glu Ala Ala Gly Arg Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly
            180                 185                 190

Gly Lys Ser Pro Asn Ile Ile Phe Ala Asp Ala Asp Leu Asp Tyr Ala
        195                 200                 205

Val Glu Gln Ala His Gln Gly Val Phe Phe Asn Gln Gly Gln Cys Cys
    210                 215                 220

Thr Ala Gly Ser Arg Ile Phe Val Glu Glu Ser Ile Tyr Glu Glu Phe
225                 230                 235                 240

Val Arg Arg Ser Val Glu Arg Ala Lys Arg Arg Val Val Gly Ser Pro
                245                 250                 255

Phe Asp Pro Thr Thr Glu Gln Gly Pro Gln Ile Asp Lys Lys Gln Tyr
            260                 265                 270

Asn Lys Ile Leu Glu Leu Ile Gln Ser Gly Val Ala Glu Gly Ala Lys
        275                 280                 285

Leu Glu Cys Gly Gly Lys Gly Leu Gly Arg Lys Gly Phe Phe Ile Glu
    290                 295                 300

Pro Thr Val Phe Ser Asn Val Thr Asp Asp Met Arg Ile Ala Lys Glu
305                 310                 315                 320

Glu Ile Phe Gly Pro Val Gln Glu Ile Leu Arg Phe Lys Thr Met Asp
                325                 330                 335

Glu Val Ile Glu Arg Ala Asn Asn Ser Asp Phe Gly Leu Val Ala Ala
            340                 345                 350

Val Phe Thr Asn Asp Ile Asn Lys Ala Leu Thr Val Ser Ser Ala Met
```

```
        355                 360                 365

Gln Ala Gly Thr Val Trp Ile Asn Cys Tyr Asn Ala Leu Asn Ala Gln
    370                 375                 380

Ser Pro Phe Gly Gly Phe Lys Met Ser Gly Asn Gly Arg Glu Met Gly
385                 390                 395                 400

Glu Phe Gly Leu Arg Glu Tyr Ser Glu Val Lys Thr Val Thr Val Lys
                405                 410                 415

Ile Pro Gln Lys Asn Ser
            420


<210> 3838
<211> 489
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453600"

<400> 3838
Met Lys Gly Arg Asn Trp Lys Thr Thr Lys Ile Phe Ile Asn Asn Glu
1               5                   10                  15

Trp Gln Asn Ser Glu Ser Gly Arg Val Phe Pro Val Tyr Asn Pro Ala
            20                  25                  30

Thr Gly Glu Gln Val Cys Glu Val Gln Glu Ala Asp Lys Ala Asp Ile
        35                  40                  45

Asp Lys Ala Val Gln Ala Ala Arg Leu Ala Phe Ser Leu Gly Ser Val
    50                  55                  60
```

```
Trp Arg Arg Met Asp Ala Ser Glu Arg Gly Arg Leu Leu Asp Lys Leu
65                  70                  75                  80

Ala Asp Leu Val Glu Arg Asp Arg Ala Val Leu Ala Thr Met Glu Ser
                85                  90                  95

Leu Asn Gly Gly Lys Pro Phe Leu Gln Ala Phe Tyr Val Asp Leu Gln
            100                 105                 110

Gly Val Ile Lys Thr Phe Arg Tyr Tyr Ala Gly Trp Ala Asp Lys Ile
        115                 120                 125

His Gly Met Thr Ile Pro Val Asp Gly Asp Tyr Phe Thr Phe Thr Arg
    130                 135                 140

His Glu Pro Ile Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro
145                 150                 155                 160

Leu Leu Met Phe Ala Trp Lys Ile Ala Pro Ala Leu Cys Cys Gly Asn
                165                 170                 175

Thr Val Val Ile Lys Pro Ala Glu Gln Thr Pro Leu Ser Ala Leu Tyr
            180                 185                 190

Met Gly Ala Leu Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Ile Asn
        195                 200                 205

Ile Leu Pro Gly Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ala Ser His
    210                 215                 220

Ile Gly Ile Asp Lys Ile Ala Phe Thr Gly Ser Thr Glu Val Gly Lys
225                 230                 235                 240

Leu Ile Gln Glu Ala Ala Gly Arg Ser Asn Leu Lys Arg Val Thr Leu
                245                 250                 255

Glu Leu Gly Gly Lys Ser Pro Asn Ile Ile Phe Ala Asp Ala Asp Leu
            260                 265                 270

Asp Tyr Ala Val Glu Gln Ala His Gln Gly Val Phe Phe Asn Gln Gly
        275                 280                 285
```

```
Gln Cys Cys Thr Ala Gly Ser Arg Ile Phe Val Glu Glu Ser Ile Tyr
    290                 295                 300

Glu Glu Phe Val Arg Arg Ser Val Glu Arg Ala Lys Arg Arg Val Val
305                 310                 315                 320

Gly Ser Pro Phe Asp Pro Thr Thr Glu Gln Gly Pro Gln Ile Asp Lys
                325                 330                 335

Lys Gln Tyr Asn Lys Ile Leu Glu Leu Ile Gln Ser Gly Val Ala Glu
            340                 345                 350

Gly Ala Lys Leu Glu Cys Gly Gly Lys Gly Leu Gly Arg Lys Gly Phe
        355                 360                 365

Phe Ile Glu Pro Thr Val Phe Ser Asn Val Thr Asp Asp Met Arg Ile
    370                 375                 380

Ala Lys Glu Glu Ile Phe Gly Pro Val Gln Glu Ile Leu Arg Phe Lys
385                 390                 395                 400

Thr Met Asp Glu Val Ile Glu Arg Ala Asn Asn Ser Asp Phe Gly Leu
                405                 410                 415

Val Ala Ala Val Phe Thr Asn Asp Ile Asn Lys Ala Leu Thr Val Ser
            420                 425                 430

Ser Ala Met Gln Ala Gly Thr Val Trp Ile Asn Cys Tyr Asn Ala Leu
        435                 440                 445

Asn Ala Gln Ser Pro Phe Gly Gly Phe Lys Met Ser Gly Asn Gly Arg
    450                 455                 460

Glu Met Gly Glu Phe Gly Leu Arg Glu Tyr Ser Glu Val Lys Thr Val
465                 470                 475                 480

Thr Val Lys Ile Pro Gln Lys Asn Ser
                485
```

<210> 3839
<211> 24
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453734"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3839
Xaa Gly Glu Phe Gly Leu Arg Glu Tyr Ser Glu Val Lys Thr Val Thr
1 5 10 15

Val Lys Ile Pro Gln Lys Asn Ser
20

<210> 3840
<211> 9
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 875; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454028"

<400> 3840
Met Asp Ala Ser Glu Arg Gly Arg Leu
1   5

<210> 3841
<211> 512
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 876; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A3; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member A3; "

<220>
<221> source
<223> /note="Uniprot ID: P47895; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000332256"

<400> 3841
Met Ala Thr Ala Asn Gly Ala Val Glu Asn Gly Gln Pro Asp Arg Lys
1   5   10   15

Pro Pro Ala Leu Pro Arg Pro Ile Arg Asn Leu Glu Val Lys Phe Thr
            20   25   30

Lys Ile Phe Ile Asn Asn Glu Trp His Glu Ser Lys Ser Gly Lys Lys
        35   40   45

Phe Ala Thr Cys Asn Pro Ser Thr Arg Glu Gln Ile Cys Glu Val Glu
    50   55   60

Glu Gly Asp Lys Pro Asp Val Asp Lys Ala Val Glu Ala Ala Gln Val
65   70   75   80

Ala Phe Gln Arg Gly Ser Pro Trp Arg Arg Leu Asp Ala Leu Ser Arg
                85   90   95

```
Gly Arg Leu Leu His Gln Leu Ala Asp Leu Val Glu Arg Asp Arg Ala
            100                 105                 110

Thr Leu Ala Ala Leu Glu Thr Met Asp Thr Gly Lys Pro Phe Leu His
        115                 120                 125

Ala Phe Phe Ile Asp Leu Glu Gly Cys Ile Arg Thr Leu Arg Tyr Phe
    130                 135                 140

Ala Gly Trp Ala Asp Lys Ile Gln Gly Lys Thr Ile Pro Thr Asp Asp
145                 150                 155                 160

Asn Val Val Cys Phe Thr Arg His Glu Pro Ile Gly Val Cys Gly Ala
                165                 170                 175

Ile Thr Pro Trp Asn Phe Pro Leu Leu Met Leu Val Trp Lys Leu Ala
            180                 185                 190

Pro Ala Leu Cys Cys Gly Asn Thr Met Val Leu Lys Pro Ala Glu Gln
        195                 200                 205

Thr Pro Leu Thr Ala Leu Tyr Leu Gly Ser Leu Ile Lys Glu Ala Gly
    210                 215                 220

Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly Phe Gly Pro Thr Val
225                 230                 235                 240

Gly Ala Ala Ile Ser Ser His Pro Gln Ile Asn Lys Ile Ala Phe Thr
                245                 250                 255

Gly Ser Thr Glu Val Gly Lys Leu Val Lys Glu Ala Ala Ser Arg Ser
            260                 265                 270

Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly Lys Asn Pro Cys Ile
        275                 280                 285

Val Cys Ala Asp Ala Asp Leu Asp Leu Ala Val Glu Cys Ala His Gln
    290                 295                 300

Gly Val Phe Phe Asn Gln Gly Gln Cys Cys Thr Ala Ala Ser Arg Val
305                 310                 315                 320

Phe Val Glu Glu Gln Val Tyr Ser Glu Phe Val Arg Arg Ser Val Glu
```

```
                325                 330                 335

Tyr Ala Lys Lys Arg Pro Val Gly Asp Pro Phe Asp Val Lys Thr Glu
            340                 345                 350

Gln Gly Pro Gln Ile Asp Gln Lys Gln Phe Asp Lys Ile Leu Glu Leu
        355                 360                 365

Ile Glu Ser Gly Lys Lys Glu Gly Ala Lys Leu Glu Cys Gly Gly Ser
    370                 375                 380

Ala Met Glu Asp Lys Gly Leu Phe Ile Lys Pro Thr Val Phe Ser Glu
385                 390                 395                 400

Val Thr Asp Asn Met Arg Ile Ala Lys Glu Glu Ile Phe Gly Pro Val
                405                 410                 415

Gln Pro Ile Leu Lys Phe Lys Ser Ile Glu Glu Val Ile Lys Arg Ala
            420                 425                 430

Asn Ser Thr Asp Tyr Gly Leu Thr Ala Ala Val Phe Thr Lys Asn Leu
        435                 440                 445

Asp Lys Ala Leu Lys Leu Ala Ser Ala Leu Glu Ser Gly Thr Val Trp
    450                 455                 460

Ile Asn Cys Tyr Asn Ala Leu Tyr Ala Gln Ala Pro Phe Gly Gly Phe
465                 470                 475                 480

Lys Met Ser Gly Asn Gly Arg Glu Leu Gly Glu Tyr Ala Leu Ala Glu
                485                 490                 495

Tyr Thr Glu Val Lys Thr Val Thr Ile Lys Leu Gly Asp Lys Asn Pro
            500                 505                 510


<210> 3842
<211> 405
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 876; "

<220>
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<221> source
<223> /note="Gene Symbol: ALDH1A3; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343294"

<400> 3842

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Met Ala Thr Ala Asn Gly Ala Val Glu Asn Gly Gln Pro Asp Arg Lys
1               5                  10                  15

Pro Pro Ala Leu Pro Arg Pro Ile Arg Asn Leu Glu Val Lys Phe Thr
            20                  25                  30

Lys Ile Phe Ile Asn Asn Glu Trp His Glu Ser Lys Ser Gly Lys Lys
        35                  40                  45

Phe Ala Thr Cys Asn Pro Ser Thr Arg Glu Gln Ile Cys Glu Val Glu
    50                  55                  60

Glu Gly Asp Lys Pro Asp Val Asp Lys Ala Val Glu Ala Ala Gln Val
65                  70                  75                  80

Ala Phe Gln Arg Gly Ser Pro Trp Arg Arg Leu Asp Ala Leu Ser Arg
                85                  90                  95

Gly Arg Leu Leu His Gln Leu Ala Asp Leu Val Glu Arg Asp Arg Ala
            100                 105                 110

Thr Leu Ala Ala Gly Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly
        115                 120                 125

Phe Gly Pro Thr Val Gly Ala Ala Ile Ser Ser His Pro Gln Ile Asn
    130                 135                 140

Lys Ile Ala Phe Thr Gly Ser Thr Glu Val Gly Lys Leu Val Lys Glu
145                 150                 155                 160

Ala Ala Ser Arg Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly
                165                 170                 175
```

```
Lys Asn Pro Cys Ile Val Cys Ala Asp Ala Asp Leu Asp Leu Ala Val
            180                 185                 190

Glu Cys Ala His Gln Gly Val Phe Phe Asn Gln Gly Gln Cys Cys Thr
        195                 200                 205

Ala Ala Ser Arg Val Phe Val Glu Glu Gln Val Tyr Ser Glu Phe Val
    210                 215                 220

Arg Arg Ser Val Glu Tyr Ala Lys Lys Arg Pro Val Gly Asp Pro Phe
225                 230                 235                 240

Asp Val Lys Thr Glu Gln Gly Pro Gln Ile Asp Gln Lys Gln Phe Asp
                245                 250                 255

Lys Ile Leu Glu Leu Ile Glu Ser Gly Lys Lys Glu Gly Ala Lys Leu
            260                 265                 270

Glu Cys Gly Gly Ser Ala Met Glu Asp Lys Gly Leu Phe Ile Lys Pro
        275                 280                 285

Thr Val Phe Ser Glu Val Thr Asp Asn Met Arg Ile Ala Lys Glu Glu
    290                 295                 300

Ile Phe Gly Pro Val Gln Pro Ile Leu Lys Phe Lys Ser Ile Glu Glu
305                 310                 315                 320

Val Ile Lys Arg Ala Asn Ser Thr Asp Tyr Gly Leu Thr Ala Ala Val
                325                 330                 335

Phe Thr Lys Asn Leu Asp Lys Ala Leu Lys Leu Ala Ser Ala Leu Glu
            340                 345                 350

Ser Gly Thr Val Trp Ile Asn Cys Tyr Asn Ala Leu Tyr Ala Gln Ala
        355                 360                 365

Pro Phe Gly Gly Phe Lys Met Ser Gly Asn Gly Arg Glu Leu Gly Glu
    370                 375                 380

Tyr Ala Leu Ala Glu Tyr Thr Glu Val Lys Thr Val Thr Ile Lys Leu
385                 390                 395                 400
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Gly Asp Lys Asn Pro
405

<210> 3843
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 876; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A3; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452789"

<400> 3843
Met Ser Glu Cys Glu Ile Phe Ile Asn Asn Glu Trp His Glu Ser Lys
1 5 10 15

Ser Gly Lys Lys Phe Ala Thr Cys Asn Pro Ser Thr Arg Glu Gln Ile
20 25 30

Cys Glu Val Glu Glu Gly Asp Lys Pro Asp Val Asp Lys Ala Val Glu
35 40 45

Ala Ala Gln Val Ala Phe Gln Arg Gly Ser Pro Trp Arg Arg Leu Asp
50 55 60

Ala Leu Ser Arg Gly Arg Leu Leu His Gln Leu Ala Asp Leu Val Glu
65 70 75 80

Arg Asp Arg Ala Thr Leu Ala Ala Leu Glu Thr Met Asp Thr Gly Lys
85 90 95

Pro Phe Leu His Ala Phe Phe Ile Asp Leu Glu Gly Cys Ile Arg Thr
100 105 110

Leu Arg Tyr Phe Ala Gly Trp Ala Asp Lys Ile Gln Gly Lys Thr Ile

115 120 125

Pro Thr Asp Asp Asn Val Val Cys Phe Thr Arg His Glu Pro Ile Gly
130 135 140

<210> 3844
<211> 102
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 876; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A3; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453328"

<400> 3844
Met Ala Thr Ala Asn Gly Ala Val Glu Asn Gly Gln Pro Asp Arg Lys
1 5 10 15

Pro Pro Ala Leu Pro Arg Pro Ile Arg Asn Leu Glu Val Lys Phe Thr
20 25 30

Lys Val Arg Arg Ala Pro Leu Pro Pro Asp Gly Arg Gly Pro Leu Arg
35 40 45

Trp Ala Ala Arg Leu Gly Ala Ala Gly Ala Arg Glu Gln Arg Ala Gly
50 55 60

Gly Pro Pro Gly Ala Ala Glu Thr Arg Ala Ser Leu Pro Gly Arg Gly
65 70 75 80

Ser Pro Glu Thr Ala Pro Phe Ala Gly Arg Leu Gly Arg Asp Arg Arg
85 90 95

Arg Arg Gly Ser Ala Leu
100

<210> 3845
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 876; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1A3; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member A3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454107"

<400> 3845
Met Ala Thr Ala Asn Gly Ala Val Glu Asn Gly Gln Pro Asp Arg Lys
1 5 10 15

Pro Pro Ala Leu Pro Arg Pro Ile Arg Asn Leu Glu Val Lys Phe Thr
20 25 30

Lys Ile Phe Ile Asn Asn Glu Trp His Glu Ser Lys Ser Gly Lys Lys
35 40 45

Phe Ala Thr Cys Asn Pro Ser Thr Arg Glu Gln Ile Cys Glu Val Glu
50 55 60

Glu Gly Asp Lys Pro Asp Val Asp Lys Ala Val Glu Ala Ala Gln Val
65 70 75 80

Ala Phe Gln Arg Gly Ser Pro Trp Arg Arg Leu Asp Ala Leu Ser Arg
85 90 95

Gly Arg Leu Leu His Gln Leu Ala Asp Leu Val Glu Arg Asp Arg Ala
100 105 110

Thr Leu Ala Met Thr Thr Ser Cys Ala Ser Pro Gly Met Ser Pro Leu
115 120 125

Val Ser Val Gly Pro Ser Leu His Gly Thr Ser Pro Cys
130 135 140

<210> 3846
<211> 517
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 877; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1B1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member B1; "

<220>
<221> source
<223> /note="Uniprot ID: P30837; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366927"

<400> 3846
Met Leu Arg Phe Leu Ala Pro Arg Leu Leu Ser Leu Gln Gly Arg Thr
1 5 10 15

Ala Arg Tyr Ser Ser Ala Ala Ala Leu Pro Ser Pro Ile Leu Asn Pro
20 25 30

Asp Ile Pro Tyr Asn Gln Leu Phe Ile Asn Asn Glu Trp Gln Asp Ala
35 40 45

Val Ser Lys Lys Thr Phe Pro Thr Val Asn Pro Thr Thr Gly Glu Val
50 55 60

Ile Gly His Val Ala Glu Gly Asp Arg Ala Asp Val Asp Arg Ala Val
65 70 75 80

Lys Ala Ala Arg Glu Ala Phe Arg Leu Gly Ser Pro Trp Arg Arg Met
85 90 95

```
Asp Ala Ser Glu Arg Gly Arg Leu Leu Asn Arg Leu Ala Asp Leu Val
            100                 105                 110

Glu Arg Asp Arg Val Tyr Leu Ala Ser Leu Glu Thr Leu Asp Asn Gly
        115                 120                 125

Lys Pro Phe Gln Glu Ser Tyr Ala Leu Asp Leu Asp Glu Val Ile Lys
    130                 135                 140

Val Tyr Arg Tyr Phe Ala Gly Trp Ala Asp Lys Trp His Gly Lys Thr
145                 150                 155                 160

Ile Pro Met Asp Gly Gln His Phe Cys Phe Thr Arg His Glu Pro Val
                165                 170                 175

Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Val Met Gln
            180                 185                 190

Gly Trp Lys Leu Ala Pro Ala Leu Ala Thr Gly Asn Thr Val Val Met
        195                 200                 205

Lys Val Ala Glu Gln Thr Pro Leu Ser Ala Leu Tyr Leu Ala Ser Leu
    210                 215                 220

Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val Asn Ile Ile Thr Gly
225                 230                 235                 240

Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ala Gln His Val Asp Val Asp
                245                 250                 255

Lys Val Ala Phe Thr Gly Ser Thr Glu Val Gly His Leu Ile Gln Lys
            260                 265                 270

Ala Ala Gly Asp Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly
        275                 280                 285

Lys Ser Pro Ser Ile Val Leu Ala Asp Ala Asp Met Glu His Ala Val
    290                 295                 300

Glu Gln Cys His Glu Ala Leu Phe Phe Asn Met Gly Gln Cys Cys Cys
305                 310                 315                 320

Ala Gly Ser Arg Thr Phe Val Glu Glu Ser Ile Tyr Asn Glu Phe Leu
```

325 330 335

Glu Arg Thr Val Glu Lys Ala Lys Gln Arg Lys Val Gly Asn Pro Phe
340 345 350

Glu Leu Asp Thr Gln Gln Gly Pro Gln Val Asp Lys Glu Gln Phe Glu
355 360 365

Arg Val Leu Gly Tyr Ile Gln Leu Gly Gln Lys Glu Gly Ala Lys Leu
370 375 380

Leu Cys Gly Gly Glu Arg Phe Gly Glu Arg Gly Phe Phe Ile Lys Pro
385 390 395 400

Thr Val Phe Gly Gly Val Gln Asp Asp Met Arg Ile Ala Lys Glu Glu
405 410 415

Ile Phe Gly Pro Val Gln Pro Leu Phe Lys Phe Lys Lys Ile Glu Glu
420 425 430

Val Val Glu Arg Ala Asn Asn Thr Arg Tyr Gly Leu Ala Ala Ala Val
435 440 445

Phe Thr Arg Asp Leu Asp Lys Ala Met Tyr Phe Thr Gln Ala Leu Gln
450 455 460

Ala Gly Thr Val Trp Val Asn Thr Tyr Asn Ile Val Thr Cys His Thr
465 470 475 480

Pro Phe Gly Gly Phe Lys Glu Ser Gly Asn Gly Arg Glu Leu Gly Glu
485 490 495

Asp Gly Leu Lys Ala Tyr Thr Glu Val Lys Thr Val Thr Ile Lys Val
500 505 510

Pro Gln Lys Asn Ser
515

<210> 3847
<211> 130
<212> PRT
<213> Homo sapiens

<220>

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<220>
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<223> /note="Gene Symbol: ALDH1B1; "

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aldehyde dehydrogenase 1
family, member B1; "

<220>
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<400> 3847

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Met Leu Arg Phe Leu Ala Pro Arg Leu Leu Ser Leu Gln Gly Arg Thr
1               5                  10                  15

Ala Arg Tyr Ser Ser Ala Ala Ala Leu Pro Ser Pro Ile Leu Asn Pro
            20                  25                  30

Asp Ile Pro Tyr Asn Gln Leu Phe Ile Asn Asn Glu Trp Gln Asp Ala
        35                  40                  45

Val Ser Lys Lys Thr Phe Pro Thr Val Asn Pro Thr Thr Gly Glu Val
    50                  55                  60

Ile Gly His Val Ala Glu Gly Asp Arg Ala Asp Val Asp Arg Ala Val
65                  70                  75                  80

Lys Ala Ala Arg Glu Ala Phe Arg Leu Gly Ser Pro Trp Arg Arg Met
                85                  90                  95

Asp Ala Ser Glu Arg Gly Arg Leu Leu Asn Arg Leu Ala Asp Leu Val
            100                 105                 110

Glu Arg Asp Arg Val Tyr Leu Ala Ser Leu Glu Thr Leu Asp Asn Gly
        115                 120                 125

Lys Pro
    130
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<210> 3848
<211> 912
<212> PRT

<213> Homo sapiens

<220>
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aldehyde dehydrogenase 1
family, member L1; "

<220>
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<220>
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<400> 3848

Met	Ala	Gly	Pro	Ser	Asn	Pro	Pro	Ala	Thr	Met	Lys	Ile	Ala	Val	Ile
1				5				10						15	

Gly	Gln	Ser	Leu	Phe	Gly	Gln	Glu	Val	Tyr	Cys	His	Leu	Arg	Lys	Glu
			20					25					30		

Gly	His	Glu	Val	Val	Gly	Val	Phe	Thr	Val	Pro	Asp	Lys	Asp	Gly	Lys
		35					40					45			

Ala	Asp	Pro	Leu	Gly	Leu	Glu	Ala	Glu	Lys	Asp	Gly	Val	Pro	Val	Phe
	50					55					60				

Lys	Tyr	Ser	Arg	Trp	Arg	Ala	Lys	Gly	Gln	Ala	Leu	Pro	Asp	Val	Val
65					70					75					80

Ala	Lys	Tyr	Gln	Ala	Leu	Gly	Ala	Glu	Leu	Asn	Val	Leu	Pro	Phe	Cys
				85					90					95	

Ser	Gln	Phe	Ile	Pro	Met	Glu	Ile	Ile	Ser	Ala	Pro	Arg	His	Gly	Ser
			100					105					110		

Ile	Ile	Tyr	His	Pro	Ser	Leu	Leu	Pro	Arg	His	Arg	Gly	Ala	Ser	Ala
		115					120					125			

```
Ile Asn Trp Thr Leu Ile His Gly Asp Lys Lys Gly Gly Phe Ser Ile
    130                 135                 140

Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly Asp Leu Leu Leu Gln Lys
145                 150                 155                 160

Glu Cys Glu Val Leu Pro Asp Asp Thr Val Ser Thr Leu Tyr Asn Arg
                165                 170                 175

Phe Leu Phe Pro Glu Gly Ile Lys Gly Met Val Gln Ala Val Arg Leu
            180                 185                 190

Ile Ala Glu Gly Lys Ala Pro Arg Leu Pro Gln Pro Glu Glu Gly Ala
        195                 200                 205

Thr Tyr Glu Gly Ile Gln Lys Lys Glu Thr Ala Lys Ile Asn Trp Asp
    210                 215                 220

Gln Pro Ala Glu Ala Ile His Asn Trp Ile Arg Gly Asn Asp Lys Val
225                 230                 235                 240

Pro Gly Ala Trp Thr Glu Ala Cys Glu Gln Lys Leu Thr Phe Phe Asn
                245                 250                 255

Ser Thr Leu Asn Thr Ser Gly Leu Val Pro Glu Gly Asp Ala Leu Pro
            260                 265                 270

Ile Pro Gly Ala His Arg Pro Gly Val Val Thr Lys Ala Gly Leu Ile
        275                 280                 285

Leu Phe Gly Asn Asp Asp Lys Met Leu Leu Val Lys Asn Ile Gln Leu
    290                 295                 300

Glu Asp Gly Lys Met Ile Leu Ala Ser Asn Phe Phe Lys Gly Ala Ala
305                 310                 315                 320

Ser Ser Val Leu Glu Leu Thr Glu Ala Glu Leu Val Thr Ala Glu Ala
                325                 330                 335

Val Arg Ser Val Trp Gln Arg Ile Leu Pro Lys Val Leu Glu Val Glu
            340                 345                 350

Asp Ser Thr Asp Phe Phe Lys Ser Gly Ala Ala Ser Val Asp Val Val
```

```
        355                 360                 365

Arg Leu Val Glu Glu Val Lys Glu Leu Cys Asp Gly Leu Glu Leu Glu
    370                 375                 380

Asn Glu Asp Val Tyr Met Ala Ser Thr Phe Gly Asp Phe Ile Gln Leu
385                 390                 395                 400

Leu Val Arg Lys Leu Arg Gly Asp Asp Glu Glu Gly Glu Cys Ser Ile
                405                 410                 415

Asp Tyr Val Glu Met Ala Val Asn Lys Arg Thr Val Arg Met Pro His
            420                 425                 430

Gln Leu Phe Ile Gly Gly Glu Phe Val Asp Ala Glu Gly Ala Lys Thr
        435                 440                 445

Ser Glu Thr Ile Asn Pro Thr Asp Gly Ser Val Ile Cys Gln Val Ser
    450                 455                 460

Leu Ala Gln Val Thr Asp Val Asp Lys Ala Val Ala Ala Ala Lys Asp
465                 470                 475                 480

Ala Phe Glu Asn Gly Arg Trp Gly Lys Ile Ser Ala Arg Asp Arg Gly
                485                 490                 495

Arg Leu Met Tyr Arg Leu Ala Asp Leu Met Glu Gln His Gln Glu Glu
            500                 505                 510

Leu Ala Thr Ile Glu Ala Leu Asp Ala Gly Ala Val Tyr Thr Leu Ala
        515                 520                 525

Leu Lys Thr His Val Gly Met Ser Ile Gln Thr Phe Arg Tyr Phe Ala
    530                 535                 540

Gly Trp Cys Asp Lys Ile Gln Gly Ser Thr Ile Pro Ile Asn Gln Ala
545                 550                 555                 560

Arg Pro Asn Arg Asn Leu Thr Leu Thr Arg Lys Glu Pro Val Gly Val
                565                 570                 575

Cys Gly Ile Ile Ile Pro Trp Asn Tyr Pro Leu Met Met Leu Ser Trp
            580                 585                 590
```

Lys Thr Ala Ala Cys Leu Ala Ala Gly Asn Thr Val Val Ile Lys Pro
595 600 605

Ala Gln Val Thr Pro Leu Thr Ala Leu Lys Phe Ala Glu Leu Thr Leu
610 615 620

Lys Ala Gly Ile Pro Lys Gly Val Val Asn Val Leu Pro Gly Ser Gly
625 630 635 640

Ser Leu Val Gly Gln Arg Leu Ser Asp His Pro Asp Val Arg Lys Ile
645 650 655

Gly Phe Thr Gly Ser Thr Glu Val Gly Lys His Ile Met Lys Ser Cys
660 665 670

Ala Ile Ser Asn Val Lys Lys Val Ser Leu Glu Leu Gly Gly Lys Ser
675 680 685

Pro Leu Ile Ile Phe Ala Asp Cys Asp Leu Asn Lys Ala Val Gln Met
690 695 700

Gly Met Ser Ser Val Phe Phe Asn Lys Gly Glu Asn Cys Ile Ala Ala
705 710 715 720

Gly Arg Leu Phe Val Glu Asp Ser Ile His Asp Glu Phe Val Arg Arg
725 730 735

Val Val Glu Glu Val Arg Lys Met Lys Val Gly Asn Pro Leu Asp Arg
740 745 750

Asp Thr Asp His Gly Pro Gln Asn His His Ala His Leu Val Lys Leu
755 760 765

Met Glu Tyr Cys Gln His Gly Val Lys Glu Gly Ala Thr Leu Val Cys
770 775 780

Gly Gly Asn Gln Val Pro Arg Pro Gly Phe Phe Phe Glu Pro Thr Val
785 790 795 800

Phe Thr Asp Val Glu Asp His Met Phe Ile Ala Lys Glu Glu Ser Phe
805 810 815

```
Gly Pro Val Met Ile Ile Ser Arg Phe Ala Asp Gly Asp Leu Asp Ala
            820                 825                 830

Val Leu Ser Arg Ala Asn Ala Thr Glu Phe Gly Leu Ala Ser Gly Val
        835                 840                 845

Phe Thr Arg Asp Ile Asn Lys Ala Leu Tyr Val Ser Asp Lys Leu Gln
    850                 855                 860

Ala Gly Thr Val Phe Val Asn Thr Tyr Asn Lys Thr Asp Val Ala Ala
865                 870                 875                 880

Pro Phe Gly Gly Phe Lys Gln Ser Gly Phe Gly Lys Asp Leu Gly Glu
                885                 890                 895

Ala Ala Leu Asn Glu Tyr Leu Arg Val Lys Thr Val Thr Phe Glu Tyr
            900                 905                 910


<210> 3849
<211> 505
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member L1; "

<220>
<221> source
<223> /note="Uniprot ID:  O75891; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377081"

<400> 3849
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1               5                   10                  15
```

```
Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
            20                  25                  30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
        35                  40                  45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
    50                  55                  60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65                  70                  75                  80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
                85                  90                  95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
            100                 105                 110

His Arg Gly Ala Ser Ala Ile Asn Trp Thr Leu Ile His Gly Asp Lys
        115                 120                 125

Lys Gly Gly Phe Ser Ile Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly
    130                 135                 140

Asp Leu Leu Leu Gln Lys Glu Cys Glu Val Leu Pro Asp Asp Thr Val
145                 150                 155                 160

Ser Thr Leu Tyr Asn Arg Phe Leu Phe Pro Glu Gly Ile Lys Gly Met
                165                 170                 175

Val Gln Ala Val Arg Leu Ile Ala Glu Gly Lys Ala Pro Arg Leu Pro
            180                 185                 190

Gln Pro Glu Glu Gly Ala Thr Tyr Glu Gly Ile Gln Lys Lys Glu Thr
        195                 200                 205

Ala Lys Ile Asn Trp Asp Gln Pro Ala Glu Ala Ile His Asn Trp Ile
    210                 215                 220

Arg Gly Asn Asp Lys Val Pro Gly Ala Trp Thr Glu Ala Cys Glu Gln
225                 230                 235                 240

Lys Leu Thr Phe Phe Asn Ser Thr Leu Asn Thr Ser Gly Leu Val Pro
```

```
                245                 250                 255

Glu Gly Asp Ala Leu Pro Ile Pro Gly Ala His Arg Pro Gly Val Val
            260                 265                 270

Thr Lys Ala Gly Leu Ile Leu Phe Gly Asn Asp Asp Lys Met Leu Leu
        275                 280                 285

Val Lys Asn Ile Gln Leu Glu Asp Gly Lys Met Ile Leu Ala Ser Asn
    290                 295                 300

Phe Phe Lys Gly Ala Ala Ser Ser Val Leu Glu Leu Thr Glu Ala Glu
305                 310                 315                 320

Leu Val Thr Ala Glu Ala Val Arg Ser Val Trp Gln Arg Ile Leu Pro
                325                 330                 335

Lys Val Leu Glu Val Glu Asp Ser Thr Asp Phe Phe Lys Ser Gly Ala
            340                 345                 350

Ala Ser Val Asp Val Val Arg Leu Val Glu Glu Val Lys Glu Leu Cys
        355                 360                 365

Asp Gly Leu Glu Leu Glu Asn Glu Asp Val Tyr Met Ala Ser Thr Phe
    370                 375                 380

Gly Asp Phe Ile Gln Leu Leu Val Arg Lys Leu Arg Gly Asp Asp Glu
385                 390                 395                 400

Glu Gly Glu Cys Ser Ile Asp Tyr Val Glu Met Ala Val Asn Lys Arg
                405                 410                 415

Thr Val Arg Met Pro His Gln Leu Phe Ile Gly Gly Glu Phe Val Asp
            420                 425                 430

Ala Glu Gly Ala Lys Thr Ser Glu Thr Ile Asn Pro Thr Asp Gly Ser
        435                 440                 445

Val Ile Cys Gln Val Ser Leu Ala Gln Val Thr Asp Val Asp Lys Ala
    450                 455                 460

Val Ala Ala Ala Lys Asp Ala Phe Glu Asn Gly Arg Trp Gly Lys Ile
465                 470                 475                 480
```

```
Ser Ala Arg Asp Arg Gly Arg Leu Met Tyr Arg Ala Pro Pro Ser Pro
                485                 490                 495

Ser Thr Arg Pro Asp Pro Thr Ala Thr
            500                 505


<210> 3850
<211> 902
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ALDH1L1; "

<220>
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<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member L1; "

<220>
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<223> /note="Uniprot ID:  O75891; "

<220>
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<223> /note="ENSP ID: ENSP00000377083"

<400> 3850
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1               5                   10                  15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
            20                  25                  30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
        35                  40                  45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
    50                  55                  60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65                  70                  75                  80
```

```
Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
                85                  90                  95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
            100                 105                 110

His Arg Gly Ala Ser Ala Ile Asn Trp Thr Leu Ile His Gly Asp Lys
        115                 120                 125

Lys Gly Gly Phe Ser Ile Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly
    130                 135                 140

Asp Leu Leu Leu Gln Lys Glu Cys Glu Val Leu Pro Asp Asp Thr Val
145                 150                 155                 160

Ser Thr Leu Tyr Asn Arg Phe Leu Phe Pro Glu Gly Ile Lys Gly Met
                165                 170                 175

Val Gln Ala Val Arg Leu Ile Ala Glu Gly Lys Ala Pro Arg Leu Pro
            180                 185                 190

Gln Pro Glu Glu Gly Ala Thr Tyr Glu Gly Ile Gln Lys Lys Glu Thr
        195                 200                 205

Ala Lys Ile Asn Trp Asp Gln Pro Ala Glu Ala Ile His Asn Trp Ile
    210                 215                 220

Arg Gly Asn Asp Lys Val Pro Gly Ala Trp Thr Glu Ala Cys Glu Gln
225                 230                 235                 240

Lys Leu Thr Phe Phe Asn Ser Thr Leu Asn Thr Ser Gly Leu Val Pro
                245                 250                 255

Glu Gly Asp Ala Leu Pro Ile Pro Gly Ala His Arg Pro Gly Val Val
            260                 265                 270

Thr Lys Ala Gly Leu Ile Leu Phe Gly Asn Asp Asp Lys Met Leu Leu
        275                 280                 285

Val Lys Asn Ile Gln Leu Glu Asp Gly Lys Met Ile Leu Ala Ser Asn
    290                 295                 300
```

```
Phe Phe Lys Gly Ala Ala Ser Ser Val Leu Glu Leu Thr Glu Ala Glu
305                 310                 315                 320

Leu Val Thr Ala Glu Ala Val Arg Ser Val Trp Gln Arg Ile Leu Pro
                325                 330                 335

Lys Val Leu Glu Val Glu Asp Ser Thr Asp Phe Phe Lys Ser Gly Ala
            340                 345                 350

Ala Ser Val Asp Val Val Arg Leu Val Glu Glu Val Lys Glu Leu Cys
        355                 360                 365

Asp Gly Leu Glu Leu Glu Asn Glu Asp Val Tyr Met Ala Ser Thr Phe
    370                 375                 380

Gly Asp Phe Ile Gln Leu Leu Val Arg Lys Leu Arg Gly Asp Asp Glu
385                 390                 395                 400

Glu Gly Glu Cys Ser Ile Asp Tyr Val Glu Met Ala Val Asn Lys Arg
                405                 410                 415

Thr Val Arg Met Pro His Gln Leu Phe Ile Gly Gly Glu Phe Val Asp
            420                 425                 430

Ala Glu Gly Ala Lys Thr Ser Glu Thr Ile Asn Pro Thr Asp Gly Ser
        435                 440                 445

Val Ile Cys Gln Val Ser Leu Ala Gln Val Thr Asp Val Asp Lys Ala
    450                 455                 460

Val Ala Ala Ala Lys Asp Ala Phe Glu Asn Gly Arg Trp Gly Lys Ile
465                 470                 475                 480

Ser Ala Arg Asp Arg Gly Arg Leu Met Tyr Arg Leu Ala Asp Leu Met
                485                 490                 495

Glu Gln His Gln Glu Glu Leu Ala Thr Ile Glu Ala Leu Asp Ala Gly
            500                 505                 510

Ala Val Tyr Thr Leu Ala Leu Lys Thr His Val Gly Met Ser Ile Gln
        515                 520                 525

Thr Phe Arg Tyr Phe Ala Gly Trp Cys Asp Lys Ile Gln Gly Ser Thr
```

```
    530                 535                 540

Ile Pro Ile Asn Gln Ala Arg Pro Asn Arg Asn Leu Thr Leu Thr Arg
545                 550                 555                 560

Lys Glu Pro Val Gly Val Cys Gly Ile Ile Ile Pro Trp Asn Tyr Pro
                565                 570                 575

Leu Met Met Leu Ser Trp Lys Thr Ala Ala Cys Leu Ala Ala Gly Asn
            580                 585                 590

Thr Val Val Ile Lys Pro Ala Gln Val Thr Pro Leu Thr Ala Leu Lys
        595                 600                 605

Phe Ala Glu Leu Thr Leu Lys Ala Gly Ile Pro Lys Gly Val Val Asn
    610                 615                 620

Val Leu Pro Gly Ser Gly Ser Leu Val Gly Gln Arg Leu Ser Asp His
625                 630                 635                 640

Pro Asp Val Arg Lys Ile Gly Phe Thr Gly Ser Thr Glu Val Gly Lys
                645                 650                 655

His Ile Met Lys Ser Cys Ala Ile Ser Asn Val Lys Lys Val Ser Leu
            660                 665                 670

Glu Leu Gly Gly Lys Ser Pro Leu Ile Ile Phe Ala Asp Cys Asp Leu
        675                 680                 685

Asn Lys Ala Val Gln Met Gly Met Ser Ser Val Phe Phe Asn Lys Gly
    690                 695                 700

Glu Asn Cys Ile Ala Ala Gly Arg Leu Phe Val Glu Asp Ser Ile His
705                 710                 715                 720

Asp Glu Phe Val Arg Arg Val Val Glu Glu Val Arg Lys Met Lys Val
                725                 730                 735

Gly Asn Pro Leu Asp Arg Asp Thr Asp His Gly Pro Gln Asn His His
            740                 745                 750

Ala His Leu Val Lys Leu Met Glu Tyr Cys Gln His Gly Val Lys Glu
        755                 760                 765
```

```
Gly Ala Thr Leu Val Cys Gly Gly Asn Gln Val Pro Arg Pro Gly Phe
    770                 775                 780

Phe Phe Glu Pro Thr Val Phe Thr Asp Val Glu Asp His Met Phe Ile
785                 790                 795                 800

Ala Lys Glu Glu Ser Phe Gly Pro Val Met Ile Ile Ser Arg Phe Ala
                805                 810                 815

Asp Gly Asp Leu Asp Ala Val Leu Ser Arg Ala Asn Ala Thr Glu Phe
            820                 825                 830

Gly Leu Ala Ser Gly Val Phe Thr Arg Asp Ile Asn Lys Ala Leu Tyr
        835                 840                 845

Val Ser Asp Lys Leu Gln Ala Gly Thr Val Phe Val Asn Thr Tyr Asn
    850                 855                 860

Lys Thr Asp Val Ala Ala Pro Phe Gly Gly Phe Lys Gln Ser Gly Phe
865                 870                 875                 880

Gly Lys Asp Leu Gly Glu Ala Ala Leu Asn Glu Tyr Leu Arg Val Lys
                885                 890                 895

Thr Val Thr Phe Glu Tyr
            900


<210> 3851
<211> 801
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member L1; "
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<220>
<221> source
<223> /note="Uniprot ID: O75891; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395881"

<400> 3851
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1   5   10   15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
            20   25   30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
        35   40   45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
    50   55   60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65   70   75   80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
                85   90   95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
            100   105   110

His Arg Gly Ala Ser Ala Ile His Asn Trp Ile Arg Gly Asn Asp Lys
        115   120   125

Val Pro Gly Ala Trp Thr Glu Ala Cys Glu Gln Lys Leu Thr Phe Phe
    130   135   140

Asn Ser Thr Leu Asn Thr Ser Gly Leu Val Pro Glu Gly Asp Ala Leu
145   150   155   160

Pro Ile Pro Gly Ala His Arg Pro Gly Val Val Thr Lys Ala Gly Leu
                165   170   175

Ile Leu Phe Gly Asn Asp Asp Lys Met Leu Leu Val Lys Asn Ile Gln
            180   185   190

```
Leu Glu Asp Gly Lys Met Ile Leu Ala Ser Asn Phe Phe Lys Gly Ala
        195                 200                 205

Ala Ser Ser Val Leu Glu Leu Thr Glu Ala Glu Leu Val Thr Ala Glu
    210                 215                 220

Ala Val Arg Ser Val Trp Gln Arg Ile Leu Pro Lys Val Leu Glu Val
225                 230                 235                 240

Glu Asp Ser Thr Asp Phe Phe Lys Ser Gly Ala Ala Ser Val Asp Val
                245                 250                 255

Val Arg Leu Val Glu Glu Val Lys Glu Leu Cys Asp Gly Leu Glu Leu
            260                 265                 270

Glu Asn Glu Asp Val Tyr Met Ala Ser Thr Phe Gly Asp Phe Ile Gln
        275                 280                 285

Leu Leu Val Arg Lys Leu Arg Gly Asp Asp Glu Glu Gly Glu Cys Ser
    290                 295                 300

Ile Asp Tyr Val Glu Met Ala Val Asn Lys Arg Thr Val Arg Met Pro
305                 310                 315                 320

His Gln Leu Phe Ile Gly Gly Glu Phe Val Asp Ala Glu Gly Ala Lys
                325                 330                 335

Thr Ser Glu Thr Ile Asn Pro Thr Asp Gly Ser Val Ile Cys Gln Val
            340                 345                 350

Ser Leu Ala Gln Val Thr Asp Val Asp Lys Ala Val Ala Ala Ala Lys
        355                 360                 365

Asp Ala Phe Glu Asn Gly Arg Trp Gly Lys Ile Ser Ala Arg Asp Arg
    370                 375                 380

Gly Arg Leu Met Tyr Arg Leu Ala Asp Leu Met Glu Gln His Gln Glu
385                 390                 395                 400

Glu Leu Ala Thr Ile Glu Ala Leu Asp Ala Gly Ala Val Tyr Thr Leu
                405                 410                 415

Ala Leu Lys Thr His Val Gly Met Ser Ile Gln Thr Phe Arg Tyr Phe
```

```
            420                 425                 430

Ala Gly Trp Cys Asp Lys Ile Gln Gly Ser Thr Ile Pro Ile Asn Gln
        435                 440                 445

Ala Arg Pro Asn Arg Asn Leu Thr Leu Thr Arg Lys Glu Pro Val Gly
    450                 455                 460

Val Cys Gly Ile Ile Ile Pro Trp Asn Tyr Pro Leu Met Met Leu Ser
465                 470                 475                 480

Trp Lys Thr Ala Ala Cys Leu Ala Ala Gly Asn Thr Val Val Ile Lys
                485                 490                 495

Pro Ala Gln Val Thr Pro Leu Thr Ala Leu Lys Phe Ala Glu Leu Thr
            500                 505                 510

Leu Lys Ala Gly Ile Pro Lys Gly Val Val Asn Val Leu Pro Gly Ser
        515                 520                 525

Gly Ser Leu Val Gly Gln Arg Leu Ser Asp His Pro Asp Val Arg Lys
    530                 535                 540

Ile Gly Phe Thr Gly Ser Thr Glu Val Gly Lys His Ile Met Lys Ser
545                 550                 555                 560

Cys Ala Ile Ser Asn Val Lys Lys Val Ser Leu Glu Leu Gly Gly Lys
                565                 570                 575

Ser Pro Leu Ile Ile Phe Ala Asp Cys Asp Leu Asn Lys Ala Val Gln
            580                 585                 590

Met Gly Met Ser Ser Val Phe Phe Asn Lys Gly Glu Asn Cys Ile Ala
        595                 600                 605

Ala Gly Arg Leu Phe Val Glu Asp Ser Ile His Asp Glu Phe Val Arg
    610                 615                 620

Arg Val Val Glu Glu Val Arg Lys Met Lys Val Gly Asn Pro Leu Asp
625                 630                 635                 640

Arg Asp Thr Asp His Gly Pro Gln Asn His His Ala His Leu Val Lys
                645                 650                 655
```

```
Leu Met Glu Tyr Cys Gln His Gly Val Lys Glu Gly Ala Thr Leu Val
            660                 665                 670

Cys Gly Gly Asn Gln Val Pro Arg Pro Gly Phe Phe Phe Glu Pro Thr
        675                 680                 685

Val Phe Thr Asp Val Glu Asp His Met Phe Ile Ala Lys Glu Glu Ser
    690                 695                 700

Phe Gly Pro Val Met Ile Ile Ser Arg Phe Ala Asp Gly Asp Leu Asp
705                 710                 715                 720

Ala Val Leu Ser Arg Ala Asn Ala Thr Glu Phe Gly Leu Ala Ser Gly
                725                 730                 735

Val Phe Thr Arg Asp Ile Asn Lys Ala Leu Tyr Val Ser Asp Lys Leu
            740                 745                 750

Gln Ala Gly Thr Val Phe Val Asn Thr Tyr Asn Lys Thr Asp Val Ala
        755                 760                 765

Ala Pro Phe Gly Gly Phe Lys Gln Ser Gly Phe Gly Lys Asp Leu Gly
    770                 775                 780

Glu Ala Ala Leu Asn Glu Tyr Leu Arg Val Lys Thr Val Thr Phe Glu
785                 790                 795                 800

Tyr
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<210> 3852
<211> 505
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L1; "

<220>
<221> source
<223> /note="Uniprot ID: O75891; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414126"

<400> 3852

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Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1               5                  10                  15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
            20                  25                  30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
        35                  40                  45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
    50                  55                  60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65                  70                  75                  80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
                85                  90                  95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
            100                 105                 110

His Arg Gly Ala Ser Ala Ile Asn Trp Thr Leu Ile His Gly Asp Lys
        115                 120                 125

Lys Gly Gly Phe Ser Ile Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly
    130                 135                 140

Asp Leu Leu Leu Gln Lys Glu Cys Glu Val Leu Pro Asp Asp Thr Val
145                 150                 155                 160

Ser Thr Leu Tyr Asn Arg Phe Leu Phe Pro Glu Gly Ile Lys Gly Met
                165                 170                 175
```

```
Val Gln Ala Val Arg Leu Ile Ala Glu Gly Lys Ala Pro Arg Leu Pro
            180                 185                 190

Gln Pro Glu Glu Gly Ala Thr Tyr Glu Gly Ile Gln Lys Lys Glu Thr
        195                 200                 205

Ala Lys Ile Asn Trp Asp Gln Pro Ala Glu Ala Ile His Asn Trp Ile
    210                 215                 220

Arg Gly Asn Asp Lys Val Pro Gly Ala Trp Thr Glu Ala Cys Glu Gln
225                 230                 235                 240

Lys Leu Thr Phe Phe Asn Ser Thr Leu Asn Thr Ser Gly Leu Val Pro
                245                 250                 255

Glu Gly Asp Ala Leu Pro Ile Pro Gly Ala His Arg Pro Gly Val Val
            260                 265                 270

Thr Lys Ala Gly Leu Ile Leu Phe Gly Asn Asp Asp Lys Met Leu Leu
        275                 280                 285

Val Lys Asn Ile Gln Leu Glu Asp Gly Lys Met Ile Leu Ala Ser Asn
    290                 295                 300

Phe Phe Lys Gly Ala Ala Ser Ser Val Leu Glu Leu Thr Glu Ala Glu
305                 310                 315                 320

Leu Val Thr Ala Glu Ala Val Arg Ser Val Trp Gln Arg Ile Leu Pro
                325                 330                 335

Lys Val Leu Glu Val Glu Asp Ser Thr Asp Phe Phe Lys Ser Gly Ala
            340                 345                 350

Ala Ser Val Asp Val Val Arg Leu Val Glu Glu Val Lys Glu Leu Cys
        355                 360                 365

Asp Gly Leu Glu Leu Glu Asn Glu Asp Val Tyr Met Ala Ser Thr Phe
    370                 375                 380

Gly Asp Phe Ile Gln Leu Leu Val Arg Lys Leu Arg Gly Asp Asp Glu
385                 390                 395                 400

Glu Gly Glu Cys Ser Ile Asp Tyr Val Glu Met Ala Val Asn Lys Arg
```

405 410 415

Thr Val Arg Met Pro His Gln Leu Phe Ile Gly Gly Glu Phe Val Asp
420 425 430

Ala Glu Gly Ala Lys Thr Ser Glu Thr Ile Asn Pro Thr Asp Gly Ser
435 440 445

Val Ile Cys Gln Val Ser Leu Ala Gln Val Thr Asp Val Asp Lys Ala
450 455 460

Val Ala Ala Ala Lys Asp Ala Phe Glu Asn Gly Arg Trp Gly Lys Ile
465 470 475 480

Ser Ala Arg Asp Arg Gly Arg Leu Met Tyr Arg Ala Pro Pro Ser Pro
485 490 495

Ser Thr Arg Pro Asp Pro Thr Ala Thr
500 505

<210> 3853
<211> 177
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418711"

<400> 3853
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1 5 10 15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
20 25 30

```
Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
        35                  40                  45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
    50                  55                  60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65                  70                  75                  80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
                85                  90                  95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
            100                 105                 110

His Arg Gly Ala Ser Ala Ile Asn Trp Thr Leu Ile His Gly Asp Lys
        115                 120                 125

Lys Gly Gly Phe Ser Ile Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly
    130                 135                 140

Asp Leu Leu Leu Gln Lys Glu Cys Glu Val Leu Pro Asp Asp Thr Val
145                 150                 155                 160

Ser Thr Leu Tyr Asn Arg Phe Leu Phe Pro Glu Gly Ile Lys Gly Met
                165                 170                 175

Val
```

<210> 3854
<211> 81
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418905"

<400> 3854
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1 5 10 15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
20 25 30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Pro Ser Phe Thr Glu
35 40 45

Ile Arg Lys Gly Gly Phe Pro Ser Ser Gly Arg Met Met Val Trp Thr
50 55 60

Pro Glu Thr Cys Cys Cys Arg Arg Ser Val Arg Cys Ser Arg Thr Thr
65 70 75 80

Pro

<210> 3855
<211> 47
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 878; "

<220>
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<223> /note="Gene Symbol: ALDH1L1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419448"

<400> 3855

```
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1               5                  10                  15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
            20                  25                  30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Asp Thr Arg Thr Glu
        35                  40                  45
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<210> 3856
<211> 168
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
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aldehyde dehydrogenase 1
family, member L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419826"

<400> 3856

```
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1               5                  10                  15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
            20                  25                  30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
        35                  40                  45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
    50                  55                  60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65                  70                  75                  80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
```

```
                85                  90                  95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
            100                 105                 110

His Arg Gly Ala Ser Ala Ile Asn Trp Thr Leu Ile His Gly Asp Lys
        115                 120                 125

Lys Gly Gly Phe Ser Ile Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly
    130                 135                 140

Asp Leu Leu Leu Gln Lys Glu Cys Glu Val Leu Pro Asp Asp Thr Val
145                 150                 155                 160

Ser Thr Leu Tyr Asn Arg Phe Leu
                165


<210> 3857
<211> 157
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419955"

<400> 3857
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1               5                   10                  15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
            20                  25                  30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
        35                  40                  45
```

```
Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
    50                  55                  60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65                  70                  75                  80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
                85                  90                  95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
            100                 105                 110

His Arg Gly Ala Ser Ala Ile Asn Trp Thr Leu Ile His Gly Asp Lys
        115                 120                 125

Lys Gly Gly Phe Ser Ile Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly
    130                 135                 140

Asp Leu Leu Leu Gln Lys Glu Cys Glu Val Leu Pro Asp
145                 150                 155


<210> 3858
<211> 902
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 1
      family, member L1; "

<220>
<221> source
<223> /note="Uniprot ID:  O75891; "

<220>
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<223> /note="ENSP ID: ENSP00000420293"
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<400> 3858
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1 5 10 15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
20 25 30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
35 40 45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
50 55 60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65 70 75 80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
85 90 95

Ala Pro Arg His Gly Ser Ile Ile Tyr His Pro Ser Leu Leu Pro Arg
100 105 110

His Arg Gly Ala Ser Ala Ile Asn Trp Thr Leu Ile His Gly Asp Lys
115 120 125

Lys Gly Gly Phe Ser Ile Phe Trp Ala Asp Asp Gly Leu Asp Thr Gly
130 135 140

Asp Leu Leu Leu Gln Lys Glu Cys Glu Val Leu Pro Asp Asp Thr Val
145 150 155 160

Ser Thr Leu Tyr Asn Arg Phe Leu Phe Pro Glu Gly Ile Lys Gly Met
165 170 175

Val Gln Ala Val Arg Leu Ile Ala Glu Gly Lys Ala Pro Arg Leu Pro
180 185 190

Gln Pro Glu Glu Gly Ala Thr Tyr Glu Gly Ile Gln Lys Lys Glu Thr
195 200 205

Ala Lys Ile Asn Trp Asp Gln Pro Ala Glu Ala Ile His Asn Trp Ile
210 215 220

```
Arg Gly Asn Asp Lys Val Pro Gly Ala Trp Thr Glu Ala Cys Glu Gln
225                 230                 235                 240

Lys Leu Thr Phe Phe Asn Ser Thr Leu Asn Thr Ser Gly Leu Val Pro
                245                 250                 255

Glu Gly Asp Ala Leu Pro Ile Pro Gly Ala His Arg Pro Gly Val Val
            260                 265                 270

Thr Lys Ala Gly Leu Ile Leu Phe Gly Asn Asp Asp Lys Met Leu Leu
        275                 280                 285

Val Lys Asn Ile Gln Leu Glu Asp Gly Lys Met Ile Leu Ala Ser Asn
    290                 295                 300

Phe Phe Lys Gly Ala Ala Ser Ser Val Leu Glu Leu Thr Glu Ala Glu
305                 310                 315                 320

Leu Val Thr Ala Glu Ala Val Arg Ser Val Trp Gln Arg Ile Leu Pro
                325                 330                 335

Lys Val Leu Glu Val Glu Asp Ser Thr Asp Phe Phe Lys Ser Gly Ala
            340                 345                 350

Ala Ser Val Asp Val Val Arg Leu Val Glu Glu Val Lys Glu Leu Cys
        355                 360                 365

Asp Gly Leu Glu Leu Glu Asn Glu Asp Val Tyr Met Ala Ser Thr Phe
    370                 375                 380

Gly Asp Phe Ile Gln Leu Leu Val Arg Lys Leu Arg Gly Asp Asp Glu
385                 390                 395                 400

Glu Gly Glu Cys Ser Ile Asp Tyr Val Glu Met Ala Val Asn Lys Arg
                405                 410                 415

Thr Val Arg Met Pro His Gln Leu Phe Ile Gly Gly Glu Phe Val Asp
            420                 425                 430

Ala Glu Gly Ala Lys Thr Ser Glu Thr Ile Asn Pro Thr Asp Gly Ser
        435                 440                 445

Val Ile Cys Gln Val Ser Leu Ala Gln Val Thr Asp Val Asp Lys Ala
```

450 455 460

Val Ala Ala Ala Lys Asp Ala Phe Glu Asn Gly Arg Trp Gly Lys Ile
465 470 475 480

Ser Ala Arg Asp Arg Gly Arg Leu Met Tyr Arg Leu Ala Asp Leu Met
485 490 495

Glu Gln His Gln Glu Glu Leu Ala Thr Ile Glu Ala Leu Asp Ala Gly
500 505 510

Ala Val Tyr Thr Leu Ala Leu Lys Thr His Val Gly Met Ser Ile Gln
515 520 525

Thr Phe Arg Tyr Phe Ala Gly Trp Cys Asp Lys Ile Gln Gly Ser Thr
530 535 540

Ile Pro Ile Asn Gln Ala Arg Pro Asn Arg Asn Leu Thr Leu Thr Arg
545 550 555 560

Lys Glu Pro Val Gly Val Cys Gly Ile Ile Ile Pro Trp Asn Tyr Pro
565 570 575

Leu Met Met Leu Ser Trp Lys Thr Ala Ala Cys Leu Ala Ala Gly Asn
580 585 590

Thr Val Val Ile Lys Pro Ala Gln Val Thr Pro Leu Thr Ala Leu Lys
595 600 605

Phe Ala Glu Leu Thr Leu Lys Ala Gly Ile Pro Lys Gly Val Val Asn
610 615 620

Val Leu Pro Gly Ser Gly Ser Leu Val Gly Gln Arg Leu Ser Asp His
625 630 635 640

Pro Asp Val Arg Lys Ile Gly Phe Thr Gly Ser Thr Glu Val Gly Lys
645 650 655

His Ile Met Lys Ser Cys Ala Ile Ser Asn Val Lys Lys Val Ser Leu
660 665 670

Glu Leu Gly Gly Lys Ser Pro Leu Ile Ile Phe Ala Asp Cys Asp Leu
675 680 685

```
Asn Lys Ala Val Gln Met Gly Met Ser Ser Val Phe Phe Asn Lys Gly
    690                 695                 700

Glu Asn Cys Ile Ala Ala Gly Arg Leu Phe Val Glu Asp Ser Ile His
705                 710                 715                 720

Asp Glu Phe Val Arg Arg Val Val Glu Glu Val Arg Lys Met Lys Val
                725                 730                 735

Gly Asn Pro Leu Asp Arg Asp Thr Asp His Gly Pro Gln Asn His His
            740                 745                 750

Ala His Leu Val Lys Leu Met Glu Tyr Cys Gln His Gly Val Lys Glu
        755                 760                 765

Gly Ala Thr Leu Val Cys Gly Gly Asn Gln Val Pro Arg Pro Gly Phe
    770                 775                 780

Phe Phe Glu Pro Thr Val Phe Thr Asp Val Glu Asp His Met Phe Ile
785                 790                 795                 800

Ala Lys Glu Glu Ser Phe Gly Pro Val Met Ile Ile Ser Arg Phe Ala
                805                 810                 815

Asp Gly Asp Leu Asp Ala Val Leu Ser Arg Ala Asn Ala Thr Glu Phe
            820                 825                 830

Gly Leu Ala Ser Gly Val Phe Thr Arg Asp Ile Asn Lys Ala Leu Tyr
        835                 840                 845

Val Ser Asp Lys Leu Gln Ala Gly Thr Val Phe Val Asn Thr Tyr Asn
    850                 855                 860

Lys Thr Asp Val Ala Ala Pro Phe Gly Gly Phe Lys Gln Ser Gly Phe
865                 870                 875                 880

Gly Lys Asp Leu Gly Glu Ala Ala Leu Asn Glu Tyr Leu Arg Val Lys
                885                 890                 895

Thr Val Thr Phe Glu Tyr
            900
```

<210> 3859
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426594"

<400> 3859
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1 5 10 15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
20 25 30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Gly Leu Glu Ala Glu Lys
35 40 45

Asp Gly Val Pro Val Phe Lys Tyr Ser Arg Trp Arg Ala Lys Gly Gln
50 55 60

Ala Leu Pro Asp Val Val Ala Lys Tyr Gln Ala Leu Gly Ala Glu Leu
65 70 75 80

Asn Val Leu Pro Phe Cys Ser Gln Phe Ile Pro Met Glu Ile Ile Ser
85 90 95

Ala Pro Arg His
100

<210> 3860
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 878; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426713"

<400> 3860
Met Lys Ile Ala Val Ile Gly Gln Ser Leu Phe Gly Gln Glu Val Tyr
1 5 10 15

Cys His Leu Arg Lys Glu Gly His Glu Val Val Gly Val Phe Thr Val
20 25 30

Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu Asp Thr Arg Thr Glu
35 40 45

<210> 3861
<211> 923
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 879; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L2; "

<220>
<221> source
<223> /note="Uniprot ID: Q3SY69; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000258494"

<400> 3861

```
Met Leu Arg Arg Gly Ser Gln Ala Leu Arg Arg Phe Ser Thr Gly Arg
1               5                  10                  15

Val Tyr Phe Lys Asn Lys Leu Lys Leu Ala Leu Ile Gly Gln Ser Leu
            20                  25                  30

Phe Gly Gln Glu Val Tyr Ser His Leu Arg Lys Glu Gly His Arg Val
        35                  40                  45

Val Gly Val Phe Thr Val Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu
    50                  55                  60

Ala Leu Ala Ala Glu Lys Asp Gly Thr Pro Val Phe Lys Leu Pro Lys
65                  70                  75                  80

Trp Arg Val Lys Gly Lys Thr Ile Lys Glu Val Ala Glu Ala Tyr Arg
                85                  90                  95

Ser Val Gly Ala Glu Leu Asn Val Leu Pro Phe Cys Thr Gln Phe Ile
            100                 105                 110

Pro Met Asp Ile Ile Asp Ser Pro Lys His Gly Ser Ile Ile Tyr His
        115                 120                 125

Pro Ser Ile Leu Pro Arg His Arg Gly Ala Ser Ala Ile Asn Trp Thr
    130                 135                 140

Leu Ile Met Gly Asp Lys Lys Ala Gly Phe Ser Val Phe Trp Ala Asp
145                 150                 155                 160

Asp Gly Leu Asp Thr Gly Pro Ile Leu Leu Gln Arg Ser Cys Asp Val
                165                 170                 175

Glu Pro Asn Asp Thr Val Asp Ala Leu Tyr Asn Arg Phe Leu Phe Pro
            180                 185                 190

Glu Gly Ile Lys Ala Met Val Glu Ala Val Gln Leu Ile Ala Asp Gly
        195                 200                 205

Lys Ala Pro Arg Ile Pro Gln Pro Glu Glu Gly Ala Thr Tyr Glu Gly
    210                 215                 220
```

```
Ile Gln Lys Lys Glu Asn Ala Glu Ile Ser Trp Asp Gln Ser Ala Glu
225                 230                 235                 240

Val Leu His Asn Trp Ile Arg Gly His Asp Lys Val Pro Gly Ala Trp
                245                 250                 255

Thr Glu Ile Asn Gly Gln Met Val Thr Phe Tyr Gly Ser Thr Leu Leu
            260                 265                 270

Asn Ser Ser Val Pro Pro Gly Glu Pro Leu Glu Ile Lys Gly Ala Lys
        275                 280                 285

Lys Pro Gly Leu Val Thr Lys Asn Gly Leu Val Leu Phe Gly Asn Asp
    290                 295                 300

Gly Lys Ala Leu Thr Val Arg Asn Leu Gln Phe Glu Asp Gly Lys Met
305                 310                 315                 320

Ile Pro Ala Ser Gln Tyr Phe Ser Thr Gly Glu Thr Ser Val Val Glu
                325                 330                 335

Leu Thr Ala Glu Glu Val Lys Val Ala Glu Thr Ile Lys Val Ile Trp
            340                 345                 350

Ala Gly Ile Leu Ser Asn Val Pro Ile Ile Glu Asp Ser Thr Asp Phe
        355                 360                 365

Phe Lys Ser Gly Ala Ser Ser Met Asp Val Ala Arg Leu Val Glu Glu
    370                 375                 380

Ile Arg Gln Lys Cys Gly Gly Leu Gln Leu Gln Asn Glu Asp Val Tyr
385                 390                 395                 400

Met Ala Thr Lys Phe Glu Gly Phe Ile Gln Lys Val Val Arg Lys Leu
                405                 410                 415

Arg Gly Glu Asp Gln Glu Val Glu Leu Val Val Asp Tyr Ile Ser Lys
            420                 425                 430

Glu Val Asn Glu Ile Met Val Lys Met Pro Tyr Gln Cys Phe Ile Asn
        435                 440                 445
```

```
Gly Gln Phe Thr Asp Ala Asp Asp Gly Lys Thr Tyr Asp Thr Ile Asn
    450                 455                 460

Pro Thr Asp Gly Ser Thr Ile Cys Lys Val Ser Tyr Ala Ser Leu Ala
465                 470                 475                 480

Asp Val Asp Lys Ala Val Ala Ala Ala Lys Asp Ala Phe Glu Asn Gly
                485                 490                 495

Glu Trp Gly Arg Met Asn Ala Arg Glu Arg Gly Arg Leu Met Tyr Arg
            500                 505                 510

Leu Ala Asp Leu Leu Glu Glu Asn Gln Glu Glu Leu Ala Thr Ile Glu
        515                 520                 525

Ala Leu Asp Ser Gly Ala Val Tyr Thr Leu Ala Leu Lys Thr His Ile
    530                 535                 540

Gly Met Ser Val Gln Thr Phe Arg Tyr Phe Ala Gly Trp Cys Asp Lys
545                 550                 555                 560

Ile Gln Gly Ser Thr Ile Pro Ile Asn Gln Ala Arg Pro Asn Arg Asn
                565                 570                 575

Leu Thr Phe Thr Lys Lys Glu Pro Leu Gly Val Cys Ala Ile Ile Ile
            580                 585                 590

Pro Trp Asn Tyr Pro Leu Met Met Leu Ala Trp Lys Ser Ala Ala Cys
        595                 600                 605

Leu Ala Ala Gly Asn Thr Leu Val Leu Lys Pro Ala Gln Val Thr Pro
    610                 615                 620

Leu Thr Ala Leu Lys Phe Ala Glu Leu Ser Val Lys Ala Gly Phe Pro
625                 630                 635                 640

Lys Gly Val Ile Asn Ile Ile Pro Gly Ser Gly Gly Ile Ala Gly Gln
                645                 650                 655

Arg Leu Ser Glu His Pro Asp Ile Arg Lys Leu Gly Phe Thr Gly Ser
            660                 665                 670
```

```
Thr Pro Ile Gly Lys Gln Ile Met Lys Ser Cys Ala Val Ser Asn Leu
        675                 680                 685

Lys Lys Val Ser Leu Glu Leu Gly Gly Lys Ser Pro Leu Ile Ile Phe
    690                 695                 700

Asn Asp Cys Glu Leu Asp Lys Ala Val Arg Met Gly Met Gly Ala Val
705                 710                 715                 720

Phe Phe Asn Lys Gly Glu Asn Cys Ile Ala Ala Gly Arg Leu Phe Val
                725                 730                 735

Glu Glu Ser Ile His Asp Glu Phe Val Thr Arg Val Val Glu Glu Ile
            740                 745                 750

Lys Lys Met Lys Ile Gly Asp Pro Leu Asp Arg Ser Thr Asp His Gly
        755                 760                 765

Pro Gln Asn His Lys Ala His Leu Glu Lys Leu Leu Gln Tyr Cys Glu
    770                 775                 780

Thr Gly Val Lys Glu Gly Ala Thr Leu Val Tyr Gly Gly Arg Gln Val
785                 790                 795                 800

Gln Arg Pro Gly Phe Phe Met Glu Pro Thr Val Phe Thr Asp Val Glu
                805                 810                 815

Asp Tyr Met Tyr Leu Ala Lys Glu Glu Ser Phe Gly Pro Ile Met Val
            820                 825                 830

Ile Ser Lys Phe Gln Asn Gly Asp Ile Asp Gly Val Leu Gln Arg Ala
        835                 840                 845

Asn Ser Thr Glu Tyr Gly Leu Ala Ser Gly Val Phe Thr Arg Asp Ile
    850                 855                 860

Asn Lys Ala Met Tyr Val Ser Glu Lys Leu Glu Ala Gly Thr Val Phe
865                 870                 875                 880

Ile Asn Thr Tyr Asn Lys Thr Asp Val Ala Ala Pro Phe Gly Gly Val
                885                 890                 895

Lys Gln Ser Gly Phe Gly Lys Asp Leu Gly Glu Glu Ala Leu Asn Glu
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900 905 910

Tyr Leu Lys Thr Lys Thr Val Thr Leu Glu Tyr
915 920

<210> 3862
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 879; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447464"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3862
Xaa Val Glu Glu Ile Lys Lys Met Lys Ile Gly Asp Pro Leu Asp Arg
1 5 10 15

Ser Thr Asp His Gly Pro Gln Asn His Lys Ala His Leu Glu Lys Leu
20 25 30

Leu Gln Tyr Cys Glu Thr Gly Val Lys Glu Gly Ala Thr Leu Val Tyr
35 40 45

Gly Gly Arg Gln Val Gln Arg Pro Gly Phe Phe Met Glu Pro Thr Val
50 55 60

Phe Thr Asp Val Glu Asp Tyr Met Tyr Leu Ala Lys Glu Glu Ser Phe
65 70 75 80

Gly Pro Ile Met Val Ile Ser Lys Phe Gln Asn Gly
85 90

<210> 3863
<211> 203
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 879; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH1L2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 1
family, member L2; "

<220>
<221> source
<223> /note="Uniprot ID: Q3SY69; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447538"

<400> 3863
Met Leu Arg Arg Gly Ser Gln Ala Leu Arg Arg Phe Ser Thr Gly Arg
1 5 10 15

Val Tyr Phe Lys Asn Lys Leu Lys Leu Ala Leu Ile Gly Gln Ser Leu
20 25 30

Phe Gly Gln Glu Val Tyr Ser His Leu Arg Lys Glu Gly His Arg Val
35 40 45

Val Gly Val Phe Thr Val Pro Asp Lys Asp Gly Lys Ala Asp Pro Leu
50 55 60

Ala Leu Ala Ala Glu Lys Asp Gly Thr Pro Val Phe Lys Leu Pro Lys
65 70 75 80

Trp Arg Val Lys Gly Lys Thr Ile Lys Glu Val Ala Glu Ala Tyr Arg
85 90 95

Ser Val Gly Ala Glu Leu Asn Val Leu Pro Phe Cys Thr Gln Phe Ile

```
            100                 105                 110

Pro Met Asp Ile Ile Asp Ser Pro Lys His Gly Ser Ile Ile Tyr His
        115                 120                 125

Pro Ser Ile Leu Pro Arg His Arg Gly Ala Ser Ala Ile Asn Trp Thr
    130                 135                 140

Leu Ile Met Gly Asp Lys Lys Ala Gly Phe Ser Val Phe Trp Ala Asp
145                 150                 155                 160

Asp Gly Leu Asp Thr Gly Pro Ile Leu Leu Gln Arg Ser Cys Asp Val
                165                 170                 175

Glu Pro Asn Asp Thr Val Asp Ala Leu Tyr Asn Arg Phe Leu Phe Pro
            180                 185                 190

Glu Gly Ile Lys Ala Met Lys Leu Ser Asn Ser
        195                 200


<210> 3864
<211> 802
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 880; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH16A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 16
      family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8IZ83; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000293350"

<400> 3864
Met Ala Ala Thr Arg Ala Gly Pro Arg Ala Arg Glu Ile Phe Thr Ser
1               5                   10                  15
```

```
Leu Glu Tyr Gly Pro Val Pro Glu Ser His Ala Cys Ala Leu Ala Trp
            20                  25                  30

Leu Asp Thr Gln Asp Arg Cys Leu Gly His Tyr Val Asn Gly Lys Trp
        35                  40                  45

Leu Lys Pro Glu His Arg Asn Ser Val Pro Cys Gln Asp Pro Ile Thr
    50                  55                  60

Gly Glu Asn Leu Ala Ser Cys Leu Gln Ala Gln Ala Glu Asp Val Ala
65                  70                  75                  80

Ala Ala Val Glu Ala Ala Arg Met Ala Phe Lys Gly Trp Ser Ala His
                85                  90                  95

Pro Gly Val Val Arg Ala Gln His Leu Thr Arg Leu Ala Glu Val Ile
            100                 105                 110

Gln Lys His Gln Arg Leu Leu Trp Thr Leu Glu Ser Leu Val Thr Gly
        115                 120                 125

Arg Ala Val Arg Glu Val Arg Asp Gly Asp Val Gln Leu Ala Gln Gln
    130                 135                 140

Leu Leu His Tyr His Ala Ile Gln Ala Ser Thr Gln Glu Glu Ala Leu
145                 150                 155                 160

Ala Gly Trp Glu Pro Met Gly Val Ile Gly Leu Ile Leu Pro Pro Thr
                165                 170                 175

Phe Ser Phe Leu Glu Met Met Trp Arg Ile Cys Pro Ala Leu Ala Val
            180                 185                 190

Gly Cys Thr Val Val Ala Leu Val Pro Pro Ala Ser Pro Ala Pro Leu
        195                 200                 205

Leu Leu Ala Gln Leu Ala Gly Glu Leu Gly Pro Phe Pro Gly Ile Leu
    210                 215                 220

Asn Val Leu Ser Gly Pro Ala Ser Leu Val Pro Ile Leu Ala Ser Gln
225                 230                 235                 240
```

```
Pro Gly Ile Arg Lys Val Ala Phe Cys Gly Ala Pro Glu Glu Gly Arg
                245                 250                 255

Ala Leu Arg Arg Ser Leu Ala Gly Glu Cys Ala Glu Leu Gly Leu Ala
            260                 265                 270

Leu Gly Thr Glu Ser Leu Leu Leu Leu Thr Asp Thr Ala Asp Val Asp
        275                 280                 285

Ser Ala Val Glu Gly Val Val Asp Ala Ala Trp Ser Asp Arg Gly Pro
    290                 295                 300

Gly Gly Leu Arg Leu Leu Ile Gln Glu Ser Val Trp Asp Glu Ala Met
305                 310                 315                 320

Arg Arg Leu Gln Glu Arg Met Gly Arg Leu Arg Ser Gly Arg Gly Leu
                325                 330                 335

Asp Gly Ala Val Asp Met Gly Ala Arg Gly Ala Ala Ala Cys Asp Leu
            340                 345                 350

Val Gln Arg Phe Val Arg Glu Ala Gln Ser Gln Gly Ala Gln Val Phe
        355                 360                 365

Gln Ala Gly Asp Val Pro Ser Glu Arg Pro Phe Tyr Pro Pro Thr Leu
    370                 375                 380

Val Ser Asn Leu Pro Pro Ala Ser Pro Cys Ala Gln Val Glu Val Pro
385                 390                 395                 400

Trp Pro Val Val Val Ala Ser Pro Phe Arg Thr Ala Lys Glu Ala Leu
                405                 410                 415

Leu Val Ala Asn Gly Thr Pro Arg Gly Gly Ser Ala Ser Val Trp Ser
            420                 425                 430

Glu Arg Leu Gly Gln Ala Leu Glu Leu Gly Tyr Gly Leu Gln Val Gly
        435                 440                 445

Thr Val Trp Ile Asn Ala His Gly Leu Arg Asp Pro Ser Val Pro Thr
    450                 455                 460
```

```
Gly Gly Cys Lys Glu Ser Gly Cys Ser Trp His Gly Gly Pro Asp Gly
465                 470                 475                 480

Leu Tyr Glu Tyr Leu Arg Pro Ser Gly Thr Pro Ala Arg Leu Ser Cys
                485                 490                 495

Leu Ser Lys Asn Leu Asn Tyr Asp Thr Phe Gly Leu Ala Val Pro Ser
            500                 505                 510

Thr Leu Pro Ala Gly Pro Glu Ile Gly Pro Ser Pro Ala Pro Pro Tyr
        515                 520                 525

Gly Leu Phe Val Gly Gly Arg Phe Gln Ala Pro Gly Ala Arg Ser Ser
    530                 535                 540

Arg Pro Ile Arg Asp Ser Ser Gly Asn Leu His Gly Tyr Val Ala Glu
545                 550                 555                 560

Gly Gly Ala Lys Asp Ile Arg Gly Ala Val Glu Ala Ala His Gln Ala
                565                 570                 575

Phe Pro Gly Trp Ala Gly Gln Ser Pro Gly Ala Arg Ala Ala Leu Leu
            580                 585                 590

Trp Ala Leu Ala Ala Ala Leu Glu Arg Arg Lys Ser Thr Leu Ala Ser
        595                 600                 605

Arg Leu Glu Arg Gln Gly Ala Glu Leu Lys Ala Ala Glu Ala Glu Val
    610                 615                 620

Glu Leu Ser Ala Arg Arg Leu Arg Ala Trp Gly Ala Arg Val Gln Ala
625                 630                 635                 640

Gln Gly His Thr Leu Gln Val Ala Gly Leu Arg Gly Pro Val Leu Arg
                645                 650                 655

Leu Arg Glu Pro Leu Gly Val Leu Ala Val Val Cys Pro Asp Glu Trp
            660                 665                 670

Pro Leu Leu Ala Phe Val Ser Leu Leu Ala Pro Ala Leu Ala Tyr Gly
        675                 680                 685

Asn Thr Val Val Met Val Pro Ser Ala Ala Cys Pro Leu Leu Ala Leu
```

```
    690                 695                 700

Glu Val Cys Gln Asp Met Ala Thr Val Phe Pro Ala Gly Leu Ala Asn
705                 710                 715                 720

Val Val Thr Gly Asp Arg Asp His Leu Thr Arg Cys Leu Ala Leu His
                725                 730                 735

Gln Asp Val Gln Ala Met Trp Tyr Phe Gly Ser Ala Gln Gly Ser Gln
            740                 745                 750

Phe Val Glu Trp Ala Ser Ala Gly Asn Leu Lys Pro Val Trp Ala Ser
        755                 760                 765

Arg Gly Cys Pro Arg Ala Trp Asp Gln Glu Ala Glu Gly Ala Gly Pro
    770                 775                 780

Glu Leu Gly Leu Arg Val Ala Arg Thr Lys Ala Leu Trp Leu Pro Met
785                 790                 795                 800

Gly Asp
```

<210> 3865
<211> 751
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 880; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH16A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 16
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZ83; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410142"

<400> 3865
Met Ala Ala Thr Arg Ala Gly Pro Arg Ala Arg Glu Ile Phe Thr Ser
1 5 10 15

Leu Glu Tyr Gly Pro Val Pro Glu Ser His Ala Cys Ala Leu Ala Trp
20 25 30

Leu Asp Thr Gln Asp Arg Cys Leu Gly His Tyr Val Asn Gly Lys Trp
35 40 45

Leu Lys Pro Glu His Arg Asn Ser Val Pro Cys Gln Asp Pro Ile Thr
50 55 60

Gly Glu Asn Leu Ala Ser Cys Leu Gln Ala Gln Ala Glu Asp Val Ala
65 70 75 80

Ala Ala Val Glu Ala Ala Arg Met Ala Phe Lys Gly Trp Ser Ala His
85 90 95

Pro Gly Val Val Arg Ala Gln His Leu Thr Arg Leu Ala Glu Val Ile
100 105 110

Gln Lys His Gln Arg Leu Leu Trp Thr Leu Glu Ser Leu Val Thr Gly
115 120 125

Arg Ala Val Arg Glu Val Arg Asp Gly Asp Val Gln Leu Ala Gln Gln
130 135 140

Leu Leu His Tyr His Ala Ile Gln Ala Ser Thr Gln Glu Glu Ala Leu
145 150 155 160

Ala Gly Trp Glu Pro Met Gly Val Ile Gly Leu Ile Leu Pro Pro Thr
165 170 175

Phe Ser Phe Leu Glu Met Met Trp Arg Ile Cys Pro Ala Leu Ala Val
180 185 190

Gly Cys Thr Val Val Ala Leu Val Pro Pro Ala Ser Pro Ala Pro Leu
195 200 205

Leu Leu Ala Gln Leu Ala Gly Glu Leu Gly Pro Phe Pro Gly Ile Leu
210 215 220

```
Asn Val Leu Ser Gly Pro Ala Ser Leu Val Pro Ile Leu Ala Ser Gln
225                 230                 235                 240

Pro Gly Ile Arg Lys Val Ala Phe Cys Gly Ala Pro Glu Gly Gly Leu
                245                 250                 255

Arg Leu Leu Ile Gln Glu Ser Val Trp Asp Glu Ala Met Arg Arg Leu
            260                 265                 270

Gln Glu Arg Met Gly Arg Leu Arg Ser Gly Arg Gly Leu Asp Gly Ala
        275                 280                 285

Val Asp Met Gly Ala Arg Gly Ala Ala Ala Cys Asp Leu Val Gln Arg
    290                 295                 300

Phe Val Arg Glu Ala Gln Ser Gln Gly Ala Gln Val Phe Gln Ala Gly
305                 310                 315                 320

Asp Val Pro Ser Glu Arg Pro Phe Tyr Pro Pro Thr Leu Val Ser Asn
                325                 330                 335

Leu Pro Pro Ala Ser Pro Cys Ala Gln Val Glu Val Pro Trp Pro Val
            340                 345                 350

Val Val Ala Ser Pro Phe Arg Thr Ala Lys Glu Ala Leu Leu Val Ala
        355                 360                 365

Asn Gly Thr Pro Arg Gly Gly Ser Ala Ser Val Trp Ser Glu Arg Leu
    370                 375                 380

Gly Gln Ala Leu Glu Leu Gly Tyr Gly Leu Gln Val Gly Thr Val Trp
385                 390                 395                 400

Ile Asn Ala His Gly Leu Arg Asp Pro Ser Val Pro Thr Gly Gly Cys
                405                 410                 415

Lys Glu Ser Gly Cys Ser Trp His Gly Gly Pro Asp Gly Leu Tyr Glu
            420                 425                 430

Tyr Leu Arg Pro Ser Gly Thr Pro Ala Arg Leu Ser Cys Leu Ser Lys
        435                 440                 445
```

```
Asn Leu Asn Tyr Asp Thr Phe Gly Leu Ala Val Pro Ser Thr Leu Pro
    450                 455                 460

Ala Gly Pro Glu Ile Gly Pro Ser Pro Ala Pro Pro Tyr Gly Leu Phe
465                 470                 475                 480

Val Gly Gly Arg Phe Gln Ala Pro Gly Ala Arg Ser Ser Arg Pro Ile
                485                 490                 495

Arg Asp Ser Ser Gly Asn Leu His Gly Tyr Val Ala Glu Gly Gly Ala
            500                 505                 510

Lys Asp Ile Arg Gly Ala Val Glu Ala Ala His Gln Ala Phe Pro Gly
        515                 520                 525

Trp Ala Gly Gln Ser Pro Gly Ala Arg Ala Ala Leu Leu Trp Ala Leu
    530                 535                 540

Ala Ala Ala Leu Glu Arg Arg Lys Ser Thr Leu Ala Ser Arg Leu Glu
545                 550                 555                 560

Arg Gln Gly Ala Glu Leu Lys Ala Ala Glu Ala Glu Val Glu Leu Ser
                565                 570                 575

Ala Arg Arg Leu Arg Ala Trp Gly Ala Arg Val Gln Ala Gln Gly His
            580                 585                 590

Thr Leu Gln Val Ala Gly Leu Arg Gly Pro Val Leu Arg Leu Arg Glu
        595                 600                 605

Pro Leu Gly Val Leu Ala Val Val Cys Pro Asp Glu Trp Pro Leu Leu
    610                 615                 620

Ala Phe Val Ser Leu Leu Ala Pro Ala Leu Ala Tyr Gly Asn Thr Val
625                 630                 635                 640

Val Met Val Pro Ser Ala Ala Cys Pro Leu Leu Ala Leu Glu Val Cys
                645                 650                 655

Gln Asp Met Ala Thr Val Phe Pro Ala Gly Leu Ala Asn Val Val Thr
            660                 665                 670

Gly Asp Arg Asp His Leu Thr Arg Cys Leu Ala Leu His Gln Asp Val
```

675 680 685

Gln Ala Met Trp Tyr Phe Gly Ser Ala Gln Gly Ser Gln Phe Val Glu
690 695 700

Trp Ala Ser Ala Gly Asn Leu Lys Pro Val Trp Ala Ser Arg Gly Cys
705 710 715 720

Pro Arg Ala Trp Asp Gln Glu Ala Glu Gly Ala Gly Pro Glu Leu Gly
725 730 735

Leu Arg Val Ala Arg Thr Lys Ala Leu Trp Leu Pro Met Gly Asp
740 745 750

<210> 3866
<211> 639
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 880; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH16A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 16
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445088"

<400> 3866
Met Arg Thr Gly Val Ile Gly Leu Ile Leu Pro Pro Thr Phe Ser Phe
1 5 10 15

Leu Glu Met Met Trp Arg Ile Cys Pro Ala Leu Ala Val Gly Cys Thr
20 25 30

Val Val Ala Leu Val Pro Pro Ala Ser Pro Ala Pro Leu Leu Leu Ala
35 40 45

Gln Leu Ala Gly Glu Leu Gly Pro Phe Pro Gly Ile Leu Asn Val Leu
50 55 60

```
Ser Gly Pro Ala Ser Leu Val Pro Ile Leu Ala Ser Gln Pro Gly Ile
65                  70                  75                  80

Arg Lys Val Ala Phe Cys Gly Ala Pro Glu Glu Gly Arg Ala Leu Arg
                85                  90                  95

Arg Ser Leu Ala Gly Glu Cys Ala Glu Leu Gly Leu Ala Leu Gly Thr
            100                 105                 110

Glu Ser Leu Leu Leu Leu Thr Asp Thr Ala Asp Val Asp Ser Ala Val
        115                 120                 125

Glu Gly Val Val Asp Ala Ala Trp Ser Asp Arg Gly Pro Gly Gly Leu
    130                 135                 140

Arg Leu Leu Ile Gln Glu Ser Val Trp Asp Glu Ala Met Arg Arg Leu
145                 150                 155                 160

Gln Glu Arg Met Gly Arg Leu Arg Ser Gly Arg Gly Leu Asp Gly Ala
                165                 170                 175

Val Asp Met Gly Ala Arg Gly Ala Ala Ala Cys Asp Leu Val Gln Arg
            180                 185                 190

Phe Val Arg Glu Ala Gln Ser Gln Gly Ala Gln Val Phe Gln Ala Gly
        195                 200                 205

Asp Val Pro Ser Glu Arg Pro Phe Tyr Pro Pro Thr Leu Val Ser Asn
    210                 215                 220

Leu Pro Pro Ala Ser Pro Cys Ala Gln Val Glu Val Pro Trp Pro Val
225                 230                 235                 240

Val Val Ala Ser Pro Phe Arg Thr Ala Lys Glu Ala Leu Leu Val Ala
                245                 250                 255

Asn Gly Thr Pro Arg Gly Gly Ser Ala Ser Val Trp Ser Glu Arg Leu
            260                 265                 270

Gly Gln Ala Leu Glu Leu Gly Tyr Gly Leu Gln Val Gly Thr Val Trp
        275                 280                 285
```

```
Ile Asn Ala His Gly Leu Arg Asp Pro Ser Val Pro Thr Gly Gly Cys
    290                 295                 300

Lys Glu Ser Gly Cys Ser Trp His Gly Gly Pro Asp Gly Leu Tyr Glu
305                 310                 315                 320

Tyr Leu Arg Pro Ser Gly Thr Pro Ala Arg Leu Ser Cys Leu Ser Lys
                325                 330                 335

Asn Leu Asn Tyr Asp Thr Phe Gly Leu Ala Val Pro Ser Thr Leu Pro
            340                 345                 350

Ala Gly Pro Glu Ile Gly Pro Ser Pro Ala Pro Pro Tyr Gly Leu Phe
        355                 360                 365

Val Gly Gly Arg Phe Gln Ala Pro Gly Ala Arg Ser Ser Arg Pro Ile
    370                 375                 380

Arg Asp Ser Ser Gly Asn Leu His Gly Tyr Val Ala Glu Gly Gly Ala
385                 390                 395                 400

Lys Asp Ile Arg Gly Ala Val Glu Ala Ala His Gln Ala Phe Pro Gly
                405                 410                 415

Trp Ala Gly Gln Ser Pro Gly Ala Arg Ala Ala Leu Leu Trp Ala Leu
            420                 425                 430

Ala Ala Ala Leu Glu Arg Arg Lys Ser Thr Leu Ala Ser Arg Leu Glu
        435                 440                 445

Arg Gln Gly Ala Glu Leu Lys Ala Ala Glu Ala Glu Val Glu Leu Ser
    450                 455                 460

Ala Arg Arg Leu Arg Ala Trp Gly Ala Arg Val Gln Ala Gln Gly His
465                 470                 475                 480

Thr Leu Gln Val Ala Gly Leu Arg Gly Pro Val Leu Arg Leu Arg Glu
                485                 490                 495

Pro Leu Gly Val Leu Ala Val Val Cys Pro Asp Glu Trp Pro Leu Leu
            500                 505                 510
```

```
Ala Phe Val Ser Leu Leu Ala Pro Ala Leu Ala Tyr Gly Asn Thr Val
        515                 520                 525

Val Met Val Pro Ser Ala Ala Cys Pro Leu Leu Ala Leu Glu Val Cys
    530                 535                 540

Gln Asp Met Ala Thr Val Phe Pro Ala Gly Leu Ala Asn Val Val Thr
545                 550                 555                 560

Gly Asp Arg Asp His Leu Thr Arg Cys Leu Ala Leu His Gln Asp Val
                565                 570                 575

Gln Ala Met Trp Tyr Phe Gly Ser Ala Gln Gly Ser Gln Phe Val Glu
            580                 585                 590

Trp Ala Ser Ala Gly Asn Leu Lys Pro Val Trp Ala Ser Arg Gly Cys
        595                 600                 605

Pro Arg Ala Trp Asp Gln Glu Ala Glu Gly Ala Gly Pro Glu Leu Gly
    610                 615                 620

Leu Arg Val Ala Arg Thr Lys Ala Leu Trp Leu Pro Met Gly Asp
625                 630                 635


<210> 3867
<211> 163
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 880; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH16A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 16
      family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000469507"

<400> 3867
Ile Asn Ala His Gly Leu Arg Asp Pro Ser Val Pro Thr Gly Gly Cys
```

```
1               5                   10                  15

Lys Glu Ser Gly Cys Ser Trp His Gly Gly Pro Asp Gly Leu Tyr Glu
            20                  25                  30

Tyr Leu Arg Pro Ser Gly Thr Pro Ala Arg Leu Ser Cys Leu Ser Lys
        35                  40                  45

Asn Leu Asn Tyr Asp Thr Phe Gly Leu Ala Val Pro Ser Thr Leu Pro
    50                  55                  60

Ala Gly Pro Glu Ile Gly Pro Ser Pro Ala Pro Pro Tyr Gly Leu Phe
65                  70                  75                  80

Val Gly Gly Arg Phe Gln Ala Pro Gly Ala Arg Ser Ser Arg Pro Ile
                85                  90                  95

Arg Asp Ser Ser Gly Asn Leu His Gly Tyr Val Ala Glu Gly Gly Ala
            100                 105                 110

Lys Asp Ile Arg Ala Gly Arg Ala Ser Pro Gln Glu Pro Gly Gln Pro
        115                 120                 125

Cys Cys Gly Pro Trp Arg Leu His Trp Ser Ala Gly Ser Leu Pro Trp
    130                 135                 140

Pro Arg Gly Trp Arg Gly Arg Glu Arg Ser Ser Arg Leu Arg Arg Arg
145                 150                 155                 160

Arg Trp Ser
```

<210> 3868
<211> 103
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 880; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH16A1; "

<220>

<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 16
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470160"

<400> 3868
Met Ala Ala Thr Arg Ala Gly Pro Arg Ala Arg Glu Ile Phe Thr Ser
1 5 10 15

Leu Glu Tyr Gly Pro Val Pro Glu Ser His Ala Cys Ala Leu Ala Gly
20 25 30

Arg Gly Asp Pro Glu Ala Pro Ala Ala Ala Val Asp Pro Gly Ile Pro
35 40 45

Gly Asp Trp Ala Gly Cys Ser Arg Gly Ser Arg Arg Gly Arg Pro Ala
50 55 60

Gly Pro Ala Ala Ala Pro Leu Pro Cys Asn Pro Gly Ile His Pro Gly
65 70 75 80

Gly Gly Thr Gly Arg Leu Gly Ala His Gly Ser Asn Trp Pro His Pro
85 90 95

Ala Thr His Ile Leu Leu Pro
100

<210> 3869
<211> 793
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 881; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH18A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 18
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P54886; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360265"

<400> 3869
Met Leu Ser Gln Val Tyr Arg Cys Gly Phe Gln Pro Phe Asn Gln His
1   5   10   15

Leu Leu Pro Trp Val Lys Cys Thr Thr Val Phe Arg Ser His Cys Ile
            20   25   30

Gln Pro Ser Val Ile Arg His Val Arg Ser Trp Ser Asn Ile Pro Phe
        35   40   45

Ile Thr Val Pro Leu Ser Arg Thr His Gly Lys Ser Phe Ala His Arg
    50   55   60

Ser Glu Leu Lys His Ala Lys Arg Ile Val Val Lys Leu Gly Ser Ala
65   70   75   80

Val Val Thr Arg Gly Asp Glu Cys Gly Leu Ala Leu Gly Arg Leu Ala
                85   90   95

Ser Ile Val Glu Gln Val Ser Val Leu Gln Asn Gln Gly Arg Glu Met
            100   105   110

Met Leu Val Thr Ser Gly Ala Val Ala Phe Gly Lys Gln Arg Leu Arg
        115   120   125

His Glu Ile Leu Leu Ser Gln Ser Val Arg Gln Ala Leu His Ser Gly
    130   135   140

Gln Asn Gln Leu Lys Glu Met Ala Ile Pro Val Leu Glu Ala Arg Ala
145   150   155   160

Cys Ala Ala Ala Gly Gln Ser Gly Leu Met Ala Leu Tyr Glu Ala Met
                165   170   175

Phe Thr Gln Tyr Ser Ile Cys Ala Ala Gln Ile Leu Val Thr Asn Leu
            180   185   190

```
Asp Phe His Asp Glu Gln Lys Arg Arg Asn Leu Asn Gly Thr Leu His
        195                 200                 205

Glu Leu Leu Arg Met Asn Ile Val Pro Ile Val Asn Thr Asn Asp Ala
    210                 215                 220

Val Val Pro Pro Ala Glu Pro Asn Ser Asp Leu Gln Gly Val Ile Ser
225                 230                 235                 240

Val Lys Asp Asn Asp Ser Leu Ala Ala Arg Leu Ala Val Glu Met Lys
                245                 250                 255

Thr Asp Leu Leu Ile Val Leu Ser Asp Val Glu Gly Leu Phe Asp Ser
            260                 265                 270

Pro Pro Gly Ser Asp Asp Ala Lys Leu Ile Asp Ile Phe Tyr Pro Gly
        275                 280                 285

Asp Gln Gln Ser Val Thr Phe Gly Thr Lys Ser Arg Val Gly Met Gly
    290                 295                 300

Gly Met Glu Ala Lys Val Lys Ala Ala Leu Trp Ala Leu Gln Gly Gly
305                 310                 315                 320

Thr Ser Val Val Ile Ala Asn Gly Thr His Pro Lys Val Ser Gly His
                325                 330                 335

Val Ile Thr Asp Ile Val Glu Gly Lys Lys Val Gly Thr Phe Phe Ser
            340                 345                 350

Glu Val Lys Pro Ala Gly Pro Thr Val Glu Gln Gln Gly Glu Met Ala
        355                 360                 365

Arg Ser Gly Gly Arg Met Leu Ala Thr Leu Glu Pro Glu Gln Arg Ala
    370                 375                 380

Glu Ile Ile His His Leu Ala Asp Leu Leu Thr Asp Gln Arg Asp Glu
385                 390                 395                 400

Ile Leu Leu Ala Asn Lys Lys Asp Leu Glu Glu Ala Glu Gly Arg Leu
                405                 410                 415

Ala Ala Pro Leu Leu Lys Arg Leu Ser Leu Ser Thr Ser Lys Leu Asn
```

```
            420                 425                 430

Ser Leu Ala Ile Gly Leu Arg Gln Ile Ala Ala Ser Ser Gln Asp Ser
        435                 440                 445

Val Gly Arg Val Leu Arg Arg Thr Arg Ile Ala Lys Asn Leu Glu Leu
    450                 455                 460

Glu Gln Val Thr Val Pro Ile Gly Val Leu Leu Val Ile Phe Glu Ser
465                 470                 475                 480

Arg Pro Asp Cys Leu Pro Gln Val Ala Ala Leu Ala Ile Ala Ser Gly
                485                 490                 495

Asn Gly Leu Leu Leu Lys Gly Gly Lys Glu Ala Ala His Ser Asn Arg
            500                 505                 510

Ile Leu His Leu Leu Thr Gln Glu Ala Leu Ser Ile His Gly Val Lys
        515                 520                 525

Glu Ala Val Gln Leu Val Asn Thr Arg Glu Glu Val Glu Asp Leu Cys
    530                 535                 540

Arg Leu Asp Lys Met Ile Asp Leu Ile Ile Pro Arg Gly Ser Ser Gln
545                 550                 555                 560

Leu Val Arg Asp Ile Gln Lys Ala Ala Lys Gly Ile Pro Val Met Gly
                565                 570                 575

His Ser Glu Gly Ile Cys His Met Tyr Val Asp Ser Glu Ala Ser Val
            580                 585                 590

Asp Lys Val Thr Arg Leu Val Arg Asp Ser Lys Cys Glu Tyr Pro Ala
        595                 600                 605

Ala Cys Asn Ala Leu Glu Thr Leu Leu Ile His Arg Asp Leu Leu Arg
    610                 615                 620

Thr Pro Leu Phe Asp Gln Ile Ile Asp Met Leu Arg Val Glu Gln Val
625                 630                 635                 640

Lys Ile His Ala Gly Pro Lys Phe Ala Ser Tyr Leu Thr Phe Ser Pro
                645                 650                 655
```

```
Ser Glu Val Lys Ser Leu Arg Thr Glu Tyr Gly Asp Leu Glu Leu Cys
            660                 665                 670

Ile Glu Val Val Asp Asn Val Gln Asp Ala Ile Asp His Ile His Lys
        675                 680                 685

Tyr Gly Ser Ser His Thr Asp Val Ile Val Thr Glu Asp Glu Asn Thr
    690                 695                 700

Ala Glu Phe Phe Leu Gln His Val Asp Ser Ala Cys Val Phe Trp Asn
705                 710                 715                 720

Ala Ser Thr Arg Phe Ser Asp Gly Tyr Arg Phe Gly Leu Gly Ala Glu
                725                 730                 735

Val Gly Ile Ser Thr Ser Arg Ile His Ala Arg Gly Pro Val Gly Leu
            740                 745                 750

Glu Gly Leu Leu Thr Thr Lys Trp Leu Leu Arg Gly Lys Asp His Val
        755                 760                 765

Val Ser Asp Phe Ser Glu His Gly Ser Leu Lys Tyr Leu His Glu Asn
    770                 775                 780

Leu Pro Ile Pro Gln Arg Asn Thr Asn
785                 790


<210> 3870
<211> 795
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 881; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH18A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 18
      family, member A1; "
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<220>
<221> source
<223> /note="Uniprot ID: P54886; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360268"

<400> 3870
Met Leu Ser Gln Val Tyr Arg Cys Gly Phe Gln Pro Phe Asn Gln His
1   5   10   15

Leu Leu Pro Trp Val Lys Cys Thr Thr Val Phe Arg Ser His Cys Ile
            20   25   30

Gln Pro Ser Val Ile Arg His Val Arg Ser Trp Ser Asn Ile Pro Phe
        35   40   45

Ile Thr Val Pro Leu Ser Arg Thr His Gly Lys Ser Phe Ala His Arg
    50   55   60

Ser Glu Leu Lys His Ala Lys Arg Ile Val Val Lys Leu Gly Ser Ala
65   70   75   80

Val Val Thr Arg Gly Asp Glu Cys Gly Leu Ala Leu Gly Arg Leu Ala
                85   90   95

Ser Ile Val Glu Gln Val Ser Val Leu Gln Asn Gln Gly Arg Glu Met
            100   105   110

Met Leu Val Thr Ser Gly Ala Val Ala Phe Gly Lys Gln Arg Leu Arg
        115   120   125

His Glu Ile Leu Leu Ser Gln Ser Val Arg Gln Ala Leu His Ser Gly
    130   135   140

Gln Asn Gln Leu Lys Glu Met Ala Ile Pro Val Leu Glu Ala Arg Ala
145   150   155   160

Cys Ala Ala Ala Gly Gln Ser Gly Leu Met Ala Leu Tyr Glu Ala Met
                165   170   175

Phe Thr Gln Tyr Ser Ile Cys Ala Ala Gln Ile Leu Val Thr Asn Leu
            180   185   190

```
Asp Phe His Asp Glu Gln Lys Arg Arg Asn Leu Asn Gly Thr Leu His
        195                 200                 205

Glu Leu Leu Arg Met Asn Ile Val Pro Ile Val Asn Thr Asn Asp Ala
    210                 215                 220

Val Val Pro Pro Ala Glu Pro Asn Ser Asp Leu Gln Gly Val Asn Val
225                 230                 235                 240

Ile Ser Val Lys Asp Asn Asp Ser Leu Ala Ala Arg Leu Ala Val Glu
                245                 250                 255

Met Lys Thr Asp Leu Leu Ile Val Leu Ser Asp Val Glu Gly Leu Phe
            260                 265                 270

Asp Ser Pro Pro Gly Ser Asp Asp Ala Lys Leu Ile Asp Ile Phe Tyr
        275                 280                 285

Pro Gly Asp Gln Gln Ser Val Thr Phe Gly Thr Lys Ser Arg Val Gly
    290                 295                 300

Met Gly Gly Met Glu Ala Lys Val Lys Ala Ala Leu Trp Ala Leu Gln
305                 310                 315                 320

Gly Gly Thr Ser Val Val Ile Ala Asn Gly Thr His Pro Lys Val Ser
                325                 330                 335

Gly His Val Ile Thr Asp Ile Val Glu Gly Lys Lys Val Gly Thr Phe
            340                 345                 350

Phe Ser Glu Val Lys Pro Ala Gly Pro Thr Val Glu Gln Gln Gly Glu
        355                 360                 365

Met Ala Arg Ser Gly Gly Arg Met Leu Ala Thr Leu Glu Pro Glu Gln
    370                 375                 380

Arg Ala Glu Ile Ile His His Leu Ala Asp Leu Leu Thr Asp Gln Arg
385                 390                 395                 400

Asp Glu Ile Leu Leu Ala Asn Lys Lys Asp Leu Glu Glu Ala Glu Gly
                405                 410                 415

Arg Leu Ala Ala Pro Leu Leu Lys Arg Leu Ser Leu Ser Thr Ser Lys
```

```
            420                 425                 430

Leu Asn Ser Leu Ala Ile Gly Leu Arg Gln Ile Ala Ala Ser Ser Gln
        435                 440                 445

Asp Ser Val Gly Arg Val Leu Arg Arg Thr Arg Ile Ala Lys Asn Leu
    450                 455                 460

Glu Leu Glu Gln Val Thr Val Pro Ile Gly Val Leu Leu Val Ile Phe
465                 470                 475                 480

Glu Ser Arg Pro Asp Cys Leu Pro Gln Val Ala Ala Leu Ala Ile Ala
                485                 490                 495

Ser Gly Asn Gly Leu Leu Leu Lys Gly Gly Lys Glu Ala Ala His Ser
            500                 505                 510

Asn Arg Ile Leu His Leu Leu Thr Gln Glu Ala Leu Ser Ile His Gly
        515                 520                 525

Val Lys Glu Ala Val Gln Leu Val Asn Thr Arg Glu Glu Val Glu Asp
    530                 535                 540

Leu Cys Arg Leu Asp Lys Met Ile Asp Leu Ile Ile Pro Arg Gly Ser
545                 550                 555                 560

Ser Gln Leu Val Arg Asp Ile Gln Lys Ala Ala Lys Gly Ile Pro Val
                565                 570                 575

Met Gly His Ser Glu Gly Ile Cys His Met Tyr Val Asp Ser Glu Ala
            580                 585                 590

Ser Val Asp Lys Val Thr Arg Leu Val Arg Asp Ser Lys Cys Glu Tyr
        595                 600                 605

Pro Ala Ala Cys Asn Ala Leu Glu Thr Leu Leu Ile His Arg Asp Leu
    610                 615                 620

Leu Arg Thr Pro Leu Phe Asp Gln Ile Ile Asp Met Leu Arg Val Glu
625                 630                 635                 640

Gln Val Lys Ile His Ala Gly Pro Lys Phe Ala Ser Tyr Leu Thr Phe
                645                 650                 655
```

```
Ser Pro Ser Glu Val Lys Ser Leu Arg Thr Glu Tyr Gly Asp Leu Glu
            660                 665                 670

Leu Cys Ile Glu Val Val Asp Asn Val Gln Asp Ala Ile Asp His Ile
        675                 680                 685

His Lys Tyr Gly Ser Ser His Thr Asp Val Ile Val Thr Glu Asp Glu
    690                 695                 700

Asn Thr Ala Glu Phe Phe Leu Gln His Val Asp Ser Ala Cys Val Phe
705                 710                 715                 720

Trp Asn Ala Ser Thr Arg Phe Ser Asp Gly Tyr Arg Phe Gly Leu Gly
                725                 730                 735

Ala Glu Val Gly Ile Ser Thr Ser Arg Ile His Ala Arg Gly Pro Val
            740                 745                 750

Gly Leu Glu Gly Leu Leu Thr Thr Lys Trp Leu Leu Arg Gly Lys Asp
        755                 760                 765

His Val Val Ser Asp Phe Ser Glu His Gly Ser Leu Lys Tyr Leu His
    770                 775                 780

Glu Asn Leu Pro Ile Pro Gln Arg Asn Thr Asn
785                 790                 795


<210> 3871
<211> 517
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 882; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 2 family (mitochondrial); "

<220>
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<221> source
<223> /note="Uniprot ID: P05091; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000261733"

<400> 3871
Met Leu Arg Ala Ala Ala Arg Phe Gly Pro Arg Leu Gly Arg Arg Leu
1   5   10   15

Leu Ser Ala Ala Ala Thr Gln Ala Val Pro Ala Pro Asn Gln Gln Pro
            20   25   30

Glu Val Phe Cys Asn Gln Ile Phe Ile Asn Asn Glu Trp His Asp Ala
        35   40   45

Val Ser Arg Lys Thr Phe Pro Thr Val Asn Pro Ser Thr Gly Glu Val
    50   55   60

Ile Cys Gln Val Ala Glu Gly Asp Lys Glu Asp Val Asp Lys Ala Val
65   70   75   80

Lys Ala Ala Arg Ala Ala Phe Gln Leu Gly Ser Pro Trp Arg Arg Met
                85   90   95

Asp Ala Ser His Arg Gly Arg Leu Leu Asn Arg Leu Ala Asp Leu Ile
            100   105   110

Glu Arg Asp Arg Thr Tyr Leu Ala Ala Leu Glu Thr Leu Asp Asn Gly
        115   120   125

Lys Pro Tyr Val Ile Ser Tyr Leu Val Asp Leu Asp Met Val Leu Lys
    130   135   140

Cys Leu Arg Tyr Tyr Ala Gly Trp Ala Asp Lys Tyr His Gly Lys Thr
145   150   155   160

Ile Pro Ile Asp Gly Asp Phe Phe Ser Tyr Thr Arg His Glu Pro Val
                165   170   175

Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Leu Met Gln
            180   185   190

Ala Trp Lys Leu Gly Pro Ala Leu Ala Thr Gly Asn Val Val Val Met

```
        195                 200                 205

Lys Val Ala Glu Gln Thr Pro Leu Thr Ala Leu Tyr Val Ala Asn Leu
    210                 215                 220

Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly
225                 230                 235                 240

Phe Gly Pro Thr Ala Gly Ala Ala Ile Ala Ser His Glu Asp Val Asp
                245                 250                 255

Lys Val Ala Phe Thr Gly Ser Thr Glu Ile Gly Arg Val Ile Gln Val
            260                 265                 270

Ala Ala Gly Ser Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly
        275                 280                 285

Lys Ser Pro Asn Ile Ile Met Ser Asp Ala Asp Met Asp Trp Ala Val
    290                 295                 300

Glu Gln Ala His Phe Ala Leu Phe Phe Asn Gln Gly Gln Cys Cys Cys
305                 310                 315                 320

Ala Gly Ser Arg Thr Phe Val Gln Glu Asp Ile Tyr Asp Glu Phe Val
                325                 330                 335

Glu Arg Ser Val Ala Arg Ala Lys Ser Arg Val Val Gly Asn Pro Phe
            340                 345                 350

Asp Ser Lys Thr Glu Gln Gly Pro Gln Val Asp Glu Thr Gln Phe Lys
        355                 360                 365

Lys Ile Leu Gly Tyr Ile Asn Thr Gly Lys Gln Glu Gly Ala Lys Leu
    370                 375                 380

Leu Cys Gly Gly Gly Ile Ala Ala Asp Arg Gly Tyr Phe Ile Gln Pro
385                 390                 395                 400

Thr Val Phe Gly Asp Val Gln Asp Gly Met Thr Ile Ala Lys Glu Glu
                405                 410                 415

Ile Phe Gly Pro Val Met Gln Ile Leu Lys Phe Lys Thr Ile Glu Glu
            420                 425                 430
```

```
Val Val Gly Arg Ala Asn Asn Ser Thr Tyr Gly Leu Ala Ala Ala Val
        435                 440                 445

Phe Thr Lys Asp Leu Asp Lys Ala Asn Tyr Leu Ser Gln Ala Leu Gln
    450                 455                 460

Ala Gly Thr Val Trp Val Asn Cys Tyr Asp Val Phe Gly Ala Gln Ser
465                 470                 475                 480

Pro Phe Gly Gly Tyr Lys Met Ser Gly Ser Gly Arg Glu Leu Gly Glu
                485                 490                 495

Tyr Gly Leu Gln Ala Tyr Thr Glu Val Lys Thr Val Thr Val Lys Val
            500                 505                 510

Pro Gln Lys Asn Ser
        515


<210> 3872
<211> 470
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 2 family (mitochondrial); "

<220>
<221> source
<223> /note="Uniprot ID:  P05091; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403349"

<400> 3872
Met Leu Arg Ala Ala Ala Arg Phe Gly Pro Arg Leu Gly Arg Arg Leu
1               5                   10                  15
```

```
Leu Ser Ala Ala Ala Thr Gln Ala Val Pro Ala Pro Asn Gln Gln Pro
            20                  25                  30

Glu Val Phe Cys Asn Gln Ile Phe Ile Asn Asn Glu Trp His Asp Ala
        35                  40                  45

Val Ser Arg Lys Thr Phe Pro Thr Val Asn Pro Ser Thr Gly Glu Val
    50                  55                  60

Ile Cys Gln Val Ala Glu Gly Asp Lys Ala Leu Glu Thr Leu Asp Asn
65                  70                  75                  80

Gly Lys Pro Tyr Val Ile Ser Tyr Leu Val Asp Leu Asp Met Val Leu
                85                  90                  95

Lys Cys Leu Arg Tyr Tyr Ala Gly Trp Ala Asp Lys Tyr His Gly Lys
            100                 105                 110

Thr Ile Pro Ile Asp Gly Asp Phe Phe Ser Tyr Thr Arg His Glu Pro
        115                 120                 125

Val Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Leu Met
    130                 135                 140

Gln Ala Trp Lys Leu Gly Pro Ala Leu Ala Thr Gly Asn Val Val Val
145                 150                 155                 160

Met Lys Val Ala Glu Gln Thr Pro Leu Thr Ala Leu Tyr Val Ala Asn
                165                 170                 175

Leu Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val Asn Ile Val Pro
            180                 185                 190

Gly Phe Gly Pro Thr Ala Gly Ala Ala Ile Ala Ser His Glu Asp Val
        195                 200                 205

Asp Lys Val Ala Phe Thr Gly Ser Thr Glu Ile Gly Arg Val Ile Gln
    210                 215                 220

Val Ala Ala Gly Ser Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly
225                 230                 235                 240

Gly Lys Ser Pro Asn Ile Ile Met Ser Asp Ala Asp Met Asp Trp Ala
```

245 250 255

Val Glu Gln Ala His Phe Ala Leu Phe Phe Asn Gln Gly Gln Cys Cys
260 265 270

Cys Ala Gly Ser Arg Thr Phe Val Gln Glu Asp Ile Tyr Asp Glu Phe
275 280 285

Val Glu Arg Ser Val Ala Arg Ala Lys Ser Arg Val Val Gly Asn Pro
290 295 300

Phe Asp Ser Lys Thr Glu Gln Gly Pro Gln Val Asp Glu Thr Gln Phe
305 310 315 320

Lys Lys Ile Leu Gly Tyr Ile Asn Thr Gly Lys Gln Glu Gly Ala Lys
325 330 335

Leu Leu Cys Gly Gly Gly Ile Ala Ala Asp Arg Gly Tyr Phe Ile Gln
340 345 350

Pro Thr Val Phe Gly Asp Val Gln Asp Gly Met Thr Ile Ala Lys Glu
355 360 365

Glu Ile Phe Gly Pro Val Met Gln Ile Leu Lys Phe Lys Thr Ile Glu
370 375 380

Glu Val Val Gly Arg Ala Asn Asn Ser Thr Tyr Gly Leu Ala Ala Ala
385 390 395 400

Val Phe Thr Lys Asp Leu Asp Lys Ala Asn Tyr Leu Ser Gln Ala Leu
405 410 415

Gln Ala Gly Thr Val Trp Val Asn Cys Tyr Asp Val Phe Gly Ala Gln
420 425 430

Ser Pro Phe Gly Gly Tyr Lys Met Ser Gly Ser Gly Arg Glu Leu Gly
435 440 445

Glu Tyr Gly Leu Gln Ala Tyr Thr Glu Val Lys Thr Val Thr Val Lys
450 455 460

Val Pro Gln Lys Asn Ser
465 470

<210> 3873
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 882; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 2 family (mitochondrial); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448179"

<400> 3873
Met Leu Arg Ala Ala Ala Arg Phe Gly Pro Arg Leu Gly Arg Arg Leu
1 5 10 15

Leu Ser Ala Ala Ala Thr Gln Ala Val Pro Ala Pro Asn Gln Gln Pro
20 25 30

Glu Val Phe Cys Asn Gln Ser Arg Leu Lys Met Ser Thr Pro Asp Ile
35 40 45

Thr Val Leu Leu Glu Thr Ile Lys Arg Lys Trp Glu Leu Gly His Pro
50 55 60

Pro Thr Thr Pro Arg Pro Arg Ala Phe Thr Cys Val Ile Phe Ser
65 70 75

<210> 3874
<211> 117
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 882; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH2; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 2 family (mitochondrial); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474669"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3874
Xaa Glu Gln Ala His Phe Ala Leu Phe Phe Asn Gln Gly Gln Cys Cys
1 5 10 15

Cys Ala Gly Ser Arg Thr Phe Val Gln Glu Asp Ile Tyr Asp Glu Phe
20 25 30

Val Glu Arg Ser Val Ala Arg Ala Lys Ser Arg Val Val Gly Asn Pro
35 40 45

Phe Asp Ser Lys Thr Glu Gln Gly Pro Gln Val Asp Glu Thr Gln Phe
50 55 60

Lys Lys Ile Leu Gly Tyr Ile Asn Thr Gly Lys Gln Glu Gly Ala Lys
65 70 75 80

Leu Leu Cys Gly Gly Gly Ile Ala Ala Asp Arg Gly Tyr Phe Ile Gln
85 90 95

Pro Thr Val Phe Gly Asp Val Gln Asp Gly Met Thr Ile Ala Lys Glu
100 105 110

Glu Gly Gln Leu Leu
115

<210> 3875
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 883; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P30838; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000225740"

<400> 3875
Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1   5   10   15

Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
            20   25   30

Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
        35   40   45

Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
    50   55   60

Val Tyr Val Leu Glu Glu Ile Glu Tyr Met Ile Gln Lys Leu Pro Glu
65   70   75   80

Trp Ala Ala Asp Glu Pro Val Glu Lys Thr Pro Gln Thr Gln Gln Asp
                85   90   95

Glu Leu Tyr Ile His Ser Glu Pro Leu Gly Val Val Leu Val Ile Gly
            100   105   110

Thr Trp Asn Tyr Pro Phe Asn Leu Thr Ile Gln Pro Met Val Gly Ala
        115   120   125

Ile Ala Ala Gly Asn Ser Val Val Leu Lys Pro Ser Glu Leu Ser Glu
    130   135   140

Asn Met Ala Ser Leu Leu Ala Thr Ile Ile Pro Gln Tyr Leu Asp Lys

145 150 155 160

Asp Leu Tyr Pro Val Ile Asn Gly Gly Val Pro Glu Thr Thr Glu Leu
165 170 175

Leu Lys Glu Arg Phe Asp His Ile Leu Tyr Thr Gly Ser Thr Gly Val
180 185 190

Gly Lys Ile Ile Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
195 200 205

Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr Val Asp Lys Asn Cys Asp
210 215 220

Leu Asp Val Ala Cys Arg Arg Ile Ala Trp Gly Lys Phe Met Asn Ser
225 230 235 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Ile Leu Cys Asp Pro Ser Ile
245 250 255

Gln Asn Gln Ile Val Glu Lys Leu Lys Lys Ser Leu Lys Glu Phe Tyr
260 265 270

Gly Glu Asp Ala Lys Lys Ser Arg Asp Tyr Gly Arg Ile Ile Ser Ala
275 280 285

Arg His Phe Gln Arg Val Met Gly Leu Ile Glu Gly Gln Lys Val Ala
290 295 300

Tyr Gly Gly Thr Gly Asp Ala Ala Thr Arg Tyr Ile Ala Pro Thr Ile
305 310 315 320

Leu Thr Asp Val Asp Pro Gln Ser Pro Val Met Gln Glu Glu Ile Phe
325 330 335

Gly Pro Val Leu Pro Ile Val Cys Val Arg Ser Leu Glu Glu Ala Ile
340 345 350

Gln Phe Ile Asn Gln Arg Glu Lys Pro Leu Ala Leu Tyr Met Phe Ser
355 360 365

Ser Asn Asp Lys Val Ile Lys Lys Met Ile Ala Glu Thr Ser Ser Gly
370 375 380

```
Gly Val Ala Ala Asn Asp Val Ile Val His Ile Thr Leu His Ser Leu
385                 390                 395                 400


Pro Phe Gly Gly Val Gly Asn Ser Gly Met Gly Ser Tyr His Gly Lys
                405                 410                 415


Lys Ser Phe Glu Thr Phe Ser His Arg Arg Ser Cys Leu Val Arg Pro
            420                 425                 430


Leu Met Asn Asp Glu Gly Leu Lys Val Arg Tyr Pro Pro Ser Pro Ala
        435                 440                 445


Lys Met Thr Gln His
    450


<210> 3876
<211> 389
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 883; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378923"

<400> 3876
Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1               5                   10                  15


Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
            20                  25                  30


Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
        35                  40                  45
```

```
Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
    50                  55                  60

Val Tyr Val Leu Glu Glu Ile Glu Tyr Met Ile Gln Lys Leu Pro Glu
65                  70                  75                  80

Trp Ala Ala Asp Glu Pro Val Glu Lys Thr Pro Gln Thr Gln Gln Asp
                85                  90                  95

Glu Leu Tyr Ile His Ser Glu Pro Leu Gly Val Val Leu Val Ile Gly
            100                 105                 110

Thr Trp Asn Tyr Pro Phe Asn Leu Thr Ile Gln Pro Met Val Gly Ala
        115                 120                 125

Ile Ala Ala Gly Asn Ser Val Val Leu Lys Pro Ser Glu Leu Ser Glu
    130                 135                 140

Asn Met Ala Ser Leu Leu Ala Thr Ile Ile Pro Gln Tyr Leu Asp Lys
145                 150                 155                 160

Asp Leu Tyr Pro Val Ile Asn Gly Gly Val Pro Glu Thr Thr Glu Leu
                165                 170                 175

Leu Lys Glu Arg Phe Asp His Ile Leu Tyr Thr Gly Ser Thr Gly Val
            180                 185                 190

Gly Lys Ile Ile Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
        195                 200                 205

Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr Val Asp Lys Asn Cys Asp
    210                 215                 220

Leu Asp Val Ala Cys Arg Arg Ile Ala Trp Gly Lys Phe Met Asn Ser
225                 230                 235                 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Ile Leu Cys Asp Pro Ser Ile
                245                 250                 255

Gln Asn Gln Ile Val Glu Lys Leu Lys Lys Ser Leu Lys Glu Ile Phe
            260                 265                 270
```

```
Gly Pro Val Leu Pro Ile Val Cys Val Arg Ser Leu Glu Glu Ala Ile
        275                 280                 285

Gln Phe Ile Asn Gln Arg Glu Lys Pro Leu Ala Leu Tyr Met Phe Ser
    290                 295                 300

Ser Asn Asp Lys Val Ile Lys Lys Met Ile Ala Glu Thr Ser Ser Gly
305                 310                 315                 320

Gly Val Ala Ala Asn Asp Val Ile Val His Ile Thr Leu His Ser Leu
                325                 330                 335

Pro Phe Gly Gly Val Gly Asn Ser Gly Met Gly Ser Tyr His Gly Lys
            340                 345                 350

Lys Ser Phe Glu Thr Phe Ser His Arg Arg Ser Cys Leu Val Arg Pro
        355                 360                 365

Leu Met Asn Asp Glu Gly Leu Lys Val Arg Tyr Pro Pro Ser Pro Ala
    370                 375                 380

Lys Met Thr Gln His
385
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<210> 3877
<211> 259
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 883; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388369"

<400> 3877
Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser

```
1               5                   10                  15

Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
            20                  25                  30

Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Asn Glu Trp Asn
        35                  40                  45

Ala Tyr Tyr Glu Glu Val Val Tyr Val Leu Glu Glu Ile Glu Tyr Met
    50                  55                  60

Ile Gln Lys Leu Pro Glu Trp Ala Ala Asp Glu Pro Val Glu Lys Thr
65                  70                  75                  80

Pro Gln Thr Gln Gln Asp Glu Leu Tyr Ile His Ser Glu Pro Leu Gly
                85                  90                  95

Val Val Leu Val Ile Gly Thr Trp Asn Tyr Pro Phe Asn Leu Thr Ile
            100                 105                 110

Gln Pro Met Val Gly Ala Ile Ala Ala Gly Asn Ser Val Val Leu Lys
        115                 120                 125

Pro Ser Glu Leu Ser Glu Asn Met Ala Ser Leu Leu Ala Thr Ile Ile
    130                 135                 140

Pro Gln Tyr Leu Asp Lys Asp Leu Tyr Pro Val Ile Asn Gly Gly Val
145                 150                 155                 160

Pro Glu Thr Thr Glu Leu Leu Lys Glu Arg Phe Asp His Ile Leu Tyr
                165                 170                 175

Thr Gly Ser Thr Gly Val Gly Lys Ile Ile Met Thr Ala Ala Ala Lys
            180                 185                 190

His Leu Thr Pro Val Thr Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr
        195                 200                 205

Val Asp Lys Asn Cys Asp Leu Asp Val Ala Cys Arg Arg Ile Ala Trp
    210                 215                 220

Gly Lys Phe Met Asn Ser Gly Gln Thr Cys Val Ala Pro Asp Tyr Ile
225                 230                 235                 240
```

Leu Cys Asp Pro Ser Ile Gln Asn Gln Ile Val Glu Lys Leu Lys Lys
245 250 255

Ser Leu Lys

<210> 3878
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 883; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P30838; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388469"

<400> 3878
Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1 5 10 15

Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
20 25 30

Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
35 40 45

Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
50 55 60

Val Tyr Val Leu Glu Glu Ile Glu Tyr Met Ile Gln Lys Leu Pro Glu
65 70 75 80

```
Trp Ala Ala Asp Glu Pro Val Glu Lys Thr Pro Gln Thr Gln Gln Asp
                85                  90                  95

Glu Leu Tyr Ile His Ser Glu Pro Leu Gly Val Val Leu Val Ile Gly
            100                 105                 110

Thr Trp Asn Tyr Pro Phe Asn Leu Thr Ile Gln Pro Met Val Gly Ala
        115                 120                 125

Ile Ala Ala Gly Asn Ser Val Val Leu Lys Pro Ser Glu Leu Ser Glu
    130                 135                 140

Asn Met Ala Ser Leu Leu Ala Thr Ile Ile Pro Gln Tyr Leu Asp Lys
145                 150                 155                 160

Asp Leu Tyr Pro Val Ile Asn Gly Gly Val Pro Glu Thr Thr Glu Leu
                165                 170                 175

Leu Lys Glu Arg Phe Asp His Ile Leu Tyr Thr Gly Ser Thr Gly Val
            180                 185                 190

Gly Lys Ile Ile Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
        195                 200                 205

Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr Val Asp Lys Asn Cys Asp
    210                 215                 220

Leu Asp Val Ala Cys Arg Arg Ile Ala Trp Gly Lys Phe Met Asn Ser
225                 230                 235                 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Ile Leu Cys Asp Pro Ser Ile
                245                 250                 255

Gln Asn Gln Ile Val Glu Lys Leu Lys Lys Ser Leu Lys Glu Phe Tyr
            260                 265                 270

Gly Glu Asp Ala Lys Lys Ser Arg Asp Tyr Gly Arg Ile Ile Ser Ala
        275                 280                 285

Arg His Phe Gln Arg Val Met Gly Leu Ile Glu Gly Gln Lys Val Ala
    290                 295                 300
```

```
Tyr Gly Gly Thr Gly Asp Ala Ala Thr Arg Tyr Ile Ala Pro Thr Ile
305                 310                 315                 320

Leu Thr Asp Val Asp Pro Gln Ser Pro Val Met Gln Glu Glu Ile Phe
                325                 330                 335

Gly Pro Val Leu Pro Ile Val Cys Val Arg Ser Leu Glu Glu Ala Ile
            340                 345                 350

Gln Phe Ile Asn Gln Arg Glu Lys Pro Leu Ala Leu Tyr Met Phe Ser
        355                 360                 365

Ser Asn Asp Lys Val Ile Lys Lys Met Ile Ala Glu Thr Ser Ser Gly
    370                 375                 380

Gly Val Ala Ala Asn Asp Val Ile Val His Ile Thr Leu His Ser Leu
385                 390                 395                 400

Pro Phe Gly Gly Val Gly Asn Ser Gly Met Gly Ser Tyr His Gly Lys
                405                 410                 415

Lys Ser Phe Glu Thr Phe Ser His Arg Arg Ser Cys Leu Val Arg Pro
            420                 425                 430

Leu Met Asn Asp Glu Gly Leu Lys Val Arg Tyr Pro Pro Ser Pro Ala
        435                 440                 445

Lys Met Thr Gln His
    450


<210> 3879
<211> 372
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 883; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
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family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000389766"

<400> 3879

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Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1               5                  10                  15

Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
            20                  25                  30

Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
        35                  40                  45

Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
    50                  55                  60

Val Tyr Val Leu Glu Glu Ile Glu Tyr Met Ile Gln Lys Leu Pro Glu
65                  70                  75                  80

Trp Ala Ala Asp Glu Pro Val Glu Lys Thr Pro Gln Thr Gln Gln Asp
                85                  90                  95

Glu Leu Tyr Ile His Ser Glu Pro Leu Gly Val Val Leu Val Ile Gly
            100                 105                 110

Thr Trp Asn Tyr Pro Phe Asn Leu Thr Ile Gln Pro Met Val Gly Ala
        115                 120                 125

Ile Ala Ala Gly Asn Ser Val Val Leu Lys Pro Ser Glu Leu Ser Glu
    130                 135                 140

Asn Met Ala Ser Leu Leu Ala Thr Ile Ile Pro Gln Tyr Leu Asp Lys
145                 150                 155                 160

Asp Leu Tyr Pro Val Ile Asn Gly Gly Val Pro Glu Thr Thr Glu Leu
                165                 170                 175

Leu Lys Glu Arg Phe Asp His Ile Leu Tyr Thr Gly Ser Thr Gly Val
            180                 185                 190

Gly Lys Ile Ile Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
        195                 200                 205
```

```
Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr Val Asp Lys Asn Cys Asp
    210                 215                 220

Leu Asp Val Ala Cys Arg Arg Ile Ala Trp Gly Lys Phe Met Asn Ser
225                 230                 235                 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Ile Leu Cys Asp Pro Ser Ile
                245                 250                 255

Gln Asn Gln Ile Val Glu Lys Leu Lys Lys Ser Leu Lys Glu Phe Tyr
            260                 265                 270

Gly Glu Asp Ala Lys Lys Ser Arg Asp Tyr Gly Arg Ile Ile Ser Ala
        275                 280                 285

Arg His Phe Gln Arg Val Met Gly Leu Ile Glu Gly Gln Lys Val Ala
    290                 295                 300

Tyr Gly Gly Thr Gly Asp Ala Ala Thr Arg Tyr Ile Ala Pro Thr Ile
305                 310                 315                 320

Leu Thr Asp Val Asp Pro Gln Ser Pro Val Met Gln Glu Glu Ile Phe
                325                 330                 335

Gly Pro Val Leu Pro Ile Val Cys Val Arg Ser Leu Glu Glu Ala Ile
            340                 345                 350

Gln Phe Ile Asn Gln Arg Glu Lys Pro Leu Ala Leu Tyr Met Phe Ser
        355                 360                 365

Ser Asn Asp Lys
    370


<210> 3880
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 883; "

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<223> /note="Gene Symbol: ALDH3A1; "

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<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A1; "

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<223> /note="Uniprot ID: P30838; "

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<400> 3880

Met	Ser	Lys	Ile	Ser	Glu	Ala	Val	Lys	Arg	Ala	Arg	Ala	Ala	Phe	Ser
1				5				10					15		
Ser	Gly	Arg	Thr	Arg	Pro	Leu	Gln	Phe	Arg	Ile	Gln	Gln	Leu	Glu	Ala
			20					25					30		
Leu	Gln	Arg	Leu	Ile	Gln	Glu	Gln	Glu	Gln	Glu	Leu	Val	Gly	Ala	Leu
		35					40					45			
Ala	Ala	Asp	Leu	His	Lys	Asn	Glu	Trp	Asn	Ala	Tyr	Tyr	Glu	Glu	Val
	50					55					60				
Val	Tyr	Val	Leu	Glu	Glu	Ile	Glu	Tyr	Met	Ile	Gln	Lys	Leu	Pro	Glu
65					70					75					80
Trp	Ala	Ala	Asp	Glu	Pro	Val	Glu	Lys	Thr	Pro	Gln	Thr	Gln	Gln	Asp
				85					90					95	
Glu	Leu	Tyr	Ile	His	Ser	Glu	Pro	Leu	Gly	Val	Val	Leu	Val	Ile	Gly
			100					105					110		
Thr	Trp	Asn	Tyr	Pro	Phe	Asn	Leu	Thr	Ile	Gln	Pro	Met	Val	Gly	Ala
		115					120					125			
Ile	Ala	Ala	Gly	Asn	Ser	Val	Val	Leu	Lys	Pro	Ser	Glu	Leu	Ser	Glu
	130					135					140				
Asn	Met	Ala	Ser	Leu	Leu	Ala	Thr	Ile	Ile	Pro	Gln	Tyr	Leu	Asp	Lys
145					150					155					160

```
Asp Leu Tyr Pro Val Ile Asn Gly Gly Val Pro Glu Thr Thr Glu Leu
                165                 170                 175

Leu Lys Glu Arg Phe Asp His Ile Leu Tyr Thr Gly Ser Thr Gly Val
            180                 185                 190

Gly Lys Ile Ile Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
        195                 200                 205

Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr Val Asp Lys Asn Cys Asp
    210                 215                 220

Leu Asp Val Ala Cys Arg Arg Ile Ala Trp Gly Lys Phe Met Asn Ser
225                 230                 235                 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Ile Leu Cys Asp Pro Ser Ile
                245                 250                 255

Gln Asn Gln Ile Val Glu Lys Leu Lys Lys Ser Leu Lys Glu Phe Tyr
            260                 265                 270

Gly Glu Asp Ala Lys Lys Ser Arg Asp Tyr Gly Arg Ile Ile Ser Ala
        275                 280                 285

Arg His Phe Gln Arg Val Met Gly Leu Ile Glu Gly Gln Lys Val Ala
    290                 295                 300

Tyr Gly Gly Thr Gly Asp Ala Ala Thr Arg Tyr Ile Ala Pro Thr Ile
305                 310                 315                 320

Leu Thr Asp Val Asp Pro Gln Ser Pro Val Met Gln Glu Glu Ile Phe
                325                 330                 335

Gly Pro Val Leu Pro Ile Val Cys Val Arg Ser Leu Glu Glu Ala Ile
            340                 345                 350

Gln Phe Ile Asn Gln Arg Glu Lys Pro Leu Ala Leu Tyr Met Phe Ser
        355                 360                 365

Ser Asn Asp Lys Val Ile Lys Lys Met Ile Ala Glu Thr Ser Ser Gly
    370                 375                 380

Gly Val Ala Ala Asn Asp Val Ile Val His Ile Thr Leu His Ser Leu
```

385 390 395 400

Pro Phe Gly Gly Val Gly Asn Ser Gly Met Gly Ser Tyr His Gly Lys
405 410 415

Lys Ser Phe Glu Thr Phe Ser His Arg Arg Ser Cys Leu Val Arg Pro
420 425 430

Leu Met Asn Asp Glu Gly Leu Lys Val Arg Tyr Pro Pro Ser Pro Ala
435 440 445

Lys Met Thr Gln His
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<210> 3881
<211> 396
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<400> 3881
Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1 5 10 15

Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
20 25 30

Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
35 40 45

Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
50 55 60

```
Val Tyr Val Leu Glu Glu Ile Glu Tyr Met Ile Gln Lys Leu Pro Glu
65                  70                  75                  80

Trp Ala Ala Asp Glu Pro Val Glu Lys Thr Pro Gln Thr Gln Gln Asp
                85                  90                  95

Glu Leu Tyr Ile His Ser Glu Pro Leu Gly Val Val Leu Val Ile Gly
            100                 105                 110

Thr Trp Asn Tyr Pro Phe Asn Leu Thr Ile Gln Pro Met Val Gly Ala
        115                 120                 125

Ile Ala Ala Gly Asn Ser Val Val Leu Lys Pro Ser Glu Leu Ser Glu
    130                 135                 140

Asn Met Ala Ser Leu Leu Ala Thr Ile Ile Pro Gln Tyr Leu Asp Lys
145                 150                 155                 160

Asp Leu Tyr Pro Val Ile Asn Gly Gly Val Pro Glu Thr Thr Glu Leu
                165                 170                 175

Leu Lys Glu Arg Phe Asp His Ile Leu Tyr Thr Gly Ser Thr Gly Val
            180                 185                 190

Gly Lys Ile Ile Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
        195                 200                 205

Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr Val Asp Lys Asn Cys Asp
    210                 215                 220

Leu Asp Val Ala Cys Arg Arg Ile Ala Trp Gly Lys Phe Met Asn Ser
225                 230                 235                 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Ile Leu Cys Asp Pro Ser Ile
                245                 250                 255

Gln Asn Gln Ile Val Glu Lys Leu Lys Lys Ser Leu Lys Glu Phe Tyr
            260                 265                 270

Gly Glu Asp Ala Lys Lys Ser Arg Asp Tyr Gly Arg Ile Ile Ser Ala
        275                 280                 285
```

```
Arg His Phe Gln Arg Val Met Gly Leu Ile Glu Gly Gln Lys Val Ala
    290                 295                 300

Tyr Gly Gly Thr Gly Asp Ala Ala Thr Arg Tyr Ile Ala Pro Thr Ile
305                 310                 315                 320

Leu Thr Asp Val Asp Pro Gln Ser Pro Val Met Gln Glu Glu Ile Phe
                325                 330                 335

Gly Pro Val Leu Pro Ile Val Cys Val Arg Ser Leu Glu Glu Ala Ile
            340                 345                 350

Gln Phe Ile Asn Gln Arg Glu Lys Pro Leu Ala Leu Tyr Met Phe Ser
        355                 360                 365

Ser Asn Asp Lys Gly Thr Ala Ala Trp Asp Pro Thr Met Ala Arg Arg
    370                 375                 380

Ala Ser Arg Leu Ser Leu Thr Ala Ala Leu Ala Trp
385                 390                 395


<210> 3882
<211> 131
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 883; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A1; "

<220>
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      family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458841"

<400> 3882
Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1               5                   10                  15
```

```
Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
            20                  25                  30

Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
        35                  40                  45

Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
    50                  55                  60

Val Tyr Val Leu Glu Glu Ile Glu Tyr Met Ile Gln Lys Leu Pro Glu
65                  70                  75                  80

Trp Ala Ala Asp Glu Pro Val Glu Lys Thr Pro Gln Thr Gln Gln Asp
                85                  90                  95

Glu Leu Tyr Ile His Ser Glu Pro Leu Gly Val Val Leu Val Ile Gly
            100                 105                 110

Thr Trp Asn Tyr Pro Phe Asn Leu Thr Ile Gln Pro Met Val Gly Ala
        115                 120                 125

Ile Ala Ala
    130


<210> 3883
<211> 380
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000460482"

<400> 3883
Met Ile Gln Lys Leu Pro Glu Trp Ala Ala Asp Glu Pro Val Glu Lys
```

```
1               5                   10                  15

Thr Pro Gln Thr Gln Gln Asp Glu Leu Tyr Ile His Ser Glu Pro Leu
            20                  25                  30

Gly Val Val Leu Val Ile Gly Thr Trp Asn Tyr Pro Phe Asn Leu Thr
        35                  40                  45

Ile Gln Pro Met Val Gly Ala Ile Ala Ala Gly Asn Ser Val Val Leu
    50                  55                  60

Lys Pro Ser Glu Leu Ser Glu Asn Met Ala Ser Leu Leu Ala Thr Ile
65                  70                  75                  80

Ile Pro Gln Tyr Leu Asp Lys Asp Leu Tyr Pro Val Ile Asn Gly Gly
                85                  90                  95

Val Pro Glu Thr Thr Glu Leu Leu Lys Glu Arg Phe Asp His Ile Leu
            100                 105                 110

Tyr Thr Gly Ser Thr Gly Val Gly Lys Ile Ile Met Thr Ala Ala Ala
        115                 120                 125

Lys His Leu Thr Pro Val Thr Leu Glu Leu Gly Gly Lys Ser Pro Cys
    130                 135                 140

Tyr Val Asp Lys Asn Cys Asp Leu Asp Val Ala Cys Arg Arg Ile Ala
145                 150                 155                 160

Trp Gly Lys Phe Met Asn Ser Gly Gln Thr Cys Val Ala Pro Asp Tyr
                165                 170                 175

Ile Leu Cys Asp Pro Ser Ile Gln Asn Gln Ile Val Glu Lys Leu Lys
            180                 185                 190

Lys Ser Leu Lys Glu Phe Tyr Gly Glu Asp Ala Lys Lys Ser Arg Asp
        195                 200                 205

Tyr Gly Arg Ile Ile Ser Ala Arg His Phe Gln Arg Val Met Gly Leu
    210                 215                 220

Ile Glu Gly Gln Lys Val Ala Tyr Gly Gly Thr Gly Asp Ala Ala Thr
225                 230                 235                 240
```

```
Arg Tyr Ile Ala Pro Thr Ile Leu Thr Asp Val Asp Pro Gln Ser Pro
                245                 250                 255

Val Met Gln Glu Glu Ile Phe Gly Pro Val Leu Pro Ile Val Cys Val
            260                 265                 270

Arg Ser Leu Glu Glu Ala Ile Gln Phe Ile Asn Gln Arg Glu Lys Pro
        275                 280                 285

Leu Ala Leu Tyr Met Phe Ser Ser Asn Asp Lys Val Ile Lys Lys Met
    290                 295                 300

Ile Ala Glu Thr Ser Ser Gly Gly Val Ala Ala Asn Asp Val Ile Val
305                 310                 315                 320

His Ile Thr Leu His Ser Leu Pro Phe Gly Gly Val Gly Asn Ser Gly
                325                 330                 335

Met Gly Ser Tyr His Gly Lys Lys Ser Phe Glu Thr Phe Ser His Arg
            340                 345                 350

Arg Ser Cys Leu Val Arg Pro Leu Met Asn Asp Glu Gly Leu Lys Val
        355                 360                 365

Arg Tyr Pro Pro Ser Pro Ala Lys Met Thr Gln His
    370                 375                 380


<210> 3884
<211> 74
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ALDH3A1; "

<220>
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      family, member A1; "
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<220>
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Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1   5   10   15

Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
            20   25   30

Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
        35   40   45

Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
    50   55   60

Val Tyr Val Leu Glu Glu Ile Glu Tyr Met
65   70

<210> 3885
<211> 119
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000461189"

<400> 3885
Met Ser Lys Ile Ser Glu Ala Val Lys Arg Ala Arg Ala Ala Phe Ser
1   5   10   15

Ser Gly Arg Thr Arg Pro Leu Gln Phe Arg Ile Gln Gln Leu Glu Ala
            20   25   30

```
Leu Gln Arg Leu Ile Gln Glu Gln Glu Gln Glu Leu Val Gly Ala Leu
        35                  40                  45

Ala Ala Asp Leu His Lys Asn Glu Trp Asn Ala Tyr Tyr Glu Glu Val
    50                  55                  60

Val Tyr Val Leu Glu Glu Ile Glu Tyr Met Ile Gln Lys Leu Pro Glu
65                  70                  75                  80

Trp Ala Ala Asp Glu Pro Val Glu Lys Thr Pro Gln Thr Gln Gln Asp
                85                  90                  95

Glu Leu Tyr Ile His Ser Glu Pro Leu Gly Val Val Leu Val Ile Gly
            100                 105                 110

Thr Trp Asn Tyr Pro Phe Asn
        115


<210> 3886
<211> 485
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID:  P51648; "

<220>
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<400> 3886
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                   10                  15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
```

```
            20                  25                  30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50                  55                  60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160

Ile Val Ile Asn Gly Gly Val Glu Glu Thr Thr Glu Leu Leu Lys Gln
                165                 170                 175

Arg Phe Asp His Ile Phe Tyr Thr Gly Asn Thr Ala Val Gly Lys Ile
            180                 185                 190

Val Met Glu Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu
        195                 200                 205

Gly Gly Lys Ser Pro Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile
    210                 215                 220

Val Cys Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys Gly Gln Thr
225                 230                 235                 240

Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu Gln Asn Gln
                245                 250                 255
```

```
Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr Gly Glu Asn
            260                 265                 270

Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu Arg His Phe
        275                 280                 285

Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala Phe Gly Gly
    290                 295                 300

Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val Leu Thr Asp
305                 310                 315                 320

Val Asp Pro Lys Thr Lys Val Met Gln Glu Glu Ile Phe Gly Pro Ile
                325                 330                 335

Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu Ala Ile Asn Phe Ile
            340                 345                 350

Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val Phe Ser His Asn His
        355                 360                 365

Lys Leu Ile Lys Arg Met Ile Asp Glu Thr Ser Ser Gly Gly Val Thr
    370                 375                 380

Gly Asn Asp Val Ile Met His Phe Thr Leu Asn Ser Phe Pro Phe Gly
385                 390                 395                 400

Gly Val Gly Ser Ser Gly Met Gly Ala Tyr His Gly Lys His Ser Phe
                405                 410                 415

Asp Thr Phe Ser His Gln Arg Pro Cys Leu Leu Lys Ser Leu Lys Arg
            420                 425                 430

Glu Gly Ala Asn Lys Leu Arg Tyr Pro Pro Asn Ser Gln Ser Lys Val
        435                 440                 445

Asp Trp Gly Lys Phe Phe Leu Leu Lys Arg Phe Asn Lys Glu Lys Leu
    450                 455                 460

Gly Leu Leu Leu Leu Thr Phe Leu Gly Ile Val Ala Ala Val Leu Val
465                 470                 475                 480
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Lys Ala Glu Tyr Tyr
485

<210> 3887
<211> 508
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<213> Homo sapiens

<220>
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<220>
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<220>
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<400> 3887
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1 5 10 15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
20 25 30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
35 40 45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
50 55 60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65 70 75 80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
85 90 95

```
Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160

Ile Val Ile Asn Gly Gly Val Glu Glu Thr Thr Glu Leu Leu Lys Gln
                165                 170                 175

Arg Phe Asp His Ile Phe Tyr Thr Gly Asn Thr Ala Val Gly Lys Ile
            180                 185                 190

Val Met Glu Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu
        195                 200                 205

Gly Gly Lys Ser Pro Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile
    210                 215                 220

Val Cys Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys Gly Gln Thr
225                 230                 235                 240

Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu Gln Asn Gln
                245                 250                 255

Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr Gly Glu Asn
            260                 265                 270

Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu Arg His Phe
        275                 280                 285

Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala Phe Gly Gly
    290                 295                 300

Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val Leu Thr Asp
305                 310                 315                 320

Val Asp Pro Lys Thr Lys Val Met Gln Glu Glu Ile Phe Gly Pro Ile
```

```
                325                 330                 335

Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu Ala Ile Asn Phe Ile
            340                 345                 350

Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val Phe Ser His Asn His
        355                 360                 365

Lys Leu Ile Lys Arg Met Ile Asp Glu Thr Ser Ser Gly Gly Val Thr
    370                 375                 380

Gly Asn Asp Val Ile Met His Phe Thr Leu Asn Ser Phe Pro Phe Gly
385                 390                 395                 400

Gly Val Gly Ser Ser Gly Met Gly Ala Tyr His Gly Lys His Ser Phe
                405                 410                 415

Asp Thr Phe Ser His Gln Arg Pro Cys Leu Leu Lys Ser Leu Lys Arg
            420                 425                 430

Glu Gly Ala Asn Lys Leu Arg Tyr Pro Pro Asn Ser Gln Ser Lys Val
        435                 440                 445

Asp Trp Gly Lys Phe Phe Leu Leu Lys Arg Phe Asn Lys Glu Lys Leu
    450                 455                 460

Gly Leu Leu Leu Leu Thr Phe Leu Gly Ile Val Ala Ala Val Leu Val
465                 470                 475                 480

Lys Lys Tyr Gln Ala Val Leu Arg Arg Lys Ala Leu Leu Ile Phe Leu
                485                 490                 495

Val Val His Arg Leu Arg Trp Ser Ser Lys Gln Arg
            500                 505


<210> 3888
<211> 485
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<223> /note="Uniprot ID: P51648; "

<220>
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<400> 3888

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Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                  10                  15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20                  25                  30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50                  55                  60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160
```

```
Ile Val Ile Asn Gly Gly Val Glu Glu Thr Thr Glu Leu Leu Lys Gln
                165                 170                 175

Arg Phe Asp His Ile Phe Tyr Thr Gly Asn Thr Ala Val Gly Lys Ile
            180                 185                 190

Val Met Glu Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu
        195                 200                 205

Gly Gly Lys Ser Pro Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile
    210                 215                 220

Val Cys Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys Gly Gln Thr
225                 230                 235                 240

Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu Gln Asn Gln
                245                 250                 255

Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr Gly Glu Asn
            260                 265                 270

Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu Arg His Phe
        275                 280                 285

Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala Phe Gly Gly
    290                 295                 300

Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val Leu Thr Asp
305                 310                 315                 320

Val Asp Pro Lys Thr Lys Val Met Gln Glu Glu Ile Phe Gly Pro Ile
                325                 330                 335

Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu Ala Ile Asn Phe Ile
            340                 345                 350

Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val Phe Ser His Asn His
        355                 360                 365

Lys Leu Ile Lys Arg Met Ile Asp Glu Thr Ser Ser Gly Gly Val Thr
    370                 375                 380
```

```
Gly Asn Asp Val Ile Met His Phe Thr Leu Asn Ser Phe Pro Phe Gly
385                 390                 395                 400

Gly Val Gly Ser Ser Gly Met Gly Ala Tyr His Gly Lys His Ser Phe
                405                 410                 415

Asp Thr Phe Ser His Gln Arg Pro Cys Leu Leu Lys Ser Leu Lys Arg
            420                 425                 430

Glu Gly Ala Asn Lys Leu Arg Tyr Pro Pro Asn Ser Gln Ser Lys Val
        435                 440                 445

Asp Trp Gly Lys Phe Phe Leu Leu Lys Arg Phe Asn Lys Glu Lys Leu
    450                 455                 460

Gly Leu Leu Leu Leu Thr Phe Leu Gly Ile Val Ala Ala Val Leu Val
465                 470                 475                 480

Lys Ala Glu Tyr Tyr
                485


<210> 3889
<211> 166
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395845"

<400> 3889
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                   10                  15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
```

```
            20                  25                  30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50                  55                  60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160

Ile Val Ile Asn Gly Gly
                165
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<210> 3890
<211> 182
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458397"

<400> 3890
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1   5   10   15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20   25   30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35   40   45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50   55   60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65   70   75   80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85   90   95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100   105   110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115   120   125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130   135   140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Pro Phe Cys
145   150   155   160

Ser Asn Ser Cys Asp Asp Pro Ile Lys Lys Asp Glu Met Glu Asp Ser
                165   170   175

Glu Met Ser Arg Ile Glu
            180

<210> 3891
<211> 162
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458942"

<400> 3891

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Thr Thr Glu Leu Leu Lys Gln Arg Phe Asp His Ile Phe Tyr Thr Gly
1               5                  10                  15

Asn Thr Ala Val Gly Lys Ile Val Met Glu Ala Ala Ala Lys His Leu
            20                  25                  30

Thr Pro Val Thr Leu Glu Leu Gly Gly Lys Ser Pro Cys Tyr Ile Asp
        35                  40                  45

Lys Asp Cys Asp Leu Asp Ile Val Cys Arg Arg Ile Thr Trp Gly Lys
    50                  55                  60

Tyr Met Asn Cys Gly Gln Thr Cys Ile Ala Pro Asp Tyr Ile Leu Cys
65                  70                  75                  80

Glu Ala Ser Leu Gln Asn Gln Ile Val Trp Lys Ile Lys Glu Thr Val
                85                  90                  95

Lys Glu Phe Tyr Gly Glu Asn Ile Lys Glu Ser Pro Asp Tyr Glu Arg
            100                 105                 110

Ile Ile Asn Leu Arg His Phe Lys Arg Ile Leu Ser Leu Leu Glu Gly
        115                 120                 125

Gln Lys Ile Ala Phe Gly Gly Glu Thr Asp Glu Ala Thr Arg Tyr Ile
    130                 135                 140
```

```
Gly Asn Gly Asn Ser Pro Phe Pro Met Gly Arg Trp Gln Phe Gly Ser
145                 150                 155                 160


Phe Cys



<210> 3892
<211> 97
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000459977"

<400> 3892
Met Gln Glu Glu Ile Phe Gly Pro Ile Leu Pro Ile Val Pro Val Lys
1               5                   10                  15


Asn Val Asp Glu Ala Ile Asn Phe Ile Asn Glu Arg Glu Lys Pro Leu
            20                  25                  30


Ala Leu Tyr Val Phe Ser His Asn His Lys Leu Ile Lys Arg Met Ile
        35                  40                  45


Asp Glu Thr Ser Ser Gly Gly Val Thr Gly Asn Asp Val Ile Met His
    50                  55                  60


Phe Thr Leu Asn Ser Phe Pro Phe Gly Gly Val Gly Arg Ile Leu Leu
65                  70                  75                  80


Lys Asn Asp Pro Val Gln Pro Pro Ser Ala Ser Thr Glu Leu Phe Leu
                85                  90                  95


Phe
```

<210> 3893
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461235"

<400> 3893
Phe Ser His Gln Arg Pro Cys Leu Leu Lys Ser Leu Lys Arg Glu Gly
1 5 10 15

Ala Asn Lys Leu Arg Tyr Pro Pro Asn Ser Gln Ser Lys Val Asp Trp
20 25 30

Gly Lys Phe Phe Leu Leu Lys Arg Phe Asn Lys Glu Lys Leu Gly Leu
35 40 45

Leu Leu Leu Thr Phe Leu Gly Ile Val Ala Ala Val Leu Val Lys Phe
50 55 60

Thr Asp Cys Val Gly Pro Val Ser Arg Asp Glu His Gln Ile Ser Lys
65 70 75 80

Pro Ser Pro Val Cys
85

<210> 3894
<211> 508
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="Uniprot ID: P51648; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461916"

<400> 3894

```
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                  10                  15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20                  25                  30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50                  55                  60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140
```

```
Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160

Ile Val Ile Asn Gly Gly Val Glu Glu Thr Thr Glu Leu Leu Lys Gln
                165                 170                 175

Arg Phe Asp His Ile Phe Tyr Thr Gly Asn Thr Ala Val Gly Lys Ile
            180                 185                 190

Val Met Glu Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu
        195                 200                 205

Gly Gly Lys Ser Pro Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile
    210                 215                 220

Val Cys Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys Gly Gln Thr
225                 230                 235                 240

Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu Gln Asn Gln
                245                 250                 255

Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr Gly Glu Asn
            260                 265                 270

Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu Arg His Phe
        275                 280                 285

Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala Phe Gly Gly
    290                 295                 300

Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val Leu Thr Asp
305                 310                 315                 320

Val Asp Pro Lys Thr Lys Val Met Gln Glu Glu Ile Phe Gly Pro Ile
                325                 330                 335

Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu Ala Ile Asn Phe Ile
            340                 345                 350

Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val Phe Ser His Asn His
        355                 360                 365
```

```
Lys Leu Ile Lys Arg Met Ile Asp Glu Thr Ser Ser Gly Gly Val Thr
    370                 375                 380

Gly Asn Asp Val Ile Met His Phe Thr Leu Asn Ser Phe Pro Phe Gly
385                 390                 395                 400

Gly Val Gly Ser Ser Gly Met Gly Ala Tyr His Gly Lys His Ser Phe
                405                 410                 415

Asp Thr Phe Ser His Gln Arg Pro Cys Leu Leu Lys Ser Leu Lys Arg
            420                 425                 430

Glu Gly Ala Asn Lys Leu Arg Tyr Pro Pro Asn Ser Gln Ser Lys Val
        435                 440                 445

Asp Trp Gly Lys Phe Phe Leu Leu Lys Arg Phe Asn Lys Glu Lys Leu
    450                 455                 460

Gly Leu Leu Leu Leu Thr Phe Leu Gly Ile Val Ala Ala Val Leu Val
465                 470                 475                 480

Lys Lys Tyr Gln Ala Val Leu Arg Arg Lys Ala Leu Leu Ile Phe Leu
                485                 490                 495

Val Val His Arg Leu Arg Trp Ser Ser Lys Gln Arg
            500                 505


<210> 3895
<211> 62
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member A2; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000462933"

<400> 3895
Ile Phe Gly Pro Ile Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu
1   5   10   15

Ala Ile Asn Phe Ile Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val
            20   25   30

Phe Ser His Asn His Lys Val Pro Val Gly Trp Glu Leu Ile Thr Glu
        35   40   45

Asn Ile Val Leu Ile Leu Phe Leu Ile Ser Val Pro Val Tyr
    50   55   60

<210> 3896
<211> 146
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462964"

<400> 3896
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1   5   10   15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20   25   30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35   40   45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50   55   60

```
Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile
145
```

<210> 3897
<211> 54
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463128"

<400> 3897

```
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                   10                  15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20                  25                  30
```

```
Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45


Leu Cys Lys Glu Met Leu
    50


<210> 3898
<211> 485
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member A2; "

<220>
<221> source
<223> /note="Uniprot ID:  P51648; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463637"

<400> 3898
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                   10                  15


Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20                  25                  30


Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45


Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50                  55                  60


Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80
```

```
Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160

Ile Val Ile Asn Gly Gly Val Glu Glu Thr Thr Glu Leu Leu Lys Gln
                165                 170                 175

Arg Phe Asp His Ile Phe Tyr Thr Gly Asn Thr Ala Val Gly Lys Ile
            180                 185                 190

Val Met Glu Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu
        195                 200                 205

Gly Gly Lys Ser Pro Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile
    210                 215                 220

Val Cys Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys Gly Gln Thr
225                 230                 235                 240

Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu Gln Asn Gln
                245                 250                 255

Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr Gly Glu Asn
            260                 265                 270

Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu Arg His Phe
        275                 280                 285

Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala Phe Gly Gly
    290                 295                 300

Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val Leu Thr Asp
```

```
305                 310                 315                 320

Val Asp Pro Lys Thr Lys Val Met Gln Glu Glu Ile Phe Gly Pro Ile
                325                 330                 335

Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu Ala Ile Asn Phe Ile
            340                 345                 350

Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val Phe Ser His Asn His
        355                 360                 365

Lys Leu Ile Lys Arg Met Ile Asp Glu Thr Ser Ser Gly Gly Val Thr
    370                 375                 380

Gly Asn Asp Val Ile Met His Phe Thr Leu Asn Ser Phe Pro Phe Gly
385                 390                 395                 400

Gly Val Gly Ser Ser Gly Met Gly Ala Tyr His Gly Lys His Ser Phe
                405                 410                 415

Asp Thr Phe Ser His Gln Arg Pro Cys Leu Leu Lys Ser Leu Lys Arg
            420                 425                 430

Glu Gly Ala Asn Lys Leu Arg Tyr Pro Pro Asn Ser Gln Ser Lys Val
        435                 440                 445

Asp Trp Gly Lys Phe Phe Leu Leu Lys Arg Phe Asn Lys Glu Lys Leu
    450                 455                 460

Gly Leu Leu Leu Leu Thr Phe Leu Gly Ile Val Ala Ala Val Leu Val
465                 470                 475                 480

Lys Ala Glu Tyr Tyr
                485


<210> 3899
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
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<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463924"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3899
Xaa Leu Lys Arg Glu Gly Ala Asn Lys Leu Arg Tyr Pro Pro Asn Ser
1 5 10 15

Gln Ser Lys Val Asp Trp Gly Lys Phe Phe Leu Leu Lys Arg Phe Asn
20 25 30

Lys Glu Lys Leu Gly Leu Leu Leu Leu Thr Phe Leu Gly Ile Val Ala
35 40 45

Ala Val Leu Val Lys Thr Ala Leu Val Gln
50 55

<210> 3900
<211> 393
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000464153"

<400> 3900

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Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                  10                  15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20                  25                  30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50                  55                  60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160

Ile Val Ile Asn Gly Gly Val Glu Glu Thr Thr Glu Leu Leu Lys Gln
                165                 170                 175

Arg Phe Asp His Ile Phe Tyr Thr Gly Asn Thr Ala Val Gly Lys Ile
            180                 185                 190

Val Met Glu Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu
        195                 200                 205

Gly Gly Lys Ser Pro Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile
    210                 215                 220
```

```
Val Cys Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys Gly Gln Thr
225                 230                 235                 240

Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu Gln Asn Gln
                245                 250                 255

Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr Gly Glu Asn
            260                 265                 270

Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu Arg His Phe
        275                 280                 285

Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala Phe Gly Gly
    290                 295                 300

Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val Leu Thr Asp
305                 310                 315                 320

Val Asp Pro Lys Thr Lys Val Met Gln Glu Glu Ile Phe Gly Pro Ile
                325                 330                 335

Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu Ala Ile Asn Phe Ile
            340                 345                 350

Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val Phe Ser His Asn His
        355                 360                 365

Lys Val Pro Val Gly Trp Glu Leu Ile Thr Glu Asn Ile Val Leu Ile
    370                 375                 380

Leu Phe Leu Ile Ser Val Pro Val Tyr
385                 390


<210> 3901
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
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<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464453"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3901
Xaa Lys His Leu Thr Pro Val Thr Leu Glu Leu Gly Gly Lys Ser Pro
1 5 10 15

Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile Val Cys Ser Cys Ser
20 25 30

Gly Cys Phe Pro Leu Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys
35 40 45

Gly Gln Thr Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu
50 55 60

Gln Asn Gln Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr
65 70 75 80

Gly Glu Asn Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu
85 90 95

Arg His Phe Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala
100 105 110

Phe Gly Gly Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val
115 120 125

Leu Thr Asp Val Asp Pro
130

<210> 3902
<211> 126

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466814"

<400> 3902
Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
1 5 10 15

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
20 25 30

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
35 40 45

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
50 55 60

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
65 70 75 80

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
85 90 95

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
100 105 110

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp
115 120 125

<210> 3903
<211> 393
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 884; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486085"

<400> 3903

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Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1               5                  10                  15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
            20                  25                  30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
        35                  40                  45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
    50                  55                  60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65                  70                  75                  80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
                85                  90                  95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
            100                 105                 110

Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140
```

```
Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Asp Leu Tyr
145                 150                 155                 160

Ile Val Ile Asn Gly Gly Val Glu Glu Thr Thr Glu Leu Leu Lys Gln
                165                 170                 175

Arg Phe Asp His Ile Phe Tyr Thr Gly Asn Thr Ala Val Gly Lys Ile
            180                 185                 190

Val Met Glu Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu
        195                 200                 205

Gly Gly Lys Ser Pro Cys Tyr Ile Asp Lys Asp Cys Asp Leu Asp Ile
    210                 215                 220

Val Cys Arg Arg Ile Thr Trp Gly Lys Tyr Met Asn Cys Gly Gln Thr
225                 230                 235                 240

Cys Ile Ala Pro Asp Tyr Ile Leu Cys Glu Ala Ser Leu Gln Asn Gln
                245                 250                 255

Ile Val Trp Lys Ile Lys Glu Thr Val Lys Glu Phe Tyr Gly Glu Asn
            260                 265                 270

Ile Lys Glu Ser Pro Asp Tyr Glu Arg Ile Ile Asn Leu Arg His Phe
        275                 280                 285

Lys Arg Ile Leu Ser Leu Leu Glu Gly Gln Lys Ile Ala Phe Gly Gly
    290                 295                 300

Glu Thr Asp Glu Ala Thr Arg Tyr Ile Ala Pro Thr Val Leu Thr Asp
305                 310                 315                 320

Val Asp Pro Lys Thr Lys Val Met Gln Glu Glu Ile Phe Gly Pro Ile
                325                 330                 335

Leu Pro Ile Val Pro Val Lys Asn Val Asp Glu Ala Ile Asn Phe Ile
            340                 345                 350

Asn Glu Arg Glu Lys Pro Leu Ala Leu Tyr Val Phe Ser His Asn His
        355                 360                 365

Lys Val Pro Val Gly Trp Glu Leu Ile Thr Glu Asn Ile Val Leu Ile
```

370 375 380

Leu Phe Leu Ile Ser Val Pro Val Tyr
385 390

<210> 3904
<211> 182
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 884; "

<220>
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<223> /note="Gene Symbol: ALDH3A2; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member A2; "

<220>
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<223> /note="ENSP ID: ENSP00000486283"

<400> 3904
Met Glu Leu Glu Val Arg Arg Val Arg Gln Ala Phe Leu Ser Gly Arg
1 5 10 15

Ser Arg Pro Leu Arg Phe Arg Leu Gln Gln Leu Glu Ala Leu Arg Arg
20 25 30

Met Val Gln Glu Arg Glu Lys Asp Ile Leu Thr Ala Ile Ala Ala Asp
35 40 45

Leu Cys Lys Ser Glu Phe Asn Val Tyr Ser Gln Glu Val Ile Thr Val
50 55 60

Leu Gly Glu Ile Asp Phe Met Leu Glu Asn Leu Pro Glu Trp Val Thr
65 70 75 80

Ala Lys Pro Val Lys Lys Asn Val Leu Thr Met Leu Asp Glu Ala Tyr
85 90 95

Ile Gln Pro Gln Pro Leu Gly Val Val Leu Ile Ile Gly Ala Trp Asn
100 105 110

```
Tyr Pro Phe Val Leu Thr Ile Gln Pro Leu Ile Gly Ala Ile Ala Ala
        115                 120                 125

Gly Asn Ala Val Ile Ile Lys Pro Ser Glu Leu Ser Glu Asn Thr Ala
    130                 135                 140

Lys Ile Leu Ala Lys Leu Leu Pro Gln Tyr Leu Asp Gln Pro Phe Cys
145                 150                 155                 160

Ser Asn Ser Cys Asp Asp Pro Ile Lys Lys Asp Glu Met Glu Asp Ser
                165                 170                 175

Glu Met Ser Arg Ile Glu
            180


<210> 3905
<211> 97
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<220>
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<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000487353"

<400> 3905
Met Gln Glu Glu Ile Phe Gly Pro Ile Leu Pro Ile Val Pro Val Lys
1               5                   10                  15

Asn Val Asp Glu Ala Ile Asn Phe Ile Asn Glu Arg Glu Lys Pro Leu
            20                  25                  30

Ala Leu Tyr Val Phe Ser His Asn His Lys Leu Ile Lys Arg Met Ile
        35                  40                  45
```

```
Asp Glu Thr Ser Ser Gly Gly Val Thr Gly Asn Asp Val Ile Met His
    50                  55                  60

Phe Thr Leu Asn Ser Phe Pro Phe Gly Gly Val Gly Arg Ile Leu Leu
65                  70                  75                  80

Lys Asn Asp Pro Val Gln Pro Pro Ser Ala Ser Thr Glu Leu Phe Leu
                85                  90                  95

Phe
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<210> 3906
<211> 468
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 885; "

<220>
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<223> /note="Gene Symbol: ALDH3B1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member B1; "

<220>
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<223> /note="Uniprot ID: P43353; "

<220>
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<223> /note="ENSP ID: ENSP00000473990"

<400> 3906

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Met Asp Pro Leu Gly Asp Thr Leu Arg Arg Leu Arg Glu Ala Phe His
1               5                   10                  15

Ala Gly Arg Thr Arg Pro Ala Glu Phe Arg Ala Ala Gln Leu Gln Gly
            20                  25                  30

Leu Gly Arg Phe Leu Gln Glu Asn Lys Gln Leu Leu His Asp Ala Leu
        35                  40                  45
```

```
Ala Gln Asp Leu His Lys Ser Ala Phe Glu Ser Glu Val Ser Glu Val
    50                  55                  60

Ala Ile Ser Gln Gly Glu Val Thr Leu Ala Leu Arg Asn Leu Arg Ala
65                  70                  75                  80

Trp Met Lys Asp Glu Arg Val Pro Lys Asn Leu Ala Thr Gln Leu Asp
                85                  90                  95

Ser Ala Phe Ile Arg Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala
            100                 105                 110

Pro Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Pro Leu Val Gly Ala
        115                 120                 125

Leu Ala Ala Gly Asn Cys Val Val Leu Lys Pro Ser Glu Ile Ser Lys
    130                 135                 140

Asn Val Glu Lys Ile Leu Ala Glu Val Leu Pro Gln Tyr Val Asp Gln
145                 150                 155                 160

Ser Cys Phe Ala Val Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu
                165                 170                 175

Leu Glu His Arg Phe Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val
            180                 185                 190

Gly Lys Ile Val Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
        195                 200                 205

Leu Glu Leu Gly Gly Lys Asn Pro Cys Tyr Val Asp Asp Asn Cys Asp
    210                 215                 220

Pro Gln Thr Val Ala Asn Arg Val Ala Trp Phe Arg Tyr Phe Asn Ala
225                 230                 235                 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Val Leu Cys Ser Pro Glu Met
                245                 250                 255

Gln Glu Arg Leu Leu Pro Ala Leu Gln Ser Thr Ile Thr Arg Phe Tyr
            260                 265                 270

Gly Asp Asp Pro Gln Ser Ser Pro Asn Leu Gly Arg Ile Ile Asn Gln
```

275 280 285

Lys Gln Phe Gln Arg Leu Arg Ala Leu Leu Gly Cys Gly Arg Val Ala
290 295 300

Ile Gly Gly Gln Ser Asp Glu Ser Asp Arg Tyr Ile Ala Pro Thr Val
305 310 315 320

Leu Val Asp Val Gln Glu Met Glu Pro Val Met Gln Glu Glu Ile Phe
325 330 335

Gly Pro Ile Leu Pro Ile Val Asn Val Gln Ser Leu Asp Glu Ala Ile
340 345 350

Glu Phe Ile Asn Arg Arg Glu Lys Pro Leu Ala Leu Tyr Ala Phe Ser
355 360 365

Asn Ser Ser Gln Val Val Lys Arg Val Leu Thr Gln Thr Ser Ser Gly
370 375 380

Gly Phe Cys Gly Asn Asp Gly Phe Met His Met Thr Leu Ala Ser Leu
385 390 395 400

Pro Phe Gly Gly Val Gly Ala Ser Gly Met Gly Arg Tyr His Gly Lys
405 410 415

Phe Ser Phe Asp Thr Phe Ser His His Arg Ala Cys Leu Leu Arg Ser
420 425 430

Pro Gly Met Glu Lys Leu Asn Ala Leu Arg Tyr Pro Pro Gln Ser Pro
435 440 445

Arg Arg Leu Arg Met Leu Leu Val Ala Met Glu Ala Gln Gly Cys Ser
450 455 460

Cys Thr Leu Leu
465

<210> 3907
<211> 66
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 885; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3B1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member B1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477789"

<400> 3907
Leu Ala Leu Arg Asn Leu Arg Ala Trp Met Lys Asp Glu Arg Val Pro
1 5 10 15

Lys Asn Leu Ala Thr Gln Leu Asp Ser Ala Phe Ile Arg Lys Glu Pro
20 25 30

Phe Gly Leu Val Leu Ile Ile Ala Pro Trp Asn Tyr Pro Leu Asn Leu
35 40 45

Thr Leu Val Pro Leu Val Gly Ala Leu Ala Ala Gly Ser Ala Ser Glu
50 55 60

Ser Gly
65

<210> 3908
<211> 71
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 885; "

<220>
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<223> /note="Gene Symbol: ALDH3B1; "

<220>
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aldehyde dehydrogenase 3
family, member B1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478380"

<400> 3908
Gln Ser Asp Glu Ser Asp Arg Tyr Ile Ala Pro Thr Val Leu Val Asp
1   5   10   15

Val Gln Glu Met Glu Pro Val Met Gln Glu Glu Ile Phe Gly Pro Ile
            20   25   30

Leu Pro Ile Val Asn Val Gln Ser Leu Asp Glu Ala Ile Glu Phe Ile
        35   40   45

Asn Arg Arg Glu Lys Pro Leu Ala Leu Tyr Ala Phe Ser Asn Ser Ser
    50   55   60

Gln Glu Arg Ile Pro Gln Arg
65   70

<210> 3909
<211> 468
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 885; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3B1; "

<220>
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<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member B1; "

<220>
<221> source
<223> /note="Uniprot ID: P43353; "

<220>
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<223> /note="ENSP ID: ENSP00000478486"

<400> 3909
Met Asp Pro Leu Gly Asp Thr Leu Arg Arg Leu Arg Glu Ala Phe His
1   5   10   15

```
Ala Gly Arg Thr Arg Pro Ala Glu Phe Arg Ala Ala Gln Leu Gln Gly
            20                  25                  30

Leu Gly Arg Phe Leu Gln Glu Asn Lys Gln Leu Leu His Asp Ala Leu
        35                  40                  45

Ala Gln Asp Leu His Lys Ser Ala Phe Glu Ser Glu Val Ser Glu Val
    50                  55                  60

Ala Ile Ser Gln Gly Glu Val Thr Leu Ala Leu Arg Asn Leu Arg Ala
65                  70                  75                  80

Trp Met Lys Asp Glu Arg Val Pro Lys Asn Leu Ala Thr Gln Leu Asp
                85                  90                  95

Ser Ala Phe Ile Arg Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala
            100                 105                 110

Pro Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Pro Leu Val Gly Ala
        115                 120                 125

Leu Ala Ala Gly Asn Cys Val Val Leu Lys Pro Ser Glu Ile Ser Lys
    130                 135                 140

Asn Val Glu Lys Ile Leu Ala Glu Val Leu Pro Gln Tyr Val Asp Gln
145                 150                 155                 160

Ser Cys Phe Ala Val Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu
                165                 170                 175

Leu Glu His Arg Phe Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val
            180                 185                 190

Gly Lys Ile Val Met Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr
        195                 200                 205

Leu Glu Leu Gly Gly Lys Asn Pro Cys Tyr Val Asp Asp Asn Cys Asp
    210                 215                 220

Pro Gln Thr Val Ala Asn Arg Val Ala Trp Phe Arg Tyr Phe Asn Ala
225                 230                 235                 240

Gly Gln Thr Cys Val Ala Pro Asp Tyr Val Leu Cys Ser Pro Glu Met
```

```
                245                 250                 255

Gln Glu Arg Leu Leu Pro Ala Leu Gln Ser Thr Ile Thr Arg Phe Tyr
            260                 265                 270

Gly Asp Asp Pro Gln Ser Ser Pro Asn Leu Gly Arg Ile Ile Asn Gln
        275                 280                 285

Lys Gln Phe Gln Arg Leu Arg Ala Leu Leu Gly Cys Gly Arg Val Ala
    290                 295                 300

Ile Gly Gly Gln Ser Asp Glu Ser Asp Arg Tyr Ile Ala Pro Thr Val
305                 310                 315                 320

Leu Val Asp Val Gln Glu Met Glu Pro Val Met Gln Glu Glu Ile Phe
                325                 330                 335

Gly Pro Ile Leu Pro Ile Val Asn Val Gln Ser Leu Asp Glu Ala Ile
            340                 345                 350

Glu Phe Ile Asn Arg Arg Glu Lys Pro Leu Ala Leu Tyr Ala Phe Ser
        355                 360                 365

Asn Ser Ser Gln Val Val Lys Arg Val Leu Thr Gln Thr Ser Ser Gly
    370                 375                 380

Gly Phe Cys Gly Asn Asp Gly Phe Met His Met Thr Leu Ala Ser Leu
385                 390                 395                 400

Pro Phe Gly Gly Val Gly Ala Ser Gly Met Gly Arg Tyr His Gly Lys
                405                 410                 415

Phe Ser Phe Asp Thr Phe Ser His His Arg Ala Cys Leu Leu Arg Ser
            420                 425                 430

Pro Gly Met Glu Lys Leu Asn Ala Leu Arg Tyr Pro Pro Gln Ser Pro
        435                 440                 445

Arg Arg Leu Arg Met Leu Leu Val Ala Met Glu Ala Gln Gly Cys Ser
    450                 455                 460

Cys Thr Leu Leu
465
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<210> 3910
<211> 169
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 885; "

<220>
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<223> /note="Gene Symbol: ALDH3B1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 3
family, member B1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478632"

<400> 3910
Met Asp Pro Leu Gly Asp Thr Leu Arg Arg Leu Arg Glu Ala Phe His
1 5 10 15

Ala Gly Arg Thr Arg Pro Ala Glu Phe Arg Ala Ala Gln Leu Gln Gly
20 25 30

Leu Gly Arg Phe Leu Gln Glu Asn Lys Gln Leu Leu His Asp Ala Leu
35 40 45

Ala Gln Asp Leu His Lys Ser Ala Phe Glu Ser Glu Val Ser Glu Val
50 55 60

Ala Ile Ser Gln Gly Glu Val Thr Leu Ala Leu Arg Asn Leu Arg Ala
65 70 75 80

Trp Met Lys Asp Glu Arg Val Pro Lys Asn Leu Ala Thr Gln Leu Asp
85 90 95

Ser Ala Phe Ile Arg Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala
100 105 110

Pro Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Pro Leu Val Gly Ala
115 120 125

Leu Ala Ala Gly Asn Cys Val Val Leu Lys Pro Ser Glu Ile Ser Lys
    130   135   140

Asn Val Glu Lys Ile Leu Ala Glu Val Leu Pro Gln Tyr Val Asp Gln
145   150   155   160

Gly Ala Leu Val Trp Ala Arg Leu Leu
                165

<210> 3911
<211> 230
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 885; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3B1; "

<220>
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<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member B1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479948"

<400> 3911
Met Asp Pro Leu Gly Asp Thr Leu Arg Arg Leu Arg Glu Ala Phe His
1   5   10   15

Ala Gly Arg Thr Arg Pro Ala Glu Phe Arg Ala Ala Gln Leu Gln Gly
            20   25   30

Leu Gly Arg Phe Leu Gln Glu Asn Lys Gln Leu Leu His Asp Ala Leu
        35   40   45

Ala Gln Asp Leu His Lys Ser Ala Phe Glu Ser Glu Val Ser Glu Val
    50   55   60

Ala Ile Ser Gln Gly Glu Val Thr Leu Ala Leu Arg Asn Leu Arg Ala
65   70   75   80

```
Trp Met Lys Asp Glu Arg Val Pro Lys Asn Leu Ala Thr Gln Leu Asp
                85                  90                  95

Ser Ala Phe Ile Arg Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala
            100                 105                 110

Pro Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Pro Leu Val Gly Ala
        115                 120                 125

Leu Ala Ala Gly Asn Cys Val Val Leu Lys Pro Ser Glu Ile Ser Lys
    130                 135                 140

Asn Val Glu Lys Ile Leu Ala Glu Val Leu Pro Gln Tyr Val Asp Gln
145                 150                 155                 160

Ser Cys Phe Ala Val Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu
                165                 170                 175

Leu Glu His Arg Phe Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val
            180                 185                 190

Gly Lys Ile Val Met Thr Ala Ala Ala Lys His Pro Ser Lys Gln Arg
        195                 200                 205

Leu Pro Pro Pro Ser Trp Val Phe Pro Leu Pro Ala Ser Ala Ser Ser
    210                 215                 220

Leu Ser Arg Ser Gln Pro
225                 230


<210> 3912
<211> 431
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 885; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3B1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
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family, member B1; "

<220>
<221> source
<223> /note="Uniprot ID: P43353; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481604"

<400> 3912
Met Asp Pro Leu Gly Asp Thr Leu Arg Arg Leu Arg Glu Ala Phe His
1   5   10   15

Ala Gly Arg Thr Arg Pro Ala Glu Phe Arg Ala Ala Gln Leu Gln Gly
            20   25   30

Leu Gly Arg Phe Leu Gln Glu Asn Lys Gln Leu Leu His Asp Ala Leu
        35   40   45

Ala Gln Asp Leu His Lys Ala Thr Gln Leu Asp Ser Ala Phe Ile Arg
    50   55   60

Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala Pro Trp Asn Tyr Pro
65   70   75   80

Leu Asn Leu Thr Leu Val Pro Leu Val Gly Ala Leu Ala Ala Gly Asn
                85   90   95

Cys Val Val Leu Lys Pro Ser Glu Ile Ser Lys Asn Val Glu Lys Ile
            100   105   110

Leu Ala Glu Val Leu Pro Gln Tyr Val Asp Gln Ser Cys Phe Ala Val
        115   120   125

Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu Leu Glu His Arg Phe
    130   135   140

Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val Gly Lys Ile Val Met
145   150   155   160

Thr Ala Ala Ala Lys His Leu Thr Pro Val Thr Leu Glu Leu Gly Gly
                165   170   175

Lys Asn Pro Cys Tyr Val Asp Asp Asn Cys Asp Pro Gln Thr Val Ala
            180   185   190

```
Asn Arg Val Ala Trp Phe Arg Tyr Phe Asn Ala Gly Gln Thr Cys Val
        195                 200                 205

Ala Pro Asp Tyr Val Leu Cys Ser Pro Glu Met Gln Glu Arg Leu Leu
    210                 215                 220

Pro Ala Leu Gln Ser Thr Ile Thr Arg Phe Tyr Gly Asp Asp Pro Gln
225                 230                 235                 240

Ser Ser Pro Asn Leu Gly Arg Ile Ile Asn Gln Lys Gln Phe Gln Arg
                245                 250                 255

Leu Arg Ala Leu Leu Gly Cys Gly Arg Val Ala Ile Gly Gly Gln Ser
            260                 265                 270

Asp Glu Ser Asp Arg Tyr Ile Ala Pro Thr Val Leu Val Asp Val Gln
        275                 280                 285

Glu Met Glu Pro Val Met Gln Glu Glu Ile Phe Gly Pro Ile Leu Pro
    290                 295                 300

Ile Val Asn Val Gln Ser Leu Asp Glu Ala Ile Glu Phe Ile Asn Arg
305                 310                 315                 320

Arg Glu Lys Pro Leu Ala Leu Tyr Ala Phe Ser Asn Ser Ser Gln Val
                325                 330                 335

Val Lys Arg Val Leu Thr Gln Thr Ser Ser Gly Gly Phe Cys Gly Asn
            340                 345                 350

Asp Gly Phe Met His Met Thr Leu Ala Ser Leu Pro Phe Gly Gly Val
        355                 360                 365

Gly Ala Ser Gly Met Gly Arg Tyr His Gly Lys Phe Ser Phe Asp Thr
    370                 375                 380

Phe Ser His His Arg Ala Cys Leu Leu Arg Ser Pro Gly Met Glu Lys
385                 390                 395                 400

Leu Asn Ala Leu Arg Tyr Pro Pro Gln Ser Pro Arg Arg Leu Arg Met
                405                 410                 415
```

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Leu Leu Val Ala Met Glu Ala Gln Gly Cys Ser Cys Thr Leu Leu
            420                 425                 430


<210> 3913
<211> 211
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 885; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3B1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member B1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483988"

<400> 3913
Met Ala Glu Gly Ser Gly Ala Arg Val Phe Met Met Asp Pro Leu Gly
1               5                   10                  15


Asp Thr Leu Arg Arg Leu Arg Glu Ala Phe His Ala Gly Arg Thr Arg
            20                  25                  30


Pro Ala Glu Phe Arg Ala Ala Gln Leu Gln Gly Leu Gly Arg Phe Leu
        35                  40                  45


Gln Glu Asn Lys Gln Leu Leu His Asp Ala Leu Ala Gln Asp Leu His
    50                  55                  60


Lys Ser Ala Phe Glu Ser Glu Val Ser Glu Val Ala Ile Ser Gln Gly
65                  70                  75                  80


Glu Val Thr Leu Ala Leu Arg Asn Leu Arg Ala Trp Met Lys Asp Glu
                85                  90                  95


Arg Val Pro Lys Asn Leu Ala Thr Gln Leu Asp Ser Ala Phe Ile Arg
            100                 105                 110
```

```
Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala Pro Trp Asn Tyr Pro
        115                 120                 125


Leu Asn Leu Thr Leu Val Pro Leu Val Gly Ala Leu Ala Ala Gly Asn
    130                 135                 140


Cys Val Val Leu Lys Pro Ser Glu Ile Ser Lys Asn Val Glu Lys Ile
145                 150                 155                 160


Leu Ala Glu Val Leu Pro Gln Tyr Val Asp Gln Ser Cys Phe Ala Val
                165                 170                 175


Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu Leu Glu His Arg Phe
            180                 185                 190


Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val Gly Lys Ile Val Met
        195                 200                 205


Thr Ala Ala
    210


<210> 3914
<211> 351
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 885; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH3B1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member B1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484901"

<400> 3914
Met Asp Pro Leu Gly Asp Thr Leu Arg Arg Leu Arg Glu Ala Phe His
1               5                   10                  15


Ala Gly Arg Thr Arg Pro Ala Glu Phe Arg Ala Ala Gln Leu Gln Gly
```

```
            20                  25                  30

Leu Gly Arg Phe Leu Gln Glu Asn Lys Gln Leu Leu His Asp Ala Leu
        35                  40                  45

Ala Gln Asp Leu His Lys Ser Ala Phe Glu Ser Glu Val Ser Glu Val
    50                  55                  60

Ala Ile Ser Gln Gly Glu Val Thr Leu Ala Leu Arg Asn Leu Arg Ala
65                  70                  75                  80

Trp Met Lys Asp Glu Arg Val Pro Lys Asn Leu Ala Thr Gln Leu Asp
                85                  90                  95

Ser Ala Phe Ile Arg Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala
            100                 105                 110

Pro Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Pro Leu Val Gly Ala
        115                 120                 125

Leu Ala Ala Gly Asn Cys Val Val Leu Lys Pro Ser Glu Ile Ser Lys
    130                 135                 140

Asn Val Glu Lys Ile Leu Ala Glu Val Leu Pro Gln Tyr Val Asp Gln
145                 150                 155                 160

Ser Ser Pro Asn Leu Gly Arg Ile Ile Asn Gln Lys Gln Phe Gln Arg
                165                 170                 175

Leu Arg Ala Leu Leu Gly Cys Gly Arg Val Ala Ile Gly Gly Gln Ser
            180                 185                 190

Asp Glu Ser Asp Arg Tyr Ile Ala Pro Thr Val Leu Val Asp Val Gln
        195                 200                 205

Glu Met Glu Pro Val Met Gln Glu Glu Ile Phe Gly Pro Ile Leu Pro
    210                 215                 220

Ile Val Asn Val Gln Ser Leu Asp Glu Ala Ile Glu Phe Ile Asn Arg
225                 230                 235                 240

Arg Glu Lys Pro Leu Ala Leu Tyr Ala Phe Ser Asn Ser Ser Gln Val
                245                 250                 255
```

```
Val Lys Arg Val Leu Thr Gln Thr Ser Ser Gly Gly Phe Cys Gly Asn
            260                 265                 270

Asp Gly Phe Met His Met Thr Leu Ala Ser Leu Pro Phe Gly Gly Val
        275                 280                 285

Gly Ala Ser Gly Met Gly Arg Tyr His Gly Lys Phe Ser Phe Asp Thr
    290                 295                 300

Phe Ser His His Arg Ala Cys Leu Leu Arg Ser Pro Gly Met Glu Lys
305                 310                 315                 320

Leu Asn Ala Leu Arg Tyr Pro Pro Gln Ser Pro Arg Arg Leu Arg Met
                325                 330                 335

Leu Leu Val Ala Met Glu Ala Gln Gly Cys Ser Cys Thr Leu Leu
            340                 345                 350


<210> 3915
<211> 385
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ALDH3B2; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 3
      family, member B2; "

<220>
<221> source
<223> /note="Uniprot ID:  P48448; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000255084"

<400> 3915
Met Lys Asp Glu Pro Arg Ser Thr Asn Leu Phe Met Lys Leu Asp Ser
1               5                   10                  15
```

```
Val Phe Ile Trp Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala Pro
            20                  25                  30

Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Leu Leu Val Gly Ala Leu
        35                  40                  45

Ala Ala Gly Ser Cys Val Val Leu Lys Pro Ser Glu Ile Ser Gln Gly
    50                  55                  60

Thr Glu Lys Val Leu Ala Glu Val Leu Pro Gln Tyr Leu Asp Gln Ser
65                  70                  75                  80

Cys Phe Ala Val Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu Leu
                85                  90                  95

Glu His Lys Leu Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val Gly
            100                 105                 110

Lys Ile Val Met Thr Ala Ala Thr Lys His Leu Thr Pro Val Thr Leu
        115                 120                 125

Glu Leu Gly Gly Lys Asn Pro Cys Tyr Val Asp Asp Asn Cys Asp Pro
    130                 135                 140

Gln Thr Val Ala Asn Arg Val Ala Trp Phe Cys Tyr Phe Asn Ala Gly
145                 150                 155                 160

Gln Thr Cys Val Ala Pro Asp Tyr Val Leu Cys Ser Pro Glu Met Gln
                165                 170                 175

Glu Arg Leu Leu Pro Ala Leu Gln Ser Thr Ile Thr Arg Phe Tyr Gly
            180                 185                 190

Asp Asp Pro Gln Ser Ser Pro Asn Leu Gly His Ile Ile Asn Gln Lys
        195                 200                 205

Gln Phe Gln Arg Leu Arg Ala Leu Leu Gly Cys Ser Arg Val Ala Ile
    210                 215                 220

Gly Gly Gln Ser Asn Glu Ser Asp Arg Tyr Ile Ala Pro Thr Val Leu
225                 230                 235                 240
```

```
Val Asp Val Gln Glu Thr Glu Pro Val Met Gln Glu Glu Ile Phe Gly
                245                 250                 255

Pro Ile Leu Pro Ile Val Asn Val Gln Ser Val Asp Glu Ala Ile Lys
            260                 265                 270

Phe Ile Asn Arg Gln Glu Lys Pro Leu Ala Leu Tyr Ala Phe Ser Asn
        275                 280                 285

Ser Ser Gln Val Val Asn Gln Met Leu Glu Arg Thr Ser Ser Gly Ser
    290                 295                 300

Phe Gly Gly Asn Glu Gly Phe Thr Tyr Ile Ser Leu Leu Ser Val Pro
305                 310                 315                 320

Phe Gly Gly Val Gly His Ser Gly Met Gly Arg Tyr His Gly Lys Phe
                325                 330                 335

Thr Phe Asp Thr Phe Ser His His Arg Thr Cys Leu Leu Ala Pro Ser
            340                 345                 350

Gly Leu Glu Lys Leu Lys Glu Ile His Tyr Pro Pro Tyr Thr Asp Trp
        355                 360                 365

Asn Gln Gln Leu Leu Arg Trp Gly Met Gly Ser Gln Ser Cys Thr Leu
    370                 375                 380

Leu
385
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<210> 3916
<211> 385
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 3

family, member B2; "

<220>
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<223> /note="Uniprot ID: P48448; "

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<400> 3916
Met Lys Asp Glu Pro Arg Ser Thr Asn Leu Phe Met Lys Leu Asp Ser
1   5   10   15

Val Phe Ile Trp Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala Pro
            20   25   30

Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Leu Leu Val Gly Ala Leu
        35   40   45

Ala Ala Gly Ser Cys Val Val Leu Lys Pro Ser Glu Ile Ser Gln Gly
    50   55   60

Thr Glu Lys Val Leu Ala Glu Val Leu Pro Gln Tyr Leu Asp Gln Ser
65   70   75   80

Cys Phe Ala Val Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu Leu
                85   90   95

Glu His Lys Leu Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val Gly
            100   105   110

Lys Ile Val Met Thr Ala Ala Thr Lys His Leu Thr Pro Val Thr Leu
        115   120   125

Glu Leu Gly Gly Lys Asn Pro Cys Tyr Val Asp Asp Asn Cys Asp Pro
    130   135   140

Gln Thr Val Ala Asn Arg Val Ala Trp Phe Cys Tyr Phe Asn Ala Gly
145   150   155   160

Gln Thr Cys Val Ala Pro Asp Tyr Val Leu Cys Ser Pro Glu Met Gln
                165   170   175

Glu Arg Leu Leu Pro Ala Leu Gln Ser Thr Ile Thr Arg Phe Tyr Gly
            180   185   190

```
Asp Asp Pro Gln Ser Ser Pro Asn Leu Gly His Ile Ile Asn Gln Lys
        195                 200                 205

Gln Phe Gln Arg Leu Arg Ala Leu Leu Gly Cys Ser Arg Val Ala Ile
    210                 215                 220

Gly Gly Gln Ser Asn Glu Ser Asp Arg Tyr Ile Ala Pro Thr Val Leu
225                 230                 235                 240

Val Asp Val Gln Glu Thr Glu Pro Val Met Gln Glu Glu Ile Phe Gly
                245                 250                 255

Pro Ile Leu Pro Ile Val Asn Val Gln Ser Val Asp Glu Ala Ile Lys
            260                 265                 270

Phe Ile Asn Arg Gln Glu Lys Pro Leu Ala Leu Tyr Ala Phe Ser Asn
        275                 280                 285

Ser Ser Gln Val Val Asn Gln Met Leu Glu Arg Thr Ser Ser Gly Ser
    290                 295                 300

Phe Gly Gly Asn Glu Gly Phe Thr Tyr Ile Ser Leu Leu Ser Val Pro
305                 310                 315                 320

Phe Gly Gly Val Gly His Ser Gly Met Gly Arg Tyr His Gly Lys Phe
                325                 330                 335

Thr Phe Asp Thr Phe Ser His His Arg Thr Cys Leu Leu Ala Pro Ser
            340                 345                 350

Gly Leu Glu Lys Leu Lys Glu Ile His Tyr Pro Pro Tyr Thr Asp Trp
        355                 360                 365

Asn Gln Gln Leu Leu Arg Trp Gly Met Gly Ser Gln Ser Cys Thr Leu
    370                 375                 380

Leu
385
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<210> 3917
<211> 94
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<220>
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aldehyde dehydrogenase 3
family, member B2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433466"

<400> 3917
Met Lys Asp Glu Pro Arg Ser Thr Asn Leu Phe Met Lys Leu Asp Ser
1 5 10 15

Val Phe Ile Trp Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala Pro
20 25 30

Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Leu Leu Val Gly Ala Leu
35 40 45

Ala Ala Gly Ser Cys Val Val Leu Lys Pro Ser Glu Ile Ser Gln Gly
50 55 60

Thr Glu Lys Val Leu Ala Glu Val Leu Pro Gln Tyr Leu Asp Gln Ser
65 70 75 80

Cys Phe Ala Val Val Leu Gly Gly Pro Gln Glu Thr Gly Gln
85 90

<210> 3918
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH3B2; "

<220>
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aldehyde dehydrogenase 3
family, member B2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433718"

<400> 3918
Met Lys Asp Glu Pro Arg Ser Thr Asn Leu Phe Met Lys Leu Asp Ser
1 5 10 15

Val Phe Ile Trp Lys Glu Pro Phe Gly Leu Val Leu Ile Ile Ala Pro
20 25 30

Trp Asn Tyr Pro Leu Asn Leu Thr Leu Val Leu Leu Val Gly Ala Leu
35 40 45

Ala Ala Gly Ser Cys Val Val Leu Lys Pro Ser Glu Ile Ser Gln Gly
50 55 60

Thr Glu Lys Val Leu Ala Glu Val Leu Pro Gln Tyr Leu Asp Gln Ser
65 70 75 80

Cys Phe Ala Val Val Leu Gly Gly Pro Gln Glu Thr Gly Gln Leu Leu
85 90 95

Glu His Lys Leu Asp Tyr Ile Phe Phe Thr Gly Ser Pro Arg Val Gly
100 105 110

Lys Ile Val Met Thr Ala Ala Thr Lys His Leu Thr Pro Val Thr Leu
115 120 125

Glu Leu Gly Gly Lys Asn Pro Cys Tyr Val Asp Asp Asn Cys Asp Pro
130 135 140

Gln Thr Val
145

<210> 3919
<211> 128
<212> PRT
<213> Homo sapiens

<220>
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<220>
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family, member B2; "

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3919
Xaa Ser Asp Arg Tyr Ile Ala Pro Thr Val Leu Val Asp Val Gln Glu
1 5 10 15

Thr Glu Pro Val Met Gln Glu Glu Ile Phe Gly Pro Ile Leu Pro Ile
20 25 30

Val Asn Val Gln Ser Val Asp Glu Ala Ile Lys Phe Ile Asn Arg Gln
35 40 45

Glu Lys Pro Leu Ala Leu Pro Gln Trp Asp Gly Pro Val Pro Arg Gln
50 55 60

Val His Leu Arg His Leu Leu Pro Pro Pro His Leu Pro Ala Arg Pro
65 70 75 80

Leu Arg Pro Gly Glu Ile Lys Gly Asp Pro Leu Pro Thr Leu Tyr Arg
85 90 95

Leu Glu Pro Ala Ala Val Thr Leu Gly His Gly Leu Pro Glu Leu His
100 105 110

Pro Pro Val Ser Val Pro Pro Ala Ser Asn Gly Ser His Arg Glu Thr
115 120 125

<210> 3920
<211> 563
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 887; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH4A1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 4
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P30038; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000290597"

<400> 3920
Met Leu Leu Pro Ala Pro Ala Leu Arg Arg Ala Leu Leu Ser Arg Pro
1   5   10   15

Trp Thr Gly Ala Gly Leu Arg Trp Lys His Thr Ser Ser Leu Lys Val
            20   25   30

Ala Asn Glu Pro Val Leu Ala Phe Thr Gln Gly Ser Pro Glu Arg Asp
        35   40   45

Ala Leu Gln Lys Ala Leu Lys Asp Leu Lys Gly Arg Met Glu Ala Ile
    50   55   60

Pro Cys Val Val Gly Asp Glu Glu Val Trp Thr Ser Asp Val Gln Tyr
65   70   75   80

Gln Val Ser Pro Phe Asn His Gly His Lys Val Ala Lys Phe Cys Tyr
                85   90   95

Ala Asp Lys Ser Leu Leu Asn Lys Ala Ile Glu Ala Ala Leu Ala Ala
            100   105   110

Arg Lys Glu Trp Asp Leu Lys Pro Ile Ala Asp Arg Ala Gln Ile Phe

```
        115                 120                 125

Leu Lys Ala Ala Asp Met Leu Ser Gly Pro Arg Arg Ala Glu Ile Leu
    130                 135                 140

Ala Lys Thr Met Val Gly Gln Gly Lys Thr Val Ile Gln Ala Glu Ile
145                 150                 155                 160

Asp Ala Ala Ala Glu Leu Ile Asp Phe Phe Arg Phe Asn Ala Lys Tyr
                165                 170                 175

Ala Val Glu Leu Glu Gly Gln Gln Pro Ile Ser Val Pro Pro Ser Thr
            180                 185                 190

Asn Ser Thr Val Tyr Arg Gly Leu Glu Gly Phe Val Ala Ala Ile Ser
        195                 200                 205

Pro Phe Asn Phe Thr Ala Ile Gly Gly Asn Leu Ala Gly Ala Pro Ala
    210                 215                 220

Leu Met Gly Asn Val Val Leu Trp Lys Pro Ser Asp Thr Ala Met Leu
225                 230                 235                 240

Ala Ser Tyr Ala Val Tyr Arg Ile Leu Arg Glu Ala Gly Leu Pro Pro
                245                 250                 255

Asn Ile Ile Gln Phe Val Pro Ala Asp Gly Pro Leu Phe Gly Asp Thr
            260                 265                 270

Val Thr Ser Ser Glu His Leu Cys Gly Ile Asn Phe Thr Gly Ser Val
        275                 280                 285

Pro Thr Phe Lys His Leu Trp Lys Gln Val Ala Gln Asn Leu Asp Arg
    290                 295                 300

Phe His Thr Phe Pro Arg Leu Ala Gly Glu Cys Gly Gly Lys Asn Phe
305                 310                 315                 320

His Phe Val His Arg Ser Ala Asp Val Glu Ser Val Val Ser Gly Thr
                325                 330                 335

Leu Arg Ser Ala Phe Glu Tyr Gly Gly Gln Lys Cys Ser Ala Cys Ser
            340                 345                 350
```

```
Arg Leu Tyr Val Pro His Ser Leu Trp Pro Gln Ile Lys Gly Arg Leu
        355                 360                 365

Leu Glu Glu His Ser Arg Ile Lys Val Gly Asp Pro Ala Glu Asp Phe
    370                 375                 380

Gly Thr Phe Phe Ser Ala Val Ile Asp Ala Lys Ser Phe Ala Arg Ile
385                 390                 395                 400

Lys Lys Trp Leu Glu His Ala Arg Ser Ser Pro Ser Leu Thr Ile Leu
                405                 410                 415

Ala Gly Gly Lys Cys Asp Asp Ser Val Gly Tyr Phe Val Glu Pro Cys
            420                 425                 430

Ile Val Glu Ser Lys Asp Pro Gln Glu Pro Ile Met Lys Glu Glu Ile
        435                 440                 445

Phe Gly Pro Val Leu Ser Val Tyr Val Tyr Pro Asp Asp Lys Tyr Lys
    450                 455                 460

Glu Thr Leu Gln Leu Val Asp Ser Thr Thr Ser Tyr Gly Leu Thr Gly
465                 470                 475                 480

Ala Val Phe Ser Gln Asp Lys Asp Val Val Gln Glu Ala Thr Lys Val
                485                 490                 495

Leu Arg Asn Ala Ala Gly Asn Phe Tyr Ile Asn Asp Lys Ser Thr Gly
            500                 505                 510

Ser Ile Val Gly Gln Gln Pro Phe Gly Gly Ala Arg Ala Ser Gly Thr
        515                 520                 525

Asn Asp Lys Pro Gly Gly Pro His Tyr Ile Leu Arg Trp Thr Ser Pro
    530                 535                 540

Gln Val Ile Lys Glu Thr His Lys Pro Leu Gly Asp Trp Ser Tyr Ala
545                 550                 555                 560

Tyr Met Gln
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<210> 3921
<211> 563
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 887; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH4A1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 4
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P30038; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364490"

<400> 3921
Met Leu Leu Pro Ala Pro Ala Leu Arg Arg Ala Leu Leu Ser Arg Pro
1   5   10   15

Trp Thr Gly Ala Gly Leu Arg Trp Lys His Thr Ser Ser Leu Lys Val
            20   25   30

Ala Asn Glu Pro Val Leu Ala Phe Thr Gln Gly Ser Pro Glu Arg Asp
        35   40   45

Ala Leu Gln Lys Ala Leu Lys Asp Leu Lys Gly Arg Met Glu Ala Ile
    50   55   60

Pro Cys Val Val Gly Asp Glu Glu Val Trp Thr Ser Asp Val Gln Tyr
65   70   75   80

Gln Val Ser Pro Phe Asn His Gly His Lys Val Ala Lys Phe Cys Tyr
                85   90   95

Ala Asp Lys Ser Leu Leu Asn Lys Ala Ile Glu Ala Ala Leu Ala Ala
            100   105   110

```
Arg Lys Glu Trp Asp Leu Lys Pro Ile Ala Asp Arg Ala Gln Ile Phe
        115                 120                 125

Leu Lys Ala Ala Asp Met Leu Ser Gly Pro Arg Arg Ala Glu Ile Leu
    130                 135                 140

Ala Lys Thr Met Val Gly Gln Gly Lys Thr Val Ile Gln Ala Glu Ile
145                 150                 155                 160

Asp Ala Ala Ala Glu Leu Ile Asp Phe Phe Arg Phe Asn Ala Lys Tyr
                165                 170                 175

Ala Val Glu Leu Glu Gly Gln Gln Pro Ile Ser Val Pro Pro Ser Thr
            180                 185                 190

Asn Ser Thr Val Tyr Arg Gly Leu Glu Gly Phe Val Ala Ala Ile Ser
        195                 200                 205

Pro Phe Asn Phe Thr Ala Ile Gly Gly Asn Leu Ala Gly Ala Pro Ala
    210                 215                 220

Leu Met Gly Asn Val Val Leu Trp Lys Pro Ser Asp Thr Ala Met Leu
225                 230                 235                 240

Ala Ser Tyr Ala Val Tyr Arg Ile Leu Arg Glu Ala Gly Leu Pro Pro
                245                 250                 255

Asn Ile Ile Gln Phe Val Pro Ala Asp Gly Pro Leu Phe Gly Asp Thr
            260                 265                 270

Val Thr Ser Ser Glu His Leu Cys Gly Ile Asn Phe Thr Gly Ser Val
        275                 280                 285

Pro Thr Phe Lys His Leu Trp Lys Gln Val Ala Gln Asn Leu Asp Arg
    290                 295                 300

Phe His Thr Phe Pro Arg Leu Ala Gly Glu Cys Gly Gly Lys Asn Phe
305                 310                 315                 320

His Phe Val His Arg Ser Ala Asp Val Glu Ser Val Val Ser Gly Thr
                325                 330                 335

Leu Arg Ser Ala Phe Glu Tyr Gly Gly Gln Lys Cys Ser Ala Cys Ser
```

```
            340                 345                 350

Arg Leu Tyr Val Pro His Ser Leu Trp Pro Gln Ile Lys Gly Arg Leu
        355                 360                 365

Leu Glu Glu His Ser Arg Ile Lys Val Gly Asp Pro Ala Glu Asp Phe
    370                 375                 380

Gly Thr Phe Phe Ser Ala Val Ile Asp Ala Lys Ser Phe Ala Arg Ile
385                 390                 395                 400

Lys Lys Trp Leu Glu His Ala Arg Ser Ser Pro Ser Leu Thr Ile Leu
                405                 410                 415

Ala Gly Gly Lys Cys Asp Asp Ser Val Gly Tyr Phe Val Glu Pro Cys
            420                 425                 430

Ile Val Glu Ser Lys Asp Pro Gln Glu Pro Ile Met Lys Glu Glu Ile
        435                 440                 445

Phe Gly Pro Val Leu Ser Val Tyr Val Tyr Pro Asp Asp Lys Tyr Lys
    450                 455                 460

Glu Thr Leu Gln Leu Val Asp Ser Thr Thr Ser Tyr Gly Leu Thr Gly
465                 470                 475                 480

Ala Val Phe Ser Gln Asp Lys Asp Val Val Gln Glu Ala Thr Lys Val
                485                 490                 495

Leu Arg Asn Ala Ala Gly Asn Phe Tyr Ile Asn Asp Lys Ser Thr Gly
            500                 505                 510

Ser Ile Val Gly Gln Gln Pro Phe Gly Gly Ala Arg Ala Ser Gly Thr
        515                 520                 525

Asn Asp Lys Pro Gly Gly Pro His Tyr Ile Leu Arg Trp Thr Ser Pro
    530                 535                 540

Gln Val Ile Lys Glu Thr His Lys Pro Leu Gly Asp Trp Ser Tyr Ala
545                 550                 555                 560

Tyr Met Gln
```

<210> 3922
<211> 214
<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:
aldehyde dehydrogenase 4
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393209"

<400> 3922
Met Leu Leu Pro Ala Pro Ala Leu Arg Arg Ala Leu Leu Ser Arg Pro
1 5 10 15

Trp Thr Gly Ala Gly Leu Arg Trp Lys His Thr Ser Ser Leu Lys Val
20 25 30

Ala Asn Glu Pro Val Leu Ala Phe Thr Gln Gly Ser Pro Glu Arg Asp
35 40 45

Ala Leu Gln Lys Ala Leu Lys Asp Leu Lys Gly Arg Met Glu Ala Ile
50 55 60

Pro Cys Val Val Gly Asp Glu Glu Val Trp Thr Ser Asp Val Gln Tyr
65 70 75 80

Gln Val Ser Ser Leu Leu Asn Lys Ala Ile Glu Ala Ala Leu Ala Ala
85 90 95

Arg Lys Glu Trp Asp Leu Lys Pro Ile Ala Asp Arg Ala Gln Ile Phe
100 105 110

Leu Lys Ala Ala Asp Met Leu Ser Gly Pro Arg Arg Ala Glu Ile Leu
115 120 125

```
Ala Lys Thr Met Val Gly Gln Gly Lys Thr Val Ile Gln Ala Glu Ile
    130                 135                 140

Asp Ala Ala Ala Glu Leu Ile Asp Phe Phe Arg Phe Asn Ala Lys Tyr
145                 150                 155                 160

Ala Val Glu Leu Glu Gly Gln Gln Pro Ile Ser Val Pro Pro Ser Thr
                165                 170                 175

Asn Ser Thr Val Tyr Arg Gly Leu Glu Gly Phe Val Ala Ala Ile Ser
            180                 185                 190

Pro Phe Asn Phe Thr Ala Ile Gly Gly Asn Leu Ala Gly Ala Pro Ala
        195                 200                 205

Leu Met Val Arg Cys Gly
    210
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<210> 3923
<211> 503
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH4A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 4
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P30038; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442988"

<400> 3923

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Met Glu Ala Ile Pro Cys Val Val Gly Asp Glu Glu Val Trp Thr Ser
1               5                   10                  15
```

```
Asp Val Gln Tyr Gln Val Ser Pro Phe Asn His Gly His Lys Val Ala
            20                  25                  30

Lys Phe Cys Tyr Ala Asp Lys Ser Leu Leu Asn Lys Ala Ile Glu Ala
        35                  40                  45

Ala Leu Ala Ala Arg Lys Glu Trp Asp Leu Lys Pro Ile Ala Asp Arg
    50                  55                  60

Ala Gln Ile Phe Leu Lys Ala Ala Asp Met Leu Ser Gly Pro Arg Arg
65                  70                  75                  80

Ala Glu Ile Leu Ala Lys Thr Met Val Gly Gln Gly Lys Thr Val Ile
                85                  90                  95

Gln Ala Glu Ile Asp Ala Ala Ala Glu Leu Ile Asp Phe Phe Arg Phe
            100                 105                 110

Asn Ala Lys Tyr Ala Val Glu Leu Glu Gly Gln Gln Pro Ile Ser Val
        115                 120                 125

Pro Pro Ser Thr Asn Ser Thr Val Tyr Arg Gly Leu Glu Gly Phe Val
    130                 135                 140

Ala Ala Ile Ser Pro Phe Asn Phe Thr Ala Ile Gly Gly Asn Leu Ala
145                 150                 155                 160

Gly Ala Pro Ala Leu Met Gly Asn Val Val Leu Trp Lys Pro Ser Asp
                165                 170                 175

Thr Ala Met Leu Ala Ser Tyr Ala Val Tyr Arg Ile Leu Arg Glu Ala
            180                 185                 190

Gly Leu Pro Pro Asn Ile Ile Gln Phe Val Pro Ala Asp Gly Pro Leu
        195                 200                 205

Phe Gly Asp Thr Val Thr Ser Ser Glu His Leu Cys Gly Ile Asn Phe
    210                 215                 220

Thr Gly Ser Val Pro Thr Phe Lys His Leu Trp Lys Gln Val Ala Gln
225                 230                 235                 240

Asn Leu Asp Arg Phe His Thr Phe Pro Arg Leu Ala Gly Glu Cys Gly
```

```
                245                 250                 255

Gly Lys Asn Phe His Phe Val His Arg Ser Ala Asp Val Glu Ser Val
            260                 265                 270

Val Ser Gly Thr Leu Arg Ser Ala Phe Glu Tyr Gly Gly Gln Lys Cys
        275                 280                 285

Ser Ala Cys Ser Arg Leu Tyr Val Pro His Ser Leu Trp Pro Gln Ile
    290                 295                 300

Lys Gly Arg Leu Leu Glu Glu His Ser Arg Ile Lys Val Gly Asp Pro
305                 310                 315                 320

Ala Glu Asp Phe Gly Thr Phe Phe Ser Ala Val Ile Asp Ala Lys Ser
                325                 330                 335

Phe Ala Arg Ile Lys Lys Trp Leu Glu His Ala Arg Ser Ser Pro Ser
            340                 345                 350

Leu Thr Ile Leu Ala Gly Gly Lys Cys Asp Asp Ser Val Gly Tyr Phe
        355                 360                 365

Val Glu Pro Cys Ile Val Glu Ser Lys Asp Pro Gln Glu Pro Ile Met
    370                 375                 380

Lys Glu Glu Ile Phe Gly Pro Val Leu Ser Val Tyr Val Tyr Pro Asp
385                 390                 395                 400

Asp Lys Tyr Lys Glu Thr Leu Gln Leu Val Asp Ser Thr Thr Ser Tyr
                405                 410                 415

Gly Leu Thr Gly Ala Val Phe Ser Gln Asp Lys Asp Val Val Gln Glu
            420                 425                 430

Ala Thr Lys Val Leu Arg Asn Ala Ala Gly Asn Phe Tyr Ile Asn Asp
        435                 440                 445

Lys Ser Thr Gly Ser Ile Val Gly Gln Gln Pro Phe Gly Gly Ala Arg
    450                 455                 460

Ala Ser Gly Thr Asn Asp Lys Pro Gly Gly Pro His Tyr Ile Leu Arg
465                 470                 475                 480
```

```
Trp Thr Ser Pro Gln Val Ile Lys Glu Thr His Lys Pro Leu Gly Asp
                485                 490                 495


Trp Ser Tyr Ala Tyr Met Gln
            500


<210> 3924
<211> 512
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 887; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH4A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 4
      family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID:  P30038; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446071"

<400> 3924
Met Leu Leu Pro Ala Pro Ala Leu Arg Arg Ala Leu Leu Ser Arg Pro
1               5                   10                  15


Trp Thr Gly Ala Gly Leu Arg Trp Lys His Thr Ser Ser Leu Lys Val
            20                  25                  30


Ala Asn Glu Pro Val Leu Ala Phe Thr Gln Gly Ser Pro Glu Arg Asp
        35                  40                  45


Ala Leu Gln Lys Ala Leu Lys Asp Leu Lys Gly Arg Met Glu Ala Ile
    50                  55                  60


Pro Cys Val Val Gly Asp Glu Glu Val Trp Thr Ser Asp Val Gln Tyr
65                  70                  75                  80
```

```
Gln Val Ser Pro Phe Asn His Gly His Lys Val Ala Lys Phe Cys Tyr
                85                  90                  95

Ala Asp Lys Ser Leu Leu Asn Lys Ala Ile Glu Ala Ala Leu Ala Ala
            100                 105                 110

Arg Lys Glu Trp Asp Leu Lys Pro Ile Ala Asp Arg Ala Gln Ile Phe
        115                 120                 125

Leu Lys Ala Ala Asp Met Leu Ser Gly Pro Arg Arg Ala Glu Ile Leu
    130                 135                 140

Ala Lys Thr Met Val Gly Gln Gly Lys Thr Val Ile Gln Ala Glu Ile
145                 150                 155                 160

Asp Ala Ala Ala Glu Leu Ile Asp Phe Phe Arg Phe Asn Ala Lys Tyr
                165                 170                 175

Ala Val Glu Leu Glu Gly Gln Gln Pro Ile Ser Val Pro Pro Ser Thr
            180                 185                 190

Asn Ser Thr Val Tyr Arg Gly Leu Glu Gly Phe Val Ala Ala Ile Ser
        195                 200                 205

Pro Phe Asn Phe Thr Ala Ile Gly Gly Asn Leu Ala Gly Ala Pro Ala
    210                 215                 220

Leu Met Gly Asn Val Val Leu Trp Lys Pro Ser Asp Thr Ala Met Leu
225                 230                 235                 240

Ala Ser Tyr Ala Val Tyr Arg Ile Leu Arg Glu Ala Gly Leu Pro Pro
                245                 250                 255

Asn Ile Ile Gln Phe Val Pro Ala Asp Gly Pro Leu Phe Gly Asp Thr
            260                 265                 270

Val Thr Ser Ser Glu His Leu Cys Gly Ile Asn Phe Thr Gly Ser Val
        275                 280                 285

Pro Thr Phe Lys His Leu Trp Lys Gln Val Ala Gln Asn Leu Asp Arg
    290                 295                 300
```

```
Phe His Thr Phe Pro Arg Leu Ala Gly Glu Cys Gly Gly Lys Asn Phe
305                 310                 315                 320

His Phe Val His Arg Ser Ala Asp Val Glu Ser Val Val Ser Gly Thr
                325                 330                 335

Leu Arg Ser Ala Phe Glu Tyr Gly Gly Gln Lys Cys Ser Ala Cys Ser
            340                 345                 350

Arg Leu Tyr Val Pro His Ser Leu Trp Pro Gln Ile Lys Gly Arg Leu
        355                 360                 365

Leu Glu Glu His Ser Arg Ile Lys Val Gly Asp Pro Ala Glu Asp Phe
    370                 375                 380

Gly Thr Phe Phe Ser Ala Val Ile Asp Ala Lys Glu Ile Phe Gly Pro
385                 390                 395                 400

Val Leu Ser Val Tyr Val Tyr Pro Asp Asp Lys Tyr Lys Glu Thr Leu
                405                 410                 415

Gln Leu Val Asp Ser Thr Thr Ser Tyr Gly Leu Thr Gly Ala Val Phe
            420                 425                 430

Ser Gln Asp Lys Asp Val Val Gln Glu Ala Thr Lys Val Leu Arg Asn
        435                 440                 445

Ala Ala Gly Asn Phe Tyr Ile Asn Asp Lys Ser Thr Gly Ser Ile Val
    450                 455                 460

Gly Gln Gln Pro Phe Gly Gly Ala Arg Ala Ser Gly Thr Asn Asp Lys
465                 470                 475                 480

Pro Gly Gly Pro His Tyr Ile Leu Arg Trp Thr Ser Pro Gln Val Ile
                485                 490                 495

Lys Glu Thr His Lys Pro Leu Gly Asp Trp Ser Tyr Ala Tyr Met Gln
            500                 505                 510
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<210> 3925
<211> 548
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH5A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 5
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P51649; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000314649"

<400> 3925
Met Ala Thr Cys Ile Trp Leu Arg Ser Cys Gly Ala Arg Arg Leu Gly
1   5   10   15

Ser Thr Phe Pro Gly Cys Arg Leu Arg Pro Arg Ala Gly Gly Leu Val
            20   25   30

Pro Ala Ser Gly Pro Ala Pro Gly Pro Ala Gln Leu Arg Cys Tyr Ala
        35   40   45

Gly Arg Leu Ala Gly Leu Ser Ala Ala Leu Leu Arg Thr Asp Ser Phe
    50   55   60

Val Gly Gly Arg Trp Leu Pro Ala Ala Ala Thr Phe Pro Val Gln Asp
65   70   75   80

Pro Ala Ser Gly Ala Ala Leu Gly Met Val Ala Asp Cys Gly Val Arg
                85   90   95

Glu Ala Arg Ala Ala Val Arg Ala Ala Tyr Glu Ala Phe Cys Arg Trp
            100   105   110

Arg Glu Val Ser Ala Lys Glu Arg Ser Ser Leu Leu Arg Lys Trp Tyr
        115   120   125

Asn Leu Met Ile Gln Asn Lys Asp Asp Leu Ala Arg Ile Ile Thr Ala
    130   135   140

```
Glu Ser Gly Lys Pro Leu Lys Glu Ala His Gly Glu Ile Leu Tyr Ser
145                 150                 155                 160

Ala Phe Phe Leu Glu Trp Phe Ser Glu Glu Ala Arg Arg Val Tyr Gly
                165                 170                 175

Asp Ile Ile His Thr Pro Ala Lys Asp Arg Arg Ala Leu Val Leu Lys
            180                 185                 190

Gln Pro Ile Gly Val Ala Ala Val Ile Thr Pro Trp Asn Phe Pro Ser
        195                 200                 205

Ala Met Ile Thr Arg Lys Val Gly Ala Ala Leu Ala Ala Gly Cys Thr
    210                 215                 220

Val Val Val Lys Pro Ala Glu Asp Thr Pro Phe Ser Ala Leu Ala Leu
225                 230                 235                 240

Ala Glu Val Asn Gln Gly Phe Leu Leu Asp Leu Asp Pro Leu Leu Leu
                245                 250                 255

Ala Ser Gln Ala Gly Ile Pro Ser Gly Val Tyr Asn Val Ile Pro Cys
            260                 265                 270

Ser Arg Lys Asn Ala Lys Glu Val Gly Glu Ala Ile Cys Thr Asp Pro
        275                 280                 285

Leu Val Ser Lys Ile Ser Phe Thr Gly Ser Thr Thr Thr Gly Lys Ile
    290                 295                 300

Leu Leu His His Ala Ala Asn Ser Val Lys Arg Val Ser Met Glu Leu
305                 310                 315                 320

Gly Gly Leu Ala Pro Phe Ile Val Phe Asp Ser Ala Asn Val Asp Gln
                325                 330                 335

Ala Val Ala Gly Ala Met Ala Ser Lys Phe Arg Asn Thr Gly Gln Thr
            340                 345                 350

Cys Val Cys Ser Asn Gln Phe Leu Val Gln Arg Gly Ile His Asp Ala
        355                 360                 365
```

```
Phe Val Lys Ala Phe Ala Glu Ala Met Lys Lys Asn Leu Arg Val Gly
    370                 375                 380

Asn Gly Phe Glu Glu Gly Thr Thr Gln Gly Pro Leu Ile Asn Glu Lys
385                 390                 395                 400

Ala Val Glu Lys Val Glu Lys Gln Val Asn Asp Ala Val Ser Lys Gly
                405                 410                 415

Ala Thr Val Val Thr Gly Gly Lys Arg His Gln Leu Gly Lys Asn Phe
            420                 425                 430

Phe Glu Pro Thr Leu Leu Cys Asn Val Thr Gln Asp Met Leu Cys Thr
        435                 440                 445

His Glu Glu Thr Phe Gly Pro Leu Ala Pro Val Ile Lys Phe Asp Thr
    450                 455                 460

Glu Glu Glu Ala Ile Ala Ile Ala Asn Ala Ala Asp Val Gly Leu Ala
465                 470                 475                 480

Gly Tyr Phe Tyr Ser Gln Asp Pro Ala Gln Ile Trp Arg Val Ala Glu
                485                 490                 495

Gln Leu Glu Val Gly Met Val Gly Val Asn Glu Gly Leu Ile Ser Ser
            500                 505                 510

Val Glu Cys Pro Phe Gly Gly Val Lys Gln Ser Gly Leu Gly Arg Glu
        515                 520                 525

Gly Ser Lys Tyr Gly Ile Asp Glu Tyr Leu Glu Leu Lys Tyr Val Cys
    530                 535                 540

Tyr Gly Gly Leu
545
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<210> 3926
<211> 535
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 888; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH5A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 5
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: P51649; "

<220>
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<400> 3926
Met Ala Thr Cys Ile Trp Leu Arg Ser Cys Gly Ala Arg Arg Leu Gly
1   5   10   15

Ser Thr Phe Pro Gly Cys Arg Leu Arg Pro Arg Ala Gly Gly Leu Val
            20   25   30

Pro Ala Ser Gly Pro Ala Pro Gly Pro Ala Gln Leu Arg Cys Tyr Ala
        35   40   45

Gly Arg Leu Ala Gly Leu Ser Ala Ala Leu Leu Arg Thr Asp Ser Phe
    50   55   60

Val Gly Gly Arg Trp Leu Pro Ala Ala Ala Thr Phe Pro Val Gln Asp
65   70   75   80

Pro Ala Ser Gly Ala Ala Leu Gly Met Val Ala Asp Cys Gly Val Arg
                85   90   95

Glu Ala Arg Ala Ala Val Arg Ala Ala Tyr Glu Ala Phe Cys Arg Trp
            100   105   110

Arg Glu Val Ser Ala Lys Glu Arg Ser Ser Leu Leu Arg Lys Trp Tyr
        115   120   125

Asn Leu Met Ile Gln Asn Lys Asp Asp Leu Ala Arg Ile Ile Thr Ala
    130   135   140

Glu Ser Gly Lys Pro Leu Lys Glu Ala His Gly Glu Ile Leu Tyr Ser

145 150 155 160

Ala Phe Phe Leu Glu Trp Phe Ser Glu Glu Ala Arg Arg Val Tyr Gly
165 170 175

Asp Ile Ile His Thr Pro Ala Lys Asp Arg Arg Ala Leu Val Leu Lys
180 185 190

Gln Pro Ile Gly Val Ala Ala Val Ile Thr Pro Trp Asn Phe Pro Ser
195 200 205

Ala Met Ile Thr Arg Lys Val Gly Ala Ala Leu Ala Ala Gly Cys Thr
210 215 220

Val Val Val Lys Pro Ala Glu Asp Thr Pro Phe Ser Ala Leu Ala Leu
225 230 235 240

Ala Glu Leu Ala Ser Gln Ala Gly Ile Pro Ser Gly Val Tyr Asn Val
245 250 255

Ile Pro Cys Ser Arg Lys Asn Ala Lys Glu Val Gly Glu Ala Ile Cys
260 265 270

Thr Asp Pro Leu Val Ser Lys Ile Ser Phe Thr Gly Ser Thr Thr Thr
275 280 285

Gly Lys Ile Leu Leu His His Ala Ala Asn Ser Val Lys Arg Val Ser
290 295 300

Met Glu Leu Gly Gly Leu Ala Pro Phe Ile Val Phe Asp Ser Ala Asn
305 310 315 320

Val Asp Gln Ala Val Ala Gly Ala Met Ala Ser Lys Phe Arg Asn Thr
325 330 335

Gly Gln Thr Cys Val Cys Ser Asn Gln Phe Leu Val Gln Arg Gly Ile
340 345 350

His Asp Ala Phe Val Lys Ala Phe Ala Glu Ala Met Lys Lys Asn Leu
355 360 365

Arg Val Gly Asn Gly Phe Glu Glu Gly Thr Thr Gln Gly Pro Leu Ile
370 375 380

```
Asn Glu Lys Ala Val Glu Lys Val Glu Lys Gln Val Asn Asp Ala Val
385                 390                 395                 400

Ser Lys Gly Ala Thr Val Val Thr Gly Gly Lys Arg His Gln Leu Gly
                405                 410                 415

Lys Asn Phe Phe Glu Pro Thr Leu Leu Cys Asn Val Thr Gln Asp Met
            420                 425                 430

Leu Cys Thr His Glu Glu Thr Phe Gly Pro Leu Ala Pro Val Ile Lys
        435                 440                 445

Phe Asp Thr Glu Glu Glu Ala Ile Ala Ile Ala Asn Ala Ala Asp Val
    450                 455                 460

Gly Leu Ala Gly Tyr Phe Tyr Ser Gln Asp Pro Ala Gln Ile Trp Arg
465                 470                 475                 480

Val Ala Glu Gln Leu Glu Val Gly Met Val Gly Val Asn Glu Gly Leu
                485                 490                 495

Ile Ser Ser Val Glu Cys Pro Phe Gly Gly Val Lys Gln Ser Gly Leu
            500                 505                 510

Gly Arg Glu Gly Ser Lys Tyr Gly Ile Asp Glu Tyr Leu Glu Leu Lys
        515                 520                 525

Tyr Val Cys Tyr Gly Gly Leu
    530                 535


<210> 3927
<211> 507
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH5A1; "

<220>
<221> source
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<223> /note="Gene Name:
aldehyde dehydrogenase 5
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417687"

<400> 3927
Met Ala Thr Cys Ile Trp Leu Arg Ser Cys Gly Ala Arg Arg Leu Gly
1 5 10 15

Ser Thr Phe Pro Gly Cys Arg Leu Arg Pro Arg Ala Gly Gly Leu Val
20 25 30

Pro Ala Ser Gly Pro Ala Pro Gly Pro Ala Gln Leu Arg Cys Tyr Ala
35 40 45

Gly Arg Leu Ala Gly Leu Ser Ala Ala Leu Leu Arg Thr Asp Ser Phe
50 55 60

Val Gly Gly Arg Trp Leu Pro Ala Ala Ala Thr Phe Pro Val Gln Asp
65 70 75 80

Pro Ala Ser Gly Ala Ala Leu Gly Met Val Ala Asp Cys Gly Val Arg
85 90 95

Glu Ala Arg Ala Ala Val Arg Ala Ala Tyr Glu Ala Phe Cys Arg Trp
100 105 110

Arg Glu Val Ser Ala Lys Gly Lys Pro Leu Lys Glu Ala His Gly Glu
115 120 125

Ile Leu Tyr Ser Ala Phe Phe Leu Glu Trp Phe Ser Glu Glu Ala Arg
130 135 140

Arg Val Tyr Gly Asp Ile Ile His Thr Pro Ala Lys Asp Arg Arg Ala
145 150 155 160

Leu Val Leu Lys Gln Pro Ile Gly Val Ala Ala Val Ile Thr Pro Trp
165 170 175

Asn Phe Pro Ser Ala Met Ile Thr Arg Lys Val Gly Ala Ala Leu Ala
180 185 190

```
Ala Gly Cys Thr Val Val Val Lys Pro Ala Glu Asp Thr Pro Phe Ser
        195                 200                 205

Ala Leu Ala Leu Ala Glu Leu Ala Ser Gln Ala Gly Ile Pro Ser Gly
    210                 215                 220

Val Tyr Asn Val Ile Pro Cys Ser Arg Lys Asn Ala Lys Glu Val Gly
225                 230                 235                 240

Glu Ala Ile Cys Thr Asp Pro Leu Val Ser Lys Ile Ser Phe Thr Gly
                245                 250                 255

Ser Thr Thr Thr Gly Lys Ile Leu Leu His His Ala Ala Asn Ser Val
            260                 265                 270

Lys Arg Val Ser Met Glu Leu Gly Gly Leu Ala Pro Phe Ile Val Phe
        275                 280                 285

Asp Ser Ala Asn Val Asp Gln Ala Val Ala Gly Ala Met Ala Ser Lys
    290                 295                 300

Phe Arg Asn Thr Gly Gln Thr Cys Val Cys Ser Asn Gln Phe Leu Val
305                 310                 315                 320

Gln Arg Gly Ile His Asp Ala Phe Val Lys Ala Phe Ala Glu Ala Met
                325                 330                 335

Lys Lys Asn Leu Arg Val Gly Asn Gly Phe Glu Glu Gly Thr Thr Gln
            340                 345                 350

Gly Pro Leu Ile Asn Glu Lys Ala Val Glu Lys Val Glu Lys Gln Val
        355                 360                 365

Asn Asp Ala Val Ser Lys Gly Ala Thr Val Val Thr Gly Gly Lys Arg
    370                 375                 380

His Gln Leu Gly Lys Asn Phe Phe Glu Pro Thr Leu Leu Cys Asn Val
385                 390                 395                 400

Thr Gln Asp Met Leu Cys Thr His Glu Glu Thr Phe Gly Pro Leu Ala
                405                 410                 415

Pro Val Ile Lys Phe Asp Thr Glu Glu Glu Ala Ile Ala Ile Ala Asn
```

```
            420                 425                 430

Ala Ala Asp Val Gly Leu Ala Gly Tyr Phe Tyr Ser Gln Asp Pro Ala
        435                 440                 445

Gln Ile Trp Arg Val Ala Glu Gln Leu Glu Val Gly Met Val Gly Val
    450                 455                 460

Asn Glu Gly Leu Ile Ser Ser Val Glu Cys Pro Phe Gly Gly Val Lys
465                 470                 475                 480

Gln Ser Gly Leu Gly Arg Glu Gly Ser Lys Tyr Gly Ile Asp Glu Tyr
                485                 490                 495

Leu Glu Leu Lys Tyr Val Cys Tyr Gly Gly Leu
            500                 505


<210> 3928
<211> 522
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 889; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH6A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 6
      family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q02252; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000342564"

<400> 3928
Met Ala Ala Leu Leu Ala Ala Ala Ala Val Arg Ala Arg Ile Leu Gln
1               5                   10                  15

Val Ser Ser Lys Val Lys Ser Ser Pro Thr Trp Tyr Ser Ala Ser Ser
            20                  25                  30
```

```
Phe Ser Ser Ser Val Pro Thr Val Lys Leu Phe Ile Gly Gly Lys Phe
        35                  40                  45

Val Glu Ser Lys Ser Asp Lys Trp Ile Asp Ile His Asn Pro Ala Thr
    50                  55                  60

Asn Glu Val Ile Gly Arg Val Pro Gln Ala Thr Lys Ala Glu Met Asp
65                  70                  75                  80

Ala Ala Ile Ala Ser Cys Lys Arg Ala Phe Pro Ala Trp Ala Asp Thr
                85                  90                  95

Ser Val Leu Ser Arg Gln Gln Lys Glu Ile Ala Lys Leu Ile Thr Leu
            100                 105                 110

Glu Gln Gly Lys Thr Leu Ala Asp Ala Glu Gly Asp Val Phe Arg Gly
        115                 120                 125

Leu Gln Val Val Glu His Ala Cys Ser Val Thr Ser Leu Met Met Gly
    130                 135                 140

Glu Thr Met Pro Ser Ile Thr Lys Asp Met Asp Leu Tyr Ser Tyr Arg
145                 150                 155                 160

Leu Pro Leu Gly Val Cys Ala Gly Ile Ala Pro Phe Asn Phe Pro Ala
                165                 170                 175

Met Ile Pro Leu Trp Met Phe Pro Met Ala Met Val Cys Gly Asn Thr
            180                 185                 190

Phe Leu Met Lys Pro Ser Glu Arg Val Pro Gly Ala Thr Met Leu Leu
        195                 200                 205

Ala Lys Leu Leu Gln Asp Ser Gly Ala Pro Asp Gly Thr Leu Asn Ile
    210                 215                 220

Ile His Gly Gln His Glu Ala Val Asn Phe Ile Cys Asp His Pro Asp
225                 230                 235                 240

Ile Lys Ala Ile Ser Phe Val Gly Ser Asn Lys Ala Gly Glu Tyr Ile
                245                 250                 255
```

```
Phe Glu Arg Gly Ser Arg His Gly Lys Arg Val Gln Ala Asn Met Gly
            260                 265                 270

Ala Lys Asn His Gly Val Val Met Pro Asp Ala Asn Lys Glu Asn Thr
        275                 280                 285

Leu Asn Gln Leu Val Gly Ala Ala Phe Gly Ala Ala Gly Gln Arg Cys
    290                 295                 300

Met Ala Leu Ser Thr Ala Val Leu Val Gly Glu Ala Lys Lys Trp Leu
305                 310                 315                 320

Pro Glu Leu Val Glu His Ala Lys Asn Leu Arg Val Asn Ala Gly Asp
                325                 330                 335

Gln Pro Gly Ala Asp Leu Gly Pro Leu Ile Thr Pro Gln Ala Lys Glu
            340                 345                 350

Arg Val Cys Asn Leu Ile Asp Ser Gly Thr Lys Glu Gly Ala Ser Ile
        355                 360                 365

Leu Leu Asp Gly Arg Lys Ile Lys Val Lys Gly Tyr Glu Asn Gly Asn
    370                 375                 380

Phe Val Gly Pro Thr Ile Ile Ser Asn Val Lys Pro Asn Met Thr Cys
385                 390                 395                 400

Tyr Lys Glu Glu Ile Phe Gly Pro Val Leu Val Val Leu Glu Thr Glu
                405                 410                 415

Thr Leu Asp Glu Ala Ile Gln Ile Val Asn Asn Asn Pro Tyr Gly Asn
            420                 425                 430

Gly Thr Ala Ile Phe Thr Thr Asn Gly Ala Thr Ala Arg Lys Tyr Ala
        435                 440                 445

His Leu Val Asp Val Gly Gln Val Gly Val Asn Val Pro Ile Pro Val
    450                 455                 460

Pro Leu Pro Met Phe Ser Phe Thr Gly Ser Arg Ser Ser Phe Arg Gly
465                 470                 475                 480
```

```
Asp Thr Asn Phe Tyr Gly Lys Gln Gly Ile Gln Phe Tyr Thr Gln Leu
                485                 490                 495

Lys Thr Ile Thr Ser Gln Trp Lys Glu Glu Asp Ala Thr Leu Ser Ser
            500                 505                 510

Pro Ala Val Val Met Pro Thr Met Gly Arg
        515                 520


<210> 3929
<211> 535
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 889; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH6A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 6
      family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q02252; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450436"

<400> 3929
Met Ala Ala Leu Leu Ala Ala Ala Ala Val Arg Ala Arg Ile Leu Gln
1               5                   10                  15

Val Ser Ser Lys Val Lys Ser Ser Pro Thr Trp Tyr Ser Ala Ser Ser
            20                  25                  30

Phe Ser Ser Ser Val Pro Thr Val Lys Leu Phe Ile Gly Gly Lys Phe
        35                  40                  45

Val Glu Ser Lys Ser Asp Lys Trp Ile Asp Ile His Asn Pro Ala Thr
    50                  55                  60

Asn Glu Val Ile Gly Arg Val Pro Gln Ala Thr Lys Ala Glu Met Asp
```

65 70 75 80

Ala Ala Ile Ala Ser Cys Lys Arg Ala Phe Pro Ala Trp Ala Asp Thr
85 90 95

Ser Val Leu Ser Arg Gln Gln Val Leu Leu Arg Tyr Gln Gln Leu Ile
100 105 110

Lys Glu Asn Leu Lys Glu Ile Ala Lys Leu Ile Thr Leu Glu Gln Gly
115 120 125

Lys Thr Leu Ala Asp Ala Glu Gly Asp Val Phe Arg Gly Leu Gln Val
130 135 140

Val Glu His Ala Cys Ser Val Thr Ser Leu Met Met Gly Glu Thr Met
145 150 155 160

Pro Ser Ile Thr Lys Asp Met Asp Leu Tyr Ser Tyr Arg Leu Pro Leu
165 170 175

Gly Val Cys Ala Gly Ile Ala Pro Phe Asn Phe Pro Ala Met Ile Pro
180 185 190

Leu Trp Met Phe Pro Met Ala Met Val Cys Gly Asn Thr Phe Leu Met
195 200 205

Lys Pro Ser Glu Arg Val Pro Gly Ala Thr Met Leu Leu Ala Lys Leu
210 215 220

Leu Gln Asp Ser Gly Ala Pro Asp Gly Thr Leu Asn Ile Ile His Gly
225 230 235 240

Gln His Glu Ala Val Asn Phe Ile Cys Asp His Pro Asp Ile Lys Ala
245 250 255

Ile Ser Phe Val Gly Ser Asn Lys Ala Gly Glu Tyr Ile Phe Glu Arg
260 265 270

Gly Ser Arg His Gly Lys Arg Val Gln Ala Asn Met Gly Ala Lys Asn
275 280 285

His Gly Val Val Met Pro Asp Ala Asn Lys Glu Asn Thr Leu Asn Gln
290 295 300

```
Leu Val Gly Ala Ala Phe Gly Ala Ala Gly Gln Arg Cys Met Ala Leu
305                 310                 315                 320

Ser Thr Ala Val Leu Val Gly Glu Ala Lys Lys Trp Leu Pro Glu Leu
                325                 330                 335

Val Glu His Ala Lys Asn Leu Arg Val Asn Ala Gly Asp Gln Pro Gly
            340                 345                 350

Ala Asp Leu Gly Pro Leu Ile Thr Pro Gln Ala Lys Glu Arg Val Cys
        355                 360                 365

Asn Leu Ile Asp Ser Gly Thr Lys Glu Gly Ala Ser Ile Leu Leu Asp
    370                 375                 380

Gly Arg Lys Ile Lys Val Lys Gly Tyr Glu Asn Gly Asn Phe Val Gly
385                 390                 395                 400

Pro Thr Ile Ile Ser Asn Val Lys Pro Asn Met Thr Cys Tyr Lys Glu
                405                 410                 415

Glu Ile Phe Gly Pro Val Leu Val Val Leu Glu Thr Glu Thr Leu Asp
            420                 425                 430

Glu Ala Ile Gln Ile Val Asn Asn Asn Pro Tyr Gly Asn Gly Thr Ala
        435                 440                 445

Ile Phe Thr Thr Asn Gly Ala Thr Ala Arg Lys Tyr Ala His Leu Val
    450                 455                 460

Asp Val Gly Gln Val Gly Val Asn Val Pro Ile Pro Val Pro Leu Pro
465                 470                 475                 480

Met Phe Ser Phe Thr Gly Ser Arg Ser Ser Phe Arg Gly Asp Thr Asn
                485                 490                 495

Phe Tyr Gly Lys Gln Gly Ile Gln Phe Tyr Thr Gln Leu Lys Thr Ile
            500                 505                 510

Thr Ser Gln Trp Lys Glu Glu Asp Ala Thr Leu Ser Ser Pro Ala Val
        515                 520                 525
```

Val Met Pro Thr Met Gly Arg
530 535

<210> 3930
<211> 252
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ALDH6A1; "

<220>
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aldehyde dehydrogenase 6
family, member A1; "

<220>
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<223> /note="ENSP ID: ENSP00000452081"

<400> 3930
Met Gly Ala Lys Asn His Gly Val Val Met Pro Asp Ala Asn Lys Glu
1 5 10 15

Asn Thr Leu Asn Gln Leu Val Gly Ala Ala Phe Gly Ala Ala Gly Gln
20 25 30

Arg Cys Met Ala Leu Ser Thr Ala Val Leu Val Gly Glu Ala Lys Lys
35 40 45

Trp Leu Pro Glu Leu Val Glu His Ala Lys Asn Leu Arg Val Asn Ala
50 55 60

Gly Asp Gln Pro Gly Ala Asp Leu Gly Pro Leu Ile Thr Pro Gln Ala
65 70 75 80

Lys Glu Arg Val Cys Asn Leu Ile Asp Ser Gly Thr Lys Glu Gly Ala
85 90 95

Ser Ile Leu Leu Asp Gly Arg Lys Ile Lys Val Lys Gly Tyr Glu Asn
100 105 110

```
Gly Asn Phe Val Gly Pro Thr Ile Ile Ser Asn Val Lys Pro Asn Met
        115                 120                 125

Thr Cys Tyr Lys Glu Glu Ile Phe Gly Pro Val Leu Val Val Leu Glu
    130                 135                 140

Thr Glu Thr Leu Asp Glu Ala Ile Gln Ile Val Asn Asn Asn Pro Tyr
145                 150                 155                 160

Gly Asn Gly Thr Ala Ile Phe Thr Thr Asn Gly Ala Thr Ala Arg Lys
                165                 170                 175

Tyr Ala His Leu Val Asp Val Gly Gln Val Gly Val Asn Val Pro Ile
            180                 185                 190

Pro Val Pro Leu Pro Met Phe Ser Phe Thr Gly Ser Arg Ser Ser Phe
        195                 200                 205

Arg Gly Asp Thr Asn Phe Tyr Gly Lys Gln Gly Ile Gln Phe Tyr Thr
    210                 215                 220

Gln Leu Lys Thr Ile Thr Ser Gln Trp Lys Glu Glu Asp Ala Thr Leu
225                 230                 235                 240

Ser Ser Pro Ala Val Val Met Pro Thr Met Gly Arg
                245                 250


<210> 3931
<211> 539
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 890; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 7
      family, member A1; "

<220>
<221> source
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<223> /note="Uniprot ID: P49419; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000387123"

<400> 3931

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Met Trp Arg Leu Pro Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser
1               5                  10                  15

Lys Leu Ser Gly Pro Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu
            20                  25                  30

Leu Ile Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg
        35                  40                  45

Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu
    50                  55                  60

Val Ile Thr Thr Tyr Cys Pro Ala Asn Asn Glu Pro Ile Ala Arg Val
65                  70                  75                  80

Arg Gln Ala Ser Val Ala Asp Tyr Glu Glu Thr Val Lys Lys Ala Arg
                85                  90                  95

Glu Ala Trp Lys Ile Trp Ala Asp Ile Pro Ala Pro Lys Arg Gly Glu
            100                 105                 110

Ile Val Arg Gln Ile Gly Asp Ala Leu Arg Glu Lys Ile Gln Val Leu
        115                 120                 125

Gly Ser Leu Val Ser Leu Glu Met Gly Lys Ile Leu Val Glu Gly Val
    130                 135                 140

Gly Glu Val Gln Glu Tyr Val Asp Ile Cys Asp Tyr Ala Val Gly Leu
145                 150                 155                 160

Ser Arg Met Ile Gly Gly Pro Ile Leu Pro Ser Glu Arg Ser Gly His
                165                 170                 175

Ala Leu Ile Glu Gln Trp Asn Pro Val Gly Leu Val Gly Ile Ile Thr
            180                 185                 190

Ala Phe Asn Phe Pro Val Ala Val Tyr Gly Trp Asn Asn Ala Ile Ala
        195                 200                 205
```

```
Met Ile Cys Gly Asn Val Cys Leu Trp Lys Gly Ala Pro Thr Thr Ser
    210                 215                 220

Leu Ile Ser Val Ala Val Thr Lys Ile Ile Ala Lys Val Leu Glu Asp
225                 230                 235                 240

Asn Lys Leu Pro Gly Ala Ile Cys Ser Leu Thr Cys Gly Gly Ala Asp
                245                 250                 255

Ile Gly Thr Ala Met Ala Lys Asp Glu Arg Val Asn Leu Leu Ser Phe
            260                 265                 270

Thr Gly Ser Thr Gln Val Gly Lys Gln Val Gly Leu Met Val Gln Glu
        275                 280                 285

Arg Phe Gly Arg Ser Leu Leu Glu Leu Gly Gly Asn Asn Ala Ile Ile
    290                 295                 300

Ala Phe Glu Asp Ala Asp Leu Ser Leu Val Val Pro Ser Ala Leu Phe
305                 310                 315                 320

Ala Ala Val Gly Thr Ala Gly Gln Arg Cys Thr Thr Ala Arg Arg Leu
                325                 330                 335

Phe Ile His Glu Ser Ile His Asp Glu Val Val Asn Arg Leu Lys Lys
            340                 345                 350

Ala Tyr Ala Gln Ile Arg Val Gly Asn Pro Trp Asp Pro Asn Val Leu
        355                 360                 365

Tyr Gly Pro Leu His Thr Lys Gln Ala Val Ser Met Phe Leu Gly Ala
    370                 375                 380

Val Glu Glu Ala Lys Lys Glu Gly Gly Thr Val Val Tyr Gly Gly Lys
385                 390                 395                 400

Val Met Asp Arg Pro Gly Asn Tyr Val Glu Pro Thr Ile Val Thr Gly
                405                 410                 415

Leu Gly His Asp Ala Ser Ile Ala His Thr Glu Thr Phe Ala Pro Ile
            420                 425                 430
```

```
Leu Tyr Val Phe Lys Phe Lys Asn Glu Glu Glu Val Phe Ala Trp Asn
        435                 440                 445

Asn Glu Val Lys Gln Gly Leu Ser Ser Ser Ile Phe Thr Lys Asp Leu
    450                 455                 460

Gly Arg Ile Phe Arg Trp Leu Gly Pro Lys Gly Ser Asp Cys Gly Ile
465                 470                 475                 480

Val Asn Val Asn Ile Pro Thr Ser Gly Ala Glu Ile Gly Gly Ala Phe
                485                 490                 495

Gly Gly Glu Lys His Thr Gly Gly Gly Arg Glu Ser Gly Ser Asp Ala
            500                 505                 510

Trp Lys Gln Tyr Met Arg Arg Ser Thr Cys Thr Ile Asn Tyr Ser Lys
        515                 520                 525

Asp Leu Pro Leu Ala Gln Gly Ile Lys Phe Gln
    530                 535


<210> 3932
<211> 97
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 7
      family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403929"

<400> 3932
Met Trp Arg Leu Pro Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser
1               5                   10                  15
```

```
Lys Leu Ser Gly Pro Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu
            20                  25                  30

Leu Ile Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg
        35                  40                  45

Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu
    50                  55                  60

Phe Ala Ser Leu Asp Val Pro Lys Ser Cys His Val Val Arg Trp Ala
65                  70                  75                  80

Val Asn Ser Phe Glu Asp Trp Ile Phe Ser Ile Ser Pro Leu Pro Arg
                85                  90                  95

Ala
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<210> 3933
<211> 502
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 890; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
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<223> /note="Gene Name:
aldehyde dehydrogenase 7
family, member A1; "

<220>
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<223> /note="Uniprot ID: P49419; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414132"

<400> 3933

```
Met Gly Ser Pro Gly Arg Gly Ala Gly Leu Tyr Phe Ser Ser Ser Gln
1               5                   10                  15

Gly Leu Gly Leu Ile Pro Ser Pro Gly Leu Ser Met Trp Arg Leu Pro
```

```
            20                  25                  30

Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser Lys Leu Ser Gly Pro
        35                  40                  45

Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu Leu Ile Asn Gln Pro
    50                  55                  60

Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg Glu Glu Asn Glu Gly
65                  70                  75                  80

Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu Val Ile Thr Thr Tyr
                85                  90                  95

Cys Pro Ala Asn Asn Glu Pro Ile Ala Arg Val Arg Gln Ala Ser Val
            100                 105                 110

Ala Asp Tyr Glu Glu Thr Val Lys Lys Ala Arg Glu Ala Trp Lys Ile
        115                 120                 125

Trp Ala Asp Ile Pro Ala Pro Lys Arg Gly Glu Ile Val Arg Gln Ile
    130                 135                 140

Gly Asp Ala Leu Arg Glu Lys Ile Gln Val Leu Gly Ser Leu Val Ser
145                 150                 155                 160

Leu Glu Met Gly Lys Ile Leu Val Glu Gly Val Gly Glu Val Gln Glu
                165                 170                 175

Tyr Val Asp Ile Cys Asp Tyr Ala Val Gly Leu Ser Arg Met Ile Gly
            180                 185                 190

Gly Pro Ile Leu Pro Ser Glu Arg Ser Gly His Ala Leu Ile Glu Gln
        195                 200                 205

Trp Asn Pro Val Gly Leu Val Gly Ile Ile Thr Ala Phe Asn Phe Pro
    210                 215                 220

Val Ala Val Tyr Gly Trp Asn Asn Ala Ile Ala Met Ile Cys Gly Asn
225                 230                 235                 240

Val Cys Leu Trp Lys Gly Ala Pro Thr Thr Ser Leu Ile Ser Val Ala
                245                 250                 255
```

```
Val Thr Lys Ile Ile Ala Lys Val Leu Glu Asp Asn Lys Leu Pro Gly
            260                 265                 270

Ala Ile Cys Ser Leu Thr Cys Gly Gly Ala Asp Ile Gly Thr Ala Met
        275                 280                 285

Ala Lys Asp Glu Arg Val Asn Leu Leu Ser Phe Thr Gly Ser Thr Gln
    290                 295                 300

Val Gly Lys Gln Val Gly Leu Met Val Gln Glu Arg Phe Gly Arg Ser
305                 310                 315                 320

Leu Leu Glu Leu Gly Gly Asn Asn Ala Ile Ile Ala Phe Glu Asp Ala
                325                 330                 335

Asp Leu Ser Leu Val Val Pro Ser Ala Leu Phe Ala Ala Val Gly Thr
            340                 345                 350

Ala Gly Gln Arg Cys Thr Thr Ala Arg Arg Leu Val Met Asp Arg Pro
        355                 360                 365

Gly Asn Tyr Val Glu Pro Thr Ile Val Thr Gly Leu Gly His Asp Ala
    370                 375                 380

Ser Ile Ala His Thr Glu Thr Phe Ala Pro Ile Leu Tyr Val Phe Lys
385                 390                 395                 400

Phe Lys Asn Glu Glu Glu Val Phe Ala Trp Asn Asn Glu Val Lys Gln
                405                 410                 415

Gly Leu Ser Ser Ser Ile Phe Thr Lys Asp Leu Gly Arg Ile Phe Arg
            420                 425                 430

Trp Leu Gly Pro Lys Gly Ser Asp Cys Gly Ile Val Asn Val Asn Ile
        435                 440                 445

Pro Thr Ser Gly Ala Glu Ile Gly Gly Ala Phe Gly Gly Glu Lys His
    450                 455                 460

Thr Gly Gly Gly Arg Glu Ser Gly Ser Asp Ala Trp Lys Gln Tyr Met
465                 470                 475                 480
```

```
Arg Arg Ser Thr Cys Thr Ile Asn Tyr Ser Lys Asp Leu Pro Leu Ala
                485                 490                 495


Gln Gly Ile Lys Phe Gln
            500


<210> 3934
<211> 77
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 890; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 7
      family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414536"

<400> 3934
Met Trp Arg Leu Pro Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser
1               5                   10                  15


Lys Leu Ser Gly Pro Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu
            20                  25                  30


Leu Ile Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg
        35                  40                  45


Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu
    50                  55                  60


Gly Leu Arg Phe Leu Tyr Met Ile Ile Ile Leu Leu Phe
65                  70                  75


<210> 3935
<211> 239
<212> PRT
<213> Homo sapiens
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<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 7
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447388"

<400> 3935
Arg Leu Pro Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser Lys Leu
1 5 10 15

Ser Gly Pro Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu Leu Ile
20 25 30

Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg Glu Glu
35 40 45

Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu Val Ile
50 55 60

Thr Thr Tyr Cys Pro Ala Asn Asn Glu Pro Ile Ala Arg Val Arg Gln
65 70 75 80

Ala Ser Val Ala Asp Tyr Glu Glu Thr Val Lys Lys Ala Arg Glu Ala
85 90 95

Trp Lys Ile Trp Ala Asp Val Ser Leu Glu Met Gly Lys Ile Leu Val
100 105 110

Glu Gly Val Gly Glu Val Gln Glu Tyr Val Asp Ile Cys Asp Tyr Ala
115 120 125

Val Gly Leu Ser Arg Met Ile Gly Gly Pro Ile Leu Pro Ser Glu Arg
130 135 140

Ser Gly His Ala Leu Ile Glu Gln Trp Asn Pro Val Gly Leu Val Gly

145 150 155 160

Ile Ile Thr Ala Phe Asn Phe Pro Val Ala Val Tyr Gly Trp Asn Asn
165 170 175

Ala Ile Ala Met Ile Cys Gly Asn Val Cys Leu Trp Lys Gly Ala Pro
180 185 190

Thr Thr Ser Leu Ile Ser Val Ala Val Thr Lys Ile Ile Ala Lys Val
195 200 205

Leu Glu Asp Asn Lys Leu Pro Gly Ala Ile Cys Ser Leu Thr Cys Gly
210 215 220

Gly Ala Asp Ile Gly Thr Ala Met Ala Lys Asp Glu Arg Val Asn
225 230 235

<210> 3936
<211> 475
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
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aldehyde dehydrogenase 7
family, member A1; "

<220>
<221> source
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<400> 3936
Met Trp Arg Leu Pro Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser
1 5 10 15

Lys Leu Ser Gly Pro Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu
20 25 30

Leu Ile Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg
35 40 45

```
Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu
    50                  55                  60

Val Ile Thr Thr Tyr Cys Pro Ala Asn Asn Glu Pro Ile Ala Arg Val
65                  70                  75                  80

Arg Gln Ala Ser Val Ala Asp Tyr Glu Glu Thr Val Lys Lys Ala Arg
                85                  90                  95

Glu Ala Trp Lys Ile Trp Ala Asp Ile Pro Ala Pro Lys Arg Gly Glu
            100                 105                 110

Ile Val Arg Gln Ile Gly Asp Ala Leu Arg Glu Lys Ile Gln Val Leu
        115                 120                 125

Gly Ser Leu Val Ser Leu Glu Met Gly Lys Ile Leu Val Glu Gly Val
    130                 135                 140

Gly Glu Val Gln Glu Tyr Val Asp Ile Cys Asp Tyr Ala Val Gly Leu
145                 150                 155                 160

Ser Arg Met Ile Gly Gly Pro Ile Leu Pro Ser Glu Arg Ser Gly His
                165                 170                 175

Ala Leu Ile Glu Gln Trp Asn Pro Val Gly Leu Val Gly Ile Ile Thr
            180                 185                 190

Ala Phe Asn Phe Pro Val Ala Val Tyr Gly Trp Asn Asn Ala Ile Ala
        195                 200                 205

Met Ile Cys Gly Asn Val Cys Leu Trp Lys Gly Ala Pro Thr Thr Ser
    210                 215                 220

Leu Ile Ser Val Ala Val Thr Lys Ile Ile Ala Lys Val Leu Glu Asp
225                 230                 235                 240

Asn Lys Leu Pro Gly Ala Ile Cys Ser Leu Thr Cys Gly Gly Ala Asp
                245                 250                 255

Ile Gly Thr Ala Met Ala Lys Asp Glu Arg Val Asn Leu Leu Ser Phe
            260                 265                 270
```

```
Thr Gly Ser Thr Gln Val Gly Lys Gln Val Gly Leu Met Val Gln Glu
        275                 280                 285

Arg Phe Gly Arg Ser Leu Leu Glu Leu Gly Gly Asn Asn Ala Ile Ile
    290                 295                 300

Ala Phe Glu Asp Ala Asp Leu Ser Leu Val Val Pro Ser Ala Leu Phe
305                 310                 315                 320

Ala Ala Val Gly Thr Ala Gly Gln Arg Cys Thr Thr Ala Arg Arg Leu
                325                 330                 335

Val Met Asp Arg Pro Gly Asn Tyr Val Glu Pro Thr Ile Val Thr Gly
            340                 345                 350

Leu Gly His Asp Ala Ser Ile Ala His Thr Glu Thr Phe Ala Pro Ile
        355                 360                 365

Leu Tyr Val Phe Lys Phe Lys Asn Glu Glu Glu Val Phe Ala Trp Asn
    370                 375                 380

Asn Glu Val Lys Gln Gly Leu Ser Ser Ser Ile Phe Thr Lys Asp Leu
385                 390                 395                 400

Gly Arg Ile Phe Arg Trp Leu Gly Pro Lys Gly Ser Asp Cys Gly Ile
                405                 410                 415

Val Asn Val Asn Ile Pro Thr Ser Gly Ala Glu Ile Gly Gly Ala Phe
            420                 425                 430

Gly Gly Glu Lys His Thr Gly Gly Gly Arg Glu Ser Gly Ser Asp Ala
        435                 440                 445

Trp Lys Gln Tyr Met Arg Arg Ser Thr Cys Thr Ile Asn Tyr Ser Lys
    450                 455                 460

Asp Leu Pro Leu Ala Gln Gly Ile Lys Phe Gln
465                 470                 475
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<210> 3937
<211> 141
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 7
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449318"

<400> 3937
Met Trp Arg Leu Pro Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser
1 5 10 15

Lys Leu Ser Gly Pro Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu
20 25 30

Leu Ile Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg
35 40 45

Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu
50 55 60

Ile Pro Ala Pro Lys Arg Gly Glu Ile Val Arg Gln Ile Gly Asp Ala
65 70 75 80

Leu Arg Glu Lys Ile Gln Val Leu Gly Ser Leu Val Ser Leu Glu Met
85 90 95

Gly Lys Ile Leu Val Glu Gly Val Gly Glu Val Gln Glu Tyr Val Asp
100 105 110

Ile Cys Asp Tyr Ala Val Gly Leu Ser Arg Met Ile Gly Gly Pro Ile
115 120 125

Leu Pro Ser Glu Arg Ser Gly His Ala Leu Ile Glu Gln
130 135 140

<210> 3938

<211> 294
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 890; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 7
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487936"

<400> 3938

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Met Trp Arg Leu Pro Arg Ala Leu Cys Val His Ala Ala Lys Thr Ser
1               5                  10                  15

Lys Leu Ser Gly Pro Trp Ser Arg Pro Ala Ala Phe Met Ser Thr Leu
            20                  25                  30

Leu Ile Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu Leu Gly Leu Arg
        35                  40                  45

Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly Gly Arg Gly Glu
    50                  55                  60

Val Ile Thr Thr Tyr Cys Pro Ala Asn Asn Glu Pro Ile Ala Arg Val
65                  70                  75                  80

Arg Gln Ala Ser Val Ala Asp Tyr Glu Glu Thr Val Lys Lys Ala Arg
                85                  90                  95

Glu Ala Trp Lys Ile Trp Ala Asp Ile Pro Ala Pro Lys Arg Gly Glu
            100                 105                 110

Ile Val Arg Gln Ile Gly Asp Ala Leu Arg Glu Lys Ile Gln Val Leu
        115                 120                 125

Gly Ser Leu Val Ser Leu Glu Met Gly Lys Ile Leu Val Glu Gly Val
    130                 135                 140
```

```
Gly Glu Val Gln Glu Tyr Val Asp Ile Cys Asp Tyr Ala Val Gly Leu
145                 150                 155                 160

Ser Arg Met Ile Gly Gly Pro Ile Leu Pro Ser Glu Arg Ser Gly His
                165                 170                 175

Ala Leu Ile Glu Gln Trp Asn Pro Val Gly Leu Val Gly Ile Ile Thr
            180                 185                 190

Ala Phe Asn Phe Pro Val Ala Val Tyr Gly Trp Asn Asn Ala Ile Ala
        195                 200                 205

Met Ile Cys Gly Asn Val Cys Leu Trp Lys Gly Ala Pro Thr Thr Ser
    210                 215                 220

Leu Ile Ser Val Ala Val Thr Lys Ile Ile Ala Lys Val Leu Glu Asp
225                 230                 235                 240

Asn Lys Leu Pro Gly Ala Ile Cys Ser Leu Thr Cys Gly Gly Ala Asp
                245                 250                 255

Ile Gly Thr Ala Met Ala Lys Asp Glu Arg Val Asn Leu Leu Ser Phe
            260                 265                 270

Thr Gly Ser Thr Gln Val Gly Lys Gln Val Gly Leu Met Val Gln Glu
        275                 280                 285

Arg Phe Glu Gln Trp Lys
    290


<210> 3939
<211> 27
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 890; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
<221> source
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<223> /note="Gene Name:
aldehyde dehydrogenase 7
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487998"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3939
Xaa Glu Leu Gly Leu Arg Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser
1 5 10 15

Trp Gly Gly Arg Gly Glu Asp Leu Ala Met His
20 25

<210> 3940
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 890; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH7A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 7
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488032"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3940
Xaa Ser Thr Leu Leu Ile Asn Gln Pro Gln Tyr Ala Trp Leu Lys Glu
1 5 10 15

```
Leu Gly Leu Arg Glu Glu Asn Glu Gly Val Tyr Asn Gly Ser Trp Gly
            20                  25                  30

Gly Arg Gly Glu Asp Leu Ala Met His
        35                  40


<210> 3941
<211> 487
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 891; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH8A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 8
      family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9H2A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265605"

<400> 3941
Met Ala Gly Thr Asn Ala Leu Leu Met Leu Glu Asn Phe Ile Asp Gly
1               5                   10                  15

Lys Phe Leu Pro Cys Ser Ser Tyr Ile Asp Ser Tyr Asp Pro Ser Thr
            20                  25                  30

Gly Glu Val Tyr Cys Arg Val Pro Asn Ser Gly Lys Asp Glu Ile Glu
        35                  40                  45

Ala Ala Val Lys Ala Ala Arg Glu Ala Phe Pro Ser Trp Ser Ser Arg
    50                  55                  60

Ser Pro Gln Glu Arg Ser Arg Val Leu Asn Gln Val Ala Asp Leu Leu
65                  70                  75                  80

Glu Gln Ser Leu Glu Glu Phe Ala Gln Ala Glu Ser Lys Asp Gln Gly
```

```
                85                  90                  95

Lys Thr Leu Ala Leu Ala Arg Thr Met Asp Ile Pro Arg Ser Val Gln
            100                 105                 110

Asn Phe Arg Phe Phe Ala Ser Ser Ser Leu His His Thr Ser Glu Cys
        115                 120                 125

Thr Gln Met Asp His Leu Gly Cys Met His Tyr Thr Val Arg Ala Pro
    130                 135                 140

Val Gly Val Ala Gly Leu Ile Ser Pro Trp Asn Leu Pro Leu Tyr Leu
145                 150                 155                 160

Leu Thr Trp Lys Ile Ala Pro Ala Met Ala Ala Gly Asn Thr Val Ile
                165                 170                 175

Ala Lys Pro Ser Glu Leu Thr Ser Val Thr Ala Trp Met Leu Cys Lys
            180                 185                 190

Leu Leu Asp Lys Ala Gly Val Pro Pro Gly Val Val Asn Ile Val Phe
        195                 200                 205

Gly Thr Gly Pro Arg Val Gly Glu Ala Leu Val Ser His Pro Glu Val
    210                 215                 220

Pro Leu Ile Ser Phe Thr Gly Ser Gln Pro Thr Ala Glu Arg Ile Thr
225                 230                 235                 240

Gln Leu Ser Ala Pro His Cys Lys Lys Leu Ser Leu Glu Leu Gly Gly
                245                 250                 255

Lys Asn Pro Ala Ile Ile Phe Glu Asp Ala Asn Leu Asp Glu Cys Ile
            260                 265                 270

Pro Ala Thr Val Arg Ser Ser Phe Ala Asn Gln Gly Glu Ile Cys Leu
        275                 280                 285

Cys Thr Ser Arg Ile Phe Val Gln Lys Ser Ile Tyr Ser Glu Phe Leu
    290                 295                 300

Lys Arg Phe Val Glu Ala Thr Arg Lys Trp Lys Val Gly Ile Pro Ser
305                 310                 315                 320
```

```
Asp Pro Leu Val Ser Ile Gly Ala Leu Ile Ser Lys Ala His Leu Glu
                325                 330                 335

Lys Val Arg Ser Tyr Val Lys Arg Ala Leu Ala Glu Gly Ala Gln Ile
            340                 345                 350

Trp Cys Gly Glu Gly Val Asp Lys Leu Ser Leu Pro Ala Arg Asn Gln
        355                 360                 365

Ala Gly Tyr Phe Met Leu Pro Thr Val Ile Thr Asp Ile Lys Asp Glu
    370                 375                 380

Ser Cys Cys Met Thr Glu Glu Ile Phe Gly Pro Val Thr Cys Val Val
385                 390                 395                 400

Pro Phe Asp Ser Glu Glu Glu Val Ile Glu Arg Ala Asn Asn Val Lys
                405                 410                 415

Tyr Gly Leu Ala Ala Thr Val Trp Ser Ser Asn Val Gly Arg Val His
            420                 425                 430

Arg Val Ala Lys Lys Leu Gln Ser Gly Leu Val Trp Thr Asn Cys Trp
        435                 440                 445

Leu Ile Arg Glu Leu Asn Leu Pro Phe Gly Gly Met Lys Ser Ser Gly
    450                 455                 460

Ile Gly Arg Glu Gly Ala Lys Asp Ser Tyr Asp Phe Phe Thr Glu Ile
465                 470                 475                 480

Lys Thr Ile Thr Val Lys His
                485
```

<210> 3942
<211> 160
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source

<223> /note="Gene Symbol: ALDH8A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 8
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H2A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000325473"

<400> 3942

```
Met Ala Gly Thr Asn Ala Leu Leu Met Leu Glu Asn Phe Ile Asp Gly
1               5                  10                  15

Lys Phe Leu Pro Cys Ser Ser Tyr Ile Asp Ser Tyr Asp Pro Ser Thr
            20                  25                  30

Gly Glu Val Tyr Cys Arg Val Pro Asn Ser Gly Lys Asp Glu Ile Glu
        35                  40                  45

Ala Ala Val Lys Ala Ala Arg Glu Ala Phe Pro Ser Trp Ser Ser Arg
    50                  55                  60

Ser Pro Gln Glu Arg Ser Arg Val Leu Asn Gln Val Ala Asp Leu Leu
65                  70                  75                  80

Glu Gln Ser Leu Glu Glu Phe Ala Gln Ala Glu Ser Lys Asp Gln Gly
                85                  90                  95

Lys Thr Leu Ala Leu Ala Arg Thr Met Asp Ile Pro Arg Ser Val Gln
            100                 105                 110

Asn Phe Arg Phe Phe Ala Ser Ser Ser Leu His His Thr Ser Glu Cys
        115                 120                 125

Thr Gln Met Asp His Leu Gly Cys Met His Tyr Thr Val Arg Ala Pro
    130                 135                 140

Val Gly Val Val Pro Gly Tyr Thr Cys Arg Thr Cys Arg Phe Val Thr
145                 150                 155                 160
```

<210> 3943
<211> 433
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 891; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH8A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 8
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H2A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356819"

<400> 3943
Met Ala Gly Thr Asn Ala Leu Leu Met Leu Glu Asn Phe Ile Asp Gly
1   5   10   15

Lys Phe Leu Pro Cys Ser Ser Tyr Ile Asp Ser Tyr Asp Pro Ser Thr
            20   25   30

Gly Glu Val Tyr Cys Arg Val Pro Asn Ser Gly Lys Asp Glu Ile Glu
        35   40   45

Ala Ala Val Lys Ala Ala Arg Glu Ala Phe Pro Ser Trp Ser Ser Arg
    50   55   60

Ser Pro Gln Glu Arg Ser Arg Val Leu Asn Gln Val Ala Asp Leu Leu
65   70   75   80

Glu Gln Ser Leu Glu Glu Phe Ala Gln Ala Glu Ser Lys Asp Gln Gly
                85   90   95

Lys Thr Leu Ala Leu Ala Arg Thr Met Asp Ile Pro Arg Ser Val Gln
            100   105   110

Asn Phe Arg Phe Phe Ala Ser Ser Ser Leu His His Thr Ser Glu Cys

```
        115                 120                 125

Thr Gln Met Asp His Leu Gly Cys Met His Tyr Thr Val Arg Ala Pro
    130                 135                 140

Val Gly Val Ala Gly Leu Ile Ser Pro Trp Asn Leu Pro Leu Tyr Leu
145                 150                 155                 160

Leu Thr Trp Lys Ile Ala Pro Ala Met Ala Ala Gly Asn Thr Val Ile
                165                 170                 175

Ala Lys Pro Ser Glu Leu Thr Ser Val Thr Ala Trp Met Leu Cys Lys
            180                 185                 190

Leu Leu Asp Lys Ala Gly Val Pro Pro Gly Val Val Asn Ile Val Phe
        195                 200                 205

Gly Thr Gly Pro Arg Val Gly Glu Ala Leu Val Ser His Pro Glu Val
    210                 215                 220

Pro Leu Ile Ser Phe Thr Gly Ser Gln Pro Thr Ala Glu Arg Ile Thr
225                 230                 235                 240

Gln Leu Ser Ala Pro His Cys Lys Lys Leu Ser Leu Glu Leu Gly Gly
                245                 250                 255

Lys Asn Pro Ala Ile Ile Phe Glu Asp Ala Asn Leu Asp Glu Cys Ile
            260                 265                 270

Pro Ala Thr Val Arg Ser Ser Phe Ala Asn Gln Val Arg Ser Tyr Val
        275                 280                 285

Lys Arg Ala Leu Ala Glu Gly Ala Gln Ile Trp Cys Gly Glu Gly Val
    290                 295                 300

Asp Lys Leu Ser Leu Pro Ala Arg Asn Gln Ala Gly Tyr Phe Met Leu
305                 310                 315                 320

Pro Thr Val Ile Thr Asp Ile Lys Asp Glu Ser Cys Cys Met Thr Glu
                325                 330                 335

Glu Ile Phe Gly Pro Val Thr Cys Val Val Pro Phe Asp Ser Glu Glu
            340                 345                 350
```

```
Glu Val Ile Glu Arg Ala Asn Asn Val Lys Tyr Gly Leu Ala Ala Thr
        355                 360                 365

Val Trp Ser Ser Asn Val Gly Arg Val His Arg Val Ala Lys Lys Leu
    370                 375                 380

Gln Ser Gly Leu Val Trp Thr Asn Cys Trp Leu Ile Arg Glu Leu Asn
385                 390                 395                 400

Leu Pro Phe Gly Gly Met Lys Ser Ser Gly Ile Gly Arg Glu Gly Ala
                405                 410                 415

Lys Asp Ser Tyr Asp Phe Phe Thr Glu Ile Lys Thr Ile Thr Val Lys
            420                 425                 430

His
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<210> 3944
<211> 437
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALDH8A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 8
family, member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H2A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356821"

<400> 3944

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Met Ala Gly Thr Asn Ala Leu Leu Met Leu Glu Asn Phe Ile Asp Gly
1               5                   10                  15
```

```
Lys Phe Leu Pro Cys Ser Ser Tyr Ile Asp Ser Tyr Asp Pro Ser Thr
            20                  25                  30

Gly Glu Val Tyr Cys Arg Val Pro Asn Ser Gly Lys Asp Glu Ile Glu
        35                  40                  45

Ala Ala Val Lys Ala Ala Arg Glu Ala Phe Pro Ser Trp Ser Ser Arg
    50                  55                  60

Ser Pro Gln Glu Arg Ser Arg Val Leu Asn Gln Val Ala Asp Leu Leu
65                  70                  75                  80

Glu Gln Ser Leu Glu Glu Phe Ala Gln Ala Glu Ser Lys Asp Gln Gly
                85                  90                  95

Lys Thr Leu Ala Leu Ala Arg Thr Met Asp Ile Pro Arg Ser Val Gln
            100                 105                 110

Asn Phe Arg Phe Phe Ala Ser Ser Ser Leu His His Thr Ser Glu Cys
        115                 120                 125

Thr Gln Met Asp His Leu Gly Cys Met His Tyr Thr Val Arg Ala Pro
    130                 135                 140

Val Gly Val Gly Val Pro Pro Gly Val Val Asn Ile Val Phe Gly Thr
145                 150                 155                 160

Gly Pro Arg Val Gly Glu Ala Leu Val Ser His Pro Glu Val Pro Leu
                165                 170                 175

Ile Ser Phe Thr Gly Ser Gln Pro Thr Ala Glu Arg Ile Thr Gln Leu
            180                 185                 190

Ser Ala Pro His Cys Lys Lys Leu Ser Leu Glu Leu Gly Gly Lys Asn
        195                 200                 205

Pro Ala Ile Ile Phe Glu Asp Ala Asn Leu Asp Glu Cys Ile Pro Ala
    210                 215                 220

Thr Val Arg Ser Ser Phe Ala Asn Gln Gly Glu Ile Cys Leu Cys Thr
225                 230                 235                 240
```

```
Ser Arg Ile Phe Val Gln Lys Ser Ile Tyr Ser Glu Phe Leu Lys Arg
                245                 250                 255

Phe Val Glu Ala Thr Arg Lys Trp Lys Val Gly Ile Pro Ser Asp Pro
            260                 265                 270

Leu Val Ser Ile Gly Ala Leu Ile Ser Lys Ala His Leu Glu Lys Val
        275                 280                 285

Arg Ser Tyr Val Lys Arg Ala Leu Ala Glu Gly Ala Gln Ile Trp Cys
    290                 295                 300

Gly Glu Gly Val Asp Lys Leu Ser Leu Pro Ala Arg Asn Gln Ala Gly
305                 310                 315                 320

Tyr Phe Met Leu Pro Thr Val Ile Thr Asp Ile Lys Asp Glu Ser Cys
                325                 330                 335

Cys Met Thr Glu Glu Ile Phe Gly Pro Val Thr Cys Val Val Pro Phe
            340                 345                 350

Asp Ser Glu Glu Glu Val Ile Glu Arg Ala Asn Asn Val Lys Tyr Gly
        355                 360                 365

Leu Ala Ala Thr Val Trp Ser Ser Asn Val Gly Arg Val His Arg Val
    370                 375                 380

Ala Lys Lys Leu Gln Ser Gly Leu Val Trp Thr Asn Cys Trp Leu Ile
385                 390                 395                 400

Arg Glu Leu Asn Leu Pro Phe Gly Gly Met Lys Ser Ser Gly Ile Gly
                405                 410                 415

Arg Glu Gly Ala Lys Asp Ser Tyr Asp Phe Phe Thr Glu Ile Lys Thr
            420                 425                 430

Ile Thr Val Lys His
        435
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<210> 3945
<211> 15
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 891; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH8A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 8
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435297"

<400> 3945
Met Asp Ile Pro Arg Ser Val Gln Asn Phe Arg Phe Phe Ala Ser
1 5 10 15

<210> 3946
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 891; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH8A1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde dehydrogenase 8
family, member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437161"

<400> 3946
Glu Phe Leu Lys Arg Phe Val Glu Ala Thr Arg Lys Trp Lys Val Gly
1 5 10 15

Ile Pro Ser Asp Pro Leu Val Arg Ser Tyr Val Lys Arg Ala Leu Ala
20 25 30

Glu Gly Ala Gln Ile Trp Cys Gly Glu Gly Val Asp Lys Leu Ser Leu
35 40 45

```
Pro Ala Arg Asn Gln Ala Gly Tyr Phe Met Leu Pro Thr Val Ile Thr
    50                  55                  60

Asp Ile Lys Asp Glu Ser Cys Cys Met Thr Glu Glu Ile Phe Gly Pro
65                  70                  75                  80

Val Thr Cys Val Val Pro Phe Asp Ser Glu Glu Glu Val Ile Glu Arg
                85                  90                  95

Ala Asn Asn Val Lys Tyr Gly Leu Ala Ala Thr Val Trp Ser Ser Asn
            100                 105                 110

Val Gly Arg Val His Arg Val Ala Lys Lys Leu Gln Ser Gly Leu Val
        115                 120                 125

Trp Thr Asn Cys Trp Leu
    130


<210> 3947
<211> 518
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 892; "

<220>
<221> source
<223> /note="Gene Symbol: ALDH9A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde dehydrogenase 9
      family, member A1; "

<220>
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<223> /note="Uniprot ID:  P49189; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000346827"

<400> 3947
Met Phe Leu Arg Ala Gly Leu Ala Ala Leu Ser Pro Leu Leu Arg Ser
1               5                   10                  15
```

```
Leu Arg Pro Ser Pro Val Ala Ala Met Ser Thr Gly Thr Phe Val Val
            20                  25                  30

Ser Gln Pro Leu Asn Tyr Arg Gly Gly Ala Arg Val Glu Pro Ala Asp
        35                  40                  45

Ala Ser Gly Thr Glu Lys Ala Phe Glu Pro Ala Thr Gly Arg Val Ile
    50                  55                  60

Ala Thr Phe Thr Cys Ser Gly Glu Lys Glu Val Asn Leu Ala Val Gln
65                  70                  75                  80

Asn Ala Lys Ala Ala Phe Lys Ile Trp Ser Gln Lys Ser Gly Met Glu
                85                  90                  95

Arg Cys Arg Ile Leu Leu Glu Ala Ala Arg Ile Ile Arg Glu Arg Glu
            100                 105                 110

Asp Glu Ile Ala Thr Met Glu Cys Ile Asn Asn Gly Lys Ser Ile Phe
        115                 120                 125

Glu Ala Arg Leu Asp Ile Asp Ile Ser Trp Gln Cys Leu Glu Tyr Tyr
    130                 135                 140

Ala Gly Leu Ala Ala Ser Met Ala Gly Glu His Ile Gln Leu Pro Gly
145                 150                 155                 160

Gly Ser Phe Gly Tyr Thr Arg Arg Glu Pro Leu Gly Val Cys Val Gly
                165                 170                 175

Ile Gly Ala Trp Asn Tyr Pro Phe Gln Ile Ala Ser Trp Lys Ser Ala
            180                 185                 190

Pro Ala Leu Ala Cys Gly Asn Ala Met Val Phe Lys Pro Ser Pro Phe
        195                 200                 205

Thr Pro Val Ser Ala Leu Leu Leu Ala Glu Ile Tyr Ser Glu Ala Gly
    210                 215                 220

Val Pro Pro Gly Leu Phe Asn Val Val Gln Gly Gly Ala Ala Thr Gly
225                 230                 235                 240
```

```
Gln Phe Leu Cys Gln His Pro Asp Val Ala Lys Val Ser Phe Thr Gly
                245                 250                 255

Ser Val Pro Thr Gly Met Lys Ile Met Glu Met Ser Ala Lys Gly Ile
            260                 265                 270

Lys Pro Val Thr Leu Glu Leu Gly Gly Lys Ser Pro Leu Ile Ile Phe
        275                 280                 285

Ser Asp Cys Asp Met Asn Asn Ala Val Lys Gly Ala Leu Met Ala Asn
    290                 295                 300

Phe Leu Thr Gln Gly Gln Val Cys Cys Asn Gly Thr Arg Val Phe Val
305                 310                 315                 320

Gln Lys Glu Ile Leu Asp Lys Phe Thr Glu Glu Val Val Lys Gln Thr
                325                 330                 335

Gln Arg Ile Lys Ile Gly Asp Pro Leu Leu Glu Asp Thr Arg Met Gly
            340                 345                 350

Pro Leu Ile Asn Arg Pro His Leu Glu Arg Val Leu Gly Phe Val Lys
        355                 360                 365

Val Ala Lys Glu Gln Gly Ala Lys Val Leu Cys Gly Gly Asp Ile Tyr
    370                 375                 380

Val Pro Glu Asp Pro Lys Leu Lys Asp Gly Tyr Tyr Met Arg Pro Cys
385                 390                 395                 400

Val Leu Thr Asn Cys Arg Asp Asp Met Thr Cys Val Lys Glu Glu Ile
                405                 410                 415

Phe Gly Pro Val Met Ser Ile Leu Ser Phe Asp Thr Glu Ala Glu Val
            420                 425                 430

Leu Glu Arg Ala Asn Asp Thr Thr Phe Gly Leu Ala Ala Gly Val Phe
        435                 440                 445

Thr Arg Asp Ile Gln Arg Ala His Arg Val Val Ala Glu Leu Gln Ala
    450                 455                 460

Gly Thr Cys Phe Ile Asn Asn Tyr Asn Val Ser Pro Val Glu Leu Pro
```

```
465                 470                 475                 480

Phe Gly Gly Tyr Lys Lys Ser Gly Phe Gly Arg Glu Asn Gly Arg Val
                485                 490                 495

Thr Ile Glu Tyr Tyr Ser Gln Leu Lys Thr Val Cys Val Glu Met Gly
            500                 505                 510

Asp Val Glu Ser Ala Phe
        515


<210> 3948
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 893; "

<220>
<221> source
<223> /note="Gene Symbol: AOX1; "

<220>
<221> source
<223> /note="Gene Name:
      aldehyde oxidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260930"

<400> 3948
Ser Lys Asn Pro Lys Gly Thr Trp Lys Asp Trp Ala Gln Thr Ala Phe
1               5                   10                  15

Asp Glu Ser Ile Asn Leu Ser Ala Val Gly Tyr Phe Arg Gly Tyr Glu
            20                  25                  30

Ser Asp Met Asn Trp Glu Lys Gly Glu Gly Gln Pro Phe Glu Tyr Phe
        35                  40                  45

Val Tyr Gly Ala Ala Cys Ser Glu Val Glu Ile Asp Cys Leu Thr Gly
    50                  55                  60

Asp His Lys Asn Ile Arg Thr Asp Ile Val Met Asp Val Gly Cys Ser
65                  70                  75                  80
```

```
Ile Asn Pro Ala Ile Asp Ile Gly Gln Gly Ile Leu His Thr Arg Gly
                85                  90                  95

Pro Asp Gln Tyr Lys Ile Pro Ala Ile Cys Asp Met Pro Thr Glu Leu
            100                 105                 110

His Ile Ala Leu Leu Pro Pro Ser Gln Asn Ser Asn Thr Leu Tyr Ser
        115                 120                 125

Ser Lys Gly Leu Gly Glu Ser Gly Val Phe Leu Gly Cys Ser Val Phe
    130                 135                 140

Phe Ala Ile His Asp Ala Val Ser Ala Ala Arg Gln Glu Arg Gly Leu
145                 150                 155                 160

His Gly Pro Leu Thr Leu Asn Ser Pro Leu Thr Pro Glu Lys Ile Arg
                165                 170                 175

Met Ala Cys Glu Asp Lys Phe Thr Lys Met Ile Pro Arg Asp Glu Pro
            180                 185                 190

Gly
```

<210> 3949
<211> 1338
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 893; "

<220>
<221> source
<223> /note="Gene Symbol: AOX1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde oxidase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q06278; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000363832"

<400> 3949

```
Met Asp Arg Ala Ser Glu Leu Leu Phe Tyr Val Asn Gly Arg Lys Val
1               5                  10                  15

Ile Glu Lys Asn Val Asp Pro Glu Thr Met Leu Leu Pro Tyr Leu Arg
            20                  25                  30

Lys Lys Leu Arg Leu Thr Gly Thr Lys Tyr Gly Cys Gly Gly Gly Gly
        35                  40                  45

Cys Gly Ala Cys Thr Val Met Ile Ser Arg Tyr Asn Pro Ile Thr Lys
    50                  55                  60

Arg Ile Arg His His Pro Ala Asn Ala Cys Leu Ile Pro Ile Cys Ser
65                  70                  75                  80

Leu Tyr Gly Ala Ala Val Thr Thr Val Glu Gly Ile Gly Ser Thr His
                85                  90                  95

Thr Arg Ile His Pro Val Gln Glu Arg Ile Ala Lys Cys His Gly Thr
            100                 105                 110

Gln Cys Gly Phe Cys Thr Pro Gly Met Val Met Ser Ile Tyr Thr Leu
        115                 120                 125

Leu Arg Asn His Pro Glu Pro Thr Leu Asp Gln Leu Thr Asp Ala Leu
    130                 135                 140

Gly Gly Asn Leu Cys Arg Cys Thr Gly Tyr Arg Pro Ile Ile Asp Ala
145                 150                 155                 160

Cys Lys Thr Phe Cys Lys Thr Ser Gly Cys Cys Gln Ser Lys Glu Asn
                165                 170                 175

Gly Val Cys Cys Leu Asp Gln Gly Ile Asn Gly Leu Pro Glu Phe Glu
            180                 185                 190

Glu Gly Ser Lys Thr Ser Pro Lys Leu Phe Ala Glu Glu Glu Phe Leu
        195                 200                 205

Pro Leu Asp Pro Thr Gln Glu Leu Ile Phe Pro Pro Glu Leu Met Ile
    210                 215                 220
```

```
Met Ala Glu Lys Gln Ser Gln Arg Thr Arg Val Phe Gly Ser Glu Arg
225                 230                 235                 240

Met Met Trp Phe Ser Pro Val Thr Leu Lys Glu Leu Leu Glu Phe Lys
                245                 250                 255

Phe Lys Tyr Pro Gln Ala Pro Val Ile Met Gly Asn Thr Ser Val Gly
            260                 265                 270

Pro Glu Val Lys Phe Lys Gly Val Phe His Pro Val Ile Ile Ser Pro
        275                 280                 285

Asp Arg Ile Glu Glu Leu Ser Val Val Asn His Ala Tyr Asn Gly Leu
    290                 295                 300

Thr Leu Gly Ala Gly Leu Ser Leu Ala Gln Val Lys Asp Ile Leu Ala
305                 310                 315                 320

Asp Val Val Gln Lys Leu Pro Glu Glu Lys Thr Gln Met Tyr His Ala
                325                 330                 335

Leu Leu Lys His Leu Gly Thr Leu Ala Gly Ser Gln Ile Arg Asn Met
            340                 345                 350

Ala Ser Leu Gly Gly His Ile Ile Ser Arg His Pro Asp Ser Asp Leu
        355                 360                 365

Asn Pro Ile Leu Ala Val Gly Asn Cys Thr Leu Asn Leu Leu Ser Lys
    370                 375                 380

Glu Gly Lys Arg Gln Ile Pro Leu Asn Glu Gln Phe Leu Ser Lys Cys
385                 390                 395                 400

Pro Asn Ala Asp Leu Lys Pro Gln Glu Ile Leu Val Ser Val Asn Ile
                405                 410                 415

Pro Tyr Ser Arg Lys Trp Glu Phe Val Ser Ala Phe Arg Gln Ala Gln
            420                 425                 430

Arg Gln Glu Asn Ala Leu Ala Ile Val Asn Ser Gly Met Arg Val Phe
        435                 440                 445
```

```
Phe Gly Glu Gly Asp Gly Ile Ile Arg Glu Leu Cys Ile Ser Tyr Gly
    450                 455                 460

Gly Val Gly Pro Ala Thr Ile Cys Ala Lys Asn Ser Cys Gln Lys Leu
465                 470                 475                 480

Ile Gly Arg His Trp Asn Glu Gln Met Leu Asp Ile Ala Cys Arg Leu
                485                 490                 495

Ile Leu Asn Glu Val Ser Leu Leu Gly Ser Ala Pro Gly Gly Lys Val
            500                 505                 510

Glu Phe Lys Arg Thr Leu Ile Ile Ser Phe Leu Phe Lys Phe Tyr Leu
        515                 520                 525

Glu Val Ser Gln Ile Leu Lys Lys Met Asp Pro Val His Tyr Pro Ser
    530                 535                 540

Leu Ala Asp Lys Tyr Glu Ser Ala Leu Glu Asp Leu His Ser Lys His
545                 550                 555                 560

His Cys Ser Thr Leu Lys Tyr Gln Asn Ile Gly Pro Lys Gln His Pro
                565                 570                 575

Glu Asp Pro Ile Gly His Pro Ile Met His Leu Ser Gly Val Lys His
            580                 585                 590

Ala Thr Gly Glu Ala Ile Tyr Cys Asp Asp Met Pro Leu Val Asp Gln
        595                 600                 605

Glu Leu Phe Leu Thr Phe Val Thr Ser Ser Arg Ala His Ala Lys Ile
    610                 615                 620

Val Ser Ile Asp Leu Ser Glu Ala Leu Ser Met Pro Gly Val Val Asp
625                 630                 635                 640

Ile Met Thr Ala Glu His Leu Ser Asp Val Asn Ser Phe Cys Phe Phe
                645                 650                 655

Thr Glu Ala Glu Lys Phe Leu Ala Thr Asp Lys Val Phe Cys Val Gly
            660                 665                 670
```

```
Gln Leu Val Cys Ala Val Leu Ala Asp Ser Glu Val Gln Ala Lys Arg
        675                 680                 685

Ala Ala Lys Arg Val Lys Ile Val Tyr Gln Asp Leu Glu Pro Leu Ile
    690                 695                 700

Leu Thr Ile Glu Glu Ser Ile Gln His Asn Ser Ser Phe Lys Pro Glu
705                 710                 715                 720

Arg Lys Leu Glu Tyr Gly Asn Val Asp Glu Ala Phe Lys Val Val Asp
                725                 730                 735

Gln Ile Leu Glu Gly Glu Ile His Met Gly Gly Gln Glu His Phe Tyr
            740                 745                 750

Met Glu Thr Gln Ser Met Leu Val Val Pro Lys Gly Glu Asp Gln Glu
        755                 760                 765

Met Asp Val Tyr Val Ser Thr Gln Phe Pro Lys Tyr Ile Gln Asp Ile
    770                 775                 780

Val Ala Ser Thr Leu Lys Leu Pro Ala Asn Lys Val Met Cys His Val
785                 790                 795                 800

Arg Arg Val Gly Gly Ala Phe Gly Gly Lys Val Leu Lys Thr Gly Ile
                805                 810                 815

Ile Ala Ala Val Thr Ala Phe Ala Ala Asn Lys His Gly Arg Ala Val
            820                 825                 830

Arg Cys Val Leu Glu Arg Gly Glu Asp Met Leu Ile Thr Gly Gly Arg
        835                 840                 845

His Pro Tyr Leu Gly Lys Tyr Lys Ala Gly Phe Met Asn Asp Gly Arg
    850                 855                 860

Ile Leu Ala Leu Asp Met Glu His Tyr Ser Asn Ala Gly Ala Ser Leu
865                 870                 875                 880

Asp Glu Ser Leu Phe Val Ile Glu Met Gly Leu Leu Lys Met Asp Asn
                885                 890                 895

Ala Tyr Lys Phe Pro Asn Leu Arg Cys Arg Gly Trp Ala Cys Arg Thr
```

900 905 910

Asn Leu Pro Ser Asn Thr Ala Phe Arg Gly Phe Gly Phe Pro Gln Ala
915 920 925

Ala Leu Ile Thr Glu Ser Cys Ile Thr Glu Val Ala Ala Lys Cys Gly
930 935 940

Leu Ser Pro Glu Lys Val Arg Ile Ile Asn Met Tyr Lys Glu Ile Asp
945 950 955 960

Gln Thr Pro Tyr Lys Gln Glu Ile Asn Ala Lys Asn Leu Ile Gln Cys
965 970 975

Trp Arg Glu Cys Met Ala Met Ser Ser Tyr Ser Leu Arg Lys Val Ala
980 985 990

Val Glu Lys Phe Asn Ala Glu Asn Tyr Trp Lys Lys Lys Gly Leu
Ala
995 1000 1005

Met Val Pro Leu Lys Phe Pro Val Gly Leu Gly Ser Arg Ala Ala
1010 1015 1020

Gly Gln Ala Ala Ala Leu Val His Ile Tyr Leu Asp Gly Ser Val
1025 1030 1035

Leu Val Thr His Gly Gly Ile Glu Met Gly Gln Gly Val His Thr
1040 1045 1050

Lys Met Ile Gln Val Val Ser Arg Glu Leu Arg Met Pro Met Ser
1055 1060 1065

Asn Val His Leu Arg Gly Thr Ser Thr Glu Thr Val Pro Asn Ala
1070 1075 1080

Asn Ile Ser Gly Gly Ser Val Val Ala Asp Leu Asn Gly Leu Ala
1085 1090 1095

Val Lys Asp Ala Cys Gln Thr Leu Leu Lys Arg Leu Glu Pro Ile
1100 1105 1110

Ile Ser Lys Asn Pro Lys Gly Thr Trp Lys Asp Trp Ala Gln Thr

1115 1120 1125

Ala Phe Asp Glu Ser Ile Asn Leu Ser Ala Val Gly Tyr Phe Arg
1130 1135 1140

Gly Tyr Glu Ser Asp Met Asn Trp Glu Lys Gly Glu Gly Gln Pro
1145 1150 1155

Phe Glu Tyr Phe Val Tyr Gly Ala Ala Cys Ser Glu Val Glu Ile
1160 1165 1170

Asp Cys Leu Thr Gly Asp His Lys Asn Ile Arg Thr Asp Ile Val
1175 1180 1185

Met Asp Val Gly Cys Ser Ile Asn Pro Ala Ile Asp Ile Gly Gln
1190 1195 1200

Ile Glu Gly Ala Phe Ile Gln Gly Met Gly Leu Tyr Thr Ile Glu
1205 1210 1215

Glu Leu Asn Tyr Ser Pro Gln Gly Ile Leu His Thr Arg Gly Pro
1220 1225 1230

Asp Gln Tyr Lys Ile Pro Ala Ile Cys Asp Met Pro Thr Glu Leu
1235 1240 1245

His Ile Ala Leu Leu Pro Pro Ser Gln Asn Ser Asn Thr Leu Tyr
1250 1255 1260

Ser Ser Lys Gly Leu Gly Glu Ser Gly Val Phe Leu Gly Cys Ser
1265 1270 1275

Val Phe Phe Ala Ile His Asp Ala Val Ser Ala Ala Arg Gln Glu
1280 1285 1290

Arg Gly Leu His Gly Pro Leu Thr Leu Asn Ser Pro Leu Thr Pro
1295 1300 1305

Glu Lys Ile Arg Met Ala Cys Glu Asp Lys Phe Thr Lys Met Ile
1310 1315 1320

Pro Arg Asp Glu Pro Gly Ser Tyr Val Pro Trp Asn Val Pro Ile
1325 1330 1335

<210> 3950
<211> 151
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 893; "

<220>
<221> source
<223> /note="Gene Symbol: AOX1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde oxidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392485"

<400> 3950
Met Leu Leu Pro Tyr Leu Arg Lys Lys Leu Arg Leu Thr Gly Thr Lys
1 5 10 15

Tyr Gly Cys Gly Gly Gly Gly Cys Gly Ala Cys Thr Val Met Ile Ser
20 25 30

Arg Tyr Asn Pro Ile Thr Lys Arg Ile Arg His His Pro Ala Asn Ala
35 40 45

Cys Leu Ile Pro Ile Cys Ser Leu Tyr Gly Ala Ala Val Thr Thr Val
50 55 60

Glu Gly Ile Gly Ser Thr His Thr Arg Ile His Pro Val Gln Glu Arg
65 70 75 80

Ile Ala Lys Cys His Gly Thr Gln Cys Gly Phe Cys Thr Pro Gly Met
85 90 95

Val Met Ser Ile Tyr Thr Leu Leu Arg Asn His Pro Glu Pro Thr Leu
100 105 110

Asp Gln Leu Thr Asp Ala Leu Gly Gly Asn Leu Cys Arg Cys Thr Gly
115 120 125

Tyr Arg Pro Ile Ile Asp Ala Cys Lys Thr Phe Cys Lys Thr Ser Gly
130 135 140

Cys Cys Gln Ser Lys Glu Asn
145 150

<210> 3951
<211> 190
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 893; "

<220>
<221> source
<223> /note="Gene Symbol: AOX1; "

<220>
<221> source
<223> /note="Gene Name:
aldehyde oxidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413326"

<400> 3951
Tyr Phe Val Tyr Gly Ala Ala Cys Ser Glu Val Glu Ile Asp Cys Leu
1 5 10 15

Thr Gly Asp His Lys Asn Ile Arg Thr Asp Ile Val Met Asp Val Gly
20 25 30

Cys Ser Ile Asn Pro Ala Ile Asp Ile Gly Gln Ile Glu Gly Ala Phe
35 40 45

Ile Gln Gly Met Gly Leu Tyr Thr Ile Glu Glu Leu Asn Tyr Ser Pro
50 55 60

Gln Gly Ile Leu His Thr Arg Gly Pro Asp Gln Tyr Lys Ile Pro Ala
65 70 75 80

Ile Cys Asp Met Pro Thr Glu Leu His Ile Ala Leu Leu Pro Pro Ser
85 90 95

Gln Asn Ser Asn Thr Leu Tyr Ser Ser Lys Gly Leu Gly Glu Ser Gly
100 105 110

```
Val Phe Leu Gly Cys Ser Val Phe Phe Ala Ile His Asp Ala Val Ser
        115                 120                 125

Ala Ala Arg Gln Glu Arg Gly Leu His Gly Pro Leu Thr Leu Asn Ser
    130                 135                 140

Pro Leu Thr Pro Glu Lys Ile Arg Met Ala Cys Glu Asp Lys Phe Thr
145                 150                 155                 160

Lys Met Gly Ala His Gly Lys Pro Val Arg Arg Thr Gln Glu Gln Val
                165                 170                 175

Leu Leu Ile Gln Leu His Lys Ile Gln Pro Met Leu Val Ala
            180                 185                 190


<210> 3952
<211> 325
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 894; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member A1
      (aldehyde reductase); "

<220>
<221> source
<223> /note="Uniprot ID:  P14550; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312606"

<400> 3952
Met Ala Ala Ser Cys Val Leu Leu His Thr Gly Gln Lys Met Pro Leu
1               5                   10                  15

Ile Gly Leu Gly Thr Trp Lys Ser Glu Pro Gly Gln Val Lys Ala Ala
            20                  25                  30
```

```
Val Lys Tyr Ala Leu Ser Val Gly Tyr Arg His Ile Asp Cys Ala Ala
        35                  40                  45

Ile Tyr Gly Asn Glu Pro Glu Ile Gly Glu Ala Leu Lys Glu Asp Val
    50                  55                  60

Gly Pro Gly Lys Ala Val Pro Arg Glu Glu Leu Phe Val Thr Ser Lys
65                  70                  75                  80

Leu Trp Asn Thr Lys His His Pro Glu Asp Val Glu Pro Ala Leu Arg
                85                  90                  95

Lys Thr Leu Ala Asp Leu Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Met
            100                 105                 110

His Trp Pro Tyr Ala Phe Glu Arg Gly Asp Asn Pro Phe Pro Lys Asn
        115                 120                 125

Ala Asp Gly Thr Ile Cys Tyr Asp Ser Thr His Tyr Lys Glu Thr Trp
    130                 135                 140

Lys Ala Leu Glu Ala Leu Val Ala Lys Gly Leu Val Gln Ala Leu Gly
145                 150                 155                 160

Leu Ser Asn Phe Asn Ser Arg Gln Ile Asp Asp Ile Leu Ser Val Ala
                165                 170                 175

Ser Val Arg Pro Ala Val Leu Gln Val Glu Cys His Pro Tyr Leu Ala
            180                 185                 190

Gln Asn Glu Leu Ile Ala His Cys Gln Ala Arg Gly Leu Glu Val Thr
        195                 200                 205

Ala Tyr Ser Pro Leu Gly Ser Ser Asp Arg Ala Trp Arg Asp Pro Asp
    210                 215                 220

Glu Pro Val Leu Leu Glu Glu Pro Val Val Leu Ala Leu Ala Glu Lys
225                 230                 235                 240

Tyr Gly Arg Ser Pro Ala Gln Ile Leu Leu Arg Trp Gln Val Gln Arg
                245                 250                 255
```

```
Lys Val Ile Cys Ile Pro Lys Ser Ile Thr Pro Ser Arg Ile Leu Gln
            260                 265                 270

Asn Ile Lys Val Phe Asp Phe Thr Phe Ser Pro Glu Glu Met Lys Gln
        275                 280                 285

Leu Asn Ala Leu Asn Lys Asn Trp Arg Tyr Ile Val Pro Met Leu Thr
    290                 295                 300

Val Asp Gly Lys Arg Val Pro Arg Asp Ala Gly His Pro Leu Tyr Pro
305                 310                 315                 320

Phe Asn Asp Pro Tyr
                325


<210> 3953
<211> 325
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 894; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member A1
      (aldehyde reductase); "

<220>
<221> source
<223> /note="Uniprot ID:  P14550; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361140"

<400> 3953
Met Ala Ala Ser Cys Val Leu Leu His Thr Gly Gln Lys Met Pro Leu
1               5                   10                  15

Ile Gly Leu Gly Thr Trp Lys Ser Glu Pro Gly Gln Val Lys Ala Ala
            20                  25                  30
```

```
Val Lys Tyr Ala Leu Ser Val Gly Tyr Arg His Ile Asp Cys Ala Ala
        35                  40                  45

Ile Tyr Gly Asn Glu Pro Glu Ile Gly Glu Ala Leu Lys Glu Asp Val
    50                  55                  60

Gly Pro Gly Lys Ala Val Pro Arg Glu Glu Leu Phe Val Thr Ser Lys
65                  70                  75                  80

Leu Trp Asn Thr Lys His His Pro Glu Asp Val Glu Pro Ala Leu Arg
                85                  90                  95

Lys Thr Leu Ala Asp Leu Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Met
            100                 105                 110

His Trp Pro Tyr Ala Phe Glu Arg Gly Asp Asn Pro Phe Pro Lys Asn
        115                 120                 125

Ala Asp Gly Thr Ile Cys Tyr Asp Ser Thr His Tyr Lys Glu Thr Trp
    130                 135                 140

Lys Ala Leu Glu Ala Leu Val Ala Lys Gly Leu Val Gln Ala Leu Gly
145                 150                 155                 160

Leu Ser Asn Phe Asn Ser Arg Gln Ile Asp Asp Ile Leu Ser Val Ala
                165                 170                 175

Ser Val Arg Pro Ala Val Leu Gln Val Glu Cys His Pro Tyr Leu Ala
            180                 185                 190

Gln Asn Glu Leu Ile Ala His Cys Gln Ala Arg Gly Leu Glu Val Thr
        195                 200                 205

Ala Tyr Ser Pro Leu Gly Ser Ser Asp Arg Ala Trp Arg Asp Pro Asp
    210                 215                 220

Glu Pro Val Leu Leu Glu Glu Pro Val Val Leu Ala Leu Ala Glu Lys
225                 230                 235                 240

Tyr Gly Arg Ser Pro Ala Gln Ile Leu Leu Arg Trp Gln Val Gln Arg
                245                 250                 255
```

```
Lys Val Ile Cys Ile Pro Lys Ser Ile Thr Pro Ser Arg Ile Leu Gln
            260                 265                 270

Asn Ile Lys Val Phe Asp Phe Thr Phe Ser Pro Glu Glu Met Lys Gln
        275                 280                 285

Leu Asn Ala Leu Asn Lys Asn Trp Arg Tyr Ile Val Pro Met Leu Thr
    290                 295                 300

Val Asp Gly Lys Arg Val Pro Arg Asp Ala Gly His Pro Leu Tyr Pro
305                 310                 315                 320

Phe Asn Asp Pro Tyr
                325


<210> 3954
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 894; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1A1; "

<220>
<221> source
<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member A1
      (aldehyde reductase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398414"

<400> 3954
Met Ala Ala Ser Cys Val Leu Leu His Thr Gly Gln Lys Met Pro Leu
1               5                   10                  15

Ile Gly Leu Gly Thr Trp Lys Ser Glu Pro Gly Gln Val Lys Ala Ala
            20                  25                  30

Val Lys Tyr Ala Leu Ser Val Gly Tyr Arg His Ile Asp Cys Ala Ala
        35                  40                  45
```

```
Ile Tyr Gly Asn Glu Pro Glu Ile Gly Glu Ala Leu Lys Glu Asp Val
    50                  55                  60

Gly Pro Gly Lys Ala Val Pro Arg Glu Glu Leu Phe Val Thr Ser Lys
65                  70                  75                  80

Leu Trp Asn Thr Lys His His Pro Glu Asp Val Glu Pro Ala Leu Arg
                85                  90                  95

Lys Thr Leu Ala Asp Leu Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Met
            100                 105                 110

His Trp Pro Tyr Ala Phe Glu Arg Gly Asp Asn Pro Phe Pro Lys Asn
        115                 120                 125

Ala Asp Gly Thr Ile Cys Tyr Asp Ser Thr His Tyr Lys Glu Thr Trp
    130                 135                 140

Lys Ala Leu
145
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<210> 3955
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 894; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1A1; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member A1
(aldehyde reductase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476713"

<400> 3955

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Met Ala Ala Ser Cys Val Leu Leu His Thr Gly Gln Lys Met Pro Leu
1               5                   10                  15
```

```
Ile Gly Leu Gly Thr Trp Lys Ser Glu Pro Gly Gln Val Lys Ala Ala
            20                  25                  30

Val Lys Tyr Ala Leu Ser Val Gly Tyr Arg His Ile Asp Cys Ala Ala
        35                  40                  45

Ile Tyr Gly Asn Glu Pro Glu Ile Gly Glu Ala Leu Lys Glu Asp Val
    50                  55                  60

Gly Pro Gly Lys Ala Val Pro Arg Glu Glu Leu Phe Val Thr Ser Lys
65                  70                  75                  80

Leu Trp Asn Thr Lys His His Pro Glu Asp Val Glu Pro Ala Leu Arg
                85                  90                  95

Lys Thr Leu Ala Asp Leu Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Met
            100                 105                 110

His Trp Pro Tyr Ala Phe Glu
        115


<210> 3956
<211> 140
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 894; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1A1; "

<220>
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<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member A1
      (aldehyde reductase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476978"

<400> 3956
Met Ala Ala Ser Cys Val Leu Leu His Thr Gly Gln Lys Met Pro Leu
1               5                   10                  15
```

```
Ile Gly Leu Gly Thr Trp Lys Ser Glu Pro Gly Gln Val Lys Ala Ala
            20                  25                  30

Val Lys Tyr Ala Leu Ser Val Gly Tyr Arg His Ile Asp Cys Ala Ala
        35                  40                  45

Ile Tyr Gly Asn Glu Pro Glu Ile Gly Glu Ala Leu Lys Glu Asp Val
    50                  55                  60

Gly Pro Gly Lys Ala Val Pro Arg Glu Glu Leu Phe Val Thr Ser Lys
65                  70                  75                  80

Leu Trp Asn Thr Lys His His Pro Glu Asp Val Glu Pro Ala Leu Arg
                85                  90                  95

Lys Thr Leu Ala Asp Leu Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Met
            100                 105                 110

His Trp Pro Tyr Ala Phe Glu Trp Gly Cys Leu Ser Leu Arg Arg Gly
        115                 120                 125

Asp Asn Pro Phe Pro Lys Asn Ala Asp Gly Thr Ile
    130                 135                 140


<210> 3957
<211> 325
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AKR1A1; "

<220>
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      member A1
      (aldehyde reductase); "

<220>
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<220>
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<221> source
<223> /note="ENSP ID: ENSP00000480713"

<400> 3957
Met Ala Ala Ser Cys Val Leu Leu His Thr Gly Gln Lys Met Pro Leu
1 5 10 15

Ile Gly Leu Gly Thr Trp Lys Ser Glu Pro Gly Gln Val Lys Ala Ala
20 25 30

Val Lys Tyr Ala Leu Ser Val Gly Tyr Arg His Ile Asp Cys Ala Ala
35 40 45

Ile Tyr Gly Asn Glu Pro Glu Ile Gly Glu Ala Leu Lys Glu Asp Val
50 55 60

Gly Pro Gly Lys Ala Val Pro Arg Glu Glu Leu Phe Val Thr Ser Lys
65 70 75 80

Leu Trp Asn Thr Lys His His Pro Glu Asp Val Glu Pro Ala Leu Arg
85 90 95

Lys Thr Leu Ala Asp Leu Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Met
100 105 110

His Trp Pro Tyr Ala Phe Glu Arg Gly Asp Asn Pro Phe Pro Lys Asn
115 120 125

Ala Asp Gly Thr Ile Cys Tyr Asp Ser Thr His Tyr Lys Glu Thr Trp
130 135 140

Lys Ala Leu Glu Ala Leu Val Ala Lys Gly Leu Val Gln Ala Leu Gly
145 150 155 160

Leu Ser Asn Phe Asn Ser Arg Gln Ile Asp Asp Ile Leu Ser Val Ala
165 170 175

Ser Val Arg Pro Ala Val Leu Gln Val Glu Cys His Pro Tyr Leu Ala
180 185 190

Gln Asn Glu Leu Ile Ala His Cys Gln Ala Arg Gly Leu Glu Val Thr
195 200 205

Ala Tyr Ser Pro Leu Gly Ser Ser Asp Arg Ala Trp Arg Asp Pro Asp

```
    210                 215                 220

Glu Pro Val Leu Leu Glu Glu Pro Val Val Leu Ala Leu Ala Glu Lys
225                 230                 235                 240

Tyr Gly Arg Ser Pro Ala Gln Ile Leu Leu Arg Trp Gln Val Gln Arg
                245                 250                 255

Lys Val Ile Cys Ile Pro Lys Ser Ile Thr Pro Ser Arg Ile Leu Gln
            260                 265                 270

Asn Ile Lys Val Phe Asp Phe Thr Phe Ser Pro Glu Glu Met Lys Gln
        275                 280                 285

Leu Asn Ala Leu Asn Lys Asn Trp Arg Tyr Ile Val Pro Met Leu Thr
    290                 295                 300

Val Asp Gly Lys Arg Val Pro Arg Asp Ala Gly His Pro Leu Tyr Pro
305                 310                 315                 320

Phe Asn Asp Pro Tyr
                325


<210> 3958
<211> 316
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 895; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1B1; "

<220>
<221> source
<223> /note="Gene Name:
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      member B1
      (aldose reductase); "

<220>
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<223> /note="Uniprot ID:  P15121; "

<220>
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<223> /note="ENSP ID: ENSP00000285930"

<400> 3958

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Met Ala Ser Arg Leu Leu Leu Asn Asn Gly Ala Lys Met Pro Ile Leu
1               5                  10                  15

Gly Leu Gly Thr Trp Lys Ser Pro Pro Gly Gln Val Thr Glu Ala Val
            20                  25                  30

Lys Val Ala Ile Asp Val Gly Tyr Arg His Ile Asp Cys Ala His Val
        35                  40                  45

Tyr Gln Asn Glu Asn Glu Val Gly Val Ala Ile Gln Glu Lys Leu Arg
    50                  55                  60

Glu Gln Val Val Lys Arg Glu Glu Leu Phe Ile Val Ser Lys Leu Trp
65                  70                  75                  80

Cys Thr Tyr His Glu Lys Gly Leu Val Lys Gly Ala Cys Gln Lys Thr
                85                  90                  95

Leu Ser Asp Leu Lys Leu Asp Tyr Leu Asp Leu Tyr Leu Ile His Trp
            100                 105                 110

Pro Thr Gly Phe Lys Pro Gly Lys Glu Phe Phe Pro Leu Asp Glu Ser
        115                 120                 125

Gly Asn Val Val Pro Ser Asp Thr Asn Ile Leu Asp Thr Trp Ala Ala
    130                 135                 140

Met Glu Glu Leu Val Asp Glu Gly Leu Val Lys Ala Ile Gly Ile Ser
145                 150                 155                 160

Asn Phe Asn His Leu Gln Val Glu Met Ile Leu Asn Lys Pro Gly Leu
                165                 170                 175

Lys Tyr Lys Pro Ala Val Asn Gln Ile Glu Cys His Pro Tyr Leu Thr
            180                 185                 190

Gln Glu Lys Leu Ile Gln Tyr Cys Gln Ser Lys Gly Ile Val Val Thr
        195                 200                 205

Ala Tyr Ser Pro Leu Gly Ser Pro Asp Arg Pro Trp Ala Lys Pro Glu
    210                 215                 220
```

```
Asp Pro Ser Leu Leu Glu Asp Pro Arg Ile Lys Ala Ile Ala Ala Lys
225                 230                 235                 240


His Asn Lys Thr Thr Ala Gln Val Leu Ile Arg Phe Pro Met Gln Arg
                245                 250                 255


Asn Leu Val Val Ile Pro Lys Ser Val Thr Pro Glu Arg Ile Ala Glu
            260                 265                 270


Asn Phe Lys Val Phe Asp Phe Glu Leu Ser Ser Gln Asp Met Thr Thr
        275                 280                 285


Leu Leu Ser Tyr Asn Arg Asn Trp Arg Val Cys Ala Leu Leu Ser Cys
    290                 295                 300


Thr Ser His Lys Asp Tyr Pro Phe His Glu Glu Phe
305                 310                 315


<210> 3959
<211> 102
<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:
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      member B1
      (aldose reductase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413205"

<400> 3959
Met Ala Ser Arg Leu Leu Leu Asn Asn Gly Ala Lys Met Pro Ile Leu
1               5                   10                  15


Gly Leu Gly Thr Trp Lys Ser Pro Pro Gly Gln Val Thr Glu Ala Val
            20                  25                  30
```

```
Lys Val Ala Ile Asp Val Gly Tyr Arg His Ile Asp Cys Ala His Val
        35                  40                  45

Tyr Gln Asn Glu Asn Glu Val Gly Val Ala Ile Gln Glu Lys Leu Arg
    50                  55                  60

Glu Gln Val Val Lys Arg Glu Glu Leu Phe Ile Val Ser Lys Pro Gly
65                  70                  75                  80

Ser Cys Leu Val Ala Gly Asn Asp Asp Met Cys Pro Leu Ala Gly Leu
                85                  90                  95

Ala Val Val His Val Pro
            100
```

<210> 3960
<211> 263
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AKR1B1; "

<220>
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aldo-keto reductase family 1,
member B1
(aldose reductase); "

<220>
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<223> /note="ENSP ID: ENSP00000414399"

<400> 3960

```
Met Ala Ser Arg Leu Leu Leu Asn Asn Gly Ala Lys Met Pro Ile Leu
1               5                  10                  15

Gly Leu Gly Thr Trp Lys Ser Pro Pro Gly Gln Val Thr Glu Ala Val
            20                  25                  30

Lys Val Ala Ile Asp Val Gly Tyr Arg His Ile Asp Cys Ala His Val
        35                  40                  45
```

```
Tyr Gln Asn Glu Asn Glu Val Gly Val Ala Ile Gln Glu Lys Leu Arg
    50                  55                  60

Glu Gln Val Val Lys Arg Glu Glu Leu Phe Ile Val Ser Lys Leu Trp
65                  70                  75                  80

Cys Thr Tyr His Glu Lys Gly Leu Val Lys Gly Ala Cys Gln Lys Thr
                85                  90                  95

Leu Ser Asp Leu Lys Leu Asp Tyr Leu Asp Leu Tyr Leu Ile His Trp
            100                 105                 110

Pro Thr Gly Phe Lys Pro Gly Lys Glu Phe Phe Pro Leu Asp Glu Ser
        115                 120                 125

Gly Asn Val Val Pro Ser Asp Thr Asn Ile Leu Asp Thr Trp Ala Ala
    130                 135                 140

Met Glu Glu Leu Val Asp Glu Gly Leu Val Lys Ala Ile Gly Ile Ser
145                 150                 155                 160

Asn Phe Asn His Leu Gln Val Glu Met Ile Leu Asn Lys Pro Gly Leu
                165                 170                 175

Lys Tyr Lys Pro Ala Val Asn Gln Ile Glu Cys His Pro Tyr Leu Thr
            180                 185                 190

Gln Glu Lys Leu Ile Gln Tyr Cys Gln Ser Lys Gly Ile Val Val Thr
        195                 200                 205

Ala Tyr Ser Pro Leu Gly Ser Pro Asp Arg Pro Trp Ala Lys Pro Glu
    210                 215                 220

Asp Pro Ser Leu Leu Glu Asp Pro Arg Ile Lys Ala Ile Ala Ala Lys
225                 230                 235                 240

His Asn Lys Thr Thr Ala Gln Val Gln Pro Leu Gln Val Leu Leu Thr
                245                 250                 255

Val His Asn Cys Leu His Ser
            260
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<210> 3961
<211> 316
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 896; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1B10; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member B10
(aldose reductase); "

<220>
<221> source
<223> /note="Uniprot ID: O60218; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000352584"

<400> 3961
Met Ala Thr Phe Val Glu Leu Ser Thr Lys Ala Lys Met Pro Ile Val
1   5   10   15

Gly Leu Gly Thr Trp Lys Ser Pro Leu Gly Lys Val Lys Glu Ala Val
            20   25   30

Lys Val Ala Ile Asp Ala Gly Tyr Arg His Ile Asp Cys Ala Tyr Val
        35   40   45

Tyr Gln Asn Glu His Glu Val Gly Glu Ala Ile Gln Glu Lys Ile Gln
    50   55   60

Glu Lys Ala Val Lys Arg Glu Asp Leu Phe Ile Val Ser Lys Leu Trp
65   70   75   80

Pro Thr Phe Phe Glu Arg Pro Leu Val Arg Lys Ala Phe Glu Lys Thr
                85   90   95

Leu Lys Asp Leu Lys Leu Ser Tyr Leu Asp Val Tyr Leu Ile His Trp
            100   105   110

```
Pro Gln Gly Phe Lys Ser Gly Asp Asp Leu Phe Pro Lys Asp Asp Lys
        115                 120                 125

Gly Asn Ala Ile Gly Gly Lys Ala Thr Phe Leu Asp Ala Trp Glu Ala
    130                 135                 140

Met Glu Glu Leu Val Asp Glu Gly Leu Val Lys Ala Leu Gly Val Ser
145                 150                 155                 160

Asn Phe Ser His Phe Gln Ile Glu Lys Leu Leu Asn Lys Pro Gly Leu
                165                 170                 175

Lys Tyr Lys Pro Val Thr Asn Gln Val Glu Cys His Pro Tyr Leu Thr
            180                 185                 190

Gln Glu Lys Leu Ile Gln Tyr Cys His Ser Lys Gly Ile Thr Val Thr
        195                 200                 205

Ala Tyr Ser Pro Leu Gly Ser Pro Asp Arg Pro Trp Ala Lys Pro Glu
    210                 215                 220

Asp Pro Ser Leu Leu Glu Asp Pro Lys Ile Lys Glu Ile Ala Ala Lys
225                 230                 235                 240

His Lys Lys Thr Ala Ala Gln Val Leu Ile Arg Phe His Ile Gln Arg
                245                 250                 255

Asn Val Ile Val Ile Pro Lys Ser Val Thr Pro Ala Arg Ile Val Glu
            260                 265                 270

Asn Ile Gln Val Phe Asp Phe Lys Leu Ser Asp Glu Glu Met Ala Thr
        275                 280                 285

Ile Leu Ser Phe Asn Arg Asn Trp Arg Ala Cys Asn Val Leu Gln Ser
    290                 295                 300

Ser His Leu Glu Asp Tyr Pro Phe Asn Ala Glu Tyr
305                 310                 315
```

<210> 3962
<211> 344
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 897; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1B15; "

<220>
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aldo-keto reductase family 1,
member B15; "

<220>
<221> source
<223> /note="Uniprot ID: C9JRZ8; "

<220>
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<223> /note="ENSP ID: ENSP00000389289"

<400> 3962
Met Val Leu Gln Met Glu Pro Gln Val Asn Ser Thr Asn Asn Phe His
1   5   10   15

Gln Gly Pro Leu Asp Gln Pro Val Gly Pro Leu Thr Gly Leu Lys Ser
            20   25   30

Ser Leu Leu Lys Asp Thr Thr Ser Ala Gly Pro Leu Leu Arg Pro Tyr
        35   40   45

Pro Ala Ser Leu Leu Gly Lys Val Lys Glu Ala Val Lys Val Ala Ile
    50   55   60

Asp Ala Glu Tyr Arg His Ile Asp Cys Ala Tyr Phe Tyr Glu Asn Gln
65   70   75   80

His Glu Val Gly Glu Ala Ile Gln Glu Lys Ile Gln Glu Lys Ala Val
                85   90   95

Met Arg Glu Asp Leu Phe Ile Val Ser Lys Val Trp Pro Thr Phe Phe
            100   105   110

Glu Arg Pro Leu Val Arg Lys Ala Phe Glu Lys Thr Leu Lys Asp Leu
        115   120   125

Lys Leu Ser Tyr Leu Asp Val Tyr Leu Ile His Trp Pro Gln Gly Phe

130 135 140

Lys Thr Gly Asp Asp Phe Phe Pro Lys Asp Asp Lys Gly Asn Met Ile
145 150 155 160

Ser Gly Lys Gly Thr Phe Leu Asp Ala Trp Glu Ala Met Glu Glu Leu
165 170 175

Val Asp Glu Gly Leu Val Lys Ala Leu Gly Val Ser Asn Phe Asn His
180 185 190

Phe Gln Ile Glu Arg Leu Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro
195 200 205

Val Thr Asn Gln Val Glu Cys His Pro Tyr Leu Thr Gln Glu Lys Leu
210 215 220

Ile Gln Tyr Cys His Ser Lys Gly Ile Thr Val Thr Ala Tyr Ser Pro
225 230 235 240

Leu Gly Ser Pro Asp Arg Pro Trp Ala Lys Pro Glu Asp Pro Ser Leu
245 250 255

Leu Glu Asp Pro Lys Ile Lys Glu Ile Ala Ala Lys His Lys Lys Thr
260 265 270

Thr Ala Gln Val Leu Ile Arg Phe His Ile Gln Arg Asn Val Thr Val
275 280 285

Ile Pro Lys Ser Met Thr Pro Ala His Ile Val Glu Asn Ile Gln Val
290 295 300

Phe Asp Phe Lys Leu Ser Asp Glu Glu Met Ala Thr Ile Leu Ser Phe
305 310 315 320

Asn Arg Asn Trp Arg Ala Phe Asp Phe Lys Glu Phe Ser His Leu Glu
325 330 335

Asp Phe Pro Phe Asp Ala Glu Tyr
340

<210> 3963
<211> 344

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 897; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1B15; "

<220>
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aldo-keto reductase family 1,
member B15; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000397009"

<400> 3963

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Met Val Leu Gln Met Glu Pro Gln Val Asn Ser Thr Asn Asn Phe His
1               5                  10                  15

Gln Gly Pro Leu Asp Gln Pro Val Gly Pro Leu Thr Gly Leu Lys Ser
            20                  25                  30

Ser Leu Leu Lys Asp Thr Thr Ser Ala Gly Pro Leu Leu Arg Pro Tyr
        35                  40                  45

Pro Ala Ser Leu Leu Gly Lys Val Lys Glu Ala Val Lys Val Ala Ile
    50                  55                  60

Asp Ala Glu Tyr Arg His Ile Asp Cys Ala Tyr Phe Tyr Glu Asn Gln
65                  70                  75                  80

His Glu Val Gly Glu Ala Ile Gln Glu Lys Ile Gln Glu Lys Ala Val
                85                  90                  95

Met Arg Glu Asp Leu Phe Ile Val Ser Lys Val Trp Pro Thr Phe Phe
            100                 105                 110

Glu Arg Pro Leu Val Arg Lys Ala Phe Glu Lys Thr Leu Lys Asp Leu
        115                 120                 125
```

```
Lys Leu Ser Tyr Leu Asp Val Tyr Leu Ile His Trp Pro Gln Gly Phe
    130                 135                 140

Lys Thr Gly Asp Asp Phe Phe Pro Lys Asp Asp Lys Gly Asn Met Ile
145                 150                 155                 160

Ser Gly Lys Gly Thr Phe Leu Asp Ala Trp Glu Ala Met Glu Glu Leu
                165                 170                 175

Val Asp Glu Gly Leu Val Lys Ala Leu Gly Val Ser Asn Phe Asn His
            180                 185                 190

Phe Gln Ile Glu Arg Leu Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro
        195                 200                 205

Val Thr Asn Gln Val Glu Cys His Pro Tyr Leu Thr Gln Glu Lys Leu
    210                 215                 220

Ile Gln Tyr Cys His Ser Lys Gly Ile Thr Val Thr Ala Tyr Ser Pro
225                 230                 235                 240

Leu Gly Ser Pro Asp Arg Pro Trp Ala Lys Pro Glu Asp Pro Ser Leu
                245                 250                 255

Leu Glu Asp Pro Lys Ile Lys Glu Ile Ala Ala Lys His Lys Lys Thr
            260                 265                 270

Thr Ala Gln Val Leu Ile Arg Phe His Ile Gln Arg Asn Val Thr Val
        275                 280                 285

Ile Pro Lys Ser Met Thr Pro Ala His Ile Val Glu Asn Ile Gln Val
    290                 295                 300

Phe Asp Phe Lys Leu Ser Asp Glu Glu Met Ala Thr Ile Leu Ser Phe
305                 310                 315                 320

Asn Arg Asn Trp Arg Ala Phe Asp Phe Lys Glu Phe Ser His Leu Glu
                325                 330                 335

Asp Phe Pro Phe Asp Ala Glu Tyr
            340
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<210> 3964
<211> 205
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AKR1C1; "

<220>
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member C1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000370240"

<400> 3964
Met Gly Val Val Ser Leu Phe Leu Cys Ile Val Glu Gln Ile Phe Thr
1 5 10 15

Ser Ser Lys Lys Ile Gln Phe Arg Gly Ile Phe Met Ala Lys Val Pro
20 25 30

Lys Ser Lys Ala Leu Glu Ala Thr Lys Leu Ala Ile Glu Ala Gly Phe
35 40 45

Arg His Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly
50 55 60

Leu Ala Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp
65 70 75 80

Ile Phe Tyr Thr Ser Lys Leu Trp Cys Asn Ser His Arg Pro Glu Leu
85 90 95

Val Arg Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr
100 105 110

Val Asp Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Pro Gly Glu
115 120 125

Glu Val Ile Pro Lys Asp Glu Asn Gly Lys Ile Leu Phe Asp Thr Val

```
    130                 135                 140

Asp Leu Cys Ala Thr Trp Glu Ala Val Glu Lys Cys Lys Asp Ala Gly
145                 150                 155                 160

Leu Ala Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu
                165                 170                 175

Met Ile Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln
            180                 185                 190

Pro Arg Asp Asn Ser Ile Phe Ser Leu Ser Pro Asp Trp
        195                 200                 205


<210> 3965
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AKR1C1; "

<220>
<221> source
<223> /note="Gene Name:
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      member C1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q04828; "

<220>
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<223> /note="ENSP ID: ENSP00000370254"

<400> 3965
Met Asp Ser Lys Tyr Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
1               5                   10                  15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Ala Glu Val Pro Lys Ser
            20                  25                  30

Lys Ala Leu Glu Ala Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
        35                  40                  45
```

```
Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Cys Asn Ser His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Pro Gly Glu Glu Val
        115                 120                 125

Ile Pro Lys Asp Glu Asn Gly Lys Ile Leu Phe Asp Thr Val Asp Leu
    130                 135                 140

Cys Ala Thr Trp Glu Ala Val Glu Lys Cys Lys Asp Ala Gly Leu Ala
145                 150                 155                 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile
                165                 170                 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180                 185                 190

Cys His Pro Tyr Phe Asn Gln Arg Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser His Arg Glu
    210                 215                 220

Glu Pro Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270
```

```
Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ser Glu Glu Met Lys Ala Ile Asp Gly Leu Asn Arg Asn Val Arg
    290                 295                 300

Tyr Leu Thr Leu Asp Ile Phe Ala Gly Pro Pro Asn Tyr Pro Phe Ser
305                 310                 315                 320

Asp Glu Tyr
```

<210> 3966
<211> 324
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 898; "

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<221> source
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<220>
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aldo-keto reductase family 1,
member C1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412248"

<400> 3966

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Met Asp Ser Lys Tyr Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
1               5                   10                  15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Ala Glu Val Pro Lys Ser
            20                  25                  30

Lys Ala Leu Glu Ala Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
        35                  40                  45

Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60
```

```
Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Cys Asn Ser His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Pro Gly Glu Glu Val
        115                 120                 125

Ile Pro Lys Asp Glu Asn Gly Lys Ile Leu Phe Asp Thr Val Asp Leu
    130                 135                 140

Cys Ala Thr Trp Glu Val Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145                 150                 155                 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile
                165                 170                 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180                 185                 190

Cys His Pro Tyr Phe Asn Gln Arg Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser His Arg Glu
    210                 215                 220

Glu Pro Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ser Glu Glu Met Lys Ala Ile Asp Gly Leu Asn Arg Asn Val Arg
```

290 295 300

Tyr Leu Thr Leu Asp Met Tyr Phe Ala Ser His Pro Asn Tyr Pro Tyr
305 310 315 320

Ser Asp Glu Tyr

<210> 3967
<211> 248
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 898; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C1; "

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aldo-keto reductase family 1,
member C1; "

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3967
Xaa Ser Lys Tyr Gln Cys Val Lys Leu Asn Asp Gly His Phe Met Pro
1 5 10 15

Val Leu Gly Phe Gly Thr Tyr Ala Pro Ala Glu Val Gly Leu Ala Ile
20 25 30

Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe Tyr
35 40 45

Thr Ser Lys Leu Trp Cys Asn Ser His Arg Pro Glu Leu Val Arg Pro
50 55 60

```
Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp Leu
65                  70                  75                  80

Tyr Leu Ile His Phe Pro Val Ser Val Lys Pro Gly Glu Glu Val Ile
                85                  90                  95

Pro Lys Asp Glu Asn Gly Lys Ile Leu Phe Asp Thr Val Asp Leu Cys
            100                 105                 110

Ala Thr Trp Glu Ala Val Glu Lys Cys Lys Asp Ala Gly Leu Ala Lys
        115                 120                 125

Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile Leu
    130                 135                 140

Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu Cys
145                 150                 155                 160

His Pro Tyr Phe Asn Gln Arg Lys Leu Leu Asp Phe Cys Lys Ser Lys
                165                 170                 175

Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser His Arg Glu Glu
            180                 185                 190

Pro Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val Leu
        195                 200                 205

Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala Leu
    210                 215                 220

Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr Asn
225                 230                 235                 240

Glu Gln Arg Ile Arg Gln Asn Val
                245
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<210> 3968
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 899; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C2; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member C2; "

<220>
<221> source
<223> /note="Uniprot ID: P52895; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000370129"

<400> 3968

```
Met Asp Ser Lys Tyr Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
1               5                  10                  15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Ala Glu Val Pro Lys Ser
            20                  25                  30

Lys Ala Leu Glu Ala Val Lys Leu Ala Ile Glu Ala Gly Phe His His
        35                  40                  45

Ile Asp Ser Ala His Val Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Ser Asn Ser His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Pro Gly Glu Glu Val
        115                 120                 125

Ile Pro Lys Asp Glu Asn Gly Lys Ile Leu Phe Asp Thr Val Asp Leu
    130                 135                 140

Cys Ala Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145                 150                 155                 160
```

```
Lys Ser Ile Gly Val Ser Asn Phe Asn His Arg Leu Leu Glu Met Ile
                165                 170                 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180                 185                 190

Cys His Pro Tyr Phe Asn Gln Arg Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser His Arg Glu
    210                 215                 220

Glu Pro Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ser Glu Glu Met Lys Ala Ile Asp Gly Leu Asn Arg Asn Val Arg
    290                 295                 300

Tyr Leu Thr Leu Asp Ile Phe Ala Gly Pro Pro Asn Tyr Pro Phe Ser
305                 310                 315                 320

Asp Glu Tyr
```

<210> 3969
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AKR1C2; "

<220>
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<223> /note="Gene Name:
aldo-keto reductase family 1,
member C2; "

<220>
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<223> /note="ENSP ID: ENSP00000385221"

<400> 3969

```
Met Asp Pro Lys Tyr Gln Cys Val Glu Leu Asn Asp Gly His Phe Met
1               5                  10                  15

Pro Val Leu Gly Phe Gly Thr Cys Val Pro Pro Glu Val Pro Arg Asn
            20                  25                  30

Arg Val Val Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Phe His
        35                  40                  45

Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Ser Asn Ser His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Pro Gly Glu Glu Val
        115                 120                 125

Ile Pro Lys Asp Glu Asn Gly Lys Ile Leu Phe Asp Thr Val Asp Leu
    130                 135                 140

Cys Ala Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145                 150                 155                 160

Lys Ser Ile Gly Val Ser Asn Phe Asn His Arg Leu Leu Glu Met Ile
                165                 170                 175
```

```
Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180                 185                 190

Cys His Pro Tyr Phe Asn Gln Arg Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser His Arg Glu
    210                 215                 220

Glu Pro Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ser Glu Glu Met Lys Ala Ile Asp Gly Leu Asn Arg Asn Val Arg
    290                 295                 300

Tyr Leu Thr Leu Asp Ile Leu Ala Gly His Pro Asp Tyr Pro Phe Ser
305                 310                 315                 320

Gly Glu Tyr
```

<210> 3970
<211> 297
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AKR1C2; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,

member C2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392694"

<400> 3970

```
Met Asp Ser Lys Tyr Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
1               5                  10                  15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Ala Glu Val Pro Lys Ser
            20                  25                  30

Lys Ala Leu Glu Ala Val Lys Leu Ala Ile Glu Ala Gly Phe His His
        35                  40                  45

Ile Asp Ser Ala His Val Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Ser Asn Ser His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Ala Met Glu Lys Cys
        115                 120                 125

Lys Asp Ala Gly Leu Ala Lys Ser Ile Gly Val Ser Asn Phe Asn His
    130                 135                 140

Arg Leu Leu Glu Met Ile Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro
145                 150                 155                 160

Val Cys Asn Gln Val Glu Cys His Pro Tyr Phe Asn Gln Arg Lys Leu
                165                 170                 175

Leu Asp Phe Cys Lys Ser Lys Asp Ile Val Leu Val Ala Tyr Ser Ala
            180                 185                 190

Leu Gly Ser His Arg Glu Glu Pro Trp Val Asp Pro Asn Ser Pro Val
        195                 200                 205
```

```
Leu Leu Glu Asp Pro Val Leu Cys Ala Leu Ala Lys Lys His Lys Arg
    210                 215                 220

Thr Pro Ala Leu Ile Ala Leu Arg Tyr Gln Leu Gln Arg Gly Val Val
225                 230                 235                 240

Val Leu Ala Lys Ser Tyr Asn Glu Gln Arg Ile Arg Gln Asn Val Gln
                245                 250                 255

Val Phe Glu Phe Gln Leu Thr Ser Glu Glu Met Lys Ala Ile Asp Gly
            260                 265                 270

Leu Asn Arg Asn Val Arg Tyr Leu Thr Leu Asp Ile Phe Ala Gly Pro
        275                 280                 285

Pro Asn Tyr Pro Phe Ser Asp Glu Tyr
    290                 295


<210> 3971
<211> 139
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AKR1C2; "

<220>
<221> source
<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member C2; "

<220>
<221> source
<223> /note="Uniprot ID:  P52895; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000408440"

<400> 3971
Met Asp Ser Lys Tyr Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
1               5                   10                  15
```

```
Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Ala Glu Val Pro Lys Ser
            20                  25                  30

Lys Ala Leu Glu Ala Val Lys Leu Ala Ile Glu Ala Gly Phe His His
        35                  40                  45

Ile Asp Ser Ala His Val Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Ser Asn Ser His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Glu Asp Ile Gly Ile
        115                 120                 125

Leu Thr Trp Lys Lys Ser Pro Lys His Asn Ser
    130                 135


<210> 3972
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 899; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C2; "

<220>
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<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member C2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474566"

<400> 3972
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Met Asp Ser Lys Tyr Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
1 5 10 15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Ala Glu Val Pro Lys Ser
20 25 30

Lys Ala Leu Glu Ala Val Lys Leu Ala Ile Glu Ala Gly Phe His His
35 40 45

Ile Asp Ser Ala His Val Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
50 55 60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65 70 75 80

Tyr Thr Ser Lys Leu Trp Ser Asn Ser His Arg Pro Glu Leu Val Arg
85 90 95

Pro Ala Leu Glu Arg Ser Leu Lys Asn Leu Gln Leu Asp Tyr Val Asp
100 105 110

Leu Tyr Leu Ile His Phe Pro Val Ser Val Lys Pro Gly Glu Glu Val
115 120 125

Ile Pro Lys Asp Glu Asn Gly Lys Ile Leu Phe Asp Thr Val Asp Leu
130 135 140

Cys Ala Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145 150 155 160

Lys Ser Ile Gly Val Ser Asn Phe Asn His Arg Leu Leu Glu Met Ile
165 170 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
180 185 190

Cys His Pro Tyr Phe Asn Gln Arg
195 200

<210> 3973
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 900; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C3; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member C3; "

<220>
<221> source
<223> /note="Uniprot ID: P42330; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369927"

<400> 3973

```
Met Asp Ser Lys His Gln Cys Val Lys Leu Asn Asp Gly His Phe Met
1               5                  10                  15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro Arg Ser
            20                  25                  30

Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
        35                  40                  45

Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu Glu Leu
        115                 120                 125

Ser Pro Thr Asp Glu Asn Gly Lys Val Ile Phe Asp Ile Val Asp Leu
    130                 135                 140
```

```
Cys Thr Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145                 150                 155                 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile
                165                 170                 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180                 185                 190

Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln Arg Asp
    210                 215                 220

Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn Leu His
    290                 295                 300

Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro Tyr Ser
305                 310                 315                 320

Asp Glu Tyr
```

<210> 3974
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 900; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C3; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member C3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474188"

<400> 3974

Met	Gln	Ile	Ser	Gln	Val	Pro	Arg	Ser	Lys	Ala	Leu	Glu	Val	Thr	Lys
1				5				10						15	
Leu	Ala	Ile	Glu	Ala	Gly	Phe	Arg	His	Ile	Asp	Ser	Ala	His	Leu	Tyr
			20					25					30		
Asn	Asn	Glu	Glu	Gln	Val	Gly	Leu	Ala	Ile	Arg	Ser	Lys	Ile	Ala	Asp
		35					40					45			
Gly	Ser	Val	Lys	Arg	Glu	Asp	Ile	Phe	Tyr	Thr	Ser	Lys	Leu	Trp	Ser
	50					55					60				
Thr	Phe	His	Arg	Pro	Glu	Leu	Val	Arg	Pro	Ala	Leu	Glu	Asn	Ser	Leu
65					70					75					80
Lys	Lys	Ala	Gln	Leu	Asp	Tyr	Val	Asp	Leu	Tyr	Leu	Ile	His	Ser	Pro
				85					90					95	
Met	Ser	Leu	Lys	Pro	Gly	Glu	Glu	Leu	Ser	Pro	Thr	Asp	Glu	Asn	Gly
			100					105					110		
Lys	Val	Ile	Phe	Asp	Ile	Val	Asp	Leu	Cys	Thr	Thr	Trp	Glu	Ala	Met
		115					120					125			
Glu	Lys	Cys	Lys	Asp	Ala	Gly	Leu	Ala	Lys	Ser	Ile	Gly	Val	Ser	Asn
	130					135					140				
Phe	Asn	Arg	Arg	Gln	Leu	Glu	Met	Ile	Leu	Asn					
145					150					155					

<210> 3975
<211> 300
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 900; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C3; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member C3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474882"

<400> 3975
Met Gln Ile Ser Gln Val Pro Arg Ser Lys Ala Leu Glu Val Thr Lys
1 5 10 15

Leu Ala Ile Glu Ala Gly Phe Arg His Ile Asp Ser Ala His Leu Tyr
20 25 30

Asn Asn Glu Glu Gln Val Gly Leu Ala Ile Arg Ser Lys Ile Ala Asp
35 40 45

Gly Ser Val Lys Arg Glu Asp Ile Phe Tyr Thr Ser Lys Leu Trp Ser
50 55 60

Thr Phe His Arg Pro Glu Leu Val Arg Pro Ala Leu Glu Asn Ser Leu
65 70 75 80

Lys Lys Ala Gln Leu Asp Tyr Val Asp Leu Tyr Leu Ile His Ser Pro
85 90 95

Met Ser Leu Lys Pro Gly Glu Glu Leu Ser Pro Thr Asp Glu Asn Gly
100 105 110

Lys Val Ile Phe Asp Ile Val Asp Leu Cys Thr Thr Trp Glu Ala Met
115 120 125

Glu Lys Cys Lys Asp Ala Gly Leu Ala Lys Ser Ile Gly Val Ser Asn

```
    130                 135                 140

Phe Asn Arg Arg Gln Leu Glu Met Ile Leu Asn Lys Pro Gly Leu Lys
145                 150                 155                 160

Tyr Lys Pro Val Cys Asn Gln Val Glu Cys His Pro Tyr Phe Asn Arg
                165                 170                 175

Ser Lys Leu Leu Asp Phe Cys Lys Ser Lys Asp Ile Val Leu Val Ala
            180                 185                 190

Tyr Ser Ala Leu Gly Ser Gln Arg Asp Lys Arg Trp Val Asp Pro Asn
        195                 200                 205

Ser Pro Val Leu Leu Glu Asp Pro Val Leu Cys Ala Leu Ala Lys Lys
    210                 215                 220

His Lys Arg Thr Pro Ala Leu Ile Ala Leu Arg Tyr Gln Leu Gln Arg
225                 230                 235                 240

Gly Val Val Val Leu Ala Lys Ser Tyr Asn Glu Gln Arg Ile Arg Gln
                245                 250                 255

Asn Val Gln Val Phe Glu Phe Gln Leu Thr Ala Glu Asp Met Lys Ala
            260                 265                 270

Ile Asp Gly Leu Asp Arg Asn Leu His Tyr Phe Asn Ser Asp Ser Phe
        275                 280                 285

Ala Ser His Pro Asn Tyr Pro Tyr Ser Asp Glu Tyr
    290                 295                 300


<210> 3976
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 901; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
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<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member C3
[Source:EntrezGene;Acc:8644]; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401327"

<400> 3976

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Met Asp Ser Lys His Gln Cys Leu Lys Leu Asn Asp Gly His Phe Met
1               5                  10                  15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro Arg Ser
            20                  25                  30

Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
        35                  40                  45

Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu Val Arg
                85                  90                  95

Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu Glu Leu
        115                 120                 125

Ser Pro Thr Asp Glu Asn Gly Lys Val Ile Phe Asp Ile Val Asp Leu
    130                 135                 140

Cys Thr Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145                 150                 155                 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile
                165                 170                 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180                 185                 190
```

```
Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln Arg Asp
    210                 215                 220

Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn Leu His
    290                 295                 300

Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro Tyr Ser
305                 310                 315                 320

Asp Glu Tyr
```

<210> 3977
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 902; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C4; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member C4; "

<220>
<221> source
<223> /note="Uniprot ID: P17516; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263126"

<400> 3977
Met Asp Pro Lys Tyr Gln Arg Val Glu Leu Asn Asp Gly His Phe Met
1   5   10   15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro Arg Asn
            20   25   30

Arg Ala Val Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
        35   40   45

Ile Asp Ser Ala Tyr Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50   55   60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65   70   75   80

Tyr Thr Ser Lys Leu Trp Cys Thr Phe Phe Gln Pro Gln Met Val Gln
                85   90   95

Pro Ala Leu Glu Ser Ser Leu Lys Lys Leu Gln Leu Asp Tyr Val Asp
            100   105   110

Leu Tyr Leu Leu His Phe Pro Met Ala Leu Lys Pro Gly Glu Thr Pro
        115   120   125

Leu Pro Lys Asp Glu Asn Gly Lys Val Ile Phe Asp Thr Val Asp Leu
    130   135   140

Ser Ala Thr Trp Glu Val Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145   150   155   160

Lys Ser Ile Gly Val Ser Asn Phe Asn Cys Arg Gln Leu Glu Met Ile
                165   170   175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180   185   190

```
Cys His Pro Tyr Leu Asn Gln Ser Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205

Lys Asp Ile Val Leu Val Ala His Ser Ala Leu Gly Thr Gln Arg His
    210                 215                 220

Lys Leu Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Gln Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270

Asn Glu Gln Arg Ile Arg Glu Asn Ile Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ser Glu Asp Met Lys Val Leu Asp Gly Leu Asn Arg Asn Tyr Arg
    290                 295                 300

Tyr Val Val Met Asp Phe Leu Met Asp His Pro Asp Tyr Pro Phe Ser
305                 310                 315                 320

Asp Glu Tyr
```

<210> 3978
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 902; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1C4; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member C4; "

<220>
<221> source

<223> /note="Uniprot ID: P17516; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369814"

<400> 3978

```
Met Asp Pro Lys Tyr Gln Arg Val Glu Leu Asn Asp Gly His Phe Met
1               5                  10                  15

Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro Arg Asn
            20                  25                  30

Arg Ala Val Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
        35                  40                  45

Ile Asp Ser Ala Tyr Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
    50                  55                  60

Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
65                  70                  75                  80

Tyr Thr Ser Lys Leu Trp Cys Thr Phe Phe Gln Pro Gln Met Val Gln
                85                  90                  95

Pro Ala Leu Glu Ser Ser Leu Lys Lys Leu Gln Leu Asp Tyr Val Asp
            100                 105                 110

Leu Tyr Leu Leu His Phe Pro Met Ala Leu Lys Pro Gly Glu Thr Pro
        115                 120                 125

Leu Pro Lys Asp Glu Asn Gly Lys Val Ile Phe Asp Thr Val Asp Leu
    130                 135                 140

Ser Ala Thr Trp Glu Val Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145                 150                 155                 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Cys Arg Gln Leu Glu Met Ile
                165                 170                 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
            180                 185                 190

Cys His Pro Tyr Leu Asn Gln Ser Lys Leu Leu Asp Phe Cys Lys Ser
        195                 200                 205
```

```
Lys Asp Ile Val Leu Val Ala His Ser Ala Leu Gly Thr Gln Arg His
    210                 215                 220

Lys Leu Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225                 230                 235                 240

Leu Cys Ala Leu Ala Lys Lys His Lys Gln Thr Pro Ala Leu Ile Ala
                245                 250                 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
            260                 265                 270

Asn Glu Gln Arg Ile Arg Glu Asn Ile Gln Val Phe Glu Phe Gln Leu
        275                 280                 285

Thr Ser Glu Asp Met Lys Val Leu Asp Gly Leu Asn Arg Asn Tyr Arg
    290                 295                 300

Tyr Val Val Met Asp Phe Leu Met Asp His Pro Asp Tyr Pro Phe Ser
305                 310                 315                 320

Asp Glu Tyr
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<210> 3979
<211> 326
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 903; "

<220>
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<223> /note="Gene Symbol: AKR1D1; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: P51857; "

<220>
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<400> 3979
Met Asp Leu Ser Ala Ala Ser His Arg Ile Pro Leu Ser Asp Gly Asn
1   5   10   15

Ser Ile Pro Ile Ile Gly Leu Gly Thr Tyr Ser Glu Pro Lys Ser Thr
            20   25   30

Pro Lys Gly Ala Cys Ala Thr Ser Val Lys Val Ala Ile Asp Thr Gly
        35   40   45

Tyr Arg His Ile Asp Gly Ala Tyr Ile Tyr Gln Asn Glu His Glu Val
    50   55   60

Gly Glu Ala Ile Arg Glu Lys Ile Ala Glu Gly Lys Val Arg Arg Glu
65   70   75   80

Asp Ile Phe Tyr Cys Gly Lys Leu Trp Ala Thr Asn His Val Pro Glu
                85   90   95

Met Val Arg Pro Thr Leu Glu Arg Thr Leu Arg Val Leu Gln Leu Asp
            100   105   110

Tyr Val Asp Leu Tyr Ile Ile Glu Val Pro Met Ala Phe Lys Pro Gly
        115   120   125

Asp Glu Ile Tyr Pro Arg Asp Glu Asn Gly Lys Trp Leu Tyr His Lys
    130   135   140

Ser Asn Leu Cys Ala Thr Trp Glu Ala Met Glu Ala Cys Lys Asp Ala
145   150   155   160

Gly Leu Val Lys Ser Leu Gly Val Ser Asn Phe Asn Arg Arg Gln Leu
                165   170   175

Glu Leu Ile Leu Asn Lys Pro Gly Leu Lys His Lys Pro Val Ser Asn
            180   185   190

Gln Val Glu Cys His Pro Tyr Phe Thr Gln Pro Lys Leu Leu Lys Phe
        195   200   205

```
Cys Gln Gln His Asp Ile Val Ile Thr Ala Tyr Ser Pro Leu Gly Thr
    210                 215                 220

Ser Arg Asn Pro Ile Trp Val Asn Val Ser Ser Pro Pro Leu Leu Lys
225                 230                 235                 240

Asp Ala Leu Leu Asn Ser Leu Gly Lys Arg Tyr Asn Lys Thr Ala Ala
                245                 250                 255

Gln Ile Val Leu Arg Phe Asn Ile Gln Arg Gly Val Val Val Ile Pro
            260                 265                 270

Lys Ser Phe Asn Leu Glu Arg Ile Lys Glu Asn Phe Gln Ile Phe Asp
        275                 280                 285

Phe Ser Leu Thr Glu Glu Glu Met Lys Asp Ile Glu Ala Leu Asn Lys
    290                 295                 300

Asn Val Arg Phe Val Glu Leu Leu Met Trp Arg Asp His Pro Glu Tyr
305                 310                 315                 320

Pro Phe His Asp Glu Tyr
                325
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<210> 3980
<211> 290
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: P51857; "

<220>
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<223> /note="ENSP ID: ENSP00000389197"

<400> 3980

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Met Asp Leu Ser Ala Ala Ser His Arg Ile Pro Leu Ser Asp Gly Asn
1               5                  10                  15

Ser Ile Pro Ile Ile Gly Leu Gly Thr Tyr Ser Glu Pro Lys Ser Thr
            20                  25                  30

Pro Lys Gly Ala Cys Ala Thr Ser Val Lys Val Ala Ile Asp Thr Gly
        35                  40                  45

Tyr Arg His Ile Asp Gly Ala Tyr Ile Tyr Gln Asn Glu His Glu Val
    50                  55                  60

Gly Glu Ala Ile Arg Glu Lys Ile Ala Glu Gly Lys Val Arg Arg Glu
65                  70                  75                  80

Asp Ile Phe Tyr Cys Gly Lys Leu Trp Ala Thr Asn His Val Pro Glu
                85                  90                  95

Met Val Arg Pro Thr Leu Glu Arg Thr Leu Arg Val Leu Gln Leu Asp
            100                 105                 110

Tyr Val Asp Leu Tyr Ile Ile Glu Val Pro Met Ala Phe Lys Pro Gly
        115                 120                 125

Asp Glu Ile Tyr Pro Arg Asp Glu Asn Gly Lys Trp Leu Tyr His Lys
    130                 135                 140

Ser Asn Leu Cys Ala Thr Trp Glu Ala Met Glu Ala Cys Lys Asp Ala
145                 150                 155                 160

Gly Leu Val Lys Ser Leu Gly Val Ser Asn Phe Asn Arg Arg Gln Leu
                165                 170                 175

Glu Leu Ile Leu Asn Lys Pro Gly Leu Lys His Lys Pro Val Ser Asn
            180                 185                 190

Gln Val Glu Cys His Pro Tyr Phe Thr Gln Pro Lys Leu Leu Lys Phe
        195                 200                 205

Cys Gln Gln His Asp Ile Val Ile Thr Ala Tyr Ser Pro Leu Gly Thr
    210                 215                 220
```

```
Ser Arg Asn Pro Ile Trp Val Asn Val Ser Ser Pro Pro Leu Leu Lys
225                 230                 235                 240


Asp Ala Leu Leu Asn Ser Leu Gly Lys Arg Tyr Asn Lys Thr Ala Ala
                245                 250                 255


Gln Ile Val Leu Arg Phe Asn Ile Gln Arg Gly Val Val Val Ile Pro
            260                 265                 270


Lys Ser Phe Asn Leu Glu Arg Ile Lys Glu Asn Phe Gln Val Ala Arg
        275                 280                 285


Ser Ser
    290


<210> 3981
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 903; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1D1; "

<220>
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      member D1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397042"

<400> 3981
Met Asp Leu Ser Ala Ala Ser His Arg Ile Pro Leu Ser Asp Gly Asn
1               5                   10                  15


Ser Ile Pro Ile Ile Gly Leu Gly Thr Tyr Ser Glu Pro Lys Ser Leu
            20                  25                  30


Trp Ala Thr Asn His Val Pro Glu Met Val Arg Pro Thr Leu Glu Arg
        35                  40                  45
```

```
Thr Leu Arg Val Leu Gln Leu Asp Tyr Val Asp Leu Tyr Ile Ile Glu
    50                  55                  60

Val Pro Met Ala Phe Lys Pro Gly Asp Glu Ile Tyr Pro Arg Asp Glu
65                  70                  75                  80

Asn Gly Lys Trp Leu Tyr His Lys Ser Asn Leu Cys Ala Thr Trp Glu
                85                  90                  95


<210> 3982
<211> 285
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AKR1D1; "

<220>
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      member D1; "

<220>
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<223> /note="Uniprot ID:  P51857; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402374"

<400> 3982
Met Asp Leu Ser Ala Ala Ser His Arg Ile Pro Leu Ser Asp Gly Asn
1               5                   10                  15

Ser Ile Pro Ile Ile Gly Leu Gly Thr Tyr Ser Glu Pro Lys Ser Thr
            20                  25                  30

Pro Lys Gly Ala Cys Ala Thr Ser Val Lys Val Ala Ile Asp Thr Gly
        35                  40                  45

Tyr Arg His Ile Asp Gly Ala Tyr Ile Tyr Gln Asn Glu His Glu Val
    50                  55                  60
```

Gly Glu Ala Ile Arg Glu Lys Ile Ala Glu Gly Lys Val Arg Arg Glu
65 70 75 80

Asp Ile Phe Tyr Cys Gly Lys Leu Trp Ala Thr Asn His Val Pro Glu
85 90 95

Met Val Arg Pro Thr Leu Glu Arg Thr Leu Arg Val Leu Gln Leu Asp
100 105 110

Tyr Val Asp Leu Tyr Ile Ile Glu Val Pro Met Ala Phe Lys Pro Gly
115 120 125

Asp Glu Ile Tyr Pro Arg Asp Glu Asn Gly Lys Trp Leu Tyr His Lys
130 135 140

Ser Asn Leu Cys Ala Thr Trp Glu Val Glu Cys His Pro Tyr Phe Thr
145 150 155 160

Gln Pro Lys Leu Leu Lys Phe Cys Gln Gln His Asp Ile Val Ile Thr
165 170 175

Ala Tyr Ser Pro Leu Gly Thr Ser Arg Asn Pro Ile Trp Val Asn Val
180 185 190

Ser Ser Pro Pro Leu Leu Lys Asp Ala Leu Leu Asn Ser Leu Gly Lys
195 200 205

Arg Tyr Asn Lys Thr Ala Ala Gln Ile Val Leu Arg Phe Asn Ile Gln
210 215 220

Arg Gly Val Val Val Ile Pro Lys Ser Phe Asn Leu Glu Arg Ile Lys
225 230 235 240

Glu Asn Phe Gln Ile Phe Asp Phe Ser Leu Thr Glu Glu Glu Met Lys
245 250 255

Asp Ile Glu Ala Leu Asn Lys Asn Val Arg Phe Val Glu Leu Leu Met
260 265 270

Trp Arg Asp His Pro Glu Tyr Pro Phe His Asp Glu Tyr
275 280 285

<210> 3983

<211> 320
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 904; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1E2; "

<220>
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<223> /note="Gene Name:
aldo-keto reductase family 1,
member E2; "

<220>
<221> source
<223> /note="Uniprot ID: Q96JD6; "

<220>
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<223> /note="ENSP ID: ENSP00000298375"

<400> 3983
Met Gly Asp Ile Pro Ala Val Gly Leu Ser Ser Trp Lys Ala Ser Pro
1   5   10   15

Gly Lys Val Thr Glu Ala Val Lys Glu Ala Ile Asp Ala Gly Tyr Arg
            20   25   30

His Phe Asp Cys Ala Tyr Phe Tyr His Asn Glu Arg Glu Val Gly Ala
        35   40   45

Gly Ile Arg Cys Lys Ile Lys Glu Gly Ala Val Arg Arg Glu Asp Leu
    50   55   60

Phe Ile Ala Thr Lys Leu Trp Cys Thr Cys His Lys Lys Ser Leu Val
65   70   75   80

Glu Thr Ala Cys Arg Lys Ser Leu Lys Ala Leu Lys Leu Asn Tyr Leu
                85   90   95

Asp Leu Tyr Leu Ile His Trp Pro Met Gly Phe Lys Pro Pro His Pro
            100   105   110

Glu Trp Ile Met Ser Cys Ser Glu Leu Ser Phe Cys Leu Ser His Pro
        115   120   125

```
Arg Val Gln Asp Leu Pro Leu Asp Glu Ser Asn Met Val Ile Pro Ser
    130                 135                 140

Asp Thr Asp Phe Leu Asp Thr Trp Glu Ala Met Glu Asp Leu Val Ile
145                 150                 155                 160

Thr Gly Leu Val Lys Asn Ile Gly Val Ser Asn Phe Asn His Glu Gln
                165                 170                 175

Leu Glu Arg Leu Leu Asn Lys Pro Gly Leu Arg Phe Lys Pro Leu Thr
            180                 185                 190

Asn Gln Ile Glu Cys His Pro Tyr Leu Thr Gln Lys Asn Leu Ile Ser
        195                 200                 205

Phe Cys Gln Ser Arg Asp Val Ser Val Thr Ala Tyr Arg Pro Leu Gly
    210                 215                 220

Gly Ser Cys Glu Gly Val Asp Leu Ile Asp Asn Pro Val Ile Lys Arg
225                 230                 235                 240

Ile Ala Lys Glu His Gly Lys Ser Pro Ala Gln Ile Leu Ile Arg Phe
                245                 250                 255

Gln Ile Gln Arg Asn Val Ile Val Ile Pro Gly Ser Ile Thr Pro Ser
            260                 265                 270

His Ile Lys Glu Asn Ile Gln Val Phe Asp Phe Glu Leu Thr Gln His
        275                 280                 285

Asp Met Asp Asn Ile Leu Ser Leu Asn Arg Asn Leu Arg Leu Ala Met
    290                 295                 300

Phe Pro Ile Thr Lys Asn His Lys Asp Tyr Pro Phe His Ile Glu Tyr
305                 310                 315                 320
```

<210> 3984
<211> 263
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 904; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1E2; "

<220>
<221> source
<223> /note="Gene Name:
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member E2; "

<220>
<221> source
<223> /note="Uniprot ID: Q96JD6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000335034"

<400> 3984

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Met Gly Asp Ile Pro Ala Val Gly Leu Ser Ser Trp Lys Ala Ser Pro
1               5                  10                  15

Gly Lys Val Thr Glu Ala Val Lys Glu Ala Ile Asp Ala Gly Tyr Arg
            20                  25                  30

His Phe Asp Cys Ala Tyr Phe Tyr His Asn Glu Arg Glu Val Gly Ala
        35                  40                  45

Gly Ile Arg Cys Lys Ile Lys Glu Gly Ala Val Arg Arg Glu Asp Leu
    50                  55                  60

Phe Ile Ala Thr Lys Leu Trp Cys Thr Cys His Lys Lys Ser Leu Val
65                  70                  75                  80

Glu Thr Ala Cys Arg Lys Ser Leu Lys Ala Leu Lys Leu Asn Tyr Leu
                85                  90                  95

Asp Leu Tyr Leu Ile His Trp Pro Met Gly Phe Lys Pro Pro His Pro
            100                 105                 110

Glu Trp Ile Met Ser Cys Ser Glu Leu Ser Phe Cys Leu Ser His Pro
        115                 120                 125

Arg Val Gln Asp Leu Pro Leu Asp Glu Ser Asn Met Val Ile Pro Ser
    130                 135                 140
```

```
Asp Thr Asp Phe Leu Asp Thr Trp Glu Ala Met Glu Asp Leu Val Ile
145                 150                 155                 160

Thr Gly Leu Val Lys Asn Ile Gly Val Ser Asn Phe Asn His Glu Gln
                165                 170                 175

Leu Glu Arg Leu Leu Asn Lys Pro Gly Leu Arg Phe Lys Pro Leu Thr
            180                 185                 190

Asn Gln Ile Leu Ile Arg Phe Gln Ile Gln Arg Asn Val Ile Val Ile
        195                 200                 205

Pro Gly Ser Ile Thr Pro Ser His Ile Lys Glu Asn Ile Gln Val Phe
    210                 215                 220

Asp Phe Glu Leu Thr Gln His Asp Met Asp Asn Ile Leu Ser Leu Asn
225                 230                 235                 240

Arg Asn Leu Arg Leu Ala Met Phe Pro Ile Thr Lys Asn His Lys Asp
                245                 250                 255

Tyr Pro Phe His Ile Glu Tyr
            260


<210> 3985
<211> 222
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member E2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96JD6; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000335603"

<400> 3985

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Met Gly Asp Ile Pro Ala Val Gly Leu Ser Ser Trp Lys Ala Ser Pro
1               5                  10                  15

Gly Lys Val Thr Glu Ala Val Lys Glu Ala Ile Asp Ala Gly Tyr Arg
            20                  25                  30

His Phe Asp Cys Ala Tyr Phe Tyr His Asn Glu Arg Glu Val Gly Ala
        35                  40                  45

Gly Ile Arg Cys Lys Ile Lys Glu Gly Ala Val Arg Arg Glu Asp Leu
    50                  55                  60

Phe Ile Ala Thr Lys Leu Trp Cys Thr Cys His Lys Lys Ser Leu Val
65                  70                  75                  80

Glu Thr Ala Cys Arg Lys Ser Leu Lys Ala Leu Lys Leu Asn Tyr Leu
                85                  90                  95

Asp Leu Tyr Leu Ile His Trp Pro Met Gly Phe Lys Pro Pro His Pro
            100                 105                 110

Glu Trp Ile Met Ser Cys Ser Glu Leu Ser Phe Cys Leu Ser His Pro
        115                 120                 125

Arg Val Gln Asp Leu Pro Leu Asp Glu Ser Asn Met Val Ile Pro Ser
    130                 135                 140

Asp Thr Asp Phe Leu Asp Thr Trp Glu Ile Leu Ile Arg Phe Gln Ile
145                 150                 155                 160

Gln Arg Asn Val Ile Val Ile Pro Gly Ser Ile Thr Pro Ser His Ile
                165                 170                 175

Lys Glu Asn Ile Gln Val Phe Asp Phe Glu Leu Thr Gln His Asp Met
            180                 185                 190

Asp Asn Ile Leu Ser Leu Asn Arg Asn Leu Arg Leu Ala Met Phe Pro
        195                 200                 205

Ile Thr Lys Asn His Lys Asp Tyr Pro Phe His Ile Glu Tyr
    210                 215                 220
```

<210> 3986
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 904; "

<220>
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<223> /note="Gene Symbol: AKR1E2; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 1,
member E2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431625"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3986
Xaa Asp Val Ser Val Thr Ala Tyr Arg Pro Leu Gly Gly Ser Cys Glu
1 5 10 15

Gly Val Asp Leu Ile Asp Asn Pro Val Ile Lys Arg Ile Ala Lys Glu
20 25 30

His Asp Phe Asp Pro Ile Ser Asn Pro Glu Glu Cys Asp Ser Asp Pro
35 40 45

Arg Ile Tyr His Pro Lys Ser His
50 55

<210> 3987
<211> 250
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 904; "

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<223> /note="Gene Symbol: AKR1E2; "

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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000432947"

<400> 3987

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Met Gly Asp Ile Pro Ala Val Gly Leu Ser Ser Trp Lys Ala Ser Pro
1               5                  10                  15

Gly Lys Val Thr Glu Ala Val Lys Glu Ala Ile Asp Ala Gly Tyr Arg
            20                  25                  30

His Phe Asp Cys Ala Tyr Phe Tyr His Asn Glu Arg Glu Val Gly Ala
        35                  40                  45

Gly Ile Arg Cys Lys Ile Lys Glu Gly Ala Val Arg Arg Glu Asp Leu
    50                  55                  60

Phe Ile Ala Thr Lys Leu Trp Cys Thr Cys His Lys Lys Ser Leu Val
65                  70                  75                  80

Glu Thr Ala Cys Arg Lys Ser Leu Lys Ala Leu Lys Leu Asn Tyr Leu
                85                  90                  95

Asp Leu Tyr Leu Ile His Trp Pro Met Gly Phe Lys Pro Pro His Pro
            100                 105                 110

Glu Trp Ile Met Ser Cys Ser Glu Leu Ser Phe Cys Leu Ser His Pro
        115                 120                 125

Arg Val Gln Asp Leu Pro Leu Asp Glu Ser Asn Met Val Ile Pro Ser
    130                 135                 140

Asp Thr Asp Phe Leu Asp Thr Trp Glu Ala Met Glu Asp Leu Val Ile
145                 150                 155                 160
```

```
Thr Gly Leu Val Lys Asn Ile Gly Val Ser Asn Phe Asn His Glu Gln
                165                 170                 175

Leu Glu Arg Leu Leu Asn Lys Pro Gly Leu Arg Phe Lys Pro Leu Thr
            180                 185                 190

Asn Gln Ile Leu Ile Arg Phe Gln Ile Gln Arg Asn Val Ile Val Ile
        195                 200                 205

Pro Gly Ser Ile Thr Pro Ser His Ile Lys Glu Asn Ile Gln Val Phe
    210                 215                 220

Asp Phe Glu Leu Thr Gln His Asp Met Asp Asn Ile Leu Ser Leu Asn
225                 230                 235                 240

Arg Asn Leu Arg Leu Ala Met Phe Pro Met
                245                 250


<210> 3988
<211> 37
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 904; "

<220>
<221> source
<223> /note="Gene Symbol: AKR1E2; "

<220>
<221> source
<223> /note="Gene Name:
      aldo-keto reductase family 1,
      member E2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433496"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3988
Xaa Ser Leu Lys Ala Leu Lys Leu Asn Tyr Leu Asp Leu Tyr Leu Ile
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```
1               5                   10                  15

His Trp Pro Met Gly Phe Lys Val Pro Phe Thr Ser Ser Ser Arg Met
            20                  25                  30

Asp His Glu Leu Gln
        35
```

<210> 3989
<211> 203
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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member E2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434437"

<400> 3989

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Met Gly Phe Lys Pro Pro His Pro Glu Trp Ile Met Ser Cys Ser Glu
1               5                   10                  15

Leu Ser Phe Cys Leu Ser His Pro Arg Val Gln Asp Leu Pro Leu Asp
            20                  25                  30

Glu Ser Asn Met Val Ile Pro Ser Asp Thr Asp Phe Leu Asp Thr Trp
        35                  40                  45

Glu Ala Met Glu Asp Leu Val Ile Thr Gly Leu Val Lys Asn Ile Gly
    50                  55                  60

Val Ser Asn Phe Asn His Glu Gln Leu Glu Arg Leu Leu Asn Lys Pro
65                  70                  75                  80

Gly Leu Arg Phe Lys Pro Leu Thr Asn Gln Ile Glu Cys His Pro Tyr
                85                  90                  95
```

```
Leu Thr Gln Lys Asn Leu Ile Ser Phe Cys Gln Ser Arg Asp Val Ser
            100                 105                 110

Val Thr Ala Tyr Arg Pro Leu Gly Gly Ser Cys Glu Gly Val Asp Leu
        115                 120                 125

Ile Asp Asn Pro Val Ile Lys Arg Ile Ala Lys Glu His Gly Lys Ser
    130                 135                 140

Pro Ala Gln Ile Leu Ile Arg Phe Gln Ile Gln Arg Asn Val Ile Val
145                 150                 155                 160

Ile Pro Gly Ser Ile Thr Pro Ser His Ile Lys Glu Asn Ile Gln Val
                165                 170                 175

Phe Asp Phe Glu Leu Thr Gln His Asp Met Asp Asn Ile Leu Ser Leu
            180                 185                 190

Asn Arg Asn Leu Arg Leu Ala Met Phe Pro Met
        195                 200


<210> 3990
<211> 198
<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:
      aldo-keto reductase family 1,
      member E2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435436"

<400> 3990
Met Gln Val Ile Phe Ser Thr Ala Pro Trp Pro Asn Leu Pro Arg Ala
1               5                   10                  15
```

```
Gln Ala Ser Pro Gly Lys Val Thr Glu Ala Val Lys Glu Ala Ile Asp
            20                  25                  30

Ala Gly Tyr Arg His Phe Asp Cys Ala Tyr Phe Tyr His Asn Glu Arg
        35                  40                  45

Glu Val Gly Ala Gly Ile Arg Cys Lys Ile Lys Glu Gly Ala Val Arg
    50                  55                  60

Arg Glu Asp Leu Phe Ile Ala Thr Lys Leu Trp Cys Thr Cys His Lys
65                  70                  75                  80

Lys Ser Leu Val Glu Thr Ala Cys Arg Lys Ser Leu Lys Ala Leu Lys
                85                  90                  95

Leu Asn Tyr Leu Asp Leu Tyr Leu Ile His Trp Pro Met Gly Phe Lys
            100                 105                 110

Pro Pro His Pro Glu Trp Ile Met Ser Cys Ser Glu Leu Ser Phe Cys
        115                 120                 125

Leu Ser His Pro Arg Val Gln Asp Leu Pro Leu Asp Glu Ser Asn Met
    130                 135                 140

Val Ile Pro Ser Asp Thr Asp Phe Leu Asp Thr Trp Glu Ala Met Glu
145                 150                 155                 160

Asp Leu Val Ile Thr Gly Leu Val Lys Asn Ile Gly Val Ser Asn Phe
                165                 170                 175

Asn His Glu Gln Leu Glu Arg Leu Leu Asn Lys Pro Gly Leu Arg Phe
            180                 185                 190

Lys Pro Leu Thr Asn Gln
        195


<210> 3991
<211> 307
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 904; "
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<220>
<221> source
<223> /note="Gene Symbol: AKR1E2; "

<220>
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<223> /note="Gene Name:
aldo-keto reductase family 1,
member E2; "

<220>
<221> source
<223> /note="Uniprot ID: Q96JD6; "

<220>
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<223> /note="ENSP ID: ENSP00000436794"

<400> 3991
Met Gly Asp Ile Pro Ala Val Gly Leu Ser Ser Trp Lys Ala Ser Pro
1   5   10   15

Gly Lys Val Thr Glu Ala Val Lys Glu Ala Ile Asp Ala Gly Tyr Arg
            20   25   30

His Phe Asp Cys Ala Tyr Phe Tyr His Asn Glu Arg Glu Val Gly Ala
        35   40   45

Gly Ile Arg Cys Lys Ile Lys Glu Gly Ala Val Arg Arg Glu Asp Leu
    50   55   60

Phe Ile Ala Thr Lys Leu Trp Cys Thr Cys His Lys Lys Ser Leu Val
65   70   75   80

Glu Thr Ala Cys Arg Lys Ser Leu Lys Ala Leu Lys Leu Asn Tyr Leu
                85   90   95

Asp Leu Tyr Leu Ile His Trp Pro Met Gly Phe Lys Pro Pro His Pro
            100   105   110

Glu Trp Ile Met Ser Cys Ser Glu Leu Ser Phe Cys Leu Ser His Pro
        115   120   125

Arg Val Gln Asp Leu Pro Leu Asp Glu Ser Asn Met Val Ile Pro Ser
    130   135   140

Asp Thr Asp Phe Leu Asp Thr Trp Glu Ala Met Glu Asp Leu Val Ile

```
145                 150                 155                 160

Thr Gly Leu Val Lys Asn Ile Gly Val Ser Asn Phe Asn His Glu Gln
                165                 170                 175

Leu Glu Arg Leu Leu Asn Lys Pro Gly Leu Arg Phe Lys Pro Leu Thr
            180                 185                 190

Asn Gln Ile Glu Cys His Pro Tyr Leu Thr Gln Lys Asn Leu Ile Ser
        195                 200                 205

Phe Cys Gln Ser Arg Asp Val Ser Val Thr Ala Tyr Arg Pro Leu Gly
    210                 215                 220

Gly Ser Cys Glu Gly Val Asp Leu Ile Asp Asn Pro Val Ile Lys Arg
225                 230                 235                 240

Ile Ala Lys Glu His Gly Lys Ser Pro Ala Gln Ile Leu Ile Arg Phe
                245                 250                 255

Gln Ile Gln Arg Asn Val Ile Val Ile Pro Gly Ser Ile Thr Pro Ser
            260                 265                 270

His Ile Lys Glu Asn Ile Gln Val Phe Asp Phe Glu Leu Thr Gln His
        275                 280                 285

Asp Met Asp Asn Ile Leu Ser Leu Asn Arg Asn Leu Arg Leu Ala Met
    290                 295                 300

Phe Pro Met
305


<210> 3992
<211> 359
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 905; "

<220>
<221> source
<223> /note="Gene Symbol: AKR7A2; "

<220>
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<221> source
<223> /note="Gene Name:
aldo-keto reductase family 7,
member A2; "

<220>
<221> source
<223> /note="Uniprot ID: O43488; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000235835"

<400> 3992

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Met Leu Ser Ala Ala Ser Arg Val Val Ser Arg Ala Ala Val His Cys
1               5                  10                  15

Ala Leu Arg Ser Pro Pro Pro Glu Ala Arg Ala Leu Ala Met Ser Arg
            20                  25                  30

Pro Pro Pro Pro Arg Val Ala Ser Val Leu Gly Thr Met Glu Met Gly
        35                  40                  45

Arg Arg Met Asp Ala Pro Ala Ser Ala Ala Ala Val Arg Ala Phe Leu
    50                  55                  60

Glu Arg Gly His Thr Glu Leu Asp Thr Ala Phe Met Tyr Ser Asp Gly
65                  70                  75                  80

Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Gly Leu Gly Gly Gly
                85                  90                  95

Asp Cys Arg Val Lys Ile Ala Thr Lys Ala Asn Pro Trp Asp Gly Lys
            100                 105                 110

Ser Leu Lys Pro Asp Ser Val Arg Ser Gln Leu Glu Thr Ser Leu Lys
        115                 120                 125

Arg Leu Gln Cys Pro Gln Val Asp Leu Phe Tyr Leu His Ala Pro Asp
    130                 135                 140

His Gly Thr Pro Val Glu Glu Thr Leu His Ala Cys Gln Arg Leu His
145                 150                 155                 160

Gln Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn Tyr Ala Ser Trp
                165                 170                 175
```

```
Glu Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn Gly Trp Ile Leu
            180                 185                 190

Pro Thr Val Tyr Gln Gly Met Tyr Asn Ala Thr Thr Arg Gln Val Glu
        195                 200                 205

Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu Arg Phe Tyr Ala
    210                 215                 220

Tyr Asn Pro Leu Ala Gly Gly Leu Leu Thr Gly Lys Tyr Lys Tyr Glu
225                 230                 235                 240

Asp Lys Asp Gly Lys Gln Pro Val Gly Arg Phe Phe Gly Asn Ser Trp
                245                 250                 255

Ala Glu Thr Tyr Arg Asn Arg Phe Trp Lys Glu His His Phe Glu Ala
            260                 265                 270

Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr Gly Ala Ser Ala
        275                 280                 285

Pro Ser Val Thr Ser Ala Ala Leu Arg Trp Met Tyr His His Ser Gln
    290                 295                 300

Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly Met Ser Ser Leu
305                 310                 315                 320

Glu Gln Leu Glu Gln Asn Leu Ala Ala Thr Glu Glu Gly Pro Leu Glu
                325                 330                 335

Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His Leu Val Ala His
            340                 345                 350

Glu Cys Pro Asn Tyr Phe Arg
        355


<210> 3993
<211> 314
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 905; "
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<220>
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<220>
<221> source
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aldo-keto reductase family 7,
member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000339084"

<400> 3993

```
Arg Ala Ala Val His Cys Ala Leu Arg Ser Pro Pro Pro Glu Ala Arg
1               5                  10                  15

Ala Leu Ala Met Ser Arg Pro Pro Pro Pro Arg Val Ala Ser Val Leu
            20                  25                  30

Gly Thr Met Glu Met Gly Arg Arg Met Asp Ala Pro Ala Ser Ala Ala
        35                  40                  45

Ala Val Arg Ala Phe Leu Glu Arg Gly His Thr Glu Leu Asp Thr Ala
    50                  55                  60

Phe Met Tyr Ser Asp Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly
65                  70                  75                  80

Leu Gly Leu Gly Gly Gly Asp Cys Arg Val Lys Ile Ala Thr Lys Ala
                85                  90                  95

Asn Pro Trp Asp Gly Lys Ser Leu Lys Pro Asp Ser Val Arg Ser Gln
            100                 105                 110

Leu Glu Thr Ser Leu Lys Arg Leu Gln Cys Pro Gln Val Asp Leu Phe
        115                 120                 125

Tyr Leu His Ala Pro Asp His Gly Thr Pro Val Glu Glu Thr Leu His
    130                 135                 140

Ala Cys Gln Arg Leu His Gln Glu Gly Met Tyr Asn Ala Thr Thr Arg
145                 150                 155                 160

Gln Val Glu Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu Arg
```

```
                165                 170                 175

Phe Tyr Ala Tyr Asn Pro Leu Ala Gly Gly Leu Leu Thr Gly Lys Tyr
            180                 185                 190

Lys Tyr Glu Asp Lys Asp Gly Lys Gln Pro Val Gly Arg Phe Phe Gly
        195                 200                 205

Asn Ser Trp Ala Glu Thr Tyr Arg Asn Arg Phe Trp Lys Glu His His
    210                 215                 220

Phe Glu Ala Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr Gly
225                 230                 235                 240

Ala Ser Ala Pro Ser Val Thr Ser Ala Ala Leu Arg Trp Met Tyr His
                245                 250                 255

His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly Met
            260                 265                 270

Ser Ser Leu Glu Gln Leu Glu Gln Asn Leu Ala Ala Thr Glu Glu Gly
        275                 280                 285

Pro Leu Glu Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His Leu
    290                 295                 300

Val Ala His Glu Cys Pro Asn Tyr Phe Arg
305                 310


<210> 3994
<211> 55
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 905; "

<220>
<221> source
<223> /note="Gene Symbol: AKR7A2; "

<220>
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<223> /note="Gene Name:
      aldo-keto reductase family 7,
      member A2; "
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<220>
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<223> /note="ENSP ID: ENSP00000417891"

<400> 3994
Gly Thr Pro Val Glu Glu Thr Leu His Ala Cys Gln Arg Leu His Gln
1   5   10   15

Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn Tyr Ala Ser Trp Glu
            20   25   30

Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn Gly Trp Ile Leu Pro
        35   40   45

Thr Val Tyr Gln Gly Ala Cys
    50   55

<210> 3995
<211> 205
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AKR7A2; "

<220>
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member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419936"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 3995
Xaa Ala Phe Met Tyr Ser Asp Gly Gln Ser Glu Thr Ile Leu Gly Gly
1   5   10   15

Leu Gly Leu Gly Leu Gly Gly Gly Asp Cys Arg Val Lys Ile Ala Thr

```
            20                  25                  30

Lys Ala Asn Pro Trp Asp Gly Lys Ser Leu Lys Pro Asp Ser Val Arg
        35                  40                  45

Ser Gln Leu Glu Thr Ser Leu Lys Arg Leu Gln Cys Pro Gln Val Asp
    50                  55                  60

Leu Phe Tyr Leu His Ala Pro Asp His Gly Thr Pro Val Glu Glu Thr
65                  70                  75                  80

Leu His Ala Cys Gln Arg Leu His Gln Glu Gly Lys Phe Val Glu Leu
                85                  90                  95

Gly Leu Ser Asn Tyr Ala Ser Trp Glu Val Ala Glu Ile Cys Thr Leu
            100                 105                 110

Cys Lys Ser Asn Gly Trp Ile Leu Pro Thr Val Tyr Gln Leu Leu Glu
        115                 120                 125

Gly Ala Pro Leu Arg Gly His Cys Val Gly Gly Glu Gly Pro Ala Gly
    130                 135                 140

Arg Ile Trp Arg Gln Arg Pro Gln Cys Asp Leu Gly Cys Pro Pro Val
145                 150                 155                 160

Asp Val Pro Pro Leu Thr Ala Ala Gly Cys Pro Arg Gly Arg Gly His
                165                 170                 175

Pro Gly His Val Gln Pro Gly Ala Ala Gly Ala Glu Leu Gly Ser Asn
            180                 185                 190

Arg Gly Arg Ala Pro Gly Ala Gly Cys Arg Gly Cys Leu
        195                 200                 205


<210> 3996
<211> 331
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 906; "

<220>
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<221> source
<223> /note="Gene Symbol: AKR7A3; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 7,
member A3
(aflatoxin aldehyde reductase); "

<220>
<221> source
<223> /note="Uniprot ID: O95154; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000355377"

<400> 3996

```
Met Ser Arg Gln Leu Ser Arg Ala Arg Pro Ala Thr Val Leu Gly Ala
1               5                  10                  15

Met Glu Met Gly Arg Arg Met Asp Ala Pro Thr Ser Ala Ala Val Thr
            20                  25                  30

Arg Ala Phe Leu Glu Arg Gly His Thr Glu Ile Asp Thr Ala Phe Val
        35                  40                  45

Tyr Ser Glu Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Arg
    50                  55                  60

Leu Gly Gly Ser Asp Cys Arg Val Lys Ile Asp Thr Lys Ala Ile Pro
65                  70                  75                  80

Leu Phe Gly Asn Ser Leu Lys Pro Asp Ser Leu Arg Phe Gln Leu Glu
                85                  90                  95

Thr Ser Leu Lys Arg Leu Gln Cys Pro Arg Val Asp Leu Phe Tyr Leu
            100                 105                 110

His Met Pro Asp His Ser Thr Pro Val Glu Glu Thr Leu Arg Ala Cys
        115                 120                 125

His Gln Leu His Gln Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn
    130                 135                 140

Tyr Ala Ala Trp Glu Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn
145                 150                 155                 160
```

```
Gly Trp Ile Leu Pro Thr Val Tyr Gln Gly Met Tyr Asn Ala Ile Thr
                165                 170                 175

Arg Gln Val Glu Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu
            180                 185                 190

Arg Phe Tyr Ala Phe Asn Pro Leu Ala Gly Gly Leu Leu Thr Gly Lys
        195                 200                 205

Tyr Lys Tyr Glu Asp Lys Asn Gly Lys Gln Pro Val Gly Arg Phe Phe
    210                 215                 220

Gly Asn Thr Trp Ala Glu Met Tyr Arg Asn Arg Tyr Trp Lys Glu His
225                 230                 235                 240

His Phe Glu Gly Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr
                245                 250                 255

Gly Ala Ser Ala Pro Ser Met Thr Ser Ala Thr Leu Arg Trp Met Tyr
            260                 265                 270

His His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly
        275                 280                 285

Met Ser Ser Leu Glu Gln Leu Glu Gln Asn Leu Ala Ala Ala Glu Glu
    290                 295                 300

Gly Pro Leu Glu Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His
305                 310                 315                 320

Leu Val Thr His Glu Cys Pro Asn Tyr Phe Arg
                325                 330
```

<210> 3997
<211> 204
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 907; "

<220>
<221> source

<223> /note="Gene Symbol: AKR7L; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 7-like
(
gene/pseudogene); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402491"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 3997

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Xaa Ala Phe Leu Tyr Ser Asp Gly Gln Ser Glu Thr Ile Leu Gly Gly
1               5                  10                  15

Leu Gly Leu Arg Met Gly Ser Ser Asp Cys Arg Val Lys Ile Ala Thr
            20                  25                  30

Lys Ala Asn Pro Trp Ile Gly Asn Ser Leu Lys Pro Asp Ser Val Arg
        35                  40                  45

Ser Gln Leu Glu Thr Ser Leu Lys Arg Leu Gln Cys Pro Val Asp Leu
    50                  55                  60

Phe Tyr Leu His Ala Pro Asp His Ser Ala Pro Val Glu Glu Thr Leu
65                  70                  75                  80

Arg Ala Cys His Gln Leu His Gln Glu Gly Lys Phe Val Glu Leu Gly
                85                  90                  95

Leu Ser Asn Tyr Ala Ala Trp Glu Val Ala Glu Ile Cys Thr Leu Cys
            100                 105                 110

Lys Ser Asn Gly Trp Ile Leu Pro Thr Val Tyr Gln Leu Leu Glu Gly
        115                 120                 125

Ala Pro Leu Arg Gly His Cys Pro Gly Gly Glu Gly Pro Ala Gly Arg
    130                 135                 140
```

```
Val Trp Arg Gln Arg Ser Gln His Asp Leu Gly Arg Pro Pro Val Asp
145                 150                 155                 160


Val Pro Pro Leu Thr Ala Ala Gly Cys Pro Arg Gly Arg Gly His Pro
                165                 170                 175


Gly His Val Gln Pro Gly Ala Ala Gly Ala Glu Leu Gly Ser Gly Arg
            180                 185                 190


Gly Arg Ala Pro Gly Ala Gly Cys Arg Gly Arg Leu
        195                 200


<210> 3998
<211> 330
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 907; "

<220>
<221> source
<223> /note="Gene Symbol: AKR7L; "

<220>
<221> source
<223> /note="Gene Name:
      aldo-keto reductase family 7-like
      (
      gene/pseudogene); "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NHP1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406430"

<400> 3998
Met Ser Arg Gln Leu Ser Arg Ala Arg Pro Ala Thr Val Leu Gly Ala
1               5                   10                  15


Met Glu Met Gly Arg Arg Met Asp Ala Pro Thr Ser Ala Ala Val Thr
            20                  25                  30


Arg Ala Phe Leu Glu Arg Gly His Thr Glu Ile Asp Thr Ala Phe Leu
        35                  40                  45
```

```
Tyr Ser Asp Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Arg
    50                  55                  60

Met Gly Ser Ser Asp Cys Arg Val Lys Ile Ala Thr Lys Ala Asn Pro
65                  70                  75                  80

Trp Ile Gly Asn Ser Leu Lys Pro Asp Ser Val Arg Ser Gln Leu Glu
                85                  90                  95

Thr Ser Leu Lys Arg Leu Gln Cys Pro Val Asp Leu Phe Tyr Leu His
            100                 105                 110

Ala Pro Asp His Ser Ala Pro Val Glu Glu Thr Leu Arg Ala Cys His
        115                 120                 125

Gln Leu His Gln Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn Tyr
    130                 135                 140

Ala Ala Trp Glu Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn Gly
145                 150                 155                 160

Trp Ile Leu Pro Thr Val Tyr Gln Gly Met Tyr Ser Ala Thr Thr Arg
                165                 170                 175

Gln Val Glu Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu Arg
            180                 185                 190

Phe Tyr Ala Tyr Asn Pro Leu Ala Gly Gly Leu Leu Thr Gly Lys Tyr
        195                 200                 205

Lys Tyr Glu Asp Lys Asp Gly Lys Gln Pro Val Gly Arg Phe Phe Gly
    210                 215                 220

Thr Gln Trp Ala Glu Ile Tyr Arg Asn His Phe Trp Lys Glu His His
225                 230                 235                 240

Phe Glu Gly Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr Gly
                245                 250                 255

Ala Ser Ala Pro Ser Met Thr Ser Ala Ala Leu Arg Trp Met Tyr His
            260                 265                 270

His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly Met
```

275 280 285

Ser Ser Leu Glu Gln Leu Glu Gln Asn Leu Ala Ala Ala Glu Glu Gly
290 295 300

Pro Leu Glu Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His Leu
305 310 315 320

Phe Ala His Glu Cys Pro Asn Tyr Phe Ile
325 330

<210> 3999
<211> 330
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 907; "

<220>
<221> source
<223> /note="Gene Symbol: AKR7L; "

<220>
<221> source
<223> /note="Gene Name:
aldo-keto reductase family 7-like
(
gene/pseudogene); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000411913"

<400> 3999
Met Ser Arg Gln Leu Ser Arg Ala Arg Pro Ala Thr Val Leu Gly Ala
1 5 10 15

Met Glu Met Gly Arg Arg Met Asp Ala Pro Thr Ser Ala Ala Val Thr
20 25 30

Arg Ala Phe Leu Glu Arg Gly His Thr Glu Ile Asp Thr Ala Phe Leu
35 40 45

Tyr Ser Asp Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Arg
50 55 60

Met Gly Ser Ser Asp Cys Arg Val Lys Ile Ala Thr Lys Ala Asn Pro

65 70 75 80

Trp Ile Gly Asn Ser Leu Lys Pro Asp Ser Val Arg Ser Gln Leu Glu
85 90 95

Thr Ser Leu Lys Arg Leu Gln Cys Pro Val Asp Leu Phe Tyr Leu His
100 105 110

Ala Pro Asp His Ser Ala Pro Val Glu Glu Thr Leu Arg Ala Cys His
115 120 125

Gln Leu His Gln Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn Tyr
130 135 140

Ala Ala Trp Glu Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn Gly
145 150 155 160

Trp Ile Leu Pro Thr Val Tyr Gln Gly Met Tyr Ser Ala Thr Thr Arg
165 170 175

Gln Val Glu Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu Arg
180 185 190

Phe Tyr Ala Tyr Asn Pro Leu Ala Gly Gly Leu Leu Thr Gly Lys Tyr
195 200 205

Lys Tyr Glu Asp Lys Asp Gly Lys Gln Pro Val Gly Arg Phe Phe Gly
210 215 220

Thr Gln Trp Ala Glu Ile Tyr Arg Asn His Phe Trp Lys Glu His His
225 230 235 240

Phe Glu Gly Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr Gly
245 250 255

Ala Ser Ala Pro Ser Met Thr Ser Ala Ala Leu Arg Trp Met Tyr His
260 265 270

His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly Met
275 280 285

Ser Ser Leu Glu Gln Leu Glu Gln Asn Leu Ala Ala Ala Glu Glu Gly
290 295 300

```
Pro Leu Glu Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His Leu
305                 310                 315                 320


Phe Ala His Glu Cys Pro Asn Tyr Phe Ile
                325                 330


<210> 4000
<211> 364
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 908; "

<220>
<221> source
<223> /note="Gene Symbol: ALDOA; "

<220>
<221> source
<223> /note="Gene Name:
      aldolase A, fructose-bisphosphate; "

<220>
<221> source
<223> /note="Uniprot ID:  P04075; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000336927"

<400> 4000
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1               5                   10                  15


Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30


Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
        35                  40                  45


Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50                  55                  60


Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65                  70                  75                  80
```

```
His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85                  90                  95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn
        275                 280                 285

Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn
```

305 310 315 320

Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser
325 330 335

Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala
340 345 350

Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
355 360

<210> 4001
<211> 368
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 908; "

<220>
<221> source
<223> /note="Gene Symbol: ALDOA; "

<220>
<221> source
<223> /note="Gene Name:
aldolase A, fructose-bisphosphate; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378661"

<400> 4001
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1 5 10 15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
20 25 30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
35 40 45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
50 55 60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65 70 75 80

```
His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85                  90                  95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Val Gly Leu Gln Asn Gly Ile Val Pro Ile Val Glu
            180                 185                 190

Pro Glu Ile Leu Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr
        195                 200                 205

Val Thr Glu Lys Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His
    210                 215                 220

His Ile Tyr Leu Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro
225                 230                 235                 240

Gly His Ala Cys Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala
                245                 250                 255

Thr Val Thr Ala Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile
            260                 265                 270

Thr Phe Leu Ser Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu
        275                 280                 285

Asn Ala Ile Asn Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe
    290                 295                 300
```

```
Ser Tyr Gly Arg Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly
305                 310                 315                 320

Lys Lys Glu Asn Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala
                325                 330                 335

Leu Ala Asn Ser Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln
            340                 345                 350

Ala Gly Ala Ala Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
        355                 360                 365


<210> 4002
<211> 418
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 908; "

<220>
<221> source
<223> /note="Gene Symbol: ALDOA; "

<220>
<221> source
<223> /note="Gene Name:
      aldolase A, fructose-bisphosphate; "

<220>
<221> source
<223> /note="Uniprot ID:  P04075; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378669"

<400> 4002
Met Ala Arg Arg Lys Pro Glu Gly Ser Ser Phe Asn Met Thr His Leu
1               5                   10                  15

Ser Met Ala Met Ala Phe Ser Phe Pro Pro Val Ala Ser Gly Gln Leu
            20                  25                  30

His Pro Gln Leu Gly Asn Thr Gln His Gln Thr Glu Leu Gly Lys Glu
        35                  40                  45

Leu Ala Thr Thr Ser Thr Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro
    50                  55                  60
```

```
Glu Gln Lys Lys Glu Leu Ser Asp Ile Ala His Arg Ile Val Ala Pro
65                  70                  75                  80

Gly Lys Gly Ile Leu Ala Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys
                85                  90                  95

Arg Leu Gln Ser Ile Gly Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe
            100                 105                 110

Tyr Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn Pro Cys Ile
        115                 120                 125

Gly Gly Val Ile Leu Phe His Glu Thr Leu Tyr Gln Lys Ala Asp Asp
    130                 135                 140

Gly Arg Pro Phe Pro Gln Val Ile Lys Ser Lys Gly Gly Val Val Gly
145                 150                 155                 160

Ile Lys Val Asp Lys Gly Val Val Pro Leu Ala Gly Thr Asn Gly Glu
                165                 170                 175

Thr Thr Thr Gln Gly Leu Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr
            180                 185                 190

Lys Lys Asp Gly Ala Asp Phe Ala Lys Trp Arg Cys Val Leu Lys Ile
        195                 200                 205

Gly Glu His Thr Pro Ser Ala Leu Ala Ile Met Glu Asn Ala Asn Val
    210                 215                 220

Leu Ala Arg Tyr Ala Ser Ile Cys Gln Gln Asn Gly Ile Val Pro Ile
225                 230                 235                 240

Val Glu Pro Glu Ile Leu Pro Asp Gly Asp His Asp Leu Lys Arg Cys
                245                 250                 255

Gln Tyr Val Thr Glu Lys Val Leu Ala Ala Val Tyr Lys Ala Leu Ser
            260                 265                 270

Asp His His Ile Tyr Leu Glu Gly Thr Leu Leu Lys Pro Asn Met Val
        275                 280                 285
```

```
Thr Pro Gly His Ala Cys Thr Gln Lys Phe Ser His Glu Glu Ile Ala
    290                 295                 300

Met Ala Thr Val Thr Ala Leu Arg Arg Thr Val Pro Pro Ala Val Thr
305                 310                 315                 320

Gly Ile Thr Phe Leu Ser Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile
                325                 330                 335

Asn Leu Asn Ala Ile Asn Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu
            340                 345                 350

Thr Phe Ser Tyr Gly Arg Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp
        355                 360                 365

Gly Gly Lys Lys Glu Asn Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys
    370                 375                 380

Arg Ala Leu Ala Asn Ser Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser
385                 390                 395                 400

Gly Gln Ala Gly Ala Ala Ala Ser Glu Ser Leu Phe Val Ser Asn His
                405                 410                 415

Ala Tyr
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<210> 4003
<211> 364
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: P04075; "

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<400> 4003

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Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1               5                  10                  15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
        35                  40                  45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50                  55                  60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85                  90                  95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205
```

```
Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn
        275                 280                 285

Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn
305                 310                 315                 320

Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser
                325                 330                 335

Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala
            340                 345                 350

Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
        355                 360


<210> 4004
<211> 140
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<223> /note="Gene Name:
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<400> 4004
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1 5 10 15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Ser Ile Ala Lys Arg
20 25 30

Leu Gln Ser Ile Gly Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr
35 40 45

Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly
50 55 60

Gly Val Ile Leu Phe His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly
65 70 75 80

Arg Pro Phe Pro Gln Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile
85 90 95

Lys Val Asp Lys Gly Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr
100 105 110

Thr Thr Gln Gly Leu Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys
115 120 125

Lys Asp Gly Ala Asp Phe Ala Lys Trp Arg Cys Val
130 135 140

<210> 4005
<211> 278
<212> PRT
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<220>
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<400> 4005
Met Ala Arg Arg Lys Pro Glu Gly Ser Ser Phe Asn Met Thr His Leu
1 5 10 15

Ser Met Ala Met Ala Phe Ser Phe Pro Pro Val Ala Ser Gly Gln Leu
20 25 30

His Pro Gln Leu Gly Asn Thr Gln His Gln Thr Glu Leu Gly Lys Glu
35 40 45

Leu Ala Thr Thr Ser Thr Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro
50 55 60

Glu Gln Lys Lys Glu Leu Ser Asp Ile Ala His Arg Ile Val Ala Pro
65 70 75 80

Gly Lys Gly Ile Leu Ala Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys
85 90 95

Arg Leu Gln Ser Ile Gly Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe
100 105 110

Tyr Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn Pro Cys Ile
115 120 125

Gly Gly Val Ile Leu Phe His Glu Thr Leu Tyr Gln Lys Ala Asp Asp
130 135 140

Gly Arg Pro Phe Pro Gln Val Ile Lys Ser Lys Gly Gly Val Val Gly
145 150 155 160

Ile Lys Val Asp Lys Gly Val Val Pro Leu Ala Gly Thr Asn Gly Glu
165 170 175

Thr Thr Thr Gln Gly Leu Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr
180 185 190

```
Lys Lys Asp Gly Ala Asp Phe Ala Lys Trp Arg Cys Val Leu Lys Ile
        195                 200                 205

Gly Glu His Thr Pro Ser Ala Leu Ala Ile Met Glu Asn Ala Asn Val
    210                 215                 220

Leu Ala Arg Tyr Ala Ser Ile Cys Gln Gln Asn Gly Ile Val Pro Ile
225                 230                 235                 240

Val Glu Pro Glu Ile Leu Pro Asp Gly Asp His Asp Leu Lys Arg Cys
                245                 250                 255

Gln Tyr Val Thr Glu Lys Val Leu Ala Ala Val Tyr Lys Ala Leu Ser
            260                 265                 270

Asp His His Ile Tyr Leu
        275
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<210> 4006
<211> 364
<212> PRT
<213> Homo sapiens

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<400> 4006

```
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1               5                   10                  15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
```

```
            20                  25                  30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
        35                  40                  45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50                  55                  60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85                  90                  95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255
```

```
Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn
        275                 280                 285

Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn
305                 310                 315                 320

Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser
                325                 330                 335

Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala
            340                 345                 350

Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
        355                 360
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<210> 4007
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<212> PRT
<213> Homo sapiens

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<400> 4007

```
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1               5                  10                  15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
        35                  40                  45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50                  55                  60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85                  90                  95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
```

```
225                 230                 235                 240

Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn
        275                 280                 285

Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn
305                 310                 315                 320

Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser
                325                 330                 335

Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala
            340                 345                 350

Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
        355                 360


<210> 4008
<211> 364
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000455800"

<400> 4008
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1   5   10   15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20   25   30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
        35   40   45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50   55   60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65   70   75   80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85   90   95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100   105   110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115   120   125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130   135   140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145   150   155   160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165   170   175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180   185   190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195   200   205

```
Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn
        275                 280                 285

Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn
305                 310                 315                 320

Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser
                325                 330                 335

Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala
            340                 345                 350

Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
        355                 360


<210> 4009
<211> 361
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 4009
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1   5   10   15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20   25   30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
        35   40   45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50   55   60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65   70   75   80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85   90   95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100   105   110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115   120   125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130   135   140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145   150   155   160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165   170   175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180   185   190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195   200   205

```
Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn
        275                 280                 285

Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn
305                 310                 315                 320

Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Val Arg Ile
                325                 330                 335

Gly Arg Arg Trp Ala Gly Cys Leu Gly Gly Trp Asp Ser Glu Lys Ser
            340                 345                 350

Pro Ser His Ser Thr Pro Leu Pro Ala
        355                 360
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<210> 4010
<211> 364
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Uniprot ID: P04075; "

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<400> 4010
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1   5   10   15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20   25   30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
        35   40   45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50   55   60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65   70   75   80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85   90   95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100   105   110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115   120   125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130   135   140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145   150   155   160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165   170   175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180   185   190

```
Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn
        275                 280                 285

Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn
305                 310                 315                 320

Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser
                325                 330                 335

Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala
            340                 345                 350

Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
        355                 360


<210> 4011
<211> 162
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ALDOA; "

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<223> /note="Gene Name:
aldolase A, fructose-bisphosphate; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456020"

<400> 4011

```
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1               5                  10                  15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Ser Ile Ala Lys Arg
            20                  25                  30

Leu Gln Ser Ile Gly Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr
        35                  40                  45

Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly
    50                  55                  60

Gly Val Ile Leu Phe His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly
65                  70                  75                  80

Arg Pro Phe Pro Gln Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile
                85                  90                  95

Lys Val Asp Lys Gly Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr
            100                 105                 110

Thr Thr Gln Gly Leu Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys
        115                 120                 125

Lys Asp Gly Ala Asp Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly
    130                 135                 140

Glu His Thr Pro Ser Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu
145                 150                 155                 160

Ala Arg
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<210> 4012

<211> 130
<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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<222> (1)..(1)
<223> Any amino acid

<400> 4012
Xaa Pro Gly His Ala Cys Thr Gln Lys Phe Ser His Glu Glu Ile Ala
1 5 10 15

Met Ala Thr Val Thr Ala Leu Arg Arg Thr Val Pro Pro Ala Val Thr
20 25 30

Gly Ile Thr Phe Leu Ser Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile
35 40 45

Asn Leu Asn Ala Ile Asn Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu
50 55 60

Thr Phe Ser Tyr Gly Arg Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp
65 70 75 80

Gly Gly Lys Lys Glu Asn Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys
85 90 95

Arg Ala Leu Ala Asn Ser Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser
100 105 110

Gly Gln Ala Gly Ala Ala Ala Ser Glu Ser Leu Phe Val Ser Asn His

115 120 125

Ala Tyr
130

<210> 4013
<211> 418
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: P04075; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457468"

<400> 4013
Met Ala Arg Arg Lys Pro Glu Gly Ser Ser Phe Asn Met Thr His Leu
1 5 10 15

Ser Met Ala Met Ala Phe Ser Phe Pro Pro Val Ala Ser Gly Gln Leu
20 25 30

His Pro Gln Leu Gly Asn Thr Gln His Gln Thr Glu Leu Gly Lys Glu
35 40 45

Leu Ala Thr Thr Ser Thr Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro
50 55 60

Glu Gln Lys Lys Glu Leu Ser Asp Ile Ala His Arg Ile Val Ala Pro
65 70 75 80

Gly Lys Gly Ile Leu Ala Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys
85 90 95

```
Arg Leu Gln Ser Ile Gly Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe
            100                 105                 110

Tyr Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn Pro Cys Ile
        115                 120                 125

Gly Gly Val Ile Leu Phe His Glu Thr Leu Tyr Gln Lys Ala Asp Asp
    130                 135                 140

Gly Arg Pro Phe Pro Gln Val Ile Lys Ser Lys Gly Gly Val Val Gly
145                 150                 155                 160

Ile Lys Val Asp Lys Gly Val Val Pro Leu Ala Gly Thr Asn Gly Glu
                165                 170                 175

Thr Thr Thr Gln Gly Leu Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr
            180                 185                 190

Lys Lys Asp Gly Ala Asp Phe Ala Lys Trp Arg Cys Val Leu Lys Ile
        195                 200                 205

Gly Glu His Thr Pro Ser Ala Leu Ala Ile Met Glu Asn Ala Asn Val
    210                 215                 220

Leu Ala Arg Tyr Ala Ser Ile Cys Gln Gln Asn Gly Ile Val Pro Ile
225                 230                 235                 240

Val Glu Pro Glu Ile Leu Pro Asp Gly Asp His Asp Leu Lys Arg Cys
                245                 250                 255

Gln Tyr Val Thr Glu Lys Val Leu Ala Ala Val Tyr Lys Ala Leu Ser
            260                 265                 270

Asp His His Ile Tyr Leu Glu Gly Thr Leu Leu Lys Pro Asn Met Val
        275                 280                 285

Thr Pro Gly His Ala Cys Thr Gln Lys Phe Ser His Glu Glu Ile Ala
    290                 295                 300

Met Ala Thr Val Thr Ala Leu Arg Arg Thr Val Pro Pro Ala Val Thr
305                 310                 315                 320
```

```
Gly Ile Thr Phe Leu Ser Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile
                325                 330                 335

Asn Leu Asn Ala Ile Asn Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu
            340                 345                 350

Thr Phe Ser Tyr Gly Arg Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp
        355                 360                 365

Gly Gly Lys Lys Glu Asn Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys
    370                 375                 380

Arg Ala Leu Ala Asn Ser Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser
385                 390                 395                 400

Gly Gln Ala Gly Ala Ala Ala Ser Glu Ser Leu Phe Val Ser Asn His
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Ala Tyr
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<210> 4014
<211> 204
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<213> Homo sapiens

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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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<400> 4014

```
Arg Arg Phe Tyr Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn
1               5                  10                  15

Pro Cys Ile Gly Gly Val Ile Leu Phe His Glu Thr Leu Tyr Gln Lys
            20                  25                  30
```

```
Ala Asp Asp Gly Arg Pro Phe Pro Gln Val Ile Lys Ser Lys Gly Gly
        35                  40                  45

Val Val Gly Ile Lys Val Asp Lys Gly Val Val Pro Leu Ala Gly Thr
    50                  55                  60

Asn Gly Glu Thr Thr Thr Gln Gly Leu Asp Gly Leu Ser Glu Arg Cys
65                  70                  75                  80

Ala Gln Tyr Lys Lys Asp Gly Ala Asp Phe Ala Lys Trp Arg Cys Val
                85                  90                  95

Leu Lys Ile Gly Glu His Thr Pro Ser Ala Leu Ala Ile Met Glu Asn
            100                 105                 110

Ala Asn Val Leu Ala Arg Tyr Ala Ser Ile Cys Gln Gln Val Leu Ala
        115                 120                 125

Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu Glu Gly Thr
    130                 135                 140

Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys Thr Gln Lys
145                 150                 155                 160

Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala Leu Arg Arg
                165                 170                 175

Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser Gly Gly Gln
            180                 185                 190

Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile
        195                 200


<210> 4015
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<220>
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<400> 4015
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1 5 10 15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
20 25 30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
35 40 45

Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
50 55 60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65 70 75 80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
85 90 95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
100 105 110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
115 120 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
130 135 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly
145 150 155

<210> 4016
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<220>
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<400> 4016
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln
1 5 10

<210> 4017
<211> 368
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 4017
Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1 5 10 15

Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
20 25 30

Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
35 40 45

```
Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
    50                  55                  60

Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
                85                  90                  95

Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Val Gly Leu Gln Asn Gly Ile Val Pro Ile Val Glu
            180                 185                 190

Pro Glu Ile Leu Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr
        195                 200                 205

Val Thr Glu Lys Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His
    210                 215                 220

His Ile Tyr Leu Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro
225                 230                 235                 240

Gly His Ala Cys Thr Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala
                245                 250                 255

Thr Val Thr Ala Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile
            260                 265                 270

Thr Phe Leu Ser Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu
```

```
        275                 280                 285

Asn Ala Ile Asn Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe
    290                 295                 300

Ser Tyr Gly Arg Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly
305                 310                 315                 320

Lys Lys Glu Asn Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala
                325                 330                 335

Leu Ala Asn Ser Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln
            340                 345                 350

Ala Gly Ala Ala Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr
        355                 360                 365


<210> 4018
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<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ALDOB; "

<220>
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<220>
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<223> /note="Uniprot ID:  P05062; "

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<400> 4018
Met Ala His Arg Phe Pro Ala Leu Thr Gln Glu Gln Lys Lys Glu Leu
1               5                   10                  15

Ser Glu Ile Ala Gln Ser Ile Val Ala Asn Gly Lys Gly Ile Leu Ala
            20                  25                  30
```

```
Ala Asp Glu Ser Val Gly Thr Met Gly Asn Arg Leu Gln Arg Ile Lys
        35                  40                  45

Val Glu Asn Thr Glu Glu Asn Arg Arg Gln Phe Arg Glu Ile Leu Phe
    50                  55                  60

Ser Val Asp Ser Ser Ile Asn Gln Ser Ile Gly Gly Val Ile Leu Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Asp Ser Gln Gly Lys Leu Phe Arg Asn
                85                  90                  95

Ile Leu Lys Glu Lys Gly Ile Val Val Gly Ile Lys Leu Asp Gln Gly
            100                 105                 110

Gly Ala Pro Leu Ala Gly Thr Asn Lys Glu Thr Thr Ile Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Val Asp
    130                 135                 140

Phe Gly Lys Trp Arg Ala Val Leu Arg Ile Ala Asp Gln Cys Pro Ser
145                 150                 155                 160

Ser Leu Ala Ile Gln Glu Asn Ala Asn Ala Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Leu Val Pro Ile Val Glu Pro Glu Val Ile
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Glu His Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Asn Asp His His Val Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Ala Gly His Ala Cys
225                 230                 235                 240

Thr Lys Lys Tyr Thr Pro Glu Gln Val Ala Met Ala Thr Val Thr Ala
                245                 250                 255
```

```
Leu His Arg Thr Val Pro Ala Ala Val Pro Gly Ile Cys Phe Leu Ser
            260                 265                 270

Gly Gly Met Ser Glu Glu Asp Ala Thr Leu Asn Leu Asn Ala Ile Asn
        275                 280                 285

Leu Cys Pro Leu Pro Lys Pro Trp Lys Leu Ser Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Ala Ala Trp Gly Gly Lys Ala Ala Asn
305                 310                 315                 320

Lys Glu Ala Thr Gln Glu Ala Phe Met Lys Arg Ala Met Ala Asn Cys
                325                 330                 335

Gln Ala Ala Lys Gly Gln Tyr Val His Thr Gly Ser Ser Gly Ala Ala
            340                 345                 350

Ser Thr Gln Ser Leu Phe Thr Ala Cys Tyr Thr Tyr
        355                 360


<210> 4019
<211> 316
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<213> Homo sapiens

<220>
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<220>
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<400> 4019
Met Ala His Arg Phe Pro Ala Leu Thr Gln Glu Gln Lys Lys Glu Leu
1               5                   10                  15

Ser Glu Ile Ala Gln Ser Ile Val Ala Asn Gly Lys Gly Ile Leu Ala
            20                  25                  30
```

```
Ala Asp Glu Ser Val Gly Thr Met Gly Asn Arg Leu Gln Arg Ile Lys
        35                  40                  45

Val Glu Asn Thr Glu Glu Asn Arg Arg Gln Phe Arg Glu Ile Leu Phe
    50                  55                  60

Ser Val Asp Ser Ser Ile Asn Gln Ser Ile Gly Gly Val Ile Leu Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Asp Ser Gln Gly Lys Leu Phe Arg Asn
                85                  90                  95

Ile Leu Lys Glu Lys Gly Ile Val Val Gly Ile Lys Leu Asp Gln Gly
            100                 105                 110

Gly Ala Pro Leu Ala Gly Thr Asn Lys Glu Thr Thr Ile Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Val Asp
    130                 135                 140

Phe Gly Lys Trp Arg Ala Val Leu Arg Ile Ala Asp Gln Cys Pro Ser
145                 150                 155                 160

Ser Leu Ala Ile Gln Glu Asn Ala Asn Ala Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Leu Val Pro Ile Val Glu Pro Glu Val Ile
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Glu His Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Asn Asp His His Val Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Ala Gly His Ala Cys
225                 230                 235                 240

Thr Lys Lys Tyr Thr Pro Glu Gln Val Ala Met Ala Thr Val Thr Ala
                245                 250                 255
```

```
Leu His Arg Thr Val Pro Ala Ala Val Pro Gly Ile Cys Phe Leu Ser
            260                 265                 270

Gly Gly Met Ser Glu Glu Asp Ala Thr Leu Asn Leu Asn Ala Ile Asn
        275                 280                 285

Leu Cys Pro Leu Pro Lys Pro Trp Lys Leu Ser Phe Ser Trp Val Ala
    290                 295                 300

Arg Leu Gln Thr Arg Arg Gln Pro Arg Arg Leu Leu
305                 310                 315


<210> 4020
<211> 364
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000226253"

<400> 4020
Met Pro His Ser Tyr Pro Ala Leu Ser Ala Glu Gln Lys Lys Glu Leu
1               5                   10                  15

Ser Asp Ile Ala Leu Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30

Ala Asp Glu Ser Val Gly Ser Met Ala Lys Arg Leu Ser Gln Ile Gly
        35                  40                  45

Val Glu Asn Thr Glu Glu Asn Arg Arg Leu Tyr Arg Gln Val Leu Phe
```

```
    50                  55                  60

Ser Ala Asp Asp Arg Val Lys Lys Cys Ile Gly Gly Val Ile Phe Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Asp Asp Asn Gly Val Pro Phe Val Arg
                85                  90                  95

Thr Ile Gln Asp Lys Gly Ile Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asp Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Ser Glu Arg Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Leu Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Val Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Pro Ile Lys Tyr Thr Pro Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Pro Gly Val Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Phe Asn Leu Asn Ala Ile Asn
        275                 280                 285
```

```
Arg Cys Pro Leu Pro Arg Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Asn Ala Trp Arg Gly Gln Arg Asp Asn
305                 310                 315                 320

Ala Gly Ala Ala Thr Glu Glu Phe Ile Lys Arg Ala Glu Val Asn Gly
                325                 330                 335

Leu Ala Ala Gln Gly Lys Tyr Glu Gly Ser Gly Glu Asp Gly Gly Ala
            340                 345                 350

Ala Ala Gln Ser Leu Tyr Ile Ala Asn His Ala Tyr
        355                 360


<210> 4021
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<223> /note="Gene Name:
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<220>
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<400> 4021
Met Pro His Ser Tyr Pro Ala Leu Ser Ala Glu Gln Lys Lys Glu Leu
1               5                   10                  15

Ser Asp Ile Ala Leu Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30

Ala Asp Glu Ser Val Gly Ser Met Ala Lys Arg Leu Ser Gln Ile Gly
        35                  40                  45
```

```
Val Glu Asn Thr Glu Glu Asn Arg Arg Leu Tyr Arg Gln Val Leu Phe
    50                  55                  60

Ser Ala Asp Asp Arg Val Lys Lys Cys Ile Gly Gly Val Ile Phe Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Asp Asp Asn Gly Val Pro Phe Val Arg
                85                  90                  95

Thr Ile Gln Asp Lys Gly Ile Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asp Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Ser Glu Arg Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Leu Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His
            180                 185                 190

His Val Tyr Leu Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro
        195                 200                 205

Gly His Ala Cys Pro Ile Lys Tyr Thr Pro Glu Glu Ile Ala Met Ala
    210                 215                 220

Thr Val Thr Ala Leu Arg Arg Thr Val Pro Pro Ala Val Pro Gly Val
225                 230                 235                 240

Thr Phe Leu Ser Gly Gly Gln Ser Glu Glu Glu Ala Ser Phe Asn Leu
                245                 250                 255

Asn Ala Ile Asn Arg Cys Pro Leu Pro Arg Pro Trp Ala Leu Thr Phe
            260                 265                 270

Ser Tyr Gly Arg Ala Leu Gln Ala Ser Ala Leu Asn Ala Trp Arg Gly
```

275 280 285

Gln Arg Asp Asn Ala Gly Ala Ala Thr Glu Glu Phe Ile Lys Arg Ala
290 295 300

Glu Val Asn Gly Leu Ala Ala Gln Gly Lys Tyr Glu Gly Ser Gly Glu
305 310 315 320

Asp Gly Gly Ala Ala Ala Gln Ser Leu Tyr Ile Ala Asn His Ala Tyr
325 330 335

<210> 4022
<211> 364
<212> PRT
<213> Homo sapiens

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<220>
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<400> 4022
Met Pro His Ser Tyr Pro Ala Leu Ser Ala Glu Gln Lys Lys Glu Leu
1 5 10 15

Ser Asp Ile Ala Leu Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
20 25 30

Ala Asp Glu Ser Val Gly Ser Met Ala Lys Arg Leu Ser Gln Ile Gly
35 40 45

Val Glu Asn Thr Glu Glu Asn Arg Arg Leu Tyr Arg Gln Val Leu Phe
50 55 60

```
Ser Ala Asp Asp Arg Val Lys Lys Cys Ile Gly Gly Val Ile Phe Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Asp Asp Asn Gly Val Pro Phe Val Arg
                85                  90                  95

Thr Ile Gln Asp Lys Gly Ile Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asp Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Ser Glu Arg Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Leu Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
            180                 185                 190

Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
        195                 200                 205

Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Val Tyr Leu
    210                 215                 220

Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225                 230                 235                 240

Pro Ile Lys Tyr Thr Pro Glu Glu Ile Ala Met Ala Thr Val Thr Ala
                245                 250                 255

Leu Arg Arg Thr Val Pro Pro Ala Val Pro Gly Val Thr Phe Leu Ser
            260                 265                 270

Gly Gly Gln Ser Glu Glu Glu Ala Ser Phe Asn Leu Asn Ala Ile Asn
        275                 280                 285
```

```
Arg Cys Pro Leu Pro Arg Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg
    290                 295                 300

Ala Leu Gln Ala Ser Ala Leu Asn Ala Trp Arg Gly Gln Arg Asp Asn
305                 310                 315                 320

Ala Gly Ala Ala Thr Glu Glu Phe Ile Lys Arg Ala Glu Val Asn Gly
                325                 330                 335

Leu Ala Ala Gln Gly Lys Tyr Glu Gly Ser Gly Glu Asp Gly Gly Ala
            340                 345                 350

Ala Ala Gln Ser Leu Tyr Ile Ala Asn His Ala Tyr
        355                 360


<210> 4023
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<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000398976"

<400> 4023
Met Pro His Ser Tyr Pro Ala Leu Ser Ala Glu Gln Lys Lys Glu Leu
1               5                   10                  15

Ser Asp Ile Ala Leu Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30

Ala Asp Glu Ser Val Gly Ser Met Ala Lys Arg Leu Ser Gln Ile Gly
        35                  40                  45

Val Glu Asn Thr Glu Glu Asn Arg Arg Leu Tyr Arg Gln Val Leu Phe
    50                  55                  60
```

```
Ser Ala Asp Asp Arg Val Lys Lys Cys Ile Gly Gly Val Ile Phe Phe
65                  70                  75                  80


His Glu Thr Leu Tyr Gln Lys Asp Asp Asn Gly Val Pro Phe Val Arg
                85                  90                  95


Thr Ile Gln Asp Lys Gly Ile Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110


Val Val Pro Leu Ala Gly Thr Asp Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125


Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140


Phe Ala Lys Trp Arg
145


<210> 4024
<211> 175
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000462674"

<400> 4024
Met Pro His Ser Tyr Pro Ala Leu Ser Ala Glu Gln Lys Lys Glu Leu
1               5                   10                  15


Ser Asp Ile Ala Leu Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30
```

```
Ala Asp Glu Ser Val Gly Ser Met Ala Lys Arg Leu Ser Gln Ile Gly
        35                  40                  45

Val Glu Asn Thr Glu Glu Asn Arg Arg Leu Tyr Arg Gln Val Leu Phe
    50                  55                  60

Ser Ala Asp Asp Arg Val Lys Lys Cys Ile Gly Gly Val Ile Phe Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Asp Asp Asn Gly Val Pro Phe Val Arg
                85                  90                  95

Thr Ile Gln Asp Lys Gly Ile Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asp Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Ser Glu Arg Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Leu Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala
                165                 170                 175


<210> 4025
<211> 122
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ALDOC; "

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<220>
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<223> /note="ENSP ID: ENSP00000463118"
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<400> 4025
Met Pro His Ser Tyr Pro Ala Leu Ser Ala Glu Gln Lys Lys Glu Leu
1   5   10   15

Ser Asp Ile Ala Leu Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20   25   30

Ala Asp Glu Ser Val Gly Ser Met Ala Lys Arg Leu Ser Gln Ile Gly
        35   40   45

Val Glu Asn Thr Glu Glu Asn Arg Arg Leu Tyr Arg Gln Val Leu Phe
    50   55   60

Ser Ala Asp Asp Arg Val Lys Lys Cys Ile Gly Gly Val Ile Phe Phe
65   70   75   80

His Glu Thr Leu Tyr Gln Lys Asp Asp Asn Gly Val Pro Phe Val Arg
                85   90   95

Thr Ile Gln Asp Lys Gly Ile Val Val Gly Ile Lys Val Asp Lys Gly
            100   105   110

Val Val Pro Leu Ala Gly Thr Asp Gly Glu
        115   120

<210> 4026
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 910; "

<220>
<221> source
<223> /note="Gene Symbol: ALDOC; "

<220>
<221> source
<223> /note="Gene Name:
      aldolase C, fructose-bisphosphate; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463174"

<400> 4026

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Met Pro His Ser Tyr Pro Ala Leu Ser Ala Glu Gln Lys Lys Glu Leu
1               5                   10                  15

Ser Asp Ile Ala Leu Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
            20                  25                  30

Ala Asp Glu Ser Val Gly Ser Met Ala Lys Arg Leu Ser Gln Ile Gly
        35                  40                  45

Val Glu Asn Thr Glu Glu Asn Arg Arg Leu Tyr Arg Gln Val Leu Phe
    50                  55                  60

Ser Ala Asp Asp Arg Val Lys Lys Cys Ile Gly Gly Val Ile Phe Phe
65                  70                  75                  80

His Glu Thr Leu Tyr Gln Lys Asp Asp Asn Gly Val Pro Phe Val Arg
                85                  90                  95

Thr Ile Gln Asp Lys Gly Ile Val Val Gly Ile Lys Val Asp Lys Gly
            100                 105                 110

Val Val Pro Leu Ala Gly Thr Asp Gly Glu Thr Thr Thr Gln Gly Leu
        115                 120                 125

Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
    130                 135                 140

Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Ser Glu Arg Thr Pro Ser
145                 150                 155                 160

Ala Leu Ala Ile Leu Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
                165                 170                 175

Ile Cys Gln Gln
            180


<210> 4027
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 910; "
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<220>
<221> source
<223> /note="Gene Symbol: ALDOC; "

<220>
<221> source
<223> /note="Gene Name:
aldolase C, fructose-bisphosphate; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465623"

<400> 4027
Met Ala Lys Arg Leu Ser Gln Ile Gly Val Glu Asn Thr Glu Glu Asn
1 5 10 15

Arg Arg Leu Tyr Arg Gln Val Leu Phe Ser Ala Asp Asp Arg Val Lys
20 25 30

Lys Cys Ile Gly Gly Val Ile Phe Phe His Glu Thr Leu Tyr Gln Lys
35 40 45

Asp Asp Asn Gly Val Pro Phe Val Arg Thr Ile Gln Asp Lys Gly Ile
50 55 60

Val Val Gly Ile Lys Val Asp Lys Gly Val Val Pro Leu Ala Gly Thr
65 70 75 80

Asp Gly Glu Thr Thr Thr Gln Gly Leu Asp Gly Leu Ser Glu Arg Cys
85 90 95

Ala Gln Tyr Lys Lys Asp Gly Ala Asp Phe Ala Lys Trp Arg Cys Val
100 105 110

Leu Lys Ile Ser Glu Arg Thr Pro Ser Ala Leu Ala Ile Leu Glu Asn
115 120 125

Ala Asn Val Leu Ala Arg Tyr
130 135

<210> 4028
<211> 464
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 911; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1; "

<220>
<221> source
<223> /note="Gene Name:
ALG1, chitobiosyldiphosphodolichol
beta-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BT22; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000262374"

<400> 4028

```
Met Ala Ala Ser Cys Leu Val Leu Leu Ala Leu Cys Leu Leu Leu Pro
1               5                  10                  15

Leu Leu Leu Leu Gly Gly Trp Lys Arg Trp Arg Arg Gly Arg Ala Ala
            20                  25                  30

Arg His Val Val Ala Val Val Leu Gly Asp Val Gly Arg Ser Pro Arg
        35                  40                  45

Met Gln Tyr His Ala Leu Ser Leu Ala Met His Gly Phe Ser Val Thr
    50                  55                  60

Leu Leu Gly Phe Cys Asn Ser Lys Pro His Asp Glu Leu Leu Gln Asn
65                  70                  75                  80

Asn Arg Ile Gln Ile Val Gly Leu Thr Glu Leu Gln Ser Leu Ala Val
                85                  90                  95

Gly Pro Arg Val Phe Gln Tyr Gly Val Lys Val Val Leu Gln Ala Met
            100                 105                 110

Tyr Leu Leu Trp Lys Leu Met Trp Arg Glu Pro Gly Ala Tyr Ile Phe
        115                 120                 125

Leu Gln Asn Pro Pro Gly Leu Pro Ser Ile Ala Val Cys Trp Phe Val
    130                 135                 140
```

```
Gly Cys Leu Cys Gly Ser Lys Leu Val Ile Asp Trp His Asn Tyr Gly
145                 150                 155                 160

Tyr Ser Ile Met Gly Leu Val His Gly Pro Asn His Pro Leu Val Leu
                165                 170                 175

Leu Ala Lys Trp Tyr Glu Lys Phe Phe Gly Arg Leu Ser His Leu Asn
            180                 185                 190

Leu Cys Val Thr Asn Ala Met Arg Glu Asp Leu Ala Asp Asn Trp His
        195                 200                 205

Ile Arg Ala Val Thr Val Tyr Asp Lys Pro Ala Ser Phe Phe Lys Glu
    210                 215                 220

Thr Pro Leu Asp Leu Gln His Arg Leu Phe Met Lys Leu Gly Ser Met
225                 230                 235                 240

His Ser Pro Phe Arg Ala Arg Ser Glu Pro Glu Asp Pro Val Thr Glu
                245                 250                 255

Arg Ser Ala Phe Thr Glu Arg Asp Ala Gly Ser Gly Leu Val Thr Arg
            260                 265                 270

Leu Arg Glu Arg Pro Ala Leu Leu Val Ser Ser Thr Ser Trp Thr Glu
        275                 280                 285

Asp Glu Asp Phe Ser Ile Leu Leu Ala Ala Leu Glu Lys Phe Glu Gln
    290                 295                 300

Leu Thr Leu Asp Gly His Asn Leu Pro Ser Leu Val Cys Val Ile Thr
305                 310                 315                 320

Gly Lys Gly Pro Leu Arg Glu Tyr Tyr Ser Arg Leu Ile His Gln Lys
                325                 330                 335

His Phe Gln His Ile Gln Val Cys Thr Pro Trp Leu Glu Ala Glu Asp
            340                 345                 350

Tyr Pro Leu Leu Leu Gly Ser Ala Asp Leu Gly Val Cys Leu His Thr
        355                 360                 365

Ser Ser Ser Gly Leu Asp Leu Pro Met Lys Val Val Asp Met Phe Gly
```

```
    370                 375                 380

Cys Cys Leu Pro Val Cys Ala Val Asn Phe Lys Cys Leu His Glu Leu
385                 390                 395                 400

Val Lys His Glu Glu Asn Gly Leu Val Phe Glu Asp Ser Glu Glu Leu
                405                 410                 415

Ala Ala Gln Leu Gln Met Leu Phe Ser Asn Phe Pro Asp Pro Ala Gly
            420                 425                 430

Lys Leu Asn Gln Phe Arg Lys Asn Leu Arg Glu Ser Gln Gln Leu Arg
        435                 440                 445

Trp Asp Glu Ser Trp Val Gln Thr Val Leu Pro Leu Val Met Asp Thr
    450                 455                 460


<210> 4029
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 911; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1; "

<220>
<221> source
<223> /note="Gene Name:
      ALG1, chitobiosyldiphosphodolichol
      beta-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BT22; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440019"

<400> 4029
Met Tyr Leu Leu Trp Lys Leu Met Trp Arg Glu Pro Gly Ala Tyr Ile
1               5                   10                  15

Phe Leu Gln Asn Pro Pro Gly Leu Pro Ser Ile Ala Val Cys Trp Phe
            20                  25                  30
```

```
Val Gly Cys Leu Cys Gly Ser Lys Leu Val Ile Asp Trp His Asn Tyr
        35                  40                  45

Gly Tyr Ser Ile Met Gly Leu Val His Gly Pro Asn His Pro Leu Val
    50                  55                  60

Leu Leu Ala Lys Trp Tyr Glu Lys Phe Phe Gly Arg Leu Ser His Leu
65                  70                  75                  80

Asn Leu Cys Val Thr Asn Ala Met Arg Glu Asp Leu Ala Asp Asn Trp
                85                  90                  95

His Ile Arg Ala Val Thr Val Tyr Asp Lys Pro Ala Ser Phe Phe Lys
            100                 105                 110

Glu Thr Pro Leu Asp Leu Gln His Arg Leu Phe Met Lys Leu Gly Ser
        115                 120                 125

Met His Ser Pro Phe Arg Ala Arg Ser Glu Pro Glu Asp Pro Val Thr
    130                 135                 140

Glu Arg Ser Ala Phe Thr Glu Arg Asp Ala Gly Ser Gly Leu Val Thr
145                 150                 155                 160

Arg Leu Arg Glu Arg Pro Ala Leu Leu Val Ser Ser Thr Ser Trp Thr
                165                 170                 175

Glu Asp Glu Asp Phe Ser Ile Leu Leu Ala Ala Leu Glu Lys Phe Glu
            180                 185                 190

Gln Leu Thr Leu Asp Gly His Asn Leu Pro Ser Leu Val Cys Val Ile
        195                 200                 205

Thr Gly Lys Gly Pro Leu Arg Glu Tyr Tyr Ser Arg Leu Ile His Gln
    210                 215                 220

Lys His Phe Gln His Ile Gln Val Cys Thr Pro Trp Leu Glu Ala Glu
225                 230                 235                 240

Asp Tyr Pro Leu Leu Leu Gly Ser Ala Asp Leu Gly Val Cys Leu His
                245                 250                 255
```

```
Thr Ser Ser Ser Gly Leu Asp Leu Pro Met Lys Val Val Asp Met Phe
            260                 265                 270

Gly Cys Cys Leu Pro Val Cys Ala Val Asn Phe Lys Cys Leu His Glu
        275                 280                 285

Leu Val Lys His Glu Glu Asn Gly Leu Val Phe Glu Asp Ser Glu Glu
    290                 295                 300

Leu Ala Ala Gln Leu Gln Met Leu Phe Ser Asn Phe Pro Asp Pro Ala
305                 310                 315                 320

Gly Lys Leu Asn Gln Phe Arg Lys Asn Leu Arg Glu Ser Gln Gln Leu
                325                 330                 335

Arg Trp Asp Glu Ser Trp Val Gln Thr Val Leu Pro Leu Val Met Asp
            340                 345                 350

Thr
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<210> 4030
<211> 167
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 911; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1; "

<220>
<221> source
<223> /note="Gene Name:
ALG1, chitobiosyldiphosphodolichol
beta-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464700"

<400> 4030

```
Met Tyr Leu Leu Trp Lys Leu Met Trp Arg Glu Pro Gly Ala Tyr Ile
1               5                   10                  15
```

```
Phe Leu Gln Asn Pro Pro Gly Leu Pro Ser Ile Ala Val Cys Trp Phe
            20                  25                  30

Val Gly Cys Leu Cys Gly Ser Lys Leu Val Ile Asp Trp His Asn Tyr
        35                  40                  45

Gly Tyr Ser Ile Met Gly Leu Val His Gly Pro Asn His Pro Leu Val
    50                  55                  60

Leu Leu Ala Lys Trp Tyr Glu Lys Phe Phe Gly Arg Leu Ser His Leu
65                  70                  75                  80

Asn Leu Cys Val Thr Asn Ala Met Arg Glu Asp Leu Ala Asp Asn Trp
                85                  90                  95

His Ile Arg Ala Val Thr Val Tyr Asp Lys Pro Ala Ser Phe Phe Lys
            100                 105                 110

Glu Thr Pro Leu Asp Leu Gln His Arg Leu Phe Met Lys Leu Gly Ser
        115                 120                 125

Met His Ser Pro Phe Arg Ala Arg Ser Glu Pro Glu Asp Pro Val Thr
    130                 135                 140

Glu Arg Ser Ala Phe Thr Glu Arg Asp Ala Gly Ser Gly Leu Val Thr
145                 150                 155                 160

Arg Leu Arg Glu Arg Pro Ala
                165


<210> 4031
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 911; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1; "

<220>
<221> source
<223> /note="Gene Name:
      ALG1, chitobiosyldiphosphodolichol
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beta-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467538"

<400> 4031
Met Ala Ala Ser Cys Leu Val Leu Leu Ala Leu Cys Leu Leu Leu Pro
1 5 10 15

Leu Leu Leu Leu Gly Gly Trp Lys Arg Trp Arg Arg Gly Arg Ala Ala
20 25 30

Arg His Val Val Ala Val Val Leu Gly Asp Val Gly Arg Ser Pro Arg
35 40 45

Met Gln Tyr His Ala Leu Ser Leu Ala Met His Gly Phe Ser Val Thr
50 55 60

Leu Leu Gly Phe Cys Asn Ser Lys Pro His Asp Glu Leu Leu Gln Asn
65 70 75 80

Asn Arg Ile Gln Ile Val Gly Leu Thr Glu Leu Gln Ser Leu Ala Val
85 90 95

Gly Pro Arg Val Phe Gln Tyr Gly Val Lys Val Val Leu Gln Ala Met
100 105 110

Tyr Leu Leu Trp Lys Leu Met Trp Arg Glu Pro Gly Ala Tyr Ile Phe
115 120 125

Leu Gln Val Cys Leu Ala Leu Leu Ser Ala Gly Ser Trp Ala Ala Phe
130 135 140

Val Glu Ala Ser Ser Ser Leu Thr Gly Thr Thr Met Ala Thr Pro Ser
145 150 155 160

Trp Val Trp Cys Met Ala Pro Thr Ile Pro Ser Phe Cys Trp Pro Ser
165 170 175

Gly Thr Arg Ser Ser Leu Gly Ala
180

<210> 4032
<211> 84

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 911; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1; "

<220>
<221> source
<223> /note="Gene Name:
ALG1, chitobiosyldiphosphodolichol
beta-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467865"

<400> 4032
Met Ala Ala Ser Cys Leu Val Leu Leu Ala Leu Cys Leu Leu Leu Pro
1 5 10 15

Leu Leu Leu Leu Gly Gly Trp Lys Arg Trp Arg Arg Gly Arg Ala Ala
20 25 30

Arg His Val Val Ala Val Val Leu Gly Asp Val Gly Arg Ser Pro Arg
35 40 45

Met Gln Tyr His Ala Leu Ser Leu Ala Met His Gly Phe Ser Val Thr
50 55 60

Leu Leu Gly Phe Cys Ser Glu Trp Pro Arg Val Trp Glu Gly Arg Cys
65 70 75 80

Ser Leu Ser Arg

<210> 4033
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 911; "

<220>
<221> source

<223> /note="Gene Symbol: ALG1; "

<220>
<221> source
<223> /note="Gene Name:
ALG1, chitobiosyldiphosphodolichol
beta-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BT22; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468118"

<400> 4033

Met	Tyr	Leu	Leu	Trp	Lys	Leu	Met	Trp	Arg	Glu	Pro	Gly	Ala	Tyr	Ile
1				5				10						15	

Phe	Leu	Gln	Asn	Pro	Pro	Gly	Leu	Pro	Ser	Ile	Ala	Val	Cys	Trp	Phe
			20					25					30		

Val	Gly	Cys	Leu	Cys	Gly	Ser	Lys	Leu	Val	Ile	Asp	Trp	His	Asn	Tyr
		35					40					45			

Gly	Tyr	Ser	Ile	Met	Gly	Leu	Val	His	Gly	Pro	Asn	His	Pro	Leu	Val
	50					55					60				

Leu	Leu	Ala	Lys	Trp	Tyr	Glu	Lys	Phe	Phe	Gly	Arg	Leu	Ser	His	Leu
65					70					75					80

Asn	Leu	Cys	Val	Thr	Asn	Ala	Met	Arg	Glu	Asp	Leu	Ala	Asp	Asn	Trp
				85					90					95	

His	Ile	Arg	Ala	Val	Thr	Val	Tyr	Asp	Lys	Pro	Ala	Ser	Phe	Phe	Lys
			100					105					110		

Glu	Thr	Pro	Leu	Asp	Leu	Gln	His	Arg	Leu	Phe	Met	Lys	Leu	Gly	Ser
		115					120					125			

Met	His	Ser	Pro	Phe	Arg	Ala	Arg	Ser	Glu	Pro	Glu	Asp	Pro	Val	Thr
	130					135					140				

Glu	Arg	Ser	Ala	Phe	Thr	Glu	Arg	Asp	Ala	Gly	Ser	Gly	Leu	Val	Thr
145					150					155					160

Arg Leu Arg Glu Arg Pro Ala Leu Leu Val Ser Ser Thr Ser Trp Thr
165 170 175

Glu Asp Glu Asp Phe Ser Ile Leu Leu Ala Ala Leu Glu Lys Phe Glu
180 185 190

Gln Leu Thr Leu Asp Gly His Asn Leu Pro Ser Leu Val Cys Val Ile
195 200 205

Thr Gly Lys Gly Pro Leu Arg Glu Tyr Tyr Ser Arg Leu Ile His Gln
210 215 220

Lys His Phe Gln His Ile Gln Val Cys Thr Pro Trp Leu Glu Ala Glu
225 230 235 240

Asp Tyr Pro Leu Leu Leu Gly Ser Ala Asp Leu Gly Val Cys Leu His
245 250 255

Thr Ser Ser Ser Gly Leu Asp Leu Pro Met Lys Val Val Asp Met Phe
260 265 270

Gly Cys Cys Leu Pro Val Cys Ala Val Asn Phe Lys Cys Leu His Glu
275 280 285

Leu Val Lys His Glu Glu Asn Gly Leu Val Phe Glu Asp Ser Glu Glu
290 295 300

Leu Ala Ala Gln Leu Gln Met Leu Phe Ser Asn Phe Pro Asp Pro Ala
305 310 315 320

Gly Lys Leu Asn Gln Phe Arg Lys Asn Leu Arg Glu Ser Gln Gln Leu
325 330 335

Arg Trp Asp Glu Ser Trp Val Gln Thr Val Leu Pro Leu Val Met Asp
340 345 350

Thr

<210> 4034
<211> 187
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 912; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1L; "

<220>
<221> source
<223> /note="Gene Name:
ALG1, chitobiosyldiphosphodolichol
beta-mannosyltransferase-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q6GMV1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000340009"

<400> 4034

```
Met Glu Arg Ser Ala Phe Met Glu Leu Asp Ala Gly Ser Arg Leu Val
1               5                   10                  15

Met His Leu Arg Glu Trp Pro Ala Leu Leu Val Ser Ser Thr Gly Trp
            20                  25                  30

Thr Glu Phe Glu Gln Leu Thr Leu Asp Gly His Asn Leu Pro Ser Leu
        35                  40                  45

Val Cys Val Ile Thr Gly Ser Val Asp Leu Gly Val Cys Leu His Met
    50                  55                  60

Ser Ser Ser Gly Leu Asp Leu Pro Met Lys Val Val Asp Met Phe Gly
65                  70                  75                  80

Cys Cys Leu Pro Val Cys Ala Val Asn Phe Lys Cys Leu His Glu Leu
                85                  90                  95

Val Lys His Glu Glu Asn Gly Leu Val Phe Glu Asp Ser Glu Glu Leu
            100                 105                 110

Ala Ala Leu Gln Met Leu Phe Ser Asn Phe Pro Asp Pro Ala Gly Lys
        115                 120                 125

Leu Asn Gln Phe Trp Lys Asn Leu Arg Glu Ser Gln Gln Leu Arg Trp
    130                 135                 140
```

```
Asp Glu Ser Trp Val Gln Thr Val Leu Pro Leu Val Met Asp Ile Gln
145                 150                 155                 160


Leu Leu Gly Gln Arg Leu Lys Pro Arg Asp Pro Cys Cys Pro Ser Arg
                165                 170                 175


Ser Phe Phe Ser Glu Ser Gln Gly Lys Pro Phe
            180                 185


<210> 4035
<211> 207
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 912; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1L; "

<220>
<221> source
<223> /note="Gene Name:
      ALG1, chitobiosyldiphosphodolichol
      beta-mannosyltransferase-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482705"

<400> 4035
Met Lys Leu Gly Gly Thr His Ser Leu Phe Arg Ala Cys Ser Glu Pro
1               5                   10                  15


Glu Asp Ala Ala Met Glu Arg Ser Ala Phe Met Glu Leu Asp Ala Gly
            20                  25                  30


Ser Arg Leu Val Met His Leu Arg Glu Trp Pro Ala Leu Leu Val Ser
        35                  40                  45


Ser Thr Gly Trp Thr Glu Phe Glu Gln Leu Thr Leu Asp Gly His Asn
    50                  55                  60


Leu Pro Ser Leu Val Cys Val Ile Thr Gly Ser Val Asp Leu Gly Val
65                  70                  75                  80
```

```
Cys Leu His Met Ser Ser Ser Gly Leu Asp Leu Pro Met Lys Val Val
                85                  90                  95

Asp Met Phe Gly Cys Cys Leu Pro Val Cys Ala Val Asn Phe Lys Cys
            100                 105                 110

Leu His Glu Leu Val Lys His Glu Glu Asn Gly Leu Val Phe Glu Asp
        115                 120                 125

Ser Glu Glu Leu Ala Ala Leu Gln Met Leu Phe Ser Asn Phe Pro Asp
    130                 135                 140

Pro Ala Gly Lys Leu Asn Gln Phe Trp Lys Asn Leu Arg Glu Ser Gln
145                 150                 155                 160

Gln Leu Arg Trp Asp Glu Ser Trp Val Gln Thr Val Leu Pro Leu Val
                165                 170                 175

Met Asp Ile Gln Leu Leu Gly Gln Arg Leu Lys Pro Arg Asp Pro Cys
            180                 185                 190

Cys Pro Ser Arg Ser Phe Phe Ser Glu Ser Gln Gly Lys Pro Phe
        195                 200                 205


<210> 4036
<211> 215
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 913; "

<220>
<221> source
<223> /note="Gene Symbol: ALG1L2; "

<220>
<221> source
<223> /note="Gene Name:
      ALG1, chitobiosyldiphosphodolichol
      beta-mannosyltransferase-like 2; "

<220>
<221> source
<223> /note="Uniprot ID:  C9J202; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000479850"

<400> 4036

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Met Gly Ala Thr Ala Gly Trp Ala Val Thr Val Tyr Asp Lys Pro Ala
1               5                  10                  15

Ser Phe Phe Lys Glu Ala Pro Leu Asp Leu Gln His Arg Leu Phe Met
            20                  25                  30

Lys Leu Gly Ser Thr His Ser Pro Phe Arg Ala Arg Ser Glu Pro Glu
        35                  40                  45

Asp Pro Asp Thr Glu Arg Ser Ala Phe Thr Glu Arg Asp Ser Gly Ser
    50                  55                  60

Gly Leu Val Thr Arg Leu His Glu Arg Pro Ala Leu Leu Val Ser Ser
65                  70                  75                  80

Thr Ser Trp Thr Glu Phe Glu Gln Leu Thr Leu Asp Gly Gln Asn Leu
                85                  90                  95

Pro Ser Leu Val Cys Val Ile Thr Gly Lys Gly Pro Leu Arg Glu Tyr
            100                 105                 110

Tyr Ser Arg Leu Ile His Gln Lys His Phe Gln His Ile Gln Val Cys
        115                 120                 125

Ile Pro Trp Leu Glu Gly Arg Gly Leu Pro Pro Leu Leu Gly Ser Val
    130                 135                 140

Asp Leu Asp Val Cys Leu Asp Thr Ser Ser Ser Gly Leu Asp Leu Pro
145                 150                 155                 160

Met Lys Val Val Asp Met Phe Arg Cys Cys Leu Pro Ala Cys Ala Val
                165                 170                 175

Asn Phe Lys Cys Leu His Glu Leu Val Lys His Glu Glu Asn Arg Leu
            180                 185                 190

Val Phe Glu Asp Ser Glu Glu Leu Ala Ala Gln Leu Gln Tyr Phe Ala
        195                 200                 205

Asp Ala Phe Leu Lys Leu Ser
```

210 215

<210> 4037
<211> 473
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 914; "

<220>
<221> source
<223> /note="Gene Symbol: ALG10; "

<220>
<221> source
<223> /note="Gene Name:
ALG10, alpha-1,2-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q5BKT4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000266483"

<400> 4037
Met Ala Gln Leu Glu Gly Tyr Tyr Phe Ser Ala Ala Leu Ser Cys Thr
1 5 10 15

Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
20 25 30

Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
35 40 45

Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
50 55 60

Leu Pro Gly Leu Tyr Leu Val Ser Ile Gly Val Ile Lys Pro Ala Ile
65 70 75 80

Trp Ile Phe Gly Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
85 90 95

Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
100 105 110

```
Leu Leu Phe Cys Lys Val Gln Pro Arg Asn Lys Ala Ala Ser Ser Ile
        115                 120                 125

Gln Arg Val Leu Ser Thr Leu Thr Leu Ala Val Phe Pro Thr Leu Tyr
    130                 135                 140

Phe Phe Asn Phe Leu Tyr Tyr Thr Glu Ala Gly Ser Met Phe Phe Thr
145                 150                 155                 160

Leu Phe Ala Tyr Leu Met Cys Leu Tyr Gly Asn His Lys Thr Ser Ala
                165                 170                 175

Phe Leu Gly Phe Cys Gly Phe Met Phe Arg Gln Thr Asn Ile Ile Trp
            180                 185                 190

Ala Val Phe Cys Ala Gly Asn Val Ile Ala Gln Lys Leu Thr Glu Ala
        195                 200                 205

Trp Lys Thr Glu Leu Gln Lys Lys Glu Asp Arg Leu Pro Pro Ile Lys
    210                 215                 220

Gly Pro Phe Ala Glu Phe Arg Lys Ile Leu Gln Phe Leu Leu Ala Tyr
225                 230                 235                 240

Ser Met Ser Phe Lys Asn Leu Ser Met Leu Leu Leu Leu Thr Trp Pro
                245                 250                 255

Tyr Ile Leu Leu Gly Phe Leu Phe Cys Ala Phe Val Val Val Asn Gly
            260                 265                 270

Gly Ile Val Ile Gly Asp Arg Ser Ser His Glu Ala Cys Leu His Phe
        275                 280                 285

Pro Gln Leu Phe Tyr Phe Phe Ser Phe Thr Leu Phe Phe Ser Phe Pro
    290                 295                 300

His Leu Leu Ser Pro Ser Lys Ile Lys Thr Phe Leu Ser Leu Val Trp
305                 310                 315                 320

Lys Arg Arg Ile Leu Phe Phe Val Val Thr Leu Val Ser Val Phe Leu
                325                 330                 335
```

```
Val Trp Lys Phe Thr Tyr Ala His Lys Tyr Leu Leu Ala Asp Asn Arg
            340                 345                 350

His Tyr Thr Phe Tyr Val Trp Lys Arg Val Phe Gln Arg Tyr Glu Thr
        355                 360                 365

Val Lys Tyr Leu Leu Val Pro Ala Tyr Ile Phe Ala Gly Trp Ser Ile
    370                 375                 380

Ala Asp Ser Leu Lys Ser Lys Ser Ile Phe Trp Asn Leu Met Phe Phe
385                 390                 395                 400

Ile Cys Leu Phe Thr Val Ile Val Pro Gln Lys Leu Leu Glu Phe Arg
                405                 410                 415

Tyr Phe Ile Leu Pro Tyr Val Ile Tyr Arg Leu Asn Ile Pro Leu Pro
            420                 425                 430

Pro Thr Ser Arg Leu Ile Cys Glu Leu Ser Cys Tyr Ala Val Val Asn
        435                 440                 445

Phe Ile Thr Phe Phe Ile Phe Leu Asn Lys Thr Phe Gln Trp Pro Asn
    450                 455                 460

Ser Gln Asp Ile Gln Arg Phe Met Trp
465                 470


<210> 4038
<211> 77
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 914; "

<220>
<221> source
<223> /note="Gene Symbol: ALG10; "

<220>
<221> source
<223> /note="Gene Name:
      ALG10, alpha-1,2-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443142"
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<400> 4038
Met Ala Gln Leu Glu Gly Tyr Tyr Phe Ser Ala Ala Leu Ser Cys Thr
1   5   10   15

Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
            20   25   30

Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
        35   40   45

Leu Gly Ser His Asp Tyr Tyr Ile Thr Trp Leu Val Pro Gly Val Asn
    50   55   60

Trp Ser Asp Gln Thr Cys His Leu Asp Leu Trp Met Val
65   70   75

<210> 4039
<211> 126
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 914; "

<220>
<221> source
<223> /note="Gene Symbol: ALG10; "

<220>
<221> source
<223> /note="Gene Name:
      ALG10, alpha-1,2-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000444084"

<400> 4039
Met Ala Gln Leu Glu Gly Tyr Tyr Phe Ser Ala Ala Leu Ser Cys Thr
1   5   10   15

Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
            20   25   30

Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
        35   40   45

```
Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
    50                  55                  60

Leu Pro Gly Leu Tyr Leu Val Ser Ile Gly Val Ile Lys Pro Ala Ile
65                  70                  75                  80

Trp Ile Phe Gly Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
                85                  90                  95

Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
            100                 105                 110

Leu Leu Phe Cys Lys Val Gln Pro Arg Asn Lys Glu Tyr Phe
        115                 120                 125


<210> 4040
<211> 473
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 915; "

<220>
<221> source
<223> /note="Gene Symbol: ALG10B; "

<220>
<221> source
<223> /note="Gene Name:
      ALG10B, alpha-1,2-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5I7T1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000310120"

<400> 4040
Met Ala Gln Leu Glu Gly Tyr Cys Phe Ser Ala Ala Leu Ser Cys Thr
1               5                   10                  15

Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
            20                  25                  30

Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
        35                  40                  45
```

```
Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
    50                  55                  60

Leu Pro Gly Leu Tyr Leu Val Ser Val Gly Val Val Lys Pro Ala Ile
65                  70                  75                  80

Trp Ile Phe Ala Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
                85                  90                  95

Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
            100                 105                 110

Leu Leu Phe His Lys Val Gln Pro Arg Asn Lys Ala Ala Ser Ser Ile
        115                 120                 125

Gln Arg Val Leu Ser Thr Leu Thr Leu Ala Val Phe Pro Thr Leu Tyr
    130                 135                 140

Phe Phe Asn Phe Leu Tyr Tyr Thr Glu Ala Gly Ser Met Phe Phe Thr
145                 150                 155                 160

Leu Phe Ala Tyr Leu Met Cys Leu Tyr Gly Asn His Lys Thr Ser Ala
                165                 170                 175

Phe Leu Gly Phe Cys Gly Phe Met Phe Arg Gln Thr Asn Ile Ile Trp
            180                 185                 190

Ala Val Phe Cys Ala Gly Asn Val Ile Ala Gln Lys Leu Thr Glu Ala
        195                 200                 205

Trp Lys Thr Glu Leu Gln Lys Lys Glu Asp Arg Leu Pro Pro Ile Lys
    210                 215                 220

Gly Pro Phe Ala Glu Phe Arg Lys Ile Leu Gln Phe Leu Leu Ala Tyr
225                 230                 235                 240

Ser Met Ser Phe Lys Asn Leu Ser Met Leu Phe Cys Leu Thr Trp Pro
                245                 250                 255

Tyr Ile Leu Leu Gly Phe Leu Phe Cys Ala Phe Val Val Val Asn Gly
            260                 265                 270
```

```
Gly Ile Val Ile Gly Asp Arg Ser Ser His Glu Ala Cys Leu His Phe
        275                 280                 285

Pro Gln Leu Phe Tyr Phe Phe Ser Phe Thr Leu Phe Phe Ser Phe Pro
    290                 295                 300

His Leu Leu Ser Pro Ser Lys Ile Lys Thr Phe Leu Ser Leu Val Trp
305                 310                 315                 320

Lys His Gly Ile Leu Phe Leu Val Val Thr Leu Val Ser Val Phe Leu
                325                 330                 335

Val Trp Lys Phe Thr Tyr Ala His Lys Tyr Leu Leu Ala Asp Asn Arg
            340                 345                 350

His Tyr Thr Phe Tyr Val Trp Lys Arg Val Phe Gln Arg Tyr Ala Ile
        355                 360                 365

Leu Lys Tyr Leu Leu Val Pro Ala Tyr Ile Phe Ala Gly Trp Ser Ile
    370                 375                 380

Ala Asp Ser Leu Lys Ser Lys Pro Ile Phe Trp Asn Leu Met Phe Phe
385                 390                 395                 400

Ile Cys Leu Phe Ile Val Ile Val Pro Gln Lys Leu Leu Glu Phe Arg
                405                 410                 415

Tyr Phe Ile Leu Pro Tyr Val Ile Tyr Arg Leu Asn Ile Thr Leu Pro
            420                 425                 430

Pro Thr Ser Arg Leu Val Cys Glu Leu Ser Cys Tyr Ala Ile Val Asn
        435                 440                 445

Phe Ile Thr Phe Tyr Ile Phe Leu Asn Lys Thr Phe Gln Trp Pro Asn
    450                 455                 460

Ser Gln Asp Ile Gln Arg Phe Met Trp
465                 470
```

<210> 4041
<211> 126
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 915; "

<220>
<221> source
<223> /note="Gene Symbol: ALG10B; "

<220>
<221> source
<223> /note="Gene Name:
ALG10B, alpha-1,2-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448819"

<400> 4041
Met Ala Gln Leu Glu Gly Tyr Cys Phe Ser Ala Ala Leu Ser Cys Thr
1 5 10 15

Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
20 25 30

Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
35 40 45

Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
50 55 60

Leu Pro Gly Leu Tyr Leu Val Ser Val Gly Val Val Lys Pro Ala Ile
65 70 75 80

Trp Ile Phe Ala Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
85 90 95

Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
100 105 110

Leu Leu Phe His Lys Val Gln Pro Arg Asn Lys Glu Tyr Phe
115 120 125

<210> 4042
<211> 77
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 915; "

<220>
<221> source
<223> /note="Gene Symbol: ALG10B; "

<220>
<221> source
<223> /note="Gene Name:
ALG10B, alpha-1,2-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449210"

<400> 4042
Met Ala Gln Leu Glu Gly Tyr Cys Phe Ser Ala Ala Leu Ser Cys Thr
1 5 10 15

Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
20 25 30

Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
35 40 45

Leu Gly Ser His Asp Tyr Tyr Ile Thr Trp Leu Val Pro Gly Val Ser
50 55 60

Trp Ser Gly Gln Thr Cys His Leu Asp Leu Cys Met Val
65 70 75

<210> 4043
<211> 36
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 916; "

<220>
<221> source
<223> /note="Gene Symbol: ALG11; "

<220>
<221> source
<223> /note="Gene Name:
ALG11, alpha-1,2-mannosyltransferase; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000429497"

<400> 4043
Met Ala Ala Gly Glu Arg Ser Trp Cys Leu Cys Lys Leu Leu Arg Ser
1   5   10   15

Cys Gly Val Tyr Gly Ser Trp His Asn Tyr Pro Cys Thr Gln Phe Gly
            20   25   30

Gly Pro Lys Ala
        35

<210> 4044
<211> 492
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 916; "

<220>
<221> source
<223> /note="Gene Symbol: ALG11; "

<220>
<221> source
<223> /note="Gene Name:
      ALG11, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q2TAA5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430236"

<400> 4044
Met Ala Ala Gly Glu Arg Ser Trp Cys Leu Cys Lys Leu Leu Arg Phe
1   5   10   15

Phe Tyr Ser Leu Phe Phe Pro Gly Leu Ile Val Cys Gly Thr Leu Cys
            20   25   30

Val Cys Leu Val Ile Val Leu Trp Gly Ile Arg Leu Leu Leu Gln Arg
        35   40   45

Lys Lys Lys Leu Val Ser Thr Ser Lys Asn Gly Lys Asn Gln Met Val
    50   55   60

```
Ile Ala Phe Phe His Pro Tyr Cys Asn Ala Gly Gly Gly Gly Glu Arg
65                  70                  75                  80

Val Leu Trp Cys Ala Leu Arg Ala Leu Gln Lys Lys Tyr Pro Glu Ala
                85                  90                  95

Val Tyr Val Val Tyr Thr Gly Asp Val Asn Val Asn Gly Gln Gln Ile
            100                 105                 110

Leu Glu Gly Ala Phe Arg Arg Phe Asn Ile Arg Leu Ile His Pro Val
        115                 120                 125

Gln Phe Val Phe Leu Arg Lys Arg Tyr Leu Val Glu Asp Ser Leu Tyr
    130                 135                 140

Pro His Phe Thr Leu Leu Gly Gln Ser Leu Gly Ser Ile Phe Leu Gly
145                 150                 155                 160

Trp Glu Ala Leu Met Gln Cys Val Pro Asp Val Tyr Ile Asp Ser Met
                165                 170                 175

Gly Tyr Ala Phe Thr Leu Pro Leu Phe Lys Tyr Ile Gly Gly Cys Gln
            180                 185                 190

Val Gly Ser Tyr Val His Tyr Pro Thr Ile Ser Thr Asp Met Leu Ser
        195                 200                 205

Val Val Lys Asn Gln Asn Ile Gly Phe Asn Asn Ala Ala Phe Ile Thr
    210                 215                 220

Arg Asn Pro Phe Leu Ser Lys Val Lys Leu Ile Tyr Tyr Tyr Leu Phe
225                 230                 235                 240

Ala Phe Ile Tyr Gly Leu Val Gly Ser Cys Ser Asp Val Val Met Val
                245                 250                 255

Asn Ser Ser Trp Thr Leu Asn His Ile Leu Ser Leu Trp Lys Val Gly
            260                 265                 270

Asn Cys Thr Asn Ile Val Tyr Pro Pro Cys Asp Val Gln Thr Phe Leu
        275                 280                 285
```

```
Asp Ile Pro Leu His Glu Lys Lys Met Thr Pro Gly His Leu Leu Val
    290                 295                 300

Ser Val Gly Gln Phe Arg Pro Glu Lys Asn His Pro Leu Gln Ile Arg
305                 310                 315                 320

Ala Phe Ala Lys Leu Leu Asn Lys Lys Met Val Glu Ser Pro Pro Ser
                325                 330                 335

Leu Lys Leu Val Leu Ile Gly Gly Cys Arg Asn Lys Asp Asp Glu Leu
            340                 345                 350

Arg Val Asn Gln Leu Arg Arg Leu Ser Glu Asp Leu Gly Val Gln Glu
        355                 360                 365

Tyr Val Glu Phe Lys Ile Asn Ile Pro Phe Asp Glu Leu Lys Asn Tyr
    370                 375                 380

Leu Ser Glu Ala Thr Ile Gly Leu His Thr Met Trp Asn Glu His Phe
385                 390                 395                 400

Gly Ile Gly Val Val Glu Cys Met Ala Ala Gly Thr Ile Ile Leu Ala
                405                 410                 415

His Asn Ser Gly Gly Pro Lys Leu Asp Ile Val Val Pro His Glu Gly
            420                 425                 430

Asp Ile Thr Gly Phe Leu Ala Glu Ser Glu Glu Asp Tyr Ala Glu Thr
        435                 440                 445

Ile Ala His Ile Leu Ser Met Ser Ala Glu Lys Arg Leu Gln Ile Arg
    450                 455                 460

Lys Ser Ala Arg Ala Ser Val Ser Arg Phe Ser Asp Gln Glu Phe Glu
465                 470                 475                 480

Val Thr Phe Leu Ser Ser Val Glu Lys Leu Phe Lys
                485                 490
```

<210> 4045
<211> 30
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 916; "

<220>
<221> source
<223> /note="Gene Symbol: ALG11; "

<220>
<221> source
<223> /note="Gene Name:
ALG11, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481922"

<400> 4045
Met Ala Ala Gly Glu Arg Ser Trp Cys Leu Cys Lys Leu Leu Ser Phe
1 5 10 15

Glu Tyr Val Phe Ile Ser Ser Val Lys Met Asn Leu Val Pro
20 25 30

<210> 4046
<211> 488
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 917; "

<220>
<221> source
<223> /note="Gene Symbol: ALG12; "

<220>
<221> source
<223> /note="Gene Name:
ALG12, alpha-1,6-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BV10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000333813"

<400> 4046
Met Ala Gly Lys Gly Ser Ser Gly Arg Arg Pro Leu Leu Leu Gly Leu
1 5 10 15

```
Leu Val Ala Val Ala Thr Val His Leu Val Ile Cys Pro Tyr Thr Lys
            20                  25                  30

Val Glu Glu Ser Phe Asn Leu Gln Ala Thr His Asp Leu Leu Tyr His
        35                  40                  45

Trp Gln Asp Leu Glu Gln Tyr Asp His Leu Glu Phe Pro Gly Val Val
    50                  55                  60

Pro Arg Thr Phe Leu Gly Pro Val Val Ile Ala Val Phe Ser Ser Pro
65                  70                  75                  80

Ala Val Tyr Val Leu Ser Leu Leu Glu Met Ser Lys Phe Tyr Ser Gln
                85                  90                  95

Leu Ile Val Arg Gly Val Leu Gly Leu Gly Val Ile Phe Gly Leu Trp
            100                 105                 110

Thr Leu Gln Lys Glu Val Arg Arg His Phe Gly Ala Met Val Ala Thr
        115                 120                 125

Met Phe Cys Trp Val Thr Ala Met Gln Phe His Leu Met Phe Tyr Cys
    130                 135                 140

Thr Arg Thr Leu Pro Asn Val Leu Ala Leu Pro Val Val Leu Leu Ala
145                 150                 155                 160

Leu Ala Ala Trp Leu Arg His Glu Trp Ala Arg Phe Ile Trp Leu Ser
                165                 170                 175

Ala Phe Ala Ile Ile Val Phe Arg Val Glu Leu Cys Leu Phe Leu Gly
            180                 185                 190

Leu Leu Leu Leu Leu Ala Leu Gly Asn Arg Lys Val Ser Val Val Arg
        195                 200                 205

Ala Leu Arg His Ala Val Pro Ala Gly Ile Leu Cys Leu Gly Leu Thr
    210                 215                 220

Val Ala Val Asp Ser Tyr Phe Trp Arg Gln Leu Thr Trp Pro Glu Gly
225                 230                 235                 240

Lys Val Leu Trp Tyr Asn Thr Val Leu Asn Lys Ser Ser Asn Trp Gly
```

```
                245                 250                 255

Thr Ser Pro Leu Leu Trp Tyr Phe Tyr Ser Ala Leu Pro Arg Gly Leu
            260                 265                 270

Gly Cys Ser Leu Leu Phe Ile Pro Leu Gly Leu Val Asp Arg Arg Thr
        275                 280                 285

His Ala Pro Thr Val Leu Ala Leu Gly Phe Met Ala Leu Tyr Ser Leu
    290                 295                 300

Leu Pro His Lys Glu Leu Arg Phe Ile Ile Tyr Ala Phe Pro Met Leu
305                 310                 315                 320

Asn Ile Thr Ala Ala Arg Gly Cys Ser Tyr Leu Leu Asn Asn Tyr Lys
                325                 330                 335

Lys Ser Trp Leu Tyr Lys Ala Gly Ser Leu Leu Val Ile Gly His Leu
            340                 345                 350

Val Val Asn Ala Ala Tyr Ser Ala Thr Ala Leu Tyr Val Ser His Phe
        355                 360                 365

Asn Tyr Pro Gly Gly Val Ala Met Gln Arg Leu His Gln Leu Val Pro
    370                 375                 380

Pro Gln Thr Asp Val Leu Leu His Ile Asp Val Ala Ala Ala Gln Thr
385                 390                 395                 400

Gly Val Ser Arg Phe Leu Gln Val Asn Ser Ala Trp Arg Tyr Asp Lys
                405                 410                 415

Arg Glu Asp Val Gln Pro Gly Thr Gly Met Leu Ala Tyr Thr His Ile
            420                 425                 430

Leu Met Glu Ala Ala Pro Gly Leu Leu Ala Leu Tyr Arg Asp Thr His
        435                 440                 445

Arg Val Leu Ala Ser Val Val Gly Thr Thr Gly Val Ser Leu Asn Leu
    450                 455                 460

Thr Gln Leu Pro Pro Phe Asn Val His Leu Gln Thr Lys Leu Val Leu
465                 470                 475                 480
```

Leu Glu Arg Leu Pro Arg Pro Ser
485

<210> 4047
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 917; "

<220>
<221> source
<223> /note="Gene Symbol: ALG12; "

<220>
<221> source
<223> /note="Gene Name:
ALG12, alpha-1,6-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417387"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4047
Xaa Leu Leu Ala Leu Ala Ala Trp Leu Arg His Glu Trp Ala Arg Phe
1 5 10 15

Ile Trp Leu Ser Ala Phe Ala Ile Ile Val Phe Arg Val Glu Leu Cys
20 25 30

Leu Phe Leu Gly Leu Leu Leu Leu Leu Ala Leu Gly Asn Arg Lys Val
35 40 45

Ser Val Val Arg Ala Leu Arg His Ala Val Pro Ala Gly Ile Leu Cys
50 55 60

Leu Gly Leu Thr Val Ala Val Asp Ser Tyr Phe Trp Arg Gln Leu Thr
65 70 75 80

Trp Pro Glu Gly Lys Val Leu Trp Tyr Asn Thr Val Leu Asn Lys Ser
85 90 95

```
Ser Asn Trp Gly Thr Ser Pro Leu Leu Trp Tyr Phe Tyr Ser Ala Leu
            100                 105                 110

Pro Arg Gly Leu Gly Cys Ser Leu Leu Phe Ile Pro Leu Gly Leu Val
        115                 120                 125

Asp Arg Arg Thr His Ala Pro Thr Val Leu Ala Leu Gly Phe Met Ala
    130                 135                 140

Leu Tyr Ser Leu Leu Pro His Lys Glu Leu Arg Phe Ile Ile Tyr Ala
145                 150                 155                 160

Phe Pro Met Leu Asn Ile Thr Ala Ala Arg Gly Cys Ser Tyr Leu Trp
                165                 170                 175

Arg Arg Asn Ala Glu Ala Ala Pro Ala Gly Ala Pro Pro Asp Arg Arg
            180                 185                 190

Pro Ser Ala His
        195
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<210> 4048
<211> 205
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 917; "

<220>
<221> source
<223> /note="Gene Symbol: ALG12; "

<220>
<221> source
<223> /note="Gene Name:
ALG12, alpha-1,6-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420630"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4048
Xaa Ser Ala Leu Pro Arg Gly Leu Gly Cys Ser Leu Leu Phe Ile Pro
1 5 10 15

Leu Gly Leu Val Asp Arg Arg Thr His Ala Pro Thr Val Leu Ala Leu
20 25 30

Gly Phe Met Ala Leu Tyr Ser Leu Leu Pro His Lys Glu Leu Arg Phe
35 40 45

Ile Ile Tyr Ala Phe Pro Met Leu Asn Ile Thr Ala Ala Arg Gly Cys
50 55 60

Ser Tyr Leu Leu Asn Asn Tyr Lys Lys Ser Trp Leu Tyr Lys Ala Gly
65 70 75 80

Ser Leu Leu Val Ile Gly His Leu Val Val Asn Ala Ala Tyr Ser Ala
85 90 95

Thr Ala Leu Tyr Val Ser His Phe Asn Tyr Pro Gly Gly Val Ala Met
100 105 110

Gln Arg Leu His Gln Leu Val Pro Pro Gln Thr Asp Val Leu Leu His
115 120 125

Ile Asp Val Ala Ala Ala Gln Thr Gly Val Ser Arg Phe Leu Gln Val
130 135 140

Asn Ser Ala Trp Arg Gln Ser Trp Cys Phe Trp Arg Gly Ser Pro Gly
145 150 155 160

Arg Pro Glu Gly Asp Gln Ala Ala Leu Ser Ser His Arg Pro Ser Arg
165 170 175

Ser Cys Tyr His Tyr Gln Phe Leu Ala Gln Phe Gln His Asn Tyr Asp
180 185 190

Asn Ser Glu Lys Gln Val Lys Gly Leu Gly Thr Cys Leu
195 200 205

<210> 4049
<211> 954
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP73; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000251943"

<400> 4049

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Met Asn Asn His Gln Leu Glu Leu Ala Lys Gln Leu His Lys Glu Gly
1               5                  10                  15


His Leu Phe Tyr Cys Thr Cys Arg Val Leu Thr Cys Pro Gly Gln Ala
            20                  25                  30


Lys Ser Ile Ala Ser Ala Pro Gly Lys Cys Gln Asp Ser Ala Ala Leu
        35                  40                  45


Thr Ser Thr Ala Phe Ser Gly Leu Asp Phe Gly Leu Leu Ser Gly Tyr
    50                  55                  60


Leu His Lys Gln Ala Leu Val Thr Ala Thr His Pro Thr Cys Thr Leu
65                  70                  75                  80


Leu Phe Pro Ser Cys His Ala Phe Phe Pro Leu Pro Leu Thr Pro Thr
                85                  90                  95


Leu Tyr Lys Met His Lys Gly Trp Lys Asn Tyr Cys Ser Gln Lys Ser
            100                 105                 110


Leu Asn Glu Ala Ser Met Asp Glu Tyr Leu Gly Ser Leu Gly Leu Phe
        115                 120                 125
```

```
Arg Lys Leu Thr Ala Lys Asp Ala Ser Cys Leu Phe Arg Ala Ile Ser
    130                 135                 140

Glu Gln Leu Phe Cys Ser Gln Val His His Leu Glu Ile Arg Lys Ala
145                 150                 155                 160

Cys Val Ser Tyr Met Arg Glu Asn Gln Gln Thr Phe Glu Ser Tyr Val
                165                 170                 175

Glu Gly Ser Phe Glu Lys Tyr Leu Glu Arg Leu Gly Asp Pro Lys Glu
            180                 185                 190

Ser Ala Gly Gln Leu Glu Ile Arg Ala Leu Ser Leu Ile Tyr Asn Arg
        195                 200                 205

Asp Phe Ile Leu Tyr Arg Phe Pro Gly Lys Pro Pro Thr Tyr Val Thr
    210                 215                 220

Asp Asn Gly Tyr Glu Asp Lys Ile Leu Leu Cys Tyr Ser Ser Ser Gly
225                 230                 235                 240

His Tyr Asp Ser Val Tyr Ser Lys Gln Phe Gln Ser Ser Ala Ala Val
                245                 250                 255

Cys Gln Ala Val Leu Tyr Glu Ile Leu Tyr Lys Asp Val Phe Val Val
            260                 265                 270

Asp Glu Glu Glu Leu Lys Thr Ala Ile Lys Leu Phe Arg Ser Gly Ser
        275                 280                 285

Lys Lys Asn Arg Asn Asn Ala Val Thr Gly Ser Glu Asp Ala His Thr
    290                 295                 300

Asp Tyr Lys Ser Ser Asn Gln Asn Arg Met Glu Glu Trp Gly Ala Cys
305                 310                 315                 320

Tyr Asn Ala Glu Asn Ile Pro Glu Gly Tyr Asn Lys Gly Thr Glu Glu
                325                 330                 335

Thr Lys Ser Pro Glu Asn Pro Ser Lys Met Pro Phe Pro Tyr Lys Val
            340                 345                 350

Leu Lys Ala Leu Asp Pro Glu Ile Tyr Arg Asn Val Glu Phe Asp Val
```

```
        355                 360                 365

Trp Leu Asp Ser Arg Lys Glu Leu Gln Lys Ser Asp Tyr Met Glu Tyr
    370                 375                 380

Ala Gly Arg Gln Tyr Tyr Leu Gly Asp Lys Cys Gln Val Cys Leu Glu
385                 390                 395                 400

Ser Glu Gly Arg Tyr Tyr Asn Ala His Ile Gln Glu Val Gly Asn Glu
                405                 410                 415

Asn Asn Ser Val Thr Val Phe Ile Glu Glu Leu Ala Glu Lys His Val
            420                 425                 430

Val Pro Leu Ala Asn Leu Lys Pro Val Thr Gln Val Met Ser Val Pro
        435                 440                 445

Ala Trp Asn Ala Met Pro Ser Arg Lys Gly Arg Gly Tyr Gln Lys Met
    450                 455                 460

Pro Gly Gly Tyr Val Pro Glu Ile Val Ile Ser Glu Met Asp Ile Lys
465                 470                 475                 480

Gln Gln Lys Lys Met Phe Lys Lys Ile Arg Gly Lys Glu Val Tyr Met
                485                 490                 495

Thr Met Ala Tyr Gly Lys Gly Asp Pro Leu Leu Pro Pro Arg Leu Gln
            500                 505                 510

His Ser Met His Tyr Gly His Asp Pro Pro Met His Tyr Ser Gln Thr
        515                 520                 525

Ala Gly Asn Val Met Ser Asn Glu His Phe His Pro Gln His Pro Ser
    530                 535                 540

Pro Arg Gln Gly Arg Gly Tyr Gly Met Pro Arg Asn Ser Ser Arg Phe
545                 550                 555                 560

Ile Asn Arg His Asn Met Pro Gly Pro Lys Val Asp Phe Tyr Pro Gly
                565                 570                 575

Pro Gly Lys Arg Cys Cys Gln Ser Tyr Asp Asn Phe Ser Tyr Arg Ser
            580                 585                 590
```

Arg Ser Phe Arg Arg Ser His Arg Gln Met Ser Cys Val Asn Lys Glu
595 600 605

Ser Gln Tyr Gly Phe Thr Pro Gly Asn Gly Gln Met Pro Arg Gly Leu
610 615 620

Glu Glu Thr Ile Thr Phe Tyr Glu Val Glu Glu Gly Asp Glu Thr Ala
625 630 635 640

Tyr Pro Thr Leu Pro Asn His Gly Gly Pro Ser Thr Met Val Pro Ala
645 650 655

Thr Ser Gly Tyr Cys Val Gly Arg Arg Gly His Ser Ser Gly Lys Gln
660 665 670

Thr Leu Asn Leu Glu Glu Gly Asn Gly Gln Ser Glu Asn Gly Arg Tyr
675 680 685

His Glu Glu Tyr Leu Tyr Arg Ala Glu Pro Asp Tyr Glu Thr Ser Gly
690 695 700

Val Tyr Ser Thr Thr Ala Ser Thr Ala Asn Leu Ser Leu Gln Asp Arg
705 710 715 720

Lys Ser Cys Ser Met Ser Pro Gln Asp Thr Val Thr Ser Tyr Asn Tyr
725 730 735

Pro Gln Lys Met Met Gly Asn Ile Ala Ala Val Ala Ala Ser Cys Ala
740 745 750

Asn Asn Val Pro Ala Pro Val Leu Ser Asn Gly Ala Ala Ala Asn Gln
755 760 765

Ala Ile Ser Thr Thr Ser Val Ser Ser Gln Asn Ala Ile Gln Pro Leu
770 775 780

Phe Val Ser Pro Pro Thr His Gly Arg Pro Asp Thr Lys Val Leu Gln
785 790 795 800

Tyr Tyr Phe Asn Leu Gly Leu Gln Cys Tyr Tyr His Ser Tyr Trp His
805 810 815

```
Ser Met Val Tyr Val Pro Gln Met Gln Gln Gln Leu His Val Glu Asn
            820                 825                 830

Tyr Pro Val Tyr Thr Glu Pro Pro Leu Val Asp Gln Thr Val Pro Gln
        835                 840                 845

Cys Tyr Ser Glu Val Arg Arg Glu Asp Gly Ile Gln Ala Glu Ala Ser
    850                 855                 860

Ala Asn Asp Thr Phe Pro Asn Ala Asp Ser Ser Ser Val Pro His Gly
865                 870                 875                 880

Ala Val Tyr Tyr Pro Val Met Ser Asp Pro Tyr Gly Gln Pro Pro Leu
                885                 890                 895

Pro Gly Phe Asp Ser Cys Leu Pro Val Val Pro Asp Tyr Ser Cys Val
            900                 905                 910

Pro Pro Trp His Pro Val Gly Thr Ala Tyr Gly Gly Ser Ser Gln Ile
        915                 920                 925

His Gly Ala Ile Asn Pro Gly Pro Ile Gly Cys Ile Ala Pro Ser Pro
    930                 935                 940

Pro Ala Ser His Tyr Val Pro Gln Gly Met
945                 950
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<210> 4050
<211> 165
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<213> Homo sapiens

<220>
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<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

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<223> /note="Uniprot ID: Q9NP73; "

<220>
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<400> 4050
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1   5   10   15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Lys Ile Glu Ser Leu
            20   25   30

Gly Tyr Asn Arg Leu Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro
        35   40   45

Glu Pro Phe Ser Thr Glu Ser Phe Thr Leu Asp Val Tyr Arg Tyr Lys
    50   55   60

Asp Ser Leu Lys Glu Asp Ile Gln Lys Ala Asp Leu Val Ile Ser His
65   70   75   80

Ala Gly Ala Gly Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys Pro Leu
                85   90   95

Val Val Val Ile Asn Glu Lys Leu Met Asn Asn His Gln Leu Glu Leu
            100   105   110

Ala Lys Gln Leu His Lys Glu Gly His Leu Phe Tyr Cys Thr Cys Ser
        115   120   125

Thr Leu Pro Gly Leu Leu Gln Ser Met Asp Leu Ser Thr Leu Lys Cys
    130   135   140

Tyr Pro Pro Gly Gln Pro Glu Lys Phe Ser Ala Phe Leu Asp Lys Val
145   150   155   160

Val Gly Leu Gln Lys
                165

<210> 4051
<211> 1137
<212> PRT
<213> Homo sapiens

<220>
<221> source
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ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
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<220>
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<400> 4051
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1   5   10   15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Lys Ile Glu Ser Leu
            20   25   30

Gly Tyr Asn Arg Leu Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro
        35   40   45

Glu Pro Phe Ser Thr Glu Ser Phe Thr Leu Asp Val Tyr Arg Tyr Lys
    50   55   60

Asp Ser Leu Lys Glu Asp Ile Gln Lys Ala Asp Leu Val Ile Ser His
65   70   75   80

Ala Gly Ala Gly Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys Pro Leu
                85   90   95

Val Val Val Ile Asn Glu Lys Leu Met Asn Asn His Gln Leu Glu Leu
            100   105   110

Ala Lys Gln Leu His Lys Glu Gly His Leu Phe Tyr Cys Thr Cys Arg
        115   120   125

Val Leu Thr Cys Pro Gly Gln Ala Lys Ser Ile Ala Ser Ala Pro Gly
    130   135   140

```
Lys Cys Gln Asp Ser Ala Ala Leu Thr Ser Thr Ala Phe Ser Gly Leu
145                 150                 155                 160

Asp Phe Gly Leu Leu Ser Gly Tyr Leu His Lys Gln Ala Leu Val Thr
                165                 170                 175

Ala Thr His Pro Thr Cys Thr Leu Leu Phe Pro Ser Cys His Ala Phe
            180                 185                 190

Phe Pro Leu Pro Leu Thr Pro Thr Leu Tyr Lys Met His Lys Gly Trp
        195                 200                 205

Lys Asn Tyr Cys Ser Gln Lys Ser Leu Asn Glu Ala Ser Met Asp Glu
    210                 215                 220

Tyr Leu Gly Ser Leu Gly Leu Phe Arg Lys Leu Thr Ala Lys Asp Ala
225                 230                 235                 240

Ser Cys Leu Phe Arg Ala Ile Ser Glu Gln Leu Phe Cys Ser Gln Val
                245                 250                 255

His His Leu Glu Ile Arg Lys Ala Cys Val Ser Tyr Met Arg Glu Asn
            260                 265                 270

Gln Gln Thr Phe Glu Ser Tyr Val Glu Gly Ser Phe Glu Lys Tyr Leu
        275                 280                 285

Glu Arg Leu Gly Asp Pro Lys Glu Ser Ala Gly Gln Leu Glu Ile Arg
    290                 295                 300

Ala Leu Ser Leu Ile Tyr Asn Arg Asp Phe Ile Leu Tyr Arg Phe Pro
305                 310                 315                 320

Gly Lys Pro Pro Thr Tyr Val Thr Asp Asn Gly Tyr Glu Asp Lys Ile
                325                 330                 335

Leu Leu Cys Tyr Ser Ser Ser Gly His Tyr Asp Ser Val Tyr Ser Lys
            340                 345                 350

Gln Phe Gln Ser Ser Ala Ala Val Cys Gln Ala Val Leu Tyr Glu Ile
        355                 360                 365
```

```
Leu Tyr Lys Asp Val Phe Val Val Asp Glu Glu Glu Leu Lys Thr Ala
    370                 375                 380

Ile Lys Leu Phe Arg Ser Gly Ser Lys Lys Asn Arg Asn Asn Ala Val
385                 390                 395                 400

Thr Gly Ser Glu Asp Ala His Thr Asp Tyr Lys Ser Ser Asn Gln Asn
                405                 410                 415

Arg Met Glu Glu Trp Gly Ala Cys Tyr Asn Ala Glu Asn Ile Pro Glu
            420                 425                 430

Gly Tyr Asn Lys Gly Thr Glu Glu Thr Lys Ser Pro Glu Asn Pro Ser
        435                 440                 445

Lys Met Pro Phe Pro Tyr Lys Val Leu Lys Ala Leu Asp Pro Glu Ile
    450                 455                 460

Tyr Arg Asn Val Glu Phe Asp Val Trp Leu Asp Ser Arg Lys Glu Leu
465                 470                 475                 480

Gln Lys Ser Asp Tyr Met Glu Tyr Ala Gly Arg Gln Tyr Tyr Leu Gly
                485                 490                 495

Asp Lys Cys Gln Val Cys Leu Glu Ser Glu Gly Arg Tyr Tyr Asn Ala
            500                 505                 510

His Ile Gln Glu Val Gly Asn Glu Asn Asn Ser Val Thr Val Phe Ile
        515                 520                 525

Glu Glu Leu Ala Glu Lys His Val Val Pro Leu Ala Asn Leu Lys Pro
    530                 535                 540

Val Thr Gln Val Met Ser Val Pro Ala Trp Asn Ala Met Pro Ser Arg
545                 550                 555                 560

Lys Gly Arg Gly Tyr Gln Lys Met Pro Gly Gly Tyr Val Pro Glu Ile
                565                 570                 575

Val Ile Ser Glu Met Asp Ile Lys Gln Gln Lys Lys Met Phe Lys Lys
            580                 585                 590
```

```
Ile Arg Gly Lys Glu Val Tyr Met Thr Met Ala Tyr Gly Lys Gly Asp
        595                 600                 605

Pro Leu Leu Pro Pro Arg Leu Gln His Ser Met His Tyr Gly His Asp
    610                 615                 620

Pro Pro Met His Tyr Ser Gln Thr Ala Gly Asn Val Met Ser Asn Glu
625                 630                 635                 640

His Phe His Pro Gln His Pro Ser Pro Arg Gln Gly Arg Gly Tyr Gly
                645                 650                 655

Met Pro Arg Asn Ser Ser Arg Phe Ile Asn Arg His Asn Met Pro Gly
            660                 665                 670

Pro Lys Val Asp Phe Tyr Pro Gly Pro Gly Lys Arg Cys Cys Gln Ser
        675                 680                 685

Tyr Asp Asn Phe Ser Tyr Arg Ser Arg Ser Phe Arg Arg Ser His Arg
    690                 695                 700

Gln Met Ser Cys Val Asn Lys Glu Ser Gln Tyr Gly Phe Thr Pro Gly
705                 710                 715                 720

Asn Gly Gln Met Pro Arg Gly Leu Glu Glu Thr Ile Thr Phe Tyr Glu
                725                 730                 735

Val Glu Glu Gly Asp Glu Thr Ala Tyr Pro Thr Leu Pro Asn His Gly
            740                 745                 750

Gly Pro Ser Thr Met Val Pro Ala Thr Ser Gly Tyr Cys Val Gly Arg
        755                 760                 765

Arg Gly His Ser Ser Gly Lys Gln Thr Leu Asn Leu Glu Glu Gly Asn
    770                 775                 780

Gly Gln Ser Glu Asn Gly Arg Tyr His Glu Glu Tyr Leu Tyr Arg Ala
785                 790                 795                 800

Glu Pro Asp Tyr Glu Thr Ser Gly Val Tyr Ser Thr Thr Ala Ser Thr
                805                 810                 815

Ala Asn Leu Ser Leu Gln Asp Arg Lys Ser Cys Ser Met Ser Pro Gln
```

```
            820                 825                 830

Asp Thr Val Thr Ser Tyr Asn Tyr Pro Gln Lys Met Met Gly Asn Ile
        835                 840                 845

Ala Ala Val Ala Ala Ser Cys Ala Asn Asn Val Pro Ala Pro Val Leu
    850                 855                 860

Ser Asn Gly Ala Ala Ala Asn Gln Ala Ile Ser Thr Thr Ser Val Ser
865                 870                 875                 880

Ser Gln Asn Ala Ile Gln Pro Leu Phe Val Ser Pro Pro Thr His Gly
                885                 890                 895

Arg Pro Val Ile Ala Ser Pro Ser Tyr Pro Cys His Ser Ala Ile Pro
            900                 905                 910

His Ala Gly Ala Ser Leu Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro
        915                 920                 925

Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro
    930                 935                 940

Pro Ala Leu Asp Val Gly Glu Thr Ser Asn Leu Gln Pro Pro Pro Pro
945                 950                 955                 960

Leu Pro Pro Pro Pro Tyr Ser Cys Asp Pro Ser Gly Ser Asp Leu Pro
                965                 970                 975

Gln Asp Thr Lys Val Leu Gln Tyr Tyr Phe Asn Leu Gly Leu Gln Cys
            980                 985                 990

Tyr Tyr His Ser Tyr Trp His Ser  Met Val Tyr Val Pro  Gln Met
Gln
        995                 1000                1005

Gln Gln  Leu His Val Glu Asn  Tyr Pro Val Tyr Thr  Glu Pro Pro
    1010                1015                1020

Leu Val  Asp Gln Thr Val Pro  Gln Cys Tyr Ser Glu  Val Arg Arg
    1025                1030                1035

Glu Asp  Gly Ile Gln Ala Glu  Ala Ser Ala Asn Asp  Thr Phe Pro
```

```
    1040                1045                1050

Asn Ala  Asp Ser Ser Ser Val  Pro His Gly Ala Val  Tyr Tyr Pro
    1055                1060                1065

Val Met  Ser Asp Pro Tyr Gly  Gln Pro Pro Leu Pro  Gly Phe Asp
    1070                1075                1080

Ser Cys  Leu Pro Val Val Pro  Asp Tyr Ser Cys Val  Pro Pro Trp
    1085                1090                1095

His Pro  Val Gly Thr Ala Tyr  Gly Gly Ser Ser Gln  Ile His Gly
    1100                1105                1110

Ala Ile  Asn Pro Gly Pro Ile  Gly Cys Ile Ala Pro  Ser Pro Pro
    1115                1120                1125

Ala Ser  His Tyr Val Pro Gln  Gly Met
    1130                1135


<210> 4052
<211> 954
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
      ALG13, UDP-N-acetylglucosaminyltransferase
      subunit; "

<220>
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<223> /note="Uniprot ID:  Q9NP73; "

<220>
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<223> /note="ENSP ID: ENSP00000392990"

<400> 4052
Met Asn Asn His Gln Leu Glu Leu Ala Lys Gln Leu His Lys Glu Gly
1               5                  10                  15
```

```
His Leu Phe Tyr Cys Thr Cys Arg Val Leu Thr Cys Pro Gly Gln Ala
            20                  25                  30

Lys Ser Ile Ala Ser Ala Pro Gly Lys Cys Gln Asp Ser Ala Ala Leu
        35                  40                  45

Thr Ser Thr Ala Phe Ser Gly Leu Asp Phe Gly Leu Leu Ser Gly Tyr
    50                  55                  60

Leu His Lys Gln Ala Leu Val Thr Ala Thr His Pro Thr Cys Thr Leu
65                  70                  75                  80

Leu Phe Pro Ser Cys His Ala Phe Phe Pro Leu Pro Leu Thr Pro Thr
                85                  90                  95

Leu Tyr Lys Met His Lys Gly Trp Lys Asn Tyr Cys Ser Gln Lys Ser
            100                 105                 110

Leu Asn Glu Ala Ser Met Asp Glu Tyr Leu Gly Ser Leu Gly Leu Phe
        115                 120                 125

Arg Lys Leu Thr Ala Lys Asp Ala Ser Cys Leu Phe Arg Ala Ile Ser
    130                 135                 140

Glu Gln Leu Phe Cys Ser Gln Val His His Leu Glu Ile Arg Lys Ala
145                 150                 155                 160

Cys Val Ser Tyr Met Arg Glu Asn Gln Gln Thr Phe Glu Ser Tyr Val
                165                 170                 175

Glu Gly Ser Phe Glu Lys Tyr Leu Glu Arg Leu Gly Asp Pro Lys Glu
            180                 185                 190

Ser Ala Gly Gln Leu Glu Ile Arg Ala Leu Ser Leu Ile Tyr Asn Arg
        195                 200                 205

Asp Phe Ile Leu Tyr Arg Phe Pro Gly Lys Pro Pro Thr Tyr Val Thr
    210                 215                 220

Asp Asn Gly Tyr Glu Asp Lys Ile Leu Leu Cys Tyr Ser Ser Ser Gly
225                 230                 235                 240
```

```
His Tyr Asp Ser Val Tyr Ser Lys Gln Phe Gln Ser Ser Ala Ala Val
                245                 250                 255

Cys Gln Ala Val Leu Tyr Glu Ile Leu Tyr Lys Asp Val Phe Val Val
            260                 265                 270

Asp Glu Glu Glu Leu Lys Thr Ala Ile Lys Leu Phe Arg Ser Gly Ser
        275                 280                 285

Lys Lys Asn Arg Asn Asn Ala Val Thr Gly Ser Glu Asp Ala His Thr
    290                 295                 300

Asp Tyr Lys Ser Ser Asn Gln Asn Arg Met Glu Glu Trp Gly Ala Cys
305                 310                 315                 320

Tyr Asn Ala Glu Asn Ile Pro Glu Gly Tyr Asn Lys Gly Thr Glu Glu
                325                 330                 335

Thr Lys Ser Pro Glu Asn Pro Ser Lys Met Pro Phe Pro Tyr Lys Val
            340                 345                 350

Leu Lys Ala Leu Asp Pro Glu Ile Tyr Arg Asn Val Glu Phe Asp Val
        355                 360                 365

Trp Leu Asp Ser Arg Lys Glu Leu Gln Lys Ser Asp Tyr Met Glu Tyr
    370                 375                 380

Ala Gly Arg Gln Tyr Tyr Leu Gly Asp Lys Cys Gln Val Cys Leu Glu
385                 390                 395                 400

Ser Glu Gly Arg Tyr Tyr Asn Ala His Ile Gln Glu Val Gly Asn Glu
                405                 410                 415

Asn Asn Ser Val Thr Val Phe Ile Glu Glu Leu Ala Glu Lys His Val
            420                 425                 430

Val Pro Leu Ala Asn Leu Lys Pro Val Thr Gln Val Met Ser Val Pro
        435                 440                 445

Ala Trp Asn Ala Met Pro Ser Arg Lys Gly Arg Gly Tyr Gln Lys Met
    450                 455                 460
```

```
Pro Gly Gly Tyr Val Pro Glu Ile Val Ile Ser Glu Met Asp Ile Lys
465                 470                 475                 480

Gln Gln Lys Lys Met Phe Lys Lys Ile Arg Gly Lys Glu Val Tyr Met
                485                 490                 495

Thr Met Ala Tyr Gly Lys Gly Asp Pro Leu Leu Pro Pro Arg Leu Gln
            500                 505                 510

His Ser Met His Tyr Gly His Asp Pro Pro Met His Tyr Ser Gln Thr
        515                 520                 525

Ala Gly Asn Val Met Ser Asn Glu His Phe His Pro Gln His Pro Ser
    530                 535                 540

Pro Arg Gln Gly Arg Gly Tyr Gly Met Pro Arg Asn Ser Ser Arg Phe
545                 550                 555                 560

Ile Asn Arg His Asn Met Pro Gly Pro Lys Val Asp Phe Tyr Pro Gly
                565                 570                 575

Pro Gly Lys Arg Cys Cys Gln Ser Tyr Asp Asn Phe Ser Tyr Arg Ser
            580                 585                 590

Arg Ser Phe Arg Arg Ser His Arg Gln Met Ser Cys Val Asn Lys Glu
        595                 600                 605

Ser Gln Tyr Gly Phe Thr Pro Gly Asn Gly Gln Met Pro Arg Gly Leu
    610                 615                 620

Glu Glu Thr Ile Thr Phe Tyr Glu Val Glu Glu Gly Asp Glu Thr Ala
625                 630                 635                 640

Tyr Pro Thr Leu Pro Asn His Gly Gly Pro Ser Thr Met Val Pro Ala
                645                 650                 655

Thr Ser Gly Tyr Cys Val Gly Arg Arg Gly His Ser Ser Gly Lys Gln
            660                 665                 670

Thr Leu Asn Leu Glu Glu Gly Asn Gly Gln Ser Glu Asn Gly Arg Tyr
        675                 680                 685

His Glu Glu Tyr Leu Tyr Arg Ala Glu Pro Asp Tyr Glu Thr Ser Gly
```

690 695 700

Val Tyr Ser Thr Thr Ala Ser Thr Ala Asn Leu Ser Leu Gln Asp Arg
705 710 715 720

Lys Ser Cys Ser Met Ser Pro Gln Asp Thr Val Thr Ser Tyr Asn Tyr
725 730 735

Pro Gln Lys Met Met Gly Asn Ile Ala Ala Val Ala Ala Ser Cys Ala
740 745 750

Asn Asn Val Pro Ala Pro Val Leu Ser Asn Gly Ala Ala Ala Asn Gln
755 760 765

Ala Ile Ser Thr Thr Ser Val Ser Ser Gln Asn Ala Ile Gln Pro Leu
770 775 780

Phe Val Ser Pro Pro Thr His Gly Arg Pro Asp Thr Lys Val Leu Gln
785 790 795 800

Tyr Tyr Phe Asn Leu Gly Leu Gln Cys Tyr Tyr His Ser Tyr Trp His
805 810 815

Ser Met Val Tyr Val Pro Gln Met Gln Gln Gln Leu His Val Glu Asn
820 825 830

Tyr Pro Val Tyr Thr Glu Pro Pro Leu Val Asp Gln Thr Val Pro Gln
835 840 845

Cys Tyr Ser Glu Val Arg Arg Glu Asp Gly Ile Gln Ala Glu Ala Ser
850 855 860

Ala Asn Asp Thr Phe Pro Asn Ala Asp Ser Ser Ser Val Pro His Gly
865 870 875 880

Ala Val Tyr Tyr Pro Val Met Ser Asp Pro Tyr Gly Gln Pro Pro Leu
885 890 895

Pro Gly Phe Asp Ser Cys Leu Pro Val Val Pro Asp Tyr Ser Cys Val
900 905 910

Pro Pro Trp His Pro Val Gly Thr Ala Tyr Gly Gly Ser Ser Gln Ile
915 920 925

```
His Gly Ala Ile Asn Pro Gly Pro Ile Gly Cys Ile Ala Pro Ser Pro
    930                 935                 940

Pro Ala Ser His Tyr Val Pro Gln Gly Met
945                 950
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<210> 4053
<211> 159
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426892"

<400> 4053

```
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1               5                   10                  15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Lys Ile Glu Ser Leu
            20                  25                  30

Gly Tyr Asn Arg Leu Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro
        35                  40                  45

Glu Pro Phe Ser Thr Glu Ser Phe Thr Leu Asp Val Tyr Arg Tyr Lys
    50                  55                  60

Asp Ser Leu Lys Glu Asp Ile Gln Lys Ala Asp Leu Val Ile Ser His
65                  70                  75                  80

Ala Gly Ala Gly Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys Pro Leu
                85                  90                  95
```

```
Val Val Val Ile Asn Glu Lys Leu Met Asn Asn His Gln Leu Glu Leu
            100                 105                 110

Ala Lys Gln Leu His Lys Glu Gly His Leu Phe Tyr Cys Thr Cys Arg
        115                 120                 125

Leu Ile Leu Lys Lys Cys Leu Leu Val Val Glu Gly Gly Asp Lys Glu
    130                 135                 140

Ile Leu Trp Val Ala Gly Gly Ser Gln Leu Gly Leu Lys Phe Cys
145                 150                 155
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<210> 4054
<211> 51
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427093"

<400> 4054

```
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1               5                   10                  15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
            20                  25                  30

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
        35                  40                  45

Gln Pro Arg
    50
```

<210> 4055
<211> 61
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477513"

<400> 4055
Met Asn Asn His Gln Leu Glu Leu Ala Lys Gln Leu His Lys Glu Gly
1 5 10 15

His Leu Phe Tyr Cys Thr Cys Ser Thr Leu Pro Gly Leu Leu Gln Ser
20 25 30

Met Asp Leu Ser Thr Leu Lys Cys Tyr Pro Pro Gly Gln Pro Glu Lys
35 40 45

Phe Ser Ala Phe Leu Asp Lys Val Val Gly Leu Gln Lys
50 55 60

<210> 4056
<211> 171
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase

subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478130"

<400> 4056
Met Leu Asp Thr Ser Cys Leu Gln Thr Ser Asp Ser Lys Phe Phe Ser
1   5   10   15

Phe Gly Thr Arg Thr Gly Ser Pro Cys Ser Ser Ala Cys Arg His Pro
            20   25   30

Ile Val Gly Pro Cys Asp Cys Lys Ile Glu Ser Leu Gly Tyr Asn Arg
        35   40   45

Leu Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro Glu Pro Phe Ser
    50   55   60

Thr Glu Ser Phe Thr Leu Asp Val Tyr Arg Tyr Lys Asp Ser Leu Lys
65   70   75   80

Glu Asp Ile Gln Lys Ala Asp Leu Val Ile Ser His Ala Gly Ala Gly
                85   90   95

Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys Pro Leu Val Val Val Ile
            100   105   110

Asn Glu Lys Leu Met Asn Asn His Gln Leu Glu Leu Ala Lys Gln Leu
        115   120   125

His Lys Glu Gly His Leu Phe Tyr Cys Thr Cys Arg Leu Ile Leu Lys
    130   135   140

Lys Cys Leu Leu Val Val Glu Gly Gly Asp Lys Glu Ile Leu Trp Val
145   150   155   160

Ala Gly Gly Ser Gln Leu Gly Leu Lys Phe Cys
                165   170

<210> 4057
<211> 43
<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:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479424"

<400> 4057
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Gln Gly Phe Leu
20 25 30

Glu Arg Arg His Ser Glu Ser Arg Ser Cys Tyr
35 40

<210> 4058
<211> 43
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479483"

<400> 4058
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Gln Gly Phe Leu
            20   25   30

Glu Arg Arg His Ser Glu Ser Arg Ser Cys Tyr
        35   40

<210> 4059
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
      ALG13, UDP-N-acetylglucosaminyltransferase
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479632"

<400> 4059
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1   5   10   15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
            20   25   30

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
        35   40   45

Gln Pro Arg
    50

<210> 4060
<211> 1059
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP73; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479731"

<400> 4060
Met Phe Thr Gly Ala Gly Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys
1   5   10   15

Pro Leu Val Val Val Ile Asn Glu Lys Leu Met Asn Asn His Gln Leu
            20   25   30

Glu Leu Ala Lys Gln Leu His Lys Glu Gly His Leu Phe Tyr Cys Thr
        35   40   45

Cys Arg Val Leu Thr Cys Pro Gly Gln Ala Lys Ser Ile Ala Ser Ala
    50   55   60

Pro Gly Lys Cys Gln Asp Ser Ala Ala Leu Thr Ser Thr Ala Phe Ser
65   70   75   80

Gly Leu Asp Phe Gly Leu Leu Ser Gly Tyr Leu His Lys Gln Ala Leu
                85   90   95

Val Thr Ala Thr His Pro Thr Cys Thr Leu Leu Phe Pro Ser Cys His
            100   105   110

Ala Phe Phe Pro Leu Pro Leu Thr Pro Thr Leu Tyr Lys Met His Lys
        115   120   125

Gly Trp Lys Asn Tyr Cys Ser Gln Lys Ser Leu Asn Glu Ala Ser Met
    130   135   140

Asp Glu Tyr Leu Gly Ser Leu Gly Leu Phe Arg Lys Leu Thr Ala Lys

145 150 155 160

Asp Ala Ser Cys Leu Phe Arg Ala Ile Ser Glu Gln Leu Phe Cys Ser
165 170 175

Gln Val His His Leu Glu Ile Arg Lys Ala Cys Val Ser Tyr Met Arg
180 185 190

Glu Asn Gln Gln Thr Phe Glu Ser Tyr Val Glu Gly Ser Phe Glu Lys
195 200 205

Tyr Leu Glu Arg Leu Gly Asp Pro Lys Glu Ser Ala Gly Gln Leu Glu
210 215 220

Ile Arg Ala Leu Ser Leu Ile Tyr Asn Arg Asp Phe Ile Leu Tyr Arg
225 230 235 240

Phe Pro Gly Lys Pro Pro Thr Tyr Val Thr Asp Asn Gly Tyr Glu Asp
245 250 255

Lys Ile Leu Leu Cys Tyr Ser Ser Ser Gly His Tyr Asp Ser Val Tyr
260 265 270

Ser Lys Gln Phe Gln Ser Ser Ala Ala Val Cys Gln Ala Val Leu Tyr
275 280 285

Glu Ile Leu Tyr Lys Asp Val Phe Val Val Asp Glu Glu Glu Leu Lys
290 295 300

Thr Ala Ile Lys Leu Phe Arg Ser Gly Ser Lys Lys Asn Arg Asn Asn
305 310 315 320

Ala Val Thr Gly Ser Glu Asp Ala His Thr Asp Tyr Lys Ser Ser Asn
325 330 335

Gln Asn Arg Met Glu Glu Trp Gly Ala Cys Tyr Asn Ala Glu Asn Ile
340 345 350

Pro Glu Gly Tyr Asn Lys Gly Thr Glu Glu Thr Lys Ser Pro Glu Asn
355 360 365

Pro Ser Lys Met Pro Phe Pro Tyr Lys Val Leu Lys Ala Leu Asp Pro
370 375 380

```
Glu Ile Tyr Arg Asn Val Glu Phe Asp Val Trp Leu Asp Ser Arg Lys
385                 390                 395                 400

Glu Leu Gln Lys Ser Asp Tyr Met Glu Tyr Ala Gly Arg Gln Tyr Tyr
                405                 410                 415

Leu Gly Asp Lys Cys Gln Val Cys Leu Glu Ser Glu Gly Arg Tyr Tyr
            420                 425                 430

Asn Ala His Ile Gln Glu Val Gly Asn Glu Asn Asn Ser Val Thr Val
        435                 440                 445

Phe Ile Glu Glu Leu Ala Glu Lys His Val Val Pro Leu Ala Asn Leu
    450                 455                 460

Lys Pro Val Thr Gln Val Met Ser Val Pro Ala Trp Asn Ala Met Pro
465                 470                 475                 480

Ser Arg Lys Gly Arg Gly Tyr Gln Lys Met Pro Gly Gly Tyr Val Pro
                485                 490                 495

Glu Ile Val Ile Ser Glu Met Asp Ile Lys Gln Gln Lys Lys Met Phe
            500                 505                 510

Lys Lys Ile Arg Gly Lys Glu Val Tyr Met Thr Met Ala Tyr Gly Lys
        515                 520                 525

Gly Asp Pro Leu Leu Pro Pro Arg Leu Gln His Ser Met His Tyr Gly
    530                 535                 540

His Asp Pro Pro Met His Tyr Ser Gln Thr Ala Gly Asn Val Met Ser
545                 550                 555                 560

Asn Glu His Phe His Pro Gln His Pro Ser Pro Arg Gln Gly Arg Gly
                565                 570                 575

Tyr Gly Met Pro Arg Asn Ser Ser Arg Phe Ile Asn Arg His Asn Met
            580                 585                 590

Pro Gly Pro Lys Val Asp Phe Tyr Pro Gly Pro Gly Lys Arg Cys Cys
        595                 600                 605
```

```
Gln Ser Tyr Asp Asn Phe Ser Tyr Arg Ser Arg Ser Phe Arg Arg Ser
    610                 615                 620

His Arg Gln Met Ser Cys Val Asn Lys Glu Ser Gln Tyr Gly Phe Thr
625                 630                 635                 640

Pro Gly Asn Gly Gln Met Pro Arg Gly Leu Glu Glu Thr Ile Thr Phe
                645                 650                 655

Tyr Glu Val Glu Glu Gly Asp Glu Thr Ala Tyr Pro Thr Leu Pro Asn
            660                 665                 670

His Gly Gly Pro Ser Thr Met Val Pro Ala Thr Ser Gly Tyr Cys Val
        675                 680                 685

Gly Arg Arg Gly His Ser Ser Gly Lys Gln Thr Leu Asn Leu Glu Glu
    690                 695                 700

Gly Asn Gly Gln Ser Glu Asn Gly Arg Tyr His Glu Glu Tyr Leu Tyr
705                 710                 715                 720

Arg Ala Glu Pro Asp Tyr Glu Thr Ser Gly Val Tyr Ser Thr Thr Ala
                725                 730                 735

Ser Thr Ala Asn Leu Ser Leu Gln Asp Arg Lys Ser Cys Ser Met Ser
            740                 745                 750

Pro Gln Asp Thr Val Thr Ser Tyr Asn Tyr Pro Gln Lys Met Met Gly
        755                 760                 765

Asn Ile Ala Ala Val Ala Ala Ser Cys Ala Asn Asn Val Pro Ala Pro
    770                 775                 780

Val Leu Ser Asn Gly Ala Ala Ala Asn Gln Ala Ile Ser Thr Thr Ser
785                 790                 795                 800

Val Ser Ser Gln Asn Ala Ile Gln Pro Leu Phe Val Ser Pro Pro Thr
                805                 810                 815

His Gly Arg Pro Val Ile Ala Ser Pro Ser Tyr Pro Cys His Ser Ala
            820                 825                 830
```

```
Ile Pro His Ala Gly Ala Ser Leu Pro Pro Pro Pro Pro Pro Pro Pro
        835                 840                 845

Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro
    850                 855                 860

Pro Pro Pro Ala Leu Asp Val Gly Glu Thr Ser Asn Leu Gln Pro Pro
865                 870                 875                 880

Pro Pro Leu Pro Pro Pro Pro Tyr Ser Cys Asp Pro Ser Gly Ser Asp
                885                 890                 895

Leu Pro Gln Asp Thr Lys Val Leu Gln Tyr Tyr Phe Asn Leu Gly Leu
            900                 905                 910

Gln Cys Tyr Tyr His Ser Tyr Trp His Ser Met Val Tyr Val Pro Gln
        915                 920                 925

Met Gln Gln Gln Leu His Val Glu Asn Tyr Pro Val Tyr Thr Glu Pro
    930                 935                 940

Pro Leu Val Asp Gln Thr Val Pro Gln Cys Tyr Ser Glu Val Arg Arg
945                 950                 955                 960

Glu Asp Gly Ile Gln Ala Glu Ala Ser Ala Asn Asp Thr Phe Pro Asn
                965                 970                 975

Ala Asp Ser Ser Ser Val Pro His Gly Ala Val Tyr Tyr Pro Val Met
            980                 985                 990

Ser Asp Pro Tyr Gly Gln Pro Pro  Leu Pro Gly Phe Asp  Ser Cys
Leu
        995                 1000                1005

Pro Val  Val Pro Asp Tyr Ser  Cys Val Pro Pro Trp  His Pro Val
    1010                1015                1020

Gly Thr  Ala Tyr Gly Gly Ser  Ser Gln Ile His Gly  Ala Ile Asn
    1025                1030                1035

Pro Gly  Pro Ile Gly Cys Ile  Ala Pro Ser Pro Pro  Ala Ser His
    1040                1045                1050
```

Tyr Val Pro Gln Gly Met
    1055

<210> 4061
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
      ALG13, UDP-N-acetylglucosaminyltransferase
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480638"

<400> 4061
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1   5   10   15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
            20   25   30

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
        35   40   45

Gln Pro Arg
    50

<210> 4062
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480711"

<400> 4062
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Lys Ile Glu Ser Leu
20 25 30

Gly Tyr Asn Arg Leu Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro
35 40 45

Glu Pro Phe Ser Thr Glu Ser Phe Thr Leu Asp Val Tyr Arg Tyr Lys
50 55 60

Asp Ser Leu Lys Glu Asp Ile Gln Lys Ala Asp Leu Val Ile Ser His
65 70 75 80

Ala Gly Ala Gly Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys Pro Leu
85 90 95

Val Val Val Ile Asn Glu Lys Leu Met Asn Asn His Gln Leu Glu Leu
100 105 110

Ala Lys Gln Leu His Lys Glu Gly His Leu Phe Tyr Cys Thr Cys Ser
115 120 125

Ser Ser Leu Arg His
130

<210> 4063
<211> 954
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 918; "

<220>

<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP73; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481509"

<400> 4063

```
Met Asn Asn His Gln Leu Glu Leu Ala Lys Gln Leu His Lys Glu Gly
1               5                  10                  15

His Leu Phe Tyr Cys Thr Cys Arg Val Leu Thr Cys Pro Gly Gln Ala
            20                  25                  30

Lys Ser Ile Ala Ser Ala Pro Gly Lys Cys Gln Asp Ser Ala Ala Leu
        35                  40                  45

Thr Ser Thr Ala Phe Ser Gly Leu Asp Phe Gly Leu Leu Ser Gly Tyr
    50                  55                  60

Leu His Lys Gln Ala Leu Val Thr Ala Thr His Pro Thr Cys Thr Leu
65                  70                  75                  80

Leu Phe Pro Ser Cys His Ala Phe Phe Pro Leu Pro Leu Thr Pro Thr
                85                  90                  95

Leu Tyr Lys Met His Lys Gly Trp Lys Asn Tyr Cys Ser Gln Lys Ser
            100                 105                 110

Leu Asn Glu Ala Ser Met Asp Glu Tyr Leu Gly Ser Leu Gly Leu Phe
        115                 120                 125

Arg Lys Leu Thr Ala Lys Asp Ala Ser Cys Leu Phe Arg Ala Ile Ser
    130                 135                 140

Glu Gln Leu Phe Cys Ser Gln Val His His Leu Glu Ile Arg Lys Ala
145                 150                 155                 160
```

```
Cys Val Ser Tyr Met Arg Glu Asn Gln Gln Thr Phe Glu Ser Tyr Val
                165                 170                 175

Glu Gly Ser Phe Glu Lys Tyr Leu Glu Arg Leu Gly Asp Pro Lys Glu
            180                 185                 190

Ser Ala Gly Gln Leu Glu Ile Arg Ala Leu Ser Leu Ile Tyr Asn Arg
        195                 200                 205

Asp Phe Ile Leu Tyr Arg Phe Pro Gly Lys Pro Pro Thr Tyr Val Thr
    210                 215                 220

Asp Asn Gly Tyr Glu Asp Lys Ile Leu Leu Cys Tyr Ser Ser Ser Gly
225                 230                 235                 240

His Tyr Asp Ser Val Tyr Ser Lys Gln Phe Gln Ser Ser Ala Ala Val
                245                 250                 255

Cys Gln Ala Val Leu Tyr Glu Ile Leu Tyr Lys Asp Val Phe Val Val
            260                 265                 270

Asp Glu Glu Glu Leu Lys Thr Ala Ile Lys Leu Phe Arg Ser Gly Ser
        275                 280                 285

Lys Lys Asn Arg Asn Asn Ala Val Thr Gly Ser Glu Asp Ala His Thr
    290                 295                 300

Asp Tyr Lys Ser Ser Asn Gln Asn Arg Met Glu Glu Trp Gly Ala Cys
305                 310                 315                 320

Tyr Asn Ala Glu Asn Ile Pro Glu Gly Tyr Asn Lys Gly Thr Glu Glu
                325                 330                 335

Thr Lys Ser Pro Glu Asn Pro Ser Lys Met Pro Phe Pro Tyr Lys Val
            340                 345                 350

Leu Lys Ala Leu Asp Pro Glu Ile Tyr Arg Asn Val Glu Phe Asp Val
        355                 360                 365

Trp Leu Asp Ser Arg Lys Glu Leu Gln Lys Ser Asp Tyr Met Glu Tyr
    370                 375                 380
```

```
Ala Gly Arg Gln Tyr Tyr Leu Gly Asp Lys Cys Gln Val Cys Leu Glu
385                 390                 395                 400

Ser Glu Gly Arg Tyr Tyr Asn Ala His Ile Gln Glu Val Gly Asn Glu
                405                 410                 415

Asn Asn Ser Val Thr Val Phe Ile Glu Glu Leu Ala Glu Lys His Val
            420                 425                 430

Val Pro Leu Ala Asn Leu Lys Pro Val Thr Gln Val Met Ser Val Pro
        435                 440                 445

Ala Trp Asn Ala Met Pro Ser Arg Lys Gly Arg Gly Tyr Gln Lys Met
    450                 455                 460

Pro Gly Gly Tyr Val Pro Glu Ile Val Ile Ser Glu Met Asp Ile Lys
465                 470                 475                 480

Gln Gln Lys Lys Met Phe Lys Lys Ile Arg Gly Lys Glu Val Tyr Met
                485                 490                 495

Thr Met Ala Tyr Gly Lys Gly Asp Pro Leu Leu Pro Pro Arg Leu Gln
            500                 505                 510

His Ser Met His Tyr Gly His Asp Pro Pro Met His Tyr Ser Gln Thr
        515                 520                 525

Ala Gly Asn Val Met Ser Asn Glu His Phe His Pro Gln His Pro Ser
    530                 535                 540

Pro Arg Gln Gly Arg Gly Tyr Gly Met Pro Arg Asn Ser Ser Arg Phe
545                 550                 555                 560

Ile Asn Arg His Asn Met Pro Gly Pro Lys Val Asp Phe Tyr Pro Gly
                565                 570                 575

Pro Gly Lys Arg Cys Cys Gln Ser Tyr Asp Asn Phe Ser Tyr Arg Ser
            580                 585                 590

Arg Ser Phe Arg Arg Ser His Arg Gln Met Ser Cys Val Asn Lys Glu
        595                 600                 605

Ser Gln Tyr Gly Phe Thr Pro Gly Asn Gly Gln Met Pro Arg Gly Leu
```

610 615 620

Glu Glu Thr Ile Thr Phe Tyr Glu Val Glu Glu Gly Asp Glu Thr Ala
625 630 635 640

Tyr Pro Thr Leu Pro Asn His Gly Gly Pro Ser Thr Met Val Pro Ala
645 650 655

Thr Ser Gly Tyr Cys Val Gly Arg Arg Gly His Ser Ser Gly Lys Gln
660 665 670

Thr Leu Asn Leu Glu Glu Gly Asn Gly Gln Ser Glu Asn Gly Arg Tyr
675 680 685

His Glu Glu Tyr Leu Tyr Arg Ala Glu Pro Asp Tyr Glu Thr Ser Gly
690 695 700

Val Tyr Ser Thr Thr Ala Ser Thr Ala Asn Leu Ser Leu Gln Asp Arg
705 710 715 720

Lys Ser Cys Ser Met Ser Pro Gln Asp Thr Val Thr Ser Tyr Asn Tyr
725 730 735

Pro Gln Lys Met Met Gly Asn Ile Ala Ala Val Ala Ala Ser Cys Ala
740 745 750

Asn Asn Val Pro Ala Pro Val Leu Ser Asn Gly Ala Ala Ala Asn Gln
755 760 765

Ala Ile Ser Thr Thr Ser Val Ser Ser Gln Asn Ala Ile Gln Pro Leu
770 775 780

Phe Val Ser Pro Pro Thr His Gly Arg Pro Asp Thr Lys Val Leu Gln
785 790 795 800

Tyr Tyr Phe Asn Leu Gly Leu Gln Cys Tyr Tyr His Ser Tyr Trp His
805 810 815

Ser Met Val Tyr Val Pro Gln Met Gln Gln Gln Leu His Val Glu Asn
820 825 830

Tyr Pro Val Tyr Thr Glu Pro Pro Leu Val Asp Gln Thr Val Pro Gln
835 840 845

```
Cys Tyr Ser Glu Val Arg Arg Glu Asp Gly Ile Gln Ala Glu Ala Ser
    850                 855                 860

Ala Asn Asp Thr Phe Pro Asn Ala Asp Ser Ser Ser Val Pro His Gly
865                 870                 875                 880

Ala Val Tyr Tyr Pro Val Met Ser Asp Pro Tyr Gly Gln Pro Pro Leu
                885                 890                 895

Pro Gly Phe Asp Ser Cys Leu Pro Val Val Pro Asp Tyr Ser Cys Val
            900                 905                 910

Pro Pro Trp His Pro Val Gly Thr Ala Tyr Gly Gly Ser Ser Gln Ile
        915                 920                 925

His Gly Ala Ile Asn Pro Gly Pro Ile Gly Cys Ile Ala Pro Ser Pro
    930                 935                 940

Pro Ala Ser His Tyr Val Pro Gln Gly Met
945                 950
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<210> 4064
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482257"

<400> 4064

```
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1               5                   10                  15
```

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
            20   25   30

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
        35   40   45

Gln Pro Arg
    50

<210> 4065
<211> 35
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
      ALG13, UDP-N-acetylglucosaminyltransferase
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484523"

<400> 4065
Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
1   5   10   15

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
            20   25   30

Gln Pro Arg
        35

<210> 4066
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485067"

<400> 4066
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Lys Ile Glu Ser Leu
20 25 30

Gly Tyr Asn Arg Leu Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro
35 40 45

Glu Pro Phe Ser Thr Glu Ser Phe Thr Leu Asp Val Tyr Arg Tyr Lys
50 55 60

Asp Ser Leu Lys Glu Asp Ile Gln Lys Ala Asp Leu Val Ile Ser His
65 70 75 80

Ala Gly Ala Gly Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys Pro Leu
85 90 95

Val Val Val Ile Asn Glu Lys Leu Met Asn Asn His Gln Leu Glu Leu
100 105 110

Ala Lys Gln Leu His Lys Glu Gly His Leu Phe Tyr Cys Thr Cys Arg
115 120 125

Tyr Ala Arg Asp
130

<210> 4067
<211> 77
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485071"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4067
Xaa Pro Pro Leu Pro Gly Phe Asp Ser Cys Leu Pro Val Val Pro Asp
1 5 10 15

Tyr Ser Cys Val Pro Pro Trp His Pro Val Gly Thr Ala Tyr Gly Gly
20 25 30

Ser Ser Gln Ile His Gly Ala Ile Asn Pro Gly Pro Ile Gly Cys Ile
35 40 45

Ala Pro Ser Pro Pro Ala Ser His Tyr Val Pro Gln Glu Ser Lys Thr
50 55 60

Lys Ser Leu Cys Phe Trp Ile Thr His Leu Ile Leu Asn
65 70 75

<210> 4068
<211> 150
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485093"

<400> 4068
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Lys Ile Glu Ser Leu
20 25 30

Gly Tyr Asn Arg Leu Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro
35 40 45

Glu Pro Phe Ser Thr Glu Ser Phe Thr Leu Asp Val Tyr Arg Cys Arg
50 55 60

Lys Leu Phe Gly Asp Ser Gly Lys Arg Lys Ala Thr Arg Ser Gly Tyr
65 70 75 80

Lys Arg Lys Val Asp Glu Gln Ser Ser Ala Gly Thr Gly Lys Ala Ala
85 90 95

Thr Gln Arg Gly Ser Ser Leu Leu Leu Tyr Leu Gln Gly Pro Asp Leu
100 105 110

Ser Trp Ala Ser Gln Val His Cys Phe Cys Ser Trp Glu Val Pro Arg
115 120 125

Phe Cys Ser Ala Asp Phe Asn Cys Leu Phe Arg Pro Arg Leu Trp Ala
130 135 140

Ala Phe Arg Ile Pro Ala
145 150

<210> 4069
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485181"

<400> 4069
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Gln Gly Phe Leu
20 25 30

Glu Arg Arg His Ser Glu Ser Arg Ser Cys Tyr
35 40

<210> 4070
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485279"

<400> 4070
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
            20   25   30

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
        35   40   45

Gln Pro Arg
    50

<210> 4071
<211> 162
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
      ALG13, UDP-N-acetylglucosaminyltransferase
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485333"

<400> 4071
Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu Ile Ala Cys Val Ser
1   5   10   15

Ala Pro Asp Ser Leu Gln Lys Ile Glu Ser Leu Gly Tyr Asn Arg Leu
            20   25   30

Ile Leu Gln Ile Gly Arg Gly Thr Val Val Pro Glu Pro Phe Ser Thr
        35   40   45

Glu Ser Phe Thr Leu Asp Val Tyr Arg Tyr Lys Asp Ser Leu Lys Glu
    50   55   60

Asp Ile Gln Lys Ala Asp Leu Val Ile Ser His Ala Gly Lys Gly Ala
65   70   75   80

```
Gly Ser Cys Leu Glu Thr Leu Glu Lys Gly Lys Pro Leu Val Val Val
                85                  90                  95

Ile Asn Glu Lys Leu Met Asn Asn His Gln Leu Glu Leu Ala Lys Gln
            100                 105                 110

Leu His Lys Glu Gly His Leu Phe Tyr Cys Thr Cys Ser Thr Leu Pro
        115                 120                 125

Gly Leu Leu Gln Ser Met Asp Leu Ser Thr Leu Lys Cys Tyr Pro Pro
    130                 135                 140

Gly Gln Pro Glu Lys Phe Ser Ala Phe Leu Asp Lys Val Val Gly Leu
145                 150                 155                 160

Gln Lys
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<210> 4072
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485392"

<400> 4072

```
Met Asn Asn His Gln Leu Glu Leu Ala Lys Gln Leu His Lys Glu Gly
1               5                   10                  15

His Leu Phe Tyr Cys Thr Cys Ser Thr Leu Pro Gly Leu Leu Gln Ser
            20                  25                  30
```

```
Met Asp Leu Ser Thr Leu Lys Cys Tyr Pro Pro Gly Gln Pro Glu Lys
        35                  40                  45


Phe Ser Ala Phe Leu Asp Lys Val Val Gly Leu Gln Lys
    50                  55                  60


<210> 4073
<211> 42
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
      ALG13, UDP-N-acetylglucosaminyltransferase
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485400"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4073
Xaa Pro Pro Leu Pro Pro Pro Pro Tyr Ser Cys Asp Pro Ser Gly Ser
1               5                   10                  15


Asp Leu Pro Gln Asp Thr Lys Val Leu Gln Tyr Tyr Phe Asn Leu Gly
            20                  25                  30


Leu Gln Val Ser Ala Met Leu Lys Phe Leu
        35                  40


<210> 4074
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485420"

<400> 4074
Met Lys Cys Val Phe Val Thr Val Gly Thr Thr Ser Phe Asp Asp Leu
1 5 10 15

Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
20 25 30

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
35 40 45

Gln Pro Arg
50

<210> 4075
<211> 373
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
ALG13, UDP-N-acetylglucosaminyltransferase
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485624"

<400> 4075

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Asp Ser Val Tyr Ser Lys Gln Phe Gln Ser Ser Ala Ala Val Cys Gln
1               5                  10                  15

Ala Val Leu Tyr Glu Ile Leu Tyr Lys Asp Val Phe Val Val Asp Glu
            20                  25                  30

Glu Glu Leu Lys Thr Ala Ile Lys Leu Phe Arg Ser Gly Ser Lys Lys
        35                  40                  45

Asn Arg Asn Asn Ala Val Thr Gly Ser Glu Asp Ala His Thr Asp Tyr
    50                  55                  60

Lys Ser Ser Asn Gln Asn Arg Met Glu Glu Trp Gly Ala Cys Tyr Asn
65                  70                  75                  80

Ala Glu Asn Ile Pro Glu Gly Tyr Asn Lys Gly Thr Glu Glu Thr Lys
                85                  90                  95

Val Cys Leu Glu Ser Glu Gly Arg Tyr Tyr Asn Ala His Ile Gln Glu
            100                 105                 110

Val Gly Asn Glu Asn Asn Ser Val Thr Val Phe Ile Glu Glu Leu Ala
        115                 120                 125

Glu Lys His Val Val Pro Leu Ala Asn Leu Lys Pro Val Thr Gln Val
    130                 135                 140

Met Ser Val Pro Ala Trp Asn Ala Met Pro Ser Arg Lys Gly Arg Gly
145                 150                 155                 160

Tyr Gln Lys Met Pro Gly Gly Tyr Val Pro Glu Ile Val Ile Ser Glu
                165                 170                 175

Met Asp Ile Lys Gln Gln Lys Lys Met Phe Lys Lys Ile Arg Gly Lys
            180                 185                 190

Glu Val Tyr Met Thr Met Ala Tyr Gly Lys Gly Asp Pro Leu Leu Pro
        195                 200                 205

Pro Arg Leu Gln His Ser Met His Tyr Gly His Asp Pro Pro Met His
    210                 215                 220

Tyr Ser Gln Thr Ala Gly Asn Val Met Ser Asn Glu His Phe His Pro
```

```
225                 230                 235                 240

Gln His Pro Ser Pro Arg Gln Gly Arg Gly Tyr Gly Met Pro Arg Asn
                245                 250                 255

Ser Ser Arg Phe Ile Asn Arg His Asn Met Pro Gly Pro Lys Val Asp
            260                 265                 270

Phe Tyr Pro Gly Pro Gly Lys Arg Cys Cys Gln Ser Tyr Asp Asn Phe
        275                 280                 285

Ser Tyr Arg Ser Arg Ser Phe Arg Arg Ser His Arg Gln Met Ser Cys
    290                 295                 300

Val Asn Lys Glu Ser Gln Tyr Gly Phe Thr Pro Gly Asn Gly Gln Met
305                 310                 315                 320

Pro Arg Gly Leu Glu Glu Thr Ile Thr Phe Tyr Glu Val Glu Glu Gly
                325                 330                 335

Asp Glu Thr Ala Tyr Pro Thr Leu Pro Asn His Gly Gly Pro Ser Thr
            340                 345                 350

Met Val Pro Ala Thr Ser Gly Tyr Cys Val Gly Arg Arg Gly His Ser
        355                 360                 365

Ser Gly Lys Gln Thr
    370


<210> 4076
<211> 35
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 918; "

<220>
<221> source
<223> /note="Gene Symbol: ALG13; "

<220>
<221> source
<223> /note="Gene Name:
      ALG13, UDP-N-acetylglucosaminyltransferase
      subunit; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000485658"

<400> 4076
Ile Ala Cys Val Ser Ala Pro Asp Ser Leu Gln Val Ser Glu Gly Gly
1   5   10   15

Glu Gln Ala Ala Ala Trp Leu Ala Thr Arg His Leu Arg Pro Tyr Cys
            20   25   30

Gln Pro Arg
        35

<210> 4077
<211> 216
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 919; "

<220>
<221> source
<223> /note="Gene Symbol: ALG14; "

<220>
<221> source
<223> /note="Gene Name:
      ALG14, UDP-N-acetylglucosaminyltransferase
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q96F25; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359224"

<400> 4077
Met Val Cys Val Leu Val Leu Ala Ala Ala Ala Gly Ala Val Ala Val
1   5   10   15

Phe Leu Ile Leu Arg Ile Trp Val Val Leu Arg Ser Met Asp Val Thr
            20   25   30

Pro Arg Glu Ser Leu Ser Ile Leu Val Val Ala Gly Ser Gly Gly His
        35   40   45

```
Thr Thr Glu Ile Leu Arg Leu Leu Gly Ser Leu Ser Asn Ala Tyr Ser
    50                  55                  60

Pro Arg His Tyr Val Ile Ala Asp Thr Asp Glu Met Ser Ala Asn Lys
65                  70                  75                  80

Ile Asn Ser Phe Glu Leu Asp Arg Ala Asp Arg Asp Pro Ser Asn Met
                85                  90                  95

Tyr Thr Lys Tyr Tyr Ile His Arg Ile Pro Arg Ser Arg Glu Val Gln
            100                 105                 110

Gln Ser Trp Pro Ser Thr Val Phe Thr Thr Leu His Ser Met Trp Leu
        115                 120                 125

Ser Phe Pro Leu Ile His Arg Val Lys Pro Asp Leu Val Leu Cys Asn
    130                 135                 140

Gly Pro Gly Thr Cys Val Pro Ile Cys Val Ser Ala Leu Leu Leu Gly
145                 150                 155                 160

Ile Leu Gly Ile Lys Lys Val Ile Ile Val Tyr Val Glu Ser Ile Cys
                165                 170                 175

Arg Val Glu Thr Leu Ser Met Ser Gly Lys Ile Leu Phe His Leu Ser
            180                 185                 190

Asp Tyr Phe Ile Val Gln Trp Pro Ala Leu Lys Glu Lys Tyr Pro Lys
        195                 200                 205

Ser Val Tyr Leu Gly Arg Ile Val
    210                 215
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<210> 4078
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 920; "

<220>
<221> source
<223> /note="Gene Symbol: ALG2; "

<220>
<221> source
<223> /note="Gene Name:
ALG2, alpha-1,3/1,6-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H553; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000326609"

<400> 4078
Met Pro Leu Leu Lys Leu Val His Gly Ser Pro Leu Val Phe Gly Glu
1   5   10   15

Lys Phe Lys Leu Phe Thr Leu Val Ser Ala Cys Ile Pro Val Phe Arg
            20   25   30

Leu Ala Arg Arg Arg Lys Lys Ile Leu Phe Tyr Cys His Phe Pro Asp
        35   40   45

Leu Leu Leu Thr Lys Arg Asp Ser Phe Leu Lys Arg Leu Tyr Arg Ala
    50   55   60

Pro Ile Asp Trp Ile Glu Glu Tyr Thr Thr Gly Met Ala Asp Cys Ile
65   70   75   80

Leu Val Asn Ser Gln Phe Thr Ala Ala Val Phe Lys Glu Thr Phe Lys
                85   90   95

Ser Leu Ser His Ile Asp Pro Asp Val Leu Tyr Pro Ser Leu Asn Val
            100   105   110

Thr Ser Phe Asp Ser Val Val Pro Glu Lys Leu Asp Asp Leu Val Pro
        115   120   125

Lys Gly Lys Lys Phe Leu Leu Leu Ser Ile Asn Arg Tyr Glu Arg Lys
    130   135   140

Lys Asn Leu Thr Leu Ala Leu Glu Ala Leu Val Gln Leu Arg Gly Arg
145   150   155   160

Leu Thr Ser Gln Asp Trp Glu Arg Val His Leu Ile Val Ala Gly Gly
                165   170   175

```
Tyr Asp Glu Arg Val Leu Glu Asn Val Glu His Tyr Gln Glu Leu Lys
            180                 185                 190

Lys Met Val Gln Gln Ser Asp Leu Gly Gln Tyr Val Thr Phe Leu Arg
        195                 200                 205

Ser Phe Ser Asp Lys Gln Lys Ile Ser Leu Leu His Ser Cys Thr Cys
    210                 215                 220

Val Leu Tyr Thr Pro Ser Asn Glu His Phe Gly Ile Val Pro Leu Glu
225                 230                 235                 240

Ala Met Tyr Met Gln Cys Pro Val Ile Ala Val Asn Ser Gly Gly Pro
                245                 250                 255

Leu Glu Ser Ile Asp His Ser Val Thr Gly Phe Leu Cys Glu Pro Asp
            260                 265                 270

Pro Val His Phe Ser Glu Ala Ile Glu Lys Phe Ile Arg Glu Pro Ser
        275                 280                 285

Leu Lys Ala Thr Met Gly Leu Ala Gly Arg Ala Arg Val Lys Glu Lys
    290                 295                 300

Phe Ser Pro Glu Ala Phe Thr Glu Gln Leu Tyr Arg Tyr Val Thr Lys
305                 310                 315                 320

Leu Leu Val
```

<210> 4079
<211> 416
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 920; "

<220>
<221> source
<223> /note="Gene Symbol: ALG2; "

<220>
<221> source

<223> /note="Gene Name:
ALG2, alpha-1,3/1,6-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H553; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417764"

<400> 4079

```
Met Ala Glu Glu Gln Gly Arg Glu Arg Asp Ser Val Pro Lys Pro Ser
1               5                  10                  15

Val Leu Phe Leu His Pro Asp Leu Gly Val Gly Gly Ala Glu Arg Leu
            20                  25                  30

Val Leu Asp Ala Ala Leu Ala Leu Gln Ala Arg Gly Cys Ser Val Lys
        35                  40                  45

Ile Trp Thr Ala His Tyr Asp Pro Gly His Cys Phe Ala Glu Ser Arg
    50                  55                  60

Glu Leu Pro Val Arg Cys Ala Gly Asp Trp Leu Pro Arg Gly Leu Gly
65                  70                  75                  80

Trp Gly Gly Arg Gly Ala Ala Val Cys Ala Tyr Val Arg Met Val Phe
                85                  90                  95

Leu Ala Leu Tyr Val Leu Phe Leu Ala Asp Glu Glu Phe Asp Val Val
            100                 105                 110

Val Cys Asp Gln Val Ser Ala Cys Ile Pro Val Phe Arg Leu Ala Arg
        115                 120                 125

Arg Arg Lys Lys Ile Leu Phe Tyr Cys His Phe Pro Asp Leu Leu Leu
    130                 135                 140

Thr Lys Arg Asp Ser Phe Leu Lys Arg Leu Tyr Arg Ala Pro Ile Asp
145                 150                 155                 160

Trp Ile Glu Glu Tyr Thr Thr Gly Met Ala Asp Cys Ile Leu Val Asn
                165                 170                 175

Ser Gln Phe Thr Ala Ala Val Phe Lys Glu Thr Phe Lys Ser Leu Ser
```

```
            180                 185                 190

His Ile Asp Pro Asp Val Leu Tyr Pro Ser Leu Asn Val Thr Ser Phe
        195                 200                 205

Asp Ser Val Val Pro Glu Lys Leu Asp Asp Leu Val Pro Lys Gly Lys
    210                 215                 220

Lys Phe Leu Leu Leu Ser Ile Asn Arg Tyr Glu Arg Lys Lys Asn Leu
225                 230                 235                 240

Thr Leu Ala Leu Glu Ala Leu Val Gln Leu Arg Gly Arg Leu Thr Ser
                245                 250                 255

Gln Asp Trp Glu Arg Val His Leu Ile Val Ala Gly Gly Tyr Asp Glu
            260                 265                 270

Arg Val Leu Glu Asn Val Glu His Tyr Gln Glu Leu Lys Lys Met Val
        275                 280                 285

Gln Gln Ser Asp Leu Gly Gln Tyr Val Thr Phe Leu Arg Ser Phe Ser
    290                 295                 300

Asp Lys Gln Lys Ile Ser Leu Leu His Ser Cys Thr Cys Val Leu Tyr
305                 310                 315                 320

Thr Pro Ser Asn Glu His Phe Gly Ile Val Pro Leu Glu Ala Met Tyr
                325                 330                 335

Met Gln Cys Pro Val Ile Ala Val Asn Ser Gly Gly Pro Leu Glu Ser
            340                 345                 350

Ile Asp His Ser Val Thr Gly Phe Leu Cys Glu Pro Asp Pro Val His
        355                 360                 365

Phe Ser Glu Ala Ile Glu Lys Phe Ile Arg Glu Pro Ser Leu Lys Ala
    370                 375                 380

Thr Met Gly Leu Ala Gly Arg Ala Arg Val Lys Glu Lys Phe Ser Pro
385                 390                 395                 400

Glu Ala Phe Thr Glu Gln Leu Tyr Arg Tyr Val Thr Lys Leu Leu Val
                405                 410                 415
```

<210> 4080
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 920; "

<220>
<221> source
<223> /note="Gene Symbol: ALG2; "

<220>
<221> source
<223> /note="Gene Name:
ALG2, alpha-1,3/1,6-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432675"

<400> 4080
Met Ala Glu Glu Gln Gly Arg Glu Arg Asp Ser Val Pro Lys Pro Ser
1 5 10 15

Val Leu Phe Leu His Pro Asp Leu Gly Val Gly Gly Ala Glu Arg Leu
20 25 30

Val Leu Asp Ala Ala Leu Ala Leu Gln Ala Arg Gly Cys Ser Val Lys
35 40 45

Ile Trp Thr Ala His Tyr Asp Pro Gly His Cys Phe Ala Glu Ser Arg
50 55 60

Glu Leu Pro Val Arg Cys Ala Gly Asp Trp Leu Pro Arg Gly Leu Gly
65 70 75 80

Trp Gly Gly Arg Gly Ala Ala Val Cys Ala Tyr Val Arg Met Val Phe
85 90 95

Leu Ala Leu Tyr Val Leu Phe Leu Ala Asp Glu Glu Phe Asp Val Val
100 105 110

Val Cys Asp Gln Ala Ile Cys Ile Pro Leu Ser Leu Cys Ser Glu Pro
115 120 125

Gly His Thr Val Leu Ser Ser Val Met Cys
130 135

<210> 4081
<211> 438
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 921; "

<220>
<221> source
<223> /note="Gene Symbol: ALG3; "

<220>
<221> source
<223> /note="Gene Name:
ALG3, alpha-1,3- mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q92685; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380793"

<400> 4081
Met Ala Ala Gly Leu Arg Lys Arg Gly Arg Ser Gly Ser Ala Ala Gln
1 5 10 15

Ala Glu Gly Leu Cys Lys Gln Trp Leu Gln Arg Ala Trp Gln Glu Arg
20 25 30

Arg Leu Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu Val Ala Ala Cys
35 40 45

Leu Cys Leu Ala Glu Val Gly Ile Thr Phe Trp Val Ile His Arg Val
50 55 60

Ala Tyr Thr Glu Ile Asp Trp Lys Ala Tyr Met Ala Glu Val Glu Gly
65 70 75 80

Val Ile Asn Gly Thr Tyr Asp Tyr Thr Gln Leu Gln Gly Asp Thr Gly
85 90 95

Pro Leu Val Tyr Pro Ala Gly Phe Val Tyr Ile Phe Met Gly Leu Tyr
100 105 110

```
Tyr Ala Thr Ser Arg Gly Thr Asp Ile Arg Met Ala Gln Asn Ile Phe
        115                 120                 125

Ala Val Leu Tyr Leu Ala Thr Leu Leu Leu Val Phe Leu Ile Tyr His
    130                 135                 140

Gln Thr Cys Lys Val Pro Pro Phe Val Phe Phe Phe Met Cys Cys Ala
145                 150                 155                 160

Ser Tyr Arg Val His Ser Ile Phe Val Leu Arg Leu Phe Asn Asp Pro
                165                 170                 175

Val Ala Met Val Leu Leu Phe Leu Ser Ile Asn Leu Leu Leu Ala Gln
            180                 185                 190

Arg Trp Gly Trp Gly Cys Cys Phe Phe Ser Leu Ala Val Ser Val Lys
        195                 200                 205

Met Asn Val Leu Leu Phe Ala Pro Gly Leu Leu Phe Leu Leu Leu Thr
    210                 215                 220

Gln Phe Gly Phe Arg Gly Ala Leu Pro Lys Leu Gly Ile Cys Ala Gly
225                 230                 235                 240

Leu Gln Val Val Leu Gly Leu Pro Phe Leu Leu Glu Asn Pro Ser Gly
                245                 250                 255

Tyr Leu Ser Arg Ser Phe Asp Leu Gly Arg Gln Phe Leu Phe His Trp
            260                 265                 270

Thr Val Asn Trp Arg Phe Leu Pro Glu Ala Leu Phe Leu His Arg Ala
        275                 280                 285

Phe His Leu Ala Leu Leu Thr Ala His Leu Thr Leu Leu Leu Leu Phe
    290                 295                 300

Ala Leu Cys Arg Trp His Arg Thr Gly Glu Ser Ile Leu Ser Leu Leu
305                 310                 315                 320

Arg Asp Pro Ser Lys Arg Lys Val Pro Pro Gln Pro Leu Thr Pro Asn
                325                 330                 335
```

```
Gln Ile Val Ser Thr Leu Phe Thr Ser Asn Phe Ile Gly Ile Cys Phe
            340                 345                 350

Ser Arg Ser Leu His Tyr Gln Phe Tyr Val Trp Tyr Phe His Thr Leu
        355                 360                 365

Pro Tyr Leu Leu Trp Ala Met Pro Ala Arg Trp Leu Thr His Leu Leu
    370                 375                 380

Arg Leu Leu Val Leu Gly Leu Ile Glu Leu Ser Trp Asn Thr Tyr Pro
385                 390                 395                 400

Ser Thr Ser Cys Ser Ser Ala Ala Leu His Ile Cys His Ala Val Ile
                405                 410                 415

Leu Leu Gln Leu Trp Leu Gly Pro Gln Pro Phe Pro Lys Ser Thr Gln
            420                 425                 430

His Ser Lys Lys Ala His
        435


<210> 4082
<211> 105
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 921; "

<220>
<221> source
<223> /note="Gene Symbol: ALG3; "

<220>
<221> source
<223> /note="Gene Name:
      ALG3, alpha-1,3- mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392209"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid
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<400> 4082
Xaa Gly Leu Arg Lys Arg Gly Arg Ser Gly Ser Ala Ala Gln Ala Glu
1 5 10 15

Gly Leu Cys Lys Gln Trp Leu Gln Arg Ala Trp Gln Glu Arg Arg Leu
20 25 30

Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu Val Ala Ala Cys Leu Cys
35 40 45

Leu Ala Glu Val Gly Ile Thr Phe Trp Val Ile His Arg Val Ala Cys
50 55 60

Thr Gln Leu Val Ser Cys Thr Ser Leu Trp Gly Cys Thr Met Pro Pro
65 70 75 80

Ala Glu Ala Leu Thr Ser Ala Trp Pro Arg Thr Ser Leu Leu Cys Ser
85 90 95

Thr Trp Leu Pro Cys Cys Leu Ser Ser
100 105

<210> 4083
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 921; "

<220>
<221> source
<223> /note="Gene Symbol: ALG3; "

<220>
<221> source
<223> /note="Gene Name:
ALG3, alpha-1,3- mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394917"

<400> 4083
Met Ala Ala Gly Leu Arg Lys Arg Gly Arg Ser Gly Ser Ala Ala Gln
1 5 10 15

Ala Glu Gly Leu Cys Lys Gln Trp Leu Gln Arg Ala Trp Gln Glu Arg

```
            20                  25                  30

Arg Leu Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu Val Ala Ala Cys
        35                  40                  45

Leu Cys Leu Ala Glu Val Gly Ile Thr Phe Trp Val Ile His Arg Val
    50                  55                  60

Ala Cys Thr Gln Leu Val Ser Cys Thr Ser Leu Trp Gly Cys Thr Met
65                  70                  75                  80

Pro Pro Ala Glu Ala Leu Thr Ser Ala Trp Pro Arg Thr Ser Leu Leu
                85                  90                  95

Cys Ser Thr Trp Leu Pro Cys Cys Leu Ser Ser
            100                 105


<210> 4084
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 921; "

<220>
<221> source
<223> /note="Gene Symbol: ALG3; "

<220>
<221> source
<223> /note="Gene Name:
      ALG3, alpha-1,3- mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397326"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4084
Xaa Ala Gly Leu Arg Lys Arg Gly Arg Ser Gly Ser Ala Ala Gln Ala
1               5                   10                  15

Glu Gly Leu Cys Lys Gln Trp Leu Gln Arg Ala Trp Gln Glu Arg Arg
```

```
            20                  25                  30

Leu Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu Val Ala Ala Cys Leu
        35                  40                  45

Cys Leu Ala Glu Val Pro Pro Phe Val Phe Phe Phe Met Cys Cys Ala
    50                  55                  60

Ser Tyr Arg Val His Ser Ile Phe Val Leu Arg Leu Phe Asn Asp Pro
65                  70                  75                  80

Val Ala Met Val Leu Leu Phe Leu Ser Ile Asn Leu Leu Leu Ala Gln
                85                  90                  95

Arg Trp Gly Trp Gly Cys Cys Phe Phe Ser Leu Ala Val Ser Val Lys
            100                 105                 110

Met Asn Val Leu Leu Phe Ala Pro Gly Leu Leu Phe Leu Leu Leu Thr
        115                 120                 125

Gln Phe Gly Phe Arg Gly Ala Leu Pro Lys Leu Gly Ile Cys Ala Gly
    130                 135                 140

Leu Gln Val Val Leu Gly Leu Pro Phe Leu Leu Glu Asn Pro Ser Gly
145                 150                 155                 160

Tyr Leu Ser Arg Ser Phe Asp Leu Gly Arg Gln Phe Leu Phe His Trp
                165                 170                 175

Thr Val Asn Trp Arg Phe Leu Pro Glu Ala Leu Phe Leu His Arg Ala
            180                 185                 190

Phe His Leu Ala Leu Leu Thr Ala His Leu Thr Leu Leu Leu Leu Phe
        195                 200                 205

Ala Leu Cys Arg Trp His Arg Thr Gly Glu Ser Ile Leu Ser Leu Leu
    210                 215                 220

Arg Asp Pro Ser Lys Arg Lys Val Pro Pro Gln Pro Leu Thr Pro Asn
225                 230                 235                 240

Gln Ile Val Ser Thr Leu Phe Thr Ser Asn Phe Ile Gly Ile Cys Phe
                245                 250                 255
```

```
Ser Arg Ser Leu His Tyr Gln Phe Tyr Val Trp Tyr Phe His Thr Leu
            260                 265                 270

Pro Tyr Leu Leu Trp Ala Met Pro Ala Arg Trp Leu Thr His Leu Leu
        275                 280                 285

Arg Leu Leu Val Leu Gly Leu Ile Glu Leu Ser Trp Asn Thr Tyr Pro
    290                 295                 300

Ser Thr Ser Cys Ser Ser Ala Ala Leu His Ile Cys His Ala Val Ile
305                 310                 315                 320

Leu Leu Gln
```

<210> 4085
<211> 398
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 921; "

<220>
<221> source
<223> /note="Gene Symbol: ALG3; "

<220>
<221> source
<223> /note="Gene Name:
ALG3, alpha-1,3- mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397613"

<400> 4085

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Met Lys Thr Gly Tyr Ser Asp Arg Arg Leu Ala Trp Trp Asp Ala Arg
1               5                   10                  15

His Gly Lys Arg Asn Leu Ser Val Glu Asp Thr Glu Ile Asp Trp Lys
            20                  25                  30

Ala Tyr Met Ala Glu Val Glu Gly Val Ile Asn Gly Thr Tyr Asp Tyr
        35                  40                  45
```

```
Thr Gln Leu Gln Gly Asp Thr Gly Pro Leu Val Tyr Pro Ala Gly Phe
    50                  55                  60

Val Tyr Ile Phe Met Gly Leu Tyr Tyr Ala Thr Ser Arg Gly Thr Asp
65                  70                  75                  80

Ile Arg Met Ala Gln Asn Ile Phe Ala Val Leu Tyr Leu Ala Thr Leu
                85                  90                  95

Leu Leu Val Phe Leu Ile Tyr His Gln Thr Cys Lys Val Pro Pro Phe
            100                 105                 110

Val Phe Phe Phe Met Cys Cys Ala Ser Tyr Arg Val His Ser Ile Phe
        115                 120                 125

Val Leu Arg Leu Phe Asn Asp Pro Val Ala Met Val Leu Leu Phe Leu
    130                 135                 140

Ser Ile Asn Leu Leu Leu Ala Gln Arg Trp Gly Trp Gly Cys Cys Phe
145                 150                 155                 160

Phe Ser Leu Ala Val Ser Val Lys Met Asn Val Leu Leu Phe Ala Pro
                165                 170                 175

Gly Leu Leu Phe Leu Leu Leu Thr Gln Phe Gly Phe Arg Gly Ala Leu
            180                 185                 190

Pro Lys Leu Gly Ile Cys Ala Gly Leu Gln Val Val Leu Gly Leu Pro
        195                 200                 205

Phe Leu Leu Glu Asn Pro Ser Gly Tyr Leu Ser Arg Ser Phe Asp Leu
    210                 215                 220

Gly Arg Gln Phe Leu Phe His Trp Thr Val Asn Trp Arg Phe Leu Pro
225                 230                 235                 240

Glu Ala Leu Phe Leu His Arg Ala Phe His Leu Ala Leu Leu Thr Ala
                245                 250                 255

His Leu Thr Leu Leu Leu Leu Phe Ala Leu Cys Arg Trp His Arg Thr
            260                 265                 270

Gly Glu Ser Ile Leu Ser Leu Leu Arg Asp Pro Ser Lys Arg Lys Val
```

```
        275                 280                 285

Pro Pro Gln Pro Leu Thr Pro Asn Gln Ile Val Ser Thr Leu Phe Thr
    290                 295                 300

Ser Asn Phe Ile Gly Ile Cys Phe Ser Arg Ser Leu His Tyr Gln Phe
305                 310                 315                 320

Tyr Val Trp Tyr Phe His Thr Leu Pro Tyr Leu Leu Trp Ala Met Pro
                325                 330                 335

Ala Arg Trp Leu Thr His Leu Leu Arg Leu Leu Val Leu Gly Leu Ile
            340                 345                 350

Glu Leu Ser Trp Asn Thr Tyr Pro Ser Thr Ser Cys Ser Ser Ala Ala
        355                 360                 365

Leu His Ile Cys His Ala Val Ile Leu Leu Gln Leu Trp Leu Gly Pro
    370                 375                 380

Gln Pro Phe Pro Lys Ser Thr Gln His Ser Lys Lys Ala His
385                 390                 395


<210> 4086
<211> 390
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 921; "

<220>
<221> source
<223> /note="Gene Symbol: ALG3; "

<220>
<221> source
<223> /note="Gene Name:
      ALG3, alpha-1,3- mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q92685; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402744"
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<400> 4086
Met Phe Pro Ala Gln Ala Lys Glu Asn Ala Gly Phe Ser Gly Cys Gly
1 5 10 15

Gly Asp Thr Glu Ile Asp Trp Lys Ala Tyr Met Ala Glu Val Glu Gly
20 25 30

Val Ile Asn Gly Thr Tyr Asp Tyr Thr Gln Leu Gln Gly Asp Thr Gly
35 40 45

Pro Leu Val Tyr Pro Ala Gly Phe Val Tyr Ile Phe Met Gly Leu Tyr
50 55 60

Tyr Ala Thr Ser Arg Gly Thr Asp Ile Arg Met Ala Gln Asn Ile Phe
65 70 75 80

Ala Val Leu Tyr Leu Ala Thr Leu Leu Leu Val Phe Leu Ile Tyr His
85 90 95

Gln Thr Cys Lys Val Pro Pro Phe Val Phe Phe Phe Met Cys Cys Ala
100 105 110

Ser Tyr Arg Val His Ser Ile Phe Val Leu Arg Leu Phe Asn Asp Pro
115 120 125

Val Ala Met Val Leu Leu Phe Leu Ser Ile Asn Leu Leu Leu Ala Gln
130 135 140

Arg Trp Gly Trp Gly Cys Cys Phe Phe Ser Leu Ala Val Ser Val Lys
145 150 155 160

Met Asn Val Leu Leu Phe Ala Pro Gly Leu Leu Phe Leu Leu Leu Thr
165 170 175

Gln Phe Gly Phe Arg Gly Ala Leu Pro Lys Leu Gly Ile Cys Ala Gly
180 185 190

Leu Gln Val Val Leu Gly Leu Pro Phe Leu Leu Glu Asn Pro Ser Gly
195 200 205

Tyr Leu Ser Arg Ser Phe Asp Leu Gly Arg Gln Phe Leu Phe His Trp
210 215 220

```
Thr Val Asn Trp Arg Phe Leu Pro Glu Ala Leu Phe Leu His Arg Ala
225                 230                 235                 240

Phe His Leu Ala Leu Leu Thr Ala His Leu Thr Leu Leu Leu Leu Phe
                245                 250                 255

Ala Leu Cys Arg Trp His Arg Thr Gly Glu Ser Ile Leu Ser Leu Leu
            260                 265                 270

Arg Asp Pro Ser Lys Arg Lys Val Pro Pro Gln Pro Leu Thr Pro Asn
        275                 280                 285

Gln Ile Val Ser Thr Leu Phe Thr Ser Asn Phe Ile Gly Ile Cys Phe
    290                 295                 300

Ser Arg Ser Leu His Tyr Gln Phe Tyr Val Trp Tyr Phe His Thr Leu
305                 310                 315                 320

Pro Tyr Leu Leu Trp Ala Met Pro Ala Arg Trp Leu Thr His Leu Leu
                325                 330                 335

Arg Leu Leu Val Leu Gly Leu Ile Glu Leu Ser Trp Asn Thr Tyr Pro
            340                 345                 350

Ser Thr Ser Cys Ser Ser Ala Ala Leu His Ile Cys His Ala Val Ile
        355                 360                 365

Leu Leu Gln Leu Trp Leu Gly Pro Gln Pro Phe Pro Lys Ser Thr Gln
    370                 375                 380

His Ser Lys Lys Ala His
385                 390
```

<210> 4087
<211> 65
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 921; "

<220>
<221> source
<223> /note="Gene Symbol: ALG3; "

<220>
<221> source
<223> /note="Gene Name:
ALG3, alpha-1,3- mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407011"

<400> 4087
Met Ala Ala Gly Leu Arg Lys Arg Gly Arg Ser Gly Ser Ala Ala Gln
1 5 10 15

Ala Glu Gly Leu Cys Lys Gln Trp Leu Gln Arg Ala Trp Gln Glu Arg
20 25 30

Arg Leu Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu Val Ala Ala Cys
35 40 45

Leu Cys Leu Ala Glu Thr Gln Arg Leu Thr Gly Arg Pro Thr Trp Pro
50 55 60

Arg
65

<210> 4088
<211> 324
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 922; "

<220>
<221> source
<223> /note="Gene Symbol: ALG5; "

<220>
<221> source
<223> /note="Gene Name:
ALG5, dolichyl-phosphate beta-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y673; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000239891"

<400> 4088

```
Met Ala Pro Leu Leu Leu Gln Leu Ala Val Leu Gly Ala Ala Leu Ala
1               5                  10                  15

Ala Ala Ala Leu Val Leu Ile Ser Ile Val Ala Phe Thr Thr Ala Thr
            20                  25                  30

Lys Met Pro Ala Leu His Arg His Glu Glu Glu Lys Phe Phe Leu Asn
        35                  40                  45

Ala Lys Gly Gln Lys Glu Thr Leu Pro Ser Ile Trp Asp Ser Pro Thr
    50                  55                  60

Lys Gln Leu Ser Val Val Val Pro Ser Tyr Asn Glu Glu Lys Arg Leu
65                  70                  75                  80

Pro Val Met Met Asp Glu Ala Leu Ser Tyr Leu Glu Lys Arg Gln Lys
                85                  90                  95

Arg Asp Pro Ala Phe Thr Tyr Glu Val Ile Val Val Asp Asp Gly Ser
            100                 105                 110

Lys Asp Gln Thr Ser Lys Val Ala Phe Lys Tyr Cys Gln Lys Tyr Gly
        115                 120                 125

Ser Asp Lys Val Arg Val Ile Thr Leu Val Lys Asn Arg Gly Lys Gly
    130                 135                 140

Gly Ala Ile Arg Met Gly Ile Phe Ser Ser Arg Gly Glu Lys Ile Leu
145                 150                 155                 160

Met Ala Asp Ala Asp Gly Ala Thr Lys Phe Pro Asp Val Glu Lys Leu
                165                 170                 175

Glu Lys Gly Leu Asn Asp Leu Gln Pro Trp Pro Asn Gln Met Ala Ile
            180                 185                 190

Ala Cys Gly Ser Arg Ala His Leu Glu Lys Glu Ser Ile Ala Gln Arg
        195                 200                 205

Ser Tyr Phe Arg Thr Leu Leu Met Tyr Gly Phe His Phe Leu Val Trp
    210                 215                 220

Phe Leu Cys Val Lys Gly Ile Arg Asp Thr Gln Cys Gly Phe Lys Leu
```

```
225                 230                 235                 240

Phe Thr Arg Glu Ala Ala Ser Arg Thr Phe Ser Ser Leu His Val Glu
                245                 250                 255

Arg Trp Ala Phe Asp Val Glu Leu Leu Tyr Ile Ala Gln Phe Phe Lys
            260                 265                 270

Ile Pro Ile Ala Glu Ile Ala Val Asn Trp Thr Glu Ile Glu Gly Ser
        275                 280                 285

Lys Leu Val Pro Phe Trp Ser Trp Leu Gln Met Gly Lys Asp Leu Leu
    290                 295                 300

Phe Ile Arg Leu Arg Tyr Leu Thr Gly Ala Trp Arg Leu Glu Gln Thr
305                 310                 315                 320

Arg Lys Met Asn
```

<210> 4089
<211> 294
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 922; "

<220>
<221> source
<223> /note="Gene Symbol: ALG5; "

<220>
<221> source
<223> /note="Gene Name:
ALG5, dolichyl-phosphate beta-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y673; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390533"

<400> 4089

```
Met Ala Pro Leu Leu Leu Gln Leu Ala Val Leu Gly Ala Ala Leu Ala
1               5                   10                  15
```

```
Ala Ala Ala Leu Val Leu Ile Ser Ile Val Ala Phe Thr Thr Ala Thr
            20                  25                  30

Lys Met Pro Ala Leu His Arg His Glu Glu Glu Lys Phe Phe Leu Asn
        35                  40                  45

Ala Lys Gly Gln Lys Glu Thr Leu Pro Ser Ile Trp Asp Ser Pro Thr
    50                  55                  60

Lys Gln Leu Ser Val Val Val Pro Ser Tyr Asn Glu Glu Lys Arg Leu
65                  70                  75                  80

Pro Val Met Met Asp Glu Ala Leu Ser Tyr Leu Glu Lys Arg Gln Lys
                85                  90                  95

Tyr Gly Ser Asp Lys Val Arg Val Ile Thr Leu Val Lys Asn Arg Gly
            100                 105                 110

Lys Gly Gly Ala Ile Arg Met Gly Ile Phe Ser Ser Arg Gly Glu Lys
        115                 120                 125

Ile Leu Met Ala Asp Ala Asp Gly Ala Thr Lys Phe Pro Asp Val Glu
    130                 135                 140

Lys Leu Glu Lys Gly Leu Asn Asp Leu Gln Pro Trp Pro Asn Gln Met
145                 150                 155                 160

Ala Ile Ala Cys Gly Ser Arg Ala His Leu Glu Lys Glu Ser Ile Ala
                165                 170                 175

Gln Arg Ser Tyr Phe Arg Thr Leu Leu Met Tyr Gly Phe His Phe Leu
            180                 185                 190

Val Trp Phe Leu Cys Val Lys Gly Ile Arg Asp Thr Gln Cys Gly Phe
        195                 200                 205

Lys Leu Phe Thr Arg Glu Ala Ala Ser Arg Thr Phe Ser Ser Leu His
    210                 215                 220

Val Glu Arg Trp Ala Phe Asp Val Glu Leu Leu Tyr Ile Ala Gln Phe
225                 230                 235                 240
```

```
Phe Lys Ile Pro Ile Ala Glu Ile Ala Val Asn Trp Thr Glu Ile Glu
                245                 250                 255

Gly Ser Lys Leu Val Pro Phe Trp Ser Trp Leu Gln Met Gly Lys Asp
            260                 265                 270

Leu Leu Phe Ile Arg Leu Arg Tyr Leu Thr Gly Ala Trp Arg Leu Glu
        275                 280                 285

Gln Thr Arg Lys Met Asn
    290
```

<210> 4090
<211> 509
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 923; "

<220>
<221> source
<223> /note="Gene Symbol: ALG6; "

<220>
<221> source
<223> /note="Gene Name:
ALG6, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263440"

<400> 4090

```
Met Glu Lys Trp Tyr Leu Met Thr Val Val Val Leu Ile Gly Leu Thr
1               5                   10                  15

Val Arg Trp Thr Val Ser Leu Asn Ser Tyr Ser Gly Ala Gly Lys Pro
            20                  25                  30

Pro Met Phe Gly Asp Tyr Glu Ala Gln Arg His Trp Gln Glu Ile Thr
        35                  40                  45

Phe Asn Leu Pro Val Lys Gln Trp Tyr Phe Asn Ser Ser Asp Asn Asn
    50                  55                  60

Leu Gln Tyr Trp Gly Leu Asp Tyr Pro Pro Leu Thr Ala Tyr His Ser
65                  70                  75                  80
```

```
Leu Leu Cys Ala Tyr Val Ala Lys Phe Ile Asn Pro Asp Trp Ile Ala
                85                  90                  95

Leu His Thr Ser Arg Gly Tyr Glu Ser Gln Ala His Lys Leu Phe Met
            100                 105                 110

Arg Thr Thr Val Leu Ile Ala Asp Leu Leu Ile Tyr Ile Pro Ala Val
        115                 120                 125

Val Leu Tyr Cys Cys Cys Leu Lys Glu Ile Ser Thr Lys Lys Lys Ile
    130                 135                 140

Ala Asn Ala Leu Cys Ile Leu Leu Tyr Pro Gly Leu Ile Leu Ile Asp
145                 150                 155                 160

Tyr Gly His Phe Gln Asn Ile Tyr Asn Ser Val Ser Leu Gly Phe Ala
                165                 170                 175

Leu Trp Gly Val Leu Gly Ile Ser Cys Asp Cys Asp Leu Leu Gly Ser
            180                 185                 190

Leu Ala Phe Cys Leu Ala Ile Asn Tyr Lys Gln Met Glu Leu Tyr His
        195                 200                 205

Ala Leu Pro Phe Phe Cys Phe Leu Leu Gly Lys Cys Phe Lys Lys Gly
    210                 215                 220

Leu Lys Gly Lys Gly Phe Val Leu Leu Val Lys Leu Ala Cys Ile Val
225                 230                 235                 240

Val Ala Ser Phe Val Leu Cys Trp Leu Pro Phe Phe Thr Glu Arg Glu
                245                 250                 255

Gln Thr Leu Gln Val Leu Arg Arg Leu Phe Pro Val Asp Arg Gly Leu
            260                 265                 270

Phe Glu Asp Lys Val Ala Asn Ile Trp Cys Ser Phe Asn Val Phe Leu
        275                 280                 285

Lys Ile Lys Asp Ile Leu Pro Arg His Ile Gln Leu Ile Met Ser Phe
    290                 295                 300
```

```
Cys Ser Thr Phe Leu Ser Leu Leu Pro Ala Cys Ile Lys Leu Ile Leu
305                 310                 315                 320

Gln Pro Ser Ser Lys Gly Phe Lys Phe Thr Leu Val Ser Cys Ala Leu
                325                 330                 335

Ser Phe Phe Leu Phe Ser Phe Gln Val His Glu Lys Ser Ile Leu Leu
            340                 345                 350

Val Ser Leu Pro Val Cys Leu Val Leu Ser Glu Ile Pro Phe Met Ser
        355                 360                 365

Thr Trp Phe Leu Leu Val Ser Thr Phe Ser Met Leu Pro Leu Leu Leu
    370                 375                 380

Lys Asp Glu Leu Leu Met Pro Ser Val Val Thr Thr Met Ala Phe Phe
385                 390                 395                 400

Ile Ala Cys Val Thr Ser Phe Ser Ile Phe Glu Lys Thr Ser Glu Glu
                405                 410                 415

Glu Leu Gln Leu Lys Ser Phe Ser Ile Ser Val Arg Lys Tyr Leu Pro
            420                 425                 430

Cys Phe Thr Phe Leu Ser Arg Ile Ile Gln Tyr Leu Phe Leu Ile Ser
        435                 440                 445

Val Ile Thr Met Val Leu Leu Thr Leu Met Thr Val Thr Leu Asp Pro
    450                 455                 460

Pro Gln Lys Leu Pro Asp Leu Phe Ser Val Leu Val Cys Phe Val Ser
465                 470                 475                 480

Cys Leu Asn Phe Leu Phe Phe Leu Val Tyr Phe Asn Ile Ile Ile Met
                485                 490                 495

Trp Asp Ser Lys Ser Gly Arg Asn Gln Lys Lys Ile Ser
            500                 505
```

<210> 4091
<211> 507
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 923; "

<220>
<221> source
<223> /note="Gene Symbol: ALG6; "

<220>
<221> source
<223> /note="Gene Name:
ALG6, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y672; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360149"

<400> 4091

```
Met Glu Lys Trp Tyr Leu Met Thr Val Val Val Leu Ile Gly Leu Thr
1               5                  10                  15

Val Arg Trp Thr Val Ser Leu Asn Ser Tyr Ser Gly Ala Gly Lys Pro
            20                  25                  30

Pro Met Phe Gly Asp Tyr Glu Ala Gln Arg His Trp Gln Glu Ile Thr
        35                  40                  45

Phe Asn Leu Pro Val Lys Gln Trp Tyr Phe Asn Ser Ser Asp Asn Asn
    50                  55                  60

Leu Gln Tyr Trp Gly Leu Asp Tyr Pro Pro Leu Thr Ala Tyr His Ser
65                  70                  75                  80

Leu Leu Cys Ala Tyr Val Ala Lys Phe Ile Asn Pro Asp Trp Ile Ala
                85                  90                  95

Leu His Thr Ser Arg Gly Tyr Glu Ser Gln Ala His Lys Leu Phe Met
            100                 105                 110

Arg Thr Thr Val Leu Ile Ala Asp Leu Leu Ile Tyr Ile Pro Ala Val
        115                 120                 125

Val Leu Tyr Cys Cys Cys Leu Lys Glu Ile Ser Thr Lys Lys Lys Ile
    130                 135                 140
```

```
Ala Asn Ala Leu Cys Ile Leu Leu Tyr Pro Gly Leu Ile Leu Ile Asp
145                 150                 155                 160

Tyr Gly His Phe Gln Tyr Asn Ser Val Ser Leu Gly Phe Ala Leu Trp
                165                 170                 175

Gly Val Leu Gly Ile Ser Cys Asp Cys Asp Leu Leu Gly Ser Leu Ala
            180                 185                 190

Phe Cys Leu Ala Ile Asn Tyr Lys Gln Met Glu Leu Tyr His Ala Leu
        195                 200                 205

Pro Phe Phe Cys Phe Leu Leu Gly Lys Cys Phe Lys Lys Gly Leu Lys
    210                 215                 220

Gly Lys Gly Phe Val Leu Leu Val Lys Leu Ala Cys Ile Val Val Ala
225                 230                 235                 240

Ser Phe Val Leu Cys Trp Leu Pro Phe Phe Thr Glu Arg Glu Gln Thr
                245                 250                 255

Leu Gln Val Leu Arg Arg Leu Phe Pro Val Asp Arg Gly Leu Phe Glu
            260                 265                 270

Asp Lys Val Ala Asn Ile Trp Cys Ser Phe Asn Val Phe Leu Lys Ile
        275                 280                 285

Lys Asp Ile Leu Pro Arg His Ile Gln Leu Ile Met Ser Phe Cys Ser
    290                 295                 300

Thr Phe Leu Ser Leu Leu Pro Ala Cys Ile Lys Leu Ile Leu Gln Pro
305                 310                 315                 320

Ser Ser Lys Gly Phe Lys Phe Thr Leu Val Ser Cys Ala Leu Ser Phe
                325                 330                 335

Phe Leu Phe Ser Phe Gln Val His Glu Lys Ser Ile Leu Leu Val Ser
            340                 345                 350

Leu Pro Val Cys Leu Val Leu Ser Glu Ile Pro Phe Met Ser Thr Trp
        355                 360                 365
```

```
Phe Leu Leu Val Ser Thr Phe Ser Met Leu Pro Leu Leu Leu Lys Asp
    370                 375                 380

Glu Leu Leu Met Pro Ser Val Val Thr Thr Met Ala Phe Phe Ile Ala
385                 390                 395                 400

Cys Val Thr Ser Phe Ser Ile Phe Glu Lys Thr Ser Glu Glu Glu Leu
                405                 410                 415

Gln Leu Lys Ser Phe Ser Ile Ser Val Arg Lys Tyr Leu Pro Cys Phe
            420                 425                 430

Thr Phe Leu Ser Arg Ile Ile Gln Tyr Leu Phe Leu Ile Ser Val Ile
        435                 440                 445

Thr Met Val Leu Leu Thr Leu Met Thr Val Thr Leu Asp Pro Pro Gln
    450                 455                 460

Lys Leu Pro Asp Leu Phe Ser Val Leu Val Cys Phe Val Ser Cys Leu
465                 470                 475                 480

Asn Phe Leu Phe Phe Leu Val Tyr Phe Asn Ile Ile Ile Met Trp Asp
                485                 490                 495

Ser Lys Ser Gly Arg Asn Gln Lys Lys Ile Ser
            500                 505


<210> 4092
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 923; "

<220>
<221> source
<223> /note="Gene Symbol: ALG6; "

<220>
<221> source
<223> /note="Gene Name:
      ALG6, alpha-1,3-glucosyltransferase; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000473328"

<400> 4092
Met Glu Lys Trp Tyr Leu Met Thr Val Val Val Leu Ile Gly Leu Thr
1   5   10   15

Val Arg Trp Thr Val Ser Leu Asn Ser Tyr Ser Gly Asn Thr Phe Leu
            20   25   30

Leu Val Lys Lys Lys Thr Lys Phe Ser Phe Glu
        35   40

<210> 4093
<211> 281
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 923; "

<220>
<221> source
<223> /note="Gene Symbol: ALG6; "

<220>
<221> source
<223> /note="Gene Name:
      ALG6, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473934"

<400> 4093
Met Glu Lys Trp Tyr Leu Met Thr Val Val Val Leu Ile Gly Leu Thr
1   5   10   15

Val Arg Trp Thr Val Ser Leu Asn Ser Tyr Ser Gly Ala Gly Lys Pro
            20   25   30

Pro Met Phe Gly Asp Tyr Glu Ala Gln Arg His Trp Gln Glu Ile Thr
        35   40   45

Phe Asn Leu Pro Val Lys Gln Trp Tyr Phe Asn Ser Ser Asp Asn Asn
    50   55   60

Leu Gln Tyr Trp Gly Leu Asp Tyr Pro Pro Leu Thr Ala Tyr His Ser
65   70   75   80

Leu Leu Cys Ala Tyr Val Ala Lys Phe Ile Asn Pro Asp Trp Ile Ala
85 90 95

Leu His Thr Ser Arg Gly Tyr Glu Ser Gln Ala His Lys Leu Phe Met
100 105 110

Arg Thr Thr Val Leu Ile Ala Asp Leu Leu Ile Tyr Ile Pro Ala Val
115 120 125

Val Leu Tyr Cys Cys Cys Leu Lys Glu Ile Ser Thr Lys Lys Lys Ile
130 135 140

Ala Asn Ala Leu Cys Ile Leu Leu Tyr Pro Gly Leu Ile Leu Ile Asp
145 150 155 160

Tyr Gly His Phe Gln Asn Ile Tyr Asn Ser Val Ser Leu Gly Phe Ala
165 170 175

Leu Trp Gly Val Leu Gly Ile Ser Cys Asp Cys Asp Leu Leu Gly Ser
180 185 190

Leu Ala Phe Cys Leu Ala Ile Asn Tyr Lys Gln Met Glu Leu Tyr His
195 200 205

Ala Leu Pro Phe Phe Cys Phe Leu Leu Gly Lys Cys Phe Lys Lys Gly
210 215 220

Leu Lys Gly Lys Gly Phe Val Leu Leu Val Lys Leu Ala Cys Ile Val
225 230 235 240

Val Ala Ser Phe Val Leu Cys Trp Leu Pro Phe Phe Thr Glu Arg Glu
245 250 255

Gln Thr Leu Gln Val Leu Arg Arg Leu Phe Pro Val Asp Arg Gly Leu
260 265 270

Phe Glu Ala Ser Phe Val Leu Arg Phe
275 280

<210> 4094
<211> 526
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BVK2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299626"

<400> 4094

```
Met Ala Ala Leu Thr Ile Ala Thr Gly Thr Gly Asn Trp Phe Ser Ala
1               5                   10                  15

Leu Ala Leu Gly Val Thr Leu Leu Lys Cys Leu Leu Ile Pro Thr Tyr
            20                  25                  30

His Ser Thr Asp Phe Glu Val His Arg Asn Trp Leu Ala Ile Thr His
        35                  40                  45

Ser Leu Pro Ile Ser Gln Trp Tyr Tyr Glu Ala Thr Ser Glu Trp Thr
    50                  55                  60

Leu Asp Tyr Pro Pro Phe Phe Ala Trp Phe Glu Tyr Ile Leu Ser His
65                  70                  75                  80

Val Ala Lys Tyr Phe Asp Gln Glu Met Leu Asn Val His Asn Leu Asn
                85                  90                  95

Tyr Ser Ser Ser Arg Thr Leu Leu Phe Gln Arg Phe Ser Val Ile Phe
            100                 105                 110

Met Asp Val Leu Phe Val Tyr Ala Val Arg Glu Cys Cys Lys Cys Ile
        115                 120                 125

Asp Gly Lys Lys Val Gly Lys Glu Leu Thr Glu Lys Pro Lys Phe Ile
    130                 135                 140
```

```
Leu Ser Val Leu Leu Leu Trp Asn Phe Gly Leu Leu Ile Val Asp His
145                 150                 155                 160

Ile His Phe Gln Tyr Asn Gly Phe Leu Phe Gly Leu Met Leu Leu Ser
                165                 170                 175

Ile Ala Arg Leu Phe Gln Lys Arg His Met Glu Gly Ala Phe Leu Phe
            180                 185                 190

Ala Val Leu Leu His Phe Lys His Ile Tyr Leu Tyr Val Ala Pro Ala
        195                 200                 205

Tyr Gly Val Tyr Leu Leu Arg Ser Tyr Cys Phe Thr Ala Asn Lys Pro
    210                 215                 220

Asp Gly Ser Ile Arg Trp Lys Ser Phe Ser Phe Val Arg Val Ile Ser
225                 230                 235                 240

Leu Gly Leu Val Val Phe Leu Val Ser Ala Leu Ser Leu Gly Pro Phe
                245                 250                 255

Leu Ala Leu Asn Gln Leu Pro Gln Val Phe Ser Arg Leu Phe Pro Phe
            260                 265                 270

Lys Arg Gly Leu Cys His Ala Tyr Trp Ala Pro Asn Phe Trp Ala Leu
        275                 280                 285

Tyr Asn Ala Leu Asp Lys Val Leu Ser Val Ile Gly Leu Lys Leu Lys
    290                 295                 300

Phe Leu Asp Pro Asn Asn Ile Pro Lys Ala Ser Met Thr Ser Gly Leu
305                 310                 315                 320

Val Gln Gln Phe Gln His Thr Val Leu Pro Ser Val Thr Pro Leu Ala
                325                 330                 335

Thr Leu Ile Cys Thr Leu Ile Ala Ile Leu Pro Ser Ile Phe Cys Leu
            340                 345                 350

Trp Phe Lys Pro Gln Gly Pro Arg Gly Phe Leu Arg Cys Leu Thr Leu
        355                 360                 365
```

```
Cys Ala Leu Ser Ser Phe Met Phe Gly Trp His Val His Glu Lys Ala
    370                 375                 380

Ile Leu Leu Ala Ile Leu Pro Met Ser Leu Leu Ser Val Gly Lys Ala
385                 390                 395                 400

Gly Asp Ala Ser Ile Phe Leu Ile Leu Thr Thr Thr Gly His Tyr Ser
                405                 410                 415

Leu Phe Pro Leu Leu Phe Thr Ala Pro Glu Leu Pro Ile Lys Ile Leu
            420                 425                 430

Leu Met Leu Leu Phe Thr Ile Tyr Ser Ile Ser Ser Leu Lys Thr Leu
        435                 440                 445

Phe Arg Lys Glu Lys Pro Leu Phe Asn Trp Met Glu Thr Phe Tyr Leu
    450                 455                 460

Leu Gly Leu Gly Pro Leu Glu Val Cys Cys Glu Phe Val Phe Pro Phe
465                 470                 475                 480

Thr Ser Trp Lys Val Lys Tyr Pro Phe Ile Pro Leu Leu Leu Thr Ser
                485                 490                 495

Val Tyr Cys Ala Val Gly Ile Thr Tyr Ala Trp Phe Lys Leu Tyr Val
            500                 505                 510

Ser Val Leu Ile Asp Ser Ala Ile Gly Lys Thr Lys Lys Gln
        515                 520                 525


<210> 4095
<211> 467
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
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ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BVK2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000365326"

<400> 4095

```
Met Ala Ala Leu Thr Ile Ala Thr Gly Thr Gly Asn Trp Phe Ser Ala
1               5                  10                  15

Leu Ala Leu Gly Val Thr Leu Leu Lys Cys Leu Leu Ile Pro Thr Tyr
            20                  25                  30

His Ser Thr Asp Phe Glu Val His Arg Asn Trp Leu Ala Ile Thr His
        35                  40                  45

Ser Leu Pro Ile Ser Gln Trp Tyr Tyr Glu Ala Thr Ser Glu Trp Thr
    50                  55                  60

Leu Asp Tyr Pro Pro Phe Phe Ala Trp Phe Glu Tyr Ile Leu Ser His
65                  70                  75                  80

Val Ala Lys Tyr Phe Asp Gln Glu Met Leu Asn Val His Asn Leu Asn
                85                  90                  95

Tyr Ser Ser Ser Arg Thr Leu Leu Phe Gln Arg Phe Ser Val Ile Phe
            100                 105                 110

Met Asp Val Leu Phe Val Tyr Ala Val Arg Glu Cys Cys Lys Cys Ile
        115                 120                 125

Asp Gly Lys Lys Val Gly Lys Glu Leu Thr Glu Lys Pro Lys Phe Ile
    130                 135                 140

Leu Ser Val Leu Leu Leu Trp Asn Phe Gly Leu Leu Ile Val Asp His
145                 150                 155                 160

Ile His Phe Gln Tyr Asn Gly Phe Leu Phe Gly Leu Met Leu Leu Ser
                165                 170                 175

Ile Ala Arg Leu Phe Gln Lys Arg His Met Glu Gly Ala Phe Leu Phe
            180                 185                 190
```

```
Ala Val Leu Leu His Phe Lys His Ile Tyr Leu Tyr Val Ala Pro Ala
        195                 200                 205

Tyr Gly Val Tyr Leu Leu Arg Ser Tyr Cys Phe Thr Ala Asn Lys Pro
    210                 215                 220

Asp Gly Ser Ile Arg Trp Lys Ser Phe Ser Phe Val Arg Val Ile Ser
225                 230                 235                 240

Leu Gly Leu Val Val Phe Leu Val Ser Ala Leu Ser Leu Gly Pro Phe
                245                 250                 255

Leu Ala Leu Asn Gln Leu Pro Gln Val Phe Ser Arg Leu Phe Pro Phe
            260                 265                 270

Lys Arg Gly Leu Cys His Ala Tyr Trp Ala Pro Asn Phe Trp Ala Leu
        275                 280                 285

Tyr Asn Ala Leu Asp Lys Val Leu Ser Val Ile Gly Leu Lys Leu Lys
    290                 295                 300

Phe Leu Asp Pro Asn Asn Ile Pro Lys Ala Ser Met Thr Ser Gly Leu
305                 310                 315                 320

Val Gln Gln Phe Gln His Thr Val Leu Pro Ser Val Thr Pro Leu Ala
                325                 330                 335

Thr Leu Ile Cys Thr Leu Ile Ala Ile Leu Pro Ser Ile Phe Cys Leu
            340                 345                 350

Trp Phe Lys Pro Gln Gly Pro Arg Gly Phe Leu Arg Cys Leu Thr Leu
        355                 360                 365

Cys Ala Leu Ser Ser Phe Met Phe Gly Trp His Val His Glu Lys Ala
    370                 375                 380

Ile Leu Leu Ala Ile Leu Pro Met Ser Leu Leu Ser Val Gly Lys Ala
385                 390                 395                 400

Gly Asp Ala Ser Ile Phe Leu Ile Leu Thr Thr Thr Gly His Tyr Ser
                405                 410                 415
```

Leu Phe Pro Leu Leu Phe Thr Ala Pro Glu Leu Pro Ile Lys Ile Leu
420 425 430

Leu Met Leu Leu Phe Thr Ile Tyr Ser Ile Ser Ser Leu Lys Thr Leu
435 440 445

Phe Arg Arg Ser Phe Thr Leu Val Ala Gln Ala Gly Val Gln Trp His
450 455 460

Asp Leu Ser
465

<210> 4096
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
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<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431357"

<400> 4096
Met Val Val Cys Ile His His Ser Thr Asp Phe Glu Val His Arg Asn
1 5 10 15

Trp Leu Ala Ile Thr His Ser Leu Pro Ile Ser Gln Trp Tyr Tyr Glu
20 25 30

Ala Thr Ser Glu Trp Thr Leu Asp Tyr Pro Pro Phe Phe Ala Trp Phe
35 40 45

Glu Tyr Ile Leu Ser His Val Ala Lys Tyr Phe Asp Gln Glu Met Leu
50 55 60

Asn Val His Asn Leu Asn Tyr Ser Ser Ser Arg Thr Leu Leu Phe Gln

65 70 75 80

Arg Phe Ser Val Ile Phe Met Asp Val Leu Phe Val Tyr Ala Val Arg
85 90 95

<210> 4097
<211> 228
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
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<220>
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<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432381"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4097
Xaa Gly Leu Val Val Phe Leu Val Ser Ala Leu Ser Leu Gly Pro Phe
1 5 10 15

Leu Ala Leu Asn Gln Leu Pro Gln Val Phe Ser Arg Leu Phe Pro Phe
20 25 30

Lys Arg Gly Leu Cys His Ala Tyr Trp Ala Pro Asn Phe Trp Ala Leu
35 40 45

Tyr Asn Ala Leu Asp Lys Val Leu Ser Val Ile Gly Pro Arg Gly Phe
50 55 60

Leu Arg Cys Leu Thr Leu Cys Ala Leu Ser Ser Phe Met Phe Gly Trp
65 70 75 80

His Val His Glu Lys Ala Ile Leu Leu Ala Ile Leu Pro Met Ser Leu

```
                85                  90                  95

Leu Ser Val Gly Lys Ala Gly Asp Ala Ser Ile Phe Leu Ile Leu Thr
            100                 105                 110

Thr Thr Gly His Tyr Ser Leu Phe Pro Leu Leu Phe Thr Ala Pro Glu
        115                 120                 125

Leu Pro Ile Lys Ile Leu Leu Met Leu Leu Phe Thr Ile Tyr Ser Ile
    130                 135                 140

Ser Ser Leu Lys Thr Leu Phe Arg Lys Glu Lys Pro Leu Phe Asn Trp
145                 150                 155                 160

Met Glu Thr Phe Tyr Leu Leu Gly Leu Gly Pro Leu Glu Val Cys Cys
                165                 170                 175

Glu Phe Val Phe Pro Phe Thr Ser Trp Lys Val Lys Tyr Pro Phe Ile
            180                 185                 190

Pro Leu Leu Leu Thr Ser Val Tyr Cys Ala Val Gly Ile Thr Tyr Ala
        195                 200                 205

Trp Phe Lys Leu Tyr Val Ser Val Leu Ile Asp Ser Ala Ile Gly Lys
    210                 215                 220

Thr Lys Lys Gln
225
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<210> 4098
<211> 157
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432953"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4098
Xaa Ile Val Asp His Ile His Phe Gln Tyr Asn Gly Phe Leu Phe Gly
1 5 10 15

Leu Met Leu Leu Ser Ile Ala Arg Leu Phe Gln Lys Arg His Met Glu
20 25 30

Gly Ala Phe Leu Phe Ala Val Leu Leu His Phe Lys His Ile Tyr Leu
35 40 45

Tyr Val Ala Pro Ala Tyr Gly Val Tyr Leu Leu Arg Ser Tyr Cys Phe
50 55 60

Thr Ala Asn Lys Pro Asp Gly Ser Ile Arg Trp Lys Ser Phe Ser Phe
65 70 75 80

Val Arg Val Ile Ser Leu Gly Leu Val Val Phe Leu Val Ser Ala Leu
85 90 95

Ser Leu Gly Pro Phe Leu Ala Leu Asn Gln Leu Pro Gln Val Phe Ser
100 105 110

Arg Leu Phe Pro Phe Lys Arg Gly Leu Cys His Ala Tyr Trp Ala Pro
115 120 125

Asn Phe Trp Ala Leu Tyr Asn Ala Leu Asp Lys Val Leu Ser Val Ile
130 135 140

Gly Met Val Ala Ser Ile Phe Tyr Ser Asp Ser Glu Tyr
145 150 155

<210> 4099
<211> 226
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 924; "

<220>
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<223> /note="Gene Symbol: ALG8; "

<220>
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<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433429"

<400> 4099

```
Lys Arg His Met Glu Gly Ala Phe Leu Phe Ala Val Leu Leu His Phe
1               5                  10                  15

Lys His Ile Tyr Leu Tyr Val Ala Pro Ala Tyr Gly Val Tyr Leu Leu
            20                  25                  30

Arg Ser Tyr Cys Phe Thr Ala Asn Lys Pro Asp Gly Ser Ile Arg Trp
        35                  40                  45

Lys Ser Phe Ser Phe Val Arg Val Ile Ser Leu Gly Leu Val Val Phe
    50                  55                  60

Leu Val Ser Ala Leu Ser Leu Gly Pro Phe Leu Ala Leu Asn Gln Leu
65                  70                  75                  80

Pro Gln Val Phe Ser Arg Leu Phe Pro Phe Lys Arg Gly Leu Cys His
                85                  90                  95

Ala Tyr Trp Ala Pro Asn Phe Trp Ala Leu Tyr Asn Ala Leu Asp Lys
            100                 105                 110

Val Leu Ser Val Ile Gly Leu Lys Leu Lys Phe Leu Asp Pro Asn Asn
        115                 120                 125

Ile Pro Lys Ala Ser Met Thr Ser Gly Leu Val Gln Gln Phe Gln His
    130                 135                 140

Thr Val Leu Pro Ser Val Thr Pro Leu Ala Thr Leu Ile Cys Thr Leu
145                 150                 155                 160
```

```
Ile Ala Ile Leu Val Gln Ala Ile Leu Leu Pro Gln Pro Pro Glu Tyr
                165                 170                 175

Leu Gly Ile Gln Pro Ser Ile Phe Cys Leu Trp Phe Lys Pro Gln Gly
            180                 185                 190

Pro Arg Gly Phe Leu Arg Cys Leu Thr Leu Cys Ala Leu Ser Ser Phe
        195                 200                 205

Met Phe Gly Trp His Val His Glu Lys Ala Ile Leu Leu Ala Ile Leu
    210                 215                 220

Pro Met
225
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<210> 4100
<211> 87
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434066"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4100

```
Xaa Ser Arg Leu Phe Pro Phe Lys Arg Gly Leu Cys His Ala Tyr Trp
1               5                   10                  15

Ala Pro Asn Phe Trp Ala Leu Tyr Asn Ala Leu Asp Lys Val Leu Ser
            20                  25                  30
```

```
Val Ile Gly Leu Lys Leu Lys Phe Leu Asp Pro Asn Asn Ile Pro Lys
        35                  40                  45

Ala Ser Met Thr Ser Gly Leu Val Gln Gln Phe Gln His Thr Val Leu
    50                  55                  60

Pro Ser Val Thr Pro Leu Ala Thr Leu Ile Cys Thr Leu Ile Ala Ile
65                  70                  75                  80

Leu Lys Arg Lys Thr Ser Phe
                85


<210> 4101
<211> 197
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
      ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434388"

<400> 4101
Trp Phe Gly Ser Ala Val Pro Thr His Ser Pro Ser Leu Ser Asp Ser
1               5                   10                  15

Leu Gly Asn Pro His Leu His Thr Asp Cys His Ile Gly Pro Arg Gly
            20                  25                  30

Phe Leu Arg Cys Leu Thr Leu Cys Ala Leu Ser Ser Phe Met Phe Gly
        35                  40                  45

Trp His Val His Glu Lys Ala Ile Leu Leu Ala Ile Leu Pro Met Ser
    50                  55                  60

Leu Leu Ser Val Gly Lys Ala Gly Asp Ala Ser Ile Phe Leu Ile Leu
65                  70                  75                  80
```

```
Thr Thr Thr Gly His Tyr Ser Leu Phe Pro Leu Leu Phe Thr Ala Pro
                85                  90                  95

Glu Leu Pro Ile Lys Ile Leu Leu Met Leu Leu Phe Thr Ile Tyr Ser
            100                 105                 110

Ile Ser Ser Leu Lys Thr Leu Phe Arg Lys Glu Lys Pro Leu Phe Asn
        115                 120                 125

Trp Met Glu Thr Phe Tyr Leu Leu Gly Leu Gly Pro Leu Glu Val Cys
    130                 135                 140

Cys Glu Phe Val Phe Pro Phe Thr Ser Trp Lys Val Lys Tyr Pro Phe
145                 150                 155                 160

Ile Pro Leu Leu Leu Thr Ser Val Tyr Cys Ala Val Gly Ile Thr Tyr
                165                 170                 175

Ala Trp Phe Lys Leu Tyr Val Ser Val Leu Ile Asp Ser Ala Ile Gly
            180                 185                 190

Lys Thr Lys Lys Gln
        195


<210> 4102
<211> 282
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
      ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434660"

<400> 4102
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Met Ala Ala Leu Thr Ile Ala Thr Gly Thr Gly Asn Trp Phe Ser Ala
1               5                  10                  15

Leu Ala Leu Gly Val Thr Leu Leu Lys Cys Leu Leu Ile Pro Thr Tyr
            20                  25                  30

Ser His Ser Thr Asp Phe Glu Val His Arg Asn Trp Leu Ala Ile Thr
        35                  40                  45

His Ser Leu Pro Ile Ser Gln Trp Tyr Tyr Glu Ala Thr Ser Glu Trp
    50                  55                  60

Thr Leu Asp Tyr Pro Pro Phe Phe Ala Trp Phe Glu Tyr Ile Leu Ser
65                  70                  75                  80

His Val Ala Lys Tyr Phe Asp Gln Glu Met Leu Asn Val His Asn Leu
                85                  90                  95

Asn Tyr Ser Ser Ser Arg Thr Leu Leu Phe Gln Arg Phe Ser Val Ile
            100                 105                 110

Phe Met Asp Val Leu Phe Val Tyr Ala Val Arg Glu Cys Cys Lys Cys
        115                 120                 125

Ile Asp Gly Lys Lys Val Gly Lys Glu Leu Thr Glu Lys Pro Lys Phe
    130                 135                 140

Ile Leu Ser Val Leu Leu Leu Trp Asn Phe Gly Leu Leu Ile Val Asp
145                 150                 155                 160

His Ile His Phe Gln Tyr Asn Gly Phe Leu Phe Gly Leu Met Leu Leu
                165                 170                 175

Ser Ile Ala Arg Leu Phe Gln Lys Arg His Met Glu Gly Ala Phe Leu
            180                 185                 190

Phe Ala Val Leu Leu His Phe Lys His Ile Tyr Leu Tyr Val Ala Pro
        195                 200                 205

Ala Tyr Gly Val Tyr Leu Leu Arg Ser Tyr Cys Phe Thr Ala Asn Lys
    210                 215                 220

Pro Asp Gly Ser Ile Arg Trp Lys Ser Phe Ser Phe Val Arg Val Ile
```

```
225                 230                 235                 240

Ser Leu Gly Leu Val Val Phe Leu Val Ser Ala Leu Ser Leu Gly Pro
                245                 250                 255

Phe Leu Ala Leu Asn Gln Leu Pro Gln Val Phe Ser Arg Leu Phe Pro
            260                 265                 270

Phe Lys Arg Gly Leu Cys His Ala Tyr Trp
        275                 280


<210> 4103
<211> 172
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
      ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435417"

<400> 4103
Met Leu Asn Val His Asn Leu Asn Tyr Ser Ser Ser Arg Thr Leu Leu
1               5                   10                  15

Phe Gln Arg Phe Ser Val Ile Phe Met Asp Val Leu Phe Val Tyr Ala
            20                  25                  30

Val Arg Glu Cys Cys Lys Cys Ile Asp Gly Lys Lys Val Gly Lys Glu
        35                  40                  45

Leu Thr Glu Lys Pro Lys Phe Ile Leu Ser Val Leu Leu Leu Trp Asn
    50                  55                  60

Phe Gly Leu Leu Ile Val Asp His Ile His Phe Gln Tyr Asn Gly Phe
65                  70                  75                  80
```

```
Leu Phe Gly Leu Met Leu Leu Ser Ile Ala Arg Leu Phe Gln Lys Arg
                85                  90                  95

His Met Glu Gly Ala Phe Leu Phe Ala Val Leu Leu His Phe Lys His
            100                 105                 110

Ile Tyr Leu Tyr Val Ala Pro Ala Tyr Gly Val Tyr Leu Leu Arg Ser
        115                 120                 125

Tyr Cys Phe Thr Ala Asn Lys Pro Asp Gly Ser Ile Arg Trp Lys Ser
    130                 135                 140

Phe Ser Phe Val Arg Val Ile Ser Leu Gly Leu Val Val Phe Leu Val
145                 150                 155                 160

Ser Ala Leu Ser Leu Gly Pro Phe Leu Ala Leu Asn
                165                 170


<210> 4104
<211> 242
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
      ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435467"

<400> 4104
Met Pro Ser His Pro His Ile Ala Thr Ser Glu Trp Thr Leu Asp Tyr
1               5                   10                  15

Pro Pro Phe Phe Ala Trp Phe Glu Tyr Ile Leu Ser His Val Ala Lys
            20                  25                  30

Tyr Phe Asp Gln Glu Met Leu Asn Val His Asn Leu Asn Tyr Ser Ser
```

```
        35                  40                  45

Ser Arg Thr Leu Leu Phe Gln Arg Phe Ser Val Ile Phe Met Asp Val
    50                  55                  60

Leu Phe Val Tyr Ala Val Arg Glu Cys Cys Lys Cys Ile Asp Gly Lys
65                  70                  75                  80

Lys Val Gly Lys Glu Leu Thr Glu Lys Pro Lys Phe Ile Leu Ser Val
                85                  90                  95

Leu Leu Leu Trp Asn Phe Gly Leu Leu Ile Val Asp His Ile His Phe
            100                 105                 110

Gln Tyr Asn Gly Phe Leu Phe Gly Leu Met Leu Leu Ser Ile Ala Arg
        115                 120                 125

Leu Phe Gln Lys Arg His Met Glu Gly Ala Phe Leu Phe Ala Val Leu
    130                 135                 140

Leu His Phe Lys His Ile Tyr Leu Tyr Val Ala Pro Ala Tyr Gly Val
145                 150                 155                 160

Tyr Leu Leu Arg Ser Tyr Cys Phe Thr Ala Asn Lys Pro Asp Gly Ser
                165                 170                 175

Ile Arg Trp Lys Ser Phe Ser Phe Val Arg Val Ile Ser Leu Gly Leu
            180                 185                 190

Val Val Phe Leu Val Ser Ala Leu Ser Leu Gly Pro Phe Leu Ala Leu
        195                 200                 205

Asn Gln Leu Pro Gln Val Phe Ser Arg Leu Phe Pro Phe Lys Arg Gly
    210                 215                 220

Leu Cys His Ala Tyr Trp Ala Pro Asn Phe Trp Ala Leu Tyr Asn Ala
225                 230                 235                 240

Leu Asp
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<210> 4105
<211> 281

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435626"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4105
Xaa Ile Asp Gly Lys Lys Val Gly Lys Glu Leu Thr Glu Lys Pro Lys
1 5 10 15

Phe Ile Leu Ser Val Leu Leu Leu Trp Asn Phe Gly Leu Leu Ile Val
20 25 30

Asp His Ile His Phe Gln Tyr Asn Gly Phe Leu Phe Gly Leu Met Leu
35 40 45

Leu Ser Ile Ala Arg Leu Phe Gln Lys Arg His Met Glu Gly Ala Phe
50 55 60

Leu Phe Ala Val Leu Leu His Phe Lys His Ile Tyr Leu Tyr Val Ala
65 70 75 80

Pro Ala Tyr Gly Val Tyr Leu Leu Arg Ser Tyr Cys Phe Thr Ala Asn
85 90 95

Lys Pro Asp Gly Ser Ile Arg Trp Lys Ser Phe Ser Phe Val Arg Val
100 105 110

Ile Ser Leu Gly Leu Val Val Phe Leu Val Ser Ala Leu Ser Leu Gly
115 120 125

```
Pro Phe Leu Ala Leu Pro Ser Ile Phe Cys Leu Trp Phe Lys Pro Gln
    130                 135                 140

Gly Pro Arg Gly Phe Leu Arg Cys Leu Thr Leu Cys Ala Leu Ser Ser
145                 150                 155                 160

Phe Met Phe Gly Trp His Val His Glu Lys Ala Ile Leu Leu Ala Ile
                165                 170                 175

Leu Pro Met Ser Leu Leu Ser Val Gly Lys Ala Gly Asp Ala Ser Ile
            180                 185                 190

Phe Leu Ile Leu Thr Thr Thr Gly His Tyr Ser Leu Phe Pro Leu Leu
        195                 200                 205

Phe Thr Ala Pro Glu Leu Pro Ile Lys Ile Leu Leu Met Leu Leu Phe
    210                 215                 220

Thr Ile Tyr Ser Ile Ser Ser Leu Lys Thr Leu Phe Arg Lys Glu Lys
225                 230                 235                 240

Pro Leu Phe Asn Trp Met Glu Thr Phe Tyr Leu Leu Gly Leu Gly Pro
                245                 250                 255

Leu Glu Val Cys Cys Glu Phe Val Phe Pro Phe Thr Ser Trp Lys Val
            260                 265                 270

Lys Tyr Pro Phe Ile Pro Leu Leu Leu
        275                 280


<210> 4106
<211> 136
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
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<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436064"

<400> 4106
Met Leu Asn Val His Asn Leu Asn Tyr Ser Ser Ser Arg Thr Leu Leu
1 5 10 15

Phe Gln Arg Phe Ser Val Ile Phe Met Asp Val Leu Phe Val Tyr Ala
20 25 30

Val Arg Glu Cys Cys Lys Cys Ile Asp Gly Lys Lys Val Gly Lys Glu
35 40 45

Leu Thr Glu Lys Pro Lys Phe Ile Leu Ser Val Leu Leu Leu Trp Asn
50 55 60

Phe Gly Leu Leu Ile Val Asp His Ile His Phe Gln Tyr Asn Gly Phe
65 70 75 80

Leu Phe Gly Leu Met Leu Leu Ser Ile Ala Arg Leu Phe Gln Lys Arg
85 90 95

His Met Glu Gly Ala Phe Leu Phe Ala Val Leu Leu His Phe Lys His
100 105 110

Ile Tyr Leu Tyr Val Ala Pro Ala Tyr Gly Val Tyr Leu Leu Arg Ser
115 120 125

Tyr Cys Phe Thr Ala Asn Lys Pro
130 135

<210> 4107
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436366"

<400> 4107
Met Ala Ala Leu Thr Ile Ala Thr Gly Thr Gly Asn Trp Phe Ser Ala
1 5 10 15

Leu Ala Leu Gly Val Thr Leu Leu Lys Cys Leu Leu Ile Pro Thr Tyr
20 25 30

His Ser Thr Asp Phe Glu Val His Arg Asn Trp Leu Ala Ile Thr His
35 40 45

Ser Leu Pro Ile Ser Gln Trp Tyr Tyr Glu Ala Thr Ser Glu Trp Thr
50 55 60

Leu Asp Tyr Pro Pro Phe Phe Ala Trp Phe Glu Tyr Ile Leu Ser His
65 70 75 80

Val Ala Lys Tyr Phe Asp Gln Glu Met Leu Asn Val His Asn Leu Asn
85 90 95

Tyr Ser Ser Ser Arg Thr Leu Leu Phe Gln Arg Phe Ser Val Ile Phe
100 105 110

Met Asp Val Leu Phe Val Tyr Ala Val Arg Asp Cys Phe Cys Phe Phe
115 120 125

Pro Asn Val Ser Met
130

<210> 4108
<211> 126
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source

<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437033"

<400> 4108
Met Asp Val Gly Pro Arg Leu Lys Ala Trp Lys Pro Arg Ser Asn His
1 5 10 15

Glu Met Val Val Cys Ile His His Ser Thr Asp Phe Glu Val His Arg
20 25 30

Asn Trp Leu Ala Ile Thr His Ser Leu Pro Ile Ser Gln Trp Tyr Tyr
35 40 45

Glu Ala Thr Ser Glu Trp Thr Leu Asp Tyr Pro Pro Phe Phe Ala Trp
50 55 60

Phe Glu Tyr Ile Leu Ser His Val Ala Lys Tyr Phe Asp Gln Glu Met
65 70 75 80

Leu Asn Val His Asn Leu Asn Tyr Ser Ser Ser Arg Thr Leu Leu Phe
85 90 95

Gln Arg Phe Ser Val Ile Phe Met Asp Val Leu Phe Val Tyr Ala Val
100 105 110

Arg Glu Cys Cys Lys Cys Ile Asp Gly Lys Lys Val Gly Lys
115 120 125

<210> 4109
<211> 236
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437199"

<400> 4109

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Met Ala Ala Leu Thr Ile Ala Thr Gly Thr Gly Asn Trp Phe Ser Ala
1               5                  10                  15

Leu Ala Leu Gly Val Thr Leu Leu Lys Cys Leu Leu Ile Pro Thr Tyr
            20                  25                  30

His Ser Thr Asp Phe Glu Val His Arg Asn Trp Leu Ala Ile Thr His
        35                  40                  45

Ser Leu Pro Ile Ser Gln Trp Tyr Tyr Glu Ala Thr Ser Glu Trp Thr
    50                  55                  60

Leu Asp Tyr Pro Pro Phe Phe Ala Trp Phe Glu Tyr Ile Leu Ser His
65                  70                  75                  80

Val Ala Lys Tyr Phe Asp Gln Glu Met Leu Asn Val His Asn Leu Asn
                85                  90                  95

Tyr Ser Ser Ser Arg Thr Leu Leu Phe Gln Arg Phe Ser Val Ile Phe
            100                 105                 110

Met Asp Val Leu Phe Val Tyr Ala Val Arg Glu Cys Cys Lys Cys Ile
        115                 120                 125

Asp Gly Lys Lys Val Gly Lys Glu Leu Thr Glu Lys Pro Lys Phe Ile
    130                 135                 140

Leu Ser Val Leu Leu Leu Trp Asn Phe Gly Leu Leu Ile Val Asp His
145                 150                 155                 160

Ile His Phe Gln Tyr Asn Gly Phe Leu Phe Gly Leu Met Leu Leu Ser
                165                 170                 175

Ile Ala Arg Leu Phe Gln Arg Gln Gly Leu Pro Ile Leu Ser Arg Leu
            180                 185                 190
```

```
Val Leu Asn Ser Trp Gly Gln Ala Ile Leu Pro Arg Arg Leu Thr Lys
        195                 200                 205

Val Leu Gly Leu Gln Val Lys Gly Ile Trp Lys Glu His Phe Ser Leu
    210                 215                 220

Leu Phe Ser Tyr Ile Ser Ser Ile Ser Thr Ser Met
225                 230                 235


<210> 4110
<211> 467
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 924; "

<220>
<221> source
<223> /note="Gene Symbol: ALG8; "

<220>
<221> source
<223> /note="Gene Name:
      ALG8, alpha-1,3-glucosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BVK2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480742"

<400> 4110
Met Ala Ala Leu Thr Ile Ala Thr Gly Thr Gly Asn Trp Phe Ser Ala
1               5                   10                  15

Leu Ala Leu Gly Val Thr Leu Leu Lys Cys Leu Leu Ile Pro Thr Tyr
            20                  25                  30

His Ser Thr Asp Phe Glu Val His Arg Asn Trp Leu Ala Ile Thr His
        35                  40                  45

Ser Leu Pro Ile Ser Gln Trp Tyr Tyr Glu Ala Thr Ser Glu Trp Thr
    50                  55                  60

Leu Asp Tyr Pro Pro Phe Phe Ala Trp Phe Glu Tyr Ile Leu Ser His
```

65 70 75 80

Val Ala Lys Tyr Phe Asp Gln Glu Met Leu Asn Val His Asn Leu Asn
85 90 95

Tyr Ser Ser Ser Arg Thr Leu Leu Phe Gln Arg Phe Ser Val Ile Phe
100 105 110

Met Asp Val Leu Phe Val Tyr Ala Val Arg Glu Cys Cys Lys Cys Ile
115 120 125

Asp Gly Lys Lys Val Gly Lys Glu Leu Thr Glu Lys Pro Lys Phe Ile
130 135 140

Leu Ser Val Leu Leu Leu Trp Asn Phe Gly Leu Leu Ile Val Asp His
145 150 155 160

Ile His Phe Gln Tyr Asn Gly Phe Leu Phe Gly Leu Met Leu Leu Ser
165 170 175

Ile Ala Arg Leu Phe Gln Lys Arg His Met Glu Gly Ala Phe Leu Phe
180 185 190

Ala Val Leu Leu His Phe Lys His Ile Tyr Leu Tyr Val Ala Pro Ala
195 200 205

Tyr Gly Val Tyr Leu Leu Arg Ser Tyr Cys Phe Thr Ala Asn Lys Pro
210 215 220

Asp Gly Ser Ile Arg Trp Lys Ser Phe Ser Phe Val Arg Val Ile Ser
225 230 235 240

Leu Gly Leu Val Val Phe Leu Val Ser Ala Leu Ser Leu Gly Pro Phe
245 250 255

Leu Ala Leu Asn Gln Leu Pro Gln Val Phe Ser Arg Leu Phe Pro Phe
260 265 270

Lys Arg Gly Leu Cys His Ala Tyr Trp Ala Pro Asn Phe Trp Ala Leu
275 280 285

Tyr Asn Ala Leu Asp Lys Val Leu Ser Val Ile Gly Leu Lys Leu Lys
290 295 300

```
Phe Leu Asp Pro Asn Asn Ile Pro Lys Ala Ser Met Thr Ser Gly Leu
305                 310                 315                 320

Val Gln Gln Phe Gln His Thr Val Leu Pro Ser Val Thr Pro Leu Ala
                325                 330                 335

Thr Leu Ile Cys Thr Leu Ile Ala Ile Leu Pro Ser Ile Phe Cys Leu
            340                 345                 350

Trp Phe Lys Pro Gln Gly Pro Arg Gly Phe Leu Arg Cys Leu Thr Leu
        355                 360                 365

Cys Ala Leu Ser Ser Phe Met Phe Gly Trp His Val His Glu Lys Ala
    370                 375                 380

Ile Leu Leu Ala Ile Leu Pro Met Ser Leu Leu Ser Val Gly Lys Ala
385                 390                 395                 400

Gly Asp Ala Ser Ile Phe Leu Ile Leu Thr Thr Thr Gly His Tyr Ser
                405                 410                 415

Leu Phe Pro Leu Leu Phe Thr Ala Pro Glu Leu Pro Ile Lys Ile Leu
            420                 425                 430

Leu Met Leu Leu Phe Thr Ile Tyr Ser Ile Ser Ser Leu Lys Thr Leu
        435                 440                 445

Phe Arg Arg Ser Phe Thr Leu Val Ala Gln Ala Gly Val Gln Trp His
    450                 455                 460

Asp Leu Ser
465
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<210> 4111
<211> 440
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source

<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H6U8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381090"

<400> 4111

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Met Met Leu Ala Phe Leu Val Leu Ser Thr Gly Met Phe Cys Ser Ser
1               5                  10                  15

Ser Ala Phe Leu Pro Ser Ser Phe Cys Met Tyr Thr Thr Leu Ile Ala
            20                  25                  30

Met Thr Gly Trp Tyr Met Asp Lys Thr Ser Ile Ala Val Leu Gly Val
        35                  40                  45

Ala Ala Gly Ala Ile Leu Gly Trp Pro Phe Ser Ala Ala Leu Gly Leu
    50                  55                  60

Pro Ile Ala Phe Asp Leu Leu Val Met Lys His Arg Trp Lys Ser Phe
65                  70                  75                  80

Phe His Trp Ser Leu Met Ala Leu Ile Leu Phe Leu Val Pro Val Val
                85                  90                  95

Val Ile Asp Ser Tyr Tyr Tyr Gly Lys Leu Val Ile Ala Pro Leu Asn
            100                 105                 110

Ile Val Leu Tyr Asn Val Phe Thr Pro His Gly Pro Asp Leu Tyr Gly
        115                 120                 125

Thr Glu Pro Trp Tyr Phe Tyr Leu Ile Asn Gly Phe Leu Asn Phe Asn
    130                 135                 140

Val Ala Phe Ala Leu Ala Leu Leu Val Leu Pro Leu Thr Ser Leu Met
145                 150                 155                 160

Glu Tyr Leu Leu Gln Arg Phe His Val Gln Asn Leu Gly His Pro Tyr
```

```
                165                 170                 175

Trp Leu Thr Leu Ala Pro Met Tyr Ile Trp Phe Ile Ile Phe Phe Ile
            180                 185                 190

Gln Pro His Lys Glu Glu Arg Phe Leu Phe Pro Val Tyr Pro Leu Ile
        195                 200                 205

Cys Leu Cys Gly Ala Val Ala Leu Ser Ala Leu Gln Lys Cys Tyr His
    210                 215                 220

Phe Val Phe Gln Arg Tyr Arg Leu Glu His Tyr Thr Val Thr Ser Asn
225                 230                 235                 240

Trp Leu Ala Leu Gly Thr Val Phe Leu Phe Gly Leu Leu Ser Phe Ser
                245                 250                 255

Arg Ser Val Ala Leu Phe Arg Gly Tyr His Gly Pro Leu Asp Leu Tyr
            260                 265                 270

Pro Glu Phe Tyr Arg Ile Ala Thr Asp Pro Thr Ile His Thr Val Pro
        275                 280                 285

Glu Gly Arg Pro Val Asn Val Cys Val Gly Lys Glu Trp Tyr Arg Phe
    290                 295                 300

Pro Ser Ser Phe Leu Leu Pro Asp Asn Trp Gln Leu Gln Phe Ile Pro
305                 310                 315                 320

Ser Glu Phe Arg Gly Gln Leu Pro Lys Pro Phe Ala Glu Gly Pro Leu
                325                 330                 335

Ala Thr Arg Ile Val Pro Thr Asp Met Asn Asp Gln Asn Leu Glu Glu
            340                 345                 350

Pro Ser Arg Tyr Ile Asp Ile Ser Lys Cys His Tyr Leu Val Asp Leu
        355                 360                 365

Asp Thr Met Arg Glu Thr Pro Arg Glu Pro Lys Tyr Ser Ser Asn Lys
    370                 375                 380

Glu Glu Trp Ile Ser Leu Ala Tyr Arg Pro Phe Leu Asp Ala Ser Arg
385                 390                 395                 400
```

```
Ser Ser Lys Leu Leu Arg Ala Phe Tyr Val Pro Phe Leu Ser Asp Gln
                405                 410                 415


Tyr Thr Val Tyr Val Asn Tyr Thr Ile Leu Lys Pro Arg Lys Ala Lys
            420                 425                 430


Gln Ile Arg Lys Lys Ser Gly Gly
        435                 440


<210> 4112
<211> 207
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
      ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432442"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4112
Xaa Thr Val Phe Leu Phe Gly Leu Leu Ser Phe Ser Arg Ser Val Ala
1               5                   10                  15


Leu Phe Arg Gly Tyr His Gly Pro Leu Asp Leu Tyr Pro Glu Phe Tyr
            20                  25                  30


Arg Ile Ala Thr Asp Pro Thr Ile His Thr Val Pro Glu Gly Arg Pro
        35                  40                  45


Val Asn Val Cys Val Gly Lys Glu Trp Tyr Arg Phe Pro Ser Ser Phe
    50                  55                  60
```

```
Leu Leu Pro Asp Asn Trp Gln Leu Gln Phe Ile Pro Ser Glu Phe Arg
65                  70                  75                  80

Gly Gln Leu Pro Lys Pro Phe Ala Glu Gly Pro Leu Ala Thr Arg Ile
                85                  90                  95

Val Pro Thr Asp Met Asn Asp Gln Asn Leu Glu Glu Pro Ser Arg Tyr
            100                 105                 110

Ile Asp Ile Ser Lys Cys His Tyr Leu Val Asp Leu Asp Thr Met Arg
        115                 120                 125

Glu Thr Pro Arg Glu Pro Lys Tyr Ser Ser Asn Lys Glu Glu Trp Ile
    130                 135                 140

Ser Leu Ala Tyr Arg Pro Phe Leu Asp Ala Ser Arg Ser Ser Lys Leu
145                 150                 155                 160

Leu Arg Ala Phe Tyr Val Pro Phe Leu Ser Asp Gln Tyr Thr Val Tyr
                165                 170                 175

Val Asn Tyr Thr Ile Leu Lys Pro Arg Lys Ala Lys Gln Ile Arg Lys
            180                 185                 190

Lys Ser Gly Asp Arg Arg Arg Ala Glu Pro Thr Tyr Arg Lys Asn
        195                 200                 205


<210> 4113
<211> 447
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
      ALG9, alpha-1,2-mannosyltransferase; "

<220>
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<221> source
<223> /note="Uniprot ID: Q9H6U8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435517"

<400> 4113
Met Met Leu Ala Phe Leu Val Leu Ser Thr Gly Met Phe Cys Ser Ser
1   5   10   15

Ser Ala Phe Leu Pro Ser Ser Phe Cys Met Tyr Thr Thr Leu Ile Ala
            20   25   30

Met Thr Gly Trp Tyr Met Asp Lys Thr Ser Ile Ala Val Leu Gly Val
        35   40   45

Ala Ala Gly Ala Ile Leu Gly Trp Pro Phe Ser Ala Ala Leu Gly Leu
    50   55   60

Pro Ile Ala Phe Asp Leu Leu Val Met Lys His Arg Trp Lys Ser Phe
65   70   75   80

Phe His Trp Ser Leu Met Ala Leu Ile Leu Phe Leu Val Pro Val Val
                85   90   95

Val Ile Asp Ser Tyr Tyr Tyr Gly Lys Leu Val Ile Ala Pro Leu Asn
            100   105   110

Ile Val Leu Tyr Asn Val Phe Thr Pro His Gly Pro Asp Leu Tyr Gly
        115   120   125

Thr Glu Pro Trp Tyr Phe Tyr Leu Ile Asn Gly Phe Leu Asn Phe Asn
    130   135   140

Val Ala Phe Ala Leu Ala Leu Leu Val Leu Pro Leu Thr Ser Leu Met
145   150   155   160

Glu Tyr Leu Leu Gln Arg Phe His Val Gln Asn Leu Gly His Pro Tyr
                165   170   175

Trp Leu Thr Leu Ala Pro Met Tyr Ile Trp Phe Ile Ile Phe Phe Ile
            180   185   190

Gln Pro His Lys Glu Glu Arg Phe Leu Phe Pro Val Tyr Pro Leu Ile

```
        195                 200                 205

Cys Leu Cys Gly Ala Val Ala Leu Ser Ala Leu Gln His Ser Phe Leu
    210                 215                 220

Tyr Phe Gln Lys Cys Tyr His Phe Val Phe Gln Arg Tyr Arg Leu Glu
225                 230                 235                 240

His Tyr Thr Val Thr Ser Asn Trp Leu Ala Leu Gly Thr Val Phe Leu
                245                 250                 255

Phe Gly Leu Leu Ser Phe Ser Arg Ser Val Ala Leu Phe Arg Gly Tyr
            260                 265                 270

His Gly Pro Leu Asp Leu Tyr Pro Glu Phe Tyr Arg Ile Ala Thr Asp
        275                 280                 285

Pro Thr Ile His Thr Val Pro Glu Gly Arg Pro Val Asn Val Cys Val
    290                 295                 300

Gly Lys Glu Trp Tyr Arg Phe Pro Ser Ser Phe Leu Leu Pro Asp Asn
305                 310                 315                 320

Trp Gln Leu Gln Phe Ile Pro Ser Glu Phe Arg Gly Gln Leu Pro Lys
                325                 330                 335

Pro Phe Ala Glu Gly Pro Leu Ala Thr Arg Ile Val Pro Thr Asp Met
            340                 345                 350

Asn Asp Gln Asn Leu Glu Glu Pro Ser Arg Tyr Ile Asp Ile Ser Lys
        355                 360                 365

Cys His Tyr Leu Val Asp Leu Asp Thr Met Arg Glu Thr Pro Arg Glu
    370                 375                 380

Pro Lys Tyr Ser Ser Asn Lys Glu Glu Trp Ile Ser Leu Ala Tyr Arg
385                 390                 395                 400

Pro Phe Leu Asp Ala Ser Arg Ser Ser Lys Leu Leu Arg Ala Phe Tyr
                405                 410                 415

Val Pro Phe Leu Ser Asp Gln Tyr Thr Val Tyr Val Asn Tyr Thr Ile
            420                 425                 430
```

Leu Lys Pro Arg Lys Ala Lys Gln Ile Arg Lys Lys Ser Gly Gly
435 440 445

<210> 4114
<211> 35
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436798"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4114
Xaa Lys Tyr Ser Ser Asn Lys Glu Glu Trp Ile Ser Leu Ala Tyr Arg
1 5 10 15

Pro Phe Leu Asp Ala Ser Ser Phe Glu Gly Trp Lys Thr Lys Ile Thr
20 25 30

Met Pro Val
35

<210> 4115
<211> 24
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>

<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437211"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4115
Xaa Glu Glu Trp Ile Ser Leu Ala Tyr Arg Pro Phe Leu Asp Ala Ser
1 5 10 15

Arg Val Ser Leu Cys Cys Pro Gly
20

<210> 4116
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478246"

<400> 4116
Met Ala Ser Arg Gly Ala Arg Gln Arg Leu Lys Gly Ser Gly Ala Ser
1 5 10 15

Ser Gly Asp Thr Ala Pro Ala Ala Asp Lys Leu Arg Glu Leu Leu Gly
20 25 30

Ser Arg Glu Ala Gly Gly Ala Glu His Arg Thr Glu Leu Ser Gly Asn
35 40 45

Lys Ala Gly Gln Val Trp Ala Pro Glu Gly Ser Thr Ala Phe Lys Cys
50 55 60

Leu Leu Ser Ala Arg Leu Cys Ala Ala Leu Leu Ser Asn Ile Ser Asp
65 70 75 80

Cys Asp Glu Thr Phe Asn Tyr Trp Glu Pro Val Asp Thr Leu Pro His
85 90 95

Leu Trp Gly Arg Val Ser Asp Leu Gly Ile Phe Pro Ser Ile Cys His
100 105 110

Ser Leu Leu Cys Leu Pro Val Ala Ser Cys Leu Ala Ser Cys Ile Ser
115 120 125

Cys Lys Asn Ser Thr Asn
130

<210> 4117
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479335"

<400> 4117
Met Ala Ser Arg Gly Ala Arg Gln Arg Leu Lys Gly Ser Gly Ala Ser
1 5 10 15

Ser Gly Asp Thr Ala Pro Ala Ala Asp Lys Leu Arg Glu Leu Leu Gly

```
            20                  25                  30

Ser Arg Glu Ala Gly Gly Ala Glu His Arg Thr Glu Leu Ser Gly Asn
        35                  40                  45

Lys Ala Gly Gln Val Trp Ala Pro Glu Gly Ser Thr Ala Phe Lys Cys
    50                  55                  60

Leu Leu Ser Ala Arg Leu Cys Ala Ala Leu Leu Ser Asn Ile Ser Asp
65                  70                  75                  80

Cys Asp Glu Thr Phe Asn Tyr Trp Glu Pro Thr His Tyr Leu Ile Tyr
                85                  90                  95

Gly Glu Gly Phe Gln Thr Trp Glu Tyr Ser Pro Ala Tyr Ala Ile Arg
            100                 105                 110

Ser Tyr Ala Tyr Leu Leu Leu His Ala Trp Pro Ala Ala Phe His Ala
        115                 120                 125

Arg Ile Leu Gln Thr Asn Lys Gly Cys Val Gln Glu Val Trp Val Ala
    130                 135                 140

Arg Glu Ser Asn Asp Ala Ser Leu Leu Gly Ser Gln His Trp His Val
145                 150                 155                 160

Leu Leu Ile Ile Ser Ile Pro Ser
                165


<210> 4118
<211> 102
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
      ALG9, alpha-1,2-mannosyltransferase; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000480661"

<400> 4118
Met Ala Ser Arg Gly Ala Arg Gln Arg Leu Lys Gly Ser Gly Ala Ser
1   5   10   15

Ser Gly Asp Thr Ala Pro Ala Ala Asp Lys Leu Arg Glu Leu Leu Gly
            20   25   30

Ser Arg Glu Ala Gly Gly Ala Glu His Arg Thr Glu His Thr Thr Ser
        35   40   45

Ser Met Gly Lys Gly Phe Arg Leu Gly Asn Ile Pro Gln His Met Pro
    50   55   60

Phe Ala Pro Met Leu Thr Cys Cys Phe Met Pro Gly Gln Leu His Phe
65   70   75   80

Met Gln Glu Phe Tyr Lys Leu Ile Arg Phe Leu Cys Phe Thr Phe Cys
                85   90   95

Asp Val Phe Trp Leu Leu
            100

<210> 4119
<211> 618
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
      ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H6U8; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000482437"

<400> 4119

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Met Ala Ser Arg Gly Ala Arg Gln Arg Leu Lys Gly Ser Gly Ala Ser
1               5                  10                  15

Ser Gly Asp Thr Ala Pro Ala Ala Asp Lys Leu Arg Glu Leu Leu Gly
            20                  25                  30

Ser Arg Glu Ala Gly Gly Ala Glu His Arg Thr Glu Leu Ser Gly Asn
        35                  40                  45

Lys Ala Gly Gln Val Trp Ala Pro Glu Gly Ser Thr Ala Phe Lys Cys
    50                  55                  60

Leu Leu Ser Ala Arg Leu Cys Ala Ala Leu Leu Ser Asn Ile Ser Asp
65                  70                  75                  80

Cys Asp Glu Thr Phe Asn Tyr Trp Glu Pro Thr His Tyr Leu Ile Tyr
                85                  90                  95

Gly Glu Gly Phe Gln Thr Trp Glu Tyr Ser Pro Ala Tyr Ala Ile Arg
            100                 105                 110

Ser Tyr Ala Tyr Leu Leu Leu His Ala Trp Pro Ala Ala Phe His Ala
        115                 120                 125

Arg Ile Leu Gln Thr Asn Lys Ile Leu Val Phe Tyr Phe Leu Arg Cys
    130                 135                 140

Leu Leu Ala Phe Val Ser Cys Ile Cys Glu Leu Tyr Phe Tyr Lys Ala
145                 150                 155                 160

Val Cys Lys Lys Phe Gly Leu His Val Ser Arg Met Met Leu Ala Phe
                165                 170                 175

Leu Val Leu Ser Thr Gly Met Phe Cys Ser Ser Ser Ala Phe Leu Pro
            180                 185                 190

Ser Ser Phe Cys Met Tyr Thr Thr Leu Ile Ala Met Thr Gly Trp Tyr
        195                 200                 205

Met Asp Lys Thr Ser Ile Ala Val Leu Gly Val Ala Ala Gly Ala Ile
    210                 215                 220
```

```
Leu Gly Trp Pro Phe Ser Ala Ala Leu Gly Leu Pro Ile Ala Phe Asp
225                 230                 235                 240

Leu Leu Val Met Lys His Arg Trp Lys Ser Phe Phe His Trp Ser Leu
                245                 250                 255

Met Ala Leu Ile Leu Phe Leu Val Pro Val Val Val Ile Asp Ser Tyr
            260                 265                 270

Tyr Tyr Gly Lys Leu Val Ile Ala Pro Leu Asn Ile Val Leu Tyr Asn
        275                 280                 285

Val Phe Thr Pro His Gly Pro Asp Leu Tyr Gly Thr Glu Pro Trp Tyr
    290                 295                 300

Phe Tyr Leu Ile Asn Gly Phe Leu Asn Phe Asn Val Ala Phe Ala Leu
305                 310                 315                 320

Ala Leu Leu Val Leu Pro Leu Thr Ser Leu Met Glu Tyr Leu Leu Gln
                325                 330                 335

Arg Phe His Val Gln Asn Leu Gly His Pro Tyr Trp Leu Thr Leu Ala
            340                 345                 350

Pro Met Tyr Ile Trp Phe Ile Ile Phe Phe Ile Gln Pro His Lys Glu
        355                 360                 365

Glu Arg Phe Leu Phe Pro Val Tyr Pro Leu Ile Cys Leu Cys Gly Ala
    370                 375                 380

Val Ala Leu Ser Ala Leu Gln His Ser Phe Leu Tyr Phe Gln Lys Cys
385                 390                 395                 400

Tyr His Phe Val Phe Gln Arg Tyr Arg Leu Glu His Tyr Thr Val Thr
                405                 410                 415

Ser Asn Trp Leu Ala Leu Gly Thr Val Phe Leu Phe Gly Leu Leu Ser
            420                 425                 430

Phe Ser Arg Ser Val Ala Leu Phe Arg Gly Tyr His Gly Pro Leu Asp
        435                 440                 445
```

```
Leu Tyr Pro Glu Phe Tyr Arg Ile Ala Thr Asp Pro Thr Ile His Thr
    450                 455                 460

Val Pro Glu Gly Arg Pro Val Asn Val Cys Val Gly Lys Glu Trp Tyr
465                 470                 475                 480

Arg Phe Pro Ser Ser Phe Leu Leu Pro Asp Asn Trp Gln Leu Gln Phe
                485                 490                 495

Ile Pro Ser Glu Phe Arg Gly Gln Leu Pro Lys Pro Phe Ala Glu Gly
            500                 505                 510

Pro Leu Ala Thr Arg Ile Val Pro Thr Asp Met Asn Asp Gln Asn Leu
        515                 520                 525

Glu Glu Pro Ser Arg Tyr Ile Asp Ile Ser Lys Cys His Tyr Leu Val
    530                 535                 540

Asp Leu Asp Thr Met Arg Glu Thr Pro Arg Glu Pro Lys Tyr Ser Ser
545                 550                 555                 560

Asn Lys Glu Glu Trp Ile Ser Leu Ala Tyr Arg Pro Phe Leu Asp Ala
                565                 570                 575

Ser Arg Ser Ser Lys Leu Leu Arg Ala Phe Tyr Val Pro Phe Leu Ser
            580                 585                 590

Asp Gln Tyr Thr Val Tyr Val Asn Tyr Thr Ile Leu Lys Pro Arg Lys
        595                 600                 605

Ala Lys Gln Ile Arg Lys Lys Ser Gly Gly
    610                 615


<210> 4120
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "
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<220>
<221> source
<223> /note="Gene Name:
ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482975"

<400> 4120
Met Ala Ser Arg Gly Ala Arg Gln Arg Leu Lys Gly Ser Gly Ala Ser
1 5 10 15

Ser Gly Asp Thr Ala Pro Ala Ala Asp Lys Leu Arg Glu Leu Leu Gly
20 25 30

Ser Arg Glu Ala Gly Gly Ala Glu His Arg Thr Glu Leu Ser Gly Asn
35 40 45

Lys Ala Gly Gln Val Trp Ala Pro Glu Gly Ser Thr Ala Phe Lys Cys
50 55 60

Leu Leu Ser Ala Arg Leu Cys Ala Ala Leu Leu Ser Asn Ile Ser Asp
65 70 75 80

Cys Asp Glu Thr Phe Asn Tyr Trp Glu Pro Thr His Tyr Leu Ile Tyr
85 90 95

Gly Glu Gly Phe Gln Thr Trp Glu Tyr Ser Pro Ala Tyr Ala Ile Arg
100 105 110

Ser Tyr Ala Tyr Leu Leu Leu His Ala Trp Pro Ala Ala Phe His Ala
115 120 125

Arg Ile Leu Gln Thr Asn Lys Ile Leu Val Phe Tyr Phe Leu Arg Cys
130 135 140

Leu Leu Ala Phe Val Ser Cys Ile Cys Glu Leu Tyr Phe Tyr Lys Ala
145 150 155 160

Val Cys Lys Lys Phe Gly Leu His Val Ser Arg Met Met Leu Ala Phe
165 170 175

Leu Val Leu Ser Thr Gly Met Phe Cys Ser Ser Ser Val Tyr Pro Leu
180 185 190

Pro Leu Ile Cys Trp Ser
195

<210> 4121
<211> 611
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 925; "

<220>
<221> source
<223> /note="Gene Symbol: ALG9; "

<220>
<221> source
<223> /note="Gene Name:
ALG9, alpha-1,2-mannosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H6U8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484200"

<400> 4121
Met Ala Ser Arg Gly Ala Arg Gln Arg Leu Lys Gly Ser Gly Ala Ser
1 5 10 15

Ser Gly Asp Thr Ala Pro Ala Ala Asp Lys Leu Arg Glu Leu Leu Gly
20 25 30

Ser Arg Glu Ala Gly Gly Ala Glu His Arg Thr Glu Leu Ser Gly Asn
35 40 45

Lys Ala Gly Gln Val Trp Ala Pro Glu Gly Ser Thr Ala Phe Lys Cys
50 55 60

Leu Leu Ser Ala Arg Leu Cys Ala Ala Leu Leu Ser Asn Ile Ser Asp
65 70 75 80

Cys Asp Glu Thr Phe Asn Tyr Trp Glu Pro Thr His Tyr Leu Ile Tyr
85 90 95

```
Gly Glu Gly Phe Gln Thr Trp Glu Tyr Ser Pro Ala Tyr Ala Ile Arg
            100                 105                 110

Ser Tyr Ala Tyr Leu Leu Leu His Ala Trp Pro Ala Ala Phe His Ala
        115                 120                 125

Arg Ile Leu Gln Thr Asn Lys Ile Leu Val Phe Tyr Phe Leu Arg Cys
    130                 135                 140

Leu Leu Ala Phe Val Ser Cys Ile Cys Glu Leu Tyr Phe Tyr Lys Ala
145                 150                 155                 160

Val Cys Lys Lys Phe Gly Leu His Val Ser Arg Met Met Leu Ala Phe
                165                 170                 175

Leu Val Leu Ser Thr Gly Met Phe Cys Ser Ser Ser Ala Phe Leu Pro
            180                 185                 190

Ser Ser Phe Cys Met Tyr Thr Thr Leu Ile Ala Met Thr Gly Trp Tyr
        195                 200                 205

Met Asp Lys Thr Ser Ile Ala Val Leu Gly Val Ala Ala Gly Ala Ile
    210                 215                 220

Leu Gly Trp Pro Phe Ser Ala Ala Leu Gly Leu Pro Ile Ala Phe Asp
225                 230                 235                 240

Leu Leu Val Met Lys His Arg Trp Lys Ser Phe Phe His Trp Ser Leu
                245                 250                 255

Met Ala Leu Ile Leu Phe Leu Val Pro Val Val Val Ile Asp Ser Tyr
            260                 265                 270

Tyr Tyr Gly Lys Leu Val Ile Ala Pro Leu Asn Ile Val Leu Tyr Asn
        275                 280                 285

Val Phe Thr Pro His Gly Pro Asp Leu Tyr Gly Thr Glu Pro Trp Tyr
    290                 295                 300

Phe Tyr Leu Ile Asn Gly Phe Leu Asn Phe Asn Val Ala Phe Ala Leu
305                 310                 315                 320

Ala Leu Leu Val Leu Pro Leu Thr Ser Leu Met Glu Tyr Leu Leu Gln
```

```
                325                 330                 335

Arg Phe His Val Gln Asn Leu Gly His Pro Tyr Trp Leu Thr Leu Ala
            340                 345                 350

Pro Met Tyr Ile Trp Phe Ile Ile Phe Phe Ile Gln Pro His Lys Glu
        355                 360                 365

Glu Arg Phe Leu Phe Pro Val Tyr Pro Leu Ile Cys Leu Cys Gly Ala
    370                 375                 380

Val Ala Leu Ser Ala Leu Gln Lys Cys Tyr His Phe Val Phe Gln Arg
385                 390                 395                 400

Tyr Arg Leu Glu His Tyr Thr Val Thr Ser Asn Trp Leu Ala Leu Gly
                405                 410                 415

Thr Val Phe Leu Phe Gly Leu Leu Ser Phe Ser Arg Ser Val Ala Leu
            420                 425                 430

Phe Arg Gly Tyr His Gly Pro Leu Asp Leu Tyr Pro Glu Phe Tyr Arg
        435                 440                 445

Ile Ala Thr Asp Pro Thr Ile His Thr Val Pro Glu Gly Arg Pro Val
    450                 455                 460

Asn Val Cys Val Gly Lys Glu Trp Tyr Arg Phe Pro Ser Ser Phe Leu
465                 470                 475                 480

Leu Pro Asp Asn Trp Gln Leu Gln Phe Ile Pro Ser Glu Phe Arg Gly
                485                 490                 495

Gln Leu Pro Lys Pro Phe Ala Glu Gly Pro Leu Ala Thr Arg Ile Val
            500                 505                 510

Pro Thr Asp Met Asn Asp Gln Asn Leu Glu Glu Pro Ser Arg Tyr Ile
        515                 520                 525

Asp Ile Ser Lys Cys His Tyr Leu Val Asp Leu Asp Thr Met Arg Glu
    530                 535                 540

Thr Pro Arg Glu Pro Lys Tyr Ser Ser Asn Lys Glu Glu Trp Ile Ser
545                 550                 555                 560
```

```
Leu Ala Tyr Arg Pro Phe Leu Asp Ala Ser Arg Ser Ser Lys Leu Leu
                565                 570                 575


Arg Ala Phe Tyr Val Pro Phe Leu Ser Asp Gln Tyr Thr Val Tyr Val
            580                 585                 590


Asn Tyr Thr Ile Leu Lys Pro Arg Lys Ala Lys Gln Ile Arg Lys Lys
        595                 600                 605


Ser Gly Gly
    610


<210> 4122
<211> 264
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 926; "

<220>
<221> source
<223> /note="Gene Symbol: ACER1; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline ceramidase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8TDN7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000301452"

<400> 4122
Met Pro Ser Ile Phe Ala Tyr Gln Ser Ser Glu Val Asp Trp Cys Glu
1               5                   10                  15


Ser Asn Phe Gln Tyr Ser Glu Leu Val Ala Glu Phe Tyr Asn Thr Phe
            20                  25                  30


Ser Asn Ile Pro Phe Phe Ile Phe Gly Pro Leu Met Met Leu Leu Met
        35                  40                  45
```

```
His Pro Tyr Ala Gln Lys Arg Ser Arg Tyr Ile Tyr Val Val Trp Val
    50                  55                  60

Leu Phe Met Ile Ile Gly Leu Phe Ser Met Tyr Phe His Met Thr Leu
65                  70                  75                  80

Ser Phe Leu Gly Gln Leu Leu Asp Glu Ile Ala Ile Leu Trp Leu Leu
                85                  90                  95

Gly Ser Gly Tyr Ser Ile Trp Met Pro Arg Cys Tyr Phe Pro Ser Phe
            100                 105                 110

Leu Gly Gly Asn Arg Ser Gln Phe Ile Arg Leu Val Phe Ile Thr Thr
        115                 120                 125

Val Val Ser Thr Leu Leu Ser Phe Leu Arg Pro Thr Val Asn Ala Tyr
    130                 135                 140

Ala Leu Asn Ser Ile Ala Leu His Ile Leu Tyr Ile Val Cys Gln Glu
145                 150                 155                 160

Tyr Arg Lys Thr Ser Asn Lys Glu Leu Arg His Leu Ile Glu Val Ser
                165                 170                 175

Val Val Leu Trp Ala Val Ala Leu Thr Ser Trp Ile Ser Asp Arg Leu
            180                 185                 190

Leu Cys Ser Phe Trp Gln Arg Ile His Phe Phe Tyr Leu His Ser Ile
        195                 200                 205

Trp His Val Leu Ile Ser Ile Thr Phe Pro Tyr Gly Met Val Thr Met
    210                 215                 220

Ala Leu Val Asp Ala Asn Tyr Glu Met Pro Gly Glu Thr Leu Lys Val
225                 230                 235                 240

Arg Tyr Trp Pro Arg Asp Ser Trp Pro Val Gly Leu Pro Tyr Val Glu
                245                 250                 255

Ile Arg Gly Asp Asp Lys Asp Cys
            260
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<210> 4123

<211> 275
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 927; "

<220>
<221> source
<223> /note="Gene Symbol: ACER2; "

<220>
<221> source
<223> /note="Gene Name:
alkaline ceramidase 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q5QJU3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000342609"

<400> 4123
Met Gly Ala Pro His Trp Trp Asp Gln Leu Gln Ala Gly Ser Ser Glu
1 5 10 15

Val Asp Trp Cys Glu Asp Asn Tyr Thr Ile Val Pro Ala Ile Ala Glu
20 25 30

Phe Tyr Asn Thr Ile Ser Asn Val Leu Phe Phe Ile Leu Pro Pro Ile
35 40 45

Cys Met Cys Leu Phe Arg Gln Tyr Ala Thr Cys Phe Asn Ser Gly Ile
50 55 60

Tyr Leu Ile Trp Thr Leu Leu Val Val Val Gly Ile Gly Ser Val Tyr
65 70 75 80

Phe His Ala Thr Leu Ser Phe Leu Gly Gln Met Leu Asp Glu Leu Ala
85 90 95

Val Leu Trp Val Leu Met Cys Ala Leu Ala Met Trp Phe Pro Arg Arg
100 105 110

Tyr Leu Pro Lys Ile Phe Arg Asn Asp Arg Gly Arg Phe Lys Val Val
115 120 125

```
Val Ser Val Leu Ser Ala Val Thr Thr Cys Leu Ala Phe Val Lys Pro
    130                 135                 140

Ala Ile Asn Asn Ile Ser Leu Met Thr Leu Gly Val Pro Cys Thr Ala
145                 150                 155                 160

Leu Leu Ile Ala Glu Leu Lys Arg Cys Asp Asn Met Arg Val Phe Lys
                165                 170                 175

Leu Gly Leu Phe Ser Gly Leu Trp Trp Thr Leu Ala Leu Phe Cys Trp
            180                 185                 190

Ile Ser Asp Arg Ala Phe Cys Glu Leu Leu Ser Ser Phe Asn Phe Pro
        195                 200                 205

Tyr Leu His Cys Met Trp His Ile Leu Ile Cys Leu Ala Ala Tyr Leu
    210                 215                 220

Gly Cys Val Cys Phe Ala Tyr Phe Asp Ala Ala Ser Glu Ile Pro Glu
225                 230                 235                 240

Gln Gly Pro Val Ile Lys Phe Trp Pro Asn Glu Lys Trp Ala Phe Ile
                245                 250                 255

Gly Val Pro Tyr Val Ser Leu Leu Cys Ala Asn Lys Lys Ser Ser Val
            260                 265                 270

Lys Ile Thr
        275
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<210> 4124
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:

alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000278544"

<400> 4124
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1 5 10 15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
20 25 30

Glu Phe Trp Asn Thr Val Ser Asn Leu Ile Met Ile Ile Pro Pro Met
35 40 45

Phe Gly Ala Val Gln Ser Val Arg Asp Gly Leu Glu Lys Arg Tyr Ile
50 55 60

Ala Ser Tyr Leu Ala Leu Thr Glu Val Leu Gln Ile
65 70 75

<210> 4125
<211> 172
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431149"

<400> 4125
Met Ile Tyr Ser Cys Cys Ile Phe Val Tyr Cys Met Phe Glu Cys Phe
1 5 10 15

Lys Ile Lys Asn Ser Val Asn Tyr His Leu Leu Phe Thr Leu Val Leu
20 25 30

```
Phe Ser Leu Ile Val Thr Thr Val Tyr Leu Lys Val Lys Glu Pro Ile
        35                  40                  45

Phe His Gln Val Met Tyr Gly Met Leu Val Phe Thr Leu Val Leu Arg
    50                  55                  60

Ser Ile Tyr Ile Val Thr Trp Val Tyr Pro Trp Leu Arg Gly Leu Gly
65                  70                  75                  80

Tyr Thr Ser Leu Gly Ile Phe Leu Leu Gly Phe Leu Phe Trp Asn Ile
                85                  90                  95

Asp Asn Ile Phe Cys Glu Ser Leu Arg Asn Phe Arg Lys Lys Val Pro
            100                 105                 110

Pro Ile Ile Gly Ile Thr Thr Gln Phe His Ala Trp Trp His Ile Leu
        115                 120                 125

Thr Gly Leu Gly Ser Tyr Leu His Ile Leu Phe Ser Leu Tyr Thr Arg
    130                 135                 140

Thr Leu Tyr Leu Arg Tyr Arg Pro Lys Val Lys Phe Leu Phe Gly Ile
145                 150                 155                 160

Trp Pro Val Ile Leu Phe Glu Pro Leu Arg Lys His
                165                 170


<210> 4126
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline ceramidase 3; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000431504"

<400> 4126
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1   5   10   15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
            20   25   30

Glu Phe Cys Ser Phe Leu Pro Ser Ser Leu Lys Ser Asn Leu Lys Glu
        35   40   45

Tyr Ser Glu
    50

<210> 4127
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432109"

<400> 4127
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1   5   10   15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
            20   25   30

Glu Phe Cys Ser Phe Leu Pro Ser Ser Leu Lys Ser Asn Leu Lys Glu
        35   40   45

Tyr Ser Glu
    50

<210> 4128
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432379"

<400> 4128
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1 5 10 15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
20 25 30

Glu Phe Trp Asn Thr Val Ser Asn Leu Ile Met Ile Ile Pro Pro Met
35 40 45

Phe Gly Ala Val Gln Ser Val Arg Asp Gly Leu Glu Lys Arg Tyr Ile
50 55 60

Ala Ser Tyr Leu Ala Leu Thr Asp Gly Val Ser Leu Cys Arg Arg Gly
65 70 75 80

<210> 4129
<211> 74
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433368"

<400> 4129
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1 5 10 15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
20 25 30

Glu Phe Trp Asn Thr Val Ser Asn Leu Ile Met Ile Ile Pro Pro Met
35 40 45

Phe Gly Ala Val Gln Ser Val Arg Asp Gly Leu Glu Lys Arg Tyr Ile
50 55 60

Ala Ser Tyr Leu Ala Leu Thr Ala Ile Gly
65 70

<210> 4130
<211> 267
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
alkaline ceramidase 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NUN7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434480"

<400> 4130

```
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1               5                  10                  15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
            20                  25                  30

Glu Phe Trp Asn Thr Val Ser Asn Leu Ile Met Ile Ile Pro Pro Met
        35                  40                  45

Phe Gly Ala Val Gln Ser Val Arg Asp Gly Leu Glu Lys Arg Tyr Ile
    50                  55                  60

Ala Ser Tyr Leu Ala Leu Thr Val Val Gly Met Gly Ser Trp Cys Phe
65                  70                  75                  80

His Met Thr Leu Lys Tyr Glu Met Gln Leu Leu Asp Glu Leu Pro Met
                85                  90                  95

Ile Tyr Ser Cys Cys Ile Phe Val Tyr Cys Met Phe Glu Cys Phe Lys
            100                 105                 110

Ile Lys Asn Ser Val Asn Tyr His Leu Leu Phe Thr Leu Val Leu Phe
        115                 120                 125

Ser Leu Ile Val Thr Thr Val Tyr Leu Lys Val Lys Glu Pro Ile Phe
    130                 135                 140

His Gln Val Met Tyr Gly Met Leu Val Phe Thr Leu Val Leu Arg Ser
145                 150                 155                 160

Ile Tyr Ile Val Thr Trp Val Tyr Pro Trp Leu Arg Gly Leu Gly Tyr
                165                 170                 175

Thr Ser Leu Gly Ile Phe Leu Leu Gly Phe Leu Phe Trp Asn Ile Asp
            180                 185                 190

Asn Ile Phe Cys Glu Ser Leu Arg Asn Phe Arg Lys Lys Val Pro Pro
        195                 200                 205

Ile Ile Gly Ile Thr Thr Gln Phe His Ala Trp Trp His Ile Leu Thr
    210                 215                 220

Gly Leu Gly Ser Tyr Leu His Ile Leu Phe Ser Leu Tyr Thr Arg Thr
```

225 230 235 240

Leu Tyr Leu Arg Tyr Arg Pro Lys Val Lys Phe Leu Phe Gly Ile Trp
245 250 255

Pro Val Ile Leu Phe Glu Pro Leu Arg Lys His
260 265

<210> 4131
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435048"

<400> 4131
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1 5 10 15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
20 25 30

Glu Phe Cys Ser Phe Leu Pro Ser Ser Leu Lys Ser Asn Leu Lys Leu
35 40 45

Val Ser Thr His Gln Ala Ser Phe Leu Val Leu Gly Leu Trp Ala Gly
50 55 60

Arg Gly Asp Ile Pro Val Ile
65 70

<210> 4132
<211> 205
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435733"

<400> 4132

```
Met Ile Ile Pro Pro Met Phe Gly Ala Val Gln Ser Val Arg Asp Gly
1               5                  10                  15

Leu Glu Lys Arg Tyr Ile Ala Ser Tyr Leu Ala Leu Thr Val Val Gly
            20                  25                  30

Met Gly Ser Trp Cys Phe His Met Thr Leu Lys Tyr Glu Met Gln Leu
        35                  40                  45

Leu Asp Glu Leu Pro Met Ile Tyr Ser Cys Cys Ile Phe Val Tyr Cys
    50                  55                  60

Met Phe Glu Cys Phe Lys Ile Lys Asn Ser Val Asn Tyr His Leu Leu
65                  70                  75                  80

Phe Thr Leu Val Leu Phe Ser Leu Ile Val Thr Thr Val Tyr Leu Lys
                85                  90                  95

Val Lys Glu Pro Ile Phe His Gln Val Met Tyr Gly Met Leu Val Phe
            100                 105                 110

Thr Leu Val Leu Arg Ser Ile Tyr Ile Val Thr Trp Val Tyr Pro Trp
        115                 120                 125

Leu Arg Gly Leu Gly Tyr Thr Ser Leu Gly Ile Phe Leu Leu Gly Phe
    130                 135                 140

Leu Phe Trp Asn Ile Asp Asn Ile Phe Cys Glu Ser Leu Arg Asn Phe
```

```
145                 150                 155                 160

Arg Lys Lys Val Pro Pro Ile Ile Gly Ile Thr Thr Gln Phe His Ala
                165                 170                 175

Trp Trp His Ile Leu Thr Gly Leu Gly Ser Tyr Leu His Ile Leu Phe
            180                 185                 190

Ser Leu Tyr Thr Arg Thr Leu Tyr Leu Arg Tyr Arg Pro
        195                 200                 205


<210> 4133
<211> 230
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 928; "

<220>
<221> source
<223> /note="Gene Symbol: ACER3; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline ceramidase 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436252"

<400> 4133
Met Ala Pro Ala Ala Asp Arg Glu Gly Tyr Trp Gly Pro Thr Thr Ser
1               5                   10                  15

Thr Leu Asp Trp Cys Glu Glu Asn Tyr Ser Val Thr Trp Tyr Ile Ala
            20                  25                  30

Glu Phe Leu Val Gly Met Gly Ser Trp Cys Phe His Met Thr Leu Lys
        35                  40                  45

Tyr Glu Met Gln Leu Leu Asp Glu Leu Pro Met Ile Tyr Ser Cys Cys
    50                  55                  60

Ile Phe Val Tyr Cys Met Phe Glu Cys Phe Lys Ile Lys Asn Ser Val
65                  70                  75                  80
```

```
Asn Tyr His Leu Leu Phe Thr Leu Val Leu Phe Ser Leu Ile Val Thr
                85                  90                  95

Thr Val Tyr Leu Lys Val Lys Glu Pro Ile Phe His Gln Val Met Tyr
            100                 105                 110

Gly Met Leu Val Phe Thr Leu Val Leu Arg Ser Ile Tyr Ile Val Thr
        115                 120                 125

Trp Val Tyr Pro Trp Leu Arg Gly Leu Gly Tyr Thr Ser Leu Gly Ile
    130                 135                 140

Phe Leu Leu Gly Phe Leu Phe Trp Asn Ile Asp Asn Ile Phe Cys Glu
145                 150                 155                 160

Ser Leu Arg Asn Phe Arg Lys Lys Val Pro Pro Ile Ile Gly Ile Thr
                165                 170                 175

Thr Gln Phe His Ala Trp Trp His Ile Leu Thr Gly Leu Gly Ser Tyr
            180                 185                 190

Leu His Ile Leu Phe Ser Leu Tyr Thr Arg Thr Leu Tyr Leu Arg Tyr
        195                 200                 205

Arg Pro Lys Val Lys Phe Leu Phe Gly Ile Trp Pro Val Ile Leu Phe
    210                 215                 220

Glu Pro Leu Arg Lys His
225                 230


<210> 4134
<211> 528
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 929; "

<220>
<221> source
<223> /note="Gene Symbol: ALPI; "

<220>
<221> source
<223> /note="Gene Name:
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alkaline phosphatase, intestinal; "

<220>
<221> source
<223> /note="Uniprot ID: P09923; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295463"

<400> 4134
Met Gln Gly Pro Trp Val Leu Leu Leu Leu Gly Leu Arg Leu Gln Leu
1   5   10   15

Ser Leu Gly Val Ile Pro Ala Glu Glu Glu Asn Pro Ala Phe Trp Asn
            20   25   30

Arg Gln Ala Ala Glu Ala Leu Asp Ala Ala Lys Lys Leu Gln Pro Ile
        35   40   45

Gln Lys Val Ala Lys Asn Leu Ile Leu Phe Leu Gly Asp Gly Leu Gly
    50   55   60

Val Pro Thr Val Thr Ala Thr Arg Ile Leu Lys Gly Gln Lys Asn Gly
65   70   75   80

Lys Leu Gly Pro Glu Thr Pro Leu Ala Met Asp Arg Phe Pro Tyr Leu
                85   90   95

Ala Leu Ser Lys Thr Tyr Asn Val Asp Arg Gln Val Pro Asp Ser Ala
            100   105   110

Ala Thr Ala Thr Ala Tyr Leu Cys Gly Val Lys Ala Asn Phe Gln Thr
        115   120   125

Ile Gly Leu Ser Ala Ala Ala Arg Phe Asn Gln Cys Asn Thr Thr Arg
    130   135   140

Gly Asn Glu Val Ile Ser Val Met Asn Arg Ala Lys Gln Ala Gly Lys
145   150   155   160

Ser Val Gly Val Val Thr Thr Thr Arg Val Gln His Ala Ser Pro Ala
                165   170   175

Gly Thr Tyr Ala His Thr Val Asn Arg Asn Trp Tyr Ser Asp Ala Asp
            180   185   190

```
Met Pro Ala Ser Ala Arg Gln Glu Gly Cys Gln Asp Ile Ala Thr Gln
        195                 200                 205

Leu Ile Ser Asn Met Asp Ile Asp Val Ile Leu Gly Gly Gly Arg Lys
    210                 215                 220

Tyr Met Phe Pro Met Gly Thr Pro Asp Pro Glu Tyr Pro Ala Asp Ala
225                 230                 235                 240

Ser Gln Asn Gly Ile Arg Leu Asp Gly Lys Asn Leu Val Gln Glu Trp
                245                 250                 255

Leu Ala Lys His Gln Gly Ala Trp Tyr Val Trp Asn Arg Thr Glu Leu
            260                 265                 270

Met Gln Ala Ser Leu Asp Gln Ser Val Thr His Leu Met Gly Leu Phe
        275                 280                 285

Glu Pro Gly Asp Thr Lys Tyr Glu Ile His Arg Asp Pro Thr Leu Asp
    290                 295                 300

Pro Ser Leu Met Glu Met Thr Glu Ala Ala Leu Arg Leu Leu Ser Arg
305                 310                 315                 320

Asn Pro Arg Gly Phe Tyr Leu Phe Val Glu Gly Gly Arg Ile Asp His
                325                 330                 335

Gly His His Glu Gly Val Ala Tyr Gln Ala Leu Thr Glu Ala Val Met
            340                 345                 350

Phe Asp Asp Ala Ile Glu Arg Ala Gly Gln Leu Thr Ser Glu Glu Asp
        355                 360                 365

Thr Leu Thr Leu Val Thr Ala Asp His Ser His Val Phe Ser Phe Gly
    370                 375                 380

Gly Tyr Thr Leu Arg Gly Ser Ser Ile Phe Gly Leu Ala Pro Ser Lys
385                 390                 395                 400

Ala Gln Asp Ser Lys Ala Tyr Thr Ser Ile Leu Tyr Gly Asn Gly Pro
                405                 410                 415
```

```
Gly Tyr Val Phe Asn Ser Gly Val Arg Pro Asp Val Asn Glu Ser Glu
            420                 425                 430

Ser Gly Ser Pro Asp Tyr Gln Gln Ala Ala Val Pro Leu Ser Ser
        435                 440                 445

Glu Thr His Gly Gly Glu Asp Val Ala Val Phe Ala Arg Gly Pro Gln
    450                 455                 460

Ala His Leu Val His Gly Val Gln Glu Gln Ser Phe Val Ala His Val
465                 470                 475                 480

Met Ala Phe Ala Ala Cys Leu Glu Pro Tyr Thr Ala Cys Asp Leu Ala
                485                 490                 495

Pro Pro Ala Cys Thr Thr Asp Ala Ala His Pro Val Ala Ala Ser Leu
            500                 505                 510

Pro Leu Leu Ala Gly Thr Leu Leu Leu Leu Gly Ala Ser Ala Ala Pro
        515                 520                 525


<210> 4135
<211> 50
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 929; "

<220>
<221> source
<223> /note="Gene Symbol: ALPI; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline phosphatase, intestinal; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413068"

<400> 4135
Met Gln Gly Pro Trp Val Leu Leu Leu Gly Leu Arg Leu Gln Leu
1               5                   10                  15

Ser Leu Gly Val Ile Pro Gly Asn Glu Ala Pro Gln Ala Val Pro His
```

20 25 30

Thr Gly His Pro Leu Ser Gln Ala Asp Leu Ile Ser Thr Leu Pro Leu
35 40 45

Ala Ser
50

<210> 4136
<211> 216
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 930; "

<220>
<221> source
<223> /note="Gene Symbol: ALPL; "

<220>
<221> source
<223> /note="Gene Name:
alkaline phosphatase, liver/bone/kidney; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000363963"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4136
Xaa His Ser His Phe Ile Trp Asn Arg Thr Glu Leu Leu Thr Leu Asp
1 5 10 15

Pro His Asn Val Asp Tyr Leu Leu Gly Gly Arg Ile Asp His Gly His
20 25 30

His Glu Gly Lys Ala Lys Gln Ala Leu His Glu Ala Val Glu Met Asp
35 40 45

Arg Ala Ile Gly Gln Ala Gly Ser Leu Thr Ser Ser Glu Asp Thr Leu
50 55 60

Thr Val Val Thr Ala Asp His Ser His Val Phe Thr Phe Gly Gly Tyr

65 70 75 80

Thr Pro Arg Gly Asn Ser Ile Phe Gly Leu Ala Pro Met Leu Ser Asp
85 90 95

Thr Asp Lys Lys Pro Phe Thr Ala Ile Leu Tyr Gly Asn Gly Pro Gly
100 105 110

Tyr Lys Val Val Gly Gly Glu Arg Glu Asn Val Ser Met Val Asp Tyr
115 120 125

Ala His Asn Asn Tyr Gln Ala Gln Ser Ala Val Pro Leu Arg His Glu
130 135 140

Thr His Gly Gly Glu Asp Val Ala Val Phe Ser Lys Gly Pro Met Ala
145 150 155 160

His Leu Leu His Gly Val His Glu Gln Asn Tyr Val Pro His Val Met
165 170 175

Ala Tyr Ala Ala Cys Ile Gly Ala Asn Leu Gly His Cys Ala Pro Ala
180 185 190

Ser Ser Ala Gly Ser Leu Ala Ala Gly Pro Leu Leu Leu Ala Leu Ala
195 200 205

Leu Tyr Pro Leu Ser Val Leu Phe
210 215

<210> 4137
<211> 524
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 930; "

<220>
<221> source
<223> /note="Gene Symbol: ALPL; "

<220>
<221> source
<223> /note="Gene Name:
alkaline phosphatase, liver/bone/kidney; "

<220>
<221> source
<223> /note="Uniprot ID: P05186; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000363965"

<400> 4137
Met Ile Ser Pro Phe Leu Val Leu Ala Ile Gly Thr Cys Leu Thr Asn
1   5   10   15

Ser Leu Val Pro Glu Lys Glu Lys Asp Pro Lys Tyr Trp Arg Asp Gln
            20   25   30

Ala Gln Glu Thr Leu Lys Tyr Ala Leu Glu Leu Gln Lys Leu Asn Thr
        35   40   45

Asn Val Ala Lys Asn Val Ile Met Phe Leu Gly Asp Gly Met Gly Val
    50   55   60

Ser Thr Val Thr Ala Ala Arg Ile Leu Lys Gly Gln Leu His His Asn
65   70   75   80

Pro Gly Glu Glu Thr Arg Leu Glu Met Asp Lys Phe Pro Phe Val Ala
                85   90   95

Leu Ser Lys Thr Tyr Asn Thr Asn Ala Gln Val Pro Asp Ser Ala Gly
            100   105   110

Thr Ala Thr Ala Tyr Leu Cys Gly Val Lys Ala Asn Glu Gly Thr Val
        115   120   125

Gly Val Ser Ala Ala Thr Glu Arg Ser Arg Cys Asn Thr Thr Gln Gly
    130   135   140

Asn Glu Val Thr Ser Ile Leu Arg Trp Ala Lys Asp Ala Gly Lys Ser
145   150   155   160

Val Gly Ile Val Thr Thr Thr Arg Val Asn His Ala Thr Pro Ser Ala
                165   170   175

Ala Tyr Ala His Ser Ala Asp Arg Asp Trp Tyr Ser Asp Asn Glu Met
            180   185   190

```
Pro Pro Glu Ala Leu Ser Gln Gly Cys Lys Asp Ile Ala Tyr Gln Leu
        195                 200                 205

Met His Asn Ile Arg Asp Ile Asp Val Ile Met Gly Gly Gly Arg Lys
    210                 215                 220

Tyr Met Tyr Pro Lys Asn Lys Thr Asp Val Glu Tyr Glu Ser Asp Glu
225                 230                 235                 240

Lys Ala Arg Gly Thr Arg Leu Asp Gly Leu Asp Leu Val Asp Thr Trp
                245                 250                 255

Lys Ser Phe Lys Pro Arg Tyr Lys His Ser His Phe Ile Trp Asn Arg
            260                 265                 270

Thr Glu Leu Leu Thr Leu Asp Pro His Asn Val Asp Tyr Leu Leu Gly
        275                 280                 285

Leu Phe Glu Pro Gly Asp Met Gln Tyr Glu Leu Asn Arg Asn Asn Val
    290                 295                 300

Thr Asp Pro Ser Leu Ser Glu Met Val Val Val Ala Ile Gln Ile Leu
305                 310                 315                 320

Arg Lys Asn Pro Lys Gly Phe Phe Leu Leu Val Glu Gly Gly Arg Ile
                325                 330                 335

Asp His Gly His His Glu Gly Lys Ala Lys Gln Ala Leu His Glu Ala
            340                 345                 350

Val Glu Met Asp Arg Ala Ile Gly Gln Ala Gly Ser Leu Thr Ser Ser
        355                 360                 365

Glu Asp Thr Leu Thr Val Val Thr Ala Asp His Ser His Val Phe Thr
    370                 375                 380

Phe Gly Gly Tyr Thr Pro Arg Gly Asn Ser Ile Phe Gly Leu Ala Pro
385                 390                 395                 400

Met Leu Ser Asp Thr Asp Lys Lys Pro Phe Thr Ala Ile Leu Tyr Gly
                405                 410                 415

Asn Gly Pro Gly Tyr Lys Val Val Gly Gly Glu Arg Glu Asn Val Ser
```

```
            420                 425                 430

Met Val Asp Tyr Ala His Asn Asn Tyr Gln Ala Gln Ser Ala Val Pro
        435                 440                 445

Leu Arg His Glu Thr His Gly Gly Glu Asp Val Ala Val Phe Ser Lys
    450                 455                 460

Gly Pro Met Ala His Leu Leu His Gly Val His Glu Gln Asn Tyr Val
465                 470                 475                 480

Pro His Val Met Ala Tyr Ala Ala Cys Ile Gly Ala Asn Leu Gly His
                485                 490                 495

Cys Ala Pro Ala Ser Ser Ala Gly Ser Leu Ala Ala Gly Pro Leu Leu
            500                 505                 510

Leu Ala Leu Ala Leu Tyr Pro Leu Ser Val Leu Phe
        515                 520


<210> 4138
<211> 524
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 930; "

<220>
<221> source
<223> /note="Gene Symbol: ALPL; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline phosphatase, liver/bone/kidney; "

<220>
<221> source
<223> /note="Uniprot ID:  P05186; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000363973"

<400> 4138
Met Ile Ser Pro Phe Leu Val Leu Ala Ile Gly Thr Cys Leu Thr Asn
1               5                   10                  15
```

```
Ser Leu Val Pro Glu Lys Glu Lys Asp Pro Lys Tyr Trp Arg Asp Gln
            20                  25                  30

Ala Gln Glu Thr Leu Lys Tyr Ala Leu Glu Leu Gln Lys Leu Asn Thr
        35                  40                  45

Asn Val Ala Lys Asn Val Ile Met Phe Leu Gly Asp Gly Met Gly Val
    50                  55                  60

Ser Thr Val Thr Ala Ala Arg Ile Leu Lys Gly Gln Leu His His Asn
65                  70                  75                  80

Pro Gly Glu Glu Thr Arg Leu Glu Met Asp Lys Phe Pro Phe Val Ala
                85                  90                  95

Leu Ser Lys Thr Tyr Asn Thr Asn Ala Gln Val Pro Asp Ser Ala Gly
            100                 105                 110

Thr Ala Thr Ala Tyr Leu Cys Gly Val Lys Ala Asn Glu Gly Thr Val
        115                 120                 125

Gly Val Ser Ala Ala Thr Glu Arg Ser Arg Cys Asn Thr Thr Gln Gly
    130                 135                 140

Asn Glu Val Thr Ser Ile Leu Arg Trp Ala Lys Asp Ala Gly Lys Ser
145                 150                 155                 160

Val Gly Ile Val Thr Thr Thr Arg Val Asn His Ala Thr Pro Ser Ala
                165                 170                 175

Ala Tyr Ala His Ser Ala Asp Arg Asp Trp Tyr Ser Asp Asn Glu Met
            180                 185                 190

Pro Pro Glu Ala Leu Ser Gln Gly Cys Lys Asp Ile Ala Tyr Gln Leu
        195                 200                 205

Met His Asn Ile Arg Asp Ile Asp Val Ile Met Gly Gly Gly Arg Lys
    210                 215                 220

Tyr Met Tyr Pro Lys Asn Lys Thr Asp Val Glu Tyr Glu Ser Asp Glu
225                 230                 235                 240
```

```
Lys Ala Arg Gly Thr Arg Leu Asp Gly Leu Asp Leu Val Asp Thr Trp
                245                 250                 255

Lys Ser Phe Lys Pro Arg Tyr Lys His Ser His Phe Ile Trp Asn Arg
            260                 265                 270

Thr Glu Leu Leu Thr Leu Asp Pro His Asn Val Asp Tyr Leu Leu Gly
        275                 280                 285

Leu Phe Glu Pro Gly Asp Met Gln Tyr Glu Leu Asn Arg Asn Asn Val
    290                 295                 300

Thr Asp Pro Ser Leu Ser Glu Met Val Val Val Ala Ile Gln Ile Leu
305                 310                 315                 320

Arg Lys Asn Pro Lys Gly Phe Phe Leu Leu Val Glu Gly Gly Arg Ile
                325                 330                 335

Asp His Gly His His Glu Gly Lys Ala Lys Gln Ala Leu His Glu Ala
            340                 345                 350

Val Glu Met Asp Arg Ala Ile Gly Gln Ala Gly Ser Leu Thr Ser Ser
        355                 360                 365

Glu Asp Thr Leu Thr Val Val Thr Ala Asp His Ser His Val Phe Thr
    370                 375                 380

Phe Gly Gly Tyr Thr Pro Arg Gly Asn Ser Ile Phe Gly Leu Ala Pro
385                 390                 395                 400

Met Leu Ser Asp Thr Asp Lys Lys Pro Phe Thr Ala Ile Leu Tyr Gly
                405                 410                 415

Asn Gly Pro Gly Tyr Lys Val Val Gly Gly Glu Arg Glu Asn Val Ser
            420                 425                 430

Met Val Asp Tyr Ala His Asn Asn Tyr Gln Ala Gln Ser Ala Val Pro
        435                 440                 445

Leu Arg His Glu Thr His Gly Gly Glu Asp Val Ala Val Phe Ser Lys
    450                 455                 460

Gly Pro Met Ala His Leu Leu His Gly Val His Glu Gln Asn Tyr Val
```

```
465                 470                 475                 480

Pro His Val Met Ala Tyr Ala Ala Cys Ile Gly Ala Asn Leu Gly His
                485                 490                 495

Cys Ala Pro Ala Ser Ser Ala Gly Ser Leu Ala Ala Gly Pro Leu Leu
            500                 505                 510

Leu Ala Leu Ala Leu Tyr Pro Leu Ser Val Leu Phe
        515                 520


<210> 4139
<211> 447
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 930; "

<220>
<221> source
<223> /note="Gene Symbol: ALPL; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline phosphatase, liver/bone/kidney; "

<220>
<221> source
<223> /note="Uniprot ID:  P05186; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437674"

<400> 4139
Met Pro Trp Ser Phe Arg Ser Ser Thr Pro Thr Trp Leu Arg Met Ser
1               5                   10                  15

Ser Cys Ser Trp Glu Met Thr Tyr Asn Thr Asn Ala Gln Val Pro Asp
            20                  25                  30

Ser Ala Gly Thr Ala Thr Ala Tyr Leu Cys Gly Val Lys Ala Asn Glu
        35                  40                  45

Gly Thr Val Gly Val Ser Ala Ala Thr Glu Arg Ser Arg Cys Asn Thr
    50                  55                  60
```

```
Thr Gln Gly Asn Glu Val Thr Ser Ile Leu Arg Trp Ala Lys Asp Ala
65                  70                  75                  80

Gly Lys Ser Val Gly Ile Val Thr Thr Thr Arg Val Asn His Ala Thr
                85                  90                  95

Pro Ser Ala Ala Tyr Ala His Ser Ala Asp Arg Asp Trp Tyr Ser Asp
            100                 105                 110

Asn Glu Met Pro Pro Glu Ala Leu Ser Gln Gly Cys Lys Asp Ile Ala
        115                 120                 125

Tyr Gln Leu Met His Asn Ile Arg Asp Ile Asp Val Ile Met Gly Gly
    130                 135                 140

Gly Arg Lys Tyr Met Tyr Pro Lys Asn Lys Thr Asp Val Glu Tyr Glu
145                 150                 155                 160

Ser Asp Glu Lys Ala Arg Gly Thr Arg Leu Asp Gly Leu Asp Leu Val
                165                 170                 175

Asp Thr Trp Lys Ser Phe Lys Pro Arg Tyr Lys His Ser His Phe Ile
            180                 185                 190

Trp Asn Arg Thr Glu Leu Leu Thr Leu Asp Pro His Asn Val Asp Tyr
        195                 200                 205

Leu Leu Gly Leu Phe Glu Pro Gly Asp Met Gln Tyr Glu Leu Asn Arg
    210                 215                 220

Asn Asn Val Thr Asp Pro Ser Leu Ser Glu Met Val Val Val Ala Ile
225                 230                 235                 240

Gln Ile Leu Arg Lys Asn Pro Lys Gly Phe Phe Leu Leu Val Glu Gly
                245                 250                 255

Gly Arg Ile Asp His Gly His His Glu Gly Lys Ala Lys Gln Ala Leu
            260                 265                 270

His Glu Ala Val Glu Met Asp Arg Ala Ile Gly Gln Ala Gly Ser Leu
        275                 280                 285
```

```
Thr Ser Ser Glu Asp Thr Leu Thr Val Val Thr Ala Asp His Ser His
    290                 295                 300

Val Phe Thr Phe Gly Gly Tyr Thr Pro Arg Gly Asn Ser Ile Phe Gly
305                 310                 315                 320

Leu Ala Pro Met Leu Ser Asp Thr Asp Lys Lys Pro Phe Thr Ala Ile
                325                 330                 335

Leu Tyr Gly Asn Gly Pro Gly Tyr Lys Val Val Gly Gly Glu Arg Glu
            340                 345                 350

Asn Val Ser Met Val Asp Tyr Ala His Asn Asn Tyr Gln Ala Gln Ser
        355                 360                 365

Ala Val Pro Leu Arg His Glu Thr His Gly Gly Glu Asp Val Ala Val
    370                 375                 380

Phe Ser Lys Gly Pro Met Ala His Leu Leu His Gly Val His Glu Gln
385                 390                 395                 400

Asn Tyr Val Pro His Val Met Ala Tyr Ala Ala Cys Ile Gly Ala Asn
                405                 410                 415

Leu Gly His Cys Ala Pro Ala Ser Ser Ala Gly Ser Leu Ala Ala Gly
            420                 425                 430

Pro Leu Leu Leu Ala Leu Ala Leu Tyr Pro Leu Ser Val Leu Phe
        435                 440                 445


<210> 4140
<211> 469
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 930; "

<220>
<221> source
<223> /note="Gene Symbol: ALPL; "

<220>
<221> source
<223> /note="Gene Name:
      alkaline phosphatase, liver/bone/kidney; "
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<220>
<221> source
<223> /note="Uniprot ID: P05186; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442672"

<400> 4140
Met Phe Leu Gly Asp Gly Met Gly Val Ser Thr Val Thr Ala Ala Arg
1   5   10   15

Ile Leu Lys Gly Gln Leu His His Asn Pro Gly Glu Glu Thr Arg Leu
            20   25   30

Glu Met Asp Lys Phe Pro Phe Val Ala Leu Ser Lys Thr Tyr Asn Thr
        35   40   45

Asn Ala Gln Val Pro Asp Ser Ala Gly Thr Ala Thr Ala Tyr Leu Cys
    50   55   60

Gly Val Lys Ala Asn Glu Gly Thr Val Gly Val Ser Ala Ala Thr Glu
65   70   75   80

Arg Ser Arg Cys Asn Thr Thr Gln Gly Asn Glu Val Thr Ser Ile Leu
                85   90   95

Arg Trp Ala Lys Asp Ala Gly Lys Ser Val Gly Ile Val Thr Thr Thr
            100   105   110

Arg Val Asn His Ala Thr Pro Ser Ala Ala Tyr Ala His Ser Ala Asp
        115   120   125

Arg Asp Trp Tyr Ser Asp Asn Glu Met Pro Pro Glu Ala Leu Ser Gln
    130   135   140

Gly Cys Lys Asp Ile Ala Tyr Gln Leu Met His Asn Ile Arg Asp Ile
145   150   155   160

Asp Val Ile Met Gly Gly Gly Arg Lys Tyr Met Tyr Pro Lys Asn Lys
                165   170   175

Thr Asp Val Glu Tyr Glu Ser Asp Glu Lys Ala Arg Gly Thr Arg Leu
            180   185   190

```
Asp Gly Leu Asp Leu Val Asp Thr Trp Lys Ser Phe Lys Pro Arg Tyr
        195                 200                 205

Lys His Ser His Phe Ile Trp Asn Arg Thr Glu Leu Leu Thr Leu Asp
    210                 215                 220

Pro His Asn Val Asp Tyr Leu Leu Gly Leu Phe Glu Pro Gly Asp Met
225                 230                 235                 240

Gln Tyr Glu Leu Asn Arg Asn Asn Val Thr Asp Pro Ser Leu Ser Glu
                245                 250                 255

Met Val Val Val Ala Ile Gln Ile Leu Arg Lys Asn Pro Lys Gly Phe
            260                 265                 270

Phe Leu Leu Val Glu Gly Gly Arg Ile Asp His Gly His His Glu Gly
        275                 280                 285

Lys Ala Lys Gln Ala Leu His Glu Ala Val Glu Met Asp Arg Ala Ile
    290                 295                 300

Gly Gln Ala Gly Ser Leu Thr Ser Ser Glu Asp Thr Leu Thr Val Val
305                 310                 315                 320

Thr Ala Asp His Ser His Val Phe Thr Phe Gly Gly Tyr Thr Pro Arg
                325                 330                 335

Gly Asn Ser Ile Phe Gly Leu Ala Pro Met Leu Ser Asp Thr Asp Lys
            340                 345                 350

Lys Pro Phe Thr Ala Ile Leu Tyr Gly Asn Gly Pro Gly Tyr Lys Val
        355                 360                 365

Val Gly Gly Glu Arg Glu Asn Val Ser Met Val Asp Tyr Ala His Asn
    370                 375                 380

Asn Tyr Gln Ala Gln Ser Ala Val Pro Leu Arg His Glu Thr His Gly
385                 390                 395                 400

Gly Glu Asp Val Ala Val Phe Ser Lys Gly Pro Met Ala His Leu Leu
                405                 410                 415
```

```
His Gly Val His Glu Gln Asn Tyr Val Pro His Val Met Ala Tyr Ala
            420                 425                 430

Ala Cys Ile Gly Ala Asn Leu Gly His Cys Ala Pro Ala Ser Ser Ala
        435                 440                 445

Gly Ser Leu Ala Ala Gly Pro Leu Leu Leu Ala Leu Ala Leu Tyr Pro
    450                 455                 460

Leu Ser Val Leu Phe
465
```

<210> 4141
<211> 535
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 931; "

<220>
<221> source
<223> /note="Gene Symbol: ALPP; "

<220>
<221> source
<223> /note="Gene Name:
alkaline phosphatase, placental; "

<220>
<221> source
<223> /note="Uniprot ID: P05187; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375881"

<400> 4141

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Met Leu Gly Pro Cys Met Leu Leu Leu Leu Leu Leu Leu Gly Leu Arg
1               5                  10                  15

Leu Gln Leu Ser Leu Gly Ile Ile Pro Val Glu Glu Glu Asn Pro Asp
            20                  25                  30

Phe Trp Asn Arg Glu Ala Ala Glu Ala Leu Gly Ala Ala Lys Lys Leu
        35                  40                  45

Gln Pro Ala Gln Thr Ala Ala Lys Asn Leu Ile Ile Phe Leu Gly Asp
    50                  55                  60
```

```
Gly Met Gly Val Ser Thr Val Thr Ala Ala Arg Ile Leu Lys Gly Gln
65                  70                  75                  80

Lys Lys Asp Lys Leu Gly Pro Glu Ile Pro Leu Ala Met Asp Arg Phe
                85                  90                  95

Pro Tyr Val Ala Leu Ser Lys Thr Tyr Asn Val Asp Lys His Val Pro
            100                 105                 110

Asp Ser Gly Ala Thr Ala Thr Ala Tyr Leu Cys Gly Val Lys Gly Asn
        115                 120                 125

Phe Gln Thr Ile Gly Leu Ser Ala Ala Ala Arg Phe Asn Gln Cys Asn
    130                 135                 140

Thr Thr Arg Gly Asn Glu Val Ile Ser Val Met Asn Arg Ala Lys Lys
145                 150                 155                 160

Ala Gly Lys Ser Val Gly Val Val Thr Thr Thr Arg Val Gln His Ala
                165                 170                 175

Ser Pro Ala Gly Thr Tyr Ala His Thr Val Asn Arg Asn Trp Tyr Ser
            180                 185                 190

Asp Ala Asp Val Pro Ala Ser Ala Arg Gln Glu Gly Cys Gln Asp Ile
        195                 200                 205

Ala Thr Gln Leu Ile Ser Asn Met Asp Ile Asp Val Ile Leu Gly Gly
    210                 215                 220

Gly Arg Lys Tyr Met Phe Arg Met Gly Thr Pro Asp Pro Glu Tyr Pro
225                 230                 235                 240

Asp Asp Tyr Ser Gln Gly Gly Thr Arg Leu Asp Gly Lys Asn Leu Val
                245                 250                 255

Gln Glu Trp Leu Ala Lys Arg Gln Gly Ala Arg Tyr Val Trp Asn Arg
            260                 265                 270

Thr Glu Leu Met Gln Ala Ser Leu Asp Pro Ser Val Thr His Leu Met
        275                 280                 285
```

```
Gly Leu Phe Glu Pro Gly Asp Met Lys Tyr Glu Ile His Arg Asp Ser
    290                 295                 300

Thr Leu Asp Pro Ser Leu Met Glu Met Thr Glu Ala Ala Leu Arg Leu
305                 310                 315                 320

Leu Ser Arg Asn Pro Arg Gly Phe Phe Leu Phe Val Glu Gly Gly Arg
                325                 330                 335

Ile Asp His Gly His His Glu Ser Arg Ala Tyr Arg Ala Leu Thr Glu
            340                 345                 350

Thr Ile Met Phe Asp Asp Ala Ile Glu Arg Ala Gly Gln Leu Thr Ser
        355                 360                 365

Glu Glu Asp Thr Leu Ser Leu Val Thr Ala Asp His Ser His Val Phe
    370                 375                 380

Ser Phe Gly Gly Tyr Pro Leu Arg Gly Ser Ser Ile Phe Gly Leu Ala
385                 390                 395                 400

Pro Gly Lys Ala Arg Asp Arg Lys Ala Tyr Thr Val Leu Leu Tyr Gly
                405                 410                 415

Asn Gly Pro Gly Tyr Val Leu Lys Asp Gly Ala Arg Pro Asp Val Thr
            420                 425                 430

Glu Ser Glu Ser Gly Ser Pro Glu Tyr Arg Gln Gln Ser Ala Val Pro
        435                 440                 445

Leu Asp Glu Glu Thr His Ala Gly Glu Asp Val Ala Val Phe Ala Arg
    450                 455                 460

Gly Pro Gln Ala His Leu Val His Gly Val Gln Glu Gln Thr Phe Ile
465                 470                 475                 480

Ala His Val Met Ala Phe Ala Ala Cys Leu Glu Pro Tyr Thr Ala Cys
                485                 490                 495

Asp Leu Ala Pro Pro Ala Gly Thr Thr Asp Ala Ala His Pro Gly Arg
            500                 505                 510
```

Ser Val Val Pro Ala Leu Leu Pro Leu Leu Ala Gly Thr Leu Leu Leu
515 520 525

Leu Glu Thr Ala Thr Ala Pro
530 535

<210> 4142
<211> 532
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 932; "

<220>
<221> source
<223> /note="Gene Symbol: ALPPL2; "

<220>
<221> source
<223> /note="Gene Name:
alkaline phosphatase, placental-like 2; "

<220>
<221> source
<223> /note="Uniprot ID: P10696; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295453"

<400> 4142
Met Gln Gly Pro Trp Val Leu Leu Leu Leu Gly Leu Arg Leu Gln Leu
1 5 10 15

Ser Leu Gly Ile Ile Pro Val Glu Glu Glu Asn Pro Asp Phe Trp Asn
20 25 30

Arg Gln Ala Ala Glu Ala Leu Gly Ala Ala Lys Lys Leu Gln Pro Ala
35 40 45

Gln Thr Ala Ala Lys Asn Leu Ile Ile Phe Leu Gly Asp Gly Met Gly
50 55 60

Val Ser Thr Val Thr Ala Ala Arg Ile Leu Lys Gly Gln Lys Lys Asp
65 70 75 80

Lys Leu Gly Pro Glu Thr Phe Leu Ala Met Asp Arg Phe Pro Tyr Val
85 90 95

```
Ala Leu Ser Lys Thr Tyr Ser Val Asp Lys His Val Pro Asp Ser Gly
            100                 105                 110

Ala Thr Ala Thr Ala Tyr Leu Cys Gly Val Lys Gly Asn Phe Gln Thr
        115                 120                 125

Ile Gly Leu Ser Ala Ala Ala Arg Phe Asn Gln Cys Asn Thr Thr Arg
    130                 135                 140

Gly Asn Glu Val Ile Ser Val Met Asn Arg Ala Lys Lys Ala Gly Lys
145                 150                 155                 160

Ser Val Gly Val Val Thr Thr Thr Arg Val Gln His Ala Ser Pro Ala
                165                 170                 175

Gly Ala Tyr Ala His Thr Val Asn Arg Asn Trp Tyr Ser Asp Ala Asp
            180                 185                 190

Val Pro Ala Ser Ala Arg Gln Glu Gly Cys Gln Asp Ile Ala Thr Gln
        195                 200                 205

Leu Ile Ser Asn Met Asp Ile Asp Val Ile Leu Gly Gly Gly Arg Lys
    210                 215                 220

Tyr Met Phe Pro Met Gly Thr Pro Asp Pro Glu Tyr Pro Asp Asp Tyr
225                 230                 235                 240

Ser Gln Gly Gly Thr Arg Leu Asp Gly Lys Asn Leu Val Gln Glu Trp
                245                 250                 255

Leu Ala Lys His Gln Gly Ala Arg Tyr Val Trp Asn Arg Thr Glu Leu
            260                 265                 270

Leu Gln Ala Ser Leu Asp Pro Ser Val Thr His Leu Met Gly Leu Phe
        275                 280                 285

Glu Pro Gly Asp Met Lys Tyr Glu Ile His Arg Asp Ser Thr Leu Asp
    290                 295                 300

Pro Ser Leu Met Glu Met Thr Glu Ala Ala Leu Leu Leu Leu Ser Arg
305                 310                 315                 320
```

Asn Pro Arg Gly Phe Phe Leu Phe Val Glu Gly Gly Arg Ile Asp His
325 330 335

Gly His His Glu Ser Arg Ala Tyr Arg Ala Leu Thr Glu Thr Ile Met
340 345 350

Phe Asp Asp Ala Ile Glu Arg Ala Gly Gln Leu Thr Ser Glu Glu Asp
355 360 365

Thr Leu Ser Leu Val Thr Ala Asp His Ser His Val Phe Ser Phe Gly
370 375 380

Gly Tyr Pro Leu Arg Gly Ser Ser Ile Phe Gly Leu Ala Pro Gly Lys
385 390 395 400

Ala Arg Asp Arg Lys Ala Tyr Thr Val Leu Leu Tyr Gly Asn Gly Pro
405 410 415

Gly Tyr Val Leu Lys Asp Gly Ala Arg Pro Asp Val Thr Glu Ser Glu
420 425 430

Ser Gly Ser Pro Glu Tyr Arg Gln Gln Ser Ala Val Pro Leu Asp Gly
435 440 445

Glu Thr His Ala Gly Glu Asp Val Ala Val Phe Ala Arg Gly Pro Gln
450 455 460

Ala His Leu Val His Gly Val Gln Glu Gln Thr Phe Ile Ala His Val
465 470 475 480

Met Ala Phe Ala Ala Cys Leu Glu Pro Tyr Thr Ala Cys Asp Leu Ala
485 490 495

Pro Arg Ala Gly Thr Thr Asp Ala Ala His Pro Gly Pro Ser Val Val
500 505 510

Pro Ala Leu Leu Pro Leu Leu Ala Gly Thr Leu Leu Leu Leu Gly Thr
515 520 525

Ala Thr Ala Pro
530

<210> 4143
<211> 531
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 932; "

<220>
<221> source
<223> /note="Gene Symbol: ALPPL2; "

<220>
<221> source
<223> /note="Gene Name:
alkaline phosphatase, placental-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483564"

<400> 4143
Met Gln Gly Pro Trp Val Leu Leu Leu Leu Gly Leu Arg Leu Gln Leu
1 5 10 15

Ser Leu Gly Ile Ile Pro Val Glu Glu Glu Asn Pro Asp Phe Trp Asn
20 25 30

Arg Gln Ala Ala Glu Ala Leu Gly Ala Ala Lys Lys Leu Gln Pro Ala
35 40 45

Gln Thr Ala Ala Lys Asn Leu Ile Ile Phe Leu Gly Asp Gly Met Gly
50 55 60

Val Ser Thr Val Thr Ala Ala Arg Ile Leu Lys Gly Gln Lys Lys Asp
65 70 75 80

Lys Leu Gly Pro Glu Thr Phe Leu Ala Met Asp Arg Phe Pro Tyr Val
85 90 95

Ala Leu Ser Lys Thr Tyr Ser Val Asp Lys His Val Pro Asp Ser Gly
100 105 110

Ala Thr Ala Thr Ala Tyr Leu Cys Gly Val Lys Gly Asn Phe Gln Thr
115 120 125

Ile Gly Leu Ser Ala Ala Ala Arg Phe Asn Gln Cys Asn Thr Thr Arg
130 135 140

```
Gly Asn Glu Val Ile Ser Val Met Asn Arg Ala Lys Lys Ala Gly Lys
145                 150                 155                 160

Ser Val Gly Val Val Thr Thr Thr Arg Val Gln His Ala Ser Pro Ala
                165                 170                 175

Gly Ala Tyr Ala His Thr Val Asn Arg Asn Trp Tyr Ser Asp Ala Asp
            180                 185                 190

Val Pro Ala Ser Ala Arg Gln Glu Gly Cys Gln Asp Ile Ala Thr Gln
        195                 200                 205

Leu Ile Ser Asn Met Asp Ile Asp Val Ile Leu Gly Gly Gly Arg Lys
    210                 215                 220

Tyr Met Phe Pro Met Gly Thr Pro Asp Pro Glu Tyr Pro Asp Asp Tyr
225                 230                 235                 240

Ser Gln Gly Gly Thr Arg Leu Asp Gly Lys Asn Leu Val Gln Glu Trp
                245                 250                 255

Leu Ala Lys His Gln Gly Ala Arg Tyr Val Trp Asn Arg Thr Glu Leu
            260                 265                 270

Leu Gln Ala Ser Leu Asp Pro Ser Val Thr His Leu Met Gly Leu Phe
        275                 280                 285

Glu Pro Gly Asp Met Lys Tyr Glu Ile His Arg Asp Ser Thr Leu Asp
    290                 295                 300

Pro Ser Leu Met Glu Met Thr Glu Ala Ala Leu Leu Leu Leu Ser Arg
305                 310                 315                 320

Asn Pro Arg Gly Phe Phe Leu Phe Val Glu Gly Gly Arg Ile Asp His
                325                 330                 335

Gly His His Glu Ser Arg Ala Tyr Arg Ala Leu Thr Glu Thr Ile Met
            340                 345                 350

Phe Asp Asp Ala Ile Glu Arg Ala Gly Gln Leu Thr Ser Glu Glu Asp
        355                 360                 365
```

```
Thr Leu Ser Leu Val Thr Ala Asp His Ser His Val Phe Ser Phe Gly
    370                 375                 380

Gly Tyr Pro Leu Arg Gly Ser Ser Ile Phe Gly Leu Ala Pro Gly Lys
385                 390                 395                 400

Ala Arg Asp Arg Lys Ala Tyr Thr Val Leu Leu Tyr Gly Asn Gly Pro
                405                 410                 415

Gly Tyr Val Leu Lys Asp Gly Ala Arg Pro Asp Val Thr Glu Ser Glu
            420                 425                 430

Ser Gly Ser Pro Glu Tyr Arg Gln Gln Ser Ala Val Pro Leu Thr Glu
        435                 440                 445

Thr His Ala Gly Glu Asp Val Ala Val Phe Ala Arg Gly Pro Gln Ala
    450                 455                 460

His Leu Val His Gly Val Gln Glu Gln Thr Phe Ile Ala His Val Met
465                 470                 475                 480

Ala Phe Ala Ala Cys Leu Glu Pro Tyr Thr Ala Cys Asp Leu Ala Pro
                485                 490                 495

Arg Ala Gly Thr Thr Asp Ala Ala His Pro Gly Pro Ser Val Val Pro
            500                 505                 510

Ala Leu Leu Pro Leu Leu Ala Gly Thr Leu Leu Leu Leu Gly Thr Ala
        515                 520                 525

Thr Ala Pro
    530


<210> 4144
<211> 389
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 933; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH1; "
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<220>
<221> source
<223> /note="Gene Name:
alkB homolog 1, histone H2A
dioxygenase; "

<220>
<221> source
<223> /note="Uniprot ID: Q13686; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000216489"

<400> 4144

```
Met Gly Lys Met Ala Ala Ala Val Gly Ser Val Ala Thr Leu Ala Thr
1               5                  10                  15

Glu Pro Gly Glu Asp Ala Phe Arg Lys Leu Phe Arg Phe Tyr Arg Gln
            20                  25                  30

Ser Arg Pro Gly Thr Ala Asp Leu Glu Gly Val Ile Asp Phe Ser Ala
        35                  40                  45

Ala His Ala Ala Arg Gly Lys Gly Pro Gly Ala Gln Lys Val Ile Lys
    50                  55                  60

Ser Gln Leu Asn Val Ser Ser Val Ser Glu Gln Asn Ala Tyr Arg Ala
65                  70                  75                  80

Gly Leu Gln Pro Val Ser Lys Trp Gln Ala Tyr Gly Leu Lys Gly Tyr
                85                  90                  95

Pro Gly Phe Ile Phe Ile Pro Asn Pro Phe Leu Pro Gly Tyr Gln Trp
            100                 105                 110

His Trp Val Lys Gln Cys Leu Lys Leu Tyr Ser Gln Lys Pro Asn Val
        115                 120                 125

Cys Asn Leu Asp Lys His Met Ser Lys Glu Glu Thr Gln Asp Leu Trp
    130                 135                 140

Glu Gln Ser Lys Glu Phe Leu Arg Tyr Lys Glu Ala Thr Lys Arg Arg
145                 150                 155                 160

Pro Arg Ser Leu Leu Glu Lys Leu Arg Trp Val Thr Val Gly Tyr His
```

```
                165                 170                 175

Tyr Asn Trp Asp Ser Lys Lys Tyr Ser Ala Asp His Tyr Thr Pro Phe
            180                 185                 190

Pro Ser Asp Leu Gly Phe Leu Ser Glu Gln Val Ala Ala Ala Cys Gly
        195                 200                 205

Phe Glu Asp Phe Arg Ala Glu Ala Gly Ile Leu Asn Tyr Tyr Arg Leu
    210                 215                 220

Asp Ser Thr Leu Gly Ile His Val Asp Arg Ser Glu Leu Asp His Ser
225                 230                 235                 240

Lys Pro Leu Leu Ser Phe Ser Phe Gly Gln Ser Ala Ile Phe Leu Leu
                245                 250                 255

Gly Gly Leu Gln Arg Asp Glu Ala Pro Thr Ala Met Phe Met His Ser
            260                 265                 270

Gly Asp Ile Met Ile Met Ser Gly Phe Ser Arg Leu Leu Asn His Ala
        275                 280                 285

Val Pro Arg Val Leu Pro Asn Pro Glu Gly Glu Gly Leu Pro His Cys
    290                 295                 300

Leu Glu Ala Pro Leu Pro Ala Val Leu Pro Arg Asp Ser Met Val Glu
305                 310                 315                 320

Pro Cys Ser Met Glu Asp Trp Gln Val Cys Ala Ser Tyr Leu Lys Thr
                325                 330                 335

Ala Arg Val Asn Met Thr Val Arg Gln Val Leu Ala Thr Asp Gln Asn
            340                 345                 350

Phe Pro Leu Glu Pro Ile Glu Asp Glu Lys Arg Asp Ile Ser Thr Glu
        355                 360                 365

Gly Phe Cys His Leu Asp Asp Gln Asn Ser Glu Val Lys Arg Ala Arg
    370                 375                 380

Ile Asn Pro Asp Ser
385
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<210> 4145
<211> 112
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 933; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH1; "

<220>
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<223> /note="Gene Name:
alkB homolog 1, histone H2A
dioxygenase; "

<220>
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<223> /note="ENSP ID: ENSP00000451386"

<400> 4145
Ala Ala Ala Val Gly Ser Val Ala Thr Leu Ala Thr Glu Pro Gly Glu
1 5 10 15

Asp Ala Phe Arg Lys Leu Phe Arg Phe Tyr Arg Gln Ser Arg Pro Gly
20 25 30

Thr Ala Asp Leu Glu Gly Val Ile Asp Phe Ser Ala Ala His Ala Ala
35 40 45

Arg Gly Lys Gly Pro Gly Ala Gln Lys Val Ile Lys Ser Gln Leu Asn
50 55 60

Val Ser Ser Val Ser Glu Gln Asn Ala Tyr Arg Ala Gly Leu Gln Pro
65 70 75 80

Val Ser Lys Trp Gln Ala Tyr Gly Leu Lys Gly Tyr Pro Gly Ile Lys
85 90 95

Lys Arg Leu Asn Gly Asp Pro Glu Val Tyr Trp Arg Asn Cys Val Gly
100 105 110

<210> 4146
<211> 116
<212> PRT

<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALKBH1; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 1, histone H2A
dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451886"

<400> 4146
Met Gly Lys Met Ala Ala Ala Val Gly Ser Val Ala Thr Leu Ala Thr
1 5 10 15

Glu Pro Gly Glu Asp Ala Phe Arg Lys Leu Phe Arg Phe Tyr Arg Gln
20 25 30

Ser Arg Pro Gly Thr Ala Asp Leu Glu Gly Val Ile Asp Phe Ser Ala
35 40 45

Ala His Ala Ala Arg Gly Lys Gly Pro Gly Ala Gln Lys Val Ile Lys
50 55 60

Ser Gln Leu Asn Val Ser Ser Val Ser Glu Gln Asn Ala Tyr Arg Ala
65 70 75 80

Gly Leu Gln Pro Val Ser Lys Trp Gln Ala Tyr Gly Leu Lys Gly Tyr
85 90 95

Pro Gly Ile Lys Lys Arg Leu Asn Gly Asp Pro Glu Val Tyr Trp Arg
100 105 110

Asn Cys Val Gly
115

<210> 4147
<211> 261
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 934; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH2; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 2, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="Uniprot ID: Q6NS38; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343021"

<400> 4147

```
Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu Arg Lys
1               5                   10                  15


Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu Gly Gly
            20                  25                  30


Asp Lys Glu Ser Thr Arg Lys Arg Pro Arg Arg Glu Ala Pro Gly Asn
        35                  40                  45


Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala Glu Gly
    50                  55                  60


Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala Asp Glu
65                  70                  75                  80


Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly Ala Leu
                85                  90                  95


Ala Arg Val Gln Val Phe Gly Lys Trp His Ser Val Pro Arg Lys Gln
            100                 105                 110


Ala Thr Tyr Gly Asp Ala Gly Leu Thr Tyr Thr Phe Ser Gly Leu Thr
        115                 120                 125


Leu Ser Pro Lys Pro Trp Ile Pro Val Leu Glu Arg Ile Arg Asp His
```

```
    130                 135                 140

Val Ser Gly Val Thr Gly Gln Thr Phe Asn Phe Val Leu Ile Asn Arg
145                 150                 155                 160

Tyr Lys Asp Gly Cys Asp His Ile Gly Glu His Arg Asp Asp Glu Arg
                165                 170                 175

Glu Leu Ala Pro Gly Ser Pro Ile Ala Ser Val Ser Phe Gly Ala Cys
            180                 185                 190

Arg Asp Phe Val Phe Arg His Lys Asp Ser Arg Gly Lys Ser Pro Ser
        195                 200                 205

Arg Arg Val Ala Val Val Arg Leu Pro Leu Ala His Gly Ser Leu Leu
    210                 215                 220

Met Met Asn His Pro Thr Asn Thr His Trp Tyr His Ser Leu Pro Val
225                 230                 235                 240

Arg Lys Lys Val Leu Ala Pro Arg Val Asn Leu Thr Phe Arg Lys Ile
                245                 250                 255

Leu Leu Thr Lys Lys
            260


<210> 4148
<211> 261
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 934; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH2; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 2, alpha-ketoglutarate-dependent
      dioxygenase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6NS38; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000398181"

<400> 4148
Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu Arg Lys
1   5   10   15

Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu Gly Gly
            20   25   30

Asp Lys Glu Ser Thr Arg Lys Arg Pro Arg Arg Glu Ala Pro Gly Asn
        35   40   45

Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala Glu Gly
    50   55   60

Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala Asp Glu
65   70   75   80

Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly Ala Leu
                85   90   95

Ala Arg Val Gln Val Phe Gly Lys Trp His Ser Val Pro Arg Lys Gln
            100   105   110

Ala Thr Tyr Gly Asp Ala Gly Leu Thr Tyr Thr Phe Ser Gly Leu Thr
        115   120   125

Leu Ser Pro Lys Pro Trp Ile Pro Val Leu Glu Arg Ile Arg Asp His
    130   135   140

Val Ser Gly Val Thr Gly Gln Thr Phe Asn Phe Val Leu Ile Asn Arg
145   150   155   160

Tyr Lys Asp Gly Cys Asp His Ile Gly Glu His Arg Asp Asp Glu Arg
                165   170   175

Glu Leu Ala Pro Gly Ser Pro Ile Ala Ser Val Ser Phe Gly Ala Cys
            180   185   190

Arg Asp Phe Val Phe Arg His Lys Asp Ser Arg Gly Lys Ser Pro Ser
        195   200   205

```
Arg Arg Val Ala Val Val Arg Leu Pro Leu Ala His Gly Ser Leu Leu
    210                 215                 220

Met Met Asn His Pro Thr Asn Thr His Trp Tyr His Ser Leu Pro Val
225                 230                 235                 240

Arg Lys Lys Val Leu Ala Pro Arg Val Asn Leu Thr Phe Arg Lys Ile
                245                 250                 255

Leu Leu Thr Lys Lys
            260


<210> 4149
<211> 157
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 934; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH2; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 2, alpha-ketoglutarate-dependent
      dioxygenase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6NS38; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399820"

<400> 4149
Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu Arg Lys
1               5                   10                  15

Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu Gly Gly
            20                  25                  30

Asp Lys Glu Ser Thr Arg Lys Arg Pro Arg Arg Glu Ala Pro Gly Asn
        35                  40                  45
```

```
Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala Glu Gly
    50                  55                  60

Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala Asp Glu
65                  70                  75                  80

Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly Ile Lys
                85                  90                  95

Met Ala Val Thr Thr Ser Gly Ser Thr Glu Met Met Lys Glu Asn Trp
            100                 105                 110

Pro Leu Gly Ala Pro Leu Pro Leu Ser Pro Ser Val Pro Ala Glu Thr
        115                 120                 125

Leu Ser Ser Gly Ile Arg Ile Pro Val Gly Lys Ala Pro Pro Gly Gly
    130                 135                 140

Trp Arg Trp Ser Gly Cys Arg Trp Pro Thr Gly Ala Tyr
145                 150                 155


<210> 4150
<211> 150
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 934; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH2; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 2, alpha-ketoglutarate-dependent
      dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443042"

<400> 4150
Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu Arg Lys
1               5                   10                  15

Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu Gly Gly
```

```
            20                  25                  30

Asp Lys Glu Ser Thr Arg Lys Arg Pro Arg Arg Glu Ala Pro Gly Asn
        35                  40                  45

Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala Glu Gly
    50                  55                  60

Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala Asp Glu
65                  70                  75                  80

Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly Ala Leu
                85                  90                  95

Ala Arg Val Gln Val Phe Gly Lys Trp His Ser Val Pro Arg Lys Gln
            100                 105                 110

Ala Thr Tyr Gly Asp Ala Gly Leu Thr Tyr Thr Phe Ser Gly Leu Thr
        115                 120                 125

Leu Ser Pro Lys Pro Trp Ile Pro Val Leu Glu Arg Ile Arg Asp His
    130                 135                 140

Val Ser Gly Val Thr Gly
145                 150


<210> 4151
<211> 121
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 934; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH2; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 2, alpha-ketoglutarate-dependent
      dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000444103"
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<400> 4151
Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu Arg Lys
1   5   10   15

Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu Gly Gly
            20   25   30

Asp Lys Glu Ser Thr Arg Lys Arg Pro Arg Arg Glu Ala Pro Gly Asn
        35   40   45

Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala Glu Gly
    50   55   60

Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala Asp Glu
65   70   75   80

Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly Ala Leu
                85   90   95

Ala Arg Val Gln Val Phe Gly Lys Trp His Ser Val Pro Arg Lys Gln
            100   105   110

Ala Thr Tyr Gly Asp Ala Gly Leu Thr
        115   120

<210> 4152
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 934; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH2; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 2, alpha-ketoglutarate-dependent
      dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474702"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4152
Xaa Leu Leu Arg Lys Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro
1   5   10   15

Ala Val Leu Gly Gly Asp Lys Glu Ser Thr Arg Lys Arg Pro Arg Arg
            20   25   30

Glu Ala Pro Gly Asn Gly Gly His Ser Ala Gly Pro Ser Trp Arg His
        35   40   45

Ile Arg Ala Glu Gly Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys
    50   55   60

Ala Glu Ala Asp Glu Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr
65   70   75   80

Phe Thr Gly Ala Leu Ala Arg Val Gln Val Phe Gly Lys Trp His Ser
                85   90   95

Val Pro Arg Lys Gln Ala Thr Tyr Gly Asp Ala Gly Leu Thr Tyr Thr
            100   105   110

Phe Ser Gly Leu Thr Leu Ser Pro Lys Pro Trp Ile Pro Val Leu Glu
        115   120   125

Arg Ile Arg Asp His Val Ser Gly Val Thr Gly Gln Thr Phe Asn Phe
    130   135   140

Val Leu Ile Asn Arg
145

<210> 4153
<211> 157
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 934; "

<220>

<221> source
<223> /note="Gene Symbol: ALKBH2; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 2, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="Uniprot ID: Q6NS38; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478765"

<400> 4153

```
Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu Arg Lys
1               5                   10                  15

Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu Gly Gly
            20                  25                  30

Asp Lys Glu Ser Thr Arg Lys Arg Pro Arg Arg Glu Ala Pro Gly Asn
        35                  40                  45

Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala Glu Gly
    50                  55                  60

Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala Asp Glu
65                  70                  75                  80

Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly Ile Lys
                85                  90                  95

Met Ala Val Thr Thr Ser Gly Ser Thr Glu Met Met Lys Glu Asn Trp
            100                 105                 110

Pro Leu Gly Ala Pro Leu Pro Leu Ser Pro Ser Val Pro Ala Glu Thr
        115                 120                 125

Leu Ser Ser Gly Ile Arg Ile Pro Val Gly Lys Ala Pro Pro Gly Gly
    130                 135                 140

Trp Arg Trp Ser Gly Cys Arg Trp Pro Thr Gly Ala Tyr
145                 150                 155
```

<210> 4154
<211> 286
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 935; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH3; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 3, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="Uniprot ID: Q96Q83; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000302232"

<400> 4154
Met Glu Glu Lys Arg Arg Arg Ala Arg Val Gln Gly Ala Trp Ala Ala
1   5   10   15

Pro Val Lys Ser Gln Ala Ile Ala Gln Pro Ala Thr Thr Ala Lys Ser
            20   25   30

His Leu His Gln Lys Pro Gly Gln Thr Trp Lys Asn Lys Glu His His
        35   40   45

Leu Ser Asp Arg Glu Phe Val Phe Lys Glu Pro Gln Gln Val Val Arg
    50   55   60

Arg Ala Pro Glu Pro Arg Val Ile Asp Arg Glu Gly Val Tyr Glu Ile
65   70   75   80

Ser Leu Ser Pro Thr Gly Val Ser Arg Val Cys Leu Tyr Pro Gly Phe
                85   90   95

Val Asp Val Lys Glu Ala Asp Trp Ile Leu Glu Gln Leu Cys Gln Asp
            100   105   110

```
Val Pro Trp Lys Gln Arg Thr Gly Ile Arg Glu Asp Ile Thr Tyr Gln
        115                 120                 125

Gln Pro Arg Leu Thr Ala Trp Tyr Gly Glu Leu Pro Tyr Thr Tyr Ser
    130                 135                 140

Arg Ile Thr Met Glu Pro Asn Pro His Trp His Pro Val Leu Arg Thr
145                 150                 155                 160

Leu Lys Asn Arg Ile Glu Glu Asn Thr Gly His Thr Phe Asn Ser Leu
                165                 170                 175

Leu Cys Asn Leu Tyr Arg Asn Glu Lys Asp Ser Val Asp Trp His Ser
            180                 185                 190

Asp Asp Glu Pro Ser Leu Gly Arg Cys Pro Ile Ile Ala Ser Leu Ser
        195                 200                 205

Phe Gly Ala Thr Arg Thr Phe Glu Met Arg Lys Lys Pro Pro Pro Glu
    210                 215                 220

Glu Asn Gly Asp Tyr Thr Tyr Val Glu Arg Val Lys Ile Pro Leu Asp
225                 230                 235                 240

His Gly Thr Leu Leu Ile Met Glu Gly Ala Thr Gln Ala Asp Trp Gln
                245                 250                 255

His Arg Val Pro Lys Glu Tyr His Ser Arg Glu Pro Arg Val Asn Leu
            260                 265                 270

Thr Phe Arg Thr Val Tyr Pro Asp Pro Arg Gly Ala Pro Trp
        275                 280                 285


<210> 4155
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 935; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH3; "
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<220>
<221> source
<223> /note="Gene Name:
alkB homolog 3, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432259"

<400> 4155
Met Glu Glu Lys Arg Arg Arg Ala Arg Val Gln Gly Ala Trp Ala Ala
1 5 10 15

Pro Val Lys Ser Gln Ala Ile Ala Gln Pro Ala Thr Thr Ala Lys Ser
20 25 30

His Leu His Gln Lys Pro Gly Gln Thr Trp Lys Asn Lys Glu His His
35 40 45

Leu Ser Asp Arg Glu Phe Val Phe Lys Glu Pro Gln Gln Gln Arg Gly
50 55 60

Cys Val
65

<210> 4156
<211> 156
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 935; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH3; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 3, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433614"

<220>
<221> MOD_RES

<222> (1)..(1)
<223> Any amino acid

<400> 4156
Xaa Leu Thr Gly Tyr Trp Asn Ser Phe Val Lys Met Phe Pro Gly Asn
1 5 10 15

Arg Gly Leu Ala Ser Glu Arg Trp His Pro Val Leu Arg Thr Leu Lys
20 25 30

Asn Arg Ile Glu Glu Asn Thr Gly His Thr Phe Asn Ser Leu Leu Cys
35 40 45

Asn Leu Tyr Arg Asn Glu Lys Asp Ser Val Asp Trp His Ser Asp Asp
50 55 60

Glu Pro Ser Leu Gly Arg Cys Pro Ile Ile Ala Ser Leu Ser Phe Gly
65 70 75 80

Ala Thr Arg Thr Phe Glu Met Arg Lys Lys Pro Pro Pro Glu Glu Asn
85 90 95

Gly Asp Tyr Thr Tyr Val Glu Arg Val Lys Ile Pro Leu Asp His Gly
100 105 110

Thr Leu Leu Ile Met Glu Gly Ala Thr Gln Ala Asp Trp Gln His Arg
115 120 125

Val Pro Lys Glu Tyr His Ser Arg Glu Pro Arg Val Asn Leu Thr Phe
130 135 140

Arg Thr Val Tyr Pro Asp Pro Arg Gly Ala Pro Trp
145 150 155

<210> 4157
<211> 60
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 935; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH3; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 3, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434229"

<400> 4157
Met Glu Glu Lys Arg Arg Arg Ala Arg Val Gln Gly Ala Trp Ala Ala
1 5 10 15

Pro Val Lys Ser Gln Ala Ile Ala Gln Pro Ala Thr Thr Ala Lys Ser
20 25 30

His Leu His Gln Lys Pro Gly Gln Thr Trp Lys Asn Lys Glu His His
35 40 45

Leu Ser Asp Arg Glu Phe Val Phe Lys Glu Pro Gln
50 55 60

<210> 4158
<211> 171
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 935; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH3; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 3, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434832"

<400> 4158
Met Glu Glu Lys Arg Arg Arg Ala Arg Val Gln Gly Ala Trp Ala Ala
1 5 10 15

Pro Val Lys Ser Gln Ala Ile Ala Gln Pro Ala Thr Thr Ala Lys Ser
20 25 30

```
His Leu His Gln Lys Pro Gly Gln Thr Trp Lys Asn Lys Glu His His
        35                  40                  45

Leu Ser Asp Arg Glu Phe Val Phe Lys Glu Pro Gln Gln Val Val Arg
    50                  55                  60

Arg Ala Pro Glu Pro Arg Val Ile Asp Arg Glu Gly Val Tyr Glu Ile
65                  70                  75                  80

Ser Leu Ser Pro Thr Gly Val Ser Arg Val Cys Leu Tyr Pro Gly Phe
                85                  90                  95

Val Asp Val Lys Glu Ala Asp Trp Ile Leu Glu Gln Leu Cys Gln Asp
            100                 105                 110

Val Pro Trp Lys Gln Arg Thr Gly Ile Arg Glu Asp Ser Ile Leu Gln
        115                 120                 125

Leu Thr Phe Lys Lys Ser Ala Pro Val Ser Gly Thr Ala Thr Ala Pro
    130                 135                 140

Gln Ser Cys Trp Tyr Glu Arg Pro Ser Pro Pro His Ile Pro Gly Pro
145                 150                 155                 160

Ala Ile Leu Thr Arg Thr Arg Leu Trp Ala Pro
                165                 170
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<210> 4159
<211> 223
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 935; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH3; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 3, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435848"

<400> 4159
Met Glu Glu Lys Arg Arg Arg Ala Arg Val Gln Gly Ala Trp Ala Ala
1   5   10   15

Pro Val Lys Ser Gln Ala Ile Ala Gln Pro Ala Thr Thr Ala Lys Ser
            20   25   30

His Leu His Gln Lys Pro Gly Gln Thr Trp Lys Asn Lys Glu His His
        35   40   45

Leu Ser Asp Arg Glu Phe Val Phe Lys Glu Pro Gln Gln Val Val Arg
    50   55   60

Arg Ala Pro Glu Pro Arg Val Ile Glu Glu Gly Val Tyr Glu Ile Ser
65   70   75   80

Leu Ser Pro Thr Gly Val Ser Arg Val Cys Leu Tyr Pro Gly Phe Val
                85   90   95

Asp Val Lys Glu Ala Asp Trp Ile Leu Glu Gln Leu Cys Gln Asp Val
            100   105   110

Pro Trp Lys Gln Arg Thr Gly Ile Arg Glu Asp Ile Thr Tyr Gln Gln
        115   120   125

Pro Arg Leu Thr Ala Trp Tyr Gly Glu Leu Pro Tyr Thr Tyr Ser Arg
    130   135   140

Ile Thr Met Glu Pro Asn Pro His Trp His Pro Val Leu Arg Thr Leu
145   150   155   160

Lys Asn Arg Ile Glu Glu Asn Thr Gly His Thr Phe Asn Ser Leu Leu
                165   170   175

Cys Asn Leu Tyr Arg Asn Glu Lys Asp Ser Val Asp Trp His Ser Asp
            180   185   190

Asp Glu Pro Ser Leu Gly Arg Cys Pro Ile Ile Ala Ser Leu Ser Phe
        195   200   205

Gly Ala Thr Arg Thr Phe Glu Met Arg Lys Lys Pro Pro Pro Glu
210 215 220

<210> 4160
<211> 170
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 935; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH3; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 3, alpha-ketoglutarate-dependent
dioxygenase; "

<220>
<221> source
<223> /note="Uniprot ID: Q96Q83; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436788"

<400> 4160
Met Glu Glu Lys Arg Arg Arg Ala Arg Val Gln Gly Ala Trp Ala Ala
1 5 10 15

Pro Val Lys Ser Gln Ala Ile Ala Gln Pro Ala Thr Thr Ala Lys Ser
20 25 30

His Leu His Gln Lys Pro Gly Gln Thr Trp Lys Asn Lys Glu His His
35 40 45

Leu Ser Asp Arg Glu Phe Val Phe Lys Glu Pro Gln Gln Val Val Arg
50 55 60

Arg Ala Pro Glu Pro Arg Val Ile Glu Glu Gly Val Tyr Glu Ile Ser
65 70 75 80

Leu Ser Pro Thr Gly Val Ser Arg Val Cys Leu Tyr Pro Gly Phe Val
85 90 95

Asp Val Lys Glu Ala Asp Trp Ile Leu Glu Gln Leu Cys Gln Asp Val

```
            100                 105                 110

Pro Trp Lys Gln Arg Thr Gly Ile Arg Glu Asp Ser Ile Leu Gln Leu
        115                 120                 125

Thr Phe Lys Lys Ser Ala Pro Val Ser Gly Thr Ala Thr Ala Pro Gln
    130                 135                 140

Ser Cys Trp Tyr Glu Arg Pro Ser Pro Pro His Ile Pro Gly Pro Ala
145                 150                 155                 160

Ile Leu Thr Arg Thr Arg Leu Trp Ala Pro
                165                 170


<210> 4161
<211> 302
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 936; "

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<223> /note="Gene Symbol: ALKBH4; "

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<223> /note="Gene Name:
      alkB homolog 4, lysine demthylase; "

<220>
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<223> /note="Uniprot ID:  Q9NXW9; "

<220>
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<223> /note="ENSP ID: ENSP00000292566"

<400> 4161
Met Ala Ala Ala Ala Ala Glu Thr Pro Glu Val Leu Arg Glu Cys Gly
1               5                   10                  15

Cys Lys Gly Ile Arg Thr Cys Leu Ile Cys Glu Arg Gln Arg Gly Ser
            20                  25                  30

Asp Pro Pro Trp Glu Leu Pro Pro Ala Lys Thr Tyr Arg Phe Ile Tyr
        35                  40                  45
```

```
Cys Ser Asp Thr Gly Trp Ala Val Gly Thr Glu Glu Ser Asp Phe Glu
    50                  55                  60

Gly Trp Ala Phe Pro Phe Pro Gly Val Met Leu Ile Glu Asp Phe Val
65                  70                  75                  80

Thr Arg Glu Glu Glu Ala Glu Leu Val Arg Leu Met Asp Arg Asp Pro
                85                  90                  95

Trp Lys Leu Ser Gln Ser Gly Arg Arg Lys Gln Asp Tyr Gly Pro Lys
            100                 105                 110

Val Asn Phe Arg Lys Gln Lys Leu Lys Thr Glu Gly Phe Cys Gly Leu
        115                 120                 125

Pro Ser Phe Ser Arg Glu Val Val Arg Arg Met Gly Leu Tyr Pro Gly
    130                 135                 140

Leu Glu Gly Phe Arg Pro Val Glu Gln Cys Asn Leu Asp Tyr Cys Pro
145                 150                 155                 160

Glu Arg Gly Ser Ala Ile Asp Pro His Leu Asp Asp Ala Trp Leu Trp
                165                 170                 175

Gly Glu Arg Leu Val Ser Leu Asn Leu Leu Ser Pro Thr Val Leu Ser
            180                 185                 190

Met Cys Arg Glu Ala Pro Gly Ser Leu Leu Leu Cys Ser Ala Pro Ser
        195                 200                 205

Ala Ala Pro Glu Ala Leu Val Asp Ser Val Ile Ala Pro Ser Arg Ser
    210                 215                 220

Val Leu Cys Gln Glu Val Glu Val Ala Ile Pro Leu Pro Ala Arg Ser
225                 230                 235                 240

Leu Leu Val Leu Thr Gly Ala Ala Arg His Gln Trp Lys His Ala Ile
                245                 250                 255

His Arg Arg His Ile Glu Ala Arg Arg Val Cys Val Thr Phe Arg Glu
            260                 265                 270
```

Leu Ser Ala Glu Phe Gly Pro Gly Gly Arg Gln Gln Glu Leu Gly Gln
        275   280   285

Glu Leu Leu Arg Ile Ala Leu Ser Phe Gln Gly Arg Pro Val
    290   295   300

<210> 4162
<211> 42
<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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<223> /note="ENSP ID: ENSP00000420362"

<400> 4162
Met Ala Ala Ala Ala Ala Glu Thr Pro Glu Val Leu Arg Glu Cys Gly
1   5   10   15

Cys Lys Gly Ile Arg Thr Cys Leu Ile Cys Glu Arg Gln Arg Gly Ser
            20   25   30

Asp Pro Pro Trp Glu Leu Pro Pro Ala Glu
        35   40

<210> 4163
<211> 394
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: ALKBH5; "

<220>
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<223> /note="Gene Name:
alkB homolog 5, RNA demethylase; "

<220>
<221> source
<223> /note="Uniprot ID: Q6P6C2; "

<220>
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<223> /note="ENSP ID: ENSP00000382091"

<400> 4163
Met Ala Ala Ala Ser Gly Tyr Thr Asp Leu Arg Glu Lys Leu Lys Ser
1 5 10 15

Met Thr Ser Arg Asp Asn Tyr Lys Ala Gly Ser Arg Glu Ala Ala Ala
20 25 30

Ala Ala Ala Ala Ala Val Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala
35 40 45

Glu Pro Tyr Pro Val Ser Gly Ala Lys Arg Lys Tyr Gln Glu Asp Ser
50 55 60

Asp Pro Glu Arg Ser Asp Tyr Glu Glu Gln Gln Leu Gln Lys Glu Glu
65 70 75 80

Glu Ala Arg Lys Val Lys Ser Gly Ile Arg Gln Met Arg Leu Phe Ser
85 90 95

Gln Asp Glu Cys Ala Lys Ile Glu Ala Arg Ile Asp Glu Val Val Ser
100 105 110

Arg Ala Glu Lys Gly Leu Tyr Asn Glu His Thr Val Asp Arg Ala Pro
115 120 125

Leu Arg Asn Lys Tyr Phe Phe Gly Glu Gly Tyr Thr Tyr Gly Ala Gln
130 135 140

Leu Gln Lys Arg Gly Pro Gly Gln Glu Arg Leu Tyr Pro Pro Gly Asp
145 150 155 160

```
Val Asp Glu Ile Pro Glu Trp Val His Gln Leu Val Ile Gln Lys Leu
                165                 170                 175

Val Glu His Arg Val Ile Pro Glu Gly Phe Val Asn Ser Ala Val Ile
            180                 185                 190

Asn Asp Tyr Gln Pro Gly Gly Cys Ile Val Ser His Val Asp Pro Ile
        195                 200                 205

His Ile Phe Glu Arg Pro Ile Val Ser Val Ser Phe Phe Ser Asp Ser
    210                 215                 220

Ala Leu Cys Phe Gly Cys Lys Phe Gln Phe Lys Pro Ile Arg Val Ser
225                 230                 235                 240

Glu Pro Val Leu Ser Leu Pro Val Arg Arg Gly Ser Val Thr Val Leu
                245                 250                 255

Ser Gly Tyr Ala Ala Asp Glu Ile Thr His Cys Ile Arg Pro Gln Asp
            260                 265                 270

Ile Lys Glu Arg Arg Ala Val Ile Ile Leu Arg Lys Thr Arg Leu Asp
        275                 280                 285

Ala Pro Arg Leu Glu Thr Lys Ser Leu Ser Ser Ser Val Leu Pro Pro
    290                 295                 300

Ser Tyr Ala Ser Asp Arg Leu Ser Gly Asn Asn Arg Asp Pro Ala Leu
305                 310                 315                 320

Lys Pro Lys Arg Ser His Arg Lys Ala Asp Pro Asp Ala Ala His Arg
                325                 330                 335

Pro Arg Ile Leu Glu Met Asp Lys Glu Glu Asn Arg Arg Ser Val Leu
            340                 345                 350

Leu Pro Thr His Arg Arg Arg Gly Ser Phe Ser Ser Glu Asn Tyr Trp
        355                 360                 365

Arg Lys Ser Tyr Glu Ser Ser Glu Asp Cys Ser Glu Ala Ala Gly Ser
    370                 375                 380

Pro Ala Arg Lys Val Lys Met Arg Arg His
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385 390

<210> 4164
<211> 53
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ALKBH5; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 5, RNA demethylase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468116"

<400> 4164
Met Asp Lys Glu Glu Asn Arg Arg Ser Val Leu Leu Pro Thr His Arg
1 5 10 15

Arg Arg Gly Ser Phe Ser Ser Glu Asn Tyr Trp Arg Lys Ser Tyr Glu
20 25 30

Ser Ser Glu Asp Cys Ser Glu Ala Ala Gly Ser Pro Ala Arg Lys Val
35 40 45

Lys Met Arg Arg His
50

<210> 4165
<211> 238
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 938; "

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<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
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<223> /note="Gene Name:
alkB homolog 6; "

<220>
<221> source
<223> /note="Uniprot ID: Q3KRA9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000252984"

<400> 4165

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Met Glu Glu Gln Asp Ala Arg Val Pro Ala Leu Glu Pro Phe Arg Val
1               5                  10                  15

Glu Gln Ala Pro Pro Val Ile Tyr Tyr Val Pro Asp Phe Ile Ser Lys
            20                  25                  30

Glu Glu Glu Glu Tyr Leu Leu Arg Gln Val Phe Asn Ala Pro Lys Pro
        35                  40                  45

Lys Trp Thr Gln Leu Ser Gly Arg Lys Leu Gln Asn Trp Gly Gly Leu
    50                  55                  60

Pro His Pro Arg Gly Met Val Pro Glu Arg Leu Pro Pro Trp Leu Gln
65                  70                  75                  80

Arg Tyr Val Asp Lys Val Ser Asn Leu Ser Leu Phe Gly Gly Leu Pro
                85                  90                  95

Ala Asn His Val Leu Val Asn Gln Tyr Leu Pro Gly Glu Gly Ile Met
            100                 105                 110

Pro His Glu Asp Gly Pro Leu Tyr Tyr Pro Thr Val Ser Thr Ile Ser
        115                 120                 125

Leu Gly Ser His Thr Val Leu Asp Phe Tyr Glu Pro Arg Arg Pro Glu
    130                 135                 140

Asp Asp Asp Pro Thr Glu Gln Pro Arg Pro Pro Pro Arg Pro Thr Thr
145                 150                 155                 160

Ser Leu Leu Leu Glu Pro Arg Ser Leu Leu Val Leu Arg Gly Pro Ala
                165                 170                 175

Tyr Thr Arg Leu Leu His Gly Ile Ala Ala Ala Arg Val Asp Ala Leu
```

```
            180                 185                 190

Asp Ala Ala Ser Ser Pro Pro Asn Ala Ala Ala Cys Pro Ser Ala Arg
        195                 200                 205

Pro Gly Ala Cys Leu Val Arg Gly Thr Arg Val Ser Leu Thr Ile Arg
    210                 215                 220

Arg Val Pro Arg Val Leu Arg Ala Gly Leu Leu Leu Gly Lys
225                 230                 235


<210> 4166
<211> 266
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
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<223> /note="Gene Name:
      alkB homolog 6; "

<220>
<221> source
<223> /note="Uniprot ID:  Q3KRA9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368152"

<400> 4166
Met Ala Gly Arg Gly Met Gly Met Leu Asn Leu Glu Ile Gly Gly Asp
1               5                   10                  15

Ala Gly Gly Arg Ile Gly Cys Lys Glu Leu Val Leu Met Glu Glu Gln
            20                  25                  30

Asp Ala Arg Val Pro Ala Leu Glu Pro Phe Arg Val Glu Gln Ala Pro
        35                  40                  45

Pro Val Ile Tyr Tyr Val Pro Asp Phe Ile Ser Lys Glu Glu Glu Glu
    50                  55                  60
```

```
Tyr Leu Leu Arg Gln Val Phe Asn Ala Pro Lys Pro Lys Trp Thr Gln
65                  70                  75                  80

Leu Ser Gly Arg Lys Leu Gln Asn Trp Gly Gly Leu Pro His Pro Arg
                85                  90                  95

Gly Met Val Pro Glu Arg Leu Pro Pro Trp Leu Gln Arg Tyr Val Asp
            100                 105                 110

Lys Val Ser Asn Leu Ser Leu Phe Gly Gly Leu Pro Ala Asn His Val
        115                 120                 125

Leu Val Asn Gln Tyr Leu Pro Gly Glu Gly Ile Met Pro His Glu Asp
    130                 135                 140

Gly Pro Leu Tyr Tyr Pro Thr Val Ser Thr Ile Ser Leu Gly Ser His
145                 150                 155                 160

Thr Val Leu Asp Phe Tyr Glu Pro Arg Arg Pro Glu Asp Asp Asp Pro
                165                 170                 175

Thr Glu Gln Pro Arg Pro Pro Pro Arg Pro Thr Thr Ser Leu Leu Leu
            180                 185                 190

Glu Pro Arg Ser Leu Leu Val Leu Arg Gly Pro Ala Tyr Thr Arg Leu
        195                 200                 205

Leu His Gly Ile Ala Ala Ala Arg Val Asp Ala Leu Asp Ala Ala Ser
    210                 215                 220

Ser Pro Pro Asn Ala Ala Ala Cys Pro Ser Ala Arg Pro Gly Ala Cys
225                 230                 235                 240

Leu Val Arg Gly Thr Arg Val Ser Leu Thr Ile Arg Arg Val Pro Arg
                245                 250                 255

Val Leu Arg Ala Gly Leu Leu Leu Gly Lys
            260                 265
```

<210> 4167
<211> 50
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
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<223> /note="Gene Name:
alkB homolog 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433085"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4167
Xaa Glu Ile Gly Gly Asp Ala Gly Gly Arg Ile Gly Cys Lys Glu Leu
1 5 10 15

Val Leu Met Glu Glu Gln Asp Ala Arg Val Pro Ala Leu Glu Pro Phe
20 25 30

Arg Val Glu Gln Val Val Arg Thr Gln Gly Thr Thr Cys Asn Leu Leu
35 40 45

Cys Pro
50

<210> 4168
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 938; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
<221> source
<223> /note="Gene Name:

alkB homolog 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433156"

<400> 4168
Trp Trp Thr Ala Pro Pro Val Ile Tyr Tyr Val Pro Asp Phe Ile Ser
1   5   10   15

Lys Glu Glu Glu Glu Tyr Leu Leu Arg Gln Val Phe Asn Ala Pro Lys
            20   25   30

Pro Lys Trp Thr Gln Leu Ser Gly Arg Lys Leu Gln Asn Trp Gly Pro
        35   40   45

His Cys Leu Pro Gln Val Gly Phe Leu Ile Pro Glu Gly Trp Phe Leu
    50   55   60

Ser Gly Cys Pro His Gly Ser Ser Ala Thr Trp Thr Lys Cys Gln Thr
65   70   75   80

Ser Ala Ser Leu Glu Ala Ser Gln Leu Thr Met Ser Ser
                85   90

<210> 4169
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 938; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433885"

<220>
<221> MOD_RES
<222> (1)..(1)

<223> Any amino acid

<400> 4169
Xaa Ile Gly Cys Lys Glu Leu Val Leu Met Glu Glu Gln Asp Ala Arg
1 5 10 15

Val Pro Ala Leu Glu Pro Phe Arg Val Glu Gln Val Val Arg Thr Gln
20 25 30

Gly Ala Glu Gly Glu Gly Gly Thr Thr Cys Asn Leu Leu Cys Pro
35 40 45

<210> 4170
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 938; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435496"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4170
Xaa Asn Leu Glu Ile Gly Gly Asp Ala Gly Gly Arg Ile Gly Cys Lys
1 5 10 15

Glu Leu Val Leu Met Glu Glu Gln Asp Ala Arg Val Pro Ala Leu Glu
20 25 30

Pro Phe Arg Val Glu Gln Ala Pro Pro Val Ile Tyr Tyr Val Pro Asp
35 40 45

Phe Ile Ser Lys Glu Glu Glu Glu Tyr Leu Leu Arg Gln Val Phe Asn

```
    50                  55                  60

Ala Pro Lys Pro Lys Trp Thr Gln Leu Ser Gly Arg Lys Leu Gln Asn
65                  70                  75                  80

Trp Gly Gly Pro Ser Gly Pro His Cys Leu Pro Gln Val Gly Phe Leu
                85                  90                  95

Ile Pro Glu Gly Trp Phe Leu Ser Gly Cys Pro His Gly Ser Ser Ala
            100                 105                 110

Thr Trp Thr Lys Cys Gln Thr Ser Ala Ser Leu Glu Ala Ser Gln Leu
        115                 120                 125

Thr Met Ser Ser
    130


<210> 4171
<211> 72
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 938; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436156"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4171
Xaa Asp Ala Gly Gly Arg Ile Gly Cys Lys Glu Leu Val Leu Met Glu
1               5                   10                  15

Glu Gln Asp Ala Arg Val Pro Ala Leu Glu Pro Phe Arg Val Glu Gln
```

```
            20                  25                  30

Ala Pro Pro Val Ile Tyr Tyr Val Pro Asp Phe Ile Ser Lys Glu Glu
        35                  40                  45

Glu Glu Tyr Leu Leu Arg Gln Val Thr Ser Val Pro Tyr Trp Trp Ala
    50                  55                  60

Ser Ser Ser Pro Arg Asp Gly Ser
65                  70


<210> 4172
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 938; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436742"

<400> 4172
Met Glu Glu Gln Asp Ala Arg Val Pro Ala Leu Glu Pro Phe Arg Val
1               5                   10                  15

Glu Gln Ala Pro Pro Val Ile Tyr Tyr Val Pro Asp Phe Ile Ser Lys
            20                  25                  30

Glu Glu Glu Glu Tyr Leu Leu Arg Gln Val Phe Asn Ala Pro Lys Pro
        35                  40                  45

Lys Trp Thr Gln Leu Ser Gly Arg Lys Leu Gln Asn Trp Gly Gly Leu
    50                  55                  60

Pro His Pro Arg Gly Met Val Pro Glu Arg Leu Pro Pro Trp Leu Gln
65                  70                  75                  80
```

```
Arg Tyr Val Asp Lys Val Ser Asn Leu Ser Leu Phe Gly Gly Leu Pro
                85                  90                  95

Ala Asn His Val Leu Val Asn Gln Tyr Leu Pro Gly Glu Gly Ile Met
            100                 105                 110

His His Gln Pro Gly Leu Pro His Arg Ala Gly Leu Leu Arg Ala Ala
        115                 120                 125

Ala Ala Arg Gly Arg
    130


<210> 4173
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 938; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH6; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474158"

<400> 4173
Met Glu Glu Gln Asp Ala Arg Val Pro Ala Leu Glu Pro Phe Arg Val
1               5                   10                  15

Glu Gln Val Phe Asn Ala Pro Lys Pro Lys Trp Thr Gln Leu Ser Gly
            20                  25                  30

Arg Lys Leu Gln Asn Trp Gly Gly Leu Pro His Pro Arg Gly Met Val
        35                  40                  45

Pro Glu Arg Leu Pro Pro Trp Leu Gln Arg Tyr Val Asp Lys Val Ser
    50                  55                  60

Asn Leu Ser Leu Phe Gly Gly Leu Pro Ala Asn His Val Leu Val Asn
```

65 70 75 80

Gln Tyr Leu Pro Gly Glu Gly Ile Met His His Gln Pro Gly Leu Pro
85 90 95

His Arg Ala Gly Leu Leu Arg Ala Ala Ala Ala Arg Gly Arg
100 105 110

<210> 4174
<211> 221
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 939; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH7; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BT30; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000245812"

<400> 4174
Met Ala Gly Thr Gly Leu Leu Ala Leu Arg Thr Leu Pro Gly Pro Ser
1 5 10 15

Trp Val Arg Gly Ser Gly Pro Ser Val Leu Ser Arg Leu Gln Asp Ala
20 25 30

Ala Val Val Arg Pro Gly Phe Leu Ser Thr Ala Glu Glu Glu Thr Leu
35 40 45

Ser Arg Glu Leu Glu Pro Glu Leu Arg Arg Arg Arg Tyr Glu Tyr Asp
50 55 60

His Trp Asp Ala Ala Ile His Gly Phe Arg Glu Thr Glu Lys Ser Arg
65 70 75 80

```
Trp Ser Glu Ala Ser Arg Ala Ile Leu Gln Arg Val Gln Ala Ala Ala
                85                  90                  95

Phe Gly Pro Gly Gln Thr Leu Leu Ser Ser Val His Val Leu Asp Leu
            100                 105                 110

Glu Ala Arg Gly Tyr Ile Lys Pro His Val Asp Ser Ile Lys Phe Cys
        115                 120                 125

Gly Ala Thr Ile Ala Gly Leu Ser Leu Leu Ser Pro Ser Val Met Arg
    130                 135                 140

Leu Val His Thr Gln Glu Pro Gly Glu Trp Leu Glu Leu Leu Leu Glu
145                 150                 155                 160

Pro Gly Ser Leu Tyr Ile Leu Arg Gly Ser Ala Arg Tyr Asp Phe Ser
                165                 170                 175

His Glu Ile Leu Arg Asp Glu Glu Ser Phe Phe Gly Glu Arg Arg Ile
            180                 185                 190

Pro Arg Gly Arg Arg Ile Ser Val Ile Cys Arg Ser Leu Pro Glu Gly
        195                 200                 205

Met Gly Pro Gly Glu Ser Gly Gln Pro Pro Pro Ala Cys
    210                 215                 220


<210> 4175
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ALKBH7; "

<220>
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<223> /note="Gene Name:
      alkB homolog 7; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000470542"

<400> 4175
Met Arg Leu Val His Thr Gln Glu Pro Gly Glu Trp Leu Glu Leu Leu
1   5   10   15

Leu Glu Pro Gly Ser Leu Tyr Ile Leu Arg Gly Ser Ala Arg Tyr Asp
            20   25   30

Phe Ser His Glu Ile Leu Arg Asp Glu Glu Ser Phe Phe Gly Glu Arg
        35   40   45

Arg Ile Pro Arg Gly Arg Arg Ile Ser Val Ile Cys Arg Ser Leu Pro
    50   55   60

Glu Gly Met Gly Pro Gly Glu Ser Gly Gln Pro Pro Pro Ala Cys
65   70   75

<210> 4176
<211> 160
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 939; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH7; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470562"

<400> 4176
Met Gly Gln Gly Leu Phe Gly Ala Ile His Gly Phe Arg Glu Thr Glu
1   5   10   15

Lys Ser Arg Trp Ser Glu Ala Ser Arg Ala Ile Leu Gln Arg Val Gln
            20   25   30

Ala Ala Ala Phe Gly Pro Gly Gln Thr Leu Leu Ser Ser Val His Val
        35   40   45

```
Leu Asp Leu Glu Ala Arg Gly Tyr Ile Lys Pro His Val Asp Ser Ile
    50                  55                  60

Lys Phe Cys Gly Ala Thr Ile Ala Gly Leu Ser Leu Leu Ser Pro Ser
65                  70                  75                  80

Val Met Arg Leu Val His Thr Gln Glu Pro Gly Glu Trp Leu Glu Leu
                85                  90                  95

Leu Leu Glu Pro Gly Ser Leu Tyr Ile Leu Arg Gly Ser Ala Arg Tyr
            100                 105                 110

Asp Phe Ser His Glu Ile Leu Arg Asp Glu Glu Ser Phe Phe Gly Glu
        115                 120                 125

Arg Arg Ile Pro Arg Gly Arg Arg Ile Ser Val Ile Cys Arg Ser Leu
    130                 135                 140

Pro Glu Gly Met Gly Pro Gly Glu Ser Gly Gln Pro Pro Pro Ala Cys
145                 150                 155                 160


<210> 4177
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 940; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH8; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 8, tRNA
      methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96BT7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260318"

<400> 4177
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```
Met Asp Ser Asn His Gln Ser Asn Tyr Lys Leu Ser Lys Thr Glu Lys
1               5                  10                  15

Lys Phe Leu Arg Lys Gln Ile Lys Ala Lys His Thr Leu Leu Arg His
            20                  25                  30

Glu Gly Ile Glu Thr Val Ser Tyr Ala Thr Gln Ser Leu Val Val Ala
        35                  40                  45

Asn Gly Gly Leu Gly Asn Gly Val Ser Arg Asn Gln Leu Leu Pro Val
    50                  55                  60

Leu Glu Lys Cys Gly Leu Val Asp Ala Leu Leu Met Pro Pro Asn Lys
65                  70                  75                  80

Pro Tyr Ser Phe Ala Arg Tyr Arg Thr Thr Glu Glu Ser Lys Arg Ala
                85                  90                  95

Tyr Val Thr Leu Asn Gly Lys Glu Val Val Asp Asp Leu Gly Gln Lys
            100                 105                 110

Ile Thr Leu Tyr Leu Asn Phe Val Glu Lys Val Gln Trp Lys Glu Leu
        115                 120                 125

Arg Pro Gln Ala Leu Pro Pro Gly Leu Met Val Val Glu Glu Ile Ile
    130                 135                 140

Ser Ser Glu Glu Glu Lys Met Leu Leu Glu Ser Val Asp Trp Thr Glu
145                 150                 155                 160

Asp Thr Asp Asn Gln Asn Ser Gln Lys Ser Leu Lys His Arg Arg Val
                165                 170                 175

Lys His Phe Gly Tyr Glu Phe His Tyr Glu Asn Asn Asn Val Asp Lys
            180                 185                 190

Asp Lys Pro Leu Ser Gly Gly Leu Pro Asp Ile Cys Glu Ser Phe Leu
        195                 200                 205

Glu Lys Trp Leu Arg Lys Gly Tyr Ile Lys His Lys Pro Asp Gln Met
    210                 215                 220

Thr Ile Asn Gln Tyr Glu Pro Gly Gln Asp Cys His Gly Phe
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225 230 235

<210> 4178
<211> 664
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 940; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH8; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 8, tRNA
methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q96BT7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000374219"

<400> 4178
Met Asp Ser Asn His Gln Ser Asn Tyr Lys Leu Ser Lys Thr Glu Lys
1 5 10 15

Lys Phe Leu Arg Lys Gln Ile Lys Ala Lys His Thr Leu Leu Arg His
20 25 30

Glu Gly Ile Glu Thr Val Ser Tyr Ala Thr Gln Ser Leu Val Val Ala
35 40 45

Asn Gly Gly Leu Gly Asn Gly Val Ser Arg Asn Gln Leu Leu Pro Val
50 55 60

Leu Glu Lys Cys Gly Leu Val Asp Ala Leu Leu Met Pro Pro Asn Lys
65 70 75 80

Pro Tyr Ser Phe Ala Arg Tyr Arg Thr Thr Glu Glu Ser Lys Arg Ala
85 90 95

Tyr Val Thr Leu Asn Gly Lys Glu Val Val Asp Asp Leu Gly Gln Lys
100 105 110

```
Ile Thr Leu Tyr Leu Asn Phe Val Glu Lys Val Gln Trp Lys Glu Leu
        115                 120                 125

Arg Pro Gln Ala Leu Pro Pro Gly Leu Met Val Val Glu Glu Ile Ile
    130                 135                 140

Ser Ser Glu Glu Glu Lys Met Leu Leu Glu Ser Val Asp Trp Thr Glu
145                 150                 155                 160

Asp Thr Asp Asn Gln Asn Ser Gln Lys Ser Leu Lys His Arg Arg Val
                165                 170                 175

Lys His Phe Gly Tyr Glu Phe His Tyr Glu Asn Asn Asn Val Asp Lys
            180                 185                 190

Asp Lys Pro Leu Ser Gly Gly Leu Pro Asp Ile Cys Glu Ser Phe Leu
        195                 200                 205

Glu Lys Trp Leu Arg Lys Gly Tyr Ile Lys His Lys Pro Asp Gln Met
    210                 215                 220

Thr Ile Asn Gln Tyr Glu Pro Gly Gln Gly Ile Pro Ala His Ile Asp
225                 230                 235                 240

Thr His Ser Ala Phe Glu Asp Glu Ile Val Ser Leu Ser Leu Gly Ser
                245                 250                 255

Glu Ile Val Met Asp Phe Lys His Pro Asp Gly Ile Ala Val Pro Val
            260                 265                 270

Met Leu Pro Arg Arg Ser Leu Leu Val Met Thr Gly Glu Ser Arg Tyr
        275                 280                 285

Leu Trp Thr His Gly Ile Thr Cys Arg Lys Phe Asp Thr Val Gln Ala
    290                 295                 300

Ser Glu Ser Leu Lys Ser Gly Ile Ile Thr Ser Asp Val Gly Asp Leu
305                 310                 315                 320

Thr Leu Ser Lys Arg Gly Leu Arg Thr Ser Phe Thr Phe Arg Lys Val
                325                 330                 335
```

```
Arg Gln Thr Pro Cys Asn Cys Ser Tyr Pro Leu Val Cys Asp Ser Gln
            340                 345                 350

Arg Lys Glu Thr Pro Pro Ser Phe Pro Glu Ser Asp Lys Glu Ala Ser
        355                 360                 365

Arg Leu Glu Gln Glu Tyr Val His Gln Val Tyr Glu Glu Ile Ala Gly
    370                 375                 380

His Phe Ser Ser Thr Arg His Thr Pro Trp Pro His Ile Val Glu Phe
385                 390                 395                 400

Leu Lys Ala Leu Pro Ser Gly Ser Ile Val Ala Asp Ile Gly Cys Gly
                405                 410                 415

Asn Gly Lys Tyr Leu Gly Ile Asn Lys Glu Leu Tyr Met Ile Gly Cys
            420                 425                 430

Asp Arg Ser Gln Asn Leu Val Asp Ile Cys Arg Glu Arg Gln Phe Gln
        435                 440                 445

Ala Phe Val Cys Asp Ala Leu Ala Val Pro Val Arg Ser Gly Ser Cys
    450                 455                 460

Asp Ala Cys Ile Ser Ile Ala Val Ile His His Phe Ala Thr Ala Glu
465                 470                 475                 480

Arg Arg Val Ala Ala Leu Gln Glu Ile Val Arg Leu Leu Arg Pro Gly
                485                 490                 495

Gly Lys Ala Leu Ile Tyr Val Trp Ala Met Glu Gln Glu Tyr Asn Lys
            500                 505                 510

Gln Lys Ser Lys Tyr Leu Arg Gly Asn Arg Asn Ser Gln Gly Lys Lys
        515                 520                 525

Glu Glu Met Asn Ser Asp Thr Ser Val Gln Arg Ser Leu Val Glu Gln
    530                 535                 540

Met Arg Asp Met Gly Ser Arg Asp Ser Ala Ser Ser Val Pro Arg Ile
545                 550                 555                 560
```

```
Asn Asp Ser Gln Glu Gly Gly Cys Asn Ser Arg Gln Val Ser Asn Ser
                565                 570                 575

Lys Leu Pro Val His Val Asn Arg Thr Ser Phe Tyr Ser Gln Asp Val
            580                 585                 590

Leu Val Pro Trp His Leu Lys Gly Asn Pro Asp Lys Gly Lys Pro Val
        595                 600                 605

Glu Pro Phe Gly Pro Ile Gly Ser Gln Asp Pro Ser Pro Val Phe His
    610                 615                 620

Arg Tyr Tyr His Val Phe Arg Glu Gly Glu Leu Glu Gly Ala Cys Arg
625                 630                 635                 640

Thr Val Ser Asp Val Arg Ile Leu Gln Ser Tyr Tyr Asp Gln Gly Asn
                645                 650                 655

Trp Cys Val Ile Leu Gln Lys Ala
            660


<210> 4179
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 940; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH8; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 8, tRNA
      methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376812"

<400> 4179
Met Asp Ser Asn His Gln Ser Asn Tyr Lys Leu Ser Lys Thr Glu Lys
1               5                   10                  15

Lys Phe Leu Arg Lys Gln Ile Lys Ala Lys His Thr Leu Leu Arg His
```

```
            20                  25                  30

Glu Gly Ile Glu Thr Val Ser Tyr Ala Thr Gln Ser Leu Val Val Ala
        35                  40                  45

Asn Gly Gly Leu Gly Asn Gly Val Ser Arg Asn Gln Leu Leu Pro Val
    50                  55                  60

Leu Glu Lys Cys Gly Leu Val Asp Ala Leu Leu Met Pro Pro Asn Lys
65                  70                  75                  80

Pro Tyr Ser Phe Ala Arg Tyr Arg Thr Thr Glu Glu Ser Lys Arg Ala
                85                  90                  95

Tyr Val Thr Leu Asn Gly Lys Glu Val Val Asp Asp Leu Gly Gln Lys
            100                 105                 110

Ile Thr Leu Tyr Leu Asn Phe Val Glu Lys Val Glu Gly Val Glu Ala
        115                 120                 125

Ser Ser Leu Thr Thr Arg Thr His Gly Ser Arg Arg Asn Asn Phe Phe
    130                 135                 140


<210> 4180
<211> 224
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 940; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH8; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 8, tRNA
      methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96BT7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391225"
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<400> 4180
Met Asp Ser Asn His Gln Ser Asn Tyr Lys Leu Ser Lys Thr Glu Lys
1 5 10 15

Lys Phe Leu Arg Lys Gln Ile Lys Ala Lys His Thr Leu Leu Arg His
20 25 30

Glu Gly Ile Glu Thr Val Ser Tyr Ala Thr Gln Ser Leu Val Val Ala
35 40 45

Asn Gly Gly Leu Gly Asn Gly Val Ser Arg Asn Gln Leu Leu Pro Val
50 55 60

Leu Glu Lys Cys Gly Leu Val Asp Ala Leu Leu Met Pro Pro Asn Lys
65 70 75 80

Pro Tyr Ser Phe Ala Arg Tyr Arg Thr Thr Glu Glu Ser Lys Arg Ala
85 90 95

Tyr Val Thr Leu Asn Gly Lys Glu Val Val Asp Asp Leu Gly Gln Lys
100 105 110

Ile Thr Leu Tyr Leu Asn Phe Val Glu Lys Val Gln Trp Lys Glu Leu
115 120 125

Arg Pro Gln Ala Leu Pro Pro Gly Leu Met Val Val Glu Glu Ile Ile
130 135 140

Ser Ser Glu Glu Glu Lys Met Leu Leu Glu Ser Val Asp Trp Thr Glu
145 150 155 160

Asp Thr Asp Asn Gln Asn Ser Gln Lys Ser Leu Lys His Arg Arg Val
165 170 175

Lys His Phe Gly Tyr Glu Phe His Tyr Glu Asn Asn Asn Val Asp Lys
180 185 190

Asp Lys Pro Leu Ser Gly Gly Leu Pro Asp Ile Cys Glu Ser Phe Leu
195 200 205

Glu Lys Trp Leu Arg Lys Ala Glu Lys Asn Leu Glu Val Gly Ile His
210 215 220

<210> 4181
<211> 667
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 940; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH8; "

<220>
<221> source
<223> /note="Gene Name:
alkB homolog 8, tRNA
methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q96BT7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397673"

<400> 4181
Met Phe Ala Met Asp Ser Asn His Gln Ser Asn Tyr Lys Leu Ser Lys
1   5   10   15

Thr Glu Lys Lys Phe Leu Arg Lys Gln Ile Lys Ala Lys His Thr Leu
            20   25   30

Leu Arg His Glu Gly Ile Glu Thr Val Ser Tyr Ala Thr Gln Ser Leu
        35   40   45

Val Val Ala Asn Gly Gly Leu Gly Asn Gly Val Ser Arg Asn Gln Leu
    50   55   60

Leu Pro Val Leu Glu Lys Cys Gly Leu Val Asp Ala Leu Leu Met Pro
65   70   75   80

Pro Asn Lys Pro Tyr Ser Phe Ala Arg Tyr Arg Thr Thr Glu Glu Ser
                85   90   95

Lys Arg Ala Tyr Val Thr Leu Asn Gly Lys Glu Val Val Asp Asp Leu
            100   105   110

```
Gly Gln Lys Ile Thr Leu Tyr Leu Asn Phe Val Glu Lys Val Gln Trp
        115                 120                 125

Lys Glu Leu Arg Pro Gln Ala Leu Pro Pro Gly Leu Met Val Val Glu
    130                 135                 140

Glu Ile Ile Ser Ser Glu Glu Glu Lys Met Leu Leu Glu Ser Val Asp
145                 150                 155                 160

Trp Thr Glu Asp Thr Asp Asn Gln Asn Ser Gln Lys Ser Leu Lys His
                165                 170                 175

Arg Arg Val Lys His Phe Gly Tyr Glu Phe His Tyr Glu Asn Asn Asn
            180                 185                 190

Val Asp Lys Asp Lys Pro Leu Ser Gly Gly Leu Pro Asp Ile Cys Glu
        195                 200                 205

Ser Phe Leu Glu Lys Trp Leu Arg Lys Gly Tyr Ile Lys His Lys Pro
    210                 215                 220

Asp Gln Met Thr Ile Asn Gln Tyr Glu Pro Gly Gln Gly Ile Pro Ala
225                 230                 235                 240

His Ile Asp Thr His Ser Ala Phe Glu Asp Glu Ile Val Ser Leu Ser
                245                 250                 255

Leu Gly Ser Glu Ile Val Met Asp Phe Lys His Pro Asp Gly Ile Ala
            260                 265                 270

Val Pro Val Met Leu Pro Arg Arg Ser Leu Leu Val Met Thr Gly Glu
        275                 280                 285

Ser Arg Tyr Leu Trp Thr His Gly Ile Thr Cys Arg Lys Phe Asp Thr
    290                 295                 300

Val Gln Ala Ser Glu Ser Leu Lys Ser Gly Ile Ile Thr Ser Asp Val
305                 310                 315                 320

Gly Asp Leu Thr Leu Ser Lys Arg Gly Leu Arg Thr Ser Phe Thr Phe
                325                 330                 335

Arg Lys Val Arg Gln Thr Pro Cys Asn Cys Ser Tyr Pro Leu Val Cys
```

```
            340                 345                 350

Asp Ser Gln Arg Lys Glu Thr Pro Pro Ser Phe Pro Glu Ser Asp Lys
        355                 360                 365

Glu Ala Ser Arg Leu Glu Gln Glu Tyr Val His Gln Val Tyr Glu Glu
    370                 375                 380

Ile Ala Gly His Phe Ser Ser Thr Arg His Thr Pro Trp Pro His Ile
385                 390                 395                 400

Val Glu Phe Leu Lys Ala Leu Pro Ser Gly Ser Ile Val Ala Asp Ile
                405                 410                 415

Gly Cys Gly Asn Gly Lys Tyr Leu Gly Ile Asn Lys Glu Leu Tyr Met
            420                 425                 430

Ile Gly Cys Asp Arg Ser Gln Asn Leu Val Asp Ile Cys Arg Glu Arg
        435                 440                 445

Gln Phe Gln Ala Phe Val Cys Asp Ala Leu Ala Val Pro Val Arg Ser
    450                 455                 460

Gly Ser Cys Asp Ala Cys Ile Ser Ile Ala Val Ile His His Phe Ala
465                 470                 475                 480

Thr Ala Glu Arg Arg Val Ala Ala Leu Gln Glu Ile Val Arg Leu Leu
                485                 490                 495

Arg Pro Gly Gly Lys Ala Leu Ile Tyr Val Trp Ala Met Glu Gln Glu
            500                 505                 510

Tyr Asn Lys Gln Lys Ser Lys Tyr Leu Arg Gly Asn Arg Asn Ser Gln
        515                 520                 525

Gly Lys Lys Glu Glu Met Asn Ser Asp Thr Ser Val Gln Arg Ser Leu
    530                 535                 540

Val Glu Gln Met Arg Asp Met Gly Ser Arg Asp Ser Ala Ser Ser Val
545                 550                 555                 560

Pro Arg Ile Asn Asp Ser Gln Glu Gly Gly Cys Asn Ser Arg Gln Val
                565                 570                 575
```

```
Ser Asn Ser Lys Leu Pro Val His Val Asn Arg Thr Ser Phe Tyr Ser
            580                 585                 590

Gln Asp Val Leu Val Pro Trp His Leu Lys Gly Asn Pro Asp Lys Gly
        595                 600                 605

Lys Pro Val Glu Pro Phe Gly Pro Ile Gly Ser Gln Asp Pro Ser Pro
    610                 615                 620

Val Phe His Arg Tyr Tyr His Val Phe Arg Glu Gly Glu Leu Glu Gly
625                 630                 635                 640

Ala Cys Arg Thr Val Ser Asp Val Arg Ile Leu Gln Ser Tyr Tyr Asp
                645                 650                 655

Gln Gly Asn Trp Cys Val Ile Leu Gln Lys Ala
            660                 665


<210> 4182
<211> 664
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 940; "

<220>
<221> source
<223> /note="Gene Symbol: ALKBH8; "

<220>
<221> source
<223> /note="Gene Name:
      alkB homolog 8, tRNA
      methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96BT7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415885"

<400> 4182
Met Asp Ser Asn His Gln Ser Asn Tyr Lys Leu Ser Lys Thr Glu Lys
1               5                   10                  15
```

```
Lys Phe Leu Arg Lys Gln Ile Lys Ala Lys His Thr Leu Leu Arg His
            20                  25                  30

Glu Gly Ile Glu Thr Val Ser Tyr Ala Thr Gln Ser Leu Val Val Ala
        35                  40                  45

Asn Gly Gly Leu Gly Asn Gly Val Ser Arg Asn Gln Leu Leu Pro Val
    50                  55                  60

Leu Glu Lys Cys Gly Leu Val Asp Ala Leu Leu Met Pro Pro Asn Lys
65                  70                  75                  80

Pro Tyr Ser Phe Ala Arg Tyr Arg Thr Thr Glu Glu Ser Lys Arg Ala
                85                  90                  95

Tyr Val Thr Leu Asn Gly Lys Glu Val Val Asp Asp Leu Gly Gln Lys
            100                 105                 110

Ile Thr Leu Tyr Leu Asn Phe Val Glu Lys Val Gln Trp Lys Glu Leu
        115                 120                 125

Arg Pro Gln Ala Leu Pro Pro Gly Leu Met Val Val Glu Glu Ile Ile
    130                 135                 140

Ser Ser Glu Glu Glu Lys Met Leu Leu Glu Ser Val Asp Trp Thr Glu
145                 150                 155                 160

Asp Thr Asp Asn Gln Asn Ser Gln Lys Ser Leu Lys His Arg Arg Val
                165                 170                 175

Lys His Phe Gly Tyr Glu Phe His Tyr Glu Asn Asn Asn Val Asp Lys
            180                 185                 190

Asp Lys Pro Leu Ser Gly Gly Leu Pro Asp Ile Cys Glu Ser Phe Leu
        195                 200                 205

Glu Lys Trp Leu Arg Lys Gly Tyr Ile Lys His Lys Pro Asp Gln Met
    210                 215                 220

Thr Ile Asn Gln Tyr Glu Pro Gly Gln Gly Ile Pro Ala His Ile Asp
225                 230                 235                 240
```

```
Thr His Ser Ala Phe Glu Asp Glu Ile Val Ser Leu Ser Leu Gly Ser
                245                 250                 255

Glu Ile Val Met Asp Phe Lys His Pro Asp Gly Ile Ala Val Pro Val
            260                 265                 270

Met Leu Pro Arg Arg Ser Leu Leu Val Met Thr Gly Glu Ser Arg Tyr
        275                 280                 285

Leu Trp Thr His Gly Ile Thr Cys Arg Lys Phe Asp Thr Val Gln Ala
    290                 295                 300

Ser Glu Ser Leu Lys Ser Gly Ile Ile Thr Ser Asp Val Gly Asp Leu
305                 310                 315                 320

Thr Leu Ser Lys Arg Gly Leu Arg Thr Ser Phe Thr Phe Arg Lys Val
                325                 330                 335

Arg Gln Thr Pro Cys Asn Cys Ser Tyr Pro Leu Val Cys Asp Ser Gln
            340                 345                 350

Arg Lys Glu Thr Pro Pro Ser Phe Pro Glu Ser Asp Lys Glu Ala Ser
        355                 360                 365

Arg Leu Glu Gln Glu Tyr Val His Gln Val Tyr Glu Glu Ile Ala Gly
    370                 375                 380

His Phe Ser Ser Thr Arg His Thr Pro Trp Pro His Ile Val Glu Phe
385                 390                 395                 400

Leu Lys Ala Leu Pro Ser Gly Ser Ile Val Ala Asp Ile Gly Cys Gly
                405                 410                 415

Asn Gly Lys Tyr Leu Gly Ile Asn Lys Glu Leu Tyr Met Ile Gly Cys
            420                 425                 430

Asp Arg Ser Gln Asn Leu Val Asp Ile Cys Arg Glu Arg Gln Phe Gln
        435                 440                 445

Ala Phe Val Cys Asp Ala Leu Ala Val Pro Val Arg Ser Gly Ser Cys
    450                 455                 460

Asp Ala Cys Ile Ser Ile Ala Val Ile His His Phe Ala Thr Ala Glu
```

465 470 475 480

Arg Arg Val Ala Ala Leu Gln Glu Ile Val Arg Leu Leu Arg Pro Gly
485 490 495

Gly Lys Ala Leu Ile Tyr Val Trp Ala Met Glu Gln Glu Tyr Asn Lys
500 505 510

Gln Lys Ser Lys Tyr Leu Arg Gly Asn Arg Asn Ser Gln Gly Lys Lys
515 520 525

Glu Glu Met Asn Ser Asp Thr Ser Val Gln Arg Ser Leu Val Glu Gln
530 535 540

Met Arg Asp Met Gly Ser Arg Asp Ser Ala Ser Ser Val Pro Arg Ile
545 550 555 560

Asn Asp Ser Gln Glu Gly Gly Cys Asn Ser Arg Gln Val Ser Asn Ser
565 570 575

Lys Leu Pro Val His Val Asn Arg Thr Ser Phe Tyr Ser Gln Asp Val
580 585 590

Leu Val Pro Trp His Leu Lys Gly Asn Pro Asp Lys Gly Lys Pro Val
595 600 605

Glu Pro Phe Gly Pro Ile Gly Ser Gln Asp Pro Ser Pro Val Phe His
610 615 620

Arg Tyr Tyr His Val Phe Arg Glu Gly Glu Leu Glu Gly Ala Cys Arg
625 630 635 640

Thr Val Ser Asp Val Arg Ile Leu Gln Ser Tyr Tyr Asp Gln Gly Asn
645 650 655

Trp Cys Val Ile Leu Gln Lys Ala
660

<210> 4183
<211> 445
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 941; "

<220>
<221> source
<223> /note="Gene Symbol: AGMO; "

<220>
<221> source
<223> /note="Gene Name:
alkylglycerol monooxygenase; "

<220>
<221> source
<223> /note="Uniprot ID: Q6ZNB7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000341662"

<400> 4183

```
Met Lys Asn Pro Glu Ala Gln Gln Asp Val Ser Val Ser Gln Gly Phe
1               5                  10                  15

Arg Met Leu Phe Tyr Thr Met Lys Pro Ser Glu Thr Ser Phe Gln Thr
            20                  25                  30

Leu Glu Glu Val Pro Asp Tyr Val Lys Lys Ala Thr Pro Phe Phe Ile
        35                  40                  45

Ser Leu Met Leu Leu Glu Leu Val Val Ser Trp Ile Leu Lys Gly Lys
    50                  55                  60

Pro Pro Gly Arg Leu Asp Asp Ala Leu Thr Ser Ile Ser Ala Gly Val
65                  70                  75                  80

Leu Ser Arg Leu Pro Ser Leu Phe Phe Arg Ser Ile Glu Leu Thr Ser
                85                  90                  95

Tyr Ile Tyr Ile Trp Glu Asn Tyr Arg Leu Phe Asn Leu Pro Trp Asp
            100                 105                 110

Ser Pro Trp Thr Trp Tyr Ser Ala Phe Leu Gly Val Asp Phe Gly Tyr
        115                 120                 125

Tyr Trp Phe His Arg Met Ala His Glu Val Asn Ile Met Trp Ala Gly
    130                 135                 140
```

```
His Gln Thr His His Ser Ser Glu Asp Tyr Asn Leu Ser Thr Ala Leu
145                 150                 155                 160

Arg Gln Ser Val Leu Gln Ile Tyr Thr Ser Trp Ile Phe Tyr Ser Pro
                165                 170                 175

Leu Ala Leu Phe Ile Pro Pro Ser Val Tyr Ala Val His Leu Gln Phe
            180                 185                 190

Asn Leu Leu Tyr Gln Phe Trp Ile His Thr Glu Val Ile Asn Asn Leu
        195                 200                 205

Gly Pro Leu Glu Leu Ile Leu Asn Thr Pro Ser His His Arg Val His
    210                 215                 220

His Gly Arg Asn Arg Tyr Cys Ile Asp Lys Asn Tyr Ala Gly Val Leu
225                 230                 235                 240

Ile Ile Trp Asp Lys Ile Phe Gly Thr Phe Glu Ala Glu Asn Glu Lys
                245                 250                 255

Val Val Tyr Gly Leu Thr His Pro Ile Asn Thr Phe Glu Pro Ile Lys
            260                 265                 270

Val Gln Phe His His Leu Phe Ser Ile Trp Thr Thr Phe Trp Ala Thr
        275                 280                 285

Pro Gly Phe Phe Asn Lys Phe Ser Val Ile Phe Lys Gly Pro Gly Trp
    290                 295                 300

Gly Pro Gly Lys Pro Arg Leu Gly Leu Ser Glu Glu Ile Pro Glu Val
305                 310                 315                 320

Thr Gly Lys Glu Val Pro Phe Ser Ser Ser Ser Ser Gln Leu Leu Lys
                325                 330                 335

Ile Tyr Thr Val Val Gln Phe Ala Leu Met Leu Ala Phe Tyr Glu Glu
            340                 345                 350

Thr Phe Ala Asp Thr Ala Ala Leu Ser Gln Val Thr Leu Leu Leu Arg
        355                 360                 365

Val Cys Phe Ile Ile Leu Thr Leu Thr Ser Ile Gly Phe Leu Leu Asp
```

```
    370                 375                 380

Gln Arg Pro Lys Ala Ala Ile Met Glu Thr Leu Arg Cys Leu Met Phe
385                 390                 395                 400

Leu Met Leu Tyr Arg Phe Gly His Leu Lys Pro Leu Val Pro Ser Leu
                405                 410                 415

Ser Ser Ala Phe Glu Ile Val Phe Ser Ile Cys Ile Ala Phe Trp Gly
            420                 425                 430

Val Arg Ser Met Lys Gln Leu Thr Ser His Pro Trp Lys
        435                 440                 445


<210> 4184
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 941; "

<220>
<221> source
<223> /note="Gene Symbol: AGMO; "

<220>
<221> source
<223> /note="Gene Name:
      alkylglycerol monooxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000385742"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4184
Xaa Phe Ile Ile Leu Thr Leu Thr Ser Ile Gly Phe Leu Leu Asp Gln
1               5                   10                  15

Arg Pro Lys Ala Ala Ile Met Glu Thr Leu Arg Cys Leu Met Phe Leu
            20                  25                  30

Met Leu Tyr Arg Phe Gly His Leu Lys Pro Leu Val Pro Ser Leu Ser
```

```
        35                  40                  45

Ser Ala Phe Glu Ser Tyr Ser Val Ile Ser Glu Ile Gly Leu Gln Ala
    50                  55                  60

Lys Glu Asn Phe Gly Glu Leu Leu Ser Leu Ser Asp Cys Leu Thr Ala
65                  70                  75                  80

Gly Asn His Pro Lys Val His
                85


<210> 4185
<211> 74
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 941; "

<220>
<221> source
<223> /note="Gene Symbol: AGMO; "

<220>
<221> source
<223> /note="Gene Name:
      alkylglycerol monooxygenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394412"

<400> 4185
Ala Leu Ser Gln Val Thr Leu Leu Leu Arg Val Cys Phe Ile Ile Leu
1               5                   10                  15

Thr Leu Thr Ser Ile Gly Phe Leu Leu Asp Gln Arg Pro Lys Ala Ala
            20                  25                  30

Ile Met Glu Thr Leu Arg Cys Leu Met Phe Leu Met Leu Tyr Arg Phe
        35                  40                  45

Gly His Leu Lys Pro Leu Val Pro Ser Leu Ser Ser Ala Phe Glu Glu
    50                  55                  60

Thr Pro Tyr Leu Ser Ser Asn Ser Ala Ile
65                  70
```

<210> 4186
<211> 658
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 942; "

<220>
<221> source
<223> /note="Gene Symbol: AGPS; "

<220>
<221> source
<223> /note="Gene Name:
alkylglycerone phosphate synthase; "

<220>
<221> source
<223> /note="Uniprot ID: O00116; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000264167"

<400> 4186
Met Ala Glu Ala Ala Ala Ala Ala Gly Gly Thr Gly Leu Gly Ala Gly
1   5   10   15

Ala Ser Tyr Gly Ser Ala Ala Asp Arg Asp Arg Asp Pro Asp Pro Asp
            20   25   30

Arg Ala Gly Arg Arg Leu Arg Val Leu Ser Gly His Leu Leu Gly Arg
        35   40   45

Pro Arg Glu Ala Leu Ser Thr Asn Glu Cys Lys Ala Arg Arg Ala Ala
    50   55   60

Ser Ala Ala Thr Ala Ala Pro Thr Ala Thr Pro Ala Ala Gln Glu Ser
65   70   75   80

Gly Thr Ile Pro Lys Lys Arg Gln Glu Val Met Lys Trp Asn Gly Trp
                85   90   95

Gly Tyr Asn Asp Ser Lys Phe Ile Phe Asn Lys Lys Gly Gln Ile Glu
            100   105   110

Leu Thr Gly Lys Arg Tyr Pro Leu Ser Gly Met Gly Leu Pro Thr Phe

```
        115                 120                 125

Lys Glu Trp Ile Gln Asn Thr Leu Gly Val Asn Val Glu His Lys Thr
    130                 135                 140

Thr Ser Lys Ala Ser Leu Asn Pro Ser Asp Thr Pro Pro Ser Val Val
145                 150                 155                 160

Asn Glu Asp Phe Leu His Asp Leu Lys Glu Thr Asn Ile Ser Tyr Ser
                165                 170                 175

Gln Glu Ala Asp Asp Arg Val Phe Arg Ala His Gly His Cys Leu His
            180                 185                 190

Glu Ile Phe Leu Leu Arg Glu Gly Met Phe Glu Arg Ile Pro Asp Ile
        195                 200                 205

Val Leu Trp Pro Thr Cys His Asp Asp Val Val Lys Ile Val Asn Leu
    210                 215                 220

Ala Cys Lys Tyr Asn Leu Cys Ile Ile Pro Ile Gly Gly Gly Thr Ser
225                 230                 235                 240

Val Ser Tyr Gly Leu Met Cys Pro Ala Asp Glu Thr Arg Thr Ile Ile
                245                 250                 255

Ser Leu Asp Thr Ser Gln Met Asn Arg Ile Leu Trp Val Asp Glu Asn
            260                 265                 270

Asn Leu Thr Ala His Val Glu Ala Gly Ile Thr Gly Gln Glu Leu Glu
        275                 280                 285

Arg Gln Leu Lys Glu Ser Gly Tyr Cys Thr Gly His Glu Pro Asp Ser
    290                 295                 300

Leu Glu Phe Ser Thr Val Gly Gly Trp Val Ser Thr Arg Ala Ser Gly
305                 310                 315                 320

Met Lys Lys Asn Ile Tyr Gly Asn Ile Glu Asp Leu Val Val His Ile
                325                 330                 335

Lys Met Val Thr Pro Arg Gly Ile Ile Glu Lys Ser Cys Gln Gly Pro
            340                 345                 350
```

```
Arg Met Ser Thr Gly Pro Asp Ile His His Phe Ile Met Gly Ser Glu
        355                 360                 365

Gly Thr Leu Gly Val Ile Thr Glu Ala Thr Ile Lys Ile Arg Pro Val
    370                 375                 380

Pro Glu Tyr Gln Lys Tyr Gly Ser Val Ala Phe Pro Asn Phe Glu Gln
385                 390                 395                 400

Gly Val Ala Cys Leu Arg Glu Ile Ala Lys Gln Arg Cys Ala Pro Ala
                405                 410                 415

Ser Ile Arg Leu Met Asp Asn Lys Gln Phe Gln Phe Gly His Ala Leu
            420                 425                 430

Lys Pro Gln Val Ser Ser Ile Phe Thr Ser Phe Leu Asp Gly Leu Lys
        435                 440                 445

Lys Phe Tyr Ile Thr Lys Phe Lys Gly Phe Asp Pro Asn Gln Leu Ser
    450                 455                 460

Val Ala Thr Leu Leu Phe Glu Gly Asp Arg Glu Lys Val Leu Gln His
465                 470                 475                 480

Glu Lys Gln Val Tyr Asp Ile Ala Ala Lys Phe Gly Gly Leu Ala Ala
                485                 490                 495

Gly Glu Asp Asn Gly Gln Arg Gly Tyr Leu Leu Thr Tyr Val Ile Ala
            500                 505                 510

Tyr Ile Arg Asp Leu Ala Leu Glu Tyr Tyr Val Leu Gly Glu Ser Phe
        515                 520                 525

Glu Thr Ser Ala Pro Trp Asp Arg Val Val Asp Leu Cys Arg Asn Val
    530                 535                 540

Lys Glu Arg Ile Thr Arg Glu Cys Lys Glu Lys Gly Val Gln Phe Ala
545                 550                 555                 560

Pro Phe Ser Thr Cys Arg Val Thr Gln Thr Tyr Asp Ala Gly Ala Cys
                565                 570                 575
```

Ile Tyr Phe Tyr Phe Ala Phe Asn Tyr Arg Gly Ile Ser Asp Pro Leu
580 585 590

Thr Val Phe Glu Gln Thr Glu Ala Ala Ala Arg Glu Glu Ile Leu Ala
595 600 605

Asn Gly Gly Ser Leu Ser His His His Gly Val Gly Lys Leu Arg Lys
610 615 620

Gln Trp Leu Lys Glu Ser Ile Ser Asp Val Gly Phe Gly Met Leu Lys
625 630 635 640

Ser Val Lys Glu Tyr Val Asp Pro Asn Asn Ile Phe Gly Asn Arg Asn
645 650 655

Leu Leu

<210> 4187
<211> 189
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AGPS; "

<220>
<221> source
<223> /note="Gene Name:
alkylglycerone phosphate synthase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386688"

<400> 4187
Met Ala Glu Ala Ala Ala Ala Ala Gly Gly Thr Gly Leu Gly Ala Gly
1 5 10 15

Ala Ser Tyr Gly Ser Ala Ala Asp Arg Asp Arg Asp Pro Asp Pro Asp
20 25 30

Arg Ala Gly Arg Arg Leu Arg Val Leu Ser Gly His Leu Leu Gly Arg

```
        35                  40                  45

Pro Arg Glu Ala Leu Ser Thr Asn Glu Cys Lys Ala Arg Arg Ala Ala
    50                  55                  60

Ser Ala Ala Thr Ala Ala Pro Thr Ala Thr Pro Ala Ala Gln Glu Ser
65                  70                  75                  80

Gly Thr Ile Pro Lys Lys Arg Gln Glu Val Met Lys Trp Asn Gly Trp
                85                  90                  95

Gly Tyr Asn Asp Ser Lys Phe Ile Phe Asn Lys Lys Gly Gln Ile Glu
            100                 105                 110

Leu Thr Gly Lys Arg Gly Ile Ser Asp Pro Leu Thr Val Phe Glu Gln
        115                 120                 125

Thr Glu Ala Ala Ala Arg Glu Glu Ile Leu Ala Asn Gly Gly Ser Leu
    130                 135                 140

Ser His His His Gly Val Gly Lys Leu Arg Lys Gln Trp Leu Lys Glu
145                 150                 155                 160

Ser Ile Ser Asp Val Gly Phe Gly Met Leu Lys Ser Val Lys Glu Tyr
                165                 170                 175

Val Asp Pro Asn Asn Ile Phe Gly Asn Arg Asn Leu Leu
            180                 185


<210> 4188
<211> 391
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 943; "

<220>
<221> source
<223> /note="Gene Symbol: ALLC; "

<220>
<221> source
<223> /note="Gene Name:
      allantoicase; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000252505"

<400> 4188
Met Asp Met Ala Ser Glu Ser Val Gly Gly Lys Ile Leu Phe Ala Thr
1   5   10   15

Asp Asp Phe Phe Ala Pro Ala Glu Asn Leu Ile Lys Ser Asp Ser Pro
            20   25   30

Cys Phe Lys Glu His Glu Tyr Thr Glu Phe Gly Lys Trp Met Asp Gly
        35   40   45

Trp Glu Thr Arg Arg Lys Arg Ile Pro Gly His Asp Trp Cys Val Leu
    50   55   60

Arg Leu Gly Ile Gln Gly Val Ile Arg Gly Phe Asp Val Asp Val Ser
65   70   75   80

Tyr Phe Thr Gly Asp Tyr Ala Pro Arg Val Ser Ile Gln Ala Ala Asn
                85   90   95

Leu Glu Glu Asp Lys Leu Pro Glu Ile Pro Glu Arg Gly Thr Arg Thr
            100   105   110

Gly Ala Ala Ala Thr Pro Glu Glu Phe Glu Ala Ile Ala Glu Leu Lys
        115   120   125

Ser Asp Asp Trp Ser Tyr Leu Val Pro Met Thr Glu Leu Lys Pro Gly
    130   135   140

Asn Pro Ala Ser Gly His Asn Tyr Phe Leu Val Asn Ser Gln Gln Arg
145   150   155   160

Trp Thr His Ile Arg Leu Asn Ile Phe Pro Asp Gly Gly Ile Ala Arg
                165   170   175

Leu Arg Val Phe Gly Thr Gly Gln Lys Asp Trp Thr Ala Thr Asp Pro
            180   185   190

Lys Glu Pro Ala Asp Leu Val Ala Ile Ala Phe Gly Gly Val Cys Val
        195   200   205

```
Gly Phe Ser Asn Ala Lys Phe Gly His Pro Asn Asn Ile Ile Gly Val
    210                 215                 220

Gly Gly Ala Lys Ser Met Ala Asp Gly Trp Glu Thr Ala Arg Arg Leu
225                 230                 235                 240

Asp Arg Pro Pro Ile Leu Glu Asn Asp Glu Asn Gly Ile Leu Leu Val
                245                 250                 255

Pro Gly Cys Glu Trp Ala Val Phe Arg Leu Ala His Pro Gly Val Ile
            260                 265                 270

Thr Arg Ile Glu Ile Asp Thr Lys Tyr Phe Glu Gly Asn Ala Pro Asp
        275                 280                 285

Ser Cys Lys Val Asp Gly Cys Ile Leu Thr Thr Gln Glu Glu Glu Ala
    290                 295                 300

Val Ile Arg Gln Lys Trp Ile Leu Pro Ala His Lys Trp Lys Pro Leu
305                 310                 315                 320

Leu Pro Val Thr Lys Leu Ser Pro Asn Gln Ser His Leu Phe Asp Ser
                325                 330                 335

Leu Thr Leu Glu Leu Gln Asp Val Ile Thr His Ala Arg Leu Thr Ile
            340                 345                 350

Val Pro Asp Gly Gly Val Ser Arg Leu Arg Leu Arg Gly Phe Pro Ser
        355                 360                 365

Ser Ile Cys Leu Leu Arg Pro Arg Glu Lys Pro Met Leu Lys Phe Ser
    370                 375                 380

Val Ser Phe Lys Ala Asn Pro
385                 390


<210> 4189
<211> 161
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "
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<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000338776"

<400> 4189

```
Gly Arg Lys Ala Ser Glu Lys Thr Gly Gly Arg Glu Gly Glu Pro Ala
1               5                  10                  15

Asp Arg Gly Leu Gln Leu Gly Gly Lys Ala Phe Gly Leu Leu Lys Ala
            20                  25                  30

Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu Asp Asp
        35                  40                  45

Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu Gly Phe
    50                  55                  60

Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp
65                  70                  75                  80

Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr
                85                  90                  95

His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly
            100                 105                 110

Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg
        115                 120                 125

Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu
    130                 135                 140

Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu
145                 150                 155                 160

Pro
```

<210> 4190
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000365217"

<400> 4190
Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp Ile Met Ser Leu
1 5 10 15

Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Leu
20 25 30

Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly Glu Thr Phe Ser
35 40 45

Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg Ser Ala Ile Leu
50 55 60

Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu Lys Glu Lys Pro
65 70 75 80

Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu Pro
85 90

<210> 4191
<211> 147
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000365227"

<400> 4191

```
Met Ser Gln Thr Arg Asp Leu Gln Gly Gly Lys Ala Phe Gly Leu Leu
1               5                  10                  15


Lys Ala Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu
            20                  25                  30


Asp Asp Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu
        35                  40                  45


Gly Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp
    50                  55                  60


Ile Asp Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro
65                  70                  75                  80


Lys Thr His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly
                85                  90                  95


Ser Gly Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly
            100                 105                 110


Lys Arg Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala
        115                 120                 125
```

Arg Glu Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser
130 135 140

Glu Leu Pro
145

<210> 4192
<211> 93
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
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<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000372965"

<400> 4192
Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp Ile Met Ser Leu
1 5 10 15

Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Leu
20 25 30

Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly Glu Thr Phe Ser
35 40 45

Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg Ser Ala Ile Leu
50 55 60

Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu Lys Glu Lys Pro
65 70 75 80

Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu Pro

85 90

<210> 4193
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000372966"

<400> 4193
Met Ser Gln Thr Arg Asp Leu Gln Gly Gly Lys Ala Phe Gly Leu Leu
1 5 10 15

Lys Ala Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu
20 25 30

Asp Asp Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu
35 40 45

Gly Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp
50 55 60

Ile Asp Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro
65 70 75 80

Lys Thr His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly
85 90 95

Ser Gly Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly
100 105 110

Lys Arg Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala
115 120 125

Arg Glu Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser
130 135 140

Glu Leu Pro
145

<210> 4194
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391720"

<400> 4194
Met Ser Gln Thr Arg Asp Leu Gln Gly Gly Lys Ala Phe Gly Leu Leu
1 5 10 15

Lys Ala Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu
20 25 30

Asp Asp Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu
35 40 45

Gly Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp
50 55 60

```
Ile Asp Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro
65                  70                  75                  80

Lys Thr His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly
                85                  90                  95

Ser Gly Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly
            100                 105                 110

Lys Arg Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala
        115                 120                 125

Arg Glu Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser
    130                 135                 140

Glu Leu Pro
145
```

<210> 4195
<211> 161
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393114"

<400> 4195

```
Gly Arg Lys Ala Ser Glu Lys Thr Gly Gly Arg Glu Gly Glu Pro Ala
1               5                   10                  15

Asp Arg Gly Leu Gln Leu Gly Gly Lys Ala Phe Gly Leu Leu Lys Ala
            20                  25                  30
```

```
Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu Asp Asp
        35                  40                  45

Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu Gly Phe
    50                  55                  60

Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp
65                  70                  75                  80

Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr
                85                  90                  95

His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly
            100                 105                 110

Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg
        115                 120                 125

Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu
    130                 135                 140

Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu
145                 150                 155                 160

Pro
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<210> 4196
<211> 161
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000393996"

<400> 4196
Gly Arg Lys Ala Ser Glu Lys Thr Gly Gly Arg Glu Gly Glu Pro Ala
1   5   10   15

Asp Arg Gly Leu Gln Leu Gly Gly Lys Ala Phe Gly Leu Leu Lys Ala
            20   25   30

Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu Asp Asp
        35   40   45

Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu Gly Phe
    50   55   60

Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp
65   70   75   80

Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr
                85   90   95

His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly
            100   105   110

Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg
        115   120   125

Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu
    130   135   140

Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu
145   150   155   160

Pro

<210> 4197
<211> 161
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 944; "

<220>

<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394278"

<400> 4197

```
Gly Arg Lys Ala Ser Glu Lys Thr Gly Gly Arg Glu Gly Glu Pro Ala
1               5                  10                  15

Asp Arg Gly Leu Gln Leu Gly Gly Lys Ala Phe Gly Leu Leu Lys Ala
            20                  25                  30

Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu Asp Asp
        35                  40                  45

Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu Gly Phe
    50                  55                  60

Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp
65                  70                  75                  80

Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr
                85                  90                  95

His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly
            100                 105                 110

Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg
        115                 120                 125

Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu
    130                 135                 140

Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu
145                 150                 155                 160

Pro
```

<210> 4198
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397842"

<400> 4198
Met Ser Gln Thr Arg Asp Leu Gln Gly Gly Lys Ala Phe Gly Leu Leu
1 5 10 15

Lys Ala Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu
20 25 30

Asp Asp Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu
35 40 45

Gly Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp
50 55 60

Ile Asp Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro
65 70 75 80

Lys Thr His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly
85 90 95

Ser Gly Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly
100 105 110

Lys Arg Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala
        115   120   125

Arg Glu Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser
    130   135   140

Glu Leu Pro
145

<210> 4199
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory factor
      1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398013"

<400> 4199
Met Ser Gln Thr Arg Asp Leu Gln Gly Gly Lys Ala Phe Gly Leu Leu
1   5   10   15

Lys Ala Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu
            20   25   30

Asp Asp Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu
        35   40   45

Gly Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp
    50   55   60

Ile Asp Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro

65 70 75 80

Lys Thr His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly
85 90 95

Ser Gly Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly
100 105 110

Lys Arg Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala
115 120 125

Arg Glu Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser
130 135 140

Glu Leu Pro
145

<210> 4200
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399621"

<400> 4200
Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp Ile Met Ser Leu
1 5 10 15

Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Leu
20 25 30

Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly Glu Thr Phe Ser
35 40 45

Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg Ser Ala Ile Leu
50 55 60

Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu Lys Glu Lys Pro
65 70 75 80

Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu Pro
85 90

<210> 4201
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399901"

<400> 4201
Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp Ile Met Ser Leu
1 5 10 15

Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Leu
20 25 30

Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly Glu Thr Phe Ser
35 40 45

```
Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg Ser Ala Ile Leu
    50                  55                  60

Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu Lys Glu Lys Pro
65                  70                  75                  80

Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu Pro
                85                  90

<210> 4202
<211> 161
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory  factor
      1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400538"

<400> 4202
Gly Arg Lys Ala Ser Glu Lys Thr Gly Gly Arg Glu Gly Glu Pro Ala
1               5                   10                  15

Asp Arg Gly Leu Gln Leu Gly Gly Lys Ala Phe Gly Leu Leu Lys Ala
            20                  25                  30

Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu Asp Asp
        35                  40                  45

Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu Gly Phe
    50                  55                  60

Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp
65                  70                  75                  80
```

```
Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr
                85                  90                  95

His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly
            100                 105                 110

Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg
        115                 120                 125

Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu
    130                 135                 140

Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu
145                 150                 155                 160

Pro
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<210> 4203
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
<221> source
<223> /note="Uniprot ID: P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401433"

<400> 4203

```
Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp Ile Met Ser Leu
1               5                   10                  15

Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Leu
```

```
            20                  25                  30

Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly Glu Thr Phe Ser
        35                  40                  45

Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg Ser Ala Ile Leu
    50                  55                  60

Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu Lys Glu Lys Pro
65                  70                  75                  80

Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu Pro
                85                  90


<210> 4204
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory  factor
      1; "

<220>
<221> source
<223> /note="Uniprot ID:  P55008; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413709"

<400> 4204
Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp Ile Met Ser Leu
1               5                   10                  15

Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Leu
            20                  25                  30

Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly Glu Thr Phe Ser
        35                  40                  45
```

```
Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg Ser Ala Ile Leu
    50                  55                  60

Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu Lys Glu Lys Pro
65                  70                  75                  80

Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu Pro
                85                  90

<210> 4205
<211> 161
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 944; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory  factor
      1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415805"

<400> 4205
Gly Arg Lys Ala Ser Glu Lys Thr Gly Gly Arg Glu Gly Glu Pro Ala
1               5                   10                  15

Asp Arg Gly Leu Gln Leu Gly Gly Lys Ala Phe Gly Leu Leu Lys Ala
            20                  25                  30

Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu Asp Asp
        35                  40                  45

Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu Gly Phe
    50                  55                  60

Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp Ile Asp
65                  70                  75                  80
```

```
Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro Lys Thr
                85                  90                  95

His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly Ser Gly
            100                 105                 110

Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly Lys Arg
        115                 120                 125

Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala Arg Glu
    130                 135                 140

Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser Glu Leu
145                 150                 155                 160

Pro
```

<210> 4206
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AIF1; "

<220>
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<223> /note="Gene Name:
allograft inflammatory factor
1; "

<220>
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<223> /note="Uniprot ID: P55008; "

<220>
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<223> /note="ENSP ID: ENSP00000416061"

<400> 4206

```
Met Ser Gln Thr Arg Asp Leu Gln Gly Gly Lys Ala Phe Gly Leu Leu
1               5                  10                  15
```

```
Lys Ala Gln Gln Glu Glu Arg Leu Asp Glu Ile Asn Lys Gln Phe Leu
            20                  25                  30

Asp Asp Pro Lys Tyr Ser Ser Asp Glu Asp Leu Pro Ser Lys Leu Glu
        35                  40                  45

Gly Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Gly Asn Gly Asp
    50                  55                  60

Ile Asp Ile Met Ser Leu Lys Arg Met Leu Glu Lys Leu Gly Val Pro
65                  70                  75                  80

Lys Thr His Leu Glu Leu Lys Lys Leu Ile Gly Glu Val Ser Ser Gly
                85                  90                  95

Ser Gly Glu Thr Phe Ser Tyr Pro Asp Phe Leu Arg Met Met Leu Gly
            100                 105                 110

Lys Arg Ser Ala Ile Leu Lys Met Ile Leu Met Tyr Glu Glu Lys Ala
        115                 120                 125

Arg Glu Lys Glu Lys Pro Thr Gly Pro Pro Ala Lys Lys Ala Ile Ser
    130                 135                 140

Glu Leu Pro
145
```

<210> 4207
<211> 150
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AIF1L; "

<220>
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<223> /note="Gene Name:
allograft inflammatory factor
1-like; "

<220>
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<223> /note="Uniprot ID: Q9BQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000247291"

<400> 4207
Met Ser Gly Glu Leu Ser Asn Arg Phe Gln Gly Gly Lys Ala Phe Gly
1   5   10   15

Leu Leu Lys Ala Arg Gln Glu Arg Arg Leu Ala Glu Ile Asn Arg Glu
            20   25   30

Phe Leu Cys Asp Gln Lys Tyr Ser Asp Glu Glu Asn Leu Pro Glu Lys
        35   40   45

Leu Thr Ala Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Asn Glu
    50   55   60

Gly Glu Ile Asp Leu Met Ser Leu Lys Arg Met Met Glu Lys Leu Gly
65   70   75   80

Val Pro Lys Thr His Leu Glu Met Lys Lys Met Ile Ser Glu Val Thr
                85   90   95

Gly Gly Val Ser Asp Thr Ile Ser Tyr Arg Asp Phe Val Asn Met Met
            100   105   110

Leu Gly Lys Arg Ser Ala Val Leu Lys Leu Val Met Met Phe Glu Gly
        115   120   125

Lys Ala Asn Glu Ser Ser Pro Lys Pro Val Gly Pro Pro Pro Glu Arg
    130   135   140

Asp Ile Ala Ser Leu Pro
145   150

<210> 4208
<211> 46
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 945; "

<220>

<221> source
<223> /note="Gene Symbol: AIF1L; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361371"

<400> 4208
Met Glu Phe Asp Leu Asn Asn Glu Gly Glu Ile Asp Leu Met Ser Leu
1 5 10 15

Lys Arg Met Met Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Met
20 25 30

Lys Lys Met Ile Ser Glu Val Thr Gly Gly Ser His Asp Val
35 40 45

<210> 4209
<211> 97
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 945; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1L; "

<220>
<221> source
<223> /note="Gene Name:
allograft inflammatory factor
1-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361372"

<400> 4209
Met Ser Gly Glu Leu Ser Asn Arg Phe Gln Gly Gly Lys Ala Phe Gly
1 5 10 15

Leu Leu Lys Ala Arg Gln Glu Arg Arg Leu Ala Glu Ile Asn Arg Glu
20 25 30

```
Phe Leu Cys Asp Gln Lys Tyr Ser Asp Glu Glu Asn Leu Pro Glu Lys
        35                  40                  45

Leu Thr Ala Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Asn Glu
    50                  55                  60

Gly Glu Ile Asp Leu Met Ser Leu Lys Arg Met Met Glu Lys Leu Gly
65                  70                  75                  80

Val Pro Lys Thr His Leu Glu Met Lys Lys Met Ile Ser Glu Gly Gly
                85                  90                  95

Tyr
```

<210> 4210
<211> 102
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 945; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1L; "

<220>
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<223> /note="Gene Name:
allograft inflammatory factor
1-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361374"

<400> 4210

```
Met Ser Gly Glu Leu Ser Asn Arg Phe Gln Gly Gly Lys Ala Phe Gly
1               5                   10                  15

Leu Leu Lys Ala Arg Gln Glu Arg Arg Leu Ala Glu Ile Asn Arg Glu
            20                  25                  30
```

```
Phe Leu Cys Asp Gln Lys Tyr Ser Asp Glu Glu Asn Leu Pro Glu Lys
        35                  40                  45

Leu Thr Ala Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Asn Asn Glu
    50                  55                  60

Gly Glu Ile Asp Leu Met Ser Leu Lys Arg Met Met Glu Lys Leu Gly
65                  70                  75                  80

Val Pro Lys Thr His Leu Glu Met Lys Lys Met Ile Ser Glu Val Thr
                85                  90                  95

Gly Gly Ser His Asp Val
            100


<210> 4211
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 945; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1L; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory  factor
      1-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361375"

<400> 4211
Met Glu Phe Asp Leu Asn Asn Glu Gly Glu Ile Asp Leu Met Ser Leu
1               5                   10                  15

Lys Arg Met Met Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Met
            20                  25                  30

Lys Lys Met Ile Ser Glu Val Thr Gly Gly Val Ser Asp Thr Ile Ser
        35                  40                  45

Tyr Arg Asp Phe Val Asn Met Met Leu Gly Lys Arg Ser Ala Val Leu
```

```
    50                  55                  60

Lys Leu Val Met Met Phe Glu Gly Lys Ala Asn Glu Ser Ser Pro Lys
65                  70                  75                  80

Pro Val Gly Pro Pro Pro Glu Arg Asp Ile Ala Ser Leu Pro
                85                  90


<210> 4212
<211> 142
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 945; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1L; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory  factor
      1-like; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361376"

<400> 4212
Met Ser Gly Glu Leu Ser Asn Arg Phe Gln Gly Gly Lys Ala Phe Gly
1               5                   10                  15

Leu Leu Lys Ala Arg Gln Glu Arg Arg Leu Ala Glu Ile Asn Arg Glu
            20                  25                  30

Phe Leu Cys Asp Gln Lys Tyr Ser Asp Glu Glu Asn Leu Pro Glu Lys
        35                  40                  45

Leu Thr Ala Phe Lys Glu Lys Tyr Met Glu Phe Asp Leu Met Ser Leu
    50                  55                  60

Lys Arg Met Met Glu Lys Leu Gly Val Pro Lys Thr His Leu Glu Met
65                  70                  75                  80
```

```
Lys Lys Met Ile Ser Glu Val Thr Gly Gly Val Ser Asp Thr Ile Ser
                85                  90                  95

Tyr Arg Asp Phe Val Asn Met Met Leu Gly Lys Arg Ser Ala Val Leu
            100                 105                 110

Lys Leu Val Met Met Phe Glu Gly Lys Ala Asn Glu Ser Ser Pro Lys
        115                 120                 125

Pro Val Gly Pro Pro Pro Glu Arg Asp Ile Ala Ser Leu Pro
    130                 135                 140


<210> 4213
<211> 176
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 945; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1L; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory  factor
      1-like; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361383"

<400> 4213
Met Ser Gly Glu Leu Ser Asn Arg Phe Gln Gly Gly Lys Ala Phe Gly
1               5                   10                  15

Leu Leu Lys Ala Arg Gln Glu Arg Arg Leu Ala Glu Ile Asn Arg Tyr
            20                  25                  30

Cys Ala Gly Arg Glu Pro Gln Leu Gln Arg Ile Ser Cys Ser Gln His
        35                  40                  45
```

```
Ser Cys Leu Leu Ala Leu Leu Phe Gln Glu Phe Leu Cys Asp Gln Lys
    50                  55                  60

Tyr Ser Asp Glu Glu Asn Leu Pro Glu Lys Leu Thr Ala Phe Lys Glu
65                  70                  75                  80

Lys Tyr Met Glu Phe Asp Leu Asn Asn Glu Gly Glu Ile Asp Leu Met
                85                  90                  95

Ser Leu Lys Arg Met Met Glu Lys Leu Gly Val Pro Lys Thr His Leu
            100                 105                 110

Glu Met Lys Lys Met Ile Ser Glu Val Thr Gly Gly Val Ser Asp Thr
        115                 120                 125

Ile Ser Tyr Arg Asp Phe Val Asn Met Met Leu Gly Lys Arg Ser Ala
    130                 135                 140

Val Leu Lys Leu Val Met Met Phe Glu Gly Lys Ala Asn Glu Ser Ser
145                 150                 155                 160

Pro Lys Pro Val Gly Pro Pro Pro Glu Arg Asp Ile Ala Ser Leu Pro
                165                 170                 175


<210> 4214
<211> 42
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 945; "

<220>
<221> source
<223> /note="Gene Symbol: AIF1L; "

<220>
<221> source
<223> /note="Gene Name:
      allograft inflammatory  factor
      1-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361388"

<400> 4214
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```
Met Ser Gly Glu Leu Ser Asn Arg Phe Gln Gly Arg Leu Phe Val Ser
1               5                  10                  15

Ser Arg Arg Glu Gly Val Arg Leu Ala Gln Ser Pro Ala Gly Glu Glu
            20                  25                  30

Ala Gly Arg Asp Gln Pro Gly Val Ser Val
        35                  40


<210> 4215
<211> 284
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 946; "

<220>
<221> source
<223> /note="Gene Symbol: ATRAID; "

<220>
<221> source
<223> /note="Gene Name:
      all-trans retinoic acid-induced differentiation
      factor; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6UW56; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369518"

<400> 4215
Met Lys Thr Ser Ala Glu Leu His Glu Gln Glu Lys Pro Pro Ser Ser
1               5                  10                  15

Pro Arg Ala Thr Gly Pro Gly Arg Leu Gly His Ala Arg Gly Arg Gly
            20                  25                  30

Pro Asp Ala Leu Arg Gly Gly Ala Ala Gly Pro Gly Arg Ala Ser Ser
        35                  40                  45

Gly Ala Pro Arg Glu Arg Lys Met Ala Pro His Asp Pro Gly Ser Leu
    50                  55                  60

Thr Thr Leu Val Pro Trp Ala Ala Ala Leu Leu Leu Ala Leu Gly Val
```

65 70 75 80

Glu Arg Ala Leu Ala Leu Pro Glu Ile Cys Thr Gln Cys Pro Gly Ser
85 90 95

Val Gln Asn Leu Ser Lys Val Ala Phe Tyr Cys Lys Thr Thr Arg Glu
100 105 110

Leu Met Leu His Ala Arg Cys Cys Leu Asn Gln Lys Gly Thr Ile Leu
115 120 125

Gly Leu Asp Leu Gln Asn Cys Ser Leu Glu Asp Pro Gly Pro Asn Phe
130 135 140

His Gln Ala His Thr Thr Val Ile Ile Asp Leu Gln Ala Asn Pro Leu
145 150 155 160

Lys Gly Asp Leu Ala Asn Thr Phe Arg Gly Phe Thr Gln Leu Gln Thr
165 170 175

Leu Ile Leu Pro Gln His Val Asn Cys Pro Gly Gly Ile Asn Ala Trp
180 185 190

Asn Thr Ile Thr Ser Tyr Ile Asp Asn Gln Ile Cys Gln Gly Gln Lys
195 200 205

Asn Leu Cys Asn Asn Thr Gly Asp Pro Glu Met Cys Pro Glu Asn Gly
210 215 220

Ser Cys Val Pro Asp Gly Pro Gly Leu Leu Gln Cys Val Cys Ala Asp
225 230 235 240

Gly Phe His Gly Tyr Lys Cys Met Arg Gln Gly Ser Phe Ser Leu Leu
245 250 255

Met Phe Phe Gly Ile Leu Gly Ala Thr Thr Leu Ser Val Ser Ile Leu
260 265 270

Leu Trp Ala Thr Gln Arg Arg Lys Ala Lys Thr Ser
275 280

<210> 4216
<211> 171

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 946; "

<220>
<221> source
<223> /note="Gene Symbol: ATRAID; "

<220>
<221> source
<223> /note="Gene Name:
all-trans retinoic acid-induced differentiation
factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UW56; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384033"

<400> 4216

Met	Leu	His	Ala	Arg	Cys	Cys	Leu	Asn	Gln	Lys	Gly	Thr	Ile	Leu	Gly
1				5					10						15

Leu	Asp	Leu	Gln	Asn	Cys	Ser	Leu	Glu	Asp	Pro	Gly	Pro	Asn	Phe	His
			20					25					30		

Gln	Ala	His	Thr	Thr	Val	Ile	Ile	Asp	Leu	Gln	Ala	Asn	Pro	Leu	Lys
		35					40					45			

Gly	Asp	Leu	Ala	Asn	Thr	Phe	Arg	Gly	Phe	Thr	Gln	Leu	Gln	Thr	Leu
	50					55					60				

Ile	Leu	Pro	Gln	His	Val	Asn	Cys	Pro	Gly	Gly	Ile	Asn	Ala	Trp	Asn
65					70					75					80

Thr	Ile	Thr	Ser	Tyr	Ile	Asp	Asn	Gln	Ile	Cys	Gln	Gly	Gln	Lys	Asn
				85					90					95	

Leu	Cys	Asn	Asn	Thr	Gly	Asp	Pro	Glu	Met	Cys	Pro	Glu	Asn	Gly	Ser
				100					105					110	

Cys	Val	Pro	Asp	Gly	Pro	Gly	Leu	Leu	Gln	Cys	Val	Cys	Ala	Asp	Gly
			115					120					125		

```
Phe His Gly Tyr Lys Cys Met Arg Gln Gly Ser Phe Ser Leu Leu Met
    130                 135                 140

Phe Phe Gly Ile Leu Gly Ala Thr Thr Leu Ser Val Ser Ile Leu Leu
145                 150                 155                 160

Trp Ala Thr Gln Arg Arg Lys Ala Lys Thr Ser
                165                 170


<210> 4217
<211> 75
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 946; "

<220>
<221> source
<223> /note="Gene Symbol: ATRAID; "

<220>
<221> source
<223> /note="Gene Name:
      all-trans retinoic acid-induced differentiation
      factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397319"

<400> 4217
Met Leu His Ala Arg Cys Cys Leu Asn Gln Lys Gly Thr Ile Leu Gly
1               5                   10                  15

Leu Asp Leu Gln Asn Cys Ser Leu Glu Asp Pro Gly Pro Asn Phe His
            20                  25                  30

Gln Ala His Thr Thr Val Ile Ile Asp Leu Gln Ala Asn Pro Leu Lys
        35                  40                  45

Gly Asp Leu Ala Asn Thr Phe Arg Gly Phe Thr Gln Leu Gln Thr Leu
    50                  55                  60

Ile Leu Pro Gln His Val Asn Cys Pro Gly Gly
65                  70                  75
```

<210> 4218
<211> 229
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 946; "

<220>
<221> source
<223> /note="Gene Symbol: ATRAID; "

<220>
<221> source
<223> /note="Gene Name:
all-trans retinoic acid-induced differentiation
factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UW56; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476080"

<400> 4218
Met Ala Pro His Asp Pro Gly Ser Leu Thr Thr Leu Val Pro Trp Ala
1   5   10   15

Ala Ala Leu Leu Leu Ala Leu Gly Val Glu Arg Ala Leu Ala Leu Pro
            20   25   30

Glu Ile Cys Thr Gln Cys Pro Gly Ser Val Gln Asn Leu Ser Lys Val
        35   40   45

Ala Phe Tyr Cys Lys Thr Thr Arg Glu Leu Met Leu His Ala Arg Cys
    50   55   60

Cys Leu Asn Gln Lys Gly Thr Ile Leu Gly Leu Asp Leu Gln Asn Cys
65   70   75   80

Ser Leu Glu Asp Pro Gly Pro Asn Phe His Gln Ala His Thr Thr Val
                85   90   95

Ile Ile Asp Leu Gln Ala Asn Pro Leu Lys Gly Asp Leu Ala Asn Thr
            100   105   110

Phe Arg Gly Phe Thr Gln Leu Gln Thr Leu Ile Leu Pro Gln His Val

```
        115                 120                 125

Asn Cys Pro Gly Gly Ile Asn Ala Trp Asn Thr Ile Thr Ser Tyr Ile
    130                 135                 140

Asp Asn Gln Ile Cys Gln Gly Gln Lys Asn Leu Cys Asn Asn Thr Gly
145                 150                 155                 160

Asp Pro Glu Met Cys Pro Glu Asn Gly Ser Cys Val Pro Asp Gly Pro
                165                 170                 175

Gly Leu Leu Gln Cys Val Cys Ala Asp Gly Phe His Gly Tyr Lys Cys
            180                 185                 190

Met Arg Gln Gly Ser Phe Ser Leu Leu Met Phe Phe Gly Ile Leu Gly
        195                 200                 205

Ala Thr Thr Leu Ser Val Ser Ile Leu Leu Trp Ala Thr Gln Arg Arg
    210                 215                 220

Lys Ala Lys Thr Ser
225
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<210> 4219
<211> 284
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 946; "

<220>
<221> source
<223> /note="Gene Symbol: ATRAID; "

<220>
<221> source
<223> /note="Gene Name:
all-trans retinoic acid-induced differentiation
factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UW56; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484228"

<400> 4219
Met Lys Thr Ser Ala Glu Leu His Glu Gln Glu Lys Pro Pro Ser Ser
1 5 10 15

Pro Arg Ala Thr Gly Pro Gly Arg Leu Gly His Ala Arg Gly Arg Gly
20 25 30

Pro Asp Ala Leu Arg Gly Gly Ala Ala Gly Pro Gly Arg Ala Ser Ser
35 40 45

Gly Ala Pro Arg Glu Arg Lys Met Ala Pro His Asp Pro Gly Ser Leu
50 55 60

Thr Thr Leu Val Pro Trp Ala Ala Ala Leu Leu Leu Ala Leu Gly Val
65 70 75 80

Glu Arg Ala Leu Ala Leu Pro Glu Ile Cys Thr Gln Cys Pro Gly Ser
85 90 95

Val Gln Asn Leu Ser Lys Val Ala Phe Tyr Cys Lys Thr Thr Arg Glu
100 105 110

Leu Met Leu His Ala Arg Cys Cys Leu Asn Gln Lys Gly Thr Ile Leu
115 120 125

Gly Leu Asp Leu Gln Asn Cys Ser Leu Glu Asp Pro Gly Pro Asn Phe
130 135 140

His Gln Ala His Thr Thr Val Ile Ile Asp Leu Gln Ala Asn Pro Leu
145 150 155 160

Lys Gly Asp Leu Ala Asn Thr Phe Arg Gly Phe Thr Gln Leu Gln Thr
165 170 175

Leu Ile Leu Pro Gln His Val Asn Cys Pro Gly Gly Ile Asn Ala Trp
180 185 190

Asn Thr Ile Thr Ser Tyr Ile Asp Asn Gln Ile Cys Gln Gly Gln Lys
195 200 205

Asn Leu Cys Asn Asn Thr Gly Asp Pro Glu Met Cys Pro Glu Asn Gly
210 215 220

Ser Cys Val Pro Asp Gly Pro Gly Leu Leu Gln Cys Val Cys Ala Asp
225 230 235 240

Gly Phe His Gly Tyr Lys Cys Met Arg Gln Gly Ser Phe Ser Leu Leu
245 250 255

Met Phe Phe Gly Ile Leu Gly Ala Thr Thr Leu Ser Val Ser Ile Leu
260 265 270

Leu Trp Ala Thr Gln Arg Arg Lys Ala Lys Thr Ser
275 280

<210> 4220
<211> 340
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 947; "

<220>
<221> source
<223> /note="Gene Symbol: A3GALT2; "

<220>
<221> source
<223> /note="Gene Name:
alpha 1,3-galactosyltransferase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000475261"

<400> 4220
Met Ala Leu Lys Glu Gly Leu Arg Ala Trp Lys Arg Ile Phe Trp Arg
1 5 10 15

Gln Ile Leu Leu Thr Leu Gly Leu Leu Gly Leu Phe Leu Tyr Gly Leu
20 25 30

Pro Lys Phe Arg His Leu Glu Ala Leu Ile Pro Met Gly Val Cys Pro
35 40 45

Ser Ala Thr Met Ser Gln Leu Arg Asp Asn Phe Thr Gly Ala Leu Arg
50 55 60

Pro Trp Ala Arg Pro Glu Val Leu Thr Cys Thr Pro Trp Gly Ala Pro

65 70 75 80

Ile Ile Trp Asp Gly Ser Phe Asp Pro Asp Val Ala Lys Gln Glu Ala
85 90 95

Arg Gln Gln Asn Leu Thr Ile Gly Leu Thr Ile Phe Ala Val Gly Arg
100 105 110

Tyr Leu Glu Lys Tyr Leu Glu Arg Phe Leu Glu Thr Ala Glu Gln His
115 120 125

Phe Met Ala Gly Gln Ser Val Met Tyr Tyr Val Phe Thr Glu Leu Pro
130 135 140

Gly Ala Val Pro Arg Val Ala Leu Gly Pro Gly Arg Arg Leu Pro Val
145 150 155 160

Glu Arg Val Ala Arg Glu Arg Arg Trp Gln Asp Val Ser Met Ala Arg
165 170 175

Met Arg Thr Leu His Ala Ala Leu Gly Gly Leu Pro Gly Arg Glu Ala
180 185 190

His Phe Met Phe Cys Met Asp Val Asp Gln His Phe Ser Gly Thr Phe
195 200 205

Gly Pro Glu Ala Leu Ala Glu Ser Val Ala Gln Leu His Ser Trp His
210 215 220

Tyr His Trp Pro Ser Trp Leu Leu Pro Phe Glu Arg Asp Ala His Ser
225 230 235 240

Ala Ala Ala Met Ala Trp Gly Gln Gly Asp Phe Tyr Asn His Ala Ala
245 250 255

Val Phe Gly Gly Ser Val Ala Ala Leu Arg Gly Leu Thr Ala His Cys
260 265 270

Ala Gly Gly Leu Asp Trp Asp Arg Ala Arg Gly Leu Glu Ala Arg Trp
275 280 285

His Asp Glu Ser His Leu Asn Lys Phe Phe Trp Leu His Lys Pro Ala
290 295 300

```
Lys Val Leu Ser Pro Glu Phe Cys Trp Ser Pro Asp Ile Gly Pro Arg
305                 310                 315                 320


Ala Glu Ile Arg Arg Pro Arg Leu Leu Trp Ala Pro Lys Gly Tyr Arg
                325                 330                 335


Leu Leu Arg Asn
            340


<210> 4221
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 948; "

<220>
<221> source
<223> /note="Gene Symbol: A4GALT; "

<220>
<221> source
<223> /note="Gene Name:
      alpha 1,4-galactosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NPC4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000249005"

<400> 4221
Met Ser Lys Pro Pro Asp Leu Leu Leu Arg Leu Leu Arg Gly Ala Pro
1               5                   10                  15


Arg Gln Arg Val Cys Thr Leu Phe Ile Ile Gly Phe Lys Phe Thr Phe
            20                  25                  30


Phe Val Ser Ile Met Ile Tyr Trp His Val Val Gly Glu Pro Lys Glu
        35                  40                  45


Lys Gly Gln Leu Tyr Asn Leu Pro Ala Glu Ile Pro Cys Pro Thr Leu
    50                  55                  60
```

```
Thr Pro Pro Thr Pro Pro Ser His Gly Pro Thr Pro Gly Asn Ile Phe
65                  70                  75                  80

Phe Leu Glu Thr Ser Asp Arg Thr Asn Pro Asn Phe Leu Phe Met Cys
                85                  90                  95

Ser Val Glu Ser Ala Ala Arg Thr His Pro Glu Ser His Val Leu Val
            100                 105                 110

Leu Met Lys Gly Leu Pro Gly Gly Asn Ala Ser Leu Pro Arg His Leu
        115                 120                 125

Gly Ile Ser Leu Leu Ser Cys Phe Pro Asn Val Gln Met Leu Pro Leu
    130                 135                 140

Asp Leu Arg Glu Leu Phe Arg Asp Thr Pro Leu Ala Asp Trp Tyr Ala
145                 150                 155                 160

Ala Val Gln Gly Arg Trp Glu Pro Tyr Leu Leu Pro Val Leu Ser Asp
                165                 170                 175

Ala Ser Arg Ile Ala Leu Met Trp Lys Phe Gly Gly Ile Tyr Leu Asp
            180                 185                 190

Thr Asp Phe Ile Val Leu Lys Asn Leu Arg Asn Leu Thr Asn Val Leu
        195                 200                 205

Gly Thr Gln Ser Arg Tyr Val Leu Asn Gly Ala Phe Leu Ala Phe Glu
    210                 215                 220

Arg Arg His Glu Phe Met Ala Leu Cys Met Arg Asp Phe Val Asp His
225                 230                 235                 240

Tyr Asn Gly Trp Ile Trp Gly His Gln Gly Pro Gln Leu Leu Thr Arg
                245                 250                 255

Val Phe Lys Lys Trp Cys Ser Ile Arg Ser Leu Ala Glu Ser Arg Ala
            260                 265                 270

Cys Arg Gly Val Thr Thr Leu Pro Pro Glu Ala Phe Tyr Pro Ile Pro
        275                 280                 285

Trp Gln Asp Trp Lys Lys Tyr Phe Glu Asp Ile Asn Pro Glu Glu Leu
```

```
    290                 295                 300

Pro Arg Leu Leu Ser Ala Thr Tyr Ala Val His Val Trp Asn Lys Lys
305                 310                 315                 320

Ser Gln Gly Thr Arg Phe Glu Ala Thr Ser Arg Ala Leu Leu Ala Gln
                325                 330                 335

Leu His Ala Arg Tyr Cys Pro Thr Thr His Glu Ala Met Lys Met Tyr
            340                 345                 350

Leu
```

<210> 4222
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 948; "

<220>
<221> source
<223> /note="Gene Symbol: A4GALT; "

<220>
<221> source
<223> /note="Gene Name:
alpha 1,4-galactosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NPC4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000370678"

<400> 4222

```
Met Ser Lys Pro Pro Asp Leu Leu Leu Arg Leu Leu Arg Gly Ala Pro
1               5                   10                  15

Arg Gln Arg Val Cys Thr Leu Phe Ile Ile Gly Phe Lys Phe Thr Phe
            20                  25                  30

Phe Val Ser Ile Met Ile Tyr Trp His Val Val Gly Glu Pro Lys Glu
        35                  40                  45
```

```
Lys Gly Gln Leu Tyr Asn Leu Pro Ala Glu Ile Pro Cys Pro Thr Leu
    50                  55                  60

Thr Pro Pro Thr Pro Pro Ser His Gly Pro Thr Pro Gly Asn Ile Phe
65                  70                  75                  80

Phe Leu Glu Thr Ser Asp Arg Thr Asn Pro Asn Phe Leu Phe Met Cys
                85                  90                  95

Ser Val Glu Ser Ala Ala Arg Thr His Pro Glu Ser His Val Leu Val
            100                 105                 110

Leu Met Lys Gly Leu Pro Gly Gly Asn Ala Ser Leu Pro Arg His Leu
        115                 120                 125

Gly Ile Ser Leu Leu Ser Cys Phe Pro Asn Val Gln Met Leu Pro Leu
    130                 135                 140

Asp Leu Arg Glu Leu Phe Arg Asp Thr Pro Leu Ala Asp Trp Tyr Ala
145                 150                 155                 160

Ala Val Gln Gly Arg Trp Glu Pro Tyr Leu Leu Pro Val Leu Ser Asp
                165                 170                 175

Ala Ser Arg Ile Ala Leu Met Trp Lys Phe Gly Gly Ile Tyr Leu Asp
            180                 185                 190

Thr Asp Phe Ile Val Leu Lys Asn Leu Arg Asn Leu Thr Asn Val Leu
        195                 200                 205

Gly Thr Gln Ser Arg Tyr Val Leu Asn Gly Ala Phe Leu Ala Phe Glu
    210                 215                 220

Arg Arg His Glu Phe Met Ala Leu Cys Met Arg Asp Phe Val Asp His
225                 230                 235                 240

Tyr Asn Gly Trp Ile Trp Gly His Gln Gly Pro Gln Leu Leu Thr Arg
                245                 250                 255

Val Phe Lys Lys Trp Cys Ser Ile Arg Ser Leu Ala Glu Ser Arg Ala
            260                 265                 270
```

```
Cys Arg Gly Val Thr Thr Leu Pro Pro Glu Ala Phe Tyr Pro Ile Pro
        275                 280                 285

Trp Gln Asp Trp Lys Lys Tyr Phe Glu Asp Ile Asn Pro Glu Glu Leu
    290                 295                 300

Pro Arg Leu Leu Ser Ala Thr Tyr Ala Val His Val Trp Asn Lys Lys
305                 310                 315                 320

Ser Gln Gly Thr Arg Phe Glu Ala Thr Ser Arg Ala Leu Leu Ala Gln
                325                 330                 335

Leu His Ala Arg Tyr Cys Pro Thr Thr His Glu Ala Met Lys Met Tyr
            340                 345                 350

Leu
```

<210> 4223
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 948; "

<220>
<221> source
<223> /note="Gene Symbol: A4GALT; "

<220>
<221> source
<223> /note="Gene Name:
alpha 1,4-galactosyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NPC4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384794"

<400> 4223

```
Met Ser Lys Pro Pro Asp Leu Leu Leu Arg Leu Leu Arg Gly Ala Pro
1               5                   10                  15

Arg Gln Arg Val Cys Thr Leu Phe Ile Ile Gly Phe Lys Phe Thr Phe
            20                  25                  30
```

```
Phe Val Ser Ile Met Ile Tyr Trp His Val Val Gly Glu Pro Lys Glu
        35                  40                  45

Lys Gly Gln Leu Tyr Asn Leu Pro Ala Glu Ile Pro Cys Pro Thr Leu
    50                  55                  60

Thr Pro Pro Thr Pro Pro Ser His Gly Pro Thr Pro Gly Asn Ile Phe
65                  70                  75                  80

Phe Leu Glu Thr Ser Asp Arg Thr Asn Pro Asn Phe Leu Phe Met Cys
                85                  90                  95

Ser Val Glu Ser Ala Ala Arg Thr His Pro Glu Ser His Val Leu Val
            100                 105                 110

Leu Met Lys Gly Leu Pro Gly Gly Asn Ala Ser Leu Pro Arg His Leu
        115                 120                 125

Gly Ile Ser Leu Leu Ser Cys Phe Pro Asn Val Gln Met Leu Pro Leu
    130                 135                 140

Asp Leu Arg Glu Leu Phe Arg Asp Thr Pro Leu Ala Asp Trp Tyr Ala
145                 150                 155                 160

Ala Val Gln Gly Arg Trp Glu Pro Tyr Leu Leu Pro Val Leu Ser Asp
                165                 170                 175

Ala Ser Arg Ile Ala Leu Met Trp Lys Phe Gly Gly Ile Tyr Leu Asp
            180                 185                 190

Thr Asp Phe Ile Val Leu Lys Asn Leu Arg Asn Leu Thr Asn Val Leu
        195                 200                 205

Gly Thr Gln Ser Arg Tyr Val Leu Asn Gly Ala Phe Leu Ala Phe Glu
    210                 215                 220

Arg Arg His Glu Phe Met Ala Leu Cys Met Arg Asp Phe Val Asp His
225                 230                 235                 240

Tyr Asn Gly Trp Ile Trp Gly His Gln Gly Pro Gln Leu Leu Thr Arg
                245                 250                 255
```

```
Val Phe Lys Lys Trp Cys Ser Ile Arg Ser Leu Ala Glu Ser Arg Ala
            260                 265                 270

Cys Arg Gly Val Thr Thr Leu Pro Pro Glu Ala Phe Tyr Pro Ile Pro
        275                 280                 285

Trp Gln Asp Trp Lys Lys Tyr Phe Glu Asp Ile Asn Pro Glu Glu Leu
    290                 295                 300

Pro Arg Leu Leu Ser Ala Thr Tyr Ala Val His Val Trp Asn Lys Lys
305                 310                 315                 320

Ser Gln Gly Thr Arg Phe Glu Ala Thr Ser Arg Ala Leu Leu Ala Gln
                325                 330                 335

Leu His Ala Arg Tyr Cys Pro Thr Thr His Glu Ala Met Lys Met Tyr
            340                 345                 350

Leu
```

<210> 4224
<211> 315
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 949; "

<220>
<221> source
<223> /note="Gene Symbol: AAGAB; "

<220>
<221> source
<223> /note="Gene Name:
alpha- and gamma-adaptin binding prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q6PD74; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000261880"

<400> 4224
```
Met Ala Ala Gly Val Pro Cys Ala Leu Val Thr Ser Cys Ser Ser Val
```

```
1               5                   10                  15

Phe Ser Gly Asp Gln Leu Val Gln His Ile Leu Gly Thr Glu Asp Leu
            20                  25                  30

Ile Val Glu Val Thr Ser Asn Asp Ala Val Arg Phe Tyr Pro Trp Thr
        35                  40                  45

Ile Asp Asn Lys Tyr Tyr Ser Ala Asp Ile Asn Leu Cys Val Val Pro
    50                  55                  60

Asn Lys Phe Leu Val Thr Ala Glu Ile Ala Glu Ser Val Gln Ala Phe
65                  70                  75                  80

Val Val Tyr Phe Asp Ser Thr Gln Lys Ser Gly Leu Asp Ser Val Ser
                85                  90                  95

Ser Trp Leu Pro Leu Ala Lys Ala Trp Leu Pro Glu Val Met Ile Leu
            100                 105                 110

Val Cys Asp Arg Val Ser Glu Asp Gly Ile Asn Arg Gln Lys Ala Gln
        115                 120                 125

Glu Trp Cys Ile Lys His Gly Phe Glu Leu Val Glu Leu Ser Pro Glu
    130                 135                 140

Glu Leu Pro Glu Glu Asp Asp Asp Phe Pro Glu Ser Thr Gly Val Lys
145                 150                 155                 160

Arg Ile Val Gln Ala Leu Asn Ala Asn Val Trp Ser Asn Val Val Met
                165                 170                 175

Lys Asn Asp Arg Asn Gln Gly Phe Ser Leu Leu Asn Ser Leu Thr Gly
            180                 185                 190

Thr Asn His Ser Ile Gly Ser Ala Asp Pro Cys His Pro Glu Gln Pro
        195                 200                 205

His Leu Pro Ala Ala Asp Ser Thr Glu Ser Leu Ser Asp His Arg Gly
    210                 215                 220

Gly Ala Ser Asn Thr Thr Asp Ala Gln Val Asp Ser Ile Val Asp Pro
225                 230                 235                 240
```

```
Met Leu Asp Leu Asp Ile Gln Glu Leu Ala Ser Leu Thr Thr Gly Gly
                245                 250                 255

Gly Asp Val Glu Asn Phe Glu Arg Leu Phe Ser Lys Leu Lys Glu Met
            260                 265                 270

Lys Asp Lys Ala Ala Thr Leu Pro His Glu Gln Arg Lys Val His Ala
        275                 280                 285

Glu Lys Val Ala Lys Ala Phe Trp Met Ala Ile Gly Gly Asp Arg Asp
    290                 295                 300

Glu Ile Glu Gly Leu Ser Ser Asp Glu Glu His
305                 310                 315


<210> 4225
<211> 206
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 949; "

<220>
<221> source
<223> /note="Gene Symbol: AAGAB; "

<220>
<221> source
<223> /note="Gene Name:
      alpha- and gamma-adaptin binding prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6PD74; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440735"

<400> 4225
Met Ile Leu Val Cys Asp Arg Val Ser Glu Asp Gly Ile Asn Arg Gln
1               5                   10                  15

Lys Ala Gln Glu Trp Cys Ile Lys His Gly Phe Glu Leu Val Glu Leu
            20                  25                  30
```

```
Ser Pro Glu Glu Leu Pro Glu Glu Asp Asp Asp Phe Pro Glu Ser Thr
        35                  40                  45

Gly Val Lys Arg Ile Val Gln Ala Leu Asn Ala Asn Val Trp Ser Asn
    50                  55                  60

Val Val Met Lys Asn Asp Arg Asn Gln Gly Phe Ser Leu Leu Asn Ser
65                  70                  75                  80

Leu Thr Gly Thr Asn His Ser Ile Gly Ser Ala Asp Pro Cys His Pro
                85                  90                  95

Glu Gln Pro His Leu Pro Ala Ala Asp Ser Thr Glu Ser Leu Ser Asp
            100                 105                 110

His Arg Gly Gly Ala Ser Asn Thr Thr Asp Ala Gln Val Asp Ser Ile
        115                 120                 125

Val Asp Pro Met Leu Asp Leu Asp Ile Gln Glu Leu Ala Ser Leu Thr
    130                 135                 140

Thr Gly Gly Gly Asp Val Glu Asn Phe Glu Arg Leu Phe Ser Lys Leu
145                 150                 155                 160

Lys Glu Met Lys Asp Lys Ala Ala Thr Leu Pro His Glu Gln Arg Lys
                165                 170                 175

Val His Ala Glu Lys Val Ala Lys Ala Phe Trp Met Ala Ile Gly Gly
            180                 185                 190

Asp Arg Asp Glu Ile Glu Gly Leu Ser Ser Asp Glu Glu His
        195                 200                 205


<210> 4226
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 949; "

<220>
<221> source
<223> /note="Gene Symbol: AAGAB; "
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<220>
<221> source
<223> /note="Gene Name:
alpha- and gamma-adaptin binding prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453059"

<400> 4226
Met Ile Leu Val Cys Asp Arg Val Ser Glu Asp Gly Ile Asn Arg Gln
1 5 10 15

Lys Ala Gln Glu Trp Cys Ile Lys His Gly Phe Glu Leu Val Glu Leu
20 25 30

Ser Pro Glu Glu Leu Pro Glu Glu Asp Asp Asp Phe Pro Glu Ser Thr
35 40 45

Gly Val Lys Arg Ile Val Gln Ala Leu Asn
50 55

<210> 4227
<211> 206
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 949; "

<220>
<221> source
<223> /note="Gene Symbol: AAGAB; "

<220>
<221> source
<223> /note="Gene Name:
alpha- and gamma-adaptin binding prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q6PD74; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453263"

<400> 4227
Met Ile Leu Val Cys Asp Arg Val Ser Glu Asp Gly Ile Asn Arg Gln
1 5 10 15

```
Lys Ala Gln Glu Trp Cys Ile Lys His Gly Phe Glu Leu Val Glu Leu
            20                  25                  30

Ser Pro Glu Glu Leu Pro Glu Glu Asp Asp Asp Phe Pro Glu Ser Thr
        35                  40                  45

Gly Val Lys Arg Ile Val Gln Ala Leu Asn Ala Asn Val Trp Ser Asn
    50                  55                  60

Val Val Met Lys Asn Asp Arg Asn Gln Gly Phe Ser Leu Leu Asn Ser
65                  70                  75                  80

Leu Thr Gly Thr Asn His Ser Ile Gly Ser Ala Asp Pro Cys His Pro
                85                  90                  95

Glu Gln Pro His Leu Pro Ala Ala Asp Ser Thr Glu Ser Leu Ser Asp
            100                 105                 110

His Arg Gly Gly Ala Ser Asn Thr Thr Asp Ala Gln Val Asp Ser Ile
        115                 120                 125

Val Asp Pro Met Leu Asp Leu Asp Ile Gln Glu Leu Ala Ser Leu Thr
    130                 135                 140

Thr Gly Gly Gly Asp Val Glu Asn Phe Glu Arg Leu Phe Ser Lys Leu
145                 150                 155                 160

Lys Glu Met Lys Asp Lys Ala Ala Thr Leu Pro His Glu Gln Arg Lys
                165                 170                 175

Val His Ala Glu Lys Val Ala Lys Ala Phe Trp Met Ala Ile Gly Gly
            180                 185                 190

Asp Arg Asp Glu Ile Glu Gly Leu Ser Ser Asp Glu Glu His
        195                 200                 205


<210> 4228
<211> 102
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 950; "
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<220>
<221> source
<223> /note="Gene Symbol: AHSP; "

<220>
<221> source
<223> /note="Gene Name:
alpha hemoglobin stabilizing prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NZD4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000307199"

<400> 4228
Met Ala Leu Leu Lys Ala Asn Lys Asp Leu Ile Ser Ala Gly Leu Lys
1   5   10   15

Glu Phe Ser Val Leu Leu Asn Gln Gln Val Phe Asn Asp Pro Leu Val
            20   25   30

Ser Glu Glu Asp Met Val Thr Val Val Glu Asp Trp Met Asn Phe Tyr
        35   40   45

Ile Asn Tyr Tyr Arg Gln Gln Val Thr Gly Glu Pro Gln Glu Arg Asp
    50   55   60

Lys Ala Leu Gln Glu Leu Arg Gln Glu Leu Asn Thr Leu Ala Asn Pro
65   70   75   80

Phe Leu Ala Lys Tyr Arg Asp Phe Leu Lys Ser His Glu Leu Pro Ser
                85   90   95

His Pro Pro Pro Ser Ser
            100

<210> 4229
<211> 57
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 950; "

<220>
<221> source

<223> /note="Gene Symbol: AHSP; "

<220>
<221> source
<223> /note="Gene Name:
alpha hemoglobin stabilizing prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456748"

<400> 4229
Met Ala Leu Leu Lys Ala Asn Lys Asp Leu Ile Ser Ala Gly Leu Lys
1 5 10 15

Glu Phe Ser Val Leu Leu Asn Gln Gln Val Phe Asn Asp Pro Leu Val
20 25 30

Ser Glu Glu Asp Met Val Thr Val Val Glu Asp Trp Met Asn Phe Tyr
35 40 45

Ile Asn Tyr Tyr Arg Gln Gln Val Thr
50 55

<210> 4230
<211> 2492
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
<221> source
<223> /note="Gene Symbol: ATRX; "

<220>
<221> source
<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="Uniprot ID: P46100; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362441"

<400> 4230
Met Thr Ala Glu Pro Met Ser Glu Ser Lys Leu Asn Thr Leu Val Gln
1 5 10 15

```
Lys Leu His Asp Phe Leu Ala His Ser Ser Glu Glu Ser Glu Glu Thr
            20                  25                  30

Ser Ser Pro Pro Arg Leu Ala Met Asn Gln Asn Thr Asp Lys Ile Ser
        35                  40                  45

Gly Ser Gly Ser Asn Ser Asp Met Met Glu Asn Ser Lys Glu Glu Gly
    50                  55                  60

Thr Ser Ser Ser Glu Lys Ser Lys Ser Ser Gly Ser Ser Arg Ser Lys
65                  70                  75                  80

Arg Lys Pro Ser Ile Val Thr Lys Tyr Val Glu Ser Asp Asp Glu Lys
                85                  90                  95

Pro Leu Asp Asp Glu Thr Val Asn Glu Asp Ala Ser Asn Glu Asn Ser
            100                 105                 110

Glu Asn Asp Ile Thr Met Gln Ser Leu Pro Lys Gly Thr Val Ile Val
        115                 120                 125

Gln Pro Glu Pro Val Leu Asn Glu Asp Lys Asp Asp Phe Lys Gly Pro
    130                 135                 140

Glu Phe Arg Ser Arg Ser Lys Met Lys Thr Glu Asn Leu Lys Lys Arg
145                 150                 155                 160

Gly Glu Asp Gly Leu His Gly Ile Val Ser Cys Thr Ala Cys Gly Gln
                165                 170                 175

Gln Val Asn His Phe Gln Lys Asp Ser Ile Tyr Arg His Pro Ser Leu
            180                 185                 190

Gln Val Leu Ile Cys Lys Asn Cys Phe Lys Tyr Tyr Met Ser Asp Asp
        195                 200                 205

Ile Ser Arg Asp Ser Asp Gly Met Asp Glu Gln Cys Arg Trp Cys Ala
    210                 215                 220

Glu Gly Gly Asn Leu Ile Cys Cys Asp Phe Cys His Asn Ala Phe Cys
225                 230                 235                 240
```

```
Lys Lys Cys Ile Leu Arg Asn Leu Gly Arg Lys Glu Leu Ser Thr Ile
                245                 250                 255

Met Asp Glu Asn Asn Gln Trp Tyr Cys Tyr Ile Cys His Pro Glu Pro
            260                 265                 270

Leu Leu Asp Leu Val Thr Ala Cys Asn Ser Val Phe Glu Asn Leu Glu
        275                 280                 285

Gln Leu Leu Gln Gln Asn Lys Lys Lys Ile Lys Val Asp Ser Glu Lys
    290                 295                 300

Ser Asn Lys Val Tyr Glu His Thr Ser Arg Phe Ser Pro Lys Lys Thr
305                 310                 315                 320

Ser Ser Asn Cys Asn Gly Glu Glu Lys Lys Leu Asp Asp Ser Cys Ser
                325                 330                 335

Gly Ser Val Thr Tyr Ser Tyr Ser Ala Leu Ile Val Pro Lys Glu Met
            340                 345                 350

Ile Lys Lys Ala Lys Lys Leu Ile Glu Thr Thr Ala Asn Met Asn Ser
        355                 360                 365

Ser Tyr Val Lys Phe Leu Lys Gln Ala Thr Asp Asn Ser Glu Ile Ser
    370                 375                 380

Ser Ala Thr Lys Leu Arg Gln Leu Lys Ala Phe Lys Ser Val Leu Ala
385                 390                 395                 400

Asp Ile Lys Lys Ala His Leu Ala Leu Glu Glu Asp Leu Asn Ser Glu
                405                 410                 415

Phe Arg Ala Met Asp Ala Val Asn Lys Glu Lys Asn Thr Lys Glu His
            420                 425                 430

Lys Val Ile Asp Ala Lys Phe Glu Thr Lys Ala Arg Lys Gly Glu Lys
        435                 440                 445

Pro Cys Ala Leu Glu Lys Lys Asp Ile Ser Lys Ser Glu Ala Lys Leu
    450                 455                 460
```

```
Ser Arg Lys Gln Val Asp Ser Glu His Met His Gln Asn Val Pro Thr
465                 470                 475                 480

Glu Glu Gln Arg Thr Asn Lys Ser Thr Gly Gly Glu His Lys Lys Ser
                485                 490                 495

Asp Arg Lys Glu Glu Pro Gln Tyr Glu Pro Ala Asn Thr Ser Glu Asp
            500                 505                 510

Leu Asp Met Asp Ile Val Ser Val Pro Ser Ser Val Pro Glu Asp Ile
        515                 520                 525

Phe Glu Asn Leu Glu Thr Ala Met Glu Val Gln Ser Ser Val Asp His
    530                 535                 540

Gln Gly Asp Gly Ser Ser Gly Thr Glu Gln Glu Val Glu Ser Ser Ser
545                 550                 555                 560

Val Lys Leu Asn Ile Ser Ser Lys Asp Asn Arg Gly Gly Ile Lys Ser
                565                 570                 575

Lys Thr Thr Ala Lys Val Thr Lys Glu Leu Tyr Val Lys Leu Thr Pro
            580                 585                 590

Val Ser Leu Ser Asn Ser Pro Ile Lys Gly Ala Asp Cys Gln Glu Val
        595                 600                 605

Pro Gln Asp Lys Asp Gly Tyr Lys Ser Cys Gly Leu Asn Pro Lys Leu
    610                 615                 620

Glu Lys Cys Gly Leu Gly Gln Glu Asn Ser Asp Asn Glu His Leu Val
625                 630                 635                 640

Glu Asn Glu Val Ser Leu Leu Leu Glu Glu Ser Asp Leu Arg Arg Ser
                645                 650                 655

Pro Arg Val Lys Thr Thr Pro Leu Arg Arg Pro Thr Glu Thr Asn Pro
            660                 665                 670

Val Thr Ser Asn Ser Asp Glu Glu Cys Asn Glu Thr Val Lys Glu Lys
        675                 680                 685

Gln Lys Leu Ser Val Pro Val Arg Lys Lys Asp Lys Arg Asn Ser Ser
```

690 695 700

Asp Ser Ala Ile Asp Asn Pro Lys Pro Asn Lys Leu Pro Lys Ser Lys
705 710 715 720

Gln Ser Glu Thr Val Asp Gln Asn Ser Asp Ser Asp Glu Met Leu Ala
725 730 735

Ile Leu Lys Glu Val Ser Arg Met Ser His Ser Ser Ser Ser Asp Thr
740 745 750

Asp Ile Asn Glu Ile His Thr Asn His Lys Thr Leu Tyr Asp Leu Lys
755 760 765

Thr Gln Ala Gly Lys Asp Asp Lys Gly Lys Arg Lys Arg Lys Ser Ser
770 775 780

Thr Ser Gly Ser Asp Phe Asp Thr Lys Lys Gly Lys Ser Ala Lys Ser
785 790 795 800

Ser Ile Ile Ser Lys Lys Lys Arg Gln Thr Gln Ser Glu Ser Ser Asn
805 810 815

Tyr Asp Ser Glu Leu Glu Lys Glu Ile Lys Ser Met Ser Lys Ile Gly
820 825 830

Ala Ala Arg Thr Thr Lys Lys Arg Ile Pro Asn Thr Lys Asp Phe Asp
835 840 845

Ser Ser Glu Asp Glu Lys His Ser Lys Lys Gly Met Asp Asn Gln Gly
850 855 860

His Lys Asn Leu Lys Thr Ser Gln Glu Gly Ser Ser Asp Asp Ala Glu
865 870 875 880

Arg Lys Gln Glu Arg Glu Thr Phe Ser Ser Ala Glu Gly Thr Val Asp
885 890 895

Lys Asp Thr Thr Ile Met Glu Leu Arg Asp Arg Leu Pro Lys Lys Gln
900 905 910

Gln Ala Ser Ala Ser Thr Asp Gly Val Asp Lys Leu Ser Gly Lys Glu
915 920 925

```
Glu Ser Phe Thr Ser Leu Glu Val Arg Lys Val Ala Glu Thr Lys Glu
    930                 935                 940

Lys Ser Lys His Leu Lys Thr Lys Thr Cys Lys Lys Val Gln Asp Gly
945                 950                 955                 960

Leu Ser Asp Ile Ala Glu Lys Phe Leu Lys Lys Asp Gln Ser Asp Glu
                965                 970                 975

Thr Ser Glu Asp Asp Lys Lys Gln Ser Lys Lys Gly Thr Glu Glu Lys
            980                 985                 990

Lys Lys Pro Ser Asp Phe Lys Lys  Lys Val Ile Lys Met  Glu Gln
Gln
        995                 1000                1005

Tyr Glu  Ser Ser Ser Asp Gly  Thr Glu Lys Leu Pro  Glu Arg Glu
    1010                1015                1020

Glu Ile  Cys His Phe Pro Lys  Gly Ile Lys Gln Ile  Lys Asn Gly
    1025                1030                1035

Thr Thr  Asp Gly Glu Lys Lys  Ser Lys Lys Ile Arg  Asp Lys Thr
    1040                1045                1050

Ser Lys  Lys Lys Asp Glu Leu  Ser Asp Tyr Ala Glu  Lys Ser Thr
    1055                1060                1065

Gly Lys  Gly Asp Ser Cys Asp  Ser Ser Glu Asp Lys  Lys Ser Lys
    1070                1075                1080

Asn Gly  Ala Tyr Gly Arg Glu  Lys Lys Arg Cys Lys  Leu Leu Gly
    1085                1090                1095

Lys Ser  Ser Arg Lys Arg Gln  Asp Cys Ser Ser Ser  Asp Thr Glu
    1100                1105                1110

Lys Tyr  Ser Met Lys Glu Asp  Gly Cys Asn Ser Ser  Asp Lys Arg
    1115                1120                1125

Leu Lys  Arg Ile Glu Leu Arg  Glu Arg Arg Asn Leu  Ser Ser Lys
    1130                1135                1140
```

```
Arg Asn  Thr Lys Glu Ile Gln  Ser Gly Ser Ser Ser  Ser Asp Ala
    1145                1150                1155

Glu Glu  Ser Ser Glu Asp Asn  Lys Lys Lys Lys Gln  Arg Thr Ser
    1160                1165                1170

Ser Lys  Lys Lys Ala Val Ile  Val Lys Glu Lys Lys  Arg Asn Ser
    1175                1180                1185

Leu Arg  Thr Ser Thr Lys Arg  Lys Gln Ala Asp Ile  Thr Ser Ser
    1190                1195                1200

Ser Ser  Ser Asp Ile Glu Asp  Asp Asp Gln Asn Ser  Ile Gly Glu
    1205                1210                1215

Gly Ser  Ser Asp Glu Gln Lys  Ile Lys Pro Val Thr  Glu Asn Leu
    1220                1225                1230

Val Leu  Ser Ser His Thr Gly  Phe Cys Gln Ser Ser  Gly Asp Glu
    1235                1240                1245

Ala Leu  Ser Lys Ser Val Pro  Val Thr Val Asp Asp  Asp Asp Asp
    1250                1255                1260

Asp Asn  Asp Pro Glu Asn Arg  Ile Ala Lys Lys Met  Leu Leu Glu
    1265                1270                1275

Glu Ile  Lys Ala Asn Leu Ser  Ser Asp Glu Asp Gly  Ser Ser Asp
    1280                1285                1290

Asp Glu  Pro Glu Glu Gly Lys  Lys Arg Thr Gly Lys  Gln Asn Glu
    1295                1300                1305

Glu Asn  Pro Gly Asp Glu Glu  Ala Lys Asn Gln Val  Asn Ser Glu
    1310                1315                1320

Ser Asp  Ser Asp Ser Glu Glu  Ser Lys Lys Pro Arg  Tyr Arg His
    1325                1330                1335

Arg Leu  Leu Arg His Lys Leu  Thr Val Ser Asp Gly  Glu Ser Gly
    1340                1345                1350
```

```
Glu Glu  Lys Lys Thr Lys Pro  Lys Glu His Lys Glu  Val Lys Gly
    1355                1360                1365

Arg Asn  Arg Arg Lys Val Ser  Ser Glu Asp Ser Glu  Asp Ser Asp
    1370                1375                1380

Phe Gln  Glu Ser Gly Val Ser  Glu Glu Val Ser Glu  Ser Glu Asp
    1385                1390                1395

Glu Gln  Arg Pro Arg Thr Arg  Ser Ala Lys Lys Ala  Glu Leu Glu
    1400                1405                1410

Glu Asn  Gln Arg Ser Tyr Lys  Gln Lys Lys Lys Arg  Arg Arg Ile
    1415                1420                1425

Lys Val  Gln Glu Asp Ser Ser  Ser Glu Asn Lys Ser  Asn Ser Glu
    1430                1435                1440

Glu Glu  Glu Glu Glu Lys Glu  Glu Glu Glu Glu Glu  Glu Glu Glu
    1445                1450                1455

Glu Glu  Glu Glu Glu Glu Asp  Glu Asn Asp Asp Ser  Lys Ser Pro
    1460                1465                1470

Gly Lys  Gly Arg Lys Lys Ile  Arg Lys Ile Leu Lys  Asp Asp Lys
    1475                1480                1485

Leu Arg  Thr Glu Thr Gln Asn  Ala Leu Lys Glu Glu  Glu Glu Arg
    1490                1495                1500

Arg Lys  Arg Ile Ala Glu Arg  Glu Arg Glu Arg Glu  Lys Leu Arg
    1505                1510                1515

Glu Val  Ile Glu Ile Glu Asp  Ala Ser Pro Thr Lys  Cys Pro Ile
    1520                1525                1530

Thr Thr  Lys Leu Val Leu Asp  Glu Asp Glu Glu Thr  Lys Glu Pro
    1535                1540                1545

Leu Val  Gln Val His Arg Asn  Met Val Ile Lys Leu  Lys Pro His
    1550                1555                1560
```

```
Gln Val  Asp Gly Val Gln Phe  Met Trp Asp Cys Cys  Cys Glu Ser
    1565                1570                1575

Val Lys  Lys Thr Lys Lys Ser  Pro Gly Ser Gly Cys  Ile Leu Ala
    1580                1585                1590

His Cys  Met Gly Leu Gly Lys  Thr Leu Gln Val Val  Ser Phe Leu
    1595                1600                1605

His Thr  Val Leu Leu Cys Asp  Lys Leu Asp Phe Ser  Thr Ala Leu
    1610                1615                1620

Val Val  Cys Pro Leu Asn Thr  Ala Leu Asn Trp Met  Asn Glu Phe
    1625                1630                1635

Glu Lys  Trp Gln Glu Gly Leu  Lys Asp Asp Glu Lys  Leu Glu Val
    1640                1645                1650

Ser Glu  Leu Ala Thr Val Lys  Arg Pro Gln Glu Arg  Ser Tyr Met
    1655                1660                1665

Leu Gln  Arg Trp Gln Glu Asp  Gly Gly Val Met Ile  Ile Gly Tyr
    1670                1675                1680

Glu Met  Tyr Arg Asn Leu Ala  Gln Gly Arg Asn Val  Lys Ser Arg
    1685                1690                1695

Lys Leu  Lys Glu Ile Phe Asn  Lys Ala Leu Val Asp  Pro Gly Pro
    1700                1705                1710

Asp Phe  Val Val Cys Asp Glu  Gly His Ile Leu Lys  Asn Glu Ala
    1715                1720                1725

Ser Ala  Val Ser Lys Ala Met  Asn Ser Ile Arg Ser  Arg Arg Arg
    1730                1735                1740

Ile Ile  Leu Thr Gly Thr Pro  Leu Gln Asn Asn Leu  Ile Glu Tyr
    1745                1750                1755

His Cys  Met Val Asn Phe Ile  Lys Glu Asn Leu Leu  Gly Ser Ile
    1760                1765                1770

Lys Glu  Phe Arg Asn Arg Phe  Ile Asn Pro Ile Gln  Asn Gly Gln
```

1775 1780 1785

Cys Ala Asp Ser Thr Met Val Asp Val Arg Val Met Lys Lys Arg
1790 1795 1800

Ala His Ile Leu Tyr Glu Met Leu Ala Gly Cys Val Gln Arg Lys
1805 1810 1815

Asp Tyr Thr Ala Leu Thr Lys Phe Leu Pro Pro Lys His Glu Tyr
1820 1825 1830

Val Leu Ala Val Arg Met Thr Ser Ile Gln Cys Lys Leu Tyr Gln
1835 1840 1845

Tyr Tyr Leu Asp His Leu Thr Gly Val Gly Asn Asn Ser Glu Gly
1850 1855 1860

Gly Arg Gly Lys Ala Gly Ala Lys Leu Phe Gln Asp Phe Gln Met
1865 1870 1875

Leu Ser Arg Ile Trp Thr His Pro Trp Cys Leu Gln Leu Asp Tyr
1880 1885 1890

Ile Ser Lys Glu Asn Lys Gly Tyr Phe Asp Glu Asp Ser Met Asp
1895 1900 1905

Glu Phe Ile Ala Ser Asp Ser Asp Glu Thr Ser Met Ser Leu Ser
1910 1915 1920

Ser Asp Asp Tyr Thr Lys Lys Lys Lys Lys Gly Lys Lys Gly Lys
1925 1930 1935

Lys Asp Ser Ser Ser Ser Gly Ser Gly Ser Asp Asn Asp Val Glu
1940 1945 1950

Val Ile Lys Val Trp Asn Ser Arg Ser Arg Gly Gly Gly Glu Gly
1955 1960 1965

Asn Val Asp Glu Thr Gly Asn Asn Pro Ser Val Ser Leu Lys Leu
1970 1975 1980

Glu Glu Ser Lys Ala Thr Ser Ser Ser Asn Pro Ser Ser Pro Ala
1985 1990 1995

```
Pro Asp  Trp Tyr Lys Asp Phe  Val Thr Asp Ala Asp  Ala Glu Val
    2000                2005                2010

Leu Glu  His Ser Gly Lys Met  Val Leu Leu Phe Glu  Ile Leu Arg
    2015                2020                2025

Met Ala  Glu Glu Ile Gly Asp  Lys Val Leu Val Phe  Ser Gln Ser
    2030                2035                2040

Leu Ile  Ser Leu Asp Leu Ile  Glu Asp Phe Leu Glu  Leu Ala Ser
    2045                2050                2055

Arg Glu  Lys Thr Glu Asp Lys  Asp Lys Pro Leu Ile  Tyr Lys Gly
    2060                2065                2070

Glu Gly  Lys Trp Leu Arg Asn  Ile Asp Tyr Tyr Arg  Leu Asp Gly
    2075                2080                2085

Ser Thr  Thr Ala Gln Ser Arg  Lys Lys Trp Ala Glu  Glu Phe Asn
    2090                2095                2100

Asp Glu  Thr Asn Val Arg Gly  Arg Leu Phe Ile Ile  Ser Thr Lys
    2105                2110                2115

Ala Gly  Ser Leu Gly Ile Asn  Leu Val Ala Ala Asn  Arg Val Ile
    2120                2125                2130

Ile Phe  Asp Ala Ser Trp Asn  Pro Ser Tyr Asp Ile  Gln Ser Ile
    2135                2140                2145

Phe Arg  Val Tyr Arg Phe Gly  Gln Thr Lys Pro Val  Tyr Val Tyr
    2150                2155                2160

Arg Phe  Leu Ala Gln Gly Thr  Met Glu Asp Lys Ile  Tyr Asp Arg
    2165                2170                2175

Gln Val  Thr Lys Gln Ser Leu  Ser Phe Arg Val Val  Asp Gln Gln
    2180                2185                2190

Gln Val  Glu Arg His Phe Thr  Met Asn Glu Leu Thr  Glu Leu Tyr
    2195                2200                2205
```

```
Thr Phe  Glu Pro Asp Leu Leu  Asp Asp Pro Asn Ser  Glu Lys Lys
    2210                2215                2220

Lys Lys  Arg Asp Thr Pro Met  Leu Pro Lys Asp Thr  Ile Leu Ala
    2225                2230                2235

Glu Leu  Leu Gln Ile His Lys  Glu His Ile Val Gly  Tyr His Glu
    2240                2245                2250

His Asp  Ser Leu Leu Asp His  Lys Glu Glu Glu Glu  Leu Thr Glu
    2255                2260                2265

Glu Glu  Arg Lys Ala Ala Trp  Ala Glu Tyr Glu Ala  Glu Lys Lys
    2270                2275                2280

Gly Leu  Thr Met Arg Phe Asn  Ile Pro Thr Gly Thr  Asn Leu Pro
    2285                2290                2295

Pro Val  Ser Phe Asn Ser Gln  Thr Pro Tyr Ile Pro  Phe Asn Leu
    2300                2305                2310

Gly Ala  Leu Ser Ala Met Ser  Asn Gln Gln Leu Glu  Asp Leu Ile
    2315                2320                2325

Asn Gln  Gly Arg Glu Lys Val  Val Glu Ala Thr Asn  Ser Val Thr
    2330                2335                2340

Ala Val  Arg Ile Gln Pro Leu  Glu Asp Ile Ile Ser  Ala Val Trp
    2345                2350                2355

Lys Glu  Asn Met Asn Leu Ser  Glu Ala Gln Val Gln  Ala Leu Ala
    2360                2365                2370

Leu Ser  Arg Gln Ala Ser Gln  Glu Leu Asp Val Lys  Arg Arg Glu
    2375                2380                2385

Ala Ile  Tyr Asn Asp Val Leu  Thr Lys Gln Gln Met  Leu Ile Ser
    2390                2395                2400

Cys Val  Gln Arg Ile Leu Met  Asn Arg Arg Leu Gln  Gln Gln Tyr
    2405                2410                2415
```

```
Asn Gln  Gln Gln Gln Gln Gln  Met Thr Tyr Gln Gln  Ala Thr Leu
    2420                2425                2430

Gly His  Leu Met Met Pro Lys  Pro Pro Asn Leu Ile  Met Asn Pro
    2435                2440                2445

Ser Asn  Tyr Gln Gln Ile Asp  Met Arg Gly Met Tyr  Gln Pro Val
    2450                2455                2460

Ala Gly  Gly Met Gln Pro Pro  Pro Leu Gln Arg Ala  Pro Pro Pro
    2465                2470                2475

Met Arg  Ser Lys Asn Pro Gly  Pro Ser Gln Gly Lys  Ser Met
    2480                2485                2490


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Lys Leu His Asp Phe Leu Ala His Ser Ser Glu Glu Ser Glu Glu Thr
            20                  25                  30

Ser Ser Pro Pro Arg Leu Ala Met Asn Gln Asn Thr Asp Lys Ile Ser
        35                  40                  45
```

```
Gly Ser Gly Ser Asn Ser Asp Met Met Glu Asn Ser Lys Glu Glu Gly
    50                  55                  60

Thr Ser Ser Ser Glu Lys Ser Lys Ser Ser Gly Ser Ser Arg Ser Lys
65                  70                  75                  80

Arg Lys Pro Ser Ile Val Thr Lys Tyr Val Glu Ser Asp Asp Glu Lys
                85                  90                  95

Pro Leu Asp Asp Glu Thr Val Asn Glu Asp Ala Ser Asn Glu Asn Ser
            100                 105                 110

Glu Asn Asp Ile Thr Met Gln Ser Leu Pro Lys Glu Asp Gly Leu His
        115                 120                 125

Gly Ile Val Ser Cys Thr Ala Cys Gly Gln Gln Val Asn His Phe Gln
    130                 135                 140

Lys Asp Ser Ile Tyr Arg His Pro Ser Leu Gln Val Leu Ile Cys Lys
145                 150                 155                 160

Asn Cys Phe Lys Tyr Tyr Met Ser Asp Asp Ile Ser Arg Asp Ser Asp
                165                 170                 175

Gly Met Asp Glu Gln Cys Arg Trp Cys Ala Glu Gly Gly Asn Leu Ile
            180                 185                 190

Cys Cys Asp Phe Cys His Asn Ala Phe Cys Lys Lys Cys Ile Leu Arg
        195                 200                 205

Asn Leu Gly Arg Lys Glu Leu Ser Thr Ile Met Asp Glu Asn Asn Gln
    210                 215                 220

Trp Tyr Cys Tyr Ile Cys His Pro Glu Pro Leu Leu Asp Leu Val Thr
225                 230                 235                 240

Ala Cys Asn Ser Val Phe Glu Asn Leu Glu Gln Leu Leu Gln Gln Asn
                245                 250                 255

Lys Lys Lys Ile Lys Val Asp Ser Glu Lys Ser Asn Lys Val Tyr Glu
            260                 265                 270
```

```
His Thr Ser Arg Phe Ser Pro Lys Lys Thr Ser Ser Asn Cys Asn Gly
        275                 280                 285

Glu Glu Lys Lys Leu Asp Asp Ser Cys Ser Gly Ser Val Thr Tyr Ser
    290                 295                 300

Tyr Ser Ala Leu Ile Val Pro Lys Glu Met Ile Lys Lys Ala Lys Lys
305                 310                 315                 320

Leu Ile Glu Thr Thr Ala Asn Met Asn Ser Ser Tyr Val Lys Phe Leu
                325                 330                 335

Lys Gln Ala Thr Asp Asn Ser Glu Ile Ser Ser Ala Thr Lys Leu Arg
            340                 345                 350

Gln Leu Lys Ala Phe Lys Ser Val Leu Ala Asp Ile Lys Lys Ala His
        355                 360                 365

Leu Ala Leu Glu Glu Asp Leu Asn Ser Glu Phe Arg Ala Met Asp Ala
    370                 375                 380

Val Asn Lys Glu Lys Asn Thr Lys Glu His Lys Val Ile Asp Ala Lys
385                 390                 395                 400

Phe Glu Thr Lys Ala Arg Lys Gly Glu Lys Pro Cys Ala Leu Glu Lys
                405                 410                 415

Lys Asp Ile Ser Lys Ser Glu Ala Lys Leu Ser Arg Lys Gln Val Asp
            420                 425                 430

Ser Glu His Met His Gln Asn Val Pro Thr Glu Glu Gln Arg Thr Asn
        435                 440                 445

Lys Ser Thr Gly Gly Glu His Lys Lys Ser Asp Arg Lys Glu Glu Pro
    450                 455                 460

Gln Tyr Glu Pro Ala Asn Thr Ser Glu Asp Leu Asp Met Asp Ile Val
465                 470                 475                 480

Ser Val Pro Ser Ser Val Pro Glu Asp Ile Phe Glu Asn Leu Glu Thr
                485                 490                 495
```

```
Ala Met Glu Val Gln Ser Ser Val Asp His Gln Gly Asp Gly Ser Ser
            500                 505                 510

Gly Thr Glu Gln Glu Val Glu Ser Ser Ser Val Lys Leu Asn Ile Ser
        515                 520                 525

Ser Lys Asp Asn Arg Gly Gly Ile Lys Ser Lys Thr Thr Ala Lys Val
    530                 535                 540

Thr Lys Glu Leu Tyr Val Lys Leu Thr Pro Val Ser Leu Ser Asn Ser
545                 550                 555                 560

Pro Ile Lys Gly Ala Asp Cys Gln Glu Val Pro Gln Asp Lys Asp Gly
                565                 570                 575

Tyr Lys Ser Cys Gly Leu Asn Pro Lys Leu Glu Lys Cys Gly Leu Gly
            580                 585                 590

Gln Glu Asn Ser Asp Asn Glu His Leu Val Glu Asn Glu Val Ser Leu
        595                 600                 605

Leu Leu Glu Glu Ser Asp Leu Arg Arg Ser Pro Arg Val Lys Thr Thr
    610                 615                 620

Pro Leu Arg Arg Pro Thr Glu Thr Asn Pro Val Thr Ser Asn Ser Asp
625                 630                 635                 640

Glu Glu Cys Asn Glu Thr Val Lys Glu Lys Gln Lys Leu Ser Val Pro
                645                 650                 655

Val Arg Lys Lys Asp Lys Arg Asn Ser Ser Asp Ser Ala Ile Asp Asn
            660                 665                 670

Pro Lys Pro Asn Lys Leu Pro Lys Ser Lys Gln Ser Glu Thr Val Asp
        675                 680                 685

Gln Asn Ser Asp Ser Asp Glu Met Leu Ala Ile Leu Lys Glu Val Ser
    690                 695                 700

Arg Met Ser His Ser Ser Ser Ser Asp Thr Asp Ile Asn Glu Ile His
705                 710                 715                 720

Thr Asn His Lys Thr Leu Tyr Asp Leu Lys Thr Gln Ala Gly Lys Asp
```

```
                725                 730                 735

Asp Lys Gly Lys Arg Lys Arg Lys Ser Ser Thr Ser Gly Ser Asp Phe
            740                 745                 750

Asp Thr Lys Lys Gly Lys Ser Ala Lys Ser Ser Ile Ile Ser Lys Lys
        755                 760                 765

Lys Arg Gln Thr Gln Ser Glu Ser Ser Asn Tyr Asp Ser Glu Leu Glu
    770                 775                 780

Lys Glu Ile Lys Ser Met Ser Lys Ile Gly Ala Ala Arg Thr Thr Lys
785                 790                 795                 800

Lys Arg Ile Pro Asn Thr Lys Asp Phe Asp Ser Ser Glu Asp Glu Lys
                805                 810                 815

His Ser Lys Lys Gly Met Asp Asn Gln Gly His Lys Asn Leu Lys Thr
            820                 825                 830

Ser Gln Glu Gly Ser Ser Asp Asp Ala Glu Arg Lys Gln Glu Arg Glu
        835                 840                 845

Thr Phe Ser Ser Ala Glu Gly Thr Val Asp Lys Asp Thr Thr Ile Met
    850                 855                 860

Glu Leu Arg Asp Arg Leu Pro Lys Lys Gln Gln Ala Ser Ala Ser Thr
865                 870                 875                 880

Asp Gly Val Asp Lys Leu Ser Gly Lys Glu Glu Ser Phe Thr Ser Leu
                885                 890                 895

Glu Val Arg Lys Val Ala Glu Thr Lys Glu Lys Ser Lys His Leu Lys
            900                 905                 910

Thr Lys Thr Cys Lys Lys Val Gln Asp Gly Leu Ser Asp Ile Ala Glu
        915                 920                 925

Lys Phe Leu Lys Lys Asp Gln Ser Asp Glu Thr Ser Glu Asp Asp Lys
    930                 935                 940

Lys Gln Ser Lys Lys Gly Thr Glu Glu Lys Lys Lys Pro Ser Asp Phe
945                 950                 955                 960
```

```
Lys Lys Lys Val Ile Lys Met Glu Gln Gln Tyr Glu Ser Ser Ser Asp
                965                 970                 975

Gly Thr Glu Lys Leu Pro Glu Arg Glu Glu Ile Cys His Phe Pro Lys
            980                 985                 990

Gly Ile Lys Gln Ile Lys Asn Gly  Thr Thr Asp Gly Glu  Lys Lys
Ser
        995                 1000                1005

Lys Lys  Ile Arg Asp Lys Thr  Ser Lys Lys Lys Asp  Glu Leu Ser
    1010                1015                1020

Asp Tyr  Ala Glu Lys Ser Thr  Gly Lys Gly Asp Ser  Cys Asp Ser
    1025                1030                1035

Ser Glu  Asp Lys Lys Ser Lys  Asn Gly Ala Tyr Gly  Arg Glu Lys
    1040                1045                1050

Lys Arg  Cys Lys Leu Leu Gly  Lys Ser Ser Arg Lys  Arg Gln Asp
    1055                1060                1065

Cys Ser  Ser Ser Asp Thr Glu  Lys Tyr Ser Met Lys  Glu Asp Gly
    1070                1075                1080

Cys Asn  Ser Ser Asp Lys Arg  Leu Lys Arg Ile Glu  Leu Arg Glu
    1085                1090                1095

Arg Arg  Asn Leu Ser Ser Lys  Arg Asn Thr Lys Glu  Ile Gln Ser
    1100                1105                1110

Gly Ser  Ser Ser Ser Asp Ala  Glu Glu Ser Ser Glu  Asp Asn Lys
    1115                1120                1125

Lys Lys  Lys Gln Arg Thr Ser  Ser Lys Lys Lys Ala  Val Ile Val
    1130                1135                1140

Lys Glu  Lys Lys Arg Asn Ser  Leu Arg Thr Ser Thr  Lys Arg Lys
    1145                1150                1155

Gln Ala  Asp Ile Thr Ser Ser  Ser Ser Ser Asp Ile  Glu Asp Asp
    1160                1165                1170
```

```
Asp Gln  Asn Ser Ile Gly Glu  Gly Ser Ser Asp Glu  Gln Lys Ile
    1175                1180                1185

Lys Pro  Val Thr Glu Asn Leu  Val Leu Ser Ser His  Thr Gly Phe
    1190                1195                1200

Cys Gln  Ser Ser Gly Asp Glu  Ala Leu Ser Lys Ser  Val Pro Val
    1205                1210                1215

Thr Val  Asp Asp Asp Asp Asp  Asp Asn Asp Pro Glu  Asn Arg Ile
    1220                1225                1230

Ala Lys  Lys Met Leu Leu Glu  Glu Ile Lys Ala Asn  Leu Ser Ser
    1235                1240                1245

Asp Glu  Asp Gly Ser Ser Asp  Asp Glu Pro Glu Glu  Gly Lys Lys
    1250                1255                1260

Arg Thr  Gly Lys Gln Asn Glu  Glu Asn Pro Gly Asp  Glu Glu Ala
    1265                1270                1275

Lys Asn  Gln Val Asn Ser Glu  Ser Asp Ser Asp Ser  Glu Glu Ser
    1280                1285                1290

Lys Lys  Pro Arg Tyr Arg His  Arg Leu Leu Arg His  Lys Leu Thr
    1295                1300                1305

Val Ser  Asp Gly Glu Ser Gly  Glu Glu Lys Lys Thr  Lys Pro Lys
    1310                1315                1320

Glu His  Lys Glu Val Lys Gly  Arg Asn Arg Arg Lys  Val Ser Ser
    1325                1330                1335

Glu Asp  Ser Glu Asp Ser Asp  Phe Gln Glu Ser Gly  Val Ser Glu
    1340                1345                1350

Glu Val  Ser Glu Ser Glu Asp  Glu Gln Arg Pro Arg  Thr Arg Ser
    1355                1360                1365

Ala Lys  Lys Ala Glu Leu Glu  Glu Asn Gln Arg Ser  Tyr Lys Gln
    1370                1375                1380
```

```
Lys Lys  Lys Arg Arg Arg Ile  Lys Val Gln Glu Asp  Ser Ser Ser
    1385                1390                1395

Glu Asn  Lys Ser Asn Ser Glu  Glu Glu Glu Glu Glu  Lys Glu Glu
    1400                1405                1410

Glu Glu  Glu Glu Glu Glu Glu  Glu Glu Glu Glu Glu  Glu Asp Glu
    1415                1420                1425

Asn Asp  Asp Ser Lys Ser Pro  Gly Lys Gly Arg Lys  Lys Ile Arg
    1430                1435                1440

Lys Ile  Leu Lys Asp Asp Lys  Leu Arg Thr Glu Thr  Gln Asn Ala
    1445                1450                1455

Leu Lys  Glu Glu Glu Glu Arg  Arg Lys Arg Ile Ala  Glu Arg Glu
    1460                1465                1470

Arg Glu  Arg Glu Lys Leu Arg  Glu Val Ile Glu Ile  Glu Asp Ala
    1475                1480                1485

Ser Pro  Thr Lys Cys Pro Ile  Thr Thr Lys Leu Val  Leu Asp Glu
    1490                1495                1500

Asp Glu  Glu Thr Lys Glu Pro  Leu Val Gln Val His  Arg Asn Met
    1505                1510                1515

Val Ile  Lys Leu Lys Pro His  Gln Val Asp Gly Val  Gln Phe Met
    1520                1525                1530

Trp Asp  Cys Cys Cys Glu Ser  Val Lys Lys Thr Lys  Lys Ser Pro
    1535                1540                1545

Gly Ser  Gly Cys Ile Leu Ala  His Cys Met Gly Leu  Gly Lys Thr
    1550                1555                1560

Leu Gln  Val Val Ser Phe Leu  His Thr Val Leu Leu  Cys Asp Lys
    1565                1570                1575

Leu Asp  Phe Ser Thr Ala Leu  Val Val Cys Pro Leu  Asn Thr Ala
    1580                1585                1590
```

```
Leu Asn  Trp Met Asn Glu Phe  Glu Lys Trp Gln Glu  Gly Leu Lys
    1595                1600                1605

Asp Asp  Glu Lys Leu Glu Val  Ser Glu Leu Ala Thr  Val Lys Arg
    1610                1615                1620

Pro Gln  Glu Arg Ser Tyr Met  Leu Gln Arg Trp Gln  Glu Asp Gly
    1625                1630                1635

Gly Val  Met Ile Ile Gly Tyr  Glu Met Tyr Arg Asn  Leu Ala Gln
    1640                1645                1650

Gly Arg  Asn Val Lys Ser Arg  Lys Leu Lys Glu Ile  Phe Asn Lys
    1655                1660                1665

Ala Leu  Val Asp Pro Gly Pro  Asp Phe Val Val Cys  Asp Glu Gly
    1670                1675                1680

His Ile  Leu Lys Asn Glu Ala  Ser Ala Val Ser Lys  Ala Met Asn
    1685                1690                1695

Ser Ile  Arg Ser Arg Arg Arg  Ile Ile Leu Thr Gly  Thr Pro Leu
    1700                1705                1710

Gln Asn  Asn Leu Ile Glu Tyr  His Cys Met Val Asn  Phe Ile Lys
    1715                1720                1725

Glu Asn  Leu Leu Gly Ser Ile  Lys Glu Phe Arg Asn  Arg Phe Ile
    1730                1735                1740

Asn Pro  Ile Gln Asn Gly Gln  Cys Ala Asp Ser Thr  Met Val Asp
    1745                1750                1755

Val Arg  Val Met Lys Lys Arg  Ala His Ile Leu Tyr  Glu Met Leu
    1760                1765                1770

Ala Gly  Cys Val Gln Arg Lys  Asp Tyr Thr Ala Leu  Thr Lys Phe
    1775                1780                1785

Leu Pro  Pro Lys His Glu Tyr  Val Leu Ala Val Arg  Met Thr Ser
    1790                1795                1800

Ile Gln  Cys Lys Leu Tyr Gln  Tyr Tyr Leu Asp His  Leu Thr Gly
```

1805 1810 1815

Val Gly Asn Asn Ser Glu Gly Gly Arg Gly Lys Ala Gly Ala Lys
1820 1825 1830

Leu Phe Gln Asp Phe Gln Met Leu Ser Arg Ile Trp Thr His Pro
1835 1840 1845

Trp Cys Leu Gln Leu Asp Tyr Ile Ser Lys Glu Asn Lys Gly Tyr
1850 1855 1860

Phe Asp Glu Asp Ser Met Asp Glu Phe Ile Ala Ser Asp Ser Asp
1865 1870 1875

Glu Thr Ser Met Ser Leu Ser Ser Asp Asp Tyr Thr Lys Lys Lys
1880 1885 1890

Lys Lys Gly Lys Lys Gly Lys Lys Asp Ser Ser Ser Ser Gly Ser
1895 1900 1905

Gly Ser Asp Asn Asp Val Glu Val Ile Lys Val Trp Asn Ser Arg
1910 1915 1920

Ser Arg Gly Gly Gly Glu Gly Asn Val Asp Glu Thr Gly Asn Asn
1925 1930 1935

Pro Ser Val Ser Leu Lys Leu Glu Glu Ser Lys Ala Thr Ser Ser
1940 1945 1950

Ser Asn Pro Ser Ser Pro Ala Pro Asp Trp Tyr Lys Asp Phe Val
1955 1960 1965

Thr Asp Ala Asp Ala Glu Val Leu Glu His Ser Gly Lys Met Val
1970 1975 1980

Leu Leu Phe Glu Ile Leu Arg Met Ala Glu Glu Ile Gly Asp Lys
1985 1990 1995

Val Leu Val Phe Ser Gln Ser Leu Ile Ser Leu Asp Leu Ile Glu
2000 2005 2010

Asp Phe Leu Glu Leu Ala Ser Arg Glu Lys Thr Glu Asp Lys Asp
2015 2020 2025

```
Lys Pro  Leu Ile Tyr Lys Gly  Glu Gly Lys Trp Leu  Arg Asn Ile
    2030                2035                2040

Asp Tyr  Tyr Arg Leu Asp Gly  Ser Thr Thr Ala Gln  Ser Arg Lys
    2045                2050                2055

Lys Trp  Ala Glu Glu Phe Asn  Asp Glu Thr Asn Val  Arg Gly Arg
    2060                2065                2070

Leu Phe  Ile Ile Ser Thr Lys  Ala Gly Ser Leu Gly  Ile Asn Leu
    2075                2080                2085

Val Ala  Ala Asn Arg Val Ile  Ile Phe Asp Ala Ser  Trp Asn Pro
    2090                2095                2100

Ser Tyr  Asp Ile Gln Ser Ile  Phe Arg Val Tyr Arg  Phe Gly Gln
    2105                2110                2115

Thr Lys  Pro Val Tyr Val Tyr  Arg Phe Leu Ala Gln  Gly Thr Met
    2120                2125                2130

Glu Asp  Lys Ile Tyr Asp Arg  Gln Val Thr Lys Gln  Ser Leu Ser
    2135                2140                2145

Phe Arg  Val Val Asp Gln Gln  Gln Val Glu Arg His  Phe Thr Met
    2150                2155                2160

Asn Glu  Leu Thr Glu Leu Tyr  Thr Phe Glu Pro Asp  Leu Leu Asp
    2165                2170                2175

Asp Pro  Asn Ser Glu Lys Lys  Lys Lys Arg Asp Thr  Pro Met Leu
    2180                2185                2190

Pro Lys  Asp Thr Ile Leu Ala  Glu Leu Leu Gln Ile  His Lys Glu
    2195                2200                2205

His Ile  Val Gly Tyr His Glu  His Asp Ser Leu Leu  Asp His Lys
    2210                2215                2220

Glu Glu  Glu Glu Leu Thr Glu  Glu Glu Arg Lys Ala  Ala Trp Ala
    2225                2230                2235
```

```
Glu Tyr  Glu Ala Glu Lys Lys  Gly Leu Thr Met Arg  Phe Asn Ile
    2240                2245                2250

Pro Thr  Gly Thr Asn Leu Pro  Pro Val Ser Phe Asn  Ser Gln Thr
    2255                2260                2265

Pro Tyr  Ile Pro Phe Asn Leu  Gly Ala Leu Ser Ala  Met Ser Asn
    2270                2275                2280

Gln Gln  Leu Glu Asp Leu Ile  Asn Gln Gly Arg Glu  Lys Val Val
    2285                2290                2295

Glu Ala  Thr Asn Ser Val Thr  Ala Val Arg Ile Gln  Pro Leu Glu
    2300                2305                2310

Asp Ile  Ile Ser Ala Val Trp  Lys Glu Asn Met Asn  Leu Ser Glu
    2315                2320                2325

Ala Gln  Val Gln Ala Leu Ala  Leu Ser Arg Gln Ala  Ser Gln Glu
    2330                2335                2340

Leu Asp  Val Lys Arg Arg Glu  Ala Ile Tyr Asn Asp  Val Leu Thr
    2345                2350                2355

Lys Gln  Gln Met Leu Ile Ser  Cys Val Gln Arg Ile  Leu Met Asn
    2360                2365                2370

Arg Arg  Leu Gln Gln Gln Tyr  Asn Gln Gln Gln Gln  Gln Gln Met
    2375                2380                2385

Thr Tyr  Gln Gln Ala Thr Leu  Gly His Leu Met Met  Pro Lys Pro
    2390                2395                2400

Pro Asn  Leu Ile Met Asn Pro  Ser Asn Tyr Gln Gln  Ile Asp Met
    2405                2410                2415

Arg Gly  Met Tyr Gln Pro Val  Ala Gly Gly Met Gln  Pro Pro Pro
    2420                2425                2430

Leu Gln  Arg Ala Pro Pro Pro  Met Arg Ser Lys Asn  Pro Gly Pro
    2435                2440                2445
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Ser Gln Gly Lys Ser Met
    2450

<210> 4232
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
<221> source
<223> /note="Gene Symbol: ATRX; "

<220>
<221> source
<223> /note="Gene Name:
      alpha thalassemia/mental retardation syndrome X-linked; "

<220>
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<223> /note="ENSP ID: ENSP00000383663"

<400> 4232
Glu Asp Gly Gly Val Met Ile Ile Gly Tyr Glu Met Tyr Arg Asn Leu
1   5   10   15

Ala Gln Gly Arg Asn Val Lys Ser Arg Lys Leu Lys Glu Ile Phe Asn
            20   25   30

Lys Ala Leu Val Asp Pro Gly Pro Asp Phe Val Val Cys Asp Glu Gly
        35   40   45

His Ile Leu Lys Asn Glu Ala Ser Ala Val Ser Lys Ala Met Asn Ser
    50   55   60

Ile Arg Ser Arg Arg Arg Ile Ile Leu Thr Gly Thr Pro Leu Gln Asn
65   70   75   80

Asn Leu Ile Glu Tyr His Cys Met Val Asn Phe Ile Lys Glu Asn Leu
                85   90   95

Leu Gly Ser Ile Lys Glu Phe Arg Asn Arg Phe Ile Asn Pro Ile Gln
            100   105   110

Asn Gly Gln Cys Ala Asp Ser Thr Met Val Asp Val Arg Val Met Lys
        115   120   125

```
Lys Arg Ala His Ile Leu Tyr Glu Met Leu Ala Gly Cys Val Gln Arg
    130                 135                 140

Lys Asp Tyr Thr Ala Leu Thr Lys Phe Leu Pro Pro Lys His Glu Tyr
145                 150                 155                 160

Val Leu Ala Val Arg Met Thr Ser Ile Gln Cys Lys Leu Tyr Gln Tyr
                165                 170                 175

Tyr Leu Asp His Leu Thr Val Leu His Leu Asn Lys Met Gly Met Leu
            180                 185                 190

Lys Ser Ile Lys Tyr Phe
        195


<210> 4233
<211> 164
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
      alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480196"

<400> 4233
Met Thr Ala Glu Pro Met Ser Glu Ser Lys Leu Asn Thr Leu Val Gln
1               5                   10                  15

Lys Leu His Asp Phe Leu Ala His Ser Ser Glu Glu Ser Glu Glu Thr
            20                  25                  30

Ser Ser Pro Pro Arg Leu Ala Met Asn Gln Asn Thr Asp Lys Ile Ser
        35                  40                  45
```

```
Gly Ser Gly Ser Asn Ser Asp Met Met Glu Asn Ser Lys Glu Glu Gly
    50                  55                  60

Thr Ser Ser Ser Glu Lys Ser Lys Ser Ser Gly Ser Ser Arg Ser Lys
65                  70                  75                  80

Arg Lys Pro Ser Ile Val Thr Lys Tyr Val Glu Ser Asp Asp Glu Lys
                85                  90                  95

Pro Leu Asp Asp Glu Thr Val Asn Glu Asp Ala Ser Asn Glu Asn Ser
            100                 105                 110

Glu Asn Asp Ile Thr Met Gln Ser Leu Pro Lys Gly Thr Val Ile Val
        115                 120                 125

Gln Pro Glu Pro Val Leu Asn Glu Asp Lys Asp Asp Phe Lys Gly Pro
    130                 135                 140

Glu Phe Arg Ser Arg Ser Lys Met Lys Thr Glu Asn Leu Lys Lys Arg
145                 150                 155                 160

Gly Val Leu Trp
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<210> 4234
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
<221> source
<223> /note="Gene Symbol: ATRX; "

<220>
<221> source
<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485099"

<220>
<221> MOD_RES

<222> (1)..(1)
<223> Any amino acid

<400> 4234
Xaa Glu Glu Gly Thr Ser Ser Ser Glu Lys Ser Lys Ser Ser Gly Ser
1 5 10 15

Ser Arg Ser Lys Arg Lys Pro Ser Ile Val Thr Lys Tyr Val Glu Ser
20 25 30

Asp Asp Glu Lys Pro Leu Asp Asp Glu Thr Val Asn Glu Asp Ala Ser
35 40 45

Asn Glu Asn Ser Glu Asn Asp Ile Thr Met Gln Ser Leu Pro Lys Gly
50 55 60

Thr Val Ile Val Gln Pro Glu Pro Val Leu Asn Glu Asp Lys Asp Asp
65 70 75 80

Phe Lys Gly Pro Glu Phe Arg Ser Arg Ser Lys Met Lys Thr Glu Asn
85 90 95

Leu Lys Lys Arg Gly Asp Gly Leu His Gly Ile Val Ser Cys Thr Ala
100 105 110

Cys Gly Gln Gln Val Asn His Phe Gln Lys Asp Ser Ile Tyr Arg His
115 120 125

Pro Ser Leu Gln Val Leu Ile Cys Lys Asn Cys Phe Lys Tyr Tyr Met
130 135 140

Ser Asp Asp Ile Ser Arg Asp Ser Asp Gly Met Asp Glu Gln Cys Arg
145 150 155 160

Trp Cys Ala Glu Gly Gly Asn Leu Ile Cys Cys Asp Phe Cys His Asn
165 170 175

Ala Phe Cys Lys Lys Cys Ile Leu Arg Asn Leu Gly Arg Lys Glu Leu
180 185 190

Ser Thr Ile Met Asp Glu
195

<210> 4235

<211> 108
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
<221> source
<223> /note="Gene Symbol: ATRX; "

<220>
<221> source
<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485100"

<400> 4235
Met Met Glu Asn Ser Lys Glu Glu Gly Thr Ser Ser Ser Glu Lys Ser
1 5 10 15

Lys Ser Ser Gly Ser Ser Arg Ser Lys Arg Lys Pro Ser Ile Val Thr
20 25 30

Lys Tyr Val Glu Ser Asp Asp Glu Lys Pro Leu Asp Asp Glu Thr Val
35 40 45

Asn Glu Asp Ala Ser Asn Glu Asn Ser Glu Asn Asp Ile Thr Met Gln
50 55 60

Ser Leu Pro Lys Glu Asp Gly Leu His Gly Ile Val Ser Cys Thr Ala
65 70 75 80

Cys Gly Gln Gln Val Asn His Phe Gln Lys Asp Ser Ile Tyr Arg His
85 90 95

Pro Ser Leu Gln Val Leu Ile Cys Lys Asn Cys Phe
100 105

<210> 4236
<211> 1351
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 951; "

<220>
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<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485103"

<400> 4236

```
Met Thr Ala Glu Pro Met Ser Glu Ser Lys Leu Asn Thr Leu Val Gln
1               5                   10                  15

Lys Leu His Asp Phe Leu Ala His Ser Ser Glu Glu Ser Glu Glu Thr
            20                  25                  30

Ser Ser Pro Pro Arg Leu Ala Met Asn Gln Asn Thr Asp Lys Ile Ser
        35                  40                  45

Gly Ser Gly Ser Asn Ser Asp Met Met Glu Asn Ser Lys Glu Glu Gly
    50                  55                  60

Thr Ser Ser Ser Glu Lys Ser Lys Ser Ser Gly Ser Ser Arg Ser Lys
65                  70                  75                  80

Arg Lys Pro Ser Ile Val Thr Lys Tyr Val Glu Ser Asp Asp Glu Lys
                85                  90                  95

Pro Leu Asp Asp Glu Thr Val Asn Glu Asp Ala Ser Asn Glu Asn Ser
            100                 105                 110

Glu Asn Asp Ile Thr Met Gln Ser Leu Pro Lys Asp Gly Leu His Gly
        115                 120                 125

Ile Val Ser Cys Thr Ala Cys Gly Gln Gln Val Asn His Phe Gln Lys
    130                 135                 140

Asp Ser Ile Tyr Arg His Pro Ser Leu Gln Val Leu Ile Cys Lys Asn
145                 150                 155                 160

Cys Phe Lys Tyr Tyr Met Ser Asp Asp Ile Ser Arg Asp Ser Asp Gly
```

```
                165                 170                 175

Met Asp Glu Gln Cys Arg Trp Cys Ala Glu Gly Gly Asn Leu Ile Cys
            180                 185                 190

Cys Asp Phe Cys His Asn Ala Phe Cys Lys Lys Cys Ile Leu Arg Asn
        195                 200                 205

Leu Gly Arg Lys Glu Leu Ser Thr Ile Met Asp Glu Asn Asn Gln Trp
    210                 215                 220

Tyr Cys Tyr Ile Cys His Pro Glu Pro Leu Leu Asp Leu Val Thr Ala
225                 230                 235                 240

Cys Asn Ser Val Phe Glu Asn Leu Glu Gln Leu Leu Gln Gln Asn Lys
                245                 250                 255

Lys Lys Ile Lys Val Asp Ser Glu Lys Ser Asn Lys Val Tyr Glu His
            260                 265                 270

Thr Ser Arg Phe Ser Pro Lys Lys Thr Ser Ser Asn Cys Asn Gly Glu
        275                 280                 285

Glu Lys Lys Leu Asp Asp Ser Cys Ser Gly Ser Val Thr Tyr Ser Tyr
    290                 295                 300

Ser Ala Leu Ile Val Pro Lys Glu Met Ile Lys Lys Ala Lys Lys Leu
305                 310                 315                 320

Ile Glu Thr Thr Ala Asn Met Asn Ser Ser Tyr Val Lys Phe Leu Lys
                325                 330                 335

Gln Ala Thr Asp Asn Ser Glu Ile Ser Ser Ala Thr Lys Leu Arg Gln
            340                 345                 350

Leu Lys Ala Phe Lys Ser Val Leu Ala Asp Ile Lys Lys Ala His Leu
        355                 360                 365

Ala Leu Glu Glu Asp Leu Asn Ser Glu Phe Arg Ala Met Asp Ala Val
    370                 375                 380

Asn Lys Glu Lys Asn Thr Lys Glu His Lys Val Ile Asp Ala Lys Phe
385                 390                 395                 400
```

Glu Thr Lys Ala Arg Lys Gly Glu Lys Pro Cys Ala Leu Glu Lys Lys
405 410 415

Asp Ile Ser Lys Ser Glu Ala Lys Leu Ser Arg Lys Gln Val Asp Ser
420 425 430

Glu His Met His Gln Asn Val Pro Thr Glu Glu Gln Arg Thr Asn Lys
435 440 445

Ser Thr Gly Gly Glu His Lys Lys Ser Asp Arg Lys Glu Glu Pro Gln
450 455 460

Tyr Glu Pro Ala Asn Thr Ser Glu Asp Leu Asp Met Asp Ile Val Ser
465 470 475 480

Val Pro Ser Ser Val Pro Glu Asp Ile Phe Glu Asn Leu Glu Thr Ala
485 490 495

Met Glu Val Gln Ser Ser Val Asp His Gln Gly Asp Gly Ser Ser Gly
500 505 510

Thr Glu Gln Glu Val Glu Ser Ser Ser Val Lys Leu Asn Ile Ser Ser
515 520 525

Lys Asp Asn Arg Gly Gly Ala Asp Cys Gln Glu Val Pro Gln Asp Lys
530 535 540

Asp Gly Tyr Lys Ser Cys Gly Leu Asn Pro Lys Leu Glu Lys Cys Gly
545 550 555 560

Leu Gly Gln Glu Asn Ser Asp Asn Glu His Leu Val Glu Asn Glu Val
565 570 575

Ser Leu Leu Leu Glu Glu Ser Asp Leu Arg Arg Ser Pro Arg Val Lys
580 585 590

Thr Thr Pro Leu Arg Arg Pro Thr Glu Thr Asn Pro Val Thr Ser Asn
595 600 605

Ser Asp Glu Glu Cys Asn Glu Thr Val Lys Glu Lys Gln Lys Leu Ser
610 615 620

```
Val Pro Val Arg Lys Lys Asp Lys Arg Asn Ser Ser Asp Ser Ala Ile
625                 630                 635                 640

Asp Asn Pro Lys Pro Asn Lys Leu Pro Lys Ser Lys Gln Ser Glu Thr
                645                 650                 655

Val Asp Gln Asn Ser Asp Ser Asp Glu Met Leu Ala Ile Leu Lys Glu
            660                 665                 670

Val Ser Arg Met Ser His Ser Ser Ser Ser Asp Thr Asp Ile Asn Glu
        675                 680                 685

Ile His Thr Asn His Lys Thr Leu Tyr Asp Leu Lys Thr Gln Ala Gly
    690                 695                 700

Lys Asp Asp Lys Gly Lys Arg Lys Arg Lys Ser Ser Thr Ser Gly Ser
705                 710                 715                 720

Asp Phe Asp Thr Lys Lys Gly Lys Ser Ala Lys Ser Ser Ile Ile Ser
                725                 730                 735

Lys Lys Lys Arg Gln Thr Gln Ser Glu Ser Ser Asn Tyr Asp Ser Glu
            740                 745                 750

Leu Glu Lys Glu Ile Lys Ser Met Ser Lys Ile Gly Ala Ala Arg Thr
        755                 760                 765

Thr Lys Lys Arg Ile Pro Asn Thr Lys Asp Phe Asp Ser Ser Glu Asp
    770                 775                 780

Glu Lys His Ser Lys Lys Gly Met Asp Asn Gln Gly His Lys Asn Leu
785                 790                 795                 800

Lys Thr Ser Gln Glu Gly Ser Ser Asp Asp Ala Glu Arg Lys Gln Glu
                805                 810                 815

Arg Glu Thr Phe Ser Ser Ala Glu Gly Thr Val Asp Lys Asp Thr Thr
            820                 825                 830

Ile Met Glu Leu Arg Asp Arg Leu Pro Lys Lys Gln Gln Ala Ser Ala
        835                 840                 845
```

```
Ser Thr Asp Gly Val Asp Lys Leu Ser Gly Lys Glu Glu Ser Phe Thr
    850                 855                 860

Ser Leu Glu Val Arg Lys Val Ala Glu Thr Lys Glu Lys Ser Lys His
865                 870                 875                 880

Leu Lys Thr Lys Thr Cys Lys Lys Val Gln Asp Gly Leu Ser Asp Ile
                885                 890                 895

Ala Glu Lys Phe Leu Lys Lys Asp Gln Ser Asp Glu Thr Ser Glu Asp
            900                 905                 910

Asp Lys Lys Gln Ser Lys Lys Gly Thr Glu Glu Lys Lys Lys Pro Ser
        915                 920                 925

Asp Phe Lys Lys Lys Val Ile Lys Met Glu Gln Gln Tyr Glu Ser Ser
    930                 935                 940

Ser Asp Gly Thr Glu Lys Leu Pro Glu Arg Glu Glu Ile Cys His Phe
945                 950                 955                 960

Pro Lys Gly Ile Lys Gln Ile Lys Asn Gly Thr Thr Asp Gly Glu Lys
                965                 970                 975

Lys Ser Lys Lys Ile Arg Asp Lys Thr Ser Lys Lys Lys Asp Glu Leu
            980                 985                 990

Ser Asp Tyr Ala Glu Lys Ser Thr  Gly Lys Gly Asp Ser  Cys Asp
Ser
        995                 1000                1005

Ser Glu  Asp Lys Lys Ser Lys  Asn Gly Ala Tyr Gly  Arg Glu Lys
    1010                1015                1020

Lys Arg  Cys Lys Leu Leu Gly  Lys Ser Ser Arg Lys  Arg Gln Asp
    1025                1030                1035

Cys Ser  Ser Ser Asp Thr Glu  Lys Tyr Ser Met Lys  Glu Asp Gly
    1040                1045                1050

Cys Asn  Ser Ser Asp Lys Arg  Leu Lys Arg Ile Glu  Leu Arg Glu
    1055                1060                1065
```

```
Arg Arg  Asn Leu Ser Ser Lys  Arg Asn Thr Lys Glu  Ile Gln Ser
    1070                1075                1080

Gly Ser  Ser Ser Ser Asp Ala  Glu Glu Ser Ser Glu  Asp Asn Lys
    1085                1090                1095

Lys Lys  Lys Gln Arg Thr Ser  Ser Lys Lys Lys Ala  Val Ile Val
    1100                1105                1110

Lys Glu  Lys Lys Arg Asn Ser  Leu Arg Thr Ser Thr  Lys Arg Lys
    1115                1120                1125

Gln Ala  Asp Ile Thr Ser Ser  Ser Ser Ser Asp Ile  Glu Asp Asp
    1130                1135                1140

Asp Gln  Asn Ser Ile Gly Glu  Gly Ser Ser Asp Glu  Gln Lys Ile
    1145                1150                1155

Lys Pro  Val Thr Glu Asn Leu  Val Leu Ser Ser His  Thr Gly Phe
    1160                1165                1170

Cys Gln  Ser Ser Gly Asp Glu  Ala Leu Ser Lys Ser  Val Pro Val
    1175                1180                1185

Thr Val  Asp Asp Asp Asp Asp  Asp Asn Asp Pro Glu  Asn Arg Ile
    1190                1195                1200

Ala Lys  Lys Met Leu Leu Glu  Glu Ile Lys Ala Asn  Leu Ser Ser
    1205                1210                1215

Asp Glu  Asp Gly Ser Ser Asp  Asp Glu Pro Glu Glu  Gly Lys Lys
    1220                1225                1230

Arg Thr  Gly Lys Gln Asn Glu  Glu Asn Pro Gly Asp  Glu Glu Ala
    1235                1240                1245

Lys Asn  Gln Val Asn Ser Glu  Ser Asp Ser Asp Ser  Glu Glu Ser
    1250                1255                1260

Lys Lys  Pro Arg Tyr Arg His  Arg Leu Leu Arg His  Lys Leu Thr
    1265                1270                1275

Val Ser  Asp Gly Glu Ser Gly  Glu Glu Lys Lys Thr  Lys Pro Lys
```

```
    1280                1285                1290

Glu His  Lys Glu Val Lys Gly  Arg Asn Arg Arg Lys  Val Ser Ser
    1295                1300                1305

Glu Asp  Ser Glu Asp Ser Asp  Phe Gln Glu Ser Gly  Val Ser Glu
    1310                1315                1320

Glu Val  Ser Glu Ser Glu Asp  Glu Gln Arg Pro Arg  Thr Arg Ser
    1325                1330                1335

Ala Lys  Lys Ala Glu Leu Glu  Glu Asn Gln Arg Ser  Tyr
    1340                1345                1350


<210> 4237
<211> 528
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
<221> source
<223> /note="Gene Symbol: ATRX; "

<220>
<221> source
<223> /note="Gene Name:
      alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485127"

<400> 4237
Met Met Glu Asn Ser Lys Glu Glu Gly Thr Ser Ser Ser Glu Lys Ser
1               5                   10                  15

Lys Ser Ser Gly Ser Ser Arg Ser Lys Arg Lys Pro Ser Ile Val Thr
            20                  25                  30

Lys Tyr Val Glu Ser Asp Asp Glu Lys Pro Leu Asp Asp Glu Thr Val
        35                  40                  45

Asn Glu Asp Ala Ser Asn Glu Asn Ser Glu Asn Asp Ile Thr Met Gln
    50                  55                  60
```

```
Ser Leu Pro Lys Gly Thr Val Ile Val Gln Pro Glu Pro Val Leu Asn
65                  70                  75                  80

Glu Asp Lys Asp Asp Phe Lys Gly Pro Glu Phe Arg Ser Arg Ser Lys
                85                  90                  95

Met Lys Thr Glu Asn Leu Lys Lys Arg Gly Glu Asp Gly Leu His Gly
            100                 105                 110

Ile Val Ser Cys Thr Ala Cys Gly Gln Gln Val Asn His Phe Gln Lys
        115                 120                 125

Asp Ser Ile Tyr Arg His Pro Ser Leu Gln Val Leu Ile Cys Lys Asn
    130                 135                 140

Cys Phe Lys Tyr Tyr Met Ser Asp Asp Ile Ser Arg Asp Ser Asp Gly
145                 150                 155                 160

Met Asp Glu Gln Cys Arg Trp Cys Ala Glu Gly Gly Asn Leu Ile Cys
                165                 170                 175

Cys Asp Phe Cys His Asn Ala Phe Cys Lys Lys Cys Ile Leu Arg Asn
            180                 185                 190

Leu Gly Arg Lys Glu Leu Ser Thr Ile Met Asp Glu Asn Asn Gln Trp
        195                 200                 205

Tyr Cys Tyr Ile Cys His Pro Glu Pro Leu Leu Asp Leu Val Thr Ala
    210                 215                 220

Cys Asn Ser Val Phe Glu Asn Leu Glu Gln Leu Leu Gln Gln Asn Lys
225                 230                 235                 240

Lys Lys Ile Lys Val Asp Ser Glu Lys Ser Asn Lys Val Tyr Glu His
                245                 250                 255

Thr Ser Arg Phe Ser Pro Lys Lys Thr Ser Ser Asn Cys Asn Gly Glu
            260                 265                 270

Glu Lys Lys Leu Asp Asp Ser Cys Ser Gly Ser Val Thr Tyr Ser Tyr
        275                 280                 285
```

```
Ser Ala Leu Ile Val Pro Lys Glu Met Ile Lys Lys Ala Lys Lys Leu
    290                 295                 300

Ile Glu Thr Thr Ala Asn Met Asn Ser Ser Tyr Val Lys Phe Leu Lys
305                 310                 315                 320

Gln Ala Thr Asp Asn Ser Glu Ile Ser Ser Ala Thr Lys Leu Arg Gln
                325                 330                 335

Leu Lys Ala Phe Lys Ser Val Leu Ala Asp Ile Lys Lys Ala His Leu
            340                 345                 350

Ala Leu Glu Glu Asp Leu Asn Ser Glu Phe Arg Ala Met Asp Ala Val
        355                 360                 365

Asn Lys Glu Lys Asn Thr Lys Glu His Lys Val Ile Asp Ala Lys Phe
    370                 375                 380

Glu Thr Lys Ala Arg Lys Gly Glu Lys Pro Cys Ala Leu Glu Lys Lys
385                 390                 395                 400

Asp Ile Ser Lys Ser Glu Ala Lys Leu Ser Arg Lys Gln Val Asp Ser
                405                 410                 415

Glu His Met His Gln Asn Val Pro Thr Glu Glu Gln Arg Thr Asn Lys
            420                 425                 430

Ser Thr Gly Gly Glu His Lys Lys Ser Asp Arg Lys Glu Glu Pro Gln
        435                 440                 445

Tyr Glu Pro Ala Asn Thr Ser Glu Asp Leu Asp Met Asp Ile Val Ser
    450                 455                 460

Val Pro Ser Ser Val Pro Glu Asp Ile Phe Glu Asn Leu Glu Thr Ala
465                 470                 475                 480

Met Glu Val Gln Ser Ser Val Asp His Gln Gly Asp Gly Ser Ser Gly
                485                 490                 495

Thr Glu Gln Glu Val Glu Ser Ser Ser Val Lys Leu Asn Ile Ser Ser
            500                 505                 510

Lys Asp Asn Arg Gly Gly Ile Lys Ser Lys Thr Thr Ala Lys Val Thr
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515 520 525

<210> 4238
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
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<223> /note="Gene Symbol: ATRX; "

<220>
<221> source
<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485183"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4238
Xaa Glu Asn Asp Asp Ser Lys Ser Pro Gly Lys Gly Arg Lys Lys Ile
1 5 10 15

Arg Lys Ile Leu Lys Asp Asp Lys Leu Arg Thr Glu Thr Gln Asn Ala
20 25 30

Leu Lys Glu Glu Glu Glu Arg Arg Lys Arg Ile Ala Glu Arg Glu Arg
35 40 45

Glu Arg Glu Lys Leu Arg Glu Val Thr Asn Phe Phe Leu Leu Leu Phe
50 55 60

Leu Leu
65

<210> 4239
<211> 954
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 951; "

<220>
<221> source
<223> /note="Gene Symbol: ATRX; "

<220>
<221> source
<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485253"

<400> 4239
Met Thr Ala Glu Pro Met Ser Glu Ser Lys Leu Asn Thr Leu Val Gln
1 5 10 15

Lys Leu His Asp Phe Leu Ala His Ser Ser Glu Glu Ser Glu Glu Thr
20 25 30

Ser Ser Pro Pro Arg Leu Ala Met Asn Gln Asn Thr Asp Lys Ile Ser
35 40 45

Gly Ser Gly Ser Asn Ser Asp Met Met Glu Asn Ser Lys Glu Glu Gly
50 55 60

Thr Ser Ser Ser Glu Lys Ser Lys Ser Ser Gly Ser Ser Arg Ser Lys
65 70 75 80

Arg Lys Pro Ser Ile Val Thr Lys Tyr Val Glu Ser Asp Asp Glu Lys
85 90 95

Pro Leu Asp Asp Glu Thr Val Asn Glu Asp Ala Ser Asn Glu Asn Ser
100 105 110

Glu Asn Asp Ile Thr Met Gln Ser Leu Pro Lys Gly Thr Val Ile Val
115 120 125

Gln Pro Glu Pro Val Leu Asn Glu Asp Lys Asp Asp Phe Lys Gly Pro
130 135 140

Glu Phe Arg Ser Arg Ser Lys Met Lys Thr Glu Asn Leu Lys Lys Arg
145 150 155 160

```
Gly Glu Asp Gly Leu His Gly Ile Val Ser Cys Thr Ala Cys Gly Gln
                165                 170                 175

Gln Val Asn His Phe Gln Lys Asp Ser Ile Tyr Arg His Pro Ser Leu
            180                 185                 190

Gln Val Leu Ile Cys Lys Asn Cys Phe Lys Tyr Tyr Met Ser Asp Asp
        195                 200                 205

Ile Ser Arg Asp Ser Asp Gly Met Asp Glu Gln Cys Arg Trp Cys Ala
    210                 215                 220

Glu Gly Gly Asn Leu Ile Cys Cys Asp Phe Cys His Asn Ala Phe Cys
225                 230                 235                 240

Lys Lys Cys Ile Leu Arg Asn Leu Gly Arg Lys Glu Leu Ser Thr Ile
                245                 250                 255

Met Asp Glu Asn Asn Gln Trp Tyr Cys Tyr Ile Cys His Pro Glu Pro
            260                 265                 270

Leu Leu Asp Leu Val Thr Ala Cys Asn Ser Val Phe Glu Asn Leu Glu
        275                 280                 285

Gln Leu Leu Gln Gln Asn Lys Lys Lys Ile Lys Val Asp Ser Glu Lys
    290                 295                 300

Ser Asn Lys Val Tyr Glu His Thr Ser Arg Phe Ser Pro Lys Lys Thr
305                 310                 315                 320

Ser Ser Asn Cys Asn Gly Glu Glu Lys Lys Leu Asp Asp Ser Cys Ser
                325                 330                 335

Gly Ser Val Thr Tyr Ser Tyr Ser Ala Leu Ile Val Pro Lys Glu Met
            340                 345                 350

Ile Lys Lys Ala Lys Lys Leu Ile Glu Thr Thr Ala Asn Met Asn Ser
        355                 360                 365

Ser Tyr Val Lys Phe Leu Lys Gln Ala Thr Asp Asn Ser Glu Ile Ser
    370                 375                 380
```

Ser Ala Thr Lys Leu Arg Gln Leu Lys Ala Phe Lys Ser Val Leu Ala
385 390 395 400

Asp Ile Lys Lys Ala His Leu Ala Leu Glu Glu Asp Leu Asn Ser Glu
405 410 415

Phe Arg Ala Met Asp Ala Val Asn Lys Glu Lys Asn Thr Lys Glu His
420 425 430

Lys Val Ile Asp Ala Lys Phe Glu Thr Lys Ala Arg Lys Gly Glu Lys
435 440 445

Pro Cys Ala Leu Glu Lys Lys Asp Ile Ser Lys Ser Glu Ala Lys Leu
450 455 460

Ser Arg Lys Gln Val Asp Ser Glu His Met His Gln Asn Val Pro Thr
465 470 475 480

Glu Glu Gln Arg Thr Asn Lys Ser Thr Gly Gly Glu His Lys Lys Ser
485 490 495

Asp Arg Lys Glu Glu Pro Gln Tyr Glu Pro Ala Asn Thr Ser Glu Asp
500 505 510

Leu Asp Met Asp Ile Val Ser Val Pro Ser Ser Val Pro Glu Asp Ile
515 520 525

Phe Glu Asn Leu Glu Thr Ala Met Glu Val Gln Ser Ser Val Asp His
530 535 540

Gln Gly Asp Gly Ser Ser Gly Thr Glu Gln Glu Val Glu Ser Ser Ser
545 550 555 560

Val Lys Leu Asn Ile Ser Ser Lys Asp Asn Arg Gly Gly Ala Asp Cys
565 570 575

Gln Glu Val Pro Gln Asp Lys Asp Gly Tyr Lys Ser Cys Gly Leu Asn
580 585 590

Pro Lys Leu Glu Lys Cys Gly Leu Gly Gln Glu Asn Ser Asp Asn Glu
595 600 605

His Leu Val Glu Asn Glu Val Ser Leu Leu Leu Glu Glu Ser Asp Leu

610 615 620

Arg Arg Ser Pro Arg Val Lys Thr Thr Pro Leu Arg Arg Pro Thr Glu
625 630 635 640

Thr Asn Pro Val Thr Ser Asn Ser Asp Glu Glu Cys Asn Glu Thr Val
645 650 655

Lys Glu Lys Gln Lys Leu Ser Val Pro Val Arg Lys Lys Asp Lys Arg
660 665 670

Asn Ser Ser Asp Ser Ala Ile Asp Asn Pro Lys Pro Asn Lys Leu Pro
675 680 685

Lys Ser Lys Gln Ser Glu Thr Val Asp Gln Asn Ser Asp Ser Asp Glu
690 695 700

Met Leu Ala Ile Leu Lys Glu Val Ser Arg Met Ser His Ser Ser Ser
705 710 715 720

Ser Asp Thr Asp Ile Asn Glu Ile His Thr Asn His Lys Thr Leu Tyr
725 730 735

Asp Leu Lys Thr Gln Ala Gly Lys Asp Asp Lys Gly Lys Arg Lys Arg
740 745 750

Lys Ser Ser Thr Ser Gly Ser Asp Phe Asp Thr Lys Lys Gly Lys Ser
755 760 765

Ala Lys Ser Ser Ile Ile Ser Lys Lys Lys Arg Gln Thr Gln Ser Glu
770 775 780

Ser Ser Asn Tyr Asp Ser Glu Leu Glu Lys Glu Ile Lys Ser Met Ser
785 790 795 800

Lys Ile Gly Ala Ala Arg Thr Thr Lys Lys Arg Ile Pro Asn Thr Lys
805 810 815

Asp Phe Asp Ser Ser Glu Asp Glu Lys His Ser Lys Lys Gly Met Asp
820 825 830

Asn Gln Gly His Lys Asn Leu Lys Thr Ser Gln Glu Gly Ser Ser Asp
835 840 845

```
Asp Ala Glu Arg Lys Gln Glu Arg Glu Thr Phe Ser Ser Ala Glu Gly
    850                 855                 860

Thr Val Asp Lys Asp Thr Thr Ile Met Glu Leu Arg Asp Arg Leu Pro
865                 870                 875                 880

Lys Lys Gln Gln Ala Ser Ala Ser Thr Asp Gly Val Asp Lys Leu Ser
                885                 890                 895

Gly Lys Glu Glu Ser Phe Thr Ser Leu Glu Val Arg Lys Val Ala Glu
            900                 905                 910

Thr Lys Glu Lys Ser Lys His Leu Lys Thr Lys Thr Cys Lys Lys Val
        915                 920                 925

Gln Asp Gly Leu Ser Asp Ile Ala Glu Lys Phe Leu Lys Lys Asp Gln
    930                 935                 940

Ser Asp Glu Thr Ser Glu Asp Asp Lys Lys
945                 950
```

<210> 4240
<211> 175
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 951; "

<220>
<221> source
<223> /note="Gene Symbol: ATRX; "

<220>
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<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485274"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 4240
Xaa Arg Gly Lys Ala Gly Ala Lys Leu Phe Gln Asp Phe Gln Met Leu
1 5 10 15

Ser Arg Ile Trp Thr His Pro Trp Cys Leu Gln Leu Asp Tyr Ile Ser
20 25 30

Lys Glu Asn Lys Gly Tyr Phe Asp Glu Asp Ser Met Asp Glu Phe Ile
35 40 45

Ala Ser Asp Ser Asp Glu Thr Ser Met Ser Leu Ser Ser Asp Asp Tyr
50 55 60

Thr Lys Lys Lys Lys Lys Gly Lys Lys Gly Lys Lys Asp Ser Ser Ser
65 70 75 80

Ser Gly Ser Gly Ser Asp Asn Asp Val Glu Val Ile Lys Val Trp Asn
85 90 95

Ser Arg Ser Arg Gly Gly Gly Glu Gly Asn Val Asp Glu Thr Gly Asn
100 105 110

Asn Pro Ser Val Ser Leu Lys Leu Glu Glu Asn Ile Tyr Lys Val Leu
115 120 125

Thr Ile Cys Pro Asp Ile Arg Arg Glu Leu Ile Ser Leu Asn Gly Lys
130 135 140

Leu Lys Lys Val Lys Leu Leu Leu Leu Leu Ile Gln Ala Ala Gln Leu
145 150 155 160

Gln Thr Gly Thr Lys Ile Leu Leu Gln Met Leu Met Leu Arg Phe
165 170 175

<210> 4241
<211> 293
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source

<223> /note="Gene Symbol: ATRX; "

<220>
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<223> /note="Gene Name:
alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485408"

<400> 4241

```
Thr Thr Asp Gly Glu Lys Lys Ser Lys Lys Ile Arg Asp Lys Thr Ser
1               5                  10                  15

Lys Lys Lys Asp Glu Leu Ser Asp Tyr Ala Glu Lys Ser Thr Gly Lys
            20                  25                  30

Gly Asp Ser Cys Asp Ser Ser Glu Asp Lys Lys Ser Lys Asn Gly Ala
        35                  40                  45

Tyr Gly Arg Glu Lys Lys Arg Cys Lys Leu Leu Gly Lys Ser Ser Arg
    50                  55                  60

Lys Arg Gln Asp Cys Ser Ser Ser Asp Thr Glu Lys Tyr Ser Met Lys
65                  70                  75                  80

Glu Asp Gly Cys Asn Ser Ser Asp Lys Arg Leu Lys Arg Ile Glu Leu
                85                  90                  95

Arg Glu Arg Arg Asn Leu Ser Ser Lys Arg Asn Thr Lys Glu Ile Gln
            100                 105                 110

Ser Gly Ser Ser Ser Ser Asp Ala Glu Glu Ser Ser Glu Asp Asn Lys
        115                 120                 125

Lys Lys Lys Gln Arg Thr Ser Ser Lys Lys Lys Ala Val Ile Val Lys
    130                 135                 140

Glu Lys Lys Arg Asn Ser Leu Arg Thr Ser Thr Lys Arg Lys Gln Ala
145                 150                 155                 160

Asp Ile Thr Ser Ser Ser Ser Ser Asp Ile Glu Asp Asp Asp Gln Asn
                165                 170                 175

Ser Ile Gly Glu Gly Ser Ser Asp Glu Gln Lys Ile Lys Pro Val Thr
```

```
            180                 185                 190

Glu Asn Leu Val Leu Ser Ser His Thr Gly Phe Cys Gln Ser Ser Gly
        195                 200                 205

Asp Glu Ala Leu Ser Lys Ser Val Pro Val Thr Val Asp Asp Asp Asp
    210                 215                 220

Asp Asp Asn Asp Pro Glu Asn Arg Tyr Asp Ser Ile Cys Lys Asp Phe
225                 230                 235                 240

Lys Lys Ile Ile Thr His Pro Arg His Gly His Lys Gln Gln Gln Arg
                245                 250                 255

Asn Ser Lys Gln Val Val Lys Thr Arg Ser Ala Cys Leu Arg Lys Thr
            260                 265                 270

Arg Ser Gln Ser Ser Cys Lys Phe Glu Arg Lys Ala Arg Lys Trp Ala
        275                 280                 285

Lys Thr Gln Lys Pro
    290


<210> 4242
<211> 47
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
      alpha thalassemia/mental retardation syndrome X-linked; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485587"

<400> 4242
Met Asn Gln Asn Thr Asp Lys Ile Ser Gly Ser Gly Ser Asn Ser Asp
1               5                   10                  15
```

```
Met Met Glu Asn Ser Lys Glu Glu Gly Thr Ser Ser Ser Glu Lys Ser
            20                  25                  30

Lys Ser Ser Gly Ser Ser Arg Ser Lys Arg Lys Pro Ser Ile Val
        35                  40                  45


<210> 4243
<211> 300
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000324222"

<400> 4243
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                   10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
```

85 90 95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
100 105 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
115 120 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
130 135 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145 150 155 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
165 170 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
180 185 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
195 200 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
210 215 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225 230 235 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
245 250 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
260 265 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
275 280 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Arg
290 295 300

<210> 4244
<211> 310

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000324459"

<400> 4244

```
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125
```

```
Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg
    290                 295                 300

Ser Glu Glu Ser Arg Tyr
305                 310


<210> 4245
<211> 409
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "
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<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000327832"

<400> 4245
Met Trp Leu Thr Trp Pro Phe Cys Phe Leu Thr Ile Thr Leu Arg Glu
1 5 10 15

Glu Gly Val Cys His Leu Glu Ser Val Asp Leu Gln Gln Gln Ile Met
20 25 30

Thr Ile Ile Asp Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu
35 40 45

Ser Ala Pro Ile Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val
50 55 60

Val Tyr Ile Leu Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala
65 70 75 80

Ile Ile Gly Phe Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp
85 90 95

Asp Arg Glu Ala His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe
100 105 110

Tyr Ile His Glu Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe
115 120 125

Gln Tyr Met Leu Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile
130 135 140

Asp Arg Pro Ser Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn
145 150 155 160

Leu Glu Thr Thr Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly
165 170 175

Phe Phe Ala His Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr
180 185 190

Arg His Ser Arg Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala
195 200 205

Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser
210 215 220

Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro
225 230 235 240

Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro
245 250 255

Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro
260 265 270

Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro
275 280 285

His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro
290 295 300

Ala Gln Arg Arg Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln
305 310 315 320

Ser Cys Cys Tyr Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn
325 330 335

Thr Gly Asn Gln Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg
340 345 350

Ser Ala Ser Glu Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys
355 360 365

Pro Met His Thr Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser
370 375 380

```
Trp Thr Val Gly Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu
385                 390                 395                 400


Gln Glu Arg Arg Ser Thr Arg Pro Trp
                405


<210> 4246
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000332374"

<400> 4246
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                   10                  15


Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30


Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45


Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60


Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80


Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95
```

```
Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320
```

Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser Arg Tyr
325 330

<210> 4247
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000365666"

<400> 4247
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1 5 10 15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
20 25 30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
35 40 45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
50 55 60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65 70 75 80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
85 90 95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala

```
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg
```

<210> 4248
<211> 421
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
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<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000365668"

<400> 4248
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1   5   10   15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20   25   30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35   40   45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50   55   60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65   70   75   80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85   90   95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100   105   110

```
His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln Ser Cys Cys Tyr
                325                 330                 335

Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn Thr Gly Asn Gln
```

```
            340                 345                 350

Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg Ser Ala Ser Glu
        355                 360                 365

Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys Pro Met His Thr
    370                 375                 380

Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser Trp Thr Val Gly
385                 390                 395                 400

Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu Gln Glu Arg Arg
                405                 410                 415

Ser Thr Arg Pro Trp
            420


<210> 4249
<211> 409
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000373076"

<400> 4249
Met Trp Leu Thr Trp Pro Phe Cys Phe Leu Thr Ile Thr Leu Arg Glu
1               5                   10                  15

Glu Gly Val Cys His Leu Glu Ser Val Asp Leu Gln Gln Gln Ile Met
            20                  25                  30
```

```
Thr Ile Ile Asp Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu
        35                  40                  45

Ser Ala Pro Ile Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val
    50                  55                  60

Val Tyr Ile Leu Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala
65                  70                  75                  80

Ile Ile Gly Phe Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp
                85                  90                  95

Asp Arg Glu Ala His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe
            100                 105                 110

Tyr Ile His Glu Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe
        115                 120                 125

Gln Tyr Met Leu Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile
    130                 135                 140

Asp Arg Pro Ser Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn
145                 150                 155                 160

Leu Glu Thr Thr Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly
                165                 170                 175

Phe Phe Ala His Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr
            180                 185                 190

Arg His Ser Arg Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala
        195                 200                 205

Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser
    210                 215                 220

Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro
225                 230                 235                 240

Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro
                245                 250                 255
```

```
Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro
            260                 265                 270

Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro
        275                 280                 285

His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro
    290                 295                 300

Ala Gln Arg Arg Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln
305                 310                 315                 320

Ser Cys Cys Tyr Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn
                325                 330                 335

Thr Gly Asn Gln Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg
            340                 345                 350

Ser Ala Ser Glu Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys
        355                 360                 365

Pro Met His Thr Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser
    370                 375                 380

Trp Thr Val Gly Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu
385                 390                 395                 400

Gln Glu Arg Arg Ser Thr Arg Pro Trp
                405


<210> 4250
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha tubulin acetyltransferase 1; "
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<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000373077"

<400> 4250
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1   5   10   15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20   25   30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35   40   45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50   55   60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65   70   75   80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85   90   95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100   105   110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115   120   125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130   135   140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145   150   155   160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165   170   175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180   185   190

```
Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser Arg Tyr
                325                 330
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<210> 4251
<211> 300
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
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<223> /note="Uniprot ID: Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000373078"

<400> 4251
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1   5   10   15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20   25   30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35   40   45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50   55   60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65   70   75   80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85   90   95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100   105   110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115   120   125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130   135   140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145   150   155   160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165   170   175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180   185   190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195   200   205

```
Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Arg
    290                 295                 300


<210> 4252
<211> 421
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 4252
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                   10                  15
```

```
Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
```

```
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln Ser Cys Cys Tyr
                325                 330                 335

Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn Thr Gly Asn Gln
            340                 345                 350

Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg Ser Ala Ser Glu
        355                 360                 365

Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys Pro Met His Thr
    370                 375                 380

Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser Trp Thr Val Gly
385                 390                 395                 400

Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu Gln Glu Arg Arg
                405                 410                 415

Ser Thr Arg Pro Trp
            420


<210> 4253
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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<223> /note="Gene Name:
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<223> /note="Uniprot ID: Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000383419"

<400> 4253

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160
```

```
Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg
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<210> 4254
<211> 310
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000383420"

<400> 4254
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1   5   10   15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20   25   30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35   40   45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50   55   60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65   70   75   80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85   90   95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100   105   110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115   120   125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130   135   140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145   150   155   160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165   170   175

```
Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg
    290                 295                 300

Ser Glu Glu Ser Arg Tyr
305                 310


<210> 4255
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388171"

<400> 4255

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205
```

```
Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg
```

<210> 4256
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000388617"

<400> 4256
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1 5 10 15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
20 25 30

Thr Pro Ala Arg Val Asp Leu Gln Gln Ile Met Thr Ile Ile Asp
35 40 45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
50 55 60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65 70 75 80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
85 90 95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
100 105 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
115 120 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
130 135 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145 150 155 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
165 170 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
180 185 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
195 200 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro

```
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg
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<210> 4257
<211> 409
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 952; "

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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000389129"

<400> 4257
Met Trp Leu Thr Trp Pro Phe Cys Phe Leu Thr Ile Thr Leu Arg Glu
1 5 10 15

Glu Gly Val Cys His Leu Glu Ser Val Asp Leu Gln Gln Ile Met
20 25 30

Thr Ile Ile Asp Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu
35 40 45

Ser Ala Pro Ile Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val
50 55 60

Val Tyr Ile Leu Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala
65 70 75 80

Ile Ile Gly Phe Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp
85 90 95

Asp Arg Glu Ala His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe
100 105 110

Tyr Ile His Glu Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe
115 120 125

Gln Tyr Met Leu Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile
130 135 140

Asp Arg Pro Ser Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn
145 150 155 160

Leu Glu Thr Thr Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly
165 170 175

Phe Phe Ala His Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr
180 185 190

Arg His Ser Arg Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala
195 200 205

Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser
210 215 220

```
Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro
225                 230                 235                 240

Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro
                245                 250                 255

Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro
            260                 265                 270

Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro
        275                 280                 285

His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro
    290                 295                 300

Ala Gln Arg Arg Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln
305                 310                 315                 320

Ser Cys Cys Tyr Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn
                325                 330                 335

Thr Gly Asn Gln Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg
            340                 345                 350

Ser Ala Ser Glu Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys
        355                 360                 365

Pro Met His Thr Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser
    370                 375                 380

Trp Thr Val Gly Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu
385                 390                 395                 400

Gln Glu Arg Arg Ser Thr Arg Pro Trp
                405
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<210> 4258
<211> 409
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
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<220>
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<400> 4258
Met Trp Leu Thr Trp Pro Phe Cys Phe Leu Thr Ile Thr Leu Arg Glu
1   5   10   15

Glu Gly Val Cys His Leu Glu Ser Val Asp Leu Gln Gln Gln Ile Met
            20   25   30

Thr Ile Ile Asp Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu
        35   40   45

Ser Ala Pro Ile Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val
    50   55   60

Val Tyr Ile Leu Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala
65   70   75   80

Ile Ile Gly Phe Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp
                85   90   95

Asp Arg Glu Ala His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe
            100   105   110

Tyr Ile His Glu Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe
        115   120   125

Gln Tyr Met Leu Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile
    130   135   140

Asp Arg Pro Ser Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn
145   150   155   160

```
Leu Glu Thr Thr Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly
                165                 170                 175

Phe Phe Ala His Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr
            180                 185                 190

Arg His Ser Arg Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala
        195                 200                 205

Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser
    210                 215                 220

Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro
225                 230                 235                 240

Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro
                245                 250                 255

Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro
            260                 265                 270

Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro
        275                 280                 285

His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro
    290                 295                 300

Ala Gln Arg Arg Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln
305                 310                 315                 320

Ser Cys Cys Tyr Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn
                325                 330                 335

Thr Gly Asn Gln Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg
            340                 345                 350

Ser Ala Ser Glu Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys
        355                 360                 365

Pro Met His Thr Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser
    370                 375                 380
```

```
Trp Thr Val Gly Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu
385                 390                 395                 400


Gln Glu Arg Arg Ser Thr Arg Pro Trp
                405


<210> 4259
<211> 323
<212> PRT
<213> Homo sapiens

<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="ENSP ID: ENSP00000393269"

<400> 4259
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                   10                  15


Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30


Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45


Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60


Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80


Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95
```

```
Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320
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Arg Thr Arg

<210> 4260
<211> 300
<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="Uniprot ID: Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000393868"

<400> 4260
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1 5 10 15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
20 25 30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
35 40 45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
50 55 60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65 70 75 80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
85 90 95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala

```
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Arg
    290                 295                 300
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<210> 4261
<211> 333
<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: Q5SQI0; "

<220>
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<400> 4261

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140
```

```
Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser Arg Tyr
                325                 330


<210> 4262
<211> 421
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<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000394914"

<400> 4262
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1   5   10   15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20   25   30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35   40   45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50   55   60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65   70   75   80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85   90   95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100   105   110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115   120   125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130   135   140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145   150   155   160

```
Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln Ser Cys Cys Tyr
                325                 330                 335

Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn Thr Gly Asn Gln
            340                 345                 350

Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg Ser Ala Ser Glu
        355                 360                 365

Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys Pro Met His Thr
    370                 375                 380
```

```
Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser Trp Thr Val Gly
385                 390                 395                 400


Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu Gln Glu Arg Arg
                405                 410                 415


Ser Thr Arg Pro Trp
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<210> 4263
<211> 409
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ATAT1; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000398374"

<400> 4263
Met Trp Leu Thr Trp Pro Phe Cys Phe Leu Thr Ile Thr Leu Arg Glu
1               5                   10                  15


Glu Gly Val Cys His Leu Glu Ser Val Asp Leu Gln Gln Gln Ile Met
            20                  25                  30


Thr Ile Ile Asp Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu
        35                  40                  45


Ser Ala Pro Ile Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val
    50                  55                  60


Val Tyr Ile Leu Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala
65                  70                  75                  80
```

```
Ile Ile Gly Phe Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp
                85                  90                  95

Asp Arg Glu Ala His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe
            100                 105                 110

Tyr Ile His Glu Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe
        115                 120                 125

Gln Tyr Met Leu Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile
    130                 135                 140

Asp Arg Pro Ser Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn
145                 150                 155                 160

Leu Glu Thr Thr Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly
                165                 170                 175

Phe Phe Ala His Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr
            180                 185                 190

Arg His Ser Arg Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala
        195                 200                 205

Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser
    210                 215                 220

Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro
225                 230                 235                 240

Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro
                245                 250                 255

Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro
            260                 265                 270

Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro
        275                 280                 285

His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro
    290                 295                 300
```

```
Ala Gln Arg Arg Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln
305                 310                 315                 320

Ser Cys Cys Tyr Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn
                325                 330                 335

Thr Gly Asn Gln Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg
            340                 345                 350

Ser Ala Ser Glu Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys
        355                 360                 365

Pro Met His Thr Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser
    370                 375                 380

Trp Thr Val Gly Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu
385                 390                 395                 400

Gln Glu Arg Arg Ser Thr Arg Pro Trp
                405

<210> 4264
<211> 421
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Uniprot ID:  Q5SQI0; "

<220>
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<400> 4264
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
```

```
1               5                   10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240
```

```
Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln Ser Cys Cys Tyr
                325                 330                 335

Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn Thr Gly Asn Gln
            340                 345                 350

Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg Ser Ala Ser Glu
        355                 360                 365

Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys Pro Met His Thr
    370                 375                 380

Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser Trp Thr Val Gly
385                 390                 395                 400

Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu Gln Glu Arg Arg
                405                 410                 415

Ser Thr Arg Pro Trp
            420
```

<210> 4265
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 952; "

<220>
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<223> /note="Gene Symbol: ATAT1; "

<220>
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<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399452"

<400> 4265

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
```

```
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser Arg Tyr
                325                 330


<210> 4266
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<221> source
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000399509"

<400> 4266

```
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160
```

```
Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser Arg Tyr
                325                 330
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<210> 4267
<211> 300
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000399529"

<400> 4267
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1   5   10   15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20   25   30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35   40   45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50   55   60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65   70   75   80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85   90   95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100   105   110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115   120   125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130   135   140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145   150   155   160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165   170   175

```
Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Arg
    290                 295                 300


<210> 4268
<211> 300
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000402998"

<400> 4268

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220
```

```
Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240


Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255


Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270


Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285


Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Arg
    290                 295                 300


<210> 4269
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000403142"

<400> 4269
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                   10                  15


Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30
```

```
Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
```

```
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg
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<210> 4270
<211> 333
<212> PRT
<213> Homo sapiens

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<400> 4270

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45
```

```
Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270
```

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
275 280 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
290 295 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305 310 315 320

Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser Arg Tyr
325 330

<210> 4271
<211> 300
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<220>
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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1 5 10 15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
20 25 30

Thr Pro Ala Arg Val Asp Leu Gln Gln Ile Met Thr Ile Ile Asp
35 40 45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
50 55 60

```
Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285
```

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Arg
290 295 300

<210> 4272
<211> 310
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 4272
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1 5 10 15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
20 25 30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
35 40 45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
50 55 60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65 70 75 80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
85 90 95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala

100 105 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
115 120 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
130 135 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145 150 155 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
165 170 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
180 185 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
195 200 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
210 215 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225 230 235 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
245 250 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
260 265 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
275 280 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg
290 295 300

Ser Glu Glu Ser Arg Tyr
305 310

<210> 4273
<211> 333

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<400> 4273

```
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125
```

```
Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser Arg Tyr
                325                 330
```

<210> 4274
<211> 421
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q5SQI0; "

<220>
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<223> /note="ENSP ID: ENSP00000409067"

<400> 4274

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140
```

```
Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln Ser Cys Cys Tyr
                325                 330                 335

Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn Thr Gly Asn Gln
            340                 345                 350

Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg Ser Ala Ser Glu
        355                 360                 365
```

```
Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys Pro Met His Thr
    370                 375                 380

Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser Trp Thr Val Gly
385                 390                 395                 400

Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu Gln Glu Arg Arg
                405                 410                 415

Ser Thr Arg Pro Trp
            420
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<210> 4275
<211> 310
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 4275

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Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60
```

```
Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285
```

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg
290 295 300

Ser Glu Glu Ser Arg Tyr
305 310

<210> 4276
<211> 310
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<223> /note="Uniprot ID: Q5SQI0; "

<220>
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<400> 4276
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1 5 10 15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
20 25 30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
35 40 45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
50 55 60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65 70 75 80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe

```
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg
    290                 295                 300

Ser Glu Glu Ser Arg Tyr
305                 310
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<210> 4277
<211> 421
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000411050"

<400> 4277
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1   5   10   15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20   25   30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35   40   45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50   55   60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65   70   75   80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85   90   95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100   105   110

```
His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln Ser Cys Cys Tyr
                325                 330                 335

Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn Thr Gly Asn Gln
```

```
            340                 345                 350

Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg Ser Ala Ser Glu
        355                 360                 365

Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys Pro Met His Thr
    370                 375                 380

Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser Trp Thr Val Gly
385                 390                 395                 400

Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu Gln Glu Arg Arg
                405                 410                 415

Ser Thr Arg Pro Trp
            420


<210> 4278
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000411362"

<400> 4278
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                   10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30
```

```
Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240

Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255
```

```
Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg
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<210> 4279
<211> 310
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000412198"

<400> 4279

```
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45
```

```
Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270
```

```
Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg
    290                 295                 300

Ser Glu Glu Ser Arg Tyr
305                 310
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<210> 4280
<211> 409
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 952; "

<220>
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<223> /note="Gene Symbol: ATAT1; "

<220>
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<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412993"

<400> 4280

```
Met Trp Leu Thr Trp Pro Phe Cys Phe Leu Thr Ile Thr Leu Arg Glu
1               5                   10                  15

Glu Gly Val Cys His Leu Glu Ser Val Asp Leu Gln Gln Gln Ile Met
            20                  25                  30

Thr Ile Ile Asp Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu
        35                  40                  45

Ser Ala Pro Ile Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val
    50                  55                  60

Val Tyr Ile Leu Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala
```

65 70 75 80

Ile Ile Gly Phe Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp
85 90 95

Asp Arg Glu Ala His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe
100 105 110

Tyr Ile His Glu Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe
115 120 125

Gln Tyr Met Leu Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile
130 135 140

Asp Arg Pro Ser Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn
145 150 155 160

Leu Glu Thr Thr Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly
165 170 175

Phe Phe Ala His Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr
180 185 190

Arg His Ser Arg Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala
195 200 205

Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser
210 215 220

Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro
225 230 235 240

Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro
245 250 255

Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro
260 265 270

Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro
275 280 285

His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro
290 295 300

```
Ala Gln Arg Arg Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln
305                 310                 315                 320

Ser Cys Cys Tyr Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn
                325                 330                 335

Thr Gly Asn Gln Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg
            340                 345                 350

Ser Ala Ser Glu Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys
        355                 360                 365

Pro Met His Thr Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser
    370                 375                 380

Trp Thr Val Gly Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu
385                 390                 395                 400

Gln Glu Arg Arg Ser Thr Arg Pro Trp
                405
```

<210> 4281
<211> 300
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
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<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415000"

<400> 4281

```
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1               5                  10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
```

225 230 235 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
245 250 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
260 265 270

Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
275 280 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Arg
290 295 300

<210> 4282
<211> 310
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
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<223> /note="Gene Name:
alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415408"

<400> 4282
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
1 5 10 15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
20 25 30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
35 40 45

```
Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Pro Pro Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp
        195                 200                 205

Ile Lys Pro Tyr Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val
    210                 215                 220

Glu Pro Pro Trp Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro
225                 230                 235                 240

Ala His Pro Pro Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg
                245                 250                 255

Gly Pro Leu Arg Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu
            260                 265                 270
```

```
Arg Leu Cys Pro Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp
        275                 280                 285

Pro Gly Gly Ser Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg
    290                 295                 300

Ser Glu Glu Ser Arg Tyr
305                 310


<210> 4283
<211> 409
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416925"

<400> 4283
Met Trp Leu Thr Trp Pro Phe Cys Phe Leu Thr Ile Thr Leu Arg Glu
1               5                   10                  15

Glu Gly Val Cys His Leu Glu Ser Val Asp Leu Gln Gln Gln Ile Met
            20                  25                  30

Thr Ile Ile Asp Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu
        35                  40                  45

Ser Ala Pro Ile Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val
    50                  55                  60

Val Tyr Ile Leu Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala
65                  70                  75                  80
```

```
Ile Ile Gly Phe Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp
                85                  90                  95

Asp Arg Glu Ala His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe
            100                 105                 110

Tyr Ile His Glu Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe
        115                 120                 125

Gln Tyr Met Leu Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile
    130                 135                 140

Asp Arg Pro Ser Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn
145                 150                 155                 160

Leu Glu Thr Thr Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly
                165                 170                 175

Phe Phe Ala His Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr
            180                 185                 190

Arg His Ser Arg Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala
        195                 200                 205

Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser
    210                 215                 220

Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro
225                 230                 235                 240

Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro
                245                 250                 255

Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro
            260                 265                 270

Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro
        275                 280                 285

His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro
    290                 295                 300
```

```
Ala Gln Arg Arg Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln
305                 310                 315                 320

Ser Cys Cys Tyr Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn
                325                 330                 335

Thr Gly Asn Gln Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg
            340                 345                 350

Ser Ala Ser Glu Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys
        355                 360                 365

Pro Met His Thr Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser
    370                 375                 380

Trp Thr Val Gly Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu
385                 390                 395                 400

Gln Glu Arg Arg Ser Thr Arg Pro Trp
                405

<210> 4284
<211> 421
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 952; "

<220>
<221> source
<223> /note="Gene Symbol: ATAT1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha tubulin acetyltransferase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5SQI0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416994"

<400> 4284
Met Glu Phe Pro Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr
```

```
1               5                   10                  15

Val Leu Asp Gln His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr
            20                  25                  30

Thr Pro Ala Arg Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp
        35                  40                  45

Glu Leu Gly Lys Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile
    50                  55                  60

Thr Ser Ala Ser Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu
65                  70                  75                  80

Lys Asp Ser Ser Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe
                85                  90                  95

Ile Lys Val Gly Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala
            100                 105                 110

His Asn Glu Val Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu
        115                 120                 125

Ser Val Gln Arg His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu
    130                 135                 140

Gln Lys Glu Arg Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser
145                 150                 155                 160

Gln Lys Leu Leu Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr
                165                 170                 175

Val Pro Gln Val Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His
            180                 185                 190

Gln His Arg Pro Pro Ala Pro Ser Leu Arg Ala Thr Arg His Ser Arg
        195                 200                 205

Ala Ala Ala Val Asp Pro Thr Pro Ala Ala Pro Ala Arg Lys Leu Pro
    210                 215                 220

Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr Ser Ser Ser Asp Arg
225                 230                 235                 240
```

```
Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp Pro Leu Asn Arg Ala
                245                 250                 255

Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro Pro Arg Ser Ser Ser
            260                 265                 270

Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg Pro Phe Val Pro Glu
        275                 280                 285

Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro Pro His Pro Thr Ala
    290                 295                 300

Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser Pro Ala Gln Arg Arg
305                 310                 315                 320

Arg Thr Arg Gly Thr Pro Pro Gly Leu Val Ala Gln Ser Cys Cys Tyr
                325                 330                 335

Ser Arg His Gly Gly Val Asn Ser Ser Ser Pro Asn Thr Gly Asn Gln
            340                 345                 350

Asp Ser Lys Gln Gly Glu Gln Glu Thr Lys Asn Arg Ser Ala Ser Glu
        355                 360                 365

Glu Gln Ala Leu Ser Gln Asp Gly Ser Gly Glu Lys Pro Met His Thr
    370                 375                 380

Ala Pro Pro Gln Ala Pro Ala Pro Pro Ala Gln Ser Trp Thr Val Gly
385                 390                 395                 400

Gly Asp Ile Leu Asn Ala Arg Phe Ile Arg Asn Leu Gln Glu Arg Arg
                405                 410                 415

Ser Thr Arg Pro Trp
            420
```

<210> 4285
<211> 340
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 953; "

<220>
<221> source
<223> /note="Gene Symbol: A4GNT; "

<220>
<221> source
<223> /note="Gene Name:
alpha-1,4-N-acetylglucosaminyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UNA3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000236709"

<400> 4285

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Met Arg Lys Glu Leu Gln Leu Ser Leu Ser Val Thr Leu Leu Leu Val
1               5                  10                  15

Cys Gly Phe Leu Tyr Gln Phe Thr Leu Lys Ser Ser Cys Leu Phe Cys
            20                  25                  30

Leu Pro Ser Phe Lys Ser His Gln Gly Leu Glu Ala Leu Leu Ser His
        35                  40                  45

Arg Arg Gly Ile Val Phe Leu Glu Thr Ser Glu Arg Met Glu Pro Pro
    50                  55                  60

His Leu Val Ser Cys Ser Val Glu Ser Ala Ala Lys Ile Tyr Pro Glu
65                  70                  75                  80

Trp Pro Val Val Phe Phe Met Lys Gly Leu Thr Asp Ser Thr Pro Met
                85                  90                  95

Pro Ser Asn Ser Thr Tyr Pro Ala Phe Ser Phe Leu Ser Ala Ile Asp
            100                 105                 110

Asn Val Phe Leu Phe Pro Leu Asp Met Lys Arg Leu Leu Glu Asp Thr
        115                 120                 125

Pro Leu Phe Ser Trp Tyr Asn Gln Ile Asn Ala Ser Ala Glu Arg Asn
    130                 135                 140

Trp Leu His Ile Ser Ser Asp Ala Ser Arg Leu Ala Ile Ile Trp Lys
```

145 150 155 160

Tyr Gly Gly Ile Tyr Met Asp Thr Asp Val Ile Ser Ile Arg Pro Ile
165 170 175

Pro Glu Glu Asn Phe Leu Ala Ala Gln Ala Ser Arg Tyr Ser Ser Asn
180 185 190

Gly Ile Phe Gly Phe Leu Pro His His Pro Phe Leu Trp Glu Cys Met
195 200 205

Glu Asn Phe Val Glu His Tyr Asn Ser Ala Ile Trp Gly Asn Gln Gly
210 215 220

Pro Glu Leu Met Thr Arg Met Leu Arg Val Trp Cys Lys Leu Glu Asp
225 230 235 240

Phe Gln Glu Val Ser Asp Leu Arg Cys Leu Asn Ile Ser Phe Leu His
245 250 255

Pro Gln Arg Phe Tyr Pro Ile Ser Tyr Arg Glu Trp Arg Arg Tyr Tyr
260 265 270

Glu Val Trp Asp Thr Glu Pro Ser Phe Asn Val Ser Tyr Ala Leu His
275 280 285

Leu Trp Asn His Met Asn Gln Glu Gly Arg Ala Val Ile Arg Gly Ser
290 295 300

Asn Thr Leu Val Glu Asn Leu Tyr Arg Lys His Cys Pro Arg Thr Tyr
305 310 315 320

Arg Asp Leu Ile Lys Gly Pro Glu Gly Ser Val Thr Gly Glu Leu Gly
325 330 335

Pro Gly Asn Lys
340

<210> 4286
<211> 495
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 954; "

<220>
<221> source
<223> /note="Gene Symbol: A1BG; "

<220>
<221> source
<223> /note="Gene Name:
alpha-1-B glycoprt; "

<220>
<221> source
<223> /note="Uniprot ID: P04217; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263100"

<400> 4286

```
Met Ser Met Leu Val Val Phe Leu Leu Leu Trp Gly Val Thr Trp Gly
1               5                  10                  15

Pro Val Thr Glu Ala Ala Ile Phe Tyr Glu Thr Gln Pro Ser Leu Trp
            20                  25                  30

Ala Glu Ser Glu Ser Leu Leu Lys Pro Leu Ala Asn Val Thr Leu Thr
        35                  40                  45

Cys Gln Ala His Leu Glu Thr Pro Asp Phe Gln Leu Phe Lys Asn Gly
    50                  55                  60

Val Ala Gln Glu Pro Val His Leu Asp Ser Pro Ala Ile Lys His Gln
65                  70                  75                  80

Phe Leu Leu Thr Gly Asp Thr Gln Gly Arg Tyr Arg Cys Arg Ser Gly
                85                  90                  95

Leu Ser Thr Gly Trp Thr Gln Leu Ser Lys Leu Leu Glu Leu Thr Gly
            100                 105                 110

Pro Lys Ser Leu Pro Ala Pro Trp Leu Ser Met Ala Pro Val Ser Trp
        115                 120                 125

Ile Thr Pro Gly Leu Lys Thr Thr Ala Val Cys Arg Gly Val Leu Arg
    130                 135                 140
```

```
Gly Val Thr Phe Leu Leu Arg Arg Glu Gly Asp His Glu Phe Leu Glu
145                 150                 155                 160

Val Pro Glu Ala Gln Glu Asp Val Glu Ala Thr Phe Pro Val His Gln
                165                 170                 175

Pro Gly Asn Tyr Ser Cys Ser Tyr Arg Thr Asp Gly Glu Gly Ala Leu
            180                 185                 190

Ser Glu Pro Ser Ala Thr Val Thr Ile Glu Glu Leu Ala Ala Pro Pro
        195                 200                 205

Pro Pro Val Leu Met His His Gly Glu Ser Ser Gln Val Leu His Pro
    210                 215                 220

Gly Asn Lys Val Thr Leu Thr Cys Val Ala Pro Leu Ser Gly Val Asp
225                 230                 235                 240

Phe Gln Leu Arg Arg Gly Glu Lys Glu Leu Leu Val Pro Arg Ser Ser
                245                 250                 255

Thr Ser Pro Asp Arg Ile Phe Phe His Leu Asn Ala Val Ala Leu Gly
            260                 265                 270

Asp Gly Gly His Tyr Thr Cys Arg Tyr Arg Leu His Asp Asn Gln Asn
        275                 280                 285

Gly Trp Ser Gly Asp Ser Ala Pro Val Glu Leu Ile Leu Ser Asp Glu
    290                 295                 300

Thr Leu Pro Ala Pro Glu Phe Ser Pro Glu Pro Glu Ser Gly Arg Ala
305                 310                 315                 320

Leu Arg Leu Arg Cys Leu Ala Pro Leu Glu Gly Ala Arg Phe Ala Leu
                325                 330                 335

Val Arg Glu Asp Arg Gly Gly Arg Arg Val His Arg Phe Gln Ser Pro
            340                 345                 350

Ala Gly Thr Glu Ala Leu Phe Glu Leu His Asn Ile Ser Val Ala Asp
        355                 360                 365

Ser Ala Asn Tyr Ser Cys Val Tyr Val Asp Leu Lys Pro Pro Phe Gly
```

```
    370                 375                 380

Gly Ser Ala Pro Ser Glu Arg Leu Glu Leu His Val Asp Gly Pro Pro
385                 390                 395                 400

Pro Arg Pro Gln Leu Arg Ala Thr Trp Ser Gly Ala Val Leu Ala Gly
                405                 410                 415

Arg Asp Ala Val Leu Arg Cys Glu Gly Pro Ile Pro Asp Val Thr Phe
            420                 425                 430

Glu Leu Leu Arg Glu Gly Glu Thr Lys Ala Val Lys Thr Val Arg Thr
        435                 440                 445

Pro Gly Ala Ala Ala Asn Leu Glu Leu Ile Phe Val Gly Pro Gln His
    450                 455                 460

Ala Gly Asn Tyr Arg Cys Arg Tyr Arg Ser Trp Val Pro His Thr Phe
465                 470                 475                 480

Glu Ser Glu Leu Ser Asp Pro Val Glu Leu Leu Val Ala Glu Ser
                485                 490                 495


<210> 4287
<211> 305
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 954; "

<220>
<221> source
<223> /note="Gene Symbol: A1BG; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-1-B glycoprt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470909"

<400> 4287
Leu Thr Cys Gln Ala His Leu Glu Thr Pro Asp Phe Gln Leu Phe Lys
1               5                   10                  15
```

```
Asn Gly Val Ala Gln Glu Pro Val His Leu Asp Ser Pro Ala Ile Lys
            20                  25                  30

His Gln Phe Leu Leu Thr Gly Asp Thr Gln Gly Arg Tyr Arg Cys Arg
        35                  40                  45

Ser Gly Leu Ser Thr Gly Trp Thr Gln Leu Ser Lys Leu Leu Glu Leu
    50                  55                  60

Thr Gly Pro Lys Ser Leu Pro Ala Pro Trp Leu Ser Met Ala Pro Val
65                  70                  75                  80

Ser Trp Ile Thr Pro Gly Leu Lys Thr Thr Ala Val Cys Arg Gly Val
                85                  90                  95

Leu Arg Gly Val Thr Phe Leu Leu Arg Arg Glu Gly Asp His Glu Phe
            100                 105                 110

Leu Glu Val Pro Glu Ala Gln Glu Asp Val Glu Ala Thr Phe Pro Val
        115                 120                 125

His Gln Pro Gly Asn Tyr Ser Cys Ser Tyr Arg Thr Asp Gly Glu Gly
    130                 135                 140

Ala Leu Ser Glu Pro Ser Ala Thr Val Thr Ile Glu Glu Leu Gly Pro
145                 150                 155                 160

Gly Pro Gly Ser Trp Pro His Gly Cys Leu Gly Leu Met Val Ala Lys
                165                 170                 175

Glu Phe Gly Gln Arg Met Pro Lys Glu Trp Lys Ala Ala Pro Pro Pro
            180                 185                 190

Pro Val Leu Met His His Gly Glu Ser Ser Gln Val Leu His Pro Gly
        195                 200                 205

Asn Lys Val Thr Leu Thr Cys Val Ala Pro Leu Ser Gly Val Asp Phe
    210                 215                 220

Gln Leu Arg Arg Gly Glu Lys Glu Leu Leu Val Pro Arg Ser Ser Thr
225                 230                 235                 240
```

```
Ser Pro Asp Arg Ile Phe Phe His Leu Asn Ala Val Ala Leu Gly Asp
                245                 250                 255


Gly Gly His Tyr Thr Cys Arg Tyr Arg Leu His Asp Asn Gln Asn Gly
            260                 265                 270


Trp Ser Gly Asp Ser Ala Pro Val Glu Leu Ile Leu Ser Asp Glu Thr
        275                 280                 285


Leu Pro Ala Pro Glu Phe Ser Pro Glu Pro Glu Ser Gly Arg Ala Leu
    290                 295                 300


Arg
305


<210> 4288
<211> 352
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 955; "

<220>
<221> source
<223> /note="Gene Symbol: AMBP; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-1-microglobulin/bikunin precursor; "

<220>
<221> source
<223> /note="Uniprot ID:  P02760; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265132"

<400> 4288
Met Arg Ser Leu Gly Ala Leu Leu Leu Leu Leu Ser Ala Cys Leu Ala
1               5                   10                  15


Val Ser Ala Gly Pro Val Pro Thr Pro Pro Asp Asn Ile Gln Val Gln
            20                  25                  30


Glu Asn Phe Asn Ile Ser Arg Ile Tyr Gly Lys Trp Tyr Asn Leu Ala
        35                  40                  45
```

```
Ile Gly Ser Thr Cys Pro Trp Leu Lys Lys Ile Met Asp Arg Met Thr
    50                  55                  60

Val Ser Thr Leu Val Leu Gly Glu Gly Ala Thr Glu Ala Glu Ile Ser
65                  70                  75                  80

Met Thr Ser Thr Arg Trp Arg Lys Gly Val Cys Glu Glu Thr Ser Gly
                85                  90                  95

Ala Tyr Glu Lys Thr Asp Thr Asp Gly Lys Phe Leu Tyr His Lys Ser
            100                 105                 110

Lys Trp Asn Ile Thr Met Glu Ser Tyr Val Val His Thr Asn Tyr Asp
        115                 120                 125

Glu Tyr Ala Ile Phe Leu Thr Lys Lys Phe Ser Arg His His Gly Pro
    130                 135                 140

Thr Ile Thr Ala Lys Leu Tyr Gly Arg Ala Pro Gln Leu Arg Glu Thr
145                 150                 155                 160

Leu Leu Gln Asp Phe Arg Val Val Ala Gln Gly Val Gly Ile Pro Glu
                165                 170                 175

Asp Ser Ile Phe Thr Met Ala Asp Arg Gly Glu Cys Val Pro Gly Glu
            180                 185                 190

Gln Glu Pro Glu Pro Ile Leu Ile Pro Arg Val Arg Arg Ala Val Leu
        195                 200                 205

Pro Gln Glu Glu Glu Gly Ser Gly Gly Gly Gln Leu Val Thr Glu Val
    210                 215                 220

Thr Lys Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys
225                 230                 235                 240

Met Gly Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys
                245                 250                 255

Glu Thr Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val
            260                 265                 270
```

```
Thr Glu Lys Glu Cys Leu Gln Thr Cys Arg Thr Val Ala Ala Cys Asn
        275                 280                 285

Leu Pro Ile Val Arg Gly Pro Cys Arg Ala Phe Ile Gln Leu Trp Ala
    290                 295                 300

Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro Tyr Gly Gly Cys
305                 310                 315                 320

Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu Lys Glu Cys Arg Glu Tyr
                325                 330                 335

Cys Gly Val Pro Gly Asp Gly Asp Glu Glu Leu Leu Arg Phe Ser Asn
            340                 345                 350


<210> 4289
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 955; "

<220>
<221> source
<223> /note="Gene Symbol: AMBP; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-1-microglobulin/bikunin precursor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474859"

<400> 4289
Met Arg Ser Leu Gly Ala Leu Leu Leu Leu Leu Ser Ala Cys Leu Ala
1               5                   10                  15

Val Ser Ala Gly Pro Val Pro Thr Pro Pro Asp Asn Ile Gln Val Gln
            20                  25                  30

Glu Asn Phe Asn Ile Ser Arg Ile Tyr Gly Lys Trp Tyr Asn Leu Ala
        35                  40                  45

Ile Gly Ser Thr Cys Pro Trp Leu Lys Lys Ile Met Asp Arg Met Thr
```

```
    50                  55                  60

Val Ser Thr Leu Val Leu Gly Glu Gly Ala Thr Glu Ala Glu Ile Ser
65                  70                  75                  80

Met Thr Ser Thr Arg Trp Arg Lys Gly Val Cys Glu Glu Thr Ser Gly
                85                  90                  95

Ala Tyr Glu Lys Thr Asp Thr Asp Gly Lys Phe Leu Tyr His Lys Ser
            100                 105                 110

Lys Trp Asn Ile Thr Met Glu Ser Tyr Val Val His Thr Asn Tyr Asp
        115                 120                 125

Glu Tyr Ala Ile Phe Leu Thr Lys Lys Phe Ser Arg His His Gly Pro
    130                 135                 140

Thr Ile Thr Ala Lys Leu Tyr Gly Arg Ala Pro Gln Leu Arg Glu Thr
145                 150                 155                 160

Leu Leu Gln Asp Phe Arg Val Val Ala Gln Gly Val Gly Ile Pro Glu
                165                 170                 175

Asp Ser Ile Phe Thr Met Ala Asp Arg Val Asn Gly Leu Glu Gln Ala
            180                 185                 190

Thr Gln Ala Gly Pro Phe Met Lys Trp Thr Lys Ala Arg Gln Val Pro
        195                 200                 205

Ser Thr Met Leu Thr Lys Asp Thr Asn Pro Gly Leu Gly Trp Pro Leu
    210                 215                 220

Gly Leu Val Leu Leu Phe Thr Pro Leu Ser Cys Ser Val Thr
225                 230                 235


<210> 4290
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 955; "

<220>
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<221> source
<223> /note="Gene Symbol: AMBP; "

<220>
<221> source
<223> /note="Gene Name:
alpha-1-microglobulin/bikunin precursor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000475149"

<400> 4290

```
His Lys Ser Lys Trp Asn Ile Thr Met Glu Ser Tyr Val Val His Thr
1               5                  10                  15

Asn Tyr Asp Glu Tyr Ala Ile Phe Leu Thr Lys Lys Phe Ser Arg His
            20                  25                  30

His Gly Pro Thr Ile Thr Ala Lys Leu Tyr Gly Arg Ala Pro Gln Leu
        35                  40                  45

Arg Glu Thr Leu Leu Gln Asp Phe Arg Val Val Ala Gln Gly Val Gly
    50                  55                  60

Ile Pro Glu Asp Ser Ile Phe Thr Met Ala Asp Arg Gly Glu Cys Val
65                  70                  75                  80

Pro Gly Glu Gln Glu Pro Glu Pro Ile Leu Ile Pro Arg Val Arg Arg
                85                  90                  95

Ala Val Leu Pro Gln Glu Glu Glu Gly Ser Gly Gly Gly Gln Leu Val
            100                 105                 110

Thr Glu Val Thr Lys Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala
        115                 120                 125

Gly Pro Cys Met Gly Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser
    130                 135                 140

Met Ala Cys Glu Thr Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn
145                 150                 155                 160

Asn Phe Val Thr Val Arg Gly Pro Cys Arg Ala Phe Ile Gln Leu Trp
                165                 170                 175
```

```
Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro Tyr Gly Gly
            180                 185                 190

Cys
```

<210> 4291
<211> 298
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 956; "

<220>
<221> source
<223> /note="Gene Symbol: AZGP1; "

<220>
<221> source
<223> /note="Gene Name:
alpha-2-glycoprt 1, zinc-binding; "

<220>
<221> source
<223> /note="Uniprot ID: P25311; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000292401"

<400> 4291

```
Met Val Arg Met Val Pro Val Leu Leu Ser Leu Leu Leu Leu Leu Gly
1               5                  10                  15

Pro Ala Val Pro Gln Glu Asn Gln Asp Gly Arg Tyr Ser Leu Thr Tyr
            20                  25                  30

Ile Tyr Thr Gly Leu Ser Lys His Val Glu Asp Val Pro Ala Phe Gln
        35                  40                  45

Ala Leu Gly Ser Leu Asn Asp Leu Gln Phe Phe Arg Tyr Asn Ser Lys
    50                  55                  60

Asp Arg Lys Ser Gln Pro Met Gly Leu Trp Arg Gln Val Glu Gly Met
65                  70                  75                  80

Glu Asp Trp Lys Gln Asp Ser Gln Leu Gln Lys Ala Arg Glu Asp Ile
                85                  90                  95
```

```
Phe Met Glu Thr Leu Lys Asp Ile Val Glu Tyr Tyr Asn Asp Ser Asn
            100                 105                 110

Gly Ser His Val Leu Gln Gly Arg Phe Gly Cys Glu Ile Glu Asn Asn
        115                 120                 125

Arg Ser Ser Gly Ala Phe Trp Lys Tyr Tyr Tyr Asp Gly Lys Asp Tyr
    130                 135                 140

Ile Glu Phe Asn Lys Glu Ile Pro Ala Trp Val Pro Phe Asp Pro Ala
145                 150                 155                 160

Ala Gln Ile Thr Lys Gln Lys Trp Glu Ala Glu Pro Val Tyr Val Gln
                165                 170                 175

Arg Ala Lys Ala Tyr Leu Glu Glu Glu Cys Pro Ala Thr Leu Arg Lys
            180                 185                 190

Tyr Leu Lys Tyr Ser Lys Asn Ile Leu Asp Arg Gln Asp Pro Pro Ser
        195                 200                 205

Val Val Val Thr Ser His Gln Ala Pro Gly Glu Lys Lys Lys Leu Lys
    210                 215                 220

Cys Leu Ala Tyr Asp Phe Tyr Pro Gly Lys Ile Asp Val His Trp Thr
225                 230                 235                 240

Arg Ala Gly Glu Val Gln Glu Pro Glu Leu Arg Gly Asp Val Leu His
                245                 250                 255

Asn Gly Asn Gly Thr Tyr Gln Ser Trp Val Val Val Ala Val Pro Pro
            260                 265                 270

Gln Asp Thr Ala Pro Tyr Ser Cys His Val Gln His Ser Ser Leu Ala
        275                 280                 285

Gln Pro Leu Val Val Pro Trp Glu Ala Ser
    290                 295
```

<210> 4292
<211> 85
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 956; "

<220>
<221> source
<223> /note="Gene Symbol: AZGP1; "

<220>
<221> source
<223> /note="Gene Name:
alpha-2-glycoprt 1, zinc-binding; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000389942"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4292
Xaa Thr Tyr Ile Tyr Thr Gly Leu Ser Lys His Val Glu Asp Val Pro
1 5 10 15

Ala Phe Gln Ala Leu Gly Ser Leu Asn Asp Leu Gln Phe Phe Arg Tyr
20 25 30

Asn Ser Lys Asp Arg Lys Ser Gln Pro Met Gly Leu Trp Arg Gln Gln
35 40 45

Lys Tyr Pro Gly Pro Ala Arg Ser Ser Leu Cys Gly Gly His Gln Pro
50 55 60

Pro Gly Pro Arg Arg Lys Glu Glu Thr Glu Val Pro Gly Leu Arg Leu
65 70 75 80

Leu Pro Arg Glu Asn
85

<210> 4293
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 956; "

<220>
<221> source
<223> /note="Gene Symbol: AZGP1; "

<220>
<221> source
<223> /note="Gene Name:
alpha-2-glycoprt 1, zinc-binding; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396093"

<400> 4293

```
Met Val Pro Val Leu Leu Ser Leu Leu Leu Leu Leu Gly Pro Ala Val
1               5                  10                  15

Pro Gln Glu Asn Gln Asp Gly Arg Tyr Ser Leu Thr Tyr Ile Tyr Thr
            20                  25                  30

Gly Leu Ser Lys His Val Glu Asp Val Pro Ala Phe Gln Ala Leu Gly
        35                  40                  45

Ser Leu Asn Asp Leu Gln Phe Phe Arg Tyr Asn Ser Lys Asp Arg Lys
    50                  55                  60

Ser Gln Pro Met Gly Leu Trp Arg Gln Val Glu Gly Met Glu Asp Trp
65                  70                  75                  80

Lys Gln Asp Ser Gln Leu Gln Lys Ala Arg Glu Asp Ile Phe Met Glu
                85                  90                  95

Thr Leu Lys Asp Ile Val Glu Tyr Tyr Asn Asp Ser Asn Gly Ser His
            100                 105                 110

Val Leu Gln Gly Arg Phe Gly Cys Glu Ile Glu Asn Asn Arg Ser Ser
        115                 120                 125

Gly Ala Phe Trp Lys Tyr Tyr Tyr Asp Gly Lys Asp Tyr Ile Glu Phe
    130                 135                 140

Asn Lys Glu Ile Pro Ala Trp Val Pro Phe Asp Pro Ala Ala Gln Ile
145                 150                 155                 160

Thr Lys Gln Lys Trp Glu Ala Glu Pro Val Tyr Val Gln Arg Ala Lys
```

```
                165                 170                 175

Ala Tyr Leu Glu Glu Glu Cys Pro Ala Thr Leu Arg Lys Tyr Leu Lys
            180                 185                 190

Tyr Ser Lys Asn Ile Leu Asp Arg Gln Gly Thr His Cys Phe Leu Leu
        195                 200                 205

Pro Ser Thr Glu Pro Arg Ile Lys Asp Asp Leu Arg Leu Gly Ala Gln
    210                 215                 220

Ala Thr Ser
225


<210> 4294
<211> 368
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 957; "

<220>
<221> source
<223> /note="Gene Symbol: AHSG; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-2-HS-glycoprt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000273784"

<400> 4294
Met Lys Ser Leu Val Leu Leu Leu Cys Leu Ala Gln Leu Trp Gly Cys
1               5                   10                  15

His Ser Ala Pro His Gly Pro Gly Leu Ile Tyr Arg Gln Pro Asn Cys
            20                  25                  30

Asp Asp Pro Glu Thr Glu Glu Ala Ala Leu Val Ala Ile Asp Tyr Ile
        35                  40                  45

Asn Gln Asn Leu Pro Trp Gly Tyr Lys His Thr Leu Asn Gln Ile Asp
    50                  55                  60
```

```
Glu Val Lys Val Trp Pro Gln Gln Pro Ser Gly Glu Leu Phe Glu Ile
65                  70                  75                  80

Glu Ile Asp Thr Leu Glu Thr Thr Cys His Val Leu Asp Pro Thr Pro
                85                  90                  95

Val Ala Arg Cys Ser Val Arg Gln Leu Lys Glu His Ala Val Glu Gly
            100                 105                 110

Asp Cys Asp Phe Gln Leu Leu Lys Leu Asp Gly Lys Phe Ser Val Val
        115                 120                 125

Tyr Ala Lys Cys Asp Ser Ser Pro Ala Asp Ser Ala Glu Asp Val Arg
    130                 135                 140

Lys Val Cys Gln Asp Cys Pro Leu Leu Ala Pro Leu Asn Asp Thr Arg
145                 150                 155                 160

Val Val His Ala Ala Lys Ala Ala Leu Ala Ala Phe Asn Ala Gln Asn
                165                 170                 175

Asn Gly Ser Asn Phe Gln Leu Glu Glu Ile Ser Arg Ala Gln Leu Val
            180                 185                 190

Pro Leu Pro Pro Ser Thr Tyr Val Glu Phe Thr Val Ser Gly Thr Asp
        195                 200                 205

Cys Val Ala Lys Glu Ala Thr Glu Ala Ala Lys Cys Asn Leu Leu Ala
    210                 215                 220

Glu Lys Gln Tyr Gly Phe Cys Lys Ala Thr Leu Ser Glu Lys Leu Gly
225                 230                 235                 240

Gly Ala Glu Val Ala Val Thr Cys Met Val Phe Gln Thr Gln Pro Val
                245                 250                 255

Ser Ser Gln Pro Gln Pro Glu Gly Ala Asn Glu Ala Val Pro Thr Pro
            260                 265                 270

Val Val Asp Pro Asp Ala Pro Pro Ser Pro Pro Leu Gly Ala Pro Gly
        275                 280                 285
```

```
Leu Pro Pro Ala Gly Ser Pro Pro Asp Ser His Val Leu Leu Ala Ala
    290                 295                 300

Pro Pro Gly His Gln Leu His Arg Ala His Tyr Asp Leu Arg His Thr
305                 310                 315                 320

Phe Met Gly Val Val Ser Leu Gly Ser Pro Ser Gly Glu Val Ser His
                325                 330                 335

Pro Arg Lys Thr Arg Thr Val Val Gln Pro Ser Val Gly Ala Ala Ala
            340                 345                 350

Gly Pro Val Val Pro Pro Cys Pro Gly Arg Ile Arg His Phe Lys Val
        355                 360                 365


<210> 4295
<211> 367
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 957; "

<220>
<221> source
<223> /note="Gene Symbol: AHSG; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-2-HS-glycoprt; "

<220>
<221> source
<223> /note="Uniprot ID:  P02765; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393887"

<400> 4295
Met Lys Ser Leu Val Leu Leu Leu Cys Leu Ala Gln Leu Trp Gly Cys
1               5                   10                  15

His Ser Ala Pro His Gly Pro Gly Leu Ile Tyr Arg Gln Pro Asn Cys
            20                  25                  30

Asp Asp Pro Glu Thr Glu Glu Ala Ala Leu Val Ala Ile Asp Tyr Ile
        35                  40                  45
```

```
Asn Gln Asn Leu Pro Trp Gly Tyr Lys His Thr Leu Asn Gln Ile Asp
    50                  55                  60

Glu Val Lys Val Trp Pro Gln Gln Pro Ser Gly Glu Leu Phe Glu Ile
65                  70                  75                  80

Glu Ile Asp Thr Leu Glu Thr Thr Cys His Val Leu Asp Pro Thr Pro
                85                  90                  95

Val Ala Arg Cys Ser Val Arg Gln Leu Lys Glu His Ala Val Glu Gly
            100                 105                 110

Asp Cys Asp Phe Gln Leu Leu Lys Leu Asp Gly Lys Phe Ser Val Val
        115                 120                 125

Tyr Ala Lys Cys Asp Ser Ser Pro Asp Ser Ala Glu Asp Val Arg Lys
    130                 135                 140

Val Cys Gln Asp Cys Pro Leu Leu Ala Pro Leu Asn Asp Thr Arg Val
145                 150                 155                 160

Val His Ala Ala Lys Ala Ala Leu Ala Ala Phe Asn Ala Gln Asn Asn
                165                 170                 175

Gly Ser Asn Phe Gln Leu Glu Glu Ile Ser Arg Ala Gln Leu Val Pro
            180                 185                 190

Leu Pro Pro Ser Thr Tyr Val Glu Phe Thr Val Ser Gly Thr Asp Cys
        195                 200                 205

Val Ala Lys Glu Ala Thr Glu Ala Ala Lys Cys Asn Leu Leu Ala Glu
    210                 215                 220

Lys Gln Tyr Gly Phe Cys Lys Ala Thr Leu Ser Glu Lys Leu Gly Gly
225                 230                 235                 240

Ala Glu Val Ala Val Thr Cys Met Val Phe Gln Thr Gln Pro Val Ser
                245                 250                 255

Ser Gln Pro Gln Pro Glu Gly Ala Asn Glu Ala Val Pro Thr Pro Val
            260                 265                 270
```

```
Val Asp Pro Asp Ala Pro Pro Ser Pro Pro Leu Gly Ala Pro Gly Leu
        275                 280                 285

Pro Pro Ala Gly Ser Pro Pro Asp Ser His Val Leu Leu Ala Ala Pro
    290                 295                 300

Pro Gly His Gln Leu His Arg Ala His Tyr Asp Leu Arg His Thr Phe
305                 310                 315                 320

Met Gly Val Val Ser Leu Gly Ser Pro Ser Gly Glu Val Ser His Pro
                325                 330                 335

Arg Lys Thr Arg Thr Val Val Gln Pro Ser Val Gly Ala Ala Ala Gly
            340                 345                 350

Pro Val Val Pro Pro Cys Pro Gly Arg Ile Arg His Phe Lys Val
        355                 360                 365


<210> 4296
<211> 1474
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 958; "

<220>
<221> source
<223> /note="Gene Symbol: A2M; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-2-macroglobulin; "

<220>
<221> source
<223> /note="Uniprot ID:  P01023; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000323929"

<400> 4296
Met Gly Lys Asn Lys Leu Leu His Pro Ser Leu Val Leu Leu Leu Leu
1               5                   10                  15

Val Leu Leu Pro Thr Asp Ala Ser Val Ser Gly Lys Pro Gln Tyr Met
```

```
            20                  25                  30

Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr Glu Lys Gly Cys
        35                  40                  45

Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val Ser Ala Ser Leu
    50                  55                  60

Glu Ser Val Arg Gly Asn Arg Ser Leu Phe Thr Asp Leu Glu Ala Glu
65                  70                  75                  80

Asn Asp Val Leu His Cys Val Ala Phe Ala Val Pro Lys Ser Ser Ser
                85                  90                  95

Asn Glu Glu Val Met Phe Leu Thr Val Gln Val Lys Gly Pro Thr Gln
            100                 105                 110

Glu Phe Lys Lys Arg Thr Thr Val Met Val Lys Asn Glu Asp Ser Leu
        115                 120                 125

Val Phe Val Gln Thr Asp Lys Ser Ile Tyr Lys Pro Gly Gln Thr Val
    130                 135                 140

Lys Phe Arg Val Val Ser Met Asp Glu Asn Phe His Pro Leu Asn Glu
145                 150                 155                 160

Leu Ile Pro Leu Val Tyr Ile Gln Asp Pro Lys Gly Asn Arg Ile Ala
                165                 170                 175

Gln Trp Gln Ser Phe Gln Leu Glu Gly Gly Leu Lys Gln Phe Ser Phe
            180                 185                 190

Pro Leu Ser Ser Glu Pro Phe Gln Gly Ser Tyr Lys Val Val Val Gln
        195                 200                 205

Lys Lys Ser Gly Gly Arg Thr Glu His Pro Phe Thr Val Glu Glu Phe
    210                 215                 220

Val Leu Pro Lys Phe Glu Val Gln Val Thr Val Pro Lys Ile Ile Thr
225                 230                 235                 240

Ile Leu Glu Glu Glu Met Asn Val Ser Val Cys Gly Leu Tyr Thr Tyr
                245                 250                 255
```

```
Gly Lys Pro Val Pro Gly His Val Thr Val Ser Ile Cys Arg Lys Tyr
            260                 265                 270

Ser Asp Ala Ser Asp Cys His Gly Glu Asp Ser Gln Ala Phe Cys Glu
        275                 280                 285

Lys Phe Ser Gly Gln Leu Asn Ser His Gly Cys Phe Tyr Gln Gln Val
    290                 295                 300

Lys Thr Lys Val Phe Gln Leu Lys Arg Lys Glu Tyr Glu Met Lys Leu
305                 310                 315                 320

His Thr Glu Ala Gln Ile Gln Glu Glu Gly Thr Val Val Glu Leu Thr
                325                 330                 335

Gly Arg Gln Ser Ser Glu Ile Thr Arg Thr Ile Thr Lys Leu Ser Phe
            340                 345                 350

Val Lys Val Asp Ser His Phe Arg Gln Gly Ile Pro Phe Phe Gly Gln
        355                 360                 365

Val Arg Leu Val Asp Gly Lys Gly Val Pro Ile Pro Asn Lys Val Ile
    370                 375                 380

Phe Ile Arg Gly Asn Glu Ala Asn Tyr Tyr Ser Asn Ala Thr Thr Asp
385                 390                 395                 400

Glu His Gly Leu Val Gln Phe Ser Ile Asn Thr Thr Asn Val Met Gly
                405                 410                 415

Thr Ser Leu Thr Val Arg Val Asn Tyr Lys Asp Arg Ser Pro Cys Tyr
            420                 425                 430

Gly Tyr Gln Trp Val Ser Glu Glu His Glu Glu Ala His His Thr Ala
        435                 440                 445

Tyr Leu Val Phe Ser Pro Ser Lys Ser Phe Val His Leu Glu Pro Met
    450                 455                 460

Ser His Glu Leu Pro Cys Gly His Thr Gln Thr Val Gln Ala His Tyr
465                 470                 475                 480
```

```
Ile Leu Asn Gly Gly Thr Leu Leu Gly Leu Lys Lys Leu Ser Phe Tyr
                485                 490                 495

Tyr Leu Ile Met Ala Lys Gly Gly Ile Val Arg Thr Gly Thr His Gly
            500                 505                 510

Leu Leu Val Lys Gln Glu Asp Met Lys Gly His Phe Ser Ile Ser Ile
        515                 520                 525

Pro Val Lys Ser Asp Ile Ala Pro Val Ala Arg Leu Leu Ile Tyr Ala
    530                 535                 540

Val Leu Pro Thr Gly Asp Val Ile Gly Asp Ser Ala Lys Tyr Asp Val
545                 550                 555                 560

Glu Asn Cys Leu Ala Asn Lys Val Asp Leu Ser Phe Ser Pro Ser Gln
                565                 570                 575

Ser Leu Pro Ala Ser His Ala His Leu Arg Val Thr Ala Ala Pro Gln
            580                 585                 590

Ser Val Cys Ala Leu Arg Ala Val Asp Gln Ser Val Leu Leu Met Lys
        595                 600                 605

Pro Asp Ala Glu Leu Ser Ala Ser Ser Val Tyr Asn Leu Leu Pro Glu
    610                 615                 620

Lys Asp Leu Thr Gly Phe Pro Gly Pro Leu Asn Asp Gln Asp Asn Glu
625                 630                 635                 640

Asp Cys Ile Asn Arg His Asn Val Tyr Ile Asn Gly Ile Thr Tyr Thr
                645                 650                 655

Pro Val Ser Ser Thr Asn Glu Lys Asp Met Tyr Ser Phe Leu Glu Asp
            660                 665                 670

Met Gly Leu Lys Ala Phe Thr Asn Ser Lys Ile Arg Lys Pro Lys Met
        675                 680                 685

Cys Pro Gln Leu Gln Gln Tyr Glu Met His Gly Pro Glu Gly Leu Arg
    690                 695                 700
```

```
Val Gly Phe Tyr Glu Ser Asp Val Met Gly Arg Gly His Ala Arg Leu
705                 710                 715                 720

Val His Val Glu Glu Pro His Thr Glu Thr Val Arg Lys Tyr Phe Pro
                725                 730                 735

Glu Thr Trp Ile Trp Asp Leu Val Val Val Asn Ser Ala Gly Val Ala
            740                 745                 750

Glu Val Gly Val Thr Val Pro Asp Thr Ile Thr Glu Trp Lys Ala Gly
        755                 760                 765

Ala Phe Cys Leu Ser Glu Asp Ala Gly Leu Gly Ile Ser Ser Thr Ala
    770                 775                 780

Ser Leu Arg Ala Phe Gln Pro Phe Phe Val Glu Leu Thr Met Pro Tyr
785                 790                 795                 800

Ser Val Ile Arg Gly Glu Ala Phe Thr Leu Lys Ala Thr Val Leu Asn
                805                 810                 815

Tyr Leu Pro Lys Cys Ile Arg Val Ser Val Gln Leu Glu Ala Ser Pro
            820                 825                 830

Ala Phe Leu Ala Val Pro Val Glu Lys Glu Gln Ala Pro His Cys Ile
        835                 840                 845

Cys Ala Asn Gly Arg Gln Thr Val Ser Trp Ala Val Thr Pro Lys Ser
    850                 855                 860

Leu Gly Asn Val Asn Phe Thr Val Ser Ala Glu Ala Leu Glu Ser Gln
865                 870                 875                 880

Glu Leu Cys Gly Thr Glu Val Pro Ser Val Pro Glu His Gly Arg Lys
                885                 890                 895

Asp Thr Val Ile Lys Pro Leu Leu Val Glu Pro Glu Gly Leu Glu Lys
            900                 905                 910

Glu Thr Thr Phe Asn Ser Leu Leu Cys Pro Ser Gly Gly Glu Val Ser
        915                 920                 925

Glu Glu Leu Ser Leu Lys Leu Pro Pro Asn Val Val Glu Glu Ser Ala
```

930 935 940

Arg Ala Ser Val Ser Val Leu Gly Asp Ile Leu Gly Ser Ala Met Gln
945 950 955 960

Asn Thr Gln Asn Leu Leu Gln Met Pro Tyr Gly Cys Gly Glu Gln Asn
965 970 975

Met Val Leu Phe Ala Pro Asn Ile Tyr Val Leu Asp Tyr Leu Asn Glu
980 985 990

Thr Gln Gln Leu Thr Pro Glu Ile Lys Ser Lys Ala Ile Gly Tyr
Leu
995 1000 1005

Asn Thr Gly Tyr Gln Arg Gln Leu Asn Tyr Lys His Tyr Asp Gly
1010 1015 1020

Ser Tyr Ser Thr Phe Gly Glu Arg Tyr Gly Arg Asn Gln Gly Asn
1025 1030 1035

Thr Trp Leu Thr Ala Phe Val Leu Lys Thr Phe Ala Gln Ala Arg
1040 1045 1050

Ala Tyr Ile Phe Ile Asp Glu Ala His Ile Thr Gln Ala Leu Ile
1055 1060 1065

Trp Leu Ser Gln Arg Gln Lys Asp Asn Gly Cys Phe Arg Ser Ser
1070 1075 1080

Gly Ser Leu Leu Asn Asn Ala Ile Lys Gly Gly Val Glu Asp Glu
1085 1090 1095

Val Thr Leu Ser Ala Tyr Ile Thr Ile Ala Leu Leu Glu Ile Pro
1100 1105 1110

Leu Thr Val Thr His Pro Val Val Arg Asn Ala Leu Phe Cys Leu
1115 1120 1125

Glu Ser Ala Trp Lys Thr Ala Gln Glu Gly Asp His Gly Ser His
1130 1135 1140

Val Tyr Thr Lys Ala Leu Leu Ala Tyr Ala Phe Ala Leu Ala Gly

1145 1150 1155

Asn Gln Asp Lys Arg Lys Glu Val Leu Lys Ser Leu Asn Glu Glu
1160 1165 1170

Ala Val Lys Lys Asp Asn Ser Val His Trp Glu Arg Pro Gln Lys
1175 1180 1185

Pro Lys Ala Pro Val Gly His Phe Tyr Glu Pro Gln Ala Pro Ser
1190 1195 1200

Ala Glu Val Glu Met Thr Ser Tyr Val Leu Leu Ala Tyr Leu Thr
1205 1210 1215

Ala Gln Pro Ala Pro Thr Ser Glu Asp Leu Thr Ser Ala Thr Asn
1220 1225 1230

Ile Val Lys Trp Ile Thr Lys Gln Gln Asn Ala Gln Gly Gly Phe
1235 1240 1245

Ser Ser Thr Gln Asp Thr Val Val Ala Leu His Ala Leu Ser Lys
1250 1255 1260

Tyr Gly Ala Ala Thr Phe Thr Arg Thr Gly Lys Ala Ala Gln Val
1265 1270 1275

Thr Ile Gln Ser Ser Gly Thr Phe Ser Ser Lys Phe Gln Val Asp
1280 1285 1290

Asn Asn Asn Arg Leu Leu Leu Gln Gln Val Ser Leu Pro Glu Leu
1295 1300 1305

Pro Gly Glu Tyr Ser Met Lys Val Thr Gly Glu Gly Cys Val Tyr
1310 1315 1320

Leu Gln Thr Ser Leu Lys Tyr Asn Ile Leu Pro Glu Lys Glu Glu
1325 1330 1335

Phe Pro Phe Ala Leu Gly Val Gln Thr Leu Pro Gln Thr Cys Asp
1340 1345 1350

Glu Pro Lys Ala His Thr Ser Phe Gln Ile Ser Leu Ser Val Ser
1355 1360 1365

```
Tyr Thr  Gly Ser Arg Ser Ala  Ser Asn Met Ala Ile  Val Asp Val
    1370                1375                1380

Lys Met  Val Ser Gly Phe Ile  Pro Leu Lys Pro Thr  Val Lys Met
    1385                1390                1395

Leu Glu  Arg Ser Asn His Val  Ser Arg Thr Glu Val  Ser Ser Asn
    1400                1405                1410

His Val  Leu Ile Tyr Leu Asp  Lys Val Ser Asn Gln  Thr Leu Ser
    1415                1420                1425

Leu Phe  Phe Thr Val Leu Gln  Asp Val Pro Val Arg  Asp Leu Lys
    1430                1435                1440

Pro Ala  Ile Val Lys Val Tyr  Asp Tyr Tyr Glu Thr  Asp Glu Phe
    1445                1450                1455

Ala Ile  Ala Glu Tyr Asn Ala  Pro Cys Ser Lys Asp  Leu Gly Asn
    1460                1465                1470

Ala
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<210> 4297
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 958; "

<220>
<221> source
<223> /note="Gene Symbol: A2M; "

<220>
<221> source
<223> /note="Gene Name:
alpha-2-macroglobulin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000385710"

<400> 4297

```
Met Gly Lys Asn Lys Leu Leu His Pro Ser Leu Val Leu Leu Leu Leu
1               5                  10                  15

Val Leu Leu Pro Thr Asp Ala Ser Val Ser Gly Lys Pro Gln Tyr Met
            20                  25                  30

Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr Glu Lys Gly Cys
        35                  40                  45

Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val Ser Ala Ser Leu
    50                  55                  60

Glu Ser Val Arg Gly Asn Arg Ser Leu Phe Thr Asp Leu Glu Ala Glu
65                  70                  75                  80

Asn Asp Val Leu His Cys Val Ala Phe Ala Val Pro Lys Ser Ser Ser
                85                  90                  95

Asn Glu Glu Val Met Phe Leu Thr Val Gln Val Lys Gly Pro Thr Gln
            100                 105                 110

Glu Phe Lys Lys Arg Thr Thr Val Met Val Lys Asn Glu Asp Ser Leu
        115                 120                 125

Val Phe Val Gln Thr Asp Lys Ser Ile Tyr Lys Pro Gly Gln Thr Val
    130                 135                 140

Lys Phe Arg Val Val Ser Met Asp Glu Asn Phe His Pro Leu Asn Glu
145                 150                 155                 160

Leu Ile Pro Leu Val Tyr Ile Gln
                165
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<210> 4298
<211> 73
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 958; "

<220>
<221> source
<223> /note="Gene Symbol: A2M; "

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<223> /note="Gene Name:
alpha-2-macroglobulin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438599"

<400> 4298
Asn Gly Gly Thr Leu Leu Gly Leu Lys Lys Leu Ser Phe Tyr Tyr Leu
1 5 10 15

Ile Met Ala Lys Gly Gly Ile Val Arg Thr Gly Thr His Gly Leu Leu
20 25 30

Val Lys Gln Glu Asp Met Lys Gly His Phe Ser Ile Ser Ile Pro Val
35 40 45

Lys Ser Asp Ile Ala Pro Val Ala Arg Phe Thr Thr Cys Tyr Gln Lys
50 55 60

Arg Thr Ser Leu Ala Ser Leu Gly Leu
65 70

<210> 4299
<211> 90
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
alpha-2-macroglobulin; "

<220>
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<400> 4299
Met Gly Lys Asn Lys Leu Leu His Pro Ser Leu Val Leu Leu Leu Leu
1 5 10 15

Val Leu Leu Pro Thr Asp Ala Ser Val Ser Gly Lys Pro Gln Tyr Met
            20   25   30

Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr Glu Lys Gly Cys
        35   40   45

Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val Ser Ala Ser Leu
    50   55   60

Glu Ser Val Arg Gly Asn Arg Ser Leu Phe Thr Asp Leu Glu Ala Glu
65   70   75   80

Asn Asp Val Leu His Cys Val Ala Phe Ala
                85   90

<210> 4300
<211> 1454
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: A2ML1; "

<220>
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<223> /note="Gene Name:
      alpha-2-macroglobulin-like 1; "

<220>
<221> source
<223> /note="Uniprot ID: A8K2U0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299698"

<400> 4300
Met Trp Ala Gln Leu Leu Leu Gly Met Leu Ala Leu Ser Pro Ala Ile
1   5   10   15

Ala Glu Glu Leu Pro Asn Tyr Leu Val Thr Leu Pro Ala Arg Leu Asn
            20   25   30

Phe Pro Ser Val Gln Lys Val Cys Leu Asp Leu Ser Pro Gly Tyr Ser
        35   40   45

```
Asp Val Lys Phe Thr Val Thr Leu Glu Thr Lys Asp Lys Thr Gln Lys
    50                  55                  60

Leu Leu Glu Tyr Ser Gly Leu Lys Lys Arg His Leu His Cys Ile Ser
65                  70                  75                  80

Phe Leu Val Pro Pro Pro Ala Gly Gly Thr Glu Glu Val Ala Thr Ile
                85                  90                  95

Arg Val Ser Gly Val Gly Asn Asn Ile Ser Phe Glu Glu Lys Lys Lys
            100                 105                 110

Val Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe Val Gln Thr Asp Lys
        115                 120                 125

Pro Leu Tyr Thr Pro Gly Gln Gln Val Tyr Phe Arg Ile Val Thr Met
    130                 135                 140

Asp Ser Asn Phe Val Pro Val Asn Asp Lys Tyr Ser Met Val Glu Leu
145                 150                 155                 160

Gln Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp Leu Glu Val Val Pro
                165                 170                 175

Glu Gln Gly Ile Val Asp Leu Ser Phe Gln Leu Ala Pro Glu Ala Met
            180                 185                 190

Leu Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys Thr Phe Gly Thr
        195                 200                 205

Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val Glu Val Val
    210                 215                 220

Glu Pro Lys Glu Leu Ser Thr Val Gln Glu Ser Phe Leu Val Lys Ile
225                 230                 235                 240

Cys Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu Gly Ala Val Gln Val
                245                 250                 255

Ser Val Cys Gln Lys Ala Asn Thr Tyr Trp Tyr Arg Glu Val Glu Arg
            260                 265                 270
```

```
Glu Gln Leu Pro Asp Lys Cys Arg Asn Leu Ser Gly Gln Thr Asp Lys
        275                 280                 285

Thr Gly Cys Phe Ser Ala Pro Val Asp Met Ala Thr Phe Asp Leu Ile
    290                 295                 300

Gly Tyr Ala Tyr Ser His Gln Ile Asn Ile Val Ala Thr Val Val Glu
305                 310                 315                 320

Glu Gly Thr Gly Val Glu Ala Asn Ala Thr Gln Asn Ile Tyr Ile Ser
                325                 330                 335

Pro Gln Met Gly Ser Met Thr Phe Glu Asp Thr Ser Asn Phe Tyr His
            340                 345                 350

Pro Asn Phe Pro Phe Ser Gly Lys Ile Arg Val Arg Gly His Asp Asp
        355                 360                 365

Ser Phe Leu Lys Asn His Leu Val Phe Leu Val Ile Tyr Gly Thr Asn
    370                 375                 380

Gly Thr Phe Asn Gln Thr Leu Val Thr Asp Asn Asn Gly Leu Ala Pro
385                 390                 395                 400

Phe Thr Leu Glu Thr Ser Gly Trp Asn Gly Thr Asp Val Ser Leu Glu
                405                 410                 415

Gly Lys Phe Gln Met Glu Asp Leu Val Tyr Asn Pro Glu Gln Val Pro
            420                 425                 430

Arg Tyr Tyr Gln Asn Ala Tyr Leu His Leu Arg Pro Phe Tyr Ser Thr
        435                 440                 445

Thr Arg Ser Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys
    450                 455                 460

Gly Gln Pro Gln Glu Val Leu Val Asp Tyr Tyr Ile Asp Pro Ala Asp
465                 470                 475                 480

Ala Ser Pro Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys
                485                 490                 495
```

```
Gly Ser Leu Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys Lys
            500                 505                 510

Gly Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg Leu
        515                 520                 525

Ala Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly
    530                 535                 540

Val Val Ala Asp Lys Ile Gln Phe Ser Val Glu Met Cys Phe Asp Asn
545                 550                 555                 560

Gln Val Ser Leu Gly Phe Ser Pro Ser Gln Gln Leu Pro Gly Ala Glu
                565                 570                 575

Val Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg
            580                 585                 590

Ala Val Asp Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser
        595                 600                 605

Asn Arg Ser Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro
    610                 615                 620

Tyr Gln Val Ala Glu Tyr Asp Gln Cys Pro Val Ser Gly Pro Trp Asp
625                 630                 635                 640

Phe Pro Gln Pro Leu Ile Asp Pro Met Pro Gln Gly His Ser Ser Gln
                645                 650                 655

Arg Ser Ile Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe
            660                 665                 670

Ser Phe Phe Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile
        675                 680                 685

Lys Lys Pro Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala
    690                 695                 700

Met Gly Ala Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro
705                 710                 715                 720

Leu His Gln Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr
```

```
                725                 730                 735

Trp Leu Trp Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val
            740                 745                 750

His Val Thr Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe
        755                 760                 765

Cys Thr Ser Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu
    770                 775                 780

Thr Ala Phe Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val
785                 790                 795                 800

Val Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu
                805                 810                 815

Lys Asp Cys Ile Arg Val Gln Thr Asp Leu Ala Lys Ser His Glu Tyr
            820                 825                 830

Gln Leu Glu Ser Trp Ala Asp Ser Gln Thr Ser Ser Cys Leu Cys Ala
        835                 840                 845

Asp Asp Ala Lys Thr His His Trp Asn Ile Thr Ala Val Lys Leu Gly
    850                 855                 860

His Ile Asn Phe Thr Ile Ser Thr Lys Ile Leu Asp Ser Asn Glu Pro
865                 870                 875                 880

Cys Gly Gly Gln Lys Gly Phe Val Pro Gln Lys Gly Arg Ser Asp Thr
                885                 890                 895

Leu Ile Lys Pro Val Leu Val Lys Pro Glu Gly Val Leu Val Glu Lys
            900                 905                 910

Thr His Ser Ser Leu Leu Cys Pro Lys Gly Lys Val Ala Ser Glu Ser
        915                 920                 925

Val Ser Leu Glu Leu Pro Val Asp Ile Val Pro Asp Ser Thr Lys Ala
    930                 935                 940

Tyr Val Thr Val Leu Gly Asp Ile Met Gly Thr Ala Leu Gln Asn Leu
945                 950                 955                 960
```

```
Asp Gly Leu Val Gln Met Pro Ser Gly Cys Gly Glu Gln Asn Met Val
                965                 970                 975

Leu Phe Ala Pro Ile Ile Tyr Val Leu Gln Tyr Leu Glu Lys Ala Gly
            980                 985                 990

Leu Leu Thr Glu Glu Ile Arg Ser  Arg Ala Val Gly Phe  Leu Glu
Ile
        995                 1000                1005

Gly Tyr  Gln Lys Glu Leu Met  Tyr Lys His Ser Asn  Gly Ser Tyr
    1010                1015                1020

Ser Ala  Phe Gly Glu Arg Asp  Gly Asn Gly Asn Thr  Trp Leu Thr
    1025                1030                1035

Ala Phe  Val Thr Lys Cys Phe  Gly Gln Ala Gln Lys  Phe Ile Phe
    1040                1045                1050

Ile Asp  Pro Lys Asn Ile Gln  Asp Ala Leu Lys Trp  Met Ala Gly
    1055                1060                1065

Asn Gln  Leu Pro Ser Gly Cys  Tyr Ala Asn Val Gly  Asn Leu Leu
    1070                1075                1080

His Thr  Ala Met Lys Gly Gly  Val Asp Asp Glu Val  Ser Leu Thr
    1085                1090                1095

Ala Tyr  Val Thr Ala Ala Leu  Leu Glu Met Gly Lys  Asp Val Asp
    1100                1105                1110

Asp Pro  Met Val Ser Gln Gly  Leu Arg Cys Leu Lys  Asn Ser Ala
    1115                1120                1125

Thr Ser  Thr Thr Asn Leu Tyr  Thr Gln Ala Leu Leu  Ala Tyr Ile
    1130                1135                1140

Phe Ser  Leu Ala Gly Glu Met  Asp Ile Arg Asn Ile  Leu Leu Lys
    1145                1150                1155

Gln Leu  Asp Gln Gln Ala Ile  Ile Ser Gly Glu Ser  Ile Tyr Trp
    1160                1165                1170
```

```
Ser Gln  Lys Pro Thr Pro Ser  Ser Asn Ala Ser Pro  Trp Ser Glu
    1175                1180                1185

Pro Ala  Ala Val Asp Val Glu  Leu Thr Ala Tyr Ala  Leu Leu Ala
    1190                1195                1200

Gln Leu  Thr Lys Pro Ser Leu  Thr Gln Lys Glu Ile  Ala Lys Ala
    1205                1210                1215

Thr Ser  Ile Val Ala Trp Leu  Ala Lys Gln His Asn  Ala Tyr Gly
    1220                1225                1230

Gly Phe  Ser Ser Thr Gln Asp  Thr Val Val Ala Leu  Gln Ala Leu
    1235                1240                1245

Ala Lys  Tyr Ala Thr Thr Ala  Tyr Met Pro Ser Glu  Glu Ile Asn
    1250                1255                1260

Leu Val  Val Lys Ser Thr Glu  Asn Phe Gln Arg Thr  Phe Asn Ile
    1265                1270                1275

Gln Ser  Val Asn Arg Leu Val  Phe Gln Gln Asp Thr  Leu Pro Asn
    1280                1285                1290

Val Pro  Gly Met Tyr Thr Leu  Glu Ala Ser Gly Gln  Gly Cys Val
    1295                1300                1305

Tyr Val  Gln Thr Val Leu Arg  Tyr Asn Ile Leu Pro  Pro Thr Asn
    1310                1315                1320

Met Lys  Thr Phe Ser Leu Ser  Val Glu Ile Gly Lys  Ala Arg Cys
    1325                1330                1335

Glu Gln  Pro Thr Ser Pro Arg  Ser Leu Thr Leu Thr  Ile His Thr
    1340                1345                1350

Ser Tyr  Val Gly Ser Arg Ser  Ser Ser Asn Met Ala  Ile Val Glu
    1355                1360                1365

Val Lys  Met Leu Ser Gly Phe  Ser Pro Met Glu Gly  Thr Asn Gln
    1370                1375                1380
```

```
Leu Leu  Leu Gln Gln Pro Leu  Val Lys Lys Val Glu  Phe Gly Thr
    1385                1390                1395


Asp Thr  Leu Asn Ile Tyr Leu  Asp Glu Leu Ile Lys  Asn Thr Gln
    1400                1405                1410


Thr Tyr  Thr Phe Thr Ile Ser  Gln Ser Val Leu Val  Thr Asn Leu
    1415                1420                1425


Lys Pro  Ala Thr Ile Lys Val  Tyr Asp Tyr Tyr Leu  Pro Asp Glu
    1430                1435                1440


Gln Ala  Thr Ile Gln Tyr Ser  Asp Pro Cys Glu
    1445                1450


<210> 4301
<211> 963
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 959; "

<220>
<221> source
<223> /note="Gene Symbol: A2ML1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-2-macroglobulin-like 1; "

<220>
<221> source
<223> /note="Uniprot ID:  A8K2U0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438292"

<400> 4301
Met Leu Ile Gly Lys Gly Ser Leu Val Met Glu Gly Gln Lys His Leu
1               5                  10                  15


Asn Ser Lys Lys Lys Gly Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr
            20                  25                  30


Phe Thr Ser Arg Leu Ala Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile
```

```
        35                  40                  45

Phe Pro Ser Gly Gly Val Val Ala Asp Lys Ile Gln Phe Ser Val Glu
    50                  55                  60

Met Cys Phe Asp Asn Gln Val Ser Leu Gly Phe Ser Pro Ser Gln Gln
65                  70                  75                  80

Leu Pro Gly Ala Glu Val Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser
                85                  90                  95

Leu Cys Ala Leu Arg Ala Val Asp Glu Ser Val Leu Leu Leu Arg Pro
            100                 105                 110

Asp Arg Glu Leu Ser Asn Arg Ser Val Tyr Gly Met Phe Pro Phe Trp
        115                 120                 125

Tyr Gly His Tyr Pro Tyr Gln Val Ala Glu Tyr Asp Gln Cys Pro Val
    130                 135                 140

Ser Gly Pro Trp Asp Phe Pro Gln Pro Leu Ile Asp Pro Met Pro Gln
145                 150                 155                 160

Gly His Ser Ser Gln Arg Ser Ile Ile Trp Arg Pro Ser Phe Ser Glu
                165                 170                 175

Gly Thr Asp Leu Phe Ser Phe Phe Arg Asp Val Gly Leu Lys Ile Leu
            180                 185                 190

Ser Asn Ala Lys Ile Lys Lys Pro Val Asp Cys Ser His Arg Ser Pro
        195                 200                 205

Glu Tyr Ser Thr Ala Met Gly Ala Gly Gly Gly His Pro Glu Ala Phe
    210                 215                 220

Glu Ser Ser Thr Pro Leu His Gln Ala Glu Asp Ser Gln Val Arg Gln
225                 230                 235                 240

Tyr Phe Pro Glu Thr Trp Leu Trp Asp Leu Phe Pro Ile Gly Asn Ser
                245                 250                 255

Gly Lys Glu Ala Val His Val Thr Val Pro Asp Ala Ile Thr Glu Trp
            260                 265                 270
```

```
Lys Ala Met Ser Phe Cys Thr Ser Gln Ser Arg Gly Phe Gly Leu Ser
        275                 280                 285

Pro Thr Val Gly Leu Thr Ala Phe Lys Pro Phe Phe Val Asp Leu Thr
    290                 295                 300

Leu Pro Tyr Ser Val Val Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr
305                 310                 315                 320

Ile Phe Asn Tyr Leu Lys Asp Cys Ile Arg Val Gln Thr Asp Leu Ala
                325                 330                 335

Lys Ser His Glu Tyr Gln Leu Glu Ser Trp Ala Asp Ser Gln Thr Ser
            340                 345                 350

Ser Cys Leu Cys Ala Asp Asp Ala Lys Thr His His Trp Asn Ile Thr
        355                 360                 365

Ala Val Lys Leu Gly His Ile Asn Phe Thr Ile Ser Thr Lys Ile Leu
    370                 375                 380

Asp Ser Asn Glu Pro Cys Gly Gly Gln Lys Gly Phe Val Pro Gln Lys
385                 390                 395                 400

Gly Arg Ser Asp Thr Leu Ile Lys Pro Val Leu Val Lys Pro Glu Gly
                405                 410                 415

Val Leu Val Glu Lys Thr His Ser Ser Leu Leu Cys Pro Lys Gly Lys
            420                 425                 430

Val Ala Ser Glu Ser Val Ser Leu Glu Leu Pro Val Asp Ile Val Pro
        435                 440                 445

Asp Ser Thr Lys Ala Tyr Val Thr Val Leu Gly Asp Ile Met Gly Thr
    450                 455                 460

Ala Leu Gln Asn Leu Asp Gly Leu Val Gln Met Pro Ser Gly Cys Gly
465                 470                 475                 480

Glu Gln Asn Met Val Leu Phe Ala Pro Ile Ile Tyr Val Leu Gln Tyr
                485                 490                 495
```

```
Leu Glu Lys Ala Gly Leu Leu Thr Glu Glu Ile Arg Ser Arg Ala Val
            500                 505                 510

Gly Phe Leu Glu Ile Gly Tyr Gln Lys Glu Leu Met Tyr Lys His Ser
        515                 520                 525

Asn Gly Ser Tyr Ser Ala Phe Gly Glu Arg Asp Gly Asn Gly Asn Thr
    530                 535                 540

Trp Leu Thr Ala Phe Val Thr Lys Cys Phe Gly Gln Ala Gln Lys Phe
545                 550                 555                 560

Ile Phe Ile Asp Pro Lys Asn Ile Gln Asp Ala Leu Lys Trp Met Ala
                565                 570                 575

Gly Asn Gln Leu Pro Ser Gly Cys Tyr Ala Asn Val Gly Asn Leu Leu
            580                 585                 590

His Thr Ala Met Lys Gly Gly Val Asp Asp Glu Val Ser Leu Thr Ala
        595                 600                 605

Tyr Val Thr Ala Ala Leu Leu Glu Met Gly Lys Asp Val Asp Asp Pro
    610                 615                 620

Met Val Ser Gln Gly Leu Arg Cys Leu Lys Asn Ser Ala Thr Ser Thr
625                 630                 635                 640

Thr Asn Leu Tyr Thr Gln Ala Leu Leu Ala Tyr Ile Phe Ser Leu Ala
                645                 650                 655

Gly Glu Met Asp Ile Arg Asn Ile Leu Leu Lys Gln Leu Asp Gln Gln
            660                 665                 670

Ala Ile Ile Ser Gly Glu Ser Ile Tyr Trp Ser Gln Lys Pro Thr Pro
        675                 680                 685

Ser Ser Asn Ala Ser Pro Trp Ser Glu Pro Ala Ala Val Asp Val Glu
    690                 695                 700

Leu Thr Ala Tyr Ala Leu Leu Ala Gln Leu Thr Lys Pro Ser Leu Thr
705                 710                 715                 720
```

Gln Lys Glu Ile Ala Lys Ala Thr Ser Ile Val Ala Trp Leu Ala Lys
725 730 735

Gln His Asn Ala Tyr Gly Gly Phe Ser Ser Thr Gln Asp Thr Val Val
740 745 750

Ala Leu Gln Ala Leu Ala Lys Tyr Ala Thr Thr Ala Tyr Met Pro Ser
755 760 765

Glu Glu Ile Asn Leu Val Val Lys Ser Thr Glu Asn Phe Gln Arg Thr
770 775 780

Phe Asn Ile Gln Ser Val Asn Arg Leu Val Phe Gln Gln Asp Thr Leu
785 790 795 800

Pro Asn Val Pro Gly Met Tyr Thr Leu Glu Ala Ser Gly Gln Gly Cys
805 810 815

Val Tyr Val Gln Thr Val Leu Arg Tyr Asn Ile Leu Pro Pro Thr Asn
820 825 830

Met Lys Thr Phe Ser Leu Ser Val Glu Ile Gly Lys Ala Arg Cys Glu
835 840 845

Gln Pro Thr Ser Pro Arg Ser Leu Thr Leu Thr Ile His Thr Ser Tyr
850 855 860

Val Gly Ser Arg Ser Ser Ser Asn Met Ala Ile Val Glu Val Lys Met
865 870 875 880

Leu Ser Gly Phe Ser Pro Met Glu Gly Thr Asn Gln Leu Leu Leu Gln
885 890 895

Gln Pro Leu Val Lys Lys Val Glu Phe Gly Thr Asp Thr Leu Asn Ile
900 905 910

Tyr Leu Asp Glu Leu Ile Lys Asn Thr Gln Thr Tyr Thr Phe Thr Ile
915 920 925

Ser Gln Ser Val Leu Val Thr Asn Leu Lys Pro Ala Thr Ile Lys Val
930 935 940

Tyr Asp Tyr Tyr Leu Pro Asp Glu Gln Ala Thr Ile Gln Tyr Ser Asp

945 950 955 960

Pro Cys Glu

<210> 4302
<211> 183
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 959; "

<220>
<221> source
<223> /note="Gene Symbol: A2ML1; "

<220>
<221> source
<223> /note="Gene Name:
alpha-2-macroglobulin-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440057"

<400> 4302
Met Leu Gly Glu Leu Ile Gly Lys Gly Ser Leu Val Met Glu Gly Gln
1 5 10 15

Lys His Leu Asn Ser Lys Lys Lys Gly Leu Lys Ala Ser Phe Ser Leu
20 25 30

Ser Leu Thr Phe Thr Ser Arg Leu Ala Pro Asp Pro Ser Leu Val Ile
35 40 45

Tyr Ala Ile Phe Pro Ser Gly Gly Val Val Ala Asp Lys Ile Gln Phe
50 55 60

Ser Val Glu Met Cys Phe Asp Asn Gln Val Ser Leu Gly Phe Ser Pro
65 70 75 80

Ser Gln Gln Leu Pro Gly Ala Glu Val Glu Leu Gln Leu Gln Ala Ala
85 90 95

Pro Gly Ser Leu Cys Ala Leu Arg Ala Val Asp Glu Ser Val Leu Leu
100 105 110

```
Leu Arg Pro Asp Arg Glu Leu Ser Asn Arg Ser Val Tyr Gly Met Phe
        115                 120                 125

Pro Phe Trp Tyr Gly His Tyr Pro Tyr Gln Val Ala Glu Tyr Asp Gln
    130                 135                 140

Cys Pro Val Ser Gly Pro Trp Asp Phe Pro Gln Pro Leu Ile Asp Pro
145                 150                 155                 160

Met Pro Gln Gly His Ser Ser Gln Arg Ser Ile Ile Trp Arg Pro Ser
                165                 170                 175

Phe Ser Glu Gly Thr Asp Leu
            180


<210> 4303
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 959; "

<220>
<221> source
<223> /note="Gene Symbol: A2ML1; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-2-macroglobulin-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440662"

<400> 4303
Met Val Arg Asn Asn Phe Tyr Ala Val Arg Leu Leu Pro Ser Thr Cys
1               5                   10                  15

Val Val Leu Ser Gln Thr Ser Asn Cys Arg Arg Ser His Gln Asp Pro
            20                  25                  30

Leu Ala Ala Ser Cys Ile Cys Gln Ala Ser Gly Cys Trp Leu Ile Gly
        35                  40                  45

Lys Gly Ser Leu Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys
```

```
    50                  55                  60

Lys Gly Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg
65                  70                  75                  80

Leu
```

<210> 4304
<211> 1004
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 959; "

<220>
<221> source
<223> /note="Gene Symbol: A2ML1; "

<220>
<221> source
<223> /note="Gene Name:
alpha-2-macroglobulin-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443174"

<400> 4304

```
Ser Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys Gly Gln
1               5                  10                  15

Pro Gln Glu Val Leu Val Asp Tyr Tyr Ile Asp Pro Ala Asp Ala Ser
            20                  25                  30

Pro Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys Gly Ser
        35                  40                  45

Leu Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys Lys Gly Leu
    50                  55                  60

Lys Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg Leu Ala Pro
65                  70                  75                  80

Asp Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly Val Val
                85                  90                  95
```

```
Ala Asp Lys Ile Gln Phe Ser Val Glu Met Cys Phe Asp Asn Gln Val
            100                 105                 110

Ser Leu Gly Phe Ser Pro Ser Gln Gln Leu Pro Gly Ala Glu Val Glu
        115                 120                 125

Leu Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg Ala Val
    130                 135                 140

Asp Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser Asn Arg
145                 150                 155                 160

Ser Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro Tyr Gln
                165                 170                 175

Val Ala Glu Tyr Asp Gln Cys Pro Val Ser Gly Pro Trp Asp Phe Pro
            180                 185                 190

Gln Pro Leu Ile Asp Pro Met Pro Gln Gly His Ser Ser Gln Arg Ser
        195                 200                 205

Ile Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe Ser Phe
    210                 215                 220

Phe Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile Lys Lys
225                 230                 235                 240

Pro Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala Met Gly
                245                 250                 255

Ala Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu His
            260                 265                 270

Gln Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp Leu
        275                 280                 285

Trp Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val His Val
    290                 295                 300

Thr Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys Thr
305                 310                 315                 320
```

```
Ser Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu Thr Ala
                325                 330                 335

Phe Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val Arg
            340                 345                 350

Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys Asp
        355                 360                 365

Cys Ile Arg Val Gln Thr Asp Leu Ala Lys Ser His Glu Tyr Gln Leu
    370                 375                 380

Glu Ser Trp Ala Asp Ser Gln Thr Ser Ser Cys Leu Cys Ala Asp Asp
385                 390                 395                 400

Ala Lys Thr His His Trp Asn Ile Thr Ala Val Lys Leu Gly His Ile
                405                 410                 415

Asn Phe Thr Ile Ser Thr Lys Ile Leu Asp Ser Asn Glu Pro Cys Gly
            420                 425                 430

Gly Gln Lys Gly Phe Val Pro Gln Lys Gly Arg Ser Asp Thr Leu Ile
        435                 440                 445

Lys Pro Val Leu Val Lys Pro Glu Gly Val Leu Val Glu Lys Thr His
    450                 455                 460

Ser Ser Leu Leu Cys Pro Lys Gly Lys Val Ala Ser Glu Ser Val Ser
465                 470                 475                 480

Leu Glu Leu Pro Val Asp Ile Val Pro Asp Ser Thr Lys Ala Tyr Val
                485                 490                 495

Thr Val Leu Gly Asp Ile Met Gly Thr Ala Leu Gln Asn Leu Asp Gly
            500                 505                 510

Leu Val Gln Met Pro Ser Gly Cys Gly Glu Gln Asn Met Val Leu Phe
        515                 520                 525

Ala Pro Ile Ile Tyr Val Leu Gln Tyr Leu Glu Lys Ala Gly Leu Leu
    530                 535                 540

Thr Glu Glu Ile Arg Ser Arg Ala Val Gly Phe Leu Glu Ile Gly Tyr
```

545 550 555 560

Gln Lys Glu Leu Met Tyr Lys His Ser Asn Gly Ser Tyr Ser Ala Phe
565 570 575

Gly Glu Arg Asp Gly Asn Gly Asn Thr Trp Leu Thr Ala Phe Val Thr
580 585 590

Lys Cys Phe Gly Gln Ala Gln Lys Phe Ile Phe Ile Asp Pro Lys Asn
595 600 605

Ile Gln Asp Ala Leu Lys Trp Met Ala Gly Asn Gln Leu Pro Ser Gly
610 615 620

Cys Tyr Ala Asn Val Gly Asn Leu Leu His Thr Ala Met Lys Gly Gly
625 630 635 640

Val Asp Asp Glu Val Ser Leu Thr Ala Tyr Val Thr Ala Ala Leu Leu
645 650 655

Glu Met Gly Lys Asp Val Asp Asp Pro Met Val Ser Gln Gly Leu Arg
660 665 670

Cys Leu Lys Asn Ser Ala Thr Ser Thr Thr Asn Leu Tyr Thr Gln Ala
675 680 685

Leu Leu Ala Tyr Ile Phe Ser Leu Ala Gly Glu Met Asp Ile Arg Asn
690 695 700

Ile Leu Leu Lys Gln Leu Asp Gln Gln Ala Ile Ile Ser Gly Glu Ser
705 710 715 720

Ile Tyr Trp Ser Gln Lys Pro Thr Pro Ser Ser Asn Ala Ser Pro Trp
725 730 735

Ser Glu Pro Ala Ala Val Asp Val Glu Leu Thr Ala Tyr Ala Leu Leu
740 745 750

Ala Gln Leu Thr Lys Pro Ser Leu Thr Gln Lys Glu Ile Ala Lys Ala
755 760 765

Thr Ser Ile Val Ala Trp Leu Ala Lys Gln His Asn Ala Tyr Gly Gly
770 775 780

Phe Ser Ser Thr Gln Asp Thr Val Val Ala Leu Gln Ala Leu Ala Lys
785 790 795 800

Tyr Ala Thr Thr Ala Tyr Met Pro Ser Glu Glu Ile Asn Leu Val Val
805 810 815

Lys Ser Thr Glu Asn Phe Gln Arg Thr Phe Asn Ile Gln Ser Val Asn
820 825 830

Arg Leu Val Phe Gln Gln Asp Thr Leu Pro Asn Val Pro Gly Met Tyr
835 840 845

Thr Leu Glu Ala Ser Gly Gln Gly Cys Val Tyr Val Gln Thr Val Leu
850 855 860

Arg Tyr Asn Ile Leu Pro Pro Thr Asn Met Lys Thr Phe Ser Leu Ser
865 870 875 880

Val Glu Ile Gly Lys Ala Arg Cys Glu Gln Pro Thr Ser Pro Arg Ser
885 890 895

Leu Thr Leu Thr Ile His Thr Ser Tyr Val Gly Ser Arg Ser Ser Ser
900 905 910

Asn Met Ala Ile Val Glu Val Lys Met Leu Ser Gly Phe Ser Pro Met
915 920 925

Glu Gly Thr Asn Gln Leu Leu Leu Gln Gln Pro Leu Val Lys Lys Val
930 935 940

Glu Phe Gly Thr Asp Thr Leu Asn Ile Tyr Leu Asp Glu Leu Ile Lys
945 950 955 960

Asn Thr Gln Thr Tyr Thr Phe Thr Ile Ser Gln Ser Val Leu Val Thr
965 970 975

Asn Leu Lys Pro Ala Thr Ile Lys Val Tyr Asp Tyr Tyr Leu Pro Asp
980 985 990

Glu Gln Ala Thr Ile Gln Tyr Ser Asp Pro Cys Glu
995 1000

<210> 4305
<211> 182
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 959; "

<220>
<221> source
<223> /note="Gene Symbol: A2ML1; "

<220>
<221> source
<223> /note="Gene Name:
alpha-2-macroglobulin-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445674"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4305
Xaa Arg Thr Phe Asn Ile Gln Ser Val Asn Arg Leu Val Phe Gln Gln
1 5 10 15

Asp Thr Leu Pro Asn Val Pro Gly Met Tyr Thr Leu Glu Ala Ser Gly
20 25 30

Gln Gly Cys Val Tyr Val Gln Thr Val Leu Arg Tyr Asn Ile Leu Pro
35 40 45

Pro Thr Asn Met Lys Thr Phe Ser Leu Ser Val Glu Ile Gly Lys Ala
50 55 60

Arg Cys Glu Gln Pro Thr Ser Pro Arg Ser Leu Thr Leu Thr Ile His
65 70 75 80

Thr Ser Tyr Val Gly Ser Arg Ser Ser Ser Asn Met Ala Ile Val Glu
85 90 95

Val Lys Met Leu Ser Gly Phe Ser Pro Met Glu Gly Thr Asn Gln Leu
100 105 110

```
Leu Leu Gln Gln Pro Leu Val Lys Lys Val Glu Phe Gly Thr Asp Thr
        115                 120                 125

Leu Asn Ile Tyr Leu Asp Glu Leu Ile Lys Asn Thr Gln Thr Tyr Thr
    130                 135                 140

Phe Thr Ile Ser Gln Ser Val Leu Val Thr Asn Leu Lys Pro Ala Thr
145                 150                 155                 160

Ile Lys Val Tyr Asp Tyr Tyr Leu Pro Asp Glu Gln Ala Thr Ile Gln
                165                 170                 175

Tyr Ser Asp Pro Cys Glu
            180
```

<210> 4306
<211> 173
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 960; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
alpha-crystallin A chain
[Source:RefSeq peptide;Acc:NP_001300979]; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482816"

<400> 4306

```
Met Asp Val Thr Ile Gln His Pro Trp Phe Lys Arg Thr Leu Gly Pro
1               5                   10                  15

Phe Tyr Pro Ser Arg Leu Phe Asp Gln Phe Phe Gly Glu Gly Leu Phe
            20                  25                  30

Glu Tyr Asp Leu Leu Pro Phe Leu Ser Ser Thr Ile Ser Pro Tyr Tyr
        35                  40                  45
```

```
Arg Gln Ser Leu Phe Arg Thr Val Leu Asp Ser Gly Ile Ser Glu Val
    50                  55                  60

Arg Ser Asp Arg Asp Lys Phe Val Ile Phe Leu Asp Val Lys His Phe
65                  70                  75                  80

Ser Pro Glu Asp Leu Thr Val Lys Val Gln Asp Asp Phe Val Glu Ile
                85                  90                  95

His Gly Lys His Asn Glu Arg Gln Asp Asp His Gly Tyr Ile Ser Arg
            100                 105                 110

Glu Phe His Arg Arg Tyr Arg Leu Pro Ser Asn Val Asp Gln Ser Ala
        115                 120                 125

Leu Ser Cys Ser Leu Ser Ala Asp Gly Met Leu Thr Phe Cys Gly Pro
    130                 135                 140

Lys Ile Gln Thr Gly Leu Asp Ala Thr His Ala Glu Arg Ala Ile Pro
145                 150                 155                 160

Val Ser Arg Glu Glu Lys Pro Thr Ser Ala Pro Ser Ser
                165                 170


<210> 4307
<211> 136
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 960; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-crystallin A chain
      [Source:RefSeq peptide;Acc:NP_001300979]; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485302"

<400> 4307
Met Pro Val Cys Pro Gly Asp Ser His Arg Pro Pro Lys Ala Leu Pro
```

```
1               5                   10                  15

His Leu Val Cys Gly Arg Arg Gly Arg Gln Val Arg Ser Asp Arg Asp
            20                  25                  30

Lys Phe Val Ile Phe Leu Asp Val Lys His Phe Ser Pro Glu Asp Leu
        35                  40                  45

Thr Val Lys Val Gln Asp Asp Phe Val Glu Ile His Gly Lys His Asn
    50                  55                  60

Glu Arg Gln Asp Asp His Gly Tyr Ile Ser Arg Glu Phe His Arg Arg
65                  70                  75                  80

Tyr Arg Leu Pro Ser Asn Val Asp Gln Ser Ala Leu Ser Cys Ser Leu
                85                  90                  95

Ser Ala Asp Gly Met Leu Thr Phe Cys Gly Pro Lys Ile Gln Thr Gly
            100                 105                 110

Leu Asp Ala Thr His Ala Glu Arg Ala Ile Pro Val Ser Arg Glu Glu
        115                 120                 125

Lys Pro Thr Ser Ala Pro Ser Ser
    130                 135


<210> 4308
<211> 127
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 960; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-crystallin A chain
      [Source:RefSeq peptide;Acc:NP_001300979]; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485653"
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<400> 4308
Met Asp Ala Pro Pro Pro His Pro Thr Thr Gly Leu Leu Ser Glu Pro
1   5   10   15

Arg Val Arg Ser Asp Arg Asp Lys Phe Val Ile Phe Leu Asp Val Lys
            20   25   30

His Phe Ser Pro Glu Asp Leu Thr Val Lys Val Gln Asp Asp Phe Val
        35   40   45

Glu Ile His Gly Lys His Asn Glu Arg Gln Asp Asp His Gly Tyr Ile
    50   55   60

Ser Arg Glu Phe His Arg Arg Tyr Arg Leu Pro Ser Asn Val Asp Gln
65   70   75   80

Ser Ala Leu Ser Cys Ser Leu Ser Ala Asp Gly Met Leu Thr Phe Cys
                85   90   95

Gly Pro Lys Ile Gln Thr Gly Leu Asp Ala Thr His Ala Glu Arg Ala
            100   105   110

Ile Pro Val Ser Arg Glu Glu Lys Pro Thr Ser Ala Pro Ser Ser
        115   120   125

<210> 4309
<211> 622
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 961; "

<220>
<221> source
<223> /note="Gene Symbol: AFP; "

<220>
<221> source
<223> /note="Gene Name:
alpha-fetoprt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000226359"

<400> 4309

```
Met Lys Trp Val Glu Ser Ile Phe Leu Ile Phe Leu Leu Asn Phe Thr
1               5                  10                  15

Glu Ser Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu
            20                  25                  30

Asp Ser Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr
        35                  40                  45

Ile Phe Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser
    50                  55                  60

Lys Met Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp
65                  70                  75                  80

Glu Gln Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu
                85                  90                  95

Glu Leu Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp
            100                 105                 110

Cys Cys Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His
        115                 120                 125

Lys Lys Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro
    130                 135                 140

Val Thr Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn
145                 150                 155                 160

Lys Phe Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro
                165                 170                 175

Thr Ile Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys
            180                 185                 190

Cys Lys Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr
        195                 200                 205

Val Thr Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys
    210                 215                 220

Ala Val Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val
```

225 230 235 240

Thr Lys Leu Ser Gln Lys Phe Thr Lys Val Asn Phe Thr Glu Ile Gln
245 250 255

Lys Leu Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly
260 265 270

Asp Val Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile
275 280 285

Cys Ser Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys
290 295 300

Leu Thr Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp
305 310 315 320

Glu Lys Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp
325 330 335

Arg Asp Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala
340 345 350

Ser Phe Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser
355 360 365

Val Ile Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys
370 375 380

Phe Gln Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu
385 390 395 400

Leu Gln Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys
405 410 415

Gly Leu Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu
420 425 430

Val Ala Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met
435 440 445

Ala Ile Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu
450 455 460

```
Ser Glu Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile
465                 470                 475                 480

Ile Gly His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly
                485                 490                 495

Val Gly Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe
            500                 505                 510

Ser Ser Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp
        515                 520                 525

Asp Lys Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala
    530                 535                 540

Leu Gln Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys
545                 550                 555                 560

Pro Gln Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser
                565                 570                 575

Gly Leu Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe
            580                 585                 590

Ala Glu Glu Gly Lys Arg Arg Gln Asn Glu Ser Phe Ile Arg Cys Glu
        595                 600                 605

Leu Phe Ser Leu Ile Leu Thr Asp Leu Thr Leu Phe Val Asn
    610                 615                 620


<210> 4310
<211> 609
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 961; "

<220>
<221> source
<223> /note="Gene Symbol: AFP; "

<220>
<221> source
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<223> /note="Gene Name:
alpha-fetoprt; "

<220>
<221> source
<223> /note="Uniprot ID: P02771; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379138"

<400> 4310

```
Met Lys Trp Val Glu Ser Ile Phe Leu Ile Phe Leu Leu Asn Phe Thr
1               5                  10                  15

Glu Ser Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu
            20                  25                  30

Asp Ser Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr
        35                  40                  45

Ile Phe Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser
    50                  55                  60

Lys Met Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp
65                  70                  75                  80

Glu Gln Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu
                85                  90                  95

Glu Leu Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp
            100                 105                 110

Cys Cys Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His
        115                 120                 125

Lys Lys Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro
    130                 135                 140

Val Thr Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn
145                 150                 155                 160

Lys Phe Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro
                165                 170                 175

Thr Ile Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys
```

```
            180                 185                 190

Cys Lys Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr
        195                 200                 205

Val Thr Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys
    210                 215                 220

Ala Val Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val
225                 230                 235                 240

Thr Lys Leu Ser Gln Lys Phe Thr Lys Val Asn Phe Thr Glu Ile Gln
                245                 250                 255

Lys Leu Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly
            260                 265                 270

Asp Val Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile
        275                 280                 285

Cys Ser Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys
    290                 295                 300

Leu Thr Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp
305                 310                 315                 320

Glu Lys Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp
                325                 330                 335

Arg Asp Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala
            340                 345                 350

Ser Phe Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser
        355                 360                 365

Val Ile Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys
    370                 375                 380

Phe Gln Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu
385                 390                 395                 400

Leu Gln Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys
                405                 410                 415
```

```
Gly Leu Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu
            420                 425                 430

Val Ala Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met
        435                 440                 445

Ala Ile Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu
    450                 455                 460

Ser Glu Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile
465                 470                 475                 480

Ile Gly His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly
                485                 490                 495

Val Gly Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe
            500                 505                 510

Ser Ser Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp
        515                 520                 525

Asp Lys Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala
    530                 535                 540

Leu Gln Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys
545                 550                 555                 560

Pro Gln Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser
                565                 570                 575

Gly Leu Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe
            580                 585                 590

Ala Glu Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly
        595                 600                 605

Val
```

<210> 4311
<211> 1244
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 962; "

<220>
<221> source
<223> /note="Gene Symbol: ALPK1; "

<220>
<221> source
<223> /note="Gene Name:
alpha-kinase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q96QP1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000177648"

<400> 4311

```
Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln
1               5                  10                  15

Val Leu Asp Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp
            20                  25                  30

Lys Ser Glu Asp Gln Arg Cys Arg Ala Leu Leu Pro Ser Glu Leu Arg
        35                  40                  45

Thr Leu Ile Gln Glu Ala Lys Glu Met Lys Trp Pro Phe Val Pro Glu
    50                  55                  60

Lys Trp Gln Tyr Lys Gln Ala Val Gly Pro Glu Asp Lys Thr Asn Leu
65                  70                  75                  80

Lys Asp Val Ile Gly Ala Gly Leu Gln Gln Leu Leu Ala Ser Leu Arg
                85                  90                  95

Ala Ser Ile Leu Ala Arg Asp Cys Ala Ala Ala Ala Ala Ile Val Phe
            100                 105                 110

Leu Val Asp Arg Phe Leu Tyr Gly Leu Asp Val Ser Gly Lys Leu Leu
        115                 120                 125

Gln Val Ala Lys Gly Leu His Lys Leu Gln Pro Ala Thr Pro Ile Ala
```

```
    130                 135                 140

Pro Gln Val Val Ile Arg Gln Ala Arg Ile Ser Val Asn Ser Gly Lys
145                 150                 155                 160

Leu Leu Lys Ala Glu Tyr Ile Leu Ser Ser Leu Ile Ser Asn Asn Gly
                165                 170                 175

Ala Thr Gly Thr Trp Leu Tyr Arg Asn Glu Ser Asp Lys Val Leu Val
            180                 185                 190

Gln Ser Val Cys Ile Gln Ile Arg Gly Gln Ile Leu Gln Lys Leu Gly
        195                 200                 205

Met Trp Tyr Glu Ala Ala Glu Leu Ile Trp Ala Ser Ile Val Gly Tyr
    210                 215                 220

Leu Ala Leu Pro Gln Pro Asp Lys Lys Gly Leu Ser Thr Ser Leu Gly
225                 230                 235                 240

Ile Leu Ala Asp Ile Phe Val Ser Met Ser Lys Asn Asp Tyr Glu Lys
                245                 250                 255

Phe Lys Asn Asn Pro Gln Ile Asn Leu Ser Leu Leu Lys Glu Phe Asp
            260                 265                 270

His His Leu Leu Ser Ala Ala Glu Ala Cys Lys Leu Ala Ala Ala Phe
        275                 280                 285

Ser Ala Tyr Thr Pro Leu Phe Val Leu Thr Ala Val Asn Ile Arg Gly
    290                 295                 300

Thr Cys Leu Leu Ser Tyr Ser Ser Ser Asn Asp Cys Pro Pro Glu Leu
305                 310                 315                 320

Lys Asn Leu His Leu Cys Glu Ala Lys Glu Ala Phe Glu Ile Gly Leu
                325                 330                 335

Leu Thr Lys Arg Asp Asp Glu Pro Val Thr Gly Lys Gln Glu Leu His
            340                 345                 350

Ser Phe Val Lys Ala Ala Phe Gly Leu Thr Thr Val His Arg Arg Leu
        355                 360                 365
```

```
His Gly Glu Thr Gly Thr Val His Ala Ala Ser Gln Leu Cys Lys Glu
    370                 375                 380

Ala Met Gly Lys Leu Tyr Asn Phe Ser Thr Ser Ser Arg Ser Gln Asp
385                 390                 395                 400

Arg Glu Ala Leu Ser Gln Glu Val Met Ser Val Ile Ala Gln Val Lys
                405                 410                 415

Glu His Leu Gln Val Gln Ser Phe Ser Asn Val Asp Asp Arg Ser Tyr
            420                 425                 430

Val Pro Glu Ser Phe Glu Cys Arg Leu Asp Lys Leu Ile Leu His Gly
        435                 440                 445

Gln Gly Asp Phe Gln Lys Ile Leu Asp Thr Tyr Ser Gln His His Thr
    450                 455                 460

Ser Val Cys Glu Val Phe Glu Ser Asp Cys Gly Asn Asn Lys Asn Glu
465                 470                 475                 480

Gln Lys Asp Ala Lys Thr Gly Val Cys Ile Thr Ala Leu Lys Thr Glu
                485                 490                 495

Ile Lys Asn Ile Asp Thr Val Ser Thr Thr Gln Glu Lys Pro His Cys
            500                 505                 510

Gln Arg Asp Thr Gly Ile Ser Ser Ser Leu Met Gly Lys Asn Val Gln
        515                 520                 525

Arg Glu Leu Arg Arg Gly Gly Arg Arg Asn Trp Thr His Ser Asp Ala
    530                 535                 540

Phe Arg Val Ser Leu Asp Gln Asp Val Glu Thr Glu Thr Glu Pro Ser
545                 550                 555                 560

Asp Tyr Ser Asn Gly Glu Gly Ala Val Phe Asn Lys Ser Leu Ser Gly
                565                 570                 575

Ser Gln Thr Ser Ser Ala Trp Ser Asn Leu Ser Gly Phe Ser Ser Ser
            580                 585                 590
```

```
Ala Ser Trp Glu Glu Val Asn Tyr His Val Asp Asp Arg Ser Ala Arg
        595                 600                 605

Lys Glu Pro Gly Lys Glu His Leu Val Asp Thr Gln Cys Ser Thr Ala
    610                 615                 620

Leu Ser Glu Glu Leu Glu Asn Asp Arg Glu Gly Arg Ala Met His Ser
625                 630                 635                 640

Leu His Ser Gln Leu His Asp Leu Ser Leu Gln Glu Pro Asn Asn Asp
                645                 650                 655

Asn Leu Glu Pro Ser Gln Asn Gln Pro Gln Gln Gln Met Pro Leu Thr
            660                 665                 670

Pro Phe Ser Pro His Asn Thr Pro Gly Ile Phe Leu Ala Pro Gly Ala
        675                 680                 685

Gly Leu Leu Glu Gly Ala Pro Glu Gly Ile Gln Glu Val Arg Asn Met
    690                 695                 700

Gly Pro Arg Asn Thr Ser Ala His Ser Arg Pro Ser Tyr Arg Ser Ala
705                 710                 715                 720

Ser Trp Ser Ser Asp Ser Gly Arg Pro Lys Asn Met Gly Thr His Pro
                725                 730                 735

Ser Val Gln Lys Glu Glu Ala Phe Glu Ile Ile Val Glu Phe Pro Glu
            740                 745                 750

Thr Asn Cys Asp Val Lys Asp Arg Gln Gly Lys Glu Gln Gly Glu Glu
        755                 760                 765

Ile Ser Glu Arg Gly Ala Gly Pro Thr Phe Lys Ala Ser Pro Ser Trp
    770                 775                 780

Val Asp Pro Glu Gly Glu Thr Ala Glu Ser Thr Glu Asp Ala Pro Leu
785                 790                 795                 800

Asp Phe His Arg Val Leu His Asn Ser Leu Gly Asn Ile Ser Met Leu
                805                 810                 815
```

```
Pro Cys Ser Ser Phe Thr Pro Asn Trp Pro Val Gln Asn Pro Asp Ser
            820                 825                 830

Arg Lys Ser Gly Gly Pro Val Ala Glu Gln Gly Ile Asp Pro Asp Ala
        835                 840                 845

Ser Thr Val Asp Glu Glu Gly Gln Leu Leu Asp Ser Met Asp Val Pro
    850                 855                 860

Cys Thr Asn Gly His Gly Ser His Arg Leu Cys Ile Leu Arg Gln Pro
865                 870                 875                 880

Pro Gly Gln Arg Ala Glu Thr Pro Asn Ser Ser Val Ser Gly Asn Ile
                885                 890                 895

Leu Phe Pro Val Leu Ser Glu Asp Cys Thr Thr Thr Glu Glu Gly Asn
            900                 905                 910

Gln Pro Gly Asn Met Leu Asn Cys Ser Gln Asn Ser Ser Ser Ser Ser
        915                 920                 925

Val Trp Trp Leu Lys Ser Pro Ala Phe Ser Ser Gly Ser Ser Glu Gly
    930                 935                 940

Asp Ser Pro Trp Ser Tyr Leu Asn Ser Ser Gly Ser Ser Trp Val Ser
945                 950                 955                 960

Leu Pro Gly Lys Met Arg Lys Glu Ile Leu Glu Ala Arg Thr Leu Gln
                965                 970                 975

Pro Asp Asp Phe Glu Lys Leu Leu Ala Gly Val Arg His Asp Trp Leu
            980                 985                 990

Phe Gln Arg Leu Glu Asn Thr Gly  Val Phe Lys Pro Ser  Gln Leu
His
        995                 1000                1005

Arg Ala  His Ser Ala Leu Leu  Leu Lys Tyr Ser Lys  Lys Ser Glu
    1010                1015                1020

Leu Trp  Thr Ala Gln Glu Thr  Ile Val Tyr Leu Gly  Asp Tyr Leu
    1025                1030                1035
```

Thr Val Lys Lys Lys Gly Arg Gln Arg Asn Ala Phe Trp Val His
1040 1045 1050

His Leu His Gln Glu Glu Ile Leu Gly Arg Tyr Val Gly Lys Asp
1055 1060 1065

Tyr Lys Glu Gln Lys Gly Leu Trp His His Phe Thr Asp Val Glu
1070 1075 1080

Arg Gln Met Thr Ala Gln His Tyr Val Thr Glu Phe Asn Lys Arg
1085 1090 1095

Leu Tyr Glu Gln Asn Ile Pro Thr Gln Ile Phe Tyr Ile Pro Ser
1100 1105 1110

Thr Ile Leu Leu Ile Leu Glu Asp Lys Thr Ile Lys Gly Cys Ile
1115 1120 1125

Ser Val Glu Pro Tyr Ile Leu Gly Glu Phe Val Lys Leu Ser Asn
1130 1135 1140

Asn Thr Lys Val Val Lys Thr Glu Tyr Lys Ala Thr Glu Tyr Gly
1145 1150 1155

Leu Ala Tyr Gly His Phe Ser Tyr Glu Phe Ser Asn His Arg Asp
1160 1165 1170

Val Val Val Asp Leu Gln Gly Trp Val Thr Gly Asn Gly Lys Gly
1175 1180 1185

Leu Ile Tyr Leu Thr Asp Pro Gln Ile His Ser Val Asp Gln Lys
1190 1195 1200

Val Phe Thr Thr Asn Phe Gly Lys Arg Gly Ile Phe Tyr Phe Phe
1205 1210 1215

Asn Asn Gln His Val Glu Cys Asn Glu Ile Cys His Arg Leu Ser
1220 1225 1230

Leu Thr Arg Pro Ser Met Glu Lys Pro Cys Thr
1235 1240

<210> 4312

<211> 1244
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
alpha-kinase 1; "

<220>
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<220>
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<400> 4312

```
Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln
1               5                  10                  15

Val Leu Asp Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp
            20                  25                  30

Lys Ser Glu Asp Gln Arg Cys Arg Ala Leu Leu Pro Ser Glu Leu Arg
        35                  40                  45

Thr Leu Ile Gln Glu Ala Lys Glu Met Lys Trp Pro Phe Val Pro Glu
    50                  55                  60

Lys Trp Gln Tyr Lys Gln Ala Val Gly Pro Glu Asp Lys Thr Asn Leu
65                  70                  75                  80

Lys Asp Val Ile Gly Ala Gly Leu Gln Gln Leu Leu Ala Ser Leu Arg
                85                  90                  95

Ala Ser Ile Leu Ala Arg Asp Cys Ala Ala Ala Ala Ala Ile Val Phe
            100                 105                 110

Leu Val Asp Arg Phe Leu Tyr Gly Leu Asp Val Ser Gly Lys Leu Leu
        115                 120                 125
```

```
Gln Val Ala Lys Gly Leu His Lys Leu Gln Pro Ala Thr Pro Ile Ala
    130                 135                 140

Pro Gln Val Val Ile Arg Gln Ala Arg Ile Ser Val Asn Ser Gly Lys
145                 150                 155                 160

Leu Leu Lys Ala Glu Tyr Ile Leu Ser Ser Leu Ile Ser Asn Asn Gly
                165                 170                 175

Ala Thr Gly Thr Trp Leu Tyr Arg Asn Glu Ser Asp Lys Val Leu Val
            180                 185                 190

Gln Ser Val Cys Ile Gln Ile Arg Gly Gln Ile Leu Gln Lys Leu Gly
        195                 200                 205

Met Trp Tyr Glu Ala Ala Glu Leu Ile Trp Ala Ser Ile Val Gly Tyr
    210                 215                 220

Leu Ala Leu Pro Gln Pro Asp Lys Lys Gly Leu Ser Thr Ser Leu Gly
225                 230                 235                 240

Ile Leu Ala Asp Ile Phe Val Ser Met Ser Lys Asn Asp Tyr Glu Lys
                245                 250                 255

Phe Lys Asn Asn Pro Gln Ile Asn Leu Ser Leu Leu Lys Glu Phe Asp
            260                 265                 270

His His Leu Leu Ser Ala Ala Glu Ala Cys Lys Leu Ala Ala Ala Phe
        275                 280                 285

Ser Ala Tyr Thr Pro Leu Phe Val Leu Thr Ala Val Asn Ile Arg Gly
    290                 295                 300

Thr Cys Leu Leu Ser Tyr Ser Ser Ser Asn Asp Cys Pro Pro Glu Leu
305                 310                 315                 320

Lys Asn Leu His Leu Cys Glu Ala Lys Glu Ala Phe Glu Ile Gly Leu
                325                 330                 335

Leu Thr Lys Arg Asp Asp Glu Pro Val Thr Gly Lys Gln Glu Leu His
            340                 345                 350
```

```
Ser Phe Val Lys Ala Ala Phe Gly Leu Thr Thr Val His Arg Arg Leu
        355                 360                 365

His Gly Glu Thr Gly Thr Val His Ala Ala Ser Gln Leu Cys Lys Glu
    370                 375                 380

Ala Met Gly Lys Leu Tyr Asn Phe Ser Thr Ser Ser Arg Ser Gln Asp
385                 390                 395                 400

Arg Glu Ala Leu Ser Gln Glu Val Met Ser Val Ile Ala Gln Val Lys
                405                 410                 415

Glu His Leu Gln Val Gln Ser Phe Ser Asn Val Asp Asp Arg Ser Tyr
            420                 425                 430

Val Pro Glu Ser Phe Glu Cys Arg Leu Asp Lys Leu Ile Leu His Gly
        435                 440                 445

Gln Gly Asp Phe Gln Lys Ile Leu Asp Thr Tyr Ser Gln His His Thr
    450                 455                 460

Ser Val Cys Glu Val Phe Glu Ser Asp Cys Gly Asn Asn Lys Asn Glu
465                 470                 475                 480

Gln Lys Asp Ala Lys Thr Gly Val Cys Ile Thr Ala Leu Lys Thr Glu
                485                 490                 495

Ile Lys Asn Ile Asp Thr Val Ser Thr Thr Gln Glu Lys Pro His Cys
            500                 505                 510

Gln Arg Asp Thr Gly Ile Ser Ser Ser Leu Met Gly Lys Asn Val Gln
        515                 520                 525

Arg Glu Leu Arg Arg Gly Gly Arg Arg Asn Trp Thr His Ser Asp Ala
    530                 535                 540

Phe Arg Val Ser Leu Asp Gln Asp Val Glu Thr Glu Thr Glu Pro Ser
545                 550                 555                 560

Asp Tyr Ser Asn Gly Glu Gly Ala Val Phe Asn Lys Ser Leu Ser Gly
                565                 570                 575

Ser Gln Thr Ser Ser Ala Trp Ser Asn Leu Ser Gly Phe Ser Ser Ser
```

```
            580                 585                 590

Ala Ser Trp Glu Glu Val Asn Tyr His Val Asp Asp Arg Ser Ala Arg
        595                 600                 605

Lys Glu Pro Gly Lys Glu His Leu Val Asp Thr Gln Cys Ser Thr Ala
    610                 615                 620

Leu Ser Glu Glu Leu Glu Asn Asp Arg Glu Gly Arg Ala Met His Ser
625                 630                 635                 640

Leu His Ser Gln Leu His Asp Leu Ser Leu Gln Glu Pro Asn Asn Asp
                645                 650                 655

Asn Leu Glu Pro Ser Gln Asn Gln Pro Gln Gln Gln Met Pro Leu Thr
            660                 665                 670

Pro Phe Ser Pro His Asn Thr Pro Gly Ile Phe Leu Ala Pro Gly Ala
        675                 680                 685

Gly Leu Leu Glu Gly Ala Pro Glu Gly Ile Gln Glu Val Arg Asn Met
    690                 695                 700

Gly Pro Arg Asn Thr Ser Ala His Ser Arg Pro Ser Tyr Arg Ser Ala
705                 710                 715                 720

Ser Trp Ser Ser Asp Ser Gly Arg Pro Lys Asn Met Gly Thr His Pro
                725                 730                 735

Ser Val Gln Lys Glu Glu Ala Phe Glu Ile Ile Val Glu Phe Pro Glu
            740                 745                 750

Thr Asn Cys Asp Val Lys Asp Arg Gln Gly Lys Glu Gln Gly Glu Glu
        755                 760                 765

Ile Ser Glu Arg Gly Ala Gly Pro Thr Phe Lys Ala Ser Pro Ser Trp
    770                 775                 780

Val Asp Pro Glu Gly Glu Thr Ala Glu Ser Thr Glu Asp Ala Pro Leu
785                 790                 795                 800

Asp Phe His Arg Val Leu His Asn Ser Leu Gly Asn Ile Ser Met Leu
                805                 810                 815
```

```
Pro Cys Ser Ser Phe Thr Pro Asn Trp Pro Val Gln Asn Pro Asp Ser
            820                 825                 830

Arg Lys Ser Gly Gly Pro Val Ala Glu Gln Gly Ile Asp Pro Asp Ala
        835                 840                 845

Ser Thr Val Asp Glu Glu Gly Gln Leu Leu Asp Ser Met Asp Val Pro
    850                 855                 860

Cys Thr Asn Gly His Gly Ser His Arg Leu Cys Ile Leu Arg Gln Pro
865                 870                 875                 880

Pro Gly Gln Arg Ala Glu Thr Pro Asn Ser Ser Val Ser Gly Asn Ile
                885                 890                 895

Leu Phe Pro Val Leu Ser Glu Asp Cys Thr Thr Thr Glu Glu Gly Asn
            900                 905                 910

Gln Pro Gly Asn Met Leu Asn Cys Ser Gln Asn Ser Ser Ser Ser Ser
        915                 920                 925

Val Trp Trp Leu Lys Ser Pro Ala Phe Ser Ser Gly Ser Ser Glu Gly
    930                 935                 940

Asp Ser Pro Trp Ser Tyr Leu Asn Ser Ser Gly Ser Ser Trp Val Ser
945                 950                 955                 960

Leu Pro Gly Lys Met Arg Lys Glu Ile Leu Glu Ala Arg Thr Leu Gln
                965                 970                 975

Pro Asp Asp Phe Glu Lys Leu Leu Ala Gly Val Arg His Asp Trp Leu
            980                 985                 990

Phe Gln Arg Leu Glu Asn Thr Gly  Val Phe Lys Pro Ser  Gln Leu
His
        995                 1000                1005

Arg Ala  His Ser Ala Leu Leu  Leu Lys Tyr Ser Lys  Lys Ser Glu
    1010                1015                1020

Leu Trp  Thr Ala Gln Glu Thr  Ile Val Tyr Leu Gly  Asp Tyr Leu
    1025                1030                1035
```

```
Thr Val  Lys Lys Lys Gly Arg  Gln Arg Asn Ala Phe  Trp Val His
    1040                1045                1050

His Leu  His Gln Glu Glu Ile  Leu Gly Arg Tyr Val  Gly Lys Asp
    1055                1060                1065

Tyr Lys  Glu Gln Lys Gly Leu  Trp His His Phe Thr  Asp Val Glu
    1070                1075                1080

Arg Gln  Met Thr Ala Gln His  Tyr Val Thr Glu Phe  Asn Lys Arg
    1085                1090                1095

Leu Tyr  Glu Gln Asn Ile Pro  Thr Gln Ile Phe Tyr  Ile Pro Ser
    1100                1105                1110

Thr Ile  Leu Leu Ile Leu Glu  Asp Lys Thr Ile Lys  Gly Cys Ile
    1115                1120                1125

Ser Val  Glu Pro Tyr Ile Leu  Gly Glu Phe Val Lys  Leu Ser Asn
    1130                1135                1140

Asn Thr  Lys Val Val Lys Thr  Glu Tyr Lys Ala Thr  Glu Tyr Gly
    1145                1150                1155

Leu Ala  Tyr Gly His Phe Ser  Tyr Glu Phe Ser Asn  His Arg Asp
    1160                1165                1170

Val Val  Val Asp Leu Gln Gly  Trp Val Thr Gly Asn  Gly Lys Gly
    1175                1180                1185

Leu Ile  Tyr Leu Thr Asp Pro  Gln Ile His Ser Val  Asp Gln Lys
    1190                1195                1200

Val Phe  Thr Thr Asn Phe Gly  Lys Arg Gly Ile Phe  Tyr Phe Phe
    1205                1210                1215

Asn Asn  Gln His Val Glu Cys  Asn Glu Ile Cys His  Arg Leu Ser
    1220                1225                1230

Leu Thr  Arg Pro Ser Met Glu  Lys Pro Cys Thr
    1235                1240
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<210> 4313
<211> 168
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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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<400> 4313
Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln
1 5 10 15

Val Leu Asp Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp
20 25 30

Lys Ser Glu Asp Gln Arg Cys Arg Ala Leu Leu Pro Ser Glu Leu Arg
35 40 45

Thr Leu Ile Gln Glu Ala Lys Glu Met Lys Trp Pro Phe Val Pro Glu
50 55 60

Lys Trp Gln Tyr Lys Gln Ala Val Gly Pro Glu Asp Lys Thr Asn Leu
65 70 75 80

Lys Asp Val Ile Gly Ala Gly Leu Gln Gln Leu Leu Ala Ser Leu Arg
85 90 95

Ala Ser Ile Leu Ala Arg Asp Cys Ala Ala Ala Ala Ala Ile Val Phe
100 105 110

Leu Val Asp Arg Phe Leu Tyr Gly Leu Asp Val Ser Gly Lys Leu Leu
115 120 125

Gln Val Ala Lys Gly Leu His Lys Leu Gln Pro Ala Thr Pro Ile Ala

130 135 140

Pro Gln Val Val Ile Arg Gln Ala Arg Ile Ser Val Asn Ser Asp Thr
145 150 155 160

Val Gln Leu Pro Thr Leu Pro Thr
165

<210> 4314
<211> 133
<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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<400> 4314
Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln
1 5 10 15

Val Leu Asp Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp
20 25 30

Lys Ser Glu Asp Gln Arg Cys Arg Gly Val Pro Glu Gly Leu His Pro
35 40 45

Arg Ser Gly Leu Cys Gly Cys Gly Gly Tyr Cys Val Leu Gly Gly Pro
50 55 60

Val Pro Val Trp Ala Arg Arg Leu Trp Lys Thr Ser Ala Gly Arg Gln
65 70 75 80

Arg Ser Pro Gln Val Ala Ala Ser His Ala Asn Cys Pro Ala Gly Gly
85 90 95

Tyr Ser Pro Ser Pro Asn Leu Arg Glu Leu Arg Lys Thr Phe Lys Ser
100 105 110

Arg Val Tyr Ser Glu Gln Ser Asn Lys Gln Gln Trp Ser Asn Gly Tyr
115 120 125

Leu Ala Val Gln Lys
130

<210> 4315
<211> 109
<212> PRT
<213> Homo sapiens

<220>
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<400> 4315
Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln
1 5 10 15

Val Leu Asp Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp
20 25 30

Lys Ser Glu Asp Gln Arg Cys Arg Gly Val Pro Glu Gly Leu His Pro
35 40 45

Arg Ser Gly Leu Cys Gly Cys Gly Gly Tyr Cys Val Leu Gly Gly Pro
50 55 60

Val Pro Val Trp Ala Arg Arg Leu Trp Lys Thr Ser Ala Gly Arg Gln
65 70 75 80

Arg Ser Pro Gln Val Ala Ala Ser His Ala Asn Cys Pro Ala Gly Gly

```
                85                  90                  95

Tyr Ser Pro Ser Pro Asn Leu Arg Glu Leu Arg Thr Thr
            100                 105


<210> 4316
<211> 304
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<400> 4316
Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln
1               5                   10                  15


Val Leu Asp Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp
            20                  25                  30


Lys Ser Glu Asp Gln Arg Cys Arg Ala Leu Leu Pro Ser Glu Leu Arg
        35                  40                  45


Thr Leu Ile Gln Glu Ala Lys Glu Met Lys Trp Pro Phe Val Pro Glu
    50                  55                  60


Lys Trp Gln Tyr Lys Gln Ala Val Gly Pro Glu Asp Lys Thr Asn Leu
65                  70                  75                  80


Lys Asp Val Ile Gly Ala Gly Leu Gln Gln Leu Leu Ala Ser Leu Arg
                85                  90                  95


Ala Ser Ile Leu Ala Arg Asp Cys Ala Ala Ala Ala Ala Ile Val Phe
            100                 105                 110
```

```
Leu Val Asp Arg Phe Leu Tyr Gly Leu Asp Val Ser Gly Lys Leu Leu
        115                 120                 125

Gln Val Ala Lys Gly Leu His Lys Leu Gln Pro Ala Thr Pro Ile Ala
    130                 135                 140

Pro Gln Val Val Ile Arg Gln Ala Arg Ile Ser Val Asn Ser Gly Lys
145                 150                 155                 160

Leu Leu Lys Ala Glu Tyr Ile Leu Ser Ser Leu Ile Ser Asn Asn Gly
                165                 170                 175

Ala Thr Gly Thr Trp Leu Tyr Arg Asn Glu Ser Asp Lys Val Leu Val
            180                 185                 190

Gln Ser Val Cys Ile Gln Ile Arg Gly Gln Ile Leu Gln Lys Leu Gly
        195                 200                 205

Met Trp Tyr Glu Ala Ala Glu Leu Ile Trp Ala Ser Ile Val Gly Tyr
    210                 215                 220

Leu Ala Leu Pro Gln Pro Asp Lys Lys Gly Leu Ser Thr Ser Leu Gly
225                 230                 235                 240

Ile Leu Ala Asp Ile Phe Val Ser Met Ser Lys Asn Asp Tyr Glu Lys
                245                 250                 255

Phe Lys Asn Asn Pro Gln Ile Asn Leu Ser Leu Leu Lys Glu Phe Asp
            260                 265                 270

His His Leu Leu Ser Ala Ala Glu Ala Cys Lys Leu Ala Ala Ala Phe
        275                 280                 285

Ser Ala Tyr Thr Pro Leu Phe Val Leu Thr Ala Val Val Leu Phe Cys
    290                 295                 300


<210> 4317
<211> 1166
<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: ENSP00000426044"

<400> 4317
Met Cys Arg Lys Arg Thr Arg Ala Arg Thr Ser Ala Ala Glu Ala Ser
1   5   10   15

Leu Arg Ala Ser Ile Leu Ala Arg Asp Cys Ala Ala Ala Ala Ala Ile
            20   25   30

Val Phe Leu Val Asp Arg Phe Leu Tyr Gly Leu Asp Val Ser Gly Lys
        35   40   45

Leu Leu Gln Val Ala Lys Gly Leu His Lys Leu Gln Pro Ala Thr Pro
    50   55   60

Ile Ala Pro Gln Val Val Ile Arg Gln Ala Arg Ile Ser Val Asn Ser
65   70   75   80

Gly Lys Leu Leu Lys Ala Glu Tyr Ile Leu Ser Ser Leu Ile Ser Asn
                85   90   95

Asn Gly Ala Thr Gly Thr Trp Leu Tyr Arg Asn Glu Ser Asp Lys Val
            100   105   110

Leu Val Gln Ser Val Cys Ile Gln Ile Arg Gly Gln Ile Leu Gln Lys
        115   120   125

Leu Gly Met Trp Tyr Glu Ala Ala Glu Leu Ile Trp Ala Ser Ile Val
    130   135   140

Gly Tyr Leu Ala Leu Pro Gln Pro Asp Lys Lys Gly Leu Ser Thr Ser
145   150   155   160

```
Leu Gly Ile Leu Ala Asp Ile Phe Val Ser Met Ser Lys Asn Asp Tyr
                165                 170                 175

Glu Lys Phe Lys Asn Asn Pro Gln Ile Asn Leu Ser Leu Leu Lys Glu
            180                 185                 190

Phe Asp His His Leu Leu Ser Ala Ala Glu Ala Cys Lys Leu Ala Ala
        195                 200                 205

Ala Phe Ser Ala Tyr Thr Pro Leu Phe Val Leu Thr Ala Val Asn Ile
    210                 215                 220

Arg Gly Thr Cys Leu Leu Ser Tyr Ser Ser Ser Asn Asp Cys Pro Pro
225                 230                 235                 240

Glu Leu Lys Asn Leu His Leu Cys Glu Ala Lys Glu Ala Phe Glu Ile
                245                 250                 255

Gly Leu Leu Thr Lys Arg Asp Asp Glu Pro Val Thr Gly Lys Gln Glu
            260                 265                 270

Leu His Ser Phe Val Lys Ala Ala Phe Gly Leu Thr Thr Val His Arg
        275                 280                 285

Arg Leu His Gly Glu Thr Gly Thr Val His Ala Ala Ser Gln Leu Cys
    290                 295                 300

Lys Glu Ala Met Gly Lys Leu Tyr Asn Phe Ser Thr Ser Ser Arg Ser
305                 310                 315                 320

Gln Asp Arg Glu Ala Leu Ser Gln Glu Val Met Ser Val Ile Ala Gln
                325                 330                 335

Val Lys Glu His Leu Gln Val Gln Ser Phe Ser Asn Val Asp Asp Arg
            340                 345                 350

Ser Tyr Val Pro Glu Ser Phe Glu Cys Arg Leu Asp Lys Leu Ile Leu
        355                 360                 365

His Gly Gln Gly Asp Phe Gln Lys Ile Leu Asp Thr Tyr Ser Gln His
    370                 375                 380
```

```
His Thr Ser Val Cys Glu Val Phe Glu Ser Asp Cys Gly Asn Asn Lys
385                 390                 395                 400

Asn Glu Gln Lys Asp Ala Lys Thr Gly Val Cys Ile Thr Ala Leu Lys
                405                 410                 415

Thr Glu Ile Lys Asn Ile Asp Thr Val Ser Thr Thr Gln Glu Lys Pro
            420                 425                 430

His Cys Gln Arg Asp Thr Gly Ile Ser Ser Ser Leu Met Gly Lys Asn
        435                 440                 445

Val Gln Arg Glu Leu Arg Arg Gly Gly Arg Arg Asn Trp Thr His Ser
    450                 455                 460

Asp Ala Phe Arg Val Ser Leu Asp Gln Asp Val Glu Thr Glu Thr Glu
465                 470                 475                 480

Pro Ser Asp Tyr Ser Asn Gly Glu Gly Ala Val Phe Asn Lys Ser Leu
                485                 490                 495

Ser Gly Ser Gln Thr Ser Ser Ala Trp Ser Asn Leu Ser Gly Phe Ser
            500                 505                 510

Ser Ser Ala Ser Trp Glu Glu Val Asn Tyr His Val Asp Asp Arg Ser
        515                 520                 525

Ala Arg Lys Glu Pro Gly Lys Glu His Leu Val Asp Thr Gln Cys Ser
    530                 535                 540

Thr Ala Leu Ser Glu Glu Leu Glu Asn Asp Arg Glu Gly Arg Ala Met
545                 550                 555                 560

His Ser Leu His Ser Gln Leu His Asp Leu Ser Leu Gln Glu Pro Asn
                565                 570                 575

Asn Asp Asn Leu Glu Pro Ser Gln Asn Gln Pro Gln Gln Gln Met Pro
            580                 585                 590

Leu Thr Pro Phe Ser Pro His Asn Thr Pro Gly Ile Phe Leu Ala Pro
        595                 600                 605
```

```
Gly Ala Gly Leu Leu Glu Gly Ala Pro Glu Gly Ile Gln Glu Val Arg
    610                 615                 620

Asn Met Gly Pro Arg Asn Thr Ser Ala His Ser Arg Pro Ser Tyr Arg
625                 630                 635                 640

Ser Ala Ser Trp Ser Ser Asp Ser Gly Arg Pro Lys Asn Met Gly Thr
                645                 650                 655

His Pro Ser Val Gln Lys Glu Glu Ala Phe Glu Ile Ile Val Glu Phe
            660                 665                 670

Pro Glu Thr Asn Cys Asp Val Lys Asp Arg Gln Gly Lys Glu Gln Gly
        675                 680                 685

Glu Glu Ile Ser Glu Arg Gly Ala Gly Pro Thr Phe Lys Ala Ser Pro
    690                 695                 700

Ser Trp Val Asp Pro Glu Gly Glu Thr Ala Glu Ser Thr Glu Asp Ala
705                 710                 715                 720

Pro Leu Asp Phe His Arg Val Leu His Asn Ser Leu Gly Asn Ile Ser
                725                 730                 735

Met Leu Pro Cys Ser Ser Phe Thr Pro Asn Trp Pro Val Gln Asn Pro
            740                 745                 750

Asp Ser Arg Lys Ser Gly Gly Pro Val Ala Glu Gln Gly Ile Asp Pro
        755                 760                 765

Asp Ala Ser Thr Val Asp Glu Glu Gly Gln Leu Leu Asp Ser Met Asp
    770                 775                 780

Val Pro Cys Thr Asn Gly His Gly Ser His Arg Leu Cys Ile Leu Arg
785                 790                 795                 800

Gln Pro Pro Gly Gln Arg Ala Glu Thr Pro Asn Ser Ser Val Ser Gly
                805                 810                 815

Asn Ile Leu Phe Pro Val Leu Ser Glu Asp Cys Thr Thr Thr Glu Glu
            820                 825                 830

Gly Asn Gln Pro Gly Asn Met Leu Asn Cys Ser Gln Asn Ser Ser Ser
```

```
        835                 840                 845

Ser Ser Val Trp Trp Leu Lys Ser Pro Ala Phe Ser Ser Gly Ser Ser
    850                 855                 860

Glu Gly Asp Ser Pro Trp Ser Tyr Leu Asn Ser Ser Gly Ser Ser Trp
865                 870                 875                 880

Val Ser Leu Pro Gly Lys Met Arg Lys Glu Ile Leu Glu Ala Arg Thr
                885                 890                 895

Leu Gln Pro Asp Asp Phe Glu Lys Leu Leu Ala Gly Val Arg His Asp
            900                 905                 910

Trp Leu Phe Gln Arg Leu Glu Asn Thr Gly Val Phe Lys Pro Ser Gln
        915                 920                 925

Leu His Arg Ala His Ser Ala Leu Leu Leu Lys Tyr Ser Lys Lys Ser
    930                 935                 940

Glu Leu Trp Thr Ala Gln Glu Thr Ile Val Tyr Leu Gly Asp Tyr Leu
945                 950                 955                 960

Thr Val Lys Lys Lys Gly Arg Gln Arg Asn Ala Phe Trp Val His His
                965                 970                 975

Leu His Gln Glu Glu Ile Leu Gly Arg Tyr Val Gly Lys Asp Tyr Lys
            980                 985                 990

Glu Gln Lys Gly Leu Trp His His  Phe Thr Asp Val Glu  Arg Gln
Met
        995                 1000                1005

Thr Ala  Gln His Tyr Val Thr  Glu Phe Asn Lys Arg  Leu Tyr Glu
    1010                1015                1020

Gln Asn  Ile Pro Thr Gln Ile  Phe Tyr Ile Pro Ser  Thr Ile Leu
    1025                1030                1035

Leu Ile  Leu Glu Asp Lys Thr  Ile Lys Gly Cys Ile  Ser Val Glu
    1040                1045                1050

Pro Tyr  Ile Leu Gly Glu Phe  Val Lys Leu Ser Asn  Asn Thr Lys
```

```
    1055                1060                1065

Val Val  Lys Thr Glu Tyr Lys  Ala Thr Glu Tyr Gly  Leu Ala Tyr
    1070                1075                1080

Gly His  Phe Ser Tyr Glu Phe  Ser Asn His Arg Asp  Val Val Val
    1085                1090                1095

Asp Leu  Gln Gly Trp Val Thr  Gly Asn Gly Lys Gly  Leu Ile Tyr
    1100                1105                1110

Leu Thr  Asp Pro Gln Ile His  Ser Val Asp Gln Lys  Val Phe Thr
    1115                1120                1125

Thr Asn  Phe Gly Lys Arg Gly  Ile Phe Tyr Phe Phe  Asn Asn Gln
    1130                1135                1140

His Val  Glu Cys Asn Glu Ile  Cys His Arg Leu Ser  Leu Thr Arg
    1145                1150                1155

Pro Ser  Met Glu Lys Pro Cys  Thr
    1160                1165


<210> 4318
<211> 2170
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 963; "

<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:  Q86TB3; "

<220>
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<223> /note="ENSP ID: ENSP00000354991"
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<400> 4318
Met Lys Asp Ser Glu Gly Pro Gln Arg Pro Pro Leu Cys Phe Leu Ser
1 5 10 15

Thr Leu Leu Ser Gln Lys Val Pro Glu Lys Ser Asp Ala Val Leu Arg
20 25 30

Cys Ile Ile Ser Gly Gln Pro Lys Pro Glu Val Thr Trp Tyr Lys Asn
35 40 45

Gly Gln Ala Ile Asp Gly Ser Gly Ile Ile Ser Asn Tyr Glu Phe Phe
50 55 60

Glu Asn Gln Tyr Ile His Val Leu His Leu Ser Cys Cys Thr Lys Asn
65 70 75 80

Asp Ala Ala Val Tyr Gln Ile Ser Ala Lys Asn Ser Phe Gly Met Ile
85 90 95

Cys Cys Ser Ala Ser Val Glu Val Glu Cys Ser Ser Glu Asn Pro Gln
100 105 110

Leu Ser Pro Asn Leu Glu Asp Asp Arg Asp Arg Gly Trp Lys His Glu
115 120 125

Thr Gly Thr His Glu Glu Glu Arg Ala Asn Gln Ile Asp Glu Lys Glu
130 135 140

His Pro Tyr Lys Glu Glu Glu Ser Ile Ser Pro Gly Thr Pro Arg Ser
145 150 155 160

Ala Asp Ser Ser Pro Ser Lys Ser Asn His Ser Leu Ser Leu Gln Ser
165 170 175

Leu Gly Asn Leu Asp Ile Ser Val Ser Ser Ser Glu Asn Pro Leu Gly
180 185 190

Val Lys Gly Thr Arg His Thr Gly Glu Ala Tyr Asp Pro Ser Asn Thr
195 200 205

Glu Glu Ile Ala Asn Gly Leu Leu Phe Leu Asn Ser Ser His Ile Tyr
210 215 220

```
Glu Lys Gln Asp Arg Cys Cys His Lys Thr Val His Ser Met Ala Ser
225                 230                 235                 240

Lys Phe Thr Asp Gly Asp Leu Asn Asn Asp Gly Pro His Asp Glu Gly
                245                 250                 255

Leu Arg Ser Ser Gln Gln Asn Pro Lys Val Gln Lys Tyr Ile Ser Phe
            260                 265                 270

Ser Leu Pro Leu Ser Glu Ala Thr Ala His Ile Tyr Pro Gly Asp Ser
        275                 280                 285

Ala Val Ala Asn Lys Gln Pro Ser Pro Gln Leu Ser Ser Glu Asp Ser
    290                 295                 300

Asp Ser Asp Tyr Glu Leu Cys Pro Glu Ile Thr Leu Thr Tyr Thr Glu
305                 310                 315                 320

Glu Phe Ser Asp Asp Asp Leu Glu Tyr Leu Glu Cys Ser Asp Val Met
                325                 330                 335

Thr Asp Tyr Ser Asn Ala Val Trp Gln Arg Asn Leu Leu Gly Thr Glu
            340                 345                 350

His Val Phe Leu Leu Glu Ser Asp Asp Glu Glu Met Glu Phe Gly Glu
        355                 360                 365

His Cys Leu Gly Gly Cys Glu His Phe Leu Ser Gly Met Gly Cys Gly
    370                 375                 380

Ser Arg Val Ser Gly Asp Ala Gly Pro Met Val Ala Thr Ala Gly Phe
385                 390                 395                 400

Cys Gly His His Ser Gln Pro Gln Glu Val Gly Val Arg Ser Ser Arg
                405                 410                 415

Val Ser Lys His Gly Pro Ser Ser Pro Gln Thr Gly Met Thr Leu Ile
            420                 425                 430

Leu Gly Pro His Gln Asp Gly Thr Ser Ser Val Thr Glu Gln Gly Arg
        435                 440                 445

Tyr Lys Leu Pro Thr Ala Pro Glu Ala Ala Glu Asn Asp Tyr Pro Gly
```

```
    450                 455                 460

Ile Gln Gly Glu Thr Arg Asp Ser His Gln Ala Arg Glu Glu Phe Ala
465                 470                 475                 480

Ser Asp Asn Leu Leu Asn Met Asp Glu Ser Val Arg Glu Thr Glu Met
                485                 490                 495

Lys Leu Leu Ser Gly Glu Ser Glu Asn Ser Gly Met Ser Gln Cys Trp
            500                 505                 510

Glu Thr Ala Ala Asp Lys Arg Val Gly Gly Lys Asp Leu Trp Ser Lys
        515                 520                 525

Arg Gly Ser Arg Lys Ser Ala Arg Val Arg Gln Pro Gly Met Lys Gly
    530                 535                 540

Asn Pro Lys Lys Pro Asn Ala Asn Leu Arg Glu Ser Thr Thr Glu Gly
545                 550                 555                 560

Thr Leu His Leu Cys Ser Ala Lys Glu Ser Ala Glu Pro Pro Leu Thr
                565                 570                 575

Gln Ser Asp Lys Arg Glu Thr Ser His Thr Thr Ala Ala Ala Thr Gly
            580                 585                 590

Arg Ser Ser His Ala Asp Ala Arg Glu Cys Ala Ile Ser Thr Gln Ala
        595                 600                 605

Glu Gln Glu Ala Lys Thr Leu Gln Thr Ser Thr Asp Ser Val Ser Lys
    610                 615                 620

Glu Gly Asn Thr Asn Cys Lys Gly Glu Gly Met Gln Val Asn Thr Leu
625                 630                 635                 640

Phe Glu Thr Ser Gln Val Pro Asp Trp Ser Asp Pro Pro Gln Val Gln
                645                 650                 655

Val Gln Glu Thr Val Arg Glu Thr Ile Ser Cys Ser Gln Met Pro Ala
            660                 665                 670

Phe Ser Glu Pro Ala Gly Glu Glu Ser Pro Phe Thr Gly Thr Thr Thr
        675                 680                 685
```

```
Ile Ser Phe Ser Asn Leu Gly Gly Val His Lys Glu Asn Ala Ser Leu
    690                 695                 700

Ala Gln His Ser Glu Val Lys Pro Cys Thr Cys Gly Pro Gln His Glu
705                 710                 715                 720

Glu Lys Gln Asp Arg Asp Gly Asn Ile Pro Asp Asn Phe Arg Glu Asp
                725                 730                 735

Leu Lys Tyr Glu Gln Ser Ile Ser Glu Ala Asn Asp Glu Thr Met Ser
            740                 745                 750

Pro Gly Val Phe Ser Arg His Leu Pro Lys Asp Ala Arg Ala Asp Phe
        755                 760                 765

Arg Glu Pro Val Ala Val Ser Val Ala Ser Pro Glu Pro Thr Asp Thr
    770                 775                 780

Ala Leu Thr Leu Glu Asn Val Cys Asp Glu Pro Arg Asp Arg Glu Ala
785                 790                 795                 800

Val Cys Ala Met Glu Cys Phe Glu Ala Gly Asp Gln Gly Thr Cys Phe
                805                 810                 815

Asp Thr Ile Asp Ser Leu Val Gly Arg Pro Val Asp Lys Tyr Ser Pro
            820                 825                 830

Gln Glu Ile Cys Ser Val Asp Thr Glu Leu Ala Glu Gly Gln Asn Lys
        835                 840                 845

Val Ser Asp Leu Cys Ser Ser Asn Asp Lys Thr Leu Glu Val Phe Phe
    850                 855                 860

Gln Thr Gln Val Ser Glu Thr Ser Val Ser Thr Cys Lys Ser Ser Lys
865                 870                 875                 880

Asp Gly Asn Ser Val Met Ser Pro Leu Phe Thr Ser Thr Phe Thr Leu
                885                 890                 895

Asn Ile Ser His Thr Ala Ser Glu Gly Ala Thr Gly Glu Asn Leu Ala
            900                 905                 910
```

```
Lys Val Glu Asn Ser Thr Tyr Pro Leu Ala Ser Thr Val His Ala Gly
        915                 920                 925

Gln Glu Gln Pro Ser Pro Ser Asn Ser Gly Gly Leu Asp Glu Thr Gln
    930                 935                 940

Leu Leu Ser Ser Glu Asn Asn Pro Leu Val Gln Phe Lys Glu Gly Gly
945                 950                 955                 960

Asp Lys Ser Pro Ser Pro Ser Ala Ala Asp Thr Thr Ala Thr Pro Ala
                965                 970                 975

Ser Tyr Ser Ser Ile Val Ser Phe Pro Trp Glu Lys Pro Thr Thr Leu
            980                 985                 990

Thr Ala Asn Asn Glu Cys Phe Gln  Ala Thr Arg Glu Thr  Glu Asp
Thr
        995                 1000                1005

Ser Thr  Val Thr Ile Ala Thr  Glu Val His Pro Ala  Lys Tyr Leu
    1010                1015                1020

Ala Val  Ser Ile Pro Glu Asp  Lys His Ala Gly Gly  Thr Glu Glu
    1025                1030                1035

Arg Phe  Pro Arg Ala Ser His  Glu Lys Val Ser Gln  Phe Pro Ser
    1040                1045                1050

Gln Val  Gln Leu Asp His Ile  Leu Ser Gly Ala Thr  Ile Lys Ser
    1055                1060                1065

Thr Lys  Glu Leu Leu Cys Arg  Ala Pro Ser Val Pro  Gly Val Pro
    1070                1075                1080

His His  Val Leu Gln Leu Pro  Glu Gly Glu Gly Phe  Cys Ser Asn
    1085                1090                1095

Ser Pro  Leu Gln Val Asp Asn  Leu Ser Gly Asp Lys  Ser Gln Thr
    1100                1105                1110

Val Asp  Arg Ala Asp Phe Arg  Ser Tyr Glu Glu Asn  Phe Gln Glu
    1115                1120                1125
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Arg Gly  Ser Glu Thr Lys Gln  Gly Val Gln Gln Gln  Ser Leu Ser
    1130                1135                1140

Gln Gln  Gly Ser Leu Ser Ala  Pro Asp Phe Gln Gln  Ser Leu Pro
    1145                1150                1155

Thr Thr  Ser Ala Ala Gln Glu  Glu Arg Asn Leu Val  Pro Thr Ala
    1160                1165                1170

His Ser  Pro Ala Ser Ser Arg  Glu Gly Ala Gly Gln  Arg Ser Gly
    1175                1180                1185

Trp Gly  Thr Arg Val Ser Val  Val Ala Glu Thr Ala  Gly Glu Glu
    1190                1195                1200

Asp Ser  Gln Ala Leu Ser Asn  Val Pro Ser Leu Ser  Asp Ile Leu
    1205                1210                1215

Leu Glu  Glu Ser Lys Glu Tyr  Arg Pro Gly Asn Trp  Glu Ala Gly
    1220                1225                1230

Asn Lys  Leu Lys Ile Ile Thr  Leu Glu Ala Ser Ala  Ser Glu Ile
    1235                1240                1245

Trp Pro  Pro Arg Gln Leu Thr  Asn Ser Glu Ser Lys  Ala Ser Asp
    1250                1255                1260

Gly Gly  Leu Ile Ile Pro Asp  Lys Val Trp Ala Val  Pro Asp Ser
    1265                1270                1275

Leu Lys  Ala Asp Ala Val Val  Pro Glu Leu Ala Pro  Ser Glu Ile
    1280                1285                1290

Ala Ala  Leu Ala His Ser Pro  Glu Asp Ala Glu Ser  Ala Leu Ala
    1295                1300                1305

Asp Ser  Arg Glu Ser His Lys  Gly Glu Glu Pro Thr  Ile Ser Val
    1310                1315                1320

His Trp  Arg Ser Leu Ser Ser  Arg Gly Phe Ser Gln  Pro Arg Leu
    1325                1330                1335
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Leu Glu  Ser Ser Val Asp Pro  Val Asp Glu Lys Glu  Leu Ser Val
    1340                1345                1350

Thr Asp  Ser Leu Ser Ala Ala  Ser Glu Thr Gly Gly  Lys Glu Asn
    1355                1360                1365

Val Asn  Asn Val Ser Gln Asp  Gln Glu Glu Lys Gln  Leu Lys Met
    1370                1375                1380

Asp His  Thr Ala Phe Phe Lys  Lys Phe Leu Thr Cys  Pro Lys Ile
    1385                1390                1395

Leu Glu  Ser Ser Val Asp Pro  Ile Asp Glu Ile Ser  Val Ile Glu
    1400                1405                1410

Tyr Thr  Arg Ala Gly Lys Pro  Glu Pro Ser Glu Thr  Thr Pro Gln
    1415                1420                1425

Gly Ala  Arg Glu Gly Gly Gln  Ser Asn Asp Gly Asn  Met Gly His
    1430                1435                1440

Glu Ala  Glu Ile Gln Pro Ala  Ile Leu Gln Val Pro  Cys Leu Gln
    1445                1450                1455

Gly Thr  Ile Leu Ser Glu Asn  Arg Ile Ser Arg Ser  Gln Glu Gly
    1460                1465                1470

Ser Met  Lys Gln Glu Ala Glu  Gln Ile Gln Pro Glu  Glu Ala Lys
    1475                1480                1485

Thr Ala  Ile Trp Gln Val Leu  Gln Pro Ser Glu Gly  Gly Glu Arg
    1490                1495                1500

Ile Pro  Ser Gly Cys Ser Ile  Gly Gln Ile Gln Glu  Ser Ser Asp
    1505                1510                1515

Gly Ser  Leu Gly Glu Ala Glu  Gln Ser Lys Lys Asp  Lys Ala Glu
    1520                1525                1530

Leu Ile  Ser Pro Thr Ser Pro  Leu Ser Ser Cys Leu  Pro Ile Met
    1535                1540                1545

Thr His  Ala Ser Leu Gly Val  Asp Thr His Asn Ser  Thr Gly Gln
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Ile His Asp Val Pro Glu Asn Asp Ile Val Glu Pro Arg Lys Arg
1565 1570 1575

Gln Tyr Val Phe Pro Val Ser Gln Lys Arg Gly Thr Ile Glu Asn
1580 1585 1590

Glu Arg Gly Lys Pro Leu Pro Ser Ser Pro Asp Leu Thr Arg Phe
1595 1600 1605

Pro Cys Thr Ser Ser Pro Glu Gly Asn Val Thr Asp Phe Leu Ile
1610 1615 1620

Ser His Lys Met Glu Glu Pro Lys Ile Glu Val Leu Gln Ile Gly
1625 1630 1635

Glu Thr Lys Pro Pro Ser Ser Ser Ser Ser Ser Ala Lys Thr Leu
1640 1645 1650

Ala Phe Ile Ser Gly Glu Arg Glu Leu Glu Lys Ala Pro Lys Leu
1655 1660 1665

Leu Gln Asp Pro Cys Gln Lys Gly Thr Leu Gly Cys Ala Lys Lys
1670 1675 1680

Ser Arg Glu Arg Glu Lys Ser Leu Glu Ala Arg Ala Gly Lys Ser
1685 1690 1695

Pro Gly Thr Leu Thr Ala Val Thr Gly Ser Glu Glu Val Lys Arg
1700 1705 1710

Lys Pro Glu Ala Pro Gly Ser Gly His Leu Ala Glu Gly Val Lys
1715 1720 1725

Lys Lys Ile Leu Ser Arg Val Ala Ala Leu Arg Leu Lys Leu Glu
1730 1735 1740

Glu Lys Glu Asn Ile Arg Lys Asn Ser Ala Phe Leu Lys Lys Met
1745 1750 1755

Pro Lys Leu Glu Thr Ser Leu Ser His Thr Glu Glu Lys Gln Asp
1760 1765 1770

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Pro Lys  Lys Pro Ser Cys Lys  Arg Glu Gly Arg Ala  Pro Val Leu
    1775                1780                1785

Leu Lys  Lys Ile Gln Ala Glu  Met Phe Pro Glu His  Ser Gly Asn
    1790                1795                1800

Val Lys  Leu Ser Cys Gln Phe  Ala Glu Ile His Glu  Asp Ser Thr
    1805                1810                1815

Ile Cys  Trp Thr Lys Asp Ser  Lys Ser Ile Ala Gln  Val Gln Arg
    1820                1825                1830

Ser Ala  Gly Asp Asn Ser Thr  Val Ser Phe Ala Ile  Val Gln Ala
    1835                1840                1845

Ser Pro  Lys Asp Gln Gly Leu  Tyr Tyr Cys Cys Ile  Lys Asn Ser
    1850                1855                1860

Tyr Gly  Lys Val Thr Ala Glu  Phe Asn Leu Thr Ala  Glu Val Leu
    1865                1870                1875

Lys Gln  Leu Ser Ser Arg Gln  Asp Thr Lys Gly Cys  Glu Glu Ile
    1880                1885                1890

Glu Phe  Ser Gln Leu Ile Phe  Lys Glu Asp Phe Leu  His Asp Ser
    1895                1900                1905

Tyr Phe  Gly Gly Arg Leu Arg  Gly Gln Ile Ala Thr  Glu Glu Leu
    1910                1915                1920

His Phe  Gly Glu Gly Val His  Arg Lys Ala Phe Arg  Ser Thr Val
    1925                1930                1935

Met His  Gly Leu Met Pro Val  Phe Lys Pro Gly His  Ala Cys Val
    1940                1945                1950

Leu Lys  Val His Asn Ala Ile  Ala Tyr Gly Thr Arg  Asn Asn Asp
    1955                1960                1965

Glu Leu  Ile Gln Arg Asn Tyr  Lys Leu Ala Ala Gln  Glu Cys Tyr
    1970                1975                1980
```

```
Val Gln  Asn Thr Ala Arg Tyr  Tyr Ala Lys Ile Tyr  Ala Ala Glu
    1985                1990                1995

Ala Gln  Pro Leu Glu Gly Phe  Gly Glu Val Pro Glu  Ile Ile Pro
    2000                2005                2010

Ile Phe  Leu Ile His Arg Pro  Glu Asn Asn Ile Pro  Tyr Ala Thr
    2015                2020                2025

Val Glu  Glu Glu Leu Ile Gly  Glu Phe Val Lys Tyr  Ser Ile Arg
    2030                2035                2040

Asp Gly  Lys Glu Ile Asn Phe  Leu Arg Arg Glu Ser  Glu Ala Gly
    2045                2050                2055

Gln Lys  Cys Cys Thr Phe Gln  His Trp Val Tyr Gln  Lys Thr Ser
    2060                2065                2070

Gly Cys  Leu Leu Val Thr Asp  Met Gln Gly Val Gly  Met Lys Leu
    2075                2080                2085

Thr Asp  Val Gly Ile Ala Thr  Leu Ala Lys Gly Tyr  Lys Gly Phe
    2090                2095                2100

Lys Gly  Asn Cys Ser Met Thr  Phe Ile Asp Gln Phe  Lys Ala Leu
    2105                2110                2115

His Gln  Cys Asn Lys Tyr Cys  Lys Met Leu Gly Leu  Lys Ser Leu
    2120                2125                2130

Gln Asn  Asn Asn Gln Lys Gln  Lys Gln Pro Ser Ile  Gly Lys Ser
    2135                2140                2145

Lys Val  Gln Thr Asn Ser Met  Thr Ile Lys Lys Ala  Gly Pro Glu
    2150                2155                2160

Thr Pro  Gly Glu Lys Lys Thr
    2165                2170
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Arg Gln Gly Glu Gly Gln Ser Arg Leu Val Pro Gly Arg Gly Leu Val
            20                  25                  30

Leu Trp Leu Pro Gly Leu Pro Arg Ser Ser Pro Ser Trp Pro Ala Val
        35                  40                  45

Asp Leu Ala Pro Leu Ala Pro Ala Arg Pro Arg Gly Pro Leu Ile Cys
    50                  55                  60

His Thr Gly His Glu Gln Ala Gly Arg Glu Pro Gly Pro Gly Ser Ser
65                  70                  75                  80

Thr Lys Gly Pro Val Leu His Asp Gln Asp Thr Arg Cys Ala Phe Leu
                85                  90                  95

Pro Arg Pro Pro Gly Pro Leu Gln Thr Arg Arg Tyr Cys Arg His Gln
            100                 105                 110

Gly Arg Gln Gly Ser Gly Leu Gly Ala Gly Pro Gly Ala Gly Thr Trp
        115                 120                 125

Ala Pro Ala Pro Pro Gly Val Ser Lys Pro Arg Cys Pro Gly Arg Ala
    130                 135                 140
```

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Arg Pro Gly Glu Gly Gln Gln Gln Val Thr Thr Ala Arg Pro Pro Ala
145                 150                 155                 160

Ile Asn Arg Gly Ala Arg Gln Pro Arg Ala Gly Ala Ala Ala Ala Gly
                165                 170                 175

Arg Gly Pro Gly Ala Gly Ala Trp Arg Thr Gly Glu Ala Ala Ala Ser
            180                 185                 190

Ala Gly Pro Ala Val Gly Glu Gly Gly Ala Met Gly Ser Arg Arg Ala
        195                 200                 205

Pro Ser Arg Gly Trp Gly Ala Gly Gly Arg Ser Gly Ala Gly Gly Asp
    210                 215                 220

Gly Glu Asp Asp Gly Pro Val Trp Ile Pro Ser Pro Ala Ser Arg Ser
225                 230                 235                 240

Tyr Leu Leu Ser Val Arg Pro Glu Thr Ser Leu Ser Ser Asn Arg Leu
                245                 250                 255

Ser His Pro Ser Ser Gly Arg Ser Thr Phe Cys Ser Ile Ile Ala Gln
            260                 265                 270

Leu Thr Glu Glu Thr Gln Pro Leu Phe Glu Thr Thr Leu Lys Ser Arg
        275                 280                 285

Ser Val Ser Glu Asp Ser Asp Val Arg Phe Thr Cys Ile Val Thr Gly
    290                 295                 300

Tyr Pro Glu Pro Glu Val Thr Trp Tyr Lys Asp Asp Thr Glu Leu Asp
305                 310                 315                 320

Arg Tyr Cys Gly Leu Pro Lys Tyr Glu Ile Thr His Gln Gly Asn Arg
                325                 330                 335

His Thr Leu Gln Leu Tyr Arg Cys Arg Glu Glu Asp Ala Ala Ile Tyr
            340                 345                 350

Gln Ala Ser Ala Gln Asn Ser Lys Gly Ile Val Ser Cys Ser Gly Val
        355                 360                 365
```

```
Leu Glu Val Gly Thr Met Thr Glu Tyr Lys Ile His Gln Arg Trp Phe
    370                 375                 380

Ala Lys Leu Lys Arg Lys Ala Ala Ala Lys Leu Arg Glu Ile Glu Gln
385                 390                 395                 400

Ser Trp Lys His Glu Lys Ala Val Pro Gly Glu Val Asp Thr Leu Arg
                405                 410                 415

Lys Leu Ser Pro Asp Arg Phe Gln Arg Lys Arg Arg Leu Ser Gly Ala
            420                 425                 430

Gln Ala Pro Gly Pro Ser Val Pro Thr Arg Glu Pro Glu Gly Gly Thr
        435                 440                 445

Leu Ala Ala Trp Gln Glu Gly Glu Thr Glu Thr Ala Gln His Ser Gly
    450                 455                 460

Leu Gly Leu Ile Asn Ser Phe Ala Ser Gly Glu Val Thr Thr Asn Gly
465                 470                 475                 480

Glu Ala Ala Pro Glu Asn Gly Glu Asp Gly Glu His Gly Leu Leu Thr
                485                 490                 495

Tyr Ile Cys Asp Ala Met Glu Leu Gly Pro Gln Arg Ala Leu Lys Glu
            500                 505                 510

Glu Ser Gly Ala Lys Lys Lys Lys Lys Asp Glu Glu Ser Lys Gln Gly
        515                 520                 525

Leu Arg Lys Pro Glu Leu Glu Lys Ala Ala Gln Ser Arg Arg Ser Ser
    530                 535                 540

Glu Asn Cys Ile Pro Ser Ser Asp Glu Pro Asp Ser Cys Gly Thr Gln
545                 550                 555                 560

Gly Pro Val Gly Val Glu Gln Val Gln Thr Gln Pro Arg Gly Arg Ala
                565                 570                 575

Ala Arg Gly Pro Gly Ser Ser Gly Thr Asp Ser Thr Arg Lys Pro Ala
            580                 585                 590
```

```
Ser Ala Val Gly Thr Pro Asp Lys Ala Gln Lys Ala Pro Gly Pro Gly
        595                 600                 605

Pro Gly Gln Glu Val Tyr Phe Ser Leu Lys Asp Met Tyr Leu Glu Asn
    610                 615                 620

Thr Gln Ala Val Arg Pro Leu Gly Glu Glu Gly Pro Gln Thr Leu Ser
625                 630                 635                 640

Val Arg Ala Pro Gly Glu Ser Pro Lys Gly Lys Ala Pro Leu Arg Ala
                645                 650                 655

Arg Ser Glu Gly Val Pro Gly Ala Pro Gly Gln Pro Thr His Ser Leu
            660                 665                 670

Thr Pro Gln Pro Thr Arg Pro Phe Asn Arg Lys Arg Phe Ala Pro Pro
        675                 680                 685

Lys Pro Lys Gly Glu Ala Thr Thr Asp Ser Lys Pro Ile Ser Ser Leu
    690                 695                 700

Ser Gln Ala Pro Glu Cys Gly Ala Gln Ser Leu Gly Lys Ala Pro Pro
705                 710                 715                 720

Gln Ala Ser Val Gln Val Pro Thr Pro Pro Ala Arg Arg Arg His Gly
                725                 730                 735

Thr Arg Asp Ser Thr Leu Gln Gly Gln Ala Gly His Arg Thr Pro Gly
            740                 745                 750

Glu Val Leu Glu Cys Gln Thr Thr Thr Ala Pro Thr Met Ser Ala Ser
        755                 760                 765

Ser Ser Ser Asp Val Ala Ser Ile Gly Val Ser Thr Ser Gly Ser Gln
    770                 775                 780

Gly Ile Ile Glu Pro Met Asp Met Glu Thr Gln Glu Asp Gly Arg Thr
785                 790                 795                 800

Ser Ala Asn Gln Arg Thr Gly Ser Lys Lys Asn Val Gln Ala Asp Gly
                805                 810                 815

Lys Ile Gln Val Asp Gly Arg Thr Arg Gly Asp Gly Thr Gln Thr Ala
```

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            820                 825                 830

Gln Arg Thr Arg Ala Asp Arg Lys Thr Gln Val Asp Ala Gly Thr Gln
        835                 840                 845

Glu Ser Lys Arg Pro Gln Ser Asp Arg Ser Ala Gln Lys Gly Met Met
    850                 855                 860

Thr Gln Gly Arg Ala Glu Thr Gln Leu Glu Thr Thr Gln Ala Gly Glu
865                 870                 875                 880

Lys Ile Gln Glu Asp Arg Lys Ala Gln Ala Asp Lys Gly Thr Gln Glu
                885                 890                 895

Asp Arg Arg Met Gln Gly Glu Lys Gly Met Gln Gly Glu Lys Gly Thr
            900                 905                 910

Gln Ser Glu Gly Ser Ala Pro Thr Ala Met Glu Gly Gln Ser Glu Gln
        915                 920                 925

Glu Val Ala Thr Ser Leu Gly Pro Pro Ser Arg Thr Pro Lys Leu Pro
    930                 935                 940

Pro Thr Ala Gly Pro Arg Ala Pro Leu Asn Ile Glu Cys Phe Val Gln
945                 950                 955                 960

Thr Pro Glu Gly Ser Cys Phe Pro Lys Lys Pro Gly Cys Leu Pro Arg
                965                 970                 975

Ser Glu Glu Ala Val Val Thr Ala Ser Arg Asn His Glu Gln Thr Val
            980                 985                 990

Leu Gly Pro Leu Ser Gly Asn Leu  Met Leu Pro Ala Gln  Pro Pro
His
        995                 1000                1005

Glu Gly  Ser Val Glu Gln Val  Gly Gly Glu Arg Cys  Arg Gly Pro
    1010                1015                1020

Gln Ser  Ser Gly Pro Val Glu  Ala Lys Gln Glu Asp  Ser Pro Phe
    1025                1030                1035

Gln Cys  Pro Lys Glu Glu Arg  Pro Gly Gly Val Pro  Cys Met Asp
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1040 1045 1050

Gln Gly Gly Cys Pro Leu Ala Gly Leu Ser Gln Glu Val Pro Thr
1055 1060 1065

Met Pro Ser Leu Pro Gly Thr Gly Leu Thr Ala Ser Pro Lys Ala
1070 1075 1080

Gly Pro Cys Ser Thr Pro Thr Ser Gln His Gly Ser Thr Ala Thr
1085 1090 1095

Phe Leu Pro Ser Glu Asp Gln Val Leu Met Ser Ser Ala Pro Thr
1100 1105 1110

Leu His Leu Gly Leu Gly Thr Pro Thr Gln Ser His Pro Pro Glu
1115 1120 1125

Thr Met Ala Thr Ser Ser Glu Gly Ala Cys Ala Gln Val Pro Asp
1130 1135 1140

Val Glu Gly Arg Thr Pro Gly Pro Arg Ser Cys Asp Pro Gly Leu
1145 1150 1155

Ile Asp Ser Leu Lys Asn Tyr Leu Leu Leu Leu Leu Lys Leu Ser
1160 1165 1170

Ser Thr Glu Thr Ser Gly Ala Gly Gly Glu Ser Gln Val Gly Ala
1175 1180 1185

Ala Thr Gly Gly Leu Val Pro Ser Ala Thr Leu Thr Pro Thr Val
1190 1195 1200

Glu Val Ala Gly Leu Ser Pro Arg Thr Ser Arg Arg Ile Leu Glu
1205 1210 1215

Arg Val Glu Asn Asn His Leu Val Gln Ser Ala Gln Thr Leu Leu
1220 1225 1230

Leu Ser Pro Cys Thr Ser Arg Arg Leu Thr Gly Leu Leu Asp Arg
1235 1240 1245

Glu Val Gln Ala Gly Arg Gln Ala Leu Ala Ala Ala Arg Gly Ser
1250 1255 1260

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Trp Gly  Pro Gly Pro Ser Ser  Leu Thr Val Pro Ala  Ile Val Val
    1265                1270                1275

Asp Glu  Glu Asp Pro Gly Leu  Ala Ser Glu Gly Ala  Ser Glu Gly
    1280                1285                1290

Glu Gly  Glu Val Ser Pro Glu  Gly Pro Gly Leu Leu  Gly Ala Ser
    1295                1300                1305

Gln Glu  Ser Ser Met Ala Gly  Arg Leu Gly Glu Ala  Gly Gly Gln
    1310                1315                1320

Ala Ala  Pro Gly Gln Gly Pro  Ser Ala Glu Ser Ile  Ala Gln Glu
    1325                1330                1335

Pro Ser  Gln Glu Glu Lys Phe  Pro Gly Glu Ala Leu  Thr Gly Leu
    1340                1345                1350

Pro Ala  Ala Thr Pro Glu Glu  Leu Ala Leu Gly Ala  Arg Arg Lys
    1355                1360                1365

Arg Phe  Leu Pro Lys Val Arg  Ala Ala Gly Asp Gly  Glu Ala Thr
    1370                1375                1380

Thr Pro  Glu Glu Arg Glu Ser  Pro Thr Val Ser Pro  Arg Gly Pro
    1385                1390                1395

Arg Lys  Ser Leu Val Pro Gly  Ser Pro Gly Thr Pro  Gly Arg Glu
    1400                1405                1410

Arg Arg  Ser Pro Thr Gln Gly  Arg Lys Ala Ser Met  Leu Glu Val
    1415                1420                1425

Pro Arg  Ala Glu Glu Glu Leu  Ala Ala Gly Asp Leu  Gly Pro Ser
    1430                1435                1440

Pro Lys  Ala Gly Gly Leu Asp  Thr Glu Val Ala Leu  Asp Glu Gly
    1445                1450                1455

Lys Gln  Glu Thr Leu Ala Lys  Pro Arg Lys Ala Lys  Asp Leu Leu
    1460                1465                1470
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Lys Ala  Pro Gln Val Ile Arg  Lys Ile Arg Val Glu  Gln Phe Pro
    1475                 1480                 1485

Asp Ala  Ser Gly Ser Leu Lys  Leu Trp Cys Gln Phe  Phe Asn Ile
    1490                 1495                 1500

Leu Ser  Asp Ser Val Leu Thr  Trp Ala Lys Asp Gln  Arg Pro Val
    1505                 1510                 1515

Gly Glu  Val Gly Arg Ser Ala  Gly Asp Glu Gly Pro  Ala Ala Leu
    1520                 1525                 1530

Ala Ile  Val Gln Ala Ser Pro  Val Asp Cys Gly Val  Tyr Arg Cys
    1535                 1540                 1545

Thr Ile  His Asn Glu His Gly  Ser Ala Ser Thr Asp  Phe Cys Leu
    1550                 1555                 1560

Ser Pro  Glu Val Leu Ser Gly  Phe Ile Ser Arg Glu  Glu Gly Glu
    1565                 1570                 1575

Val Gly  Glu Glu Ile Glu Met  Thr Pro Met Val Phe  Ala Lys Gly
    1580                 1585                 1590

Leu Ala  Asp Ser Gly Cys Trp  Gly Asp Lys Leu Phe  Gly Arg Leu
    1595                 1600                 1605

Val Ser  Glu Glu Leu Arg Gly  Gly Gly Tyr Gly Cys  Gly Leu Arg
    1610                 1615                 1620

Lys Ala  Ser Gln Ala Lys Val  Ile Tyr Gly Leu Glu  Pro Ile Phe
    1625                 1630                 1635

Glu Ser  Gly Arg Thr Cys Ile  Ile Lys Val Ser Ser  Leu Leu Val
    1640                 1645                 1650

Phe Gly  Pro Ser Ser Glu Thr  Ser Leu Val Gly Arg  Asn Tyr Asp
    1655                 1660                 1665

Val Thr  Ile Gln Gly Cys Lys  Ile Gln Asn Met Ser  Arg Glu Tyr
    1670                 1675                 1680
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Cys Lys  Ile Phe Ala Ala Glu  Ala Arg Ala Ala Pro  Gly Phe Gly
    1685                1690                1695

Glu Val  Pro Glu Ile Ile Pro  Leu Tyr Leu Ile Tyr  Arg Pro Ala
    1700                1705                1710

Asn Asn  Ile Pro Tyr Ala Thr  Leu Glu Glu Asp Leu  Gly Lys Pro
    1715                1720                1725

Leu Glu  Ser Tyr Cys Ser Arg  Glu Trp Gly Cys Ala  Glu Ala Pro
    1730                1735                1740

Thr Ala  Ser Gly Ser Ser Glu  Ala Met Gln Lys Cys  Gln Thr Phe
    1745                1750                1755

Gln His  Trp Leu Tyr Gln Trp  Thr Asn Gly Ser Phe  Leu Val Thr
    1760                1765                1770

Asp Leu  Ala Gly Val Asp Trp  Lys Met Thr Asp Val  Gln Ile Ala
    1775                1780                1785

Thr Lys  Leu Arg Gly Tyr Gln  Gly Leu Lys Glu Ser  Cys Phe Pro
    1790                1795                1800

Ala Leu  Leu Asp Arg Phe Ala  Ser Ser His Gln Cys  Asn Ala Tyr
    1805                1810                1815

Cys Glu  Leu Leu Gly Leu Thr  Pro Leu Lys Gly Pro  Glu Ala Ala
    1820                1825                1830

His Pro  Gln Ala Lys Ala Lys  Gly Ser Lys Ser Pro  Ser Ala Gly
    1835                1840                1845

Arg Lys  Gly Ser Gln Leu Ser  Pro Gln Pro Gln Lys  Lys Gly Leu
    1850                1855                1860

Pro Ser  Pro Gln Gly Thr Arg  Lys Ser Ala Pro Ser  Ser Lys Ala
    1865                1870                1875

Thr Pro  Gln Ala Ser Glu Pro  Val Thr Thr Gln Leu  Leu Gly Gln
    1880                1885                1890

Pro Pro  Thr Gln Glu Glu Gly  Ser Lys Ala Gln Gly  Met Arg
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1895 1900 1905

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<223> /note="ENSP ID: ENSP00000334424"

<400> 4320
Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1 5 10 15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
20 25 30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
35 40 45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
50 55 60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65 70 75 80

Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
85 90 95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
100 105 110

```
Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
        115                 120                 125

Leu Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr
    130                 135                 140

Ala Pro Leu Asn Leu Leu Ala Asp Phe Ala Gly Gly Gly Leu Met Cys
145                 150                 155                 160

Ala Leu Gly Ile Ile Met Ala Leu Phe Asp Arg Thr Arg Thr Gly Lys
                165                 170                 175

Gly Gln Val Ile Asp Ala Asn Met Val Glu Gly Thr Ala Tyr Leu Ser
            180                 185                 190

Ser Phe Leu Trp Lys Thr Gln Lys Leu Ser Leu Trp Glu Ala Pro Arg
        195                 200                 205

Gly Gln Asn Met Leu Asp Gly Gly Ala Pro Phe Tyr Thr Thr Tyr Arg
    210                 215                 220

Thr Ala Asp Gly Glu Phe Met Ala Val Gly Ala Ile Glu Pro Gln Phe
225                 230                 235                 240

Tyr Glu Leu Leu Ile Lys Gly Leu Gly Leu Lys Ser Asp Glu Leu Pro
                245                 250                 255

Asn Gln Met Ser Met Asp Asp Trp Pro Glu Met Lys Lys Lys Phe Ala
            260                 265                 270

Asp Val Phe Ala Glu Lys Thr Lys Ala Glu Trp Cys Gln Ile Phe Asp
        275                 280                 285

Gly Thr Asp Ala Cys Val Thr Pro Val Leu Thr Phe Glu Glu Val Val
    290                 295                 300

His His Asp His Asn Lys Glu Arg Gly Ser Phe Ile Thr Ser Glu Glu
305                 310                 315                 320

Gln Asp Val Ser Pro Arg Pro Ala Pro Leu Leu Leu Asn Thr Pro Ala
                325                 330                 335
```

```
Ile Pro Ser Phe Lys Arg Asp Pro Phe Ile Gly Glu His Thr Glu Glu
            340                 345                 350

Ile Leu Glu Glu Phe Gly Phe Ser Arg Glu Glu Ile Tyr Gln Leu Asn
        355                 360                 365

Ser Asp Lys Ile Ile Glu Ser Asn Lys Val Lys Ala Ser Leu
    370                 375                 380


<210> 4321
<211> 198
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 965; "

<220>
<221> source
<223> /note="Gene Symbol: AMACR; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-methylacyl-CoA racemase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UHK6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371504"

<400> 4321
Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1               5                   10                  15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
            20                  25                  30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
        35                  40                  45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
    50                  55                  60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65                  70                  75                  80
```

```
Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
                85                  90                  95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
            100                 105                 110

Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
        115                 120                 125

Leu Ser Gly Gly Arg Asn Ser Ile Phe Lys Phe Phe Ser Val Glu Asn
    130                 135                 140

Ser Glu Ile Glu Ser Val Gly Ser Thr Ser Arg Thr Glu His Val Gly
145                 150                 155                 160

Trp Trp Ser Thr Phe Leu Tyr Asp Leu Gln Asp Ser Arg Trp Gly Ile
                165                 170                 175

His Gly Cys Trp Ser Asn Arg Thr Pro Val Leu Arg Ala Ala Asp Gln
            180                 185                 190

Arg Thr Trp Thr Lys Val
        195


<210> 4322
<211> 394
<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:  Q9UHK6; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000371517"

<400> 4322
Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1 5 10 15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
20 25 30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
35 40 45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
50 55 60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65 70 75 80

Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
85 90 95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
100 105 110

Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
115 120 125

Leu Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr
130 135 140

Ala Pro Leu Asn Leu Leu Ala Asp Phe Ala Gly Gly Gly Leu Met Cys
145 150 155 160

Ala Leu Gly Ile Ile Met Ala Leu Phe Asp Arg Thr Arg Thr Gly Lys
165 170 175

Gly Gln Val Ile Asp Ala Asn Met Val Glu Gly Thr Ala Tyr Leu Ser
180 185 190

Ser Phe Leu Trp Lys Thr Gln Lys Leu Ser Leu Trp Glu Ala Pro Arg
195 200 205

Gly Gln Asn Met Leu Asp Gly Gly Ala Pro Phe Tyr Thr Thr Tyr Arg

```
    210                 215                 220

Thr Ala Asp Gly Glu Phe Met Ala Val Gly Ala Ile Glu Pro Gln Phe
225                 230                 235                 240

Tyr Glu Leu Leu Ile Lys Gly Leu Gly Leu Lys Ser Asp Glu Leu Pro
                245                 250                 255

Asn Gln Met Ser Met Asp Asp Trp Pro Glu Met Lys Lys Lys Phe Ala
            260                 265                 270

Asp Val Phe Ala Glu Lys Thr Lys Ala Glu Trp Cys Gln Ile Phe Asp
        275                 280                 285

Gly Thr Asp Ala Cys Val Thr Pro Val Leu Thr Phe Glu Glu Val Val
    290                 295                 300

His His Asp His Asn Lys Glu Arg Gly Ser Phe Ile Thr Ser Glu Glu
305                 310                 315                 320

Gln Asp Val Ser Pro Arg Pro Ala Pro Leu Leu Leu Asn Thr Pro Ala
                325                 330                 335

Ile Pro Ser Phe Lys Arg Asp Pro Phe Ile Gly Glu His Thr Glu Glu
            340                 345                 350

Ile Leu Glu Glu Phe Gly Phe Ser Arg Glu Glu Ile Tyr Gln Leu Asn
        355                 360                 365

Ser Asp Lys Ile Ile Glu Ser Asn Lys Ala Gly Ser Lys Phe Trp Ile
    370                 375                 380

Leu Tyr Pro Thr His Ser Asn Ile Gln Lys
385                 390


<210> 4323
<211> 367
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 965; "

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<221> source
<223> /note="Gene Symbol: AMACR; "

<220>
<221> source
<223> /note="Gene Name:
alpha-methylacyl-CoA racemase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424351"

<400> 4323

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Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1               5                  10                  15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
            20                  25                  30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
        35                  40                  45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
    50                  55                  60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65                  70                  75                  80

Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
                85                  90                  95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
            100                 105                 110

Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
        115                 120                 125

Leu Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr
    130                 135                 140

Ala Pro Leu Asn Leu Leu Ala Asp Phe Ala Gly Gly Gly Leu Met Cys
145                 150                 155                 160

Ala Leu Gly Ile Ile Met Ala Leu Phe Asp Arg Thr Arg Thr Gly Lys
                165                 170                 175
```

```
Gly Gln Val Ile Asp Ala Asn Met Lys Leu Ser Leu Trp Glu Ala Pro
            180                 185                 190

Arg Gly Gln Asn Met Leu Asp Gly Gly Ala Pro Phe Tyr Thr Thr Tyr
        195                 200                 205

Arg Thr Ala Asp Gly Glu Phe Met Ala Val Gly Ala Ile Glu Pro Gln
    210                 215                 220

Phe Tyr Glu Leu Leu Ile Lys Gly Leu Gly Leu Lys Ser Asp Glu Leu
225                 230                 235                 240

Pro Asn Gln Met Ser Met Asp Asp Trp Pro Glu Met Lys Lys Lys Phe
                245                 250                 255

Ala Asp Val Phe Ala Glu Lys Thr Lys Ala Glu Trp Cys Gln Ile Phe
            260                 265                 270

Asp Gly Thr Asp Ala Cys Val Thr Pro Val Leu Thr Phe Glu Glu Val
        275                 280                 285

Val His His Asp His Asn Lys Glu Arg Gly Ser Phe Ile Thr Ser Glu
    290                 295                 300

Glu Gln Asp Val Ser Pro Arg Pro Ala Pro Leu Leu Leu Asn Thr Pro
305                 310                 315                 320

Ala Ile Pro Ser Phe Lys Arg Asp Pro Phe Ile Gly Glu His Thr Glu
                325                 330                 335

Glu Ile Leu Glu Glu Phe Gly Phe Ser Arg Glu Glu Ile Tyr Gln Leu
            340                 345                 350

Asn Ser Asp Lys Ile Ile Glu Ser Asn Lys Val Lys Ala Ser Leu
        355                 360                 365


<210> 4324
<211> 229
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 965; "
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<220>
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<223> /note="Gene Symbol: AMACR; "

<220>
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<223> /note="Gene Name:
alpha-methylacyl-CoA racemase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UHK6; "

<220>
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<223> /note="ENSP ID: ENSP00000427227"

<400> 4324
Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1   5   10   15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
            20   25   30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
        35   40   45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
    50   55   60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65   70   75   80

Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
                85   90   95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
            100   105   110

Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
        115   120   125

Leu Ser Gly Gly Arg Asn Ser Ile Phe Lys Phe Phe Ser Val Glu Asn
    130   135   140

Ser Glu Ile Glu Ser Val Gly Ser Thr Ser Arg Thr Glu His Val Gly
145   150   155   160

```
Trp Trp Ser Thr Phe Leu Tyr Asp Leu Gln Asp Ser Arg Trp Gly Ile
                165                 170                 175

His Gly Cys Trp Ser Asn Arg Thr Pro Val Leu Arg Ala Ala Asp Gln
            180                 185                 190

Arg Ser Leu Ile Pro Tyr Phe Asn Leu Tyr Leu Gln Phe Leu Asn Ile
        195                 200                 205

Ser Met Gln Asn Leu Phe Lys Val His Thr Leu Leu Arg Pro Cys Tyr
    210                 215                 220

Phe Leu Gly Gln Lys
225
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<210> 4325
<211> 288
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 965; "

<220>
<221> source
<223> /note="Gene Symbol: AMACR; "

<220>
<221> source
<223> /note="Gene Name:
alpha-methylacyl-CoA racemase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476965"

<400> 4325

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Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1               5                   10                  15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
            20                  25                  30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
        35                  40                  45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
```

```
    50                  55                  60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65                  70                  75                  80

Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
                85                  90                  95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
            100                 105                 110

Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
        115                 120                 125

Leu Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr
    130                 135                 140

Ala Pro Leu Asn Leu Leu Ala Asp Phe Ala Gly Gly Gly Leu Met Cys
145                 150                 155                 160

Ala Leu Gly Ile Ile Met Ala Leu Phe Asp Arg Thr Arg Thr Gly Lys
                165                 170                 175

Gly Gln Val Ile Asp Ala Asn Met Val Glu Gly Thr Ala Tyr Leu Ser
            180                 185                 190

Ser Phe Leu Trp Lys Thr Gln Lys Leu Ser Leu Trp Glu Ala Pro Arg
        195                 200                 205

Gly Gln Asn Met Leu Asp Gly Gly Ala Pro Phe Tyr Thr Thr Tyr Arg
    210                 215                 220

Thr Ala Asp Gly Glu Phe Met Ala Val Gly Ala Ile Glu Pro Gln Phe
225                 230                 235                 240

Tyr Glu Leu Leu Ile Lys Gly Leu Gly Glu Leu Ile Leu Leu Lys Ile
                245                 250                 255

Gln Gln Glu Ala Val Ser Cys Gln Ala Arg Gln Thr Leu Val Ser Val
            260                 265                 270

Lys Gln Trp Pro Ser Leu Gln Pro Lys Ser Trp Gly Phe Val Trp Gln
        275                 280                 285
```

<210> 4326
<211> 281
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 965; "

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<221> source
<223> /note="Gene Symbol: AMACR; "

<220>
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<223> /note="Gene Name:
alpha-methylacyl-CoA racemase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477108"

<400> 4326
Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1 5 10 15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
20 25 30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
35 40 45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
50 55 60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65 70 75 80

Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
85 90 95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
100 105 110

Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
115 120 125

```
Leu Ser Gly Gly Arg Asn Ser Ile Phe Lys Phe Phe Ser Val Glu Asn
    130                 135                 140

Ser Glu Ile Glu Ser Val Gly Ser Thr Ser Arg Thr Glu His Val Gly
145                 150                 155                 160

Trp Trp Ser Thr Phe Leu Tyr Asp Leu Gln Asp Ser Arg Trp Gly Ile
                165                 170                 175

His Gly Cys Trp Ser Asn Arg Thr Pro Val Leu Arg Ala Ala Asp Gln
            180                 185                 190

Arg Ser Gly Arg Thr Asp Leu Ala Glu Asn Thr Thr Gly Ser Ser Ile
        195                 200                 205

Val Pro Gly Lys Ala Asn Pro Arg Gln Cys Glu Ala Met Ala Ile Val
    210                 215                 220

Ala Ala Gln Val Met Gly Phe Cys Val Ala Val Thr Val Gly Gly Gly
225                 230                 235                 240

Asn Gly His Phe Glu Leu Asp Val Phe Lys Pro Met Met Ile Lys Asn
                245                 250                 255

Leu Cys Tyr Thr Gln Ala Ala Gly Gly Cys Phe Ser Phe Leu His Arg
            260                 265                 270

Lys Leu Asn Ser Gly Asn Pro Asp Gln
        275                 280


<210> 4327
<211> 260
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 965; "

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<221> source
<223> /note="Gene Symbol: AMACR; "

<220>
<221> source
<223> /note="Gene Name:
      alpha-methylacyl-CoA racemase; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000477411"

<400> 4327
Met Ala Leu Gln Gly Ile Ser Val Val Glu Leu Ser Gly Leu Ala Pro
1   5   10   15

Gly Pro Phe Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
            20   25   30

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
        35   40   45

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
    50   55   60

Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65   70   75   80

Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
                85   90   95

Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
            100   105   110

Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
        115   120   125

Leu Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr
    130   135   140

Ala Pro Leu Asn Leu Leu Ala Asp Phe Ala Gly Gly Gly Leu Met Cys
145   150   155   160

Ala Leu Gly Ile Ile Met Ala Leu Phe Asp Arg Thr Arg Thr Gly Lys
                165   170   175

Gly Gln Val Ile Asp Ala Asn Met Val Glu Gly Thr Ala Tyr Leu Ser
            180   185   190

Ser Phe Leu Trp Lys Thr Gln Lys Leu Ser Leu Trp Glu Ala Pro Arg
        195   200   205

```
Gly Gln Asn Met Leu Asp Gly Gly Ala Pro Phe Tyr Thr Thr Tyr Arg
    210                 215                 220

Thr Ala Asp Gly Glu Phe Met Ala Val Gly Ala Ile Glu Pro Gln Phe
225                 230                 235                 240

Tyr Glu Leu Leu Ile Lys Gly Cys Trp Gly Met Leu Gln Phe Pro Ser
                245                 250                 255

Gln Lys Thr Lys
            260


<210> 4328
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 966; "

<220>
<221> source
<223> /note="Gene Symbol: AMMECR1; "

<220>
<221> source
<223> /note="Gene Name:
      Alport syndrome, mental retardation, midface
      hypoplasia and elliptocytosis chromosomal region gene 1;
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<220>
<221> source
<223> /note="Uniprot ID:  Q9Y4X0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000262844"

<400> 4328
Met Ala Ala Gly Cys Cys Gly Val Lys Lys Gln Lys Leu Ser Ser Ser
1               5                   10                  15

Pro Pro Ser Gly Ser Gly Gly Gly Gly Gly Ala Ser Ser Ser Ser His
            20                  25                  30

Cys Ser Gly Glu Ser Gln Cys Arg Ala Gly Glu Leu Gly Leu Gly Gly
        35                  40                  45
```

```
Ala Gly Thr Arg Leu Asn Gly Leu Gly Gly Leu Thr Gly Gly Gly Ser
    50                  55                  60

Gly Ser Gly Cys Thr Leu Ser Pro Pro Gln Gly Cys Gly Gly Gly Gly
65                  70                  75                  80

Gly Gly Ile Ala Leu Ser Pro Pro Pro Ser Cys Gly Val Gly Thr Leu
                85                  90                  95

Leu Ser Thr Pro Ala Ala Ala Thr Ser Ser Ser Pro Ser Ser Ser Ser
            100                 105                 110

Ala Ala Ser Ser Ser Ser Pro Gly Ser Arg Lys Met Val Val Ser Ala
        115                 120                 125

Glu Met Cys Cys Phe Cys Phe Asp Val Leu Tyr Cys His Leu Tyr Gly
    130                 135                 140

Tyr Gln Gln Pro Arg Thr Pro Arg Phe Thr Asn Glu Pro Tyr Pro Leu
145                 150                 155                 160

Phe Val Thr Trp Lys Ile Gly Arg Asp Lys Arg Leu Arg Gly Cys Ile
                165                 170                 175

Gly Thr Phe Ser Ala Met Asn Leu His Ser Gly Leu Arg Glu Tyr Thr
            180                 185                 190

Leu Thr Ser Ala Leu Lys Asp Ser Arg Phe Pro Pro Met Thr Arg Asp
        195                 200                 205

Glu Leu Pro Arg Leu Phe Cys Ser Val Ser Leu Leu Thr Asn Phe Glu
    210                 215                 220

Asp Val Cys Asp Tyr Leu Asp Trp Glu Val Gly Val His Gly Ile Arg
225                 230                 235                 240

Ile Glu Phe Ile Asn Glu Lys Gly Ser Lys Arg Thr Ala Thr Tyr Leu
                245                 250                 255

Pro Glu Val Ala Lys Glu Gln Gly Trp Asp His Ile Gln Thr Ile Asp
            260                 265                 270
```

Ser Leu Leu Arg Lys Gly Gly Tyr Lys Ala Pro Ile Thr Asn Glu Phe
        275   280   285

Arg Lys Thr Ile Lys Leu Thr Arg Tyr Arg Ser Glu Lys Met Thr Leu
    290   295   300

Ser Tyr Ala Glu Tyr Leu Ala His Arg Gln His His His Phe Gln Asn
305   310   315   320

Gly Ile Gly His Pro Leu Pro Pro Tyr Asn His Tyr Ser
                325   330

<210> 4329
<211> 210
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AMMECR1; "

<220>
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<223> /note="Gene Name:
      Alport syndrome, mental retardation, midface
      hypoplasia and elliptocytosis chromosomal region gene 1;
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<220>
<221> source
<223> /note="Uniprot ID: Q9Y4X0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361127"

<400> 4329
Met Val Val Ser Ala Glu Met Cys Cys Phe Cys Phe Asp Val Leu Tyr
1   5   10   15

Cys His Leu Tyr Gly Tyr Gln Gln Pro Arg Thr Pro Arg Phe Thr Asn
            20   25   30

Glu Pro Tyr Pro Leu Phe Val Thr Trp Lys Ile Gly Arg Asp Lys Arg
        35   40   45

```
Leu Arg Gly Cys Ile Gly Thr Phe Ser Ala Met Asn Leu His Ser Gly
    50                  55                  60

Leu Arg Glu Tyr Thr Leu Thr Ser Ala Leu Lys Asp Ser Arg Phe Pro
65                  70                  75                  80

Pro Met Thr Arg Asp Glu Leu Pro Arg Leu Phe Cys Ser Val Ser Leu
                85                  90                  95

Leu Thr Asn Phe Glu Asp Val Cys Asp Tyr Leu Asp Trp Glu Val Gly
            100                 105                 110

Val His Gly Ile Arg Ile Glu Phe Ile Asn Glu Lys Gly Ser Lys Arg
        115                 120                 125

Thr Ala Thr Tyr Leu Pro Glu Val Ala Lys Glu Gln Gly Trp Asp His
    130                 135                 140

Ile Gln Thr Ile Asp Ser Leu Leu Arg Lys Gly Gly Tyr Lys Ala Pro
145                 150                 155                 160

Ile Thr Asn Glu Phe Arg Lys Thr Ile Lys Leu Thr Arg Tyr Arg Ser
                165                 170                 175

Glu Lys Met Thr Leu Ser Tyr Ala Glu Tyr Leu Ala His Arg Gln His
            180                 185                 190

His His Phe Gln Asn Gly Ile Gly His Pro Leu Pro Pro Tyr Asn His
        195                 200                 205

Tyr Ser
    210


<210> 4330
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 966; "

<220>
<221> source
<223> /note="Gene Symbol: AMMECR1; "
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<220>
<221> source
<223> /note="Gene Name:
Alport syndrome, mental retardation, midface
hypoplasia and elliptocytosis chromosomal region gene 1;
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<220>
<221> source
<223> /note="Uniprot ID: Q9Y4X0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361129"

<400> 4330
Met Ala Ala Gly Cys Cys Gly Val Lys Lys Gln Lys Leu Ser Ser Ser
1   5   10   15

Pro Pro Ser Gly Ser Gly Gly Gly Gly Gly Ala Ser Ser Ser Ser His
            20   25   30

Cys Ser Gly Glu Ser Gln Cys Arg Ala Gly Glu Leu Gly Leu Gly Gly
        35   40   45

Ala Gly Thr Arg Leu Asn Gly Leu Gly Gly Leu Thr Gly Gly Gly Ser
    50   55   60

Gly Ser Gly Cys Thr Leu Ser Pro Pro Gln Gly Cys Gly Gly Gly Gly
65   70   75   80

Gly Gly Ile Ala Leu Ser Pro Pro Pro Ser Cys Gly Val Gly Thr Leu
                85   90   95

Leu Ser Thr Pro Ala Ala Ala Thr Ser Ser Ser Pro Ser Ser Ser Ser
            100   105   110

Ala Ala Ser Ser Ser Ser Pro Gly Ser Arg Lys Met Val Val Ser Ala
        115   120   125

Glu Met Cys Cys Phe Cys Phe Asp Val Leu Tyr Cys His Leu Tyr Gly
    130   135   140

Tyr Gln Gln Pro Arg Thr Pro Arg Phe Thr Asn Glu Pro Tyr Ala Leu
145   150   155   160

Lys Asp Ser Arg Phe Pro Pro Met Thr Arg Asp Glu Leu Pro Arg Leu

```
                165                 170                 175

Phe Cys Ser Val Ser Leu Leu Thr Asn Phe Glu Asp Val Cys Asp Tyr
            180                 185                 190

Leu Asp Trp Glu Val Gly Val His Gly Ile Arg Ile Glu Phe Ile Asn
        195                 200                 205

Glu Lys Gly Ser Lys Arg Thr Ala Thr Tyr Leu Pro Glu Val Ala Lys
    210                 215                 220

Glu Gln Gly Trp Asp His Ile Gln Thr Ile Asp Ser Leu Leu Arg Lys
225                 230                 235                 240

Gly Gly Tyr Lys Ala Pro Ile Thr Asn Glu Phe Arg Lys Thr Ile Lys
                245                 250                 255

Leu Thr Arg Tyr Arg Ser Glu Lys Met Thr Leu Ser Tyr Ala Glu Tyr
            260                 265                 270

Leu Ala His Arg Gln His His His Phe Gln Asn Gly Ile Gly His Pro
        275                 280                 285

Leu Pro Pro Tyr Asn His Tyr Ser
    290                 295


<210> 4331
<211> 953
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 967; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CL; "

<220>
<221> source
<223> /note="Gene Name:
      ALS2 C-terminal like; "

<220>
<221> source
<223> /note="Uniprot ID:  Q60I27; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000313670"

<400> 4331
Met Cys Asn Pro Glu Glu Ala Ala Leu Leu Arg Leu Glu Glu Val Phe
1   5   10   15

Ser Ala Thr Leu Ala His Val Asn Ser Leu Val Leu Gln Pro Leu Leu
            20   25   30

Pro Ala Ala Pro Asp Pro Ser Asp Pro Trp Gly Arg Glu Cys Leu Arg
        35   40   45

Leu Leu Gln Gln Leu His Lys Ser Ser Gln Gln Leu Trp Glu Val Thr
    50   55   60

Glu Glu Ser Leu His Ser Leu Gln Glu Arg Leu Arg Tyr Pro Asp Ser
65   70   75   80

Thr Gly Leu Glu Ser Leu Leu Leu Leu Arg Gly Ala Asp Arg Val Leu
                85   90   95

Gln Ala His Ile Glu Tyr Ile Glu Ser Tyr Thr Ser Cys Met Val Val
            100   105   110

Gln Ala Phe Gln Lys Ala Ala Lys Arg Arg Ser Glu Tyr Trp Arg Gly
        115   120   125

Gln Arg Lys Ala Leu Arg Gln Leu Leu Ser Gly Val Ser Ser Glu Gly
    130   135   140

Ser Val Gly Ala Ser Leu Gly Gln Ala Leu His Gln Pro Leu Ala His
145   150   155   160

His Val Gln Gln Tyr Val Leu Leu Leu Leu Ser Leu Gly Asp Thr Ile
                165   170   175

Gly Glu His His Pro Thr Arg Glu Leu Val Val Asn Ala Val Thr Leu
            180   185   190

Phe Gly Asn Leu Gln Ser Phe Met Lys Gln Glu Leu Asp Gln Ala Val
        195   200   205

```
Ala Thr Gln Ala Leu Trp His Thr Leu Arg Gly Arg Leu Arg Asp Val
    210                 215                 220

Leu Cys Thr Pro Ala His Arg Leu Leu Gln Asp Ser Gln Asp Val Pro
225                 230                 235                 240

Val Thr Val Ala Pro Leu Arg Ala Glu Arg Val Leu Leu Phe Asp Asp
                245                 250                 255

Ala Leu Val Leu Leu Gln Gly His Asn Val His Thr Phe Asp Leu Lys
            260                 265                 270

Leu Val Trp Val Asp Pro Gly Gln Asp Gly Cys Thr Phe His Leu Leu
        275                 280                 285

Thr Pro Glu Glu Glu Phe Ser Phe Cys Ala Lys Asp Ser Gln Gly Gln
    290                 295                 300

Ala Val Trp Gln Trp Lys Val Thr Trp Ala Val His Gln Ala Leu His
305                 310                 315                 320

Gly Lys Lys Asp Phe Pro Val Leu Gly Ala Gly Leu Glu Pro Ser Gln
                325                 330                 335

Pro Pro Asp Cys Arg Cys Ala Glu Tyr Thr Phe Gln Ala Glu Gly Arg
            340                 345                 350

Leu Cys Gln Ala Thr Tyr Glu Gly Glu Trp Cys Arg Gly Arg Pro His
        355                 360                 365

Gly Lys Gly Thr Leu Lys Trp Pro Asp Gly Arg Asn His Val Gly Asn
    370                 375                 380

Phe Cys Gln Gly Leu Glu His Gly Phe Gly Ile Arg Leu Leu Pro Gln
385                 390                 395                 400

Ala Ser Glu Asp Lys Phe Asp Cys Tyr Lys Cys His Trp Arg Glu Gly
                405                 410                 415

Ser Met Cys Gly Tyr Gly Ile Cys Glu Tyr Ser Thr Asp Glu Val Tyr
            420                 425                 430

Lys Gly Tyr Phe Gln Glu Gly Leu Arg His Gly Phe Gly Val Leu Glu
```

435 440 445

Ser Gly Pro Gln Ala Pro Gln Pro Phe Arg Tyr Thr Gly His Trp Glu
450 455 460

Arg Gly Gln Arg Ser Gly Tyr Gly Ile Glu Glu Asp Gly Asp Arg Gly
465 470 475 480

Glu Arg Tyr Ile Gly Met Trp Gln Ala Gly Gln Arg His Gly Pro Gly
485 490 495

Val Met Val Thr Gln Ala Gly Val Cys Tyr Gln Gly Thr Phe Gln Ala
500 505 510

Asp Lys Thr Val Gly Pro Gly Ile Leu Leu Ser Glu Asp Asp Ser Leu
515 520 525

Tyr Glu Gly Thr Phe Thr Arg Asp Leu Thr Leu Met Gly Lys Gly Lys
530 535 540

Val Thr Phe Pro Asn Gly Phe Thr Leu Glu Gly Ser Phe Gly Ser Gly
545 550 555 560

Ala Gly Arg Gly Leu His Thr Gln Gly Val Leu Asp Thr Ala Ala Leu
565 570 575

Pro Pro Asp Pro Ser Ser Thr Cys Lys Arg Gln Leu Gly Val Gly Ala
580 585 590

Phe Pro Val Glu Ser Arg Trp Gln Gly Val Tyr Ser Pro Phe Arg Asp
595 600 605

Phe Val Cys Ala Gly Cys Pro Arg Asp Leu Gln Glu Ala Leu Leu Gly
610 615 620

Phe Asp Val Gln Ser Ser Arg Glu Leu Arg Arg Ser Gln Asp Tyr Leu
625 630 635 640

Ser Cys Glu Arg Thr His Pro Glu Asp Ser Val Gly Ser Met Glu Asp
645 650 655

Ile Leu Glu Glu Leu Leu Gln His Arg Glu Pro Lys Ala Leu Gln Leu
660 665 670

```
Tyr Leu Arg Lys Ala Leu Ser Asn Ser Leu His Pro Leu Gly Lys Leu
        675                 680                 685

Leu Arg Thr Leu Met Leu Thr Phe Gln Ala Thr Tyr Ala Gly Val Gly
    690                 695                 700

Ala Asn Lys His Leu Gln Glu Leu Ala Gln Glu Glu Val Lys Gln His
705                 710                 715                 720

Ala Gln Glu Leu Trp Ala Ala Tyr Arg Gly Leu Leu Arg Val Ala Leu
                725                 730                 735

Glu Arg Lys Gly Gln Ala Leu Glu Glu Asp Glu Asp Thr Glu Thr Arg
            740                 745                 750

Asp Leu Gln Val His Gly Leu Val Leu Pro Leu Met Leu Pro Ser Phe
        755                 760                 765

Tyr Ser Glu Leu Phe Thr Leu Tyr Leu Leu Leu His Glu Arg Glu Asp
    770                 775                 780

Ser Phe Tyr Ser Gln Gly Ile Ala Asn Leu Ser Leu Phe Pro Asp Thr
785                 790                 795                 800

Gln Leu Leu Glu Phe Leu Asp Val Gln Lys His Leu Trp Pro Leu Lys
                805                 810                 815

Asp Leu Thr Leu Thr Ser Asn Gln Arg Tyr Ser Leu Val Arg Asp Lys
            820                 825                 830

Cys Phe Leu Ser Ala Thr Glu Cys Leu Gln Lys Ile Met Thr Thr Val
        835                 840                 845

Asp Pro Arg Glu Lys Leu Glu Val Leu Glu Arg Thr Tyr Gly Glu Ile
    850                 855                 860

Glu Gly Thr Val Ser Arg Val Leu Gly Arg Glu Tyr Lys Leu Pro Met
865                 870                 875                 880

Asp Asp Leu Leu Pro Leu Leu Ile Tyr Val Val Ser Arg Ala Arg Ile
                885                 890                 895
```

```
Gln His Leu Gly Ala Glu Ile His Leu Ile Arg Asp Met Met Asp Pro
            900                 905                 910

Asn His Thr Gly Gly Leu Tyr Asp Phe Leu Leu Thr Ala Leu Glu Ser
        915                 920                 925

Cys Tyr Glu His Ile Gln Lys Glu Asp Met Arg Leu His Arg Leu Pro
    930                 935                 940

Gly His Trp His Ser Arg Glu Leu Trp
945                 950


<210> 4332
<211> 300
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 967; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CL; "

<220>
<221> source
<223> /note="Gene Name:
      ALS2 C-terminal like; "

<220>
<221> source
<223> /note="Uniprot ID:  Q60I27; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000373248"

<400> 4332
Met Glu Asp Ile Leu Glu Glu Leu Leu Gln His Arg Glu Pro Lys Ala
1               5                   10                  15

Leu Gln Leu Tyr Leu Arg Lys Ala Leu Ser Asn Ser Leu His Pro Leu
            20                  25                  30

Gly Lys Leu Leu Arg Thr Leu Met Leu Thr Phe Gln Ala Thr Tyr Ala
        35                  40                  45

Gly Val Gly Ala Asn Lys His Leu Gln Glu Leu Ala Gln Glu Glu Val
```

50 55 60

Lys Gln His Ala Gln Glu Leu Trp Ala Ala Tyr Arg Gly Leu Leu Arg
65 70 75 80

Val Ala Leu Glu Arg Lys Gly Gln Ala Leu Glu Glu Asp Glu Asp Thr
85 90 95

Glu Thr Arg Asp Leu Gln Val His Gly Leu Val Leu Pro Leu Met Leu
100 105 110

Pro Ser Phe Tyr Ser Glu Leu Phe Thr Leu Tyr Leu Leu Leu His Glu
115 120 125

Arg Glu Asp Ser Phe Tyr Ser Gln Gly Ile Ala Asn Leu Ser Leu Phe
130 135 140

Pro Asp Thr Gln Leu Leu Glu Phe Leu Asp Val Gln Lys His Leu Trp
145 150 155 160

Pro Leu Lys Asp Leu Thr Leu Thr Ser Asn Gln Arg Tyr Ser Leu Val
165 170 175

Arg Asp Lys Cys Phe Leu Ser Ala Thr Glu Cys Leu Gln Lys Ile Met
180 185 190

Thr Thr Val Asp Pro Arg Glu Lys Leu Glu Val Leu Glu Arg Thr Tyr
195 200 205

Gly Glu Ile Glu Gly Thr Val Ser Arg Val Leu Gly Arg Glu Tyr Lys
210 215 220

Leu Pro Met Asp Asp Leu Leu Pro Leu Leu Ile Tyr Val Val Ser Arg
225 230 235 240

Ala Arg Ile Gln His Leu Gly Ala Glu Ile His Leu Ile Arg Asp Met
245 250 255

Met Asp Pro Asn His Thr Gly Gly Leu Tyr Asp Phe Leu Leu Thr Ala
260 265 270

Leu Glu Ser Cys Tyr Glu His Ile Gln Lys Glu Asp Met Arg Leu His
275 280 285

```
Arg Leu Pro Gly His Trp His Ser Arg Glu Leu Trp
    290                 295                 300


<210> 4333
<211> 302
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 967; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CL; "

<220>
<221> source
<223> /note="Gene Name:
      ALS2 C-terminal like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395749"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4333
Xaa Leu Gln Glu Arg Leu Arg Tyr Pro Asp Ser Thr Gly Leu Glu Ser
1               5                   10                  15


Leu Leu Leu Leu Arg Gly Ala Asp Arg Val Leu Gln Ala His Ile Glu
            20                  25                  30


Tyr Ile Glu Ser Tyr Thr Ser Cys Met Val Val Gln Ala Phe Gln Lys
        35                  40                  45


Ala Ala Lys Arg Arg Ser Glu Tyr Trp Arg Gly Gln Arg Lys Ala Leu
    50                  55                  60


Arg Gln Leu Leu Ser Gly Val Ser Ser Glu Gly Ser Val Gly Ala Ser
65                  70                  75                  80


Leu Gly Gln Ala Leu His Gln Pro Leu Ala His His Val Gln Gln Tyr
                85                  90                  95
```

```
Val Leu Leu Leu Leu Ser Leu Gly Asp Thr Ile Gly Glu His His Pro
            100                 105                 110

Thr Arg Glu Leu Val Val Asn Ala Val Thr Leu Phe Gly Asn Leu Gln
        115                 120                 125

Ser Phe Met Lys Gln Glu Leu Asp Gln Ala Val Ala Thr Gln Ala Leu
    130                 135                 140

Trp His Thr Leu Arg Gly Arg Leu Arg Asp Val Leu Cys Thr Pro Ala
145                 150                 155                 160

His Arg Leu Leu Gln Asp Ser Gln Asp Val Pro Val Thr Val Ala Pro
                165                 170                 175

Leu Arg Ala Glu Arg Val Leu Leu Phe Asp Asp Ala Leu Val Leu Leu
            180                 185                 190

Gln Gly His Asn Val His Thr Phe Asp Leu Lys Leu Val Trp Val Asp
        195                 200                 205

Pro Gly Gln Asp Gly Cys Thr Phe His Leu Leu Thr Pro Glu Glu Glu
    210                 215                 220

Phe Ser Phe Cys Ala Lys Asp Ser Gln Gly Gln Ala Val Trp Gln Trp
225                 230                 235                 240

Lys Val Thr Trp Ala Val His Gln Ala Leu His Gly Lys Lys Asp Phe
                245                 250                 255

Pro Val Leu Gly Ala Gly Leu Glu Pro Ser Gln Pro Pro Asp Cys Arg
            260                 265                 270

Cys Ala Glu Tyr Thr Phe Gln Ala Glu Gly Arg Leu Cys Gln Ala Thr
        275                 280                 285

Tyr Glu Gly Glu Trp Cys Arg Gly Arg Pro His Gly Glu Pro
    290                 295                 300
```

<210> 4334
<211> 535
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 967; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CL; "

<220>
<221> source
<223> /note="Gene Name:
ALS2 C-terminal like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405335"

<400> 4334
Met Cys Asn Pro Glu Glu Ala Ala Leu Leu Arg Leu Glu Glu Val Phe
1 5 10 15

Ser Ala Thr Leu Ala His Val Asn Ser Leu Val Leu Gln Pro Leu Leu
20 25 30

Pro Ala Ala Pro Asp Pro Ser Asp Pro Trp Gly Arg Glu Cys Leu Arg
35 40 45

Leu Leu Gln Gln Leu His Lys Ser Ser Gln Gln Leu Trp Glu Val Thr
50 55 60

Glu Glu Ser Leu His Ser Leu Gln Glu Arg Leu Arg Tyr Pro Asp Ser
65 70 75 80

Thr Gly Leu Glu Ser Leu Leu Leu Leu Arg Gly Ala Asp Arg Val Leu
85 90 95

Gln Ala His Ile Glu Tyr Ile Glu Ser Tyr Thr Ser Cys Met Val Val
100 105 110

Gln Ala Phe Gln Lys Ala Ala Lys Arg Arg Ser Glu Tyr Trp Arg Gly
115 120 125

Gln Arg Lys Ala Leu Arg Gln Leu Leu Ser Gly Val Ser Ser Glu Gly
130 135 140

Ser Val Gly Ala Ser Leu Gly Gln Ala Leu His Gln Pro Leu Ala His

145 150 155 160

His Val Gln Gln Tyr Val Leu Leu Leu Leu Ser Leu Gly Asp Thr Ile
165 170 175

Gly Glu His His Pro Thr Arg Glu Leu Val Val Asn Ala Val Thr Leu
180 185 190

Phe Gly Asn Leu Gln Ser Phe Met Lys Gln Glu Leu Asp Gln Ala Val
195 200 205

Ala Thr Gln Ala Leu Trp His Thr Leu Arg Gly Arg Leu Arg Asp Val
210 215 220

Leu Cys Thr Pro Ala His Arg Leu Leu Gln Asp Ser Gln Asp Val Pro
225 230 235 240

Val Thr Val Ala Pro Leu Arg Ala Glu Arg Val Leu Leu Phe Asp Asp
245 250 255

Ala Leu Val Leu Leu Gln Gly His Asn Val His Thr Phe Asp Leu Lys
260 265 270

Leu Val Trp Val Asp Pro Gly Gln Asp Gly Cys Thr Phe His Leu Leu
275 280 285

Thr Pro Glu Glu Glu Phe Ser Phe Cys Ala Lys Asp Ser Gln Gly Gln
290 295 300

Ala Val Trp Gln Trp Lys Val Thr Trp Ala Val His Gln Ala Leu His
305 310 315 320

Gly Lys Lys Asp Phe Pro Val Leu Gly Ala Gly Leu Glu Pro Ser Gln
325 330 335

Pro Pro Asp Cys Arg Cys Ala Glu Tyr Thr Phe Gln Ala Glu Gly Arg
340 345 350

Leu Cys Gln Ala Thr Tyr Glu Gly Glu Trp Cys Arg Gly Arg Pro His
355 360 365

Gly Lys Gly Thr Leu Lys Trp Pro Asp Gly Arg Asn His Val Gly Asn
370 375 380

```
Phe Cys Gln Gly Leu Glu His Gly Phe Gly Ile Arg Leu Leu Pro Gln
385                 390                 395                 400

Ala Ser Glu Asp Lys Phe Asp Cys Tyr Lys Cys His Trp Arg Glu Gly
                405                 410                 415

Ser Met Cys Gly Tyr Gly Ile Cys Thr Ala Pro Thr Arg Cys Thr Arg
            420                 425                 430

Ala Thr Ser Arg Arg Ala Cys Gly Thr Asp Leu Gly Ser Leu Arg Val
        435                 440                 445

Val Arg Arg Pro Pro Ser Pro Ser Gly Thr Arg Ala Thr Gly Arg Gly
    450                 455                 460

Ala Arg Gly Ala Ala Met Ala Leu Arg Arg Met Val Thr Glu Val Ser
465                 470                 475                 480

Ala Thr Leu Ala Cys Gly Arg Leu Val Ser Ala Thr Ala Gln Gly Ser
                485                 490                 495

Trp Ser Pro Arg Gln Val Ser Ala Thr Arg Ala Pro Ser Arg Arg Thr
            500                 505                 510

Arg Arg Trp Ala Arg Ala Ser Ser Ser Leu Lys Thr Thr Pro Cys Met
        515                 520                 525

Arg Ala Pro Ser Pro Gly Thr
    530                 535


<210> 4335
<211> 953
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 967; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CL; "

<220>
<221> source
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<223> /note="Gene Name:
ALS2 C-terminal like; "

<220>
<221> source
<223> /note="Uniprot ID: Q60I27; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413223"

<400> 4335

```
Met Cys Asn Pro Glu Glu Ala Ala Leu Leu Arg Leu Glu Glu Val Phe
1               5                  10                  15

Ser Ala Thr Leu Ala His Val Asn Ser Leu Val Leu Gln Pro Leu Leu
            20                  25                  30

Pro Ala Ala Pro Asp Pro Ser Asp Pro Trp Gly Arg Glu Cys Leu Arg
        35                  40                  45

Leu Leu Gln Gln Leu His Lys Ser Ser Gln Gln Leu Trp Glu Val Thr
    50                  55                  60

Glu Glu Ser Leu His Ser Leu Gln Glu Arg Leu Arg Tyr Pro Asp Ser
65                  70                  75                  80

Thr Gly Leu Glu Ser Leu Leu Leu Leu Arg Gly Ala Asp Arg Val Leu
                85                  90                  95

Gln Ala His Ile Glu Tyr Ile Glu Ser Tyr Thr Ser Cys Met Val Val
            100                 105                 110

Gln Ala Phe Gln Lys Ala Ala Lys Arg Arg Ser Glu Tyr Trp Arg Gly
        115                 120                 125

Gln Arg Lys Ala Leu Arg Gln Leu Leu Ser Gly Val Ser Ser Glu Gly
    130                 135                 140

Ser Val Gly Ala Ser Leu Gly Gln Ala Leu His Gln Pro Leu Ala His
145                 150                 155                 160

His Val Gln Gln Tyr Val Leu Leu Leu Leu Ser Leu Gly Asp Thr Ile
                165                 170                 175

Gly Glu His His Pro Thr Arg Glu Leu Val Val Asn Ala Val Thr Leu
```

```
            180                 185                 190

Phe Gly Asn Leu Gln Ser Phe Met Lys Gln Glu Leu Asp Gln Ala Val
        195                 200                 205

Ala Thr Gln Ala Leu Trp His Thr Leu Arg Gly Arg Leu Arg Asp Val
    210                 215                 220

Leu Cys Thr Pro Ala His Arg Leu Leu Gln Asp Ser Gln Asp Val Pro
225                 230                 235                 240

Val Thr Val Ala Pro Leu Arg Ala Glu Arg Val Leu Leu Phe Asp Asp
                245                 250                 255

Ala Leu Val Leu Leu Gln Gly His Asn Val His Thr Phe Asp Leu Lys
            260                 265                 270

Leu Val Trp Val Asp Pro Gly Gln Asp Gly Cys Thr Phe His Leu Leu
        275                 280                 285

Thr Pro Glu Glu Glu Phe Ser Phe Cys Ala Lys Asp Ser Gln Gly Gln
    290                 295                 300

Ala Val Trp Gln Trp Lys Val Thr Trp Ala Val His Gln Ala Leu His
305                 310                 315                 320

Gly Lys Lys Asp Phe Pro Val Leu Gly Ala Gly Leu Glu Pro Ser Gln
                325                 330                 335

Pro Pro Asp Cys Arg Cys Ala Glu Tyr Thr Phe Gln Ala Glu Gly Arg
            340                 345                 350

Leu Cys Gln Ala Thr Tyr Glu Gly Glu Trp Cys Arg Gly Arg Pro His
        355                 360                 365

Gly Lys Gly Thr Leu Lys Trp Pro Asp Gly Arg Asn His Val Gly Asn
    370                 375                 380

Phe Cys Gln Gly Leu Glu His Gly Phe Gly Ile Arg Leu Leu Pro Gln
385                 390                 395                 400

Ala Ser Glu Asp Lys Phe Asp Cys Tyr Lys Cys His Trp Arg Glu Gly
                405                 410                 415
```

Ser Met Cys Gly Tyr Gly Ile Cys Glu Tyr Ser Thr Asp Glu Val Tyr
420 425 430

Lys Gly Tyr Phe Gln Glu Gly Leu Arg His Gly Phe Gly Val Leu Glu
435 440 445

Ser Gly Pro Gln Ala Pro Gln Pro Phe Arg Tyr Thr Gly His Trp Glu
450 455 460

Arg Gly Gln Arg Ser Gly Tyr Gly Ile Glu Glu Asp Gly Asp Arg Gly
465 470 475 480

Glu Arg Tyr Ile Gly Met Trp Gln Ala Gly Gln Arg His Gly Pro Gly
485 490 495

Val Met Val Thr Gln Ala Gly Val Cys Tyr Gln Gly Thr Phe Gln Ala
500 505 510

Asp Lys Thr Val Gly Pro Gly Ile Leu Leu Ser Glu Asp Asp Ser Leu
515 520 525

Tyr Glu Gly Thr Phe Thr Arg Asp Leu Thr Leu Met Gly Lys Gly Lys
530 535 540

Val Thr Phe Pro Asn Gly Phe Thr Leu Glu Gly Ser Phe Gly Ser Gly
545 550 555 560

Ala Gly Arg Gly Leu His Thr Gln Gly Val Leu Asp Thr Ala Ala Leu
565 570 575

Pro Pro Asp Pro Ser Ser Thr Cys Lys Arg Gln Leu Gly Val Gly Ala
580 585 590

Phe Pro Val Glu Ser Arg Trp Gln Gly Val Tyr Ser Pro Phe Arg Asp
595 600 605

Phe Val Cys Ala Gly Cys Pro Arg Asp Leu Gln Glu Ala Leu Leu Gly
610 615 620

Phe Asp Val Gln Ser Ser Arg Glu Leu Arg Arg Ser Gln Asp Tyr Leu
625 630 635 640

```
Ser Cys Glu Arg Thr His Pro Glu Asp Ser Val Gly Ser Met Glu Asp
                645                 650                 655

Ile Leu Glu Glu Leu Leu Gln His Arg Glu Pro Lys Ala Leu Gln Leu
            660                 665                 670

Tyr Leu Arg Lys Ala Leu Ser Asn Ser Leu His Pro Leu Gly Lys Leu
        675                 680                 685

Leu Arg Thr Leu Met Leu Thr Phe Gln Ala Thr Tyr Ala Gly Val Gly
    690                 695                 700

Ala Asn Lys His Leu Gln Glu Leu Ala Gln Glu Glu Val Lys Gln His
705                 710                 715                 720

Ala Gln Glu Leu Trp Ala Ala Tyr Arg Gly Leu Leu Arg Val Ala Leu
                725                 730                 735

Glu Arg Lys Gly Gln Ala Leu Glu Glu Asp Glu Asp Thr Glu Thr Arg
            740                 745                 750

Asp Leu Gln Val His Gly Leu Val Leu Pro Leu Met Leu Pro Ser Phe
        755                 760                 765

Tyr Ser Glu Leu Phe Thr Leu Tyr Leu Leu Leu His Glu Arg Glu Asp
    770                 775                 780

Ser Phe Tyr Ser Gln Gly Ile Ala Asn Leu Ser Leu Phe Pro Asp Thr
785                 790                 795                 800

Gln Leu Leu Glu Phe Leu Asp Val Gln Lys His Leu Trp Pro Leu Lys
                805                 810                 815

Asp Leu Thr Leu Thr Ser Asn Gln Arg Tyr Ser Leu Val Arg Asp Lys
            820                 825                 830

Cys Phe Leu Ser Ala Thr Glu Cys Leu Gln Lys Ile Met Thr Thr Val
        835                 840                 845

Asp Pro Arg Glu Lys Leu Glu Val Leu Glu Arg Thr Tyr Gly Glu Ile
    850                 855                 860
```

```
Glu Gly Thr Val Ser Arg Val Leu Gly Arg Glu Tyr Lys Leu Pro Met
865                 870                 875                 880

Asp Asp Leu Leu Pro Leu Leu Ile Tyr Val Val Ser Arg Ala Arg Ile
                885                 890                 895

Gln His Leu Gly Ala Glu Ile His Leu Ile Arg Asp Met Met Asp Pro
            900                 905                 910

Asn His Thr Gly Gly Leu Tyr Asp Phe Leu Leu Thr Ala Leu Glu Ser
        915                 920                 925

Cys Tyr Glu His Ile Gln Lys Glu Asp Met Arg Leu His Arg Leu Pro
    930                 935                 940

Gly His Trp His Ser Arg Glu Leu Trp
945                 950


<210> 4336
<211> 1023
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 968; "

<220>
<221> source
<223> /note="Gene Symbol: ALMS1; "

<220>
<221> source
<223> /note="Gene Name:
      Alstrom syndrome prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399833"

<400> 4336
Gln Ala Leu Pro Asp Ser Glu Leu Thr Gln Glu Ala Leu Lys Val Ser
1               5                   10                  15

Ala Val Pro Gln Pro Ala Asp Gln Lys Thr Gly Leu Ser Thr Val Thr
            20                  25                  30

Ser Ser Phe Tyr Ser His Thr Glu Lys Pro Asn Ile Ser Tyr Gln Gln
        35                  40                  45
```

```
Glu Leu Pro Asp Ser His Leu Thr Glu Glu Ala Leu Lys Val Ser Asn
    50                  55                  60

Val Pro Gly Pro Ala Asp Gln Lys Thr Gly Val Ser Thr Val Thr Ser
65                  70                  75                  80

Thr Ser Tyr Ser His Arg Glu Lys Pro Ile Val Ser Tyr Gln Arg Glu
                85                  90                  95

Leu Pro His Phe Thr Glu Ala Gly Leu Lys Ile Leu Arg Val Pro Gly
            100                 105                 110

Pro Ala Asp Gln Lys Thr Gly Ile Asn Ile Leu Pro Ser Asn Ser Tyr
        115                 120                 125

Pro Gln Arg Glu His Ser Val Ile Ser Tyr Glu Gln Glu Leu Pro Asp
    130                 135                 140

Leu Thr Glu Val Thr Leu Lys Ala Ile Gly Val Pro Gly Pro Ala Asp
145                 150                 155                 160

Gln Lys Thr Gly Ile Gln Ile Ala Ser Ser Ser Ser Tyr Ser Asn Arg
                165                 170                 175

Glu Lys Ala Ser Ile Phe His Gln Gln Glu Leu Pro Asp Val Thr Glu
            180                 185                 190

Glu Ala Leu Asn Val Phe Val Val Pro Gly Gln Gly Asp Arg Lys Thr
        195                 200                 205

Glu Ile Pro Thr Val Pro Leu Ser Tyr Tyr Ser Arg Arg Glu Lys Pro
    210                 215                 220

Ser Val Ile Ser Gln Gln Glu Leu Pro Asp Ser His Leu Thr Glu Glu
225                 230                 235                 240

Ala Leu Lys Val Ser Pro Val Ser Ile Pro Ala Glu Gln Lys Thr Gly
                245                 250                 255

Ile Pro Ile Gly Leu Ser Ser Ser Tyr Ser His Ser His Lys Glu Lys
            260                 265                 270
```

```
Leu Lys Ile Ser Thr Val His Ile Pro Asp Asp Gln Lys Thr Glu Phe
        275                 280                 285

Pro Ala Ala Thr Leu Ser Ser Tyr Ser Gln Ile Glu Lys Pro Lys Ile
    290                 295                 300

Ser Thr Val Ile Gly Pro Asn Asp Gln Lys Thr Pro Ser Gln Thr Ala
305                 310                 315                 320

Phe His Ser Ser Tyr Ser Gln Thr Val Lys Pro Asn Ile Leu Phe Gln
                325                 330                 335

Gln Gln Leu Pro Asp Arg Asp Gln Ser Lys Gly Ile Leu Lys Ile Ser
            340                 345                 350

Ala Val Pro Glu Leu Thr Asp Val Asn Thr Gly Lys Pro Val Ser Leu
        355                 360                 365

Ser Ser Ser Tyr Phe His Arg Glu Lys Ser Asn Ile Phe Ser Pro Gln
    370                 375                 380

Glu Leu Pro Gly Ser His Val Thr Glu Asp Val Leu Lys Val Ser Thr
385                 390                 395                 400

Ile Pro Gly Pro Ala Gly Gln Lys Thr Val Leu Pro Thr Ala Leu Pro
                405                 410                 415

Ser Ser Phe Ser His Arg Glu Lys Pro Asp Ile Phe Tyr Gln Lys Asp
            420                 425                 430

Leu Pro Asp Arg His Leu Thr Glu Asp Ala Leu Lys Ile Ser Ser Ala
        435                 440                 445

Leu Gly Gln Ala Asp Gln Ile Thr Gly Leu Gln Thr Val Pro Ser Gly
    450                 455                 460

Thr Tyr Ser His Gly Glu Asn His Lys Leu Val Ser Glu His Val Gln
465                 470                 475                 480

Arg Leu Ile Asp Asn Leu Asn Ser Ser Asp Ser Ser Val Ser Ser Asn
                485                 490                 495
```

```
Asn Val Leu Leu Asn Ser Gln Ala Asp Asp Arg Val Val Ile Asn Lys
            500                 505                 510

Pro Glu Ser Ala Gly Phe Arg Asp Val Gly Ser Glu Glu Ile Gln Asp
        515                 520                 525

Ala Glu Asn Ser Ala Lys Thr Leu Lys Glu Ile Arg Thr Leu Leu Met
    530                 535                 540

Glu Ala Glu Asn Met Ala Leu Lys Arg Cys Asn Phe Pro Ala Pro Leu
545                 550                 555                 560

Ala Arg Phe Arg Asp Ile Ser Asp Ile Ser Phe Ile Gln Ser Lys Lys
                565                 570                 575

Val Val Cys Phe Lys Glu Pro Ser Ser Thr Gly Val Ser Asn Gly Asp
            580                 585                 590

Leu Leu His Arg Gln Pro Phe Thr Glu Glu Ser Pro Ser Ser Arg Cys
        595                 600                 605

Ile Gln Lys Asp Ile Gly Thr Gln Thr Asn Leu Lys Cys Arg Arg Gly
    610                 615                 620

Ile Glu Asn Trp Glu Phe Ile Ser Ser Thr Thr Val Arg Ser Pro Leu
625                 630                 635                 640

Gln Glu Ala Glu Ser Lys Val Ser Met Ala Leu Glu Glu Thr Leu Arg
                645                 650                 655

Gln Tyr Gln Ala Ala Lys Ser Val Met Arg Ser Glu Pro Glu Gly Cys
            660                 665                 670

Ser Gly Thr Ile Gly Asn Lys Ile Ile Ile Pro Met Met Thr Val Ile
        675                 680                 685

Lys Ser Asp Ser Ser Ser Asp Ala Ser Asp Gly Asn Gly Ser Cys Ser
    690                 695                 700

Trp Asp Ser Asn Leu Pro Glu Ser Leu Glu Ser Val Ser Asp Val Leu
705                 710                 715                 720

Leu Asn Phe Phe Pro Tyr Val Ser Pro Lys Thr Ser Ile Thr Asp Ser
```

```
                725                 730                 735

Arg Glu Glu Glu Gly Val Ser Glu Ser Glu Asp Gly Gly Gly Ser Ser
            740                 745                 750

Val Asp Ser Leu Ala Ala His Val Lys Asn Leu Leu Gln Cys Glu Ser
        755                 760                 765

Ser Leu Asn His Ala Lys Glu Ile Leu Arg Asn Ala Glu Glu Glu Glu
    770                 775                 780

Ser Arg Val Arg Ala His Ala Trp Asn Met Lys Phe Asn Leu Ala His
785                 790                 795                 800

Asp Cys Gly Tyr Ser Ile Ser Glu Leu Asn Glu Asp Asp Arg Arg Lys
                805                 810                 815

Val Glu Glu Ile Lys Ala Glu Leu Phe Gly His Gly Arg Thr Thr Asp
            820                 825                 830

Leu Ser Lys Gly Leu Gln Ser Pro Arg Gly Met Gly Cys Lys Pro Glu
        835                 840                 845

Ala Val Cys Ser His Ile Ile Ile Glu Ser His Glu Lys Gly Cys Phe
    850                 855                 860

Arg Thr Leu Thr Ser Glu His Pro Gln Leu Asp Arg His Pro Cys Ala
865                 870                 875                 880

Phe Arg Ser Ala Gly Pro Ser Glu Met Thr Arg Gly Arg Gln Asn Pro
                885                 890                 895

Ser Ser Cys Arg Ala Lys His Val Asn Leu Ser Ala Ser Leu Asp Gln
            900                 905                 910

Asn Asn Ser His Phe Lys Val Trp Asn Ser Leu Gln Leu Lys Ser His
        915                 920                 925

Ser Pro Phe Gln Asn Phe Ile Pro Asp Glu Phe Lys Ile Ser Lys Gly
    930                 935                 940

Leu Arg Met Pro Phe Asp Glu Lys Met Asp Pro Trp Leu Ser Glu Leu
945                 950                 955                 960
```

Val Glu Pro Ala Phe Val Pro Pro Lys Glu Val Asp Phe His Ser Ser
965 970 975

Ser Gln Met Pro Ser Pro Glu Pro Met Lys Lys Phe Thr Thr Ser Ile
980 985 990

Thr Phe Ser Ser His Arg His Ser Lys Cys Ile Ser Asn Ser Ser Val
995 1000 1005

Val Lys Ile Thr Arg Glu Asp Glu Asp Pro Thr Phe Cys Phe Leu
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35 40 45

Glu Ala Gly Arg Glu Leu Asp Ser Asp Ser His Tyr Gly Pro Gln His
50 55 60

```
Leu Glu Ser Ile Asp Asp Glu Glu Asp Glu Glu Ala Lys Ala Trp Leu
65                  70                  75                  80

Gln Ala His Pro Gly Arg Ile Leu Pro Pro Leu Ser Pro Pro Gln His
                85                  90                  95

Arg Tyr Ser Glu Gly Glu Arg Thr Ser Leu Glu Lys Lys Thr Glu Ser
            100                 105                 110

Trp His Cys Leu Pro Gln Glu Met Asp Ser Ser Gln Thr Leu Asp Thr
        115                 120                 125

Ser Gln Thr Arg Phe Asn Val Arg Thr Glu Asp Thr Glu Val Thr Asp
    130                 135                 140

Phe Pro Ser Leu Glu Glu Gly Ile Leu Thr Gln Ser Glu Asn Gln Val
145                 150                 155                 160

Lys Glu Pro Asn Arg Asp Leu Phe Cys Ser Pro Leu Leu Val Ile Gln
                165                 170                 175

Asp Ser Phe Ala Ser Pro Asp Leu Pro Leu Leu Thr Cys Leu Thr Gln
            180                 185                 190

Asp Gln Glu Phe Ala Pro Asp Ser Leu Phe His Gln Ser Glu Leu Ser
        195                 200                 205

Phe Ala Pro Leu Arg Gly Ile Pro Asp Lys Ser Glu Asp Thr Glu Trp
    210                 215                 220

Ser Ser Arg Pro Ser Glu Val Ser Glu Ala Leu Phe Gln Ala Thr Ala
225                 230                 235                 240

Glu Val Ala Ser Asp Leu Ala Ser Ser Arg Phe Ser Val Ser Gln His
                245                 250                 255

Pro Leu Ile Gly Ser Thr Ala Val Gly Ser Gln Cys Pro Phe Leu Pro
            260                 265                 270

Ser Glu Gln Gly Asn Asn Glu Glu Thr Ile Ser Ser Val Asp Glu Leu
        275                 280                 285
```

```
Lys Ile Pro Lys Asp Cys Asp Arg Tyr Asp Asp Leu Cys Ser Tyr Met
    290                 295                 300

Ser Trp Lys Thr Arg Lys Asp Thr Gln Trp Pro Glu Asn Asn Leu Ala
305                 310                 315                 320

Asp Lys Asp Gln Val Ser Val Ala Thr Ser Phe Asp Ile Thr Asp Glu
                325                 330                 335

Asn Ile Ala Thr Lys Arg Ser Asp His Phe Asp Ala Ala Arg Ser Tyr
            340                 345                 350

Gly Gln Tyr Trp Thr Gln Glu Asp Ser Ser Lys Gln Ala Glu Thr Tyr
        355                 360                 365

Leu Thr Lys Gly Leu Gln Gly Lys Val Glu Ser Asp Val Ile Thr Leu
    370                 375                 380

Asp Gly Leu Asn Glu Asn Ala Val Val Cys Ser Glu Arg Val Ala Glu
385                 390                 395                 400

Leu Gln Arg Lys Pro Thr Arg Glu Ser Glu Tyr His Ser Ser Asp Leu
                405                 410                 415

Arg Met Leu Arg Met Ser Pro Asp Thr Val Pro Lys Ala Pro Lys His
            420                 425                 430

Leu Lys Ala Gly Asp Thr Ser Lys Gly Gly Ile Ala Lys Val Thr Gln
        435                 440                 445

Ser Asn Leu Lys Ser Gly Ile Thr Thr Thr Pro Val Asp Ser Asp Ile
    450                 455                 460

Gly Ser His Leu Ser Leu Ser Leu Glu Asp Leu Ser Gln Leu Ala Val
465                 470                 475                 480

Ser Ser Pro Leu Glu Thr Thr Thr Gly Gln His Thr Asp Thr Leu Asn
                485                 490                 495

Gln Lys Thr Leu Ala Asp Thr His Leu Thr Glu Glu Thr Leu Lys Val
            500                 505                 510

Thr Ala Ile Pro Glu Pro Ala Asp Gln Lys Thr Ala Thr Pro Thr Val
```

```
        515                 520                 525

Leu Ser Ser Ser His Ser His Arg Gly Lys Pro Ser Ile Phe Tyr Gln
    530                 535                 540

Gln Gly Leu Pro Asp Ser His Leu Thr Glu Glu Ala Leu Lys Val Ser
545                 550                 555                 560

Ala Ala Pro Gly Leu Ala Asp Gln Thr Thr Gly Met Ser Thr Leu Thr
                565                 570                 575

Ser Thr Ser Tyr Ser His Arg Glu Lys Pro Gly Thr Phe Tyr Gln Gln
            580                 585                 590

Glu Leu Pro Glu Ser Asn Leu Thr Glu Glu Pro Leu Glu Val Ser Ala
        595                 600                 605

Ala Pro Gly Pro Val Glu Gln Lys Thr Gly Ile Pro Thr Val Ser Ser
    610                 615                 620

Thr Ser His Ser His Val Glu Asp Leu Leu Phe Phe Tyr Arg Gln Thr
625                 630                 635                 640

Leu Pro Asp Gly His Leu Thr Asp Gln Ala Leu Lys Val Ser Ala Val
                645                 650                 655

Ser Gly Pro Ala Asp Gln Lys Thr Gly Thr Ala Thr Val Leu Ser Thr
            660                 665                 670

Pro His Ser His Arg Glu Lys Pro Gly Ile Phe Tyr Gln Gln Glu Phe
        675                 680                 685

Ala Asp Ser His Gln Thr Glu Glu Thr Leu Thr Lys Val Ser Ala Thr
    690                 695                 700

Pro Gly Pro Ala Asp Gln Lys Thr Glu Ile Pro Ala Val Gln Ser Ser
705                 710                 715                 720

Ser Tyr Ser Gln Arg Glu Lys Pro Ser Ile Leu Tyr Pro Gln Asp Leu
                725                 730                 735

Ala Asp Ser His Leu Pro Glu Glu Gly Leu Lys Val Ser Ala Val Ala
            740                 745                 750
```

```
Gly Pro Ala Asp Gln Lys Thr Gly Leu Pro Thr Val Pro Ser Ser Ala
        755                 760                 765

Tyr Ser His Arg Glu Lys Leu Leu Val Phe Tyr Gln Gln Ala Leu Leu
    770                 775                 780

Asp Ser His Leu Pro Glu Glu Ala Leu Lys Val Ser Ala Val Ser Gly
785                 790                 795                 800

Pro Ala Asp Gly Lys Thr Gly Thr Pro Ala Val Thr Ser Thr Ser Ser
                805                 810                 815

Ala Ser Ser Ser Leu Gly Glu Lys Pro Ser Ala Phe Tyr Gln Gln Thr
            820                 825                 830

Leu Pro Asn Ser His Leu Thr Glu Glu Ala Leu Lys Val Ser Ile Val
        835                 840                 845

Pro Gly Pro Gly Asp Gln Lys Thr Gly Ile Pro Ser Ala Pro Ser Ser
    850                 855                 860

Phe Tyr Ser His Arg Glu Lys Pro Ile Ile Phe Ser Gln Gln Thr Leu
865                 870                 875                 880

Pro Asp Phe Leu Phe Pro Glu Glu Ala Leu Lys Val Ser Ala Val Ser
                885                 890                 895

Val Leu Ala Ala Gln Lys Thr Gly Thr Pro Thr Val Ser Ser Asn Ser
            900                 905                 910

His Ser His Ser Glu Lys Ser Ser Val Phe Tyr Gln Gln Glu Leu Pro
        915                 920                 925

Asp Ser Asp Leu Pro Arg Glu Ser Leu Lys Met Ser Ala Ile Pro Gly
    930                 935                 940

Leu Thr Asp Gln Lys Thr Val Pro Thr Pro Thr Val Pro Ser Gly Ser
945                 950                 955                 960

Phe Ser His Arg Glu Lys Pro Ser Ile Phe Tyr Gln Gln Glu Trp Pro
                965                 970                 975
```

Asp Ser Tyr Ala Thr Glu Lys Ala Leu Lys Val Ser Thr Gly Pro Gly
980 985 990

Pro Ala Asp Gln Lys Thr Glu Ile Pro Ala Val Gln Ser Ser Ser Tyr
995 1000 1005

Pro Gln Arg Glu Lys Pro Ser Val Leu Tyr Pro Gln Val Leu Ser
1010 1015 1020

Asp Ser His Leu Pro Glu Glu Ser Leu Lys Val Ser Ala Phe Pro
1025 1030 1035

Gly Pro Ala Asp Gln Met Thr Asp Thr Pro Ala Val Pro Ser Thr
1040 1045 1050

Phe Tyr Ser Gln Arg Glu Lys Pro Gly Ile Phe Tyr Gln Gln Thr
1055 1060 1065

Leu Pro Glu Ser His Leu Pro Lys Glu Ala Leu Lys Ile Ser Val
1070 1075 1080

Ala Pro Gly Leu Ala Asp Gln Lys Thr Gly Thr Pro Thr Val Thr
1085 1090 1095

Ser Thr Ser Tyr Ser Gln His Arg Glu Lys Pro Ser Ile Phe His
1100 1105 1110

Gln Gln Ala Leu Pro Gly Thr His Ile Pro Glu Glu Ala Gln Lys
1115 1120 1125

Val Ser Ala Val Thr Gly Pro Gly Asn Gln Lys Thr Trp Ile Pro
1130 1135 1140

Arg Val Leu Ser Thr Phe Tyr Ser Gln Arg Glu Lys Pro Gly Ile
1145 1150 1155

Phe Tyr Gln Gln Thr Leu Pro Gly Ser His Ile Pro Glu Glu Ala
1160 1165 1170

Gln Lys Val Ser Pro Val Leu Gly Pro Ala Asp Gln Lys Thr Gly
1175 1180 1185

```
Thr Pro  Thr Pro Thr Ser Ala  Ser Tyr Ser His Thr  Glu Lys Pro
    1190                1195                1200

Gly Ile  Phe Tyr Gln Gln Val  Leu Pro Asp Asn His  Pro Thr Glu
    1205                1210                1215

Glu Ala  Leu Lys Ile Ser Val  Ala Ser Glu Pro Val  Asp Gln Thr
    1220                1225                1230

Thr Gly  Thr Pro Ala Val Thr  Ser Thr Ser Tyr Ser  Gln Tyr Arg
    1235                1240                1245

Glu Lys  Pro Ser Ile Phe Tyr  Gln Gln Ser Leu Pro  Ser Ser His
    1250                1255                1260

Leu Thr  Glu Glu Ala Lys Asn  Val Ser Ala Val Pro  Gly Pro Ala
    1265                1270                1275

Asp Gln  Lys Thr Val Ile Pro  Ile Leu Pro Ser Thr  Phe Tyr Ser
    1280                1285                1290

His Thr  Glu Lys Pro Gly Val  Phe Tyr Gln Gln Val  Leu Pro His
    1295                1300                1305

Ser His  Pro Thr Glu Glu Ala  Leu Lys Ile Ser Val  Ala Ser Glu
    1310                1315                1320

Pro Val  Asp Gln Thr Thr Gly  Thr Pro Thr Val Thr  Ser Thr Ser
    1325                1330                1335

Tyr Ser  Gln His Thr Glu Lys  Pro Ser Ile Phe Tyr  Gln Gln Ser
    1340                1345                1350

Leu Pro  Gly Ser His Leu Thr  Glu Glu Ala Lys Asn  Val Ser Ala
    1355                1360                1365

Val Pro  Gly Pro Gly Asp Arg  Lys Thr Gly Ile Pro  Thr Leu Pro
    1370                1375                1380

Ser Thr  Phe Tyr Ser His Thr  Glu Lys Pro Gly Ser  Phe Tyr Gln
    1385                1390                1395
```

```
Gln Val  Leu Pro His Ser His  Leu Pro Glu Glu Ala  Leu Glu Val
    1400                1405                1410

Ser Val  Ala Pro Gly Pro Val  Asp Gln Thr Ile Gly  Thr Pro Thr
    1415                1420                1425

Val Thr  Ser Pro Ser Ser Ser  Phe Gly Glu Lys Pro  Ile Val Ile
    1430                1435                1440

Tyr Lys  Gln Ala Phe Pro Glu  Gly His Leu Pro Glu  Glu Ser Leu
    1445                1450                1455

Lys Val  Ser Val Ala Pro Gly  Pro Val Gly Gln Thr  Thr Gly Ala
    1460                1465                1470

Pro Thr  Ile Thr Ser Pro Ser  Tyr Ser Gln His Arg  Ala Lys Ser
    1475                1480                1485

Gly Ser  Phe Tyr Gln Leu Ala  Leu Leu Gly Ser Gln  Ile Pro Glu
    1490                1495                1500

Glu Ala  Leu Arg Val Ser Ser  Ala Pro Gly Pro Ala  Asp Gln Thr
    1505                1510                1515

Thr Gly  Ile Pro Thr Ile Thr  Ser Thr Ser Tyr Ser  Phe Gly Glu
    1520                1525                1530

Lys Pro  Ile Val Asn Tyr Lys  Gln Ala Phe Pro Asp  Gly His Leu
    1535                1540                1545

Pro Glu  Glu Ala Leu Lys Val  Ser Ile Val Ser Gly  Pro Thr Glu
    1550                1555                1560

Lys Lys  Thr Asp Ile Pro Ala  Gly Pro Leu Gly Ser  Ser Ala Leu
    1565                1570                1575

Gly Glu  Lys Pro Ile Thr Phe  Tyr Arg Gln Ala Leu  Leu Asp Ser
    1580                1585                1590

Pro Leu  Asn Lys Glu Val Val  Lys Val Ser Ala Ala  Pro Gly Pro
    1595                1600                1605

Ala Asp  Gln Lys Thr Glu Thr  Leu Pro Val His Ser  Thr Ser Tyr
```

1610 1615 1620

Ser Asn Arg Gly Lys Pro Val Ile Phe Tyr Gln Gln Thr Leu Ser
1625 1630 1635

Asp Ser His Leu Pro Glu Glu Ala Leu Lys Val Pro Pro Val Pro
1640 1645 1650

Gly Pro Asp Ala Gln Lys Thr Glu Thr Pro Ser Val Ser Ser Ser
1655 1660 1665

Leu Tyr Ser Tyr Arg Glu Lys Pro Ile Val Phe Tyr Gln Gln Ala
1670 1675 1680

Leu Pro Asp Ser Glu Leu Thr Gln Glu Ala Leu Lys Val Ser Ala
1685 1690 1695

Val Pro Gln Pro Ala Asp Gln Lys Thr Gly Leu Ser Thr Val Thr
1700 1705 1710

Ser Ser Phe Tyr Ser His Thr Glu Lys Pro Asn Ile Ser Tyr Gln
1715 1720 1725

Gln Glu Leu Pro Asp Ser His Leu Thr Glu Glu Ala Leu Lys Val
1730 1735 1740

Ser Asn Val Pro Gly Pro Ala Asp Gln Lys Thr Gly Val Ser Thr
1745 1750 1755

Val Thr Ser Thr Ser Tyr Ser His Arg Glu Lys Pro Ile Val Ser
1760 1765 1770

Tyr Gln Arg Glu Leu Pro His Phe Thr Glu Ala Gly Leu Lys Ile
1775 1780 1785

Leu Arg Val Pro Gly Pro Ala Asp Gln Lys Thr Gly Ile Asn Ile
1790 1795 1800

Leu Pro Ser Asn Ser Tyr Pro Gln Arg Glu His Ser Val Ile Ser
1805 1810 1815

Tyr Glu Gln Glu Leu Pro Asp Leu Thr Glu Val Thr Leu Lys Ala
1820 1825 1830

```
Ile Gly  Val Pro Gly Pro Ala  Asp Gln Lys Thr Gly  Ile Gln Ile
    1835                1840                1845

Ala Ser  Ser Ser Ser Tyr Ser  Asn Arg Glu Lys Ala  Ser Ile Phe
    1850                1855                1860

His Gln  Gln Glu Leu Pro Asp  Val Thr Glu Glu Ala  Leu Asn Val
    1865                1870                1875

Phe Val  Val Pro Gly Gln Gly  Asp Arg Lys Thr Glu  Ile Pro Thr
    1880                1885                1890

Val Pro  Leu Ser Tyr Tyr Ser  Arg Arg Glu Lys Pro  Ser Val Ile
    1895                1900                1905

Ser Gln  Gln Glu Leu Pro Asp  Ser His Leu Thr Glu  Glu Ala Leu
    1910                1915                1920

Lys Val  Ser Pro Val Ser Ile  Pro Ala Glu Gln Lys  Thr Gly Ile
    1925                1930                1935

Pro Ile  Gly Leu Ser Ser Ser  Tyr Ser His Ser His  Lys Glu Lys
    1940                1945                1950

Leu Lys  Ile Ser Thr Val His  Ile Pro Asp Asp Gln  Lys Thr Glu
    1955                1960                1965

Phe Pro  Ala Ala Thr Leu Ser  Ser Tyr Ser Gln Ile  Glu Lys Pro
    1970                1975                1980

Lys Ile  Ser Thr Val Ile Gly  Pro Asn Asp Gln Lys  Thr Pro Ser
    1985                1990                1995

Gln Thr  Ala Phe His Ser Ser  Tyr Ser Gln Thr Val  Lys Pro Asn
    2000                2005                2010

Ile Leu  Phe Gln Gln Gln Leu  Pro Asp Arg Asp Gln  Ser Lys Gly
    2015                2020                2025

Ile Leu  Lys Ile Ser Ala Val  Pro Glu Leu Thr Asp  Val Asn Thr
    2030                2035                2040
```

```
Gly Lys  Pro Val Ser Leu Ser  Ser Ser Tyr Phe His  Arg Glu Lys
     2045                2050                2055

Ser Asn  Ile Phe Ser Pro Gln  Glu Leu Pro Gly Ser  His Val Thr
     2060                2065                2070

Glu Asp  Val Leu Lys Val Ser  Thr Ile Pro Gly Pro  Ala Gly Gln
     2075                2080                2085

Lys Thr  Val Leu Pro Thr Ala  Leu Pro Ser Ser Phe  Ser His Arg
     2090                2095                2100

Glu Lys  Pro Asp Ile Phe Tyr  Gln Lys Asp Leu Pro  Asp Arg His
     2105                2110                2115

Leu Thr  Glu Asp Ala Leu Lys  Ile Ser Ser Ala Leu  Gly Gln Ala
     2120                2125                2130

Asp Gln  Ile Thr Gly Leu Gln  Thr Val Pro Ser Gly  Thr Tyr Ser
     2135                2140                2145

His Gly  Glu Asn His Lys Leu  Val Ser Glu His Val  Gln Arg Leu
     2150                2155                2160

Ile Asp  Asn Leu Asn Ser Ser  Asp Ser Ser Val Ser  Ser Asn Asn
     2165                2170                2175

Val Leu  Leu Asn Ser Gln Ala  Asp Asp Arg Val Val  Ile Asn Lys
     2180                2185                2190

Pro Glu  Ser Ala Gly Phe Arg  Asp Val Gly Ser Glu  Glu Ile Gln
     2195                2200                2205

Asp Ala  Glu Asn Ser Ala Lys  Thr Leu Lys Glu Ile  Arg Thr Leu
     2210                2215                2220

Leu Met  Glu Ala Glu Asn Met  Ala Leu Lys Arg Cys  Asn Phe Pro
     2225                2230                2235

Ala Pro  Leu Ala Arg Phe Arg  Asp Ile Ser Asp Ile  Ser Phe Ile
     2240                2245                2250
```

Gln Ser Lys Lys Val Val Cys Phe Lys Glu Pro Ser Ser Thr Gly
2255 2260 2265

Val Ser Asn Gly Asp Leu Leu His Arg Gln Pro Phe Thr Glu Glu
2270 2275 2280

Ser Pro Ser Ser Arg Cys Ile Gln Lys Asp Ile Gly Thr Gln Thr
2285 2290 2295

Asn Leu Lys Cys Arg Arg Gly Ile Glu Asn Trp Glu Phe Ile Ser
2300 2305 2310

Ser Thr Thr Val Arg Ser Pro Leu Gln Glu Ala Glu Ser Lys Val
2315 2320 2325

Ser Met Ala Leu Glu Glu Thr Leu Arg Gln Tyr Gln Ala Ala Lys
2330 2335 2340

Ser Val Met Arg Ser Glu Pro Glu Gly Cys Ser Gly Thr Ile Gly
2345 2350 2355

Asn Lys Ile Ile Ile Pro Met Met Thr Val Ile Lys Ser Asp Ser
2360 2365 2370

Ser Ser Asp Ala Ser Asp Gly Asn Gly Ser Cys Ser Trp Asp Ser
2375 2380 2385

Asn Leu Pro Glu Ser Leu Glu Ser Val Ser Asp Val Leu Leu Asn
2390 2395 2400

Phe Phe Pro Tyr Val Ser Pro Lys Thr Ser Ile Thr Asp Ser Arg
2405 2410 2415

Glu Glu Glu Gly Val Ser Glu Ser Glu Asp Gly Gly Gly Ser Ser
2420 2425 2430

Val Asp Ser Leu Ala Ala His Val Lys Asn Leu Leu Gln Cys Glu
2435 2440 2445

Ser Ser Leu Asn His Ala Lys Glu Ile Leu Arg Asn Ala Glu Glu
2450 2455 2460

Glu Glu Ser Arg Val Arg Ala His Ala Trp Asn Met Lys Phe Asn

2465 2470 2475

Leu Ala His Asp Cys Gly Tyr Ser Ile Ser Glu Leu Asn Glu Asp
2480 2485 2490

Asp Arg Arg Lys Val Glu Glu Ile Lys Ala Glu Leu Phe Gly His
2495 2500 2505

Gly Arg Thr Thr Asp Leu Ser Lys Gly Leu Gln Ser Pro Arg Gly
2510 2515 2520

Met Gly Cys Lys Pro Glu Ala Val Cys Ser His Ile Ile Ile Glu
2525 2530 2535

Ser His Glu Lys Gly Cys Phe Arg Thr Leu Thr Ser Glu His Pro
2540 2545 2550

Gln Leu Asp Arg His Pro Cys Ala Phe Arg Ser Ala Gly Pro Ser
2555 2560 2565

Glu Met Thr Arg Gly Arg Gln Asn Pro Ser Ser Cys Arg Ala Lys
2570 2575 2580

His Val Asn Leu Ser Ala Ser Leu Asp Gln Asn Asn Ser His Phe
2585 2590 2595

Lys Val Trp Asn Ser Leu Gln Leu Lys Ser His Ser Pro Phe Gln
2600 2605 2610

Asn Phe Ile Pro Asp Glu Phe Lys Ile Ser Lys Gly Leu Arg Met
2615 2620 2625

Pro Phe Asp Glu Lys Met Asp Pro Trp Leu Ser Glu Leu Val Glu
2630 2635 2640

Pro Ala Phe Val Pro Pro Lys Glu Val Asp Phe His Ser Ser Ser
2645 2650 2655

Gln Met Pro Ser Pro Glu Pro Met Lys Lys Phe Thr Thr Ser Ile
2660 2665 2670

Thr Phe Ser Ser His Arg His Ser Lys Cys Ile Ser Asn Ser Ser
2675 2680 2685

```
Val Val  Lys Val Gly Val Thr  Glu Gly Ser Gln Cys  Thr Gly Ala
    2690                2695                2700

Ser Val  Gly Val Phe Asn Ser  His Phe Thr Glu Glu  Gln Asn Pro
    2705                2710                2715

Pro Arg  Asp Leu Lys Gln Lys  Thr Ser Ser Pro Ser  Ser Phe Lys
    2720                2725                2730

Met His  Ser Asn Ser Gln Asp  Lys Glu Val Thr Ile  Leu Ala Glu
    2735                2740                2745

Gly Arg  Arg Gln Ser Gln Lys  Leu Pro Val Asp Phe  Glu Arg Ser
    2750                2755                2760

Phe Gln  Glu Glu Lys Pro Leu  Glu Arg Ser Asp Phe  Thr Gly Ser
    2765                2770                2775

His Ser  Glu Pro Ser Thr Arg  Ala Asn Cys Ser Asn  Phe Lys Glu
    2780                2785                2790

Ile Gln  Ile Ser Asp Asn His  Thr Leu Ile Ser Met  Gly Arg Pro
    2795                2800                2805

Ser Ser  Thr Leu Gly Val Asn  Arg Ser Ser Ser Arg  Leu Gly Val
    2810                2815                2820

Lys Glu  Lys Asn Val Thr Ile  Thr Pro Asp Leu Pro  Ser Cys Ile
    2825                2830                2835

Phe Leu  Glu Gln Arg Glu Leu  Phe Glu Gln Ser Lys  Ala Pro Arg
    2840                2845                2850

Ala Asp  Asp His Val Arg Lys  His His Ser Pro Ser  Pro Gln His
    2855                2860                2865

Gln Asp  Tyr Val Ala Pro Asp  Leu Pro Ser Cys Ile  Phe Leu Glu
    2870                2875                2880

Gln Arg  Glu Leu Phe Glu Gln  Cys Lys Ala Pro Tyr  Val Asp His
    2885                2890                2895
```

```
Gln Met  Arg Glu Asn His Ser  Pro Leu Pro Gln Gly  Gln Asp Ser
    2900                2905                2910

Ile Ala  Ser Asp Leu Pro Ser  Pro Ile Ser Leu Glu  Gln Cys Gln
    2915                2920                2925

Ser Lys  Ala Pro Gly Val Asp  Asp Gln Met Asn Lys  His His Phe
    2930                2935                2940

Pro Leu  Pro Gln Gly Gln Asp  Cys Val Val Glu Lys  Asn Asn Gln
    2945                2950                2955

His Lys  Pro Lys Ser His Ile  Ser Asn Ile Asn Val  Glu Ala Lys
    2960                2965                2970

Phe Asn  Thr Val Val Ser Gln  Ser Ala Pro Asn His  Cys Thr Leu
    2975                2980                2985

Ala Ala  Ser Ala Ser Thr Pro  Pro Ser Asn Arg Lys  Ala Leu Ser
    2990                2995                3000

Cys Val  His Ile Thr Leu Cys  Pro Lys Thr Ser Ser  Lys Leu Asp
    3005                3010                3015

Ser Gly  Thr Leu Asp Glu Arg  Phe His Ser Leu Asp  Ala Ala Ser
    3020                3025                3030

Lys Ala  Arg Met Asn Ser Glu  Phe Asn Phe Asp Leu  His Thr Val
    3035                3040                3045

Ser Ser  Arg Ser Leu Glu Pro  Thr Ser Lys Leu Leu  Thr Ser Lys
    3050                3055                3060

Pro Val  Ala Gln Asp Gln Glu  Ser Leu Gly Phe Leu  Gly Pro Lys
    3065                3070                3075

Ser Ser  Leu Asp Phe Gln Val  Val Gln Pro Ser Leu  Pro Asp Ser
    3080                3085                3090

Asn Thr  Ile Thr Gln Asp Leu  Lys Thr Ile Pro Ser  Gln Asn Ser
    3095                3100                3105
```

```
Gln Ile  Val Thr Ser Arg Gln  Ile Gln Val Asn Ile  Ser Asp Phe
    3110                3115                3120

Glu Gly  His Ser Asn Pro Glu  Gly Thr Pro Val Phe  Ala Asp Arg
    3125                3130                3135

Leu Pro  Glu Lys Met Lys Thr  Pro Leu Ser Ala Phe  Ser Glu Lys
    3140                3145                3150

Leu Ser  Ser Asp Ala Val Thr  Gln Ile Thr Thr Glu  Ser Pro Glu
    3155                3160                3165

Lys Thr  Leu Phe Ser Ser Glu  Ile Phe Ile Asn Ala  Glu Asp Arg
    3170                3175                3180

Gly His  Glu Ile Ile Glu Pro  Gly Asn Gln Lys Leu  Arg Lys Ala
    3185                3190                3195

Pro Val  Lys Phe Ala Ser Ser  Ser Ser Val Gln Gln  Val Thr Phe
    3200                3205                3210

Ser Arg  Gly Thr Asp Gly Gln  Pro Leu Leu Leu Pro  Tyr Lys Pro
    3215                3220                3225

Ser Gly  Ser Thr Lys Met Tyr  Tyr Val Pro Gln Leu  Arg Gln Ile
    3230                3235                3240

Pro Pro  Ser Pro Asp Ser Lys  Ser Asp Thr Thr Val  Glu Ser Ser
    3245                3250                3255

His Ser  Gly Ser Asn Asp Ala  Ile Ala Pro Asp Phe  Pro Ala Gln
    3260                3265                3270

Val Leu  Gly Thr Arg Asp Asp  Asp Leu Ser Ala Thr  Val Asn Ile
    3275                3280                3285

Lys His  Lys Glu Gly Ile Tyr  Ser Lys Arg Val Val  Thr Lys Ala
    3290                3295                3300

Ser Leu  Pro Val Gly Glu Lys  Pro Leu Gln Asn Glu  Asn Ala Asp
    3305                3310                3315

Ala Ser  Val Gln Val Leu Ile  Thr Gly Asp Glu Asn  Leu Ser Asp
```

3320 3325 3330

Lys Lys Gln Gln Glu Ile His Ser Thr Arg Ala Val Thr Glu Ala
3335 3340 3345

Ala Gln Ala Lys Glu Lys Glu Ser Leu Gln Lys Asp Thr Ala Asp
3350 3355 3360

Ser Ser Ala Ala Ala Ala Ala Glu His Ser Ala Gln Val Gly Asp
3365 3370 3375

Pro Glu Met Lys Asn Leu Pro Asp Thr Lys Ala Ile Thr Gln Lys
3380 3385 3390

Glu Glu Ile His Arg Lys Lys Thr Val Pro Glu Glu Ala Trp Pro
3395 3400 3405

Asn Asn Lys Glu Ser Leu Gln Ile Asn Ile Glu Glu Ser Glu Cys
3410 3415 3420

His Ser Glu Phe Glu Asn Thr Thr Arg Ser Val Phe Arg Ser Ala
3425 3430 3435

Lys Phe Tyr Ile His His Pro Val His Leu Pro Ser Asp Gln Asp
3440 3445 3450

Ile Cys His Glu Ser Leu Gly Lys Ser Val Phe Met Arg His Ser
3455 3460 3465

Trp Lys Asp Phe Phe Gln His His Pro Asp Lys His Arg Glu His
3470 3475 3480

Met Cys Leu Pro Leu Pro Tyr Gln Asn Met Asp Lys Thr Lys Thr
3485 3490 3495

Asp Tyr Thr Arg Ile Lys Ser Leu Ser Ile Asn Val Asn Leu Gly
3500 3505 3510

Asn Lys Glu Val Met Asp Thr Thr Lys Ser Gln Val Arg Asp Tyr
3515 3520 3525

Pro Lys His Asn Gly Gln Ile Ser Asp Pro Gln Arg Asp Gln Lys
3530 3535 3540

```
Val Thr  Pro Glu Gln Thr Thr  Gln His Thr Val Ser  Leu Asn Glu
    3545                3550                3555

Leu Trp  Asn Lys Tyr Arg Glu  Arg Gln Arg Gln Gln  Arg Gln Pro
    3560                3565                3570

Glu Leu  Gly Asp Arg Lys Glu  Leu Ser Leu Val Asp  Arg Leu Asp
    3575                3580                3585

Arg Leu  Ala Lys Ile Leu Gln  Asn Pro Ile Thr His  Ser Leu Gln
    3590                3595                3600

Val Ser  Glu Ser Thr His Asp  Asp Ser Arg Gly Glu  Arg Ser Val
    3605                3610                3615

Lys Glu  Trp Ser Gly Arg Gln  Gln Gln Arg Asn Lys  Leu Gln Lys
    3620                3625                3630

Lys Lys  Arg Phe Lys Ser Leu  Glu Lys Ser His Lys  Asn Thr Gly
    3635                3640                3645

Glu Leu  Lys Lys Ser Lys Val  Leu Ser His His Arg  Ala Gly Arg
    3650                3655                3660

Ser Asn  Gln Ile Lys Ile Glu  Gln Ile Lys Phe Asp  Lys Tyr Ile
    3665                3670                3675

Leu Ser  Lys Gln Pro Gly Phe  Asn Tyr Ile Ser Asn  Thr Ser Ser
    3680                3685                3690

Asp Cys  Arg Pro Ser Glu Glu  Ser Glu Leu Leu Thr  Asp Thr Thr
    3695                3700                3705

Thr Asn  Ile Leu Ser Gly Thr  Thr Ser Thr Val Glu  Ser Asp Ile
    3710                3715                3720

Leu Thr  Gln Thr Asp Arg Glu  Val Ala Leu His Glu  Arg Ser Ser
    3725                3730                3735

Ser Val  Ser Thr Ile Asp Thr  Ala Arg Leu Ile Gln  Ala Phe Gly
    3740                3745                3750
```

```
His Glu  Arg Val Cys Leu Ser  Pro Arg Arg Ile Lys  Leu Tyr Ser
    3755                 3760                 3765

Ser Ile  Thr Asn Gln Gln Arg  Arg Tyr Leu Glu Lys  Arg Ser Lys
    3770                 3775                 3780

His Ser  Lys Lys Val Leu Asn  Thr Gly His Pro Leu  Val Thr Ser
    3785                 3790                 3795

Glu His  Thr Arg Arg Arg His  Ile Gln Val Ala Asn  His Val Ile
    3800                 3805                 3810

Ser Ser  Asp Ser Ile Ser Ser  Ser Ala Ser Ser Phe  Leu Ser Ser
    3815                 3820                 3825

Asn Ser  Thr Phe Cys Asn Lys  Gln Asn Val His Met  Leu Asn Lys
    3830                 3835                 3840

Gly Ile  Gln Ala Gly Asn Leu  Glu Ile Val Asn Gly  Ala Lys Lys
    3845                 3850                 3855

His Thr  Arg Asp Val Gly Ile  Thr Phe Pro Thr Pro  Ser Ser Ser
    3860                 3865                 3870

Glu Ala  Lys Leu Glu Glu Asn  Ser Asp Val Thr Ser  Trp Ser Glu
    3875                 3880                 3885

Glu Lys  Arg Glu Glu Lys Met  Leu Phe Thr Gly Tyr  Pro Glu Asp
    3890                 3895                 3900

Arg Lys  Leu Lys Lys Asn Lys  Lys Asn Ser His Glu  Gly Val Ser
    3905                 3910                 3915

Trp Phe  Val Pro Val Glu Asn  Val Glu Ser Arg Ser  Lys Lys Glu
    3920                 3925                 3930

Asn Val  Pro Asn Thr Cys Gly  Pro Gly Ile Ser Trp  Phe Glu Pro
    3935                 3940                 3945

Ile Thr  Lys Thr Arg Pro Trp  Arg Glu Pro Leu Arg  Glu Gln Asn
    3950                 3955                 3960
```

```
Cys Gln  Gly Gln His Leu Asp  Gly Arg Gly Tyr Leu  Ala Gly Pro
    3965                 3970                 3975

Gly Arg  Glu Ala Gly Arg Asp  Leu Leu Arg Pro Phe  Val Arg Ala
    3980                 3985                 3990

Thr Leu  Gln Glu Ser Leu Gln  Phe His Arg Pro Asp  Phe Ile Ser
    3995                 4000                 4005

Arg Ser  Gly Glu Arg Ile Lys  Arg Leu Lys Leu Ile  Val Gln Glu
    4010                 4015                 4020

Arg Lys  Leu Gln Ser Met Leu  Gln Thr Glu Arg Asp  Ala Leu Phe
    4025                 4030                 4035

Asn Ile  Asp Arg Glu Arg Gln  Gly His Gln Asn Arg  Met Cys Pro
    4040                 4045                 4050

Leu Pro  Lys Arg Val Phe Leu  Ala Ile Gln Lys Asn  Lys Pro Ile
    4055                 4060                 4065

Ser Lys  Lys Glu Met Ile Gln  Arg Ser Lys Arg Ile  Tyr Glu Gln
    4070                 4075                 4080

Leu Pro  Glu Val Gln Lys Lys  Arg Glu Glu Glu Lys  Arg Lys Ser
    4085                 4090                 4095

Glu Tyr  Lys Ser Tyr Arg Leu  Arg Ala Gln Leu Tyr  Lys Lys Arg
    4100                 4105                 4110

Val Thr  Asn Gln Leu Leu Gly  Arg Lys Val Pro Trp  Asp
    4115                 4120                 4125


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Ala Ala Ala Asn Val Asp Asp Val Val Val Val Glu Glu Val Glu Glu
35 40 45

Glu Ala Gly Arg Glu Leu Asp Ser Asp Ser His Tyr Gly Pro Gln His
50 55 60

Leu Glu Ser Ile Asp Asp Glu Glu Asp Glu Glu Ala Lys Ala Trp Leu
65 70 75 80

Gln Ala His Pro Gly Arg Ile Leu Pro Pro Leu Ser Pro Pro Gln His
85 90 95

Arg Tyr Ser Glu Gly Glu Arg Thr Ser Leu Glu Lys Ile Val Pro Leu
100 105 110

Thr Cys His Val Trp Gln Gln Ile Val Tyr Gln Gly Asn Ser Arg Thr
115 120 125

Gln Ile Ser Asp Thr Asn Val Val Cys Leu Glu Thr Thr Ala Gln Arg
130 135 140

Gly Ser Gly Asp Asp Gln Lys Thr Glu Ser Trp His Cys Leu Pro Gln
145 150 155 160

Glu Met Asp Ser Ser Gln Thr Leu Asp Thr Ser Gln Thr Arg Phe Asn
165 170 175

Val Arg Thr Glu Asp Thr Glu Val Thr Asp Phe Pro Ser Leu Glu Glu
180 185 190

```
Gly Ile Leu Thr Gln Ser Glu Asn Gln Val Lys Glu Pro Asn Arg Asp
        195                 200                 205

Leu Phe Cys Ser Pro Leu Leu Val Ile Gln Asp Ser Phe Ala Ser Pro
    210                 215                 220

Asp Leu Pro Leu Leu Thr Cys Leu Thr Gln Asp Gln Glu Phe Ala Pro
225                 230                 235                 240

Asp Ser Leu Phe His Gln Ser Glu Leu Ser Phe Ala Pro Leu Arg Gly
                245                 250                 255

Ile Pro Asp Lys Ser Glu Asp Thr Glu Trp Ser Ser Arg Pro Ser Glu
            260                 265                 270

Val Ser Glu Ala Leu Phe Gln Ala Thr Ala Glu Val Ala Ser Asp Leu
        275                 280                 285

Ala Ser Ser Arg Phe Ser Val Ser Gln His Pro Leu Ile Gly Ser Thr
    290                 295                 300

Ala Val Gly Ser Gln Cys Pro Phe Leu Pro Ser Glu Gln Gly Asn Asn
305                 310                 315                 320

Glu Glu Thr Ile Ser Ser Val Asp Glu Leu Lys Ile Pro Lys Asp Cys
                325                 330                 335

Asp Arg Tyr Asp Asp Leu Cys Ser Tyr Met Ser Trp Lys Thr Arg Lys
            340                 345                 350

Asp Thr Gln Trp Pro Glu Asn Asn Leu Ala Asp Lys Asp Gln Val Ser
        355                 360                 365

Val Ala Thr Ser Phe Asp Ile Thr Asp Glu Asn Ile Ala Thr Lys Arg
    370                 375                 380

Ser Asp His Phe Asp Ala Ala Arg Ser Tyr Gly Gln Tyr Trp Thr Gln
385                 390                 395                 400

Glu Asp Ser Ser Lys Gln Ala Glu Thr Tyr Leu Thr Lys Gly Leu Gln
                405                 410                 415
```

```
Gly Lys Val Glu Ser Asp Val Ile Thr Leu Asp Gly Leu Asn Glu Asn
            420                 425                 430

Ala Val Val Cys Ser Glu Arg Val Ala Glu Leu Gln Arg Lys Pro Thr
        435                 440                 445

Arg Glu Ser Glu Tyr His Ser Ser Asp Leu Arg Met Leu Arg Met Ser
    450                 455                 460

Pro Asp Thr Val Pro Lys Ala Pro Lys His Leu Lys Ala Gly Asp Thr
465                 470                 475                 480

Ser Lys Gly Gly Ile Ala Lys Val Thr Gln Ser Asn Leu Lys Ser Gly
                485                 490                 495

Ile Thr Thr Thr Pro Val Asp Ser Asp Ile Gly Ser His Leu Ser Leu
            500                 505                 510

Ser Leu Glu Asp Leu Ser Gln Leu Ala Val Ser Ser Pro Leu Glu Thr
        515                 520                 525

Thr Thr Gly Gln His Thr Asp Thr Leu Asn Gln Lys Thr Leu Ala Asp
    530                 535                 540

Thr His Leu Thr Glu Glu Thr Leu Lys Val Thr Ala Ile Pro Glu Pro
545                 550                 555                 560

Ala Asp Gln Lys Thr Ala Thr Pro Thr Val Leu Ser Ser Ser His Ser
                565                 570                 575

His Arg Gly Lys Pro Ser Ile Phe Tyr Gln Gln Gly Leu Pro Asp Ser
            580                 585                 590

His Leu Thr Glu Glu Ala Leu Lys Val Ser Ala Ala Pro Gly Leu Ala
        595                 600                 605

Asp Gln Thr Thr Gly Met Ser Thr Leu Thr Ser Thr Ser Tyr Ser His
    610                 615                 620

Arg Glu Lys Pro Gly Thr Phe Tyr Gln Gln Glu Leu Pro Glu Ser Asn
625                 630                 635                 640

Leu Thr Glu Glu Pro Leu Glu Val Ser Ala Ala Pro Gly Pro Val Glu
```

645 650 655

Gln Lys Thr Gly Ile Pro Thr Val Ser Ser Thr Ser His Ser His Val
660 665 670

Glu Asp Leu Leu Phe Phe Tyr Arg Gln Thr Leu Pro Asp Gly His Leu
675 680 685

Thr Asp Gln Ala Leu Lys Val Ser Ala Val Ser Gly Pro Ala Asp Gln
690 695 700

Lys Thr Gly Thr Ala Thr Val Leu Ser Thr Pro His Ser His Arg Glu
705 710 715 720

Lys Pro Gly Ile Phe Tyr Gln Gln Glu Phe Ala Asp Ser His Gln Thr
725 730 735

Glu Glu Thr Leu Thr Lys Val Ser Ala Thr Pro Gly Pro Ala Asp Gln
740 745 750

Lys Thr Glu Ile Pro Ala Val Gln Ser Ser Ser Tyr Ser Gln Arg Glu
755 760 765

Lys Pro Ser Ile Leu Tyr Pro Gln Asp Leu Ala Asp Ser His Leu Pro
770 775 780

Glu Glu Gly Leu Lys Val Ser Ala Val Ala Gly Pro Ala Asp Gln Lys
785 790 795 800

Thr Gly Leu Pro Thr Val Pro Ser Ser Ala Tyr Ser His Arg Glu Lys
805 810 815

Leu Leu Val Phe Tyr Gln Gln Ala Leu Leu Asp Ser His Leu Pro Glu
820 825 830

Glu Ala Leu Lys Val Ser Ala Val Ser Gly Pro Ala Asp Gly Lys Thr
835 840 845

Gly Thr Pro Ala Val Thr Ser Thr Ser Ser Ala Ser Ser Ser Leu Gly
850 855 860

Glu Lys Pro Ser Ala Phe Tyr Gln Gln Thr Leu Pro Asn Ser His Leu
865 870 875 880

Thr Glu Glu Ala Leu Lys Val Ser Ile Val Pro Gly Pro Gly Asp Gln
885 890 895

Lys Thr Gly Ile Pro Ser Ala Pro Ser Ser Phe Tyr Ser His Arg Glu
900 905 910

Lys Pro Ile Ile Phe Ser Gln Gln Thr Leu Pro Asp Phe Leu Phe Pro
915 920 925

Glu Glu Ala Leu Lys Val Ser Ala Val Ser Val Leu Ala Ala Gln Lys
930 935 940

Thr Gly Thr Pro Thr Val Ser Ser Asn Ser His Ser His Ser Glu Lys
945 950 955 960

Ser Ser Val Phe Tyr Gln Gln Glu Leu Pro Asp Ser Asp Leu Pro Arg
965 970 975

Glu Ser Leu Lys Met Ser Ala Ile Pro Gly Leu Thr Asp Gln Lys Thr
980 985 990

Val Pro Thr Pro Thr Val Pro Ser Gly Ser Phe Ser His Arg Glu
Lys
995 1000 1005

Pro Ser Ile Phe Tyr Gln Gln Glu Trp Pro Asp Ser Tyr Ala Thr
1010 1015 1020

Glu Lys Ala Leu Lys Val Ser Thr Gly Pro Gly Pro Ala Asp Gln
1025 1030 1035

Lys Thr Glu Ile Pro Ala Val Gln Ser Ser Ser Tyr Pro Gln Arg
1040 1045 1050

Glu Lys Pro Ser Val Leu Tyr Pro Gln Val Leu Ser Asp Ser His
1055 1060 1065

Leu Pro Glu Glu Ser Leu Lys Val Ser Ala Phe Pro Gly Pro Ala
1070 1075 1080

Asp Gln Met Thr Asp Thr Pro Ala Val Pro Ser Thr Phe Tyr Ser
1085 1090 1095

```
Gln Arg  Glu Lys Pro Gly Ile  Phe Tyr Gln Gln Thr  Leu Pro Glu
    1100                1105                1110

Ser His  Leu Pro Lys Glu Ala  Leu Lys Ile Ser Val  Ala Pro Gly
    1115                1120                1125

Leu Ala  Asp Gln Lys Thr Gly  Thr Pro Thr Val Thr  Ser Thr Ser
    1130                1135                1140

Tyr Ser  Gln His Arg Glu Lys  Pro Ser Ile Phe His  Gln Gln Ala
    1145                1150                1155

Leu Pro  Gly Thr His Ile Pro  Glu Glu Ala Gln Lys  Val Ser Ala
    1160                1165                1170

Val Thr  Gly Pro Gly Asn Gln  Lys Thr Trp Ile Pro  Arg Val Leu
    1175                1180                1185

Ser Thr  Phe Tyr Ser Gln Arg  Glu Lys Pro Gly Ile  Phe Tyr Gln
    1190                1195                1200

Gln Thr  Leu Pro Gly Ser His  Ile Pro Glu Glu Ala  Gln Lys Val
    1205                1210                1215

Ser Pro  Val Leu Gly Pro Ala  Asp Gln Lys Thr Gly  Thr Pro Thr
    1220                1225                1230

Pro Thr  Ser Ala Ser Tyr Ser  His Thr Glu Lys Pro  Gly Ile Phe
    1235                1240                1245

Tyr Gln  Gln Val Leu Pro Asp  Asn His Pro Thr Glu  Glu Ala Leu
    1250                1255                1260

Lys Ile  Ser Val Ala Ser Glu  Pro Val Asp Gln Thr  Thr Gly Thr
    1265                1270                1275

Pro Ala  Val Thr Ser Thr Ser  Tyr Ser Gln Tyr Arg  Glu Lys Pro
    1280                1285                1290

Ser Ile  Phe Tyr Gln Gln Ser  Leu Pro Ser Ser His  Leu Thr Glu
    1295                1300                1305
```

```
Glu Ala  Lys Asn Val Ser Ala  Val Pro Gly Pro Ala  Asp Gln Lys
    1310                1315                1320

Thr Val  Ile Pro Ile Leu Pro  Ser Thr Phe Tyr Ser  His Thr Glu
    1325                1330                1335

Lys Pro  Gly Val Phe Tyr Gln  Gln Val Leu Pro His  Ser His Pro
    1340                1345                1350

Thr Glu  Glu Ala Leu Lys Ile  Ser Val Ala Ser Glu  Pro Val Asp
    1355                1360                1365

Gln Thr  Thr Gly Thr Pro Thr  Val Thr Ser Thr Ser  Tyr Ser Gln
    1370                1375                1380

His Thr  Glu Lys Pro Ser Ile  Phe Tyr Gln Gln Ser  Leu Pro Gly
    1385                1390                1395

Ser His  Leu Thr Glu Glu Ala  Lys Asn Val Ser Ala  Val Pro Gly
    1400                1405                1410

Pro Gly  Asp Arg Lys Thr Gly  Ile Pro Thr Leu Pro  Ser Thr Phe
    1415                1420                1425

Tyr Ser  His Thr Glu Lys Pro  Gly Ser Phe Tyr Gln  Gln Val Leu
    1430                1435                1440

Pro His  Ser His Leu Pro Glu  Glu Ala Leu Glu Val  Ser Val Ala
    1445                1450                1455

Pro Gly  Pro Val Asp Gln Thr  Ile Gly Thr Pro Thr  Val Thr Ser
    1460                1465                1470

Pro Ser  Ser Ser Phe Gly Glu  Lys Pro Ile Val Ile  Tyr Lys Gln
    1475                1480                1485

Ala Phe  Pro Glu Gly His Leu  Pro Glu Glu Ser Leu  Lys Val Ser
    1490                1495                1500

Val Ala  Pro Gly Pro Val Gly  Gln Thr Thr Gly Ala  Pro Thr Ile
    1505                1510                1515
```

```
Thr Ser  Pro Ser Tyr Ser Gln  His Arg Ala Lys Ser  Gly Ser Phe
    1520                1525                1530

Tyr Gln  Leu Ala Leu Leu Gly  Ser Gln Ile Pro Glu  Glu Ala Leu
    1535                1540                1545

Arg Val  Ser Ser Ala Pro Gly  Pro Ala Asp Gln Thr  Thr Gly Ile
    1550                1555                1560

Pro Thr  Ile Thr Ser Thr Ser  Tyr Ser Phe Gly Glu  Lys Pro Ile
    1565                1570                1575

Val Asn  Tyr Lys Gln Ala Phe  Pro Asp Gly His Leu  Pro Glu Glu
    1580                1585                1590

Ala Leu  Lys Val Ser Ile Val  Ser Gly Pro Thr Glu  Lys Lys Thr
    1595                1600                1605

Asp Ile  Pro Ala Gly Pro Leu  Gly Ser Ser Ala Leu  Gly Glu Lys
    1610                1615                1620

Pro Ile  Thr Phe Tyr Arg Gln  Ala Leu Leu Asp Ser  Pro Leu Asn
    1625                1630                1635

Lys Glu  Val Val Lys Val Ser  Ala Ala Pro Gly Pro  Ala Asp Gln
    1640                1645                1650

Lys Thr  Glu Thr Leu Pro Val  His Ser Thr Ser Tyr  Ser Asn Arg
    1655                1660                1665

Gly Lys  Pro Val Ile Phe Tyr  Gln Gln Thr Leu Ser  Asp Ser His
    1670                1675                1680

Leu Pro  Glu Glu Ala Leu Lys  Val Pro Pro Val Pro  Gly Pro Asp
    1685                1690                1695

Ala Gln  Lys Thr Glu Thr Pro  Ser Val Ser Ser Ser  Leu Tyr Ser
    1700                1705                1710

Tyr Arg  Glu Lys Pro Ile Val  Phe Tyr Gln Gln Ala  Leu Pro Asp
    1715                1720                1725

Ser Glu  Leu Thr Gln Glu Ala  Leu Lys Val Ser Ala  Val Pro Gln
```

1730 1735 1740

Pro Ala Asp Gln Lys Thr Gly Leu Ser Thr Val Thr Ser Ser Phe
1745 1750 1755

Tyr Ser His Thr Glu Lys Pro Asn Ile Ser Tyr Gln Gln Glu Leu
1760 1765 1770

Pro Asp Ser His Leu Thr Glu Glu Ala Leu Lys Val Ser Asn Val
1775 1780 1785

Pro Gly Pro Ala Asp Gln Lys Thr Gly Val Ser Thr Val Thr Ser
1790 1795 1800

Thr Ser Tyr Ser His Arg Glu Lys Pro Ile Val Ser Tyr Gln Arg
1805 1810 1815

Glu Leu Pro His Phe Thr Glu Ala Gly Leu Lys Ile Leu Arg Val
1820 1825 1830

Pro Gly Pro Ala Asp Gln Lys Thr Gly Ile Asn Ile Leu Pro Ser
1835 1840 1845

Asn Ser Tyr Pro Gln Arg Glu His Ser Val Ile Ser Tyr Glu Gln
1850 1855 1860

Glu Leu Pro Asp Leu Thr Glu Val Thr Leu Lys Ala Ile Gly Val
1865 1870 1875

Pro Gly Pro Ala Asp Gln Lys Thr Gly Ile Gln Ile Ala Ser Ser
1880 1885 1890

Ser Ser Tyr Ser Asn Arg Glu Lys Ala Ser Ile Phe His Gln Gln
1895 1900 1905

Glu Leu Pro Asp Val Thr Glu Glu Ala Leu Asn Val Phe Val Val
1910 1915 1920

Pro Gly Gln Gly Asp Arg Lys Thr Glu Ile Pro Thr Val Pro Leu
1925 1930 1935

Ser Tyr Tyr Ser Arg Arg Glu Lys Pro Ser Val Ile Ser Gln Gln
1940 1945 1950

```
Glu Leu  Pro Asp Ser His Leu  Thr Glu Glu Ala Leu  Lys Val Ser
    1955                1960                1965

Pro Val  Ser Ile Pro Ala Glu  Gln Lys Thr Gly Ile  Pro Ile Gly
    1970                1975                1980

Leu Ser  Ser Ser Tyr Ser His  Ser His Lys Glu Lys  Leu Lys Ile
    1985                1990                1995

Ser Thr  Val His Ile Pro Asp  Asp Gln Lys Thr Glu  Phe Pro Ala
    2000                2005                2010

Ala Thr  Leu Ser Ser Tyr Ser  Gln Ile Glu Lys Pro  Lys Ile Ser
    2015                2020                2025

Thr Val  Ile Gly Pro Asn Asp  Gln Lys Thr Pro Ser  Gln Thr Ala
    2030                2035                2040

Phe His  Ser Ser Tyr Ser Gln  Thr Val Lys Pro Asn  Ile Leu Phe
    2045                2050                2055

Gln Gln  Gln Leu Pro Asp Arg  Asp Gln Ser Lys Gly  Ile Leu Lys
    2060                2065                2070

Ile Ser  Ala Val Pro Glu Leu  Thr Asp Val Asn Thr  Gly Lys Pro
    2075                2080                2085

Val Ser  Leu Ser Ser Ser Tyr  Phe His Arg Glu Lys  Ser Asn Ile
    2090                2095                2100

Phe Ser  Pro Gln Glu Leu Pro  Gly Ser His Val Thr  Glu Asp Val
    2105                2110                2115

Leu Lys  Val Ser Thr Ile Pro  Gly Pro Ala Gly Gln  Lys Thr Val
    2120                2125                2130

Leu Pro  Thr Ala Leu Pro Ser  Ser Phe Ser His Arg  Glu Lys Pro
    2135                2140                2145

Asp Ile  Phe Tyr Gln Lys Asp  Leu Pro Asp Arg His  Leu Thr Glu
    2150                2155                2160
```

```
Asp Ala  Leu Lys Ile Ser Ser  Ala Leu Gly Gln Ala  Asp Gln Ile
    2165                2170                2175

Thr Gly  Leu Gln Thr Val Pro  Ser Gly Thr Tyr Ser  His Gly Glu
    2180                2185                2190

Asn His  Lys Leu Val Ser Glu  His Val Gln Arg Leu  Ile Asp Asn
    2195                2200                2205

Leu Asn  Ser Ser Asp Ser Ser  Val Ser Ser Asn Asn  Val Leu Leu
    2210                2215                2220

Asn Ser  Gln Ala Asp Asp Arg  Val Val Ile Asn Lys  Pro Glu Ser
    2225                2230                2235

Ala Gly  Phe Arg Asp Val Gly  Ser Glu Glu Ile Gln  Asp Ala Glu
    2240                2245                2250

Asn Ser  Ala Lys Thr Leu Lys  Glu Ile Arg Thr Leu  Leu Met Glu
    2255                2260                2265

Ala Glu  Asn Met Ala Leu Lys  Arg Cys Asn Phe Pro  Ala Pro Leu
    2270                2275                2280

Ala Arg  Phe Arg Asp Ile Ser  Asp Ile Ser Phe Ile  Gln Ser Lys
    2285                2290                2295

Lys Val  Val Cys Phe Lys Glu  Pro Ser Ser Thr Gly  Val Ser Asn
    2300                2305                2310

Gly Asp  Leu Leu His Arg Gln  Pro Phe Thr Glu Glu  Ser Pro Ser
    2315                2320                2325

Ser Arg  Cys Ile Gln Lys Asp  Ile Gly Thr Gln Thr  Asn Leu Lys
    2330                2335                2340

Cys Arg  Arg Gly Ile Glu Asn  Trp Glu Phe Ile Ser  Ser Thr Thr
    2345                2350                2355

Val Arg  Ser Pro Leu Gln Glu  Ala Glu Ser Lys Val  Ser Met Ala
    2360                2365                2370
```

Leu Glu Glu Thr Leu Arg Gln Tyr Gln Ala Ala Lys Ser Val Met
2375 2380 2385

Arg Ser Glu Pro Glu Gly Cys Ser Gly Thr Ile Gly Asn Lys Ile
2390 2395 2400

Ile Ile Pro Met Met Thr Val Ile Lys Ser Asp Ser Ser Ser Asp
2405 2410 2415

Ala Ser Asp Gly Asn Gly Ser Cys Ser Trp Asp Ser Asn Leu Pro
2420 2425 2430

Glu Ser Leu Glu Ser Val Ser Asp Val Leu Leu Asn Phe Phe Pro
2435 2440 2445

Tyr Val Ser Pro Lys Thr Ser Ile Thr Asp Ser Arg Glu Glu Glu
2450 2455 2460

Gly Val Ser Glu Ser Glu Asp Gly Gly Gly Ser Ser Val Asp Ser
2465 2470 2475

Leu Ala Ala His Val Lys Asn Leu Leu Gln Cys Glu Ser Ser Leu
2480 2485 2490

Asn His Ala Lys Glu Ile Leu Arg Asn Ala Glu Glu Glu Glu Ser
2495 2500 2505

Arg Val Arg Ala His Ala Trp Asn Met Lys Phe Asn Leu Ala His
2510 2515 2520

Asp Cys Gly Tyr Ser Ile Ser Glu Leu Asn Glu Asp Asp Arg Arg
2525 2530 2535

Lys Val Glu Glu Ile Lys Ala Glu Leu Phe Gly His Gly Arg Thr
2540 2545 2550

Thr Asp Leu Ser Lys Gly Leu Gln Ser Pro Arg Gly Met Gly Cys
2555 2560 2565

Lys Pro Glu Ala Val Cys Ser His Ile Ile Ile Glu Ser His Glu
2570 2575 2580

Lys Gly Cys Phe Arg Thr Leu Thr Ser Glu His Pro Gln Leu Asp

2585 2590 2595

Arg His Pro Cys Ala Phe Arg Ser Ala Gly Pro Ser Glu Met Thr
2600 2605 2610

Arg Gly Arg Gln Asn Pro Ser Ser Cys Arg Ala Lys His Val Asn
2615 2620 2625

Leu Ser Ala Ser Leu Asp Gln Asn Asn Ser His Phe Lys Val Trp
2630 2635 2640

Asn Ser Leu Gln Leu Lys Ser His Ser Pro Phe Gln Asn Phe Ile
2645 2650 2655

Pro Asp Glu Phe Lys Ile Ser Lys Gly Leu Arg Met Pro Phe Asp
2660 2665 2670

Glu Lys Met Asp Pro Trp Leu Ser Glu Leu Val Glu Pro Ala Phe
2675 2680 2685

Val Pro Pro Lys Glu Val Asp Phe His Ser Ser Ser Gln Met Pro
2690 2695 2700

Ser Pro Glu Pro Met Lys Lys Phe Thr Thr Ser Ile Thr Phe Ser
2705 2710 2715

Ser His Arg His Ser Lys Cys Ile Ser Asn Ser Ser Val Val Lys
2720 2725 2730

Val Gly Val Thr Glu Gly Ser Gln Cys Thr Gly Ala Ser Val Gly
2735 2740 2745

Val Phe Asn Ser His Phe Thr Glu Glu Gln Asn Pro Pro Arg Asp
2750 2755 2760

Leu Lys Gln Lys Thr Ser Ser Pro Ser Ser Phe Lys Met His Ser
2765 2770 2775

Asn Ser Gln Asp Lys Glu Val Thr Ile Leu Ala Glu Gly Arg Arg
2780 2785 2790

Gln Ser Gln Lys Leu Pro Val Asp Phe Glu Arg Ser Phe Gln Glu
2795 2800 2805

```
Glu Lys  Pro Leu Glu Arg Ser  Asp Phe Thr Gly Ser  His Ser Glu
    2810                 2815                 2820

Pro Ser  Thr Arg Ala Asn Cys  Ser Asn Phe Lys Glu  Ile Gln Ile
    2825                 2830                 2835

Ser Asp  Asn His Thr Leu Ile  Ser Met Gly Arg Pro  Ser Ser Thr
    2840                 2845                 2850

Leu Gly  Val Asn Arg Ser Ser  Ser Arg Leu Gly Val  Lys Glu Lys
    2855                 2860                 2865

Asn Val  Thr Ile Thr Pro Asp  Leu Pro Ser Cys Ile  Phe Leu Glu
    2870                 2875                 2880

Gln Arg  Glu Leu Phe Glu Gln  Ser Lys Ala Pro Arg  Ala Asp Asp
    2885                 2890                 2895

His Val  Arg Lys His His Ser  Pro Ser Pro Gln His  Gln Asp Tyr
    2900                 2905                 2910

Val Ala  Pro Asp Leu Pro Ser  Cys Ile Phe Leu Glu  Gln Arg Glu
    2915                 2920                 2925

Leu Phe  Glu Gln Cys Lys Ala  Pro Tyr Val Asp His  Gln Met Arg
    2930                 2935                 2940

Glu Asn  His Ser Pro Leu Pro  Gln Gly Gln Asp Ser  Ile Ala Ser
    2945                 2950                 2955

Asp Leu  Pro Ser Pro Ile Ser  Leu Glu Gln Cys Gln  Ser Lys Ala
    2960                 2965                 2970

Pro Gly  Val Asp Asp Gln Met  Asn Lys His His Phe  Pro Leu Pro
    2975                 2980                 2985

Gln Gly  Gln Asp Cys Val Val  Glu Lys Asn Asn Gln  His Lys Pro
    2990                 2995                 3000

Lys Ser  His Ile Ser Asn Ile  Asn Val Glu Ala Lys  Phe Asn Thr
    3005                 3010                 3015
```

```
Val Val  Ser Gln Ser Ala Pro  Asn His Cys Thr Leu  Ala Ala Ser
    3020                3025                3030

Ala Ser  Thr Pro Pro Ser Asn  Arg Lys Ala Leu Ser  Cys Val His
    3035                3040                3045

Ile Thr  Leu Cys Pro Lys Thr  Ser Ser Lys Leu Asp  Ser Gly Thr
    3050                3055                3060

Leu Asp  Glu Arg Phe His Ser  Leu Asp Ala Ala Ser  Lys Ala Arg
    3065                3070                3075

Met Asn  Ser Glu Phe Asn Phe  Asp Leu His Thr Val  Ser Ser Arg
    3080                3085                3090

Ser Leu  Glu Pro Thr Ser Lys  Leu Leu Thr Ser Lys  Pro Val Ala
    3095                3100                3105

Gln Asp  Gln Glu Ser Leu Gly  Phe Leu Gly Pro Lys  Ser Ser Leu
    3110                3115                3120

Asp Phe  Gln Val Val Gln Pro  Ser Leu Pro Asp Ser  Asn Thr Ile
    3125                3130                3135

Thr Gln  Asp Leu Lys Thr Ile  Pro Ser Gln Asn Ser  Gln Ile Val
    3140                3145                3150

Thr Ser  Arg Gln Ile Gln Val  Asn Ile Ser Asp Phe  Glu Gly His
    3155                3160                3165

Ser Asn  Pro Glu Gly Thr Pro  Val Phe Ala Asp Arg  Leu Pro Glu
    3170                3175                3180

Lys Met  Lys Thr Pro Leu Ser  Ala Phe Ser Glu Lys  Leu Ser Ser
    3185                3190                3195

Asp Ala  Val Thr Gln Ile Thr  Thr Glu Ser Pro Glu  Lys Thr Leu
    3200                3205                3210

Phe Ser  Ser Glu Ile Phe Ile  Asn Ala Glu Asp Arg  Gly His Glu
    3215                3220                3225
```

Ile Ile Glu Pro Gly Asn Gln Lys Leu Arg Lys Ala Pro Val Lys
3230 3235 3240

Phe Ala Ser Ser Ser Ser Val Gln Gln Val Thr Phe Ser Arg Gly
3245 3250 3255

Thr Asp Gly Gln Pro Leu Leu Leu Pro Tyr Lys Pro Ser Gly Ser
3260 3265 3270

Thr Lys Met Tyr Tyr Val Pro Gln Leu Arg Gln Ile Pro Pro Ser
3275 3280 3285

Pro Asp Ser Lys Ser Asp Thr Thr Val Glu Ser Ser His Ser Gly
3290 3295 3300

Ser Asn Asp Ala Ile Ala Pro Asp Phe Pro Ala Gln Val Leu Gly
3305 3310 3315

Thr Arg Asp Asp Asp Leu Ser Ala Thr Val Asn Ile Lys His Lys
3320 3325 3330

Glu Gly Ile Tyr Ser Lys Arg Val Val Thr Lys Ala Ser Leu Pro
3335 3340 3345

Val Gly Glu Lys Pro Leu Gln Asn Glu Asn Ala Asp Ala Ser Val
3350 3355 3360

Gln Val Leu Ile Thr Gly Asp Glu Asn Leu Ser Asp Lys Lys Gln
3365 3370 3375

Gln Glu Ile His Ser Thr Arg Ala Val Thr Glu Ala Ala Gln Ala
3380 3385 3390

Lys Glu Lys Glu Ser Leu Gln Lys Asp Thr Ala Asp Ser Ser Ala
3395 3400 3405

Ala Ala Ala Ala Glu His Ser Ala Gln Val Gly Asp Pro Glu Met
3410 3415 3420

Lys Asn Leu Pro Asp Thr Lys Ala Ile Thr Gln Lys Glu Glu Ile
3425 3430 3435

His Arg Lys Lys Thr Val Pro Glu Glu Ala Trp Pro Asn Asn Lys

3440 3445 3450

Glu Ser Leu Gln Ile Asn Ile Glu Glu Ser Glu Cys His Ser Glu
3455 3460 3465

Phe Glu Asn Thr Thr Arg Ser Val Phe Arg Ser Ala Lys Phe Tyr
3470 3475 3480

Ile His His Pro Val His Leu Pro Ser Asp Gln Asp Ile Cys His
3485 3490 3495

Glu Ser Leu Gly Lys Ser Val Phe Met Arg His Ser Trp Lys Asp
3500 3505 3510

Phe Phe Gln His His Pro Asp Lys His Arg Glu His Met Cys Leu
3515 3520 3525

Pro Leu Pro Tyr Gln Asn Met Asp Lys Thr Lys Thr Asp Tyr Thr
3530 3535 3540

Arg Ile Lys Ser Leu Ser Ile Asn Val Asn Leu Gly Asn Lys Glu
3545 3550 3555

Val Met Asp Thr Thr Lys Ser Gln Val Arg Asp Tyr Pro Lys His
3560 3565 3570

Asn Gly Gln Ile Ser Asp Pro Gln Arg Asp Gln Lys Val Thr Pro
3575 3580 3585

Glu Gln Thr Thr Gln His Thr Val Ser Leu Asn Glu Leu Trp Asn
3590 3595 3600

Lys Tyr Arg Glu Arg Gln Arg Gln Gln Arg Gln Pro Glu Leu Gly
3605 3610 3615

Asp Arg Lys Glu Leu Ser Leu Val Asp Arg Leu Asp Arg Leu Ala
3620 3625 3630

Lys Ile Leu Gln Asn Pro Ile Thr His Ser Leu Gln Val Ser Glu
3635 3640 3645

Ser Thr His Asp Asp Ser Arg Gly Glu Arg Ser Val Lys Glu Trp
3650 3655 3660

```
Ser Gly  Arg Gln Gln Gln Arg  Asn Lys Leu Gln Lys  Lys Lys Arg
    3665                 3670                 3675

Phe Lys  Ser Leu Glu Lys Ser  His Lys Asn Thr Gly  Glu Leu Lys
    3680                 3685                 3690

Lys Ser  Lys Val Leu Ser His  His Arg Ala Gly Arg  Ser Asn Gln
    3695                 3700                 3705

Ile Lys  Ile Glu Gln Ile Lys  Phe Asp Lys Tyr Ile  Leu Ser Lys
    3710                 3715                 3720

Gln Pro  Gly Phe Asn Tyr Ile  Ser Asn Thr Ser Ser  Asp Cys Arg
    3725                 3730                 3735

Pro Ser  Glu Glu Ser Glu Leu  Leu Thr Asp Thr Thr  Thr Asn Ile
    3740                 3745                 3750

Leu Ser  Gly Thr Thr Ser Thr  Val Glu Ser Asp Ile  Leu Thr Gln
    3755                 3760                 3765

Thr Asp  Arg Glu Val Ala Leu  His Glu Arg Ser Ser  Ser Val Ser
    3770                 3775                 3780

Thr Ile  Asp Thr Ala Arg Leu  Ile Gln Ala Phe Gly  His Glu Arg
    3785                 3790                 3795

Val Cys  Leu Ser Pro Arg Arg  Ile Lys Leu Tyr Ser  Ser Ile Thr
    3800                 3805                 3810

Asn Gln  Gln Arg Arg Tyr Leu  Glu Lys Arg Ser Lys  His Ser Lys
    3815                 3820                 3825

Lys Val  Leu Asn Thr Gly His  Pro Leu Val Thr Ser  Glu His Thr
    3830                 3835                 3840

Arg Arg  Arg His Ile Gln Val  His Gly Tyr Arg Phe  His Leu Ala
    3845                 3850                 3855

Met
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20 25 30

Ala Ala Ala Asn Val Asp Asp Val Val Val Val Glu Glu Val Glu Glu
35 40 45

Glu Ala Gly Arg Glu Leu Asp Ser Asp Ser His Tyr Gly Pro Gln His
50 55 60

Leu Glu Ser Ile Asp Asp Glu Glu Asp Glu Glu Ala Lys Ala Trp Leu
65 70 75 80

Gln Ala His Pro Gly Arg Ile Leu Pro Pro Leu Ser Pro Pro Gln His
85 90 95

Arg Tyr Ser Glu Gly Glu Arg Thr Ser Leu Glu Lys Ile Val Pro Leu
100 105 110

Thr Cys His Val Trp Gln Gln Ile Val Tyr Gln Gly Asn Ser Arg Thr
115 120 125

Gln Ile Ser Asp Thr Asn Val Val Cys Leu Glu Thr Thr Ala Gln Arg

```
    130                 135                 140

Gly Ser Gly Asp Asp Gln Lys Thr Glu Ser Trp His Cys Leu Pro Gln
145                 150                 155                 160

Glu Met Asp Ser Ser Gln Thr Leu Asp Thr Ser Gln Thr Arg Phe Asn
                165                 170                 175

Val Arg Thr Glu Asp Thr Glu Val Thr Asp Phe Pro Ser Leu Glu Glu
            180                 185                 190

Gly Ile Leu Thr Gln Ser Glu Asn Gln Val Lys Glu Pro Asn Arg Asp
        195                 200                 205

Leu Phe Cys Ser Pro Leu Leu Val Ile Gln Asp Ser Phe Ala Ser Pro
    210                 215                 220

Asp Leu Pro Leu Leu Thr Cys Leu Thr Gln Asp Gln Glu Phe Ala Pro
225                 230                 235                 240

Asp Ser Leu Phe His Gln Ser Glu Leu Ser Phe Ala Pro Leu Arg Gly
                245                 250                 255

Ile Pro Asp Lys Ser Glu Asp Thr Glu Trp Ser Ser Arg Pro Ser Glu
            260                 265                 270

Val Ser Glu Ala Leu Phe Gln Ala Thr Ala Glu Val Ala Ser Asp Leu
        275                 280                 285

Ala Ser Ser Arg Phe Ser Val Ser Gln His Pro Leu Ile Gly Ser Thr
    290                 295                 300

Ala Val Gly Ser Gln Cys Pro Phe Leu Pro Ser Glu Gln Gly Asn Asn
305                 310                 315                 320

Glu Glu Thr Ile Ser Ser Val Asp Glu Leu Lys Ile Pro Lys Asp Cys
                325                 330                 335

Asp Arg Tyr Asp Asp Leu Cys Ser Tyr Met Ser Trp Lys Thr Arg Lys
            340                 345                 350

Asp Thr Gln Trp Pro Glu Asn Asn Leu Ala Asp Lys Asp Gln Val Ser
        355                 360                 365
```

```
Val Ala Thr Ser Phe Asp Ile Thr Asp Glu Asn Ile Ala Thr Lys Arg
    370                 375                 380

Ser Asp His Phe Asp Ala Ala Arg Ser Tyr Gly Gln Tyr Trp Thr Gln
385                 390                 395                 400

Glu Asp Ser Ser Lys Gln Ala Glu Thr Tyr Leu Thr Lys Gly Leu Gln
                405                 410                 415

Gly Lys Val Glu Ser Asp Val Ile Thr Leu Asp Gly Leu Asn Glu Asn
            420                 425                 430

Ala Val Val Cys Ser Glu Arg Val Ala Glu Leu Gln Arg Lys Pro Thr
        435                 440                 445

Arg Glu Ser Glu Tyr His Ser Ser Asp Leu Arg Met Leu Arg Met Ser
    450                 455                 460

Pro Asp Thr Val Pro Lys Ala Pro Lys His Leu Lys Ala Gly Asp Thr
465                 470                 475                 480

Ser Lys Gly Gly Ile Ala Lys Val Thr Gln Ser Asn Leu Lys Ser Gly
                485                 490                 495

Ile Thr Thr Thr Pro Val Asp Ser Asp Ile Gly Ser His Leu Ser Leu
            500                 505                 510

Ser Leu Glu Asp Leu Ser Gln Leu Ala Val Ser Ser Pro Leu Glu Thr
        515                 520                 525

Thr Thr Gly Gln His Thr Asp Thr Leu Asn Gln Lys Thr Leu Ala Asp
    530                 535                 540

Thr His Leu Thr Glu Glu Thr Leu Lys Val Thr Ala Ile Pro Glu Pro
545                 550                 555                 560

Ala Asp Gln Lys Thr Ala Thr Pro Thr Val Leu Ser Ser Ser His Ser
                565                 570                 575

His Arg Gly Lys Pro Ser Ile Phe Tyr Gln Gln Gly Leu Pro Asp Ser
            580                 585                 590
```

```
His Leu Thr Glu Glu Ala Leu Lys Val Ser Ala Ala Pro Gly Leu Ala
        595                 600                 605

Asp Gln Thr Thr Gly Met Ser Thr Leu Thr Ser Thr Ser Tyr Ser His
    610                 615                 620

Arg Glu Lys Pro Gly Thr Phe Tyr Gln Gln Glu Leu Pro Glu Ser Asn
625                 630                 635                 640

Leu Thr Glu Glu Pro Leu Glu Val Ser Ala Ala Pro Gly Pro Val Glu
                645                 650                 655

Gln Lys Thr Gly Ile Pro Thr Val Ser Ser Thr Ser His Ser His Val
            660                 665                 670

Glu Asp Leu Leu Phe Phe Tyr Arg Gln Thr Leu Pro Asp Gly His Leu
        675                 680                 685

Thr Asp Gln Ala Leu Lys Val Ser Ala Val Ser Gly Pro Ala Asp Gln
    690                 695                 700

Lys Thr Gly Thr Ala Thr Val Leu Ser Thr Pro His Ser His Arg Glu
705                 710                 715                 720

Lys Pro Gly Ile Phe Tyr Gln Gln Glu Phe Ala Asp Ser His Gln Thr
                725                 730                 735

Glu Glu Thr Leu Thr Lys Val Ser Ala Thr Pro Gly Pro Ala Asp Gln
            740                 745                 750

Lys Thr Glu Ile Pro Ala Val Gln Ser Ser Ser Tyr Ser Gln Arg Glu
        755                 760                 765

Lys Pro Ser Ile Leu Tyr Pro Gln Asp Leu Ala Asp Ser His Leu Pro
    770                 775                 780

Glu Glu Gly Leu Lys Val Ser Ala Val Ala Gly Pro Ala Asp Gln Lys
785                 790                 795                 800

Thr Gly Leu Pro Thr Val Pro Ser Ser Ala Tyr Ser His Arg Glu Lys
                805                 810                 815
```

```
Leu Leu Val Phe Tyr Gln Gln Ala Leu Leu Asp Ser His Leu Pro Glu
            820                 825                 830

Glu Ala Leu Lys Val Ser Ala Val Ser Gly Pro Ala Asp Gly Lys Thr
        835                 840                 845

Gly Thr Pro Ala Val Thr Ser Thr Ser Ser Ala Ser Ser Ser Leu Gly
    850                 855                 860

Glu Lys Pro Ser Ala Phe Tyr Gln Gln Thr Leu Pro Asn Ser His Leu
865                 870                 875                 880

Thr Glu Glu Ala Leu Lys Val Ser Ile Val Pro Gly Pro Gly Asp Gln
                885                 890                 895

Lys Thr Gly Ile Pro Ser Ala Pro Ser Ser Phe Tyr Ser His Arg Glu
            900                 905                 910

Lys Pro Ile Ile Phe Ser Gln Gln Thr Leu Pro Asp Phe Leu Phe Pro
        915                 920                 925

Glu Glu Ala Leu Lys Val Ser Ala Val Ser Val Leu Ala Ala Gln Lys
    930                 935                 940

Thr Gly Thr Pro Thr Val Ser Ser Asn Ser His Ser His Ser Glu Lys
945                 950                 955                 960

Ser Ser Val Phe Tyr Gln Gln Glu Leu Pro Asp Ser Asp Leu Pro Arg
                965                 970                 975

Glu Ser Leu Lys Met Ser Ala Ile Pro Gly Leu Thr Asp Gln Lys Thr
            980                 985                 990

Val Pro Thr Pro Thr Val Pro Ser  Gly Ser Phe Ser His  Arg Glu
Lys
        995                 1000                1005

Pro Ser  Ile Phe Tyr Gln Gln  Glu Trp Pro Asp Ser  Tyr Ala Thr
    1010                1015                1020

Glu Lys  Ala Leu Lys Val Ser  Thr Gly Pro Gly Pro  Ala Asp Gln
    1025                1030                1035
```

Lys Thr Glu Ile Pro Ala Val Gln Ser Ser Ser Tyr Pro Gln Arg
1040 1045 1050

Glu Lys Pro Ser Val Leu Tyr Pro Gln Val Leu Ser Asp Ser His
1055 1060 1065

Leu Pro Glu Glu Ser Leu Lys Val Ser Ala Phe Pro Gly Pro Ala
1070 1075 1080

Asp Gln Met Thr Asp Thr Pro Ala Val Pro Ser Thr Phe Tyr Ser
1085 1090 1095

Gln Arg Glu Lys Pro Gly Ile Phe Tyr Gln Gln Thr Leu Pro Glu
1100 1105 1110

Ser His Leu Pro Lys Glu Ala Leu Lys Ile Ser Val Ala Pro Gly
1115 1120 1125

Leu Ala Asp Gln Lys Thr Gly Thr Pro Thr Val Thr Ser Thr Ser
1130 1135 1140

Tyr Ser Gln His Arg Glu Lys Pro Ser Ile Phe His Gln Gln Ala
1145 1150 1155

Leu Pro Gly Thr His Ile Pro Glu Glu Ala Gln Lys Val Ser Ala
1160 1165 1170

Val Thr Gly Pro Gly Asn Gln Lys Thr Trp Ile Pro Arg Val Leu
1175 1180 1185

Ser Thr Phe Tyr Ser Gln Arg Glu Lys Pro Gly Ile Phe Tyr Gln
1190 1195 1200

Gln Thr Leu Pro Gly Ser His Ile Pro Glu Glu Ala Gln Lys Val
1205 1210 1215

Ser Pro Val Leu Gly Pro Ala Asp Gln Lys Thr Gly Thr Pro Thr
1220 1225 1230

Pro Thr Ser Ala Ser Tyr Ser His Thr Glu Lys Pro Gly Ile Phe
1235 1240 1245

Tyr Gln Gln Val Leu Pro Asp Asn His Pro Thr Glu Glu Ala Leu

1250 1255 1260

Lys Ile Ser Val Ala Ser Glu Pro Val Asp Gln Thr Thr Gly Thr
1265 1270 1275

Pro Ala Val Thr Ser Thr Ser Tyr Ser Gln Tyr Arg Glu Lys Pro
1280 1285 1290

Ser Ile Phe Tyr Gln Gln Ser Leu Pro Ser Ser His Leu Thr Glu
1295 1300 1305

Glu Ala Lys Asn Val Ser Ala Val Pro Gly Pro Ala Asp Gln Lys
1310 1315 1320

Thr Val Ile Pro Ile Leu Pro Ser Thr Phe Tyr Ser His Thr Glu
1325 1330 1335

Lys Pro Gly Val Phe Tyr Gln Gln Val Leu Pro His Ser His Pro
1340 1345 1350

Thr Glu Glu Ala Leu Lys Ile Ser Val Ala Ser Glu Pro Val Asp
1355 1360 1365

Gln Thr Thr Gly Thr Pro Thr Val Thr Ser Thr Ser Tyr Ser Gln
1370 1375 1380

His Thr Glu Lys Pro Ser Ile Phe Tyr Gln Gln Ser Leu Pro Gly
1385 1390 1395

Ser His Leu Thr Glu Glu Ala Lys Asn Val Ser Ala Val Pro Gly
1400 1405 1410

Pro Gly Asp Arg Lys Thr Gly Ile Pro Thr Leu Pro Ser Thr Phe
1415 1420 1425

Tyr Ser His Thr Glu Lys Pro Gly Ser Phe Tyr Gln Gln Val Leu
1430 1435 1440

Pro His Ser His Leu Pro Glu Glu Ala Leu Glu Val Ser Val Ala
1445 1450 1455

Pro Gly Pro Val Asp Gln Thr Ile Gly Thr Pro Thr Val Thr Ser
1460 1465 1470

```
Pro Ser  Ser Ser Phe Gly Glu  Lys Pro Ile Val Ile  Tyr Lys Gln
    1475                 1480                 1485

Ala Phe  Pro Glu Gly His Leu  Pro Glu Glu Ser Leu  Lys Val Ser
    1490                 1495                 1500

Val Ala  Pro Gly Pro Val Gly  Gln Thr Thr Gly Ala  Pro Thr Ile
    1505                 1510                 1515

Thr Ser  Pro Ser Tyr Ser Gln  His Arg Ala Lys Ser  Gly Ser Phe
    1520                 1525                 1530

Tyr Gln  Leu Ala Leu Leu Gly  Ser Gln Ile Pro Glu  Glu Ala Leu
    1535                 1540                 1545

Arg Val  Ser Ser Ala Pro Gly  Pro Ala Asp Gln Thr  Thr Gly Ile
    1550                 1555                 1560

Pro Thr  Ile Thr Ser Thr Ser  Tyr Ser Phe Gly Glu  Lys Pro Ile
    1565                 1570                 1575

Val Asn  Tyr Lys Gln Ala Phe  Pro Asp Gly His Leu  Pro Glu Glu
    1580                 1585                 1590

Ala Leu  Lys Val Ser Ile Val  Ser Gly Pro Thr Glu  Lys Lys Thr
    1595                 1600                 1605

Asp Ile  Pro Ala Gly Pro Leu  Gly Ser Ser Ala Leu  Gly Glu Lys
    1610                 1615                 1620

Pro Ile  Thr Phe Tyr Arg Gln  Ala Leu Leu Asp Ser  Pro Leu Asn
    1625                 1630                 1635

Lys Glu  Val Val Lys Val Ser  Ala Ala Pro Gly Pro  Ala Asp Gln
    1640                 1645                 1650

Lys Thr  Glu Thr Leu Pro Val  His Ser Thr Ser Tyr  Ser Asn Arg
    1655                 1660                 1665

Gly Lys  Pro Val Ile Phe Tyr  Gln Gln Thr Leu Ser  Asp Ser His
    1670                 1675                 1680
```

```
Leu Pro  Glu Glu Ala Leu Lys  Val Pro Pro Val Pro  Gly Pro Asp
    1685                 1690                 1695

Ala Gln  Lys Thr Glu Thr Pro  Ser Val Ser Ser Ser  Leu Tyr Ser
    1700                 1705                 1710

Tyr Arg  Glu Lys Pro Ile Val  Phe Tyr Gln Gln Ala  Leu Pro Asp
    1715                 1720                 1725

Ser Glu  Leu Thr Gln Glu Ala  Leu Lys Val Ser Ala  Val Pro Gln
    1730                 1735                 1740

Pro Ala  Asp Gln Lys Thr Gly  Leu Ser Thr Val Thr  Ser Ser Phe
    1745                 1750                 1755

Tyr Ser  His Thr Glu Lys Pro  Asn Ile Ser Tyr Gln  Gln Glu Leu
    1760                 1765                 1770

Pro Asp  Ser His Leu Thr Glu  Glu Ala Leu Lys Val  Ser Asn Val
    1775                 1780                 1785

Pro Gly  Pro Ala Asp Gln Lys  Thr Gly Val Ser Thr  Val Thr Ser
    1790                 1795                 1800

Thr Ser  Tyr Ser His Arg Glu  Lys Pro Ile Val Ser  Tyr Gln Arg
    1805                 1810                 1815

Glu Leu  Pro His Phe Thr Glu  Ala Gly Leu Lys Ile  Leu Arg Val
    1820                 1825                 1830

Pro Gly  Pro Ala Asp Gln Lys  Thr Gly Ile Asn Ile  Leu Pro Ser
    1835                 1840                 1845

Asn Ser  Tyr Pro Gln Arg Glu  His Ser Val Ile Ser  Tyr Glu Gln
    1850                 1855                 1860

Glu Leu  Pro Asp Leu Thr Glu  Val Thr Leu Lys Ala  Ile Gly Val
    1865                 1870                 1875

Pro Gly  Pro Ala Asp Gln Lys  Thr Gly Ile Gln Ile  Ala Ser Ser
    1880                 1885                 1890
```

Ser Ser Tyr Ser Asn Arg Glu Lys Ala Ser Ile Phe His Gln Gln
1895 1900 1905

Glu Leu Pro Asp Val Thr Glu Glu Ala Leu Asn Val Phe Val Val
1910 1915 1920

Pro Gly Gln Gly Asp Arg Lys Thr Glu Ile Pro Thr Val Pro Leu
1925 1930 1935

Ser Tyr Tyr Ser Arg Arg Glu Lys Pro Ser Val Ile Ser Gln Gln
1940 1945 1950

Glu Leu Pro Asp Ser His Leu Thr Glu Glu Ala Leu Lys Val Ser
1955 1960 1965

Pro Val Ser Ile Pro Ala Glu Gln Lys Thr Gly Ile Pro Ile Gly
1970 1975 1980

Leu Ser Ser Ser Tyr Ser His Ser His Lys Glu Lys Leu Lys Ile
1985 1990 1995

Ser Thr Val His Ile Pro Asp Asp Gln Lys Thr Glu Phe Pro Ala
2000 2005 2010

Ala Thr Leu Ser Ser Tyr Ser Gln Ile Glu Lys Pro Lys Ile Ser
2015 2020 2025

Thr Val Ile Gly Pro Asn Asp Gln Lys Thr Pro Ser Gln Thr Ala
2030 2035 2040

Phe His Ser Ser Tyr Ser Gln Thr Val Lys Pro Asn Ile Leu Phe
2045 2050 2055

Gln Gln Gln Leu Pro Asp Arg Asp Gln Ser Lys Gly Ile Leu Lys
2060 2065 2070

Ile Ser Ala Val Pro Glu Leu Thr Asp Val Asn Thr Gly Lys Pro
2075 2080 2085

Val Ser Leu Ser Ser Ser Tyr Phe His Arg Glu Lys Ser Asn Ile
2090 2095 2100

Phe Ser Pro Gln Glu Leu Pro Gly Ser His Val Thr Glu Asp Val

2105 2110 2115

Leu Lys Val Ser Thr Ile Pro Gly Pro Ala Gly Gln Lys Thr Val
2120 2125 2130

Leu Pro Thr Ala Leu Pro Ser Ser Phe Ser His Arg Glu Lys Pro
2135 2140 2145

Asp Ile Phe Tyr Gln Lys Asp Leu Pro Asp Arg His Leu Thr Glu
2150 2155 2160

Asp Ala Leu Lys Ile Ser Ser Ala Leu Gly Gln Ala Asp Gln Ile
2165 2170 2175

Thr Gly Leu Gln Thr Val Pro Ser Gly Thr Tyr Ser His Gly Glu
2180 2185 2190

Asn His Lys Leu Val Ser Glu His Val Gln Arg Leu Ile Asp Asn
2195 2200 2205

Leu Asn Ser Ser Asp Ser Ser Val Ser Ser Asn Asn Val Leu Leu
2210 2215 2220

Asn Ser Gln Ala Asp Asp Arg Val Val Ile Asn Lys Pro Glu Ser
2225 2230 2235

Ala Gly Phe Arg Asp Val Gly Ser Glu Glu Ile Gln Asp Ala Glu
2240 2245 2250

Asn Ser Ala Lys Thr Leu Lys Glu Ile Arg Thr Leu Leu Met Glu
2255 2260 2265

Ala Glu Asn Met Ala Leu Lys Arg Cys Asn Phe Pro Ala Pro Leu
2270 2275 2280

Ala Arg Phe Arg Asp Ile Ser Asp Ile Ser Phe Ile Gln Ser Lys
2285 2290 2295

Lys Val Val Cys Phe Lys Glu Pro Ser Ser Thr Gly Val Ser Asn
2300 2305 2310

Gly Asp Leu Leu His Arg Gln Pro Phe Thr Glu Glu Ser Pro Ser
2315 2320 2325

```
Ser Arg  Cys Ile Gln Lys Asp  Ile Gly Thr Gln Thr  Asn Leu Lys
    2330                2335                2340

Cys Arg  Arg Gly Ile Glu Asn  Trp Glu Phe Ile Ser  Ser Thr Thr
    2345                2350                2355

Val Arg  Ser Pro Leu Gln Glu  Ala Glu Ser Lys Val  Ser Met Ala
    2360                2365                2370

Leu Glu  Glu Thr Leu Arg Gln  Tyr Gln Ala Ala Lys  Ser Val Met
    2375                2380                2385

Arg Ser  Glu Pro Glu Gly Cys  Ser Gly Thr Ile Gly  Asn Lys Ile
    2390                2395                2400

Ile Ile  Pro Met Met Thr Val  Ile Lys Ser Asp Ser  Ser Ser Asp
    2405                2410                2415

Ala Ser  Asp Gly Asn Gly Ser  Cys Ser Trp Asp Ser  Asn Leu Pro
    2420                2425                2430

Glu Ser  Leu Glu Ser Val Ser  Asp Val Leu Leu Asn  Phe Phe Pro
    2435                2440                2445

Tyr Val  Ser Pro Lys Thr Ser  Ile Thr Asp Ser Arg  Glu Glu Glu
    2450                2455                2460

Gly Val  Ser Glu Ser Glu Asp  Gly Gly Gly Ser Ser  Val Asp Ser
    2465                2470                2475

Leu Ala  Ala His Val Lys Asn  Leu Leu Gln Cys Glu  Ser Ser Leu
    2480                2485                2490

Asn His  Ala Lys Glu Ile Leu  Arg Asn Ala Glu Glu  Glu Glu Ser
    2495                2500                2505

Arg Val  Arg Ala His Ala Trp  Asn Met Lys Phe Asn  Leu Ala His
    2510                2515                2520

Asp Cys  Gly Tyr Ser Ile Ser  Glu Leu Asn Glu Asp  Asp Arg Arg
    2525                2530                2535
```

Lys Val Glu Glu Ile Lys Ala Glu Leu Phe Gly His Gly Arg Thr
2540 2545 2550

Thr Asp Leu Ser Lys Gly Leu Gln Ser Pro Arg Gly Met Gly Cys
2555 2560 2565

Lys Pro Glu Ala Val Cys Ser His Ile Ile Ile Glu Ser His Glu
2570 2575 2580

Lys Gly Cys Phe Arg Thr Leu Thr Ser Glu His Pro Gln Leu Asp
2585 2590 2595

Arg His Pro Cys Ala Phe Arg Ser Ala Gly Pro Ser Glu Met Thr
2600 2605 2610

Arg Gly Arg Gln Asn Pro Ser Ser Cys Arg Ala Lys His Val Asn
2615 2620 2625

Leu Ser Ala Ser Leu Asp Gln Asn Asn Ser His Phe Lys Val Trp
2630 2635 2640

Asn Ser Leu Gln Leu Lys Ser His Ser Pro Phe Gln Asn Phe Ile
2645 2650 2655

Pro Asp Glu Phe Lys Ile Ser Lys Gly Leu Arg Met Pro Phe Asp
2660 2665 2670

Glu Lys Met Asp Pro Trp Leu Ser Glu Leu Val Glu Pro Ala Phe
2675 2680 2685

Val Pro Pro Lys Glu Val Asp Phe His Ser Ser Ser Gln Met Pro
2690 2695 2700

Ser Pro Glu Pro Met Lys Lys Phe Thr Thr Ser Ile Thr Phe Ser
2705 2710 2715

Ser His Arg His Ser Lys Cys Ile Ser Asn Ser Ser Val Val Lys
2720 2725 2730

Val Gly Val Thr Glu Gly Ser Gln Cys Thr Gly Ala Ser Val Gly
2735 2740 2745

```
Val Phe  Asn Ser His Phe Thr  Glu Glu Gln Asn Pro  Pro Arg Asp
    2750                2755                2760

Leu Lys  Gln Lys Thr Ser Ser  Pro Ser Ser Phe Lys  Met His Ser
    2765                2770                2775

Asn Ser  Gln Asp Lys Glu Val  Thr Ile Leu Ala Glu  Gly Arg Arg
    2780                2785                2790

Gln Ser  Gln Lys Leu Pro Val  Asp Phe Glu Arg Ser  Phe Gln Glu
    2795                2800                2805

Glu Lys  Pro Leu Glu Arg Ser  Asp Phe Thr Gly Ser  His Ser Glu
    2810                2815                2820

Pro Ser  Thr Arg Ala Asn Cys  Ser Asn Phe Lys Glu  Ile Gln Ile
    2825                2830                2835

Ser Asp  Asn His Thr Leu Ile  Ser Met Gly Arg Pro  Ser Ser Thr
    2840                2845                2850

Leu Gly  Val Asn Arg Ser Ser  Ser Arg Leu Gly Val  Lys Glu Lys
    2855                2860                2865

Asn Val  Thr Ile Thr Pro Asp  Leu Pro Ser Cys Ile  Phe Leu Glu
    2870                2875                2880

Gln Arg  Glu Leu Phe Glu Gln  Ser Lys Ala Pro Arg  Ala Asp Asp
    2885                2890                2895

His Val  Arg Lys His His Ser  Pro Ser Pro Gln His  Gln Asp Tyr
    2900                2905                2910

Val Ala  Pro Asp Leu Pro Ser  Cys Ile Phe Leu Glu  Gln Arg Glu
    2915                2920                2925

Leu Phe  Glu Gln Cys Lys Ala  Pro Tyr Val Asp His  Gln Met Arg
    2930                2935                2940

Glu Asn  His Ser Pro Leu Pro  Gln Gly Gln Asp Ser  Ile Ala Ser
    2945                2950                2955

Asp Leu  Pro Ser Pro Ile Ser  Leu Glu Gln Cys Gln  Ser Lys Ala
```

2960 2965 2970

Pro Gly Val Asp Asp Gln Met Asn Lys His His Phe Pro Leu Pro
2975 2980 2985

Gln Gly Gln Asp Cys Val Val Glu Lys Asn Asn Gln His Lys Pro
2990 2995 3000

Lys Ser His Ile Ser Asn Ile Asn Val Glu Ala Lys Phe Asn Thr
3005 3010 3015

Val Val Ser Gln Ser Ala Pro Asn His Cys Thr Leu Ala Ala Ser
3020 3025 3030

Ala Ser Thr Pro Pro Ser Asn Arg Lys Ala Leu Ser Cys Val His
3035 3040 3045

Ile Thr Leu Cys Pro Lys Thr Ser Ser Lys Leu Asp Ser Gly Thr
3050 3055 3060

Leu Asp Glu Arg Phe His Ser Leu Asp Ala Ala Ser Lys Ala Arg
3065 3070 3075

Met Asn Ser Glu Phe Asn Phe Asp Leu His Thr Val Ser Ser Arg
3080 3085 3090

Ser Leu Glu Pro Thr Ser Lys Leu Leu Thr Ser Lys Pro Val Ala
3095 3100 3105

Gln Asp Gln Glu Ser Leu Gly Phe Leu Gly Pro Lys Ser Ser Leu
3110 3115 3120

Asp Phe Gln Val Val Gln Pro Ser Leu Pro Asp Ser Asn Thr Ile
3125 3130 3135

Thr Gln Asp Leu Lys Thr Ile Pro Ser Gln Asn Ser Gln Ile Val
3140 3145 3150

Thr Ser Arg Gln Ile Gln Val Asn Ile Ser Asp Phe Glu Gly His
3155 3160 3165

Ser Asn Pro Glu Gly Thr Pro Val Phe Ala Asp Arg Leu Pro Glu
3170 3175 3180

```
Lys Met  Lys Thr Pro Leu Ser  Ala Phe Ser Glu Lys  Leu Ser Ser
    3185                3190                3195

Asp Ala  Val Thr Gln Ile Thr  Thr Glu Ser Pro Glu  Lys Thr Leu
    3200                3205                3210

Phe Ser  Ser Glu Ile Phe Ile  Asn Ala Glu Asp Arg  Gly His Glu
    3215                3220                3225

Ile Ile  Glu Pro Gly Asn Gln  Lys Leu Arg Lys Ala  Pro Val Lys
    3230                3235                3240

Phe Ala  Ser Ser Ser Ser Val  Gln Gln Val Thr Phe  Ser Arg Gly
    3245                3250                3255

Thr Asp  Gly Gln Pro Leu Leu  Leu Pro Tyr Lys Pro  Ser Gly Ser
    3260                3265                3270

Thr Lys  Met Tyr Tyr Val Pro  Gln Leu Arg Gln Ile  Pro Pro Ser
    3275                3280                3285

Pro Asp  Ser Lys Ser Asp Thr  Thr Val Glu Ser Ser  His Ser Gly
    3290                3295                3300

Ser Asn  Asp Ala Ile Ala Pro  Asp Phe Pro Ala Gln  Val Leu Gly
    3305                3310                3315

Thr Arg  Asp Asp Asp Leu Ser  Ala Thr Val Asn Ile  Lys His Lys
    3320                3325                3330

Glu Gly  Ile Tyr Ser Lys Arg  Val Val Thr Lys Ala  Ser Leu Pro
    3335                3340                3345

Val Gly  Glu Lys Pro Leu Gln  Asn Glu Asn Ala Asp  Ala Ser Val
    3350                3355                3360

Gln Val  Leu Ile Thr Gly Asp  Glu Asn Leu Ser Asp  Lys Lys Gln
    3365                3370                3375

Gln Glu  Ile His Ser Thr Arg  Ala Val Thr Glu Ala  Ala Gln Ala
    3380                3385                3390
```

```
Lys Glu  Lys Glu Ser Leu Gln  Lys Asp Thr Ala Asp  Ser Ser Ala
    3395                 3400                 3405

Ala Ala  Ala Ala Glu His Ser  Ala Gln Val Gly Asp  Pro Glu Met
    3410                 3415                 3420

Lys Asn  Leu Pro Asp Thr Lys  Ala Ile Thr Gln Lys  Glu Glu Ile
    3425                 3430                 3435

His Arg  Lys Lys Thr Val Pro  Glu Glu Ala Trp Pro  Asn Asn Lys
    3440                 3445                 3450

Glu Ser  Leu Gln Ile Asn Ile  Glu Glu Ser Glu Cys  His Ser Glu
    3455                 3460                 3465

Phe Glu  Asn Thr Thr Arg Ser  Val Phe Arg Ser Ala  Lys Phe Tyr
    3470                 3475                 3480

Ile His  His Pro Val His Leu  Pro Ser Asp Gln Asp  Ile Cys His
    3485                 3490                 3495

Glu Ser  Leu Gly Lys Ser Val  Phe Met Arg His Ser  Trp Lys Asp
    3500                 3505                 3510

Phe Phe  Gln His His Pro Asp  Lys His Arg Glu His  Met Cys Leu
    3515                 3520                 3525

Pro Leu  Pro Tyr Gln Asn Met  Asp Lys Thr Lys Thr  Asp Tyr Thr
    3530                 3535                 3540

Arg Ile  Lys Ser Leu Ser Ile  Asn Val Asn Leu Gly  Asn Lys Glu
    3545                 3550                 3555

Val Met  Asp Thr Thr Lys Ser  Gln Val Arg Asp Tyr  Pro Lys His
    3560                 3565                 3570

Asn Gly  Gln Ile Ser Asp Pro  Gln Arg Asp Gln Lys  Val Thr Pro
    3575                 3580                 3585

Glu Gln  Thr Thr Gln His Thr  Val Ser Leu Asn Glu  Leu Trp Asn
    3590                 3595                 3600
```

```
Lys Tyr  Arg Glu Arg Gln Arg  Gln Gln Arg Gln Pro  Glu Leu Gly
    3605                 3610                 3615

Asp Arg  Lys Glu Leu Ser Leu  Val Asp Arg Leu Asp  Arg Leu Ala
    3620                 3625                 3630

Lys Ile  Leu Gln Asn Pro Ile  Thr His Ser Leu Gln  Val Ser Glu
    3635                 3640                 3645

Ser Thr  His Asp Asp Ser Arg  Gly Glu Arg Ser Val  Lys Glu Trp
    3650                 3655                 3660

Ser Gly  Arg Gln Gln Gln Arg  Asn Lys Leu Gln Lys  Lys Lys Arg
    3665                 3670                 3675

Phe Lys  Ser Leu Glu Lys Ser  His Lys Asn Thr Gly  Glu Leu Lys
    3680                 3685                 3690

Lys Ser  Lys Val Leu Ser His  His Arg Ala Gly Arg  Ser Asn Gln
    3695                 3700                 3705

Ile Lys  Ile Glu Gln Ile Lys  Phe Asp Lys Tyr Ile  Leu Ser Lys
    3710                 3715                 3720

Gln Pro  Gly Phe Asn Tyr Ile  Ser Asn Thr Ser Ser  Asp Cys Arg
    3725                 3730                 3735

Pro Ser  Glu Glu Ser Glu Leu  Leu Thr Asp Thr Thr  Thr Asn Ile
    3740                 3745                 3750

Leu Ser  Gly Thr Thr Ser Thr  Val Glu Ser Asp Ile  Leu Thr Gln
    3755                 3760                 3765

Thr Asp  Arg Glu Val Ala Leu  His Glu Arg Ser Ser  Ser Val Ser
    3770                 3775                 3780

Thr Ile  Asp Thr Ala Arg Leu  Ile Gln Ala Phe Gly  His Glu Arg
    3785                 3790                 3795

Val Cys  Leu Ser Pro Arg Arg  Ile Lys Leu Tyr Ser  Ser Ile Thr
    3800                 3805                 3810

Asn Gln  Gln Arg Arg Tyr Leu  Glu Lys Arg Ser Lys  His Ser Lys
```

3815 3820 3825

Lys Val Leu Asn Thr Gly His Pro Leu Val Thr Ser Glu His Thr
3830 3835 3840

Arg Arg Arg His Ile Gln Val Ala Asn His Val Ile Ser Ser Asp
3845 3850 3855

Ser Ile Ser Ser Ser Ala Ser Ser Phe Leu Ser Ser Asn Ser Thr
3860 3865 3870

Phe Cys Asn Lys Gln Asn Val His Met Leu Asn Lys Gly Ile Gln
3875 3880 3885

Ala Gly Asn Leu Glu Ile Val Asn Gly Ala Lys Lys His Thr Arg
3890 3895 3900

Asp Val Gly Ile Thr Phe Pro Thr Pro Ser Ser Ser Glu Ala Lys
3905 3910 3915

Leu Glu Glu Asn Ser Asp Val Thr Ser Trp Ser Glu Glu Lys Arg
3920 3925 3930

Glu Glu Lys Met Leu Phe Thr Gly Tyr Pro Glu Asp Arg Lys Leu
3935 3940 3945

Lys Lys Asn Lys Lys Asn Ser His Glu Gly Val Ser Trp Phe Val
3950 3955 3960

Pro Val Glu Asn Val Glu Ser Arg Ser Lys Lys Glu Asn Val Pro
3965 3970 3975

Asn Thr Cys Gly Pro Gly Ile Ser Trp Phe Glu Pro Ile Thr Lys
3980 3985 3990

Thr Arg Pro Trp Arg Glu Pro Leu Arg Glu Gln Asn Cys Gln Gly
3995 4000 4005

Gln His Leu Asp Gly Arg Gly Tyr Leu Ala Gly Pro Gly Arg Glu
4010 4015 4020

Ala Gly Arg Asp Leu Leu Arg Pro Phe Val Arg Ala Thr Leu Gln
4025 4030 4035

```
Glu Ser  Leu Gln Phe His Arg  Pro Asp Phe Ile Ser  Arg Ser Gly
    4040                4045                4050

Glu Arg  Ile Lys Arg Leu Lys  Leu Ile Val Gln Glu  Arg Lys Leu
    4055                4060                4065

Gln Ser  Met Leu Gln Thr Glu  Arg Asp Ala Leu Phe  Asn Ile Asp
    4070                4075                4080

Arg Glu  Arg Gln Gly His Gln  Asn Arg Met Cys Pro  Leu Pro Lys
    4085                4090                4095

Arg Val  Phe Leu Ala Ile Gln  Lys Asn Lys Pro Ile  Ser Lys Lys
    4100                4105                4110

Glu Met  Ile Gln Arg Ser Lys  Arg Ile Tyr Glu Gln  Leu Pro Glu
    4115                4120                4125

Val Gln  Lys Lys Arg Glu Glu  Glu Lys Arg Lys Ser  Glu Tyr Lys
    4130                4135                4140

Ser Tyr  Arg Leu Arg Ala Gln  Leu Tyr Lys Lys Arg  Val Thr Asn
    4145                4150                4155

Gln Leu  Leu Gly Arg Lys Val  Pro Trp Asp
    4160                4165


<210> 4340
<211> 553
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 969; "

<220>
<221> source
<223> /note="Gene Symbol: ASPSCR1; "

<220>
<221> source
<223> /note="Gene Name:
      alveolar soft part sarcoma chromosome
      region, candidate 1; "
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<220>
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<223> /note="Uniprot ID: Q9BZE9; "

<220>
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<400> 4340
Met Ala Ala Pro Ala Gly Gly Gly Gly Ser Ala Val Ser Val Leu Ala
1   5   10   15

Pro Asn Gly Arg Arg His Thr Val Lys Val Thr Pro Ser Thr Val Leu
            20   25   30

Leu Gln Val Leu Glu Asp Thr Cys Arg Arg Gln Asp Phe Asn Pro Cys
        35   40   45

Glu Tyr Asp Leu Lys Phe Gln Arg Ser Val Leu Asp Leu Ser Leu Gln
    50   55   60

Trp Arg Phe Ala Asn Leu Pro Asn Asn Ala Lys Leu Glu Met Val Pro
65   70   75   80

Ala Ser Arg Ser Arg Glu Gly Pro Glu Asn Met Val Arg Ile Ala Leu
                85   90   95

Gln Leu Asp Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys Ser Gly Gln
            100   105   110

Thr Leu Trp Glu Leu Leu Ser His Phe Pro Gln Ile Arg Glu Cys Leu
        115   120   125

Gln His Pro Gly Gly Ala Thr Pro Val Cys Val Tyr Thr Arg Asp Glu
    130   135   140

Val Thr Gly Glu Ala Ala Leu Arg Gly Thr Thr Leu Gln Ser Leu Gly
145   150   155   160

Leu Thr Gly Gly Ser Ala Thr Ile Arg Phe Val Met Lys Cys Tyr Asp
                165   170   175

Pro Val Gly Lys Thr Pro Gly Ser Leu Gly Ser Ser Ala Ser Ala Gly
            180   185   190

```
Gln Ala Ala Ala Ser Ala Pro Leu Pro Leu Glu Ser Gly Glu Leu Ser
        195                 200                 205

Arg Gly Asp Leu Ser Arg Pro Glu Asp Ala Asp Thr Ser Gly Pro Cys
    210                 215                 220

Cys Glu His Thr Gln Glu Lys Gln Ser Thr Arg Ala Pro Ala Ala Ala
225                 230                 235                 240

Pro Phe Val Pro Phe Ser Gly Gly Gly Gln Arg Leu Gly Gly Pro Pro
                245                 250                 255

Gly Pro Thr Arg Pro Leu Thr Ser Ser Ser Ala Lys Leu Pro Lys Ser
            260                 265                 270

Leu Ser Ser Pro Gly Gly Pro Ser Lys Pro Lys Lys Ser Lys Ser Gly
        275                 280                 285

Gln Asp Pro Gln Gln Glu Gln Glu Gln Glu Arg Glu Arg Asp Pro Gln
    290                 295                 300

Gln Glu Gln Glu Arg Glu Arg Pro Val Asp Arg Glu Pro Val Asp Arg
305                 310                 315                 320

Glu Pro Val Val Cys His Pro Asp Leu Glu Glu Arg Leu Gln Ala Trp
                325                 330                 335

Pro Ala Glu Leu Pro Asp Glu Phe Phe Glu Leu Thr Val Asp Asp Val
            340                 345                 350

Arg Arg Arg Leu Ala Gln Leu Lys Ser Glu Arg Lys Arg Leu Glu Glu
        355                 360                 365

Ala Pro Leu Val Thr Lys Ala Phe Arg Glu Ala Gln Ile Lys Glu Lys
    370                 375                 380

Leu Glu Arg Tyr Pro Lys Val Ala Leu Arg Val Leu Phe Pro Asp Arg
385                 390                 395                 400

Tyr Val Leu Gln Gly Phe Phe Arg Pro Ser Glu Thr Val Gly Asp Leu
                405                 410                 415

Arg Asp Phe Val Arg Ser His Leu Gly Asn Pro Glu Leu Ser Phe Tyr
```

```
            420                 425                 430

Leu Phe Ile Thr Pro Pro Lys Thr Val Leu Asp Asp His Thr Gln Thr
        435                 440                 445

Leu Phe Gln Ala Asn Leu Phe Pro Ala Ala Leu Val His Leu Gly Ala
    450                 455                 460

Glu Glu Pro Ala Gly Val Tyr Leu Glu Pro Gly Leu Leu Glu His Ala
465                 470                 475                 480

Ile Ser Pro Ser Ala Ala Asp Val Leu Val Ala Arg Tyr Met Ser Arg
                485                 490                 495

Ala Ala Gly Ser Pro Ser Pro Leu Pro Ala Pro Asp Pro Ala Pro Lys
            500                 505                 510

Ser Glu Pro Ala Ala Glu Glu Gly Ala Leu Val Pro Pro Glu Pro Ile
        515                 520                 525

Pro Gly Thr Ala Gln Pro Val Lys Arg Ser Leu Gly Lys Val Pro Lys
    530                 535                 540

Trp Leu Lys Leu Pro Ala Ser Lys Arg
545                 550


<210> 4341
<211> 647
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 969; "

<220>
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<220>
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<223> /note="Gene Name:
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      region, candidate 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BZE9; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000306625"

<400> 4341
Met Ala Ala Pro Ala Gly Gly Gly Gly Ser Ala Val Ser Val Leu Ala
1   5   10   15

Pro Asn Gly Arg Arg His Thr Val Lys Val Thr Pro Ser Thr Val Leu
            20   25   30

Leu Gln Val Leu Glu Asp Thr Cys Arg Arg Gln Asp Phe Asn Pro Cys
        35   40   45

Glu Tyr Asp Leu Lys Phe Gln Arg Ser Val Leu Asp Leu Ser Leu Gln
    50   55   60

Trp Arg Phe Ala Asn Leu Pro Asn Asn Ala Lys Leu Glu Met Val Pro
65   70   75   80

Ala Ser Arg Ser Arg Glu Gly Pro Glu Asn Met Val Arg Ile Ala Leu
                85   90   95

Gln Leu Asp Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys Ser Gly Gln
            100   105   110

Thr Leu Trp Glu Leu Leu Ser His Phe Pro Gln Ile Arg Glu Cys Leu
        115   120   125

Gln His Pro Gly Gly Ala Thr Pro Val Cys Val Tyr Thr Arg Asp Glu
    130   135   140

Val Thr Gly Glu Ala Ala Leu Arg Gly Thr Thr Leu Gln Ser Leu Gly
145   150   155   160

Leu Thr Gly Gly Ser Ala Thr Ile Arg Phe Val Met Lys Cys Tyr Asp
                165   170   175

Pro Val Gly Lys Thr Pro Gly Ser Leu Gly Ser Ser Ala Ser Ala Gly
            180   185   190

Gln Ala Ala Ala Ser Ala Pro Leu Pro Leu Glu Ser Gly Glu Leu Ser
        195   200   205

```
Arg Gly Asp Leu Ser Arg Pro Glu Asp Ala Asp Thr Ser Gly Pro Cys
    210                 215                 220

Cys Glu His Thr Gln Glu Lys Gln Ser Thr Arg Ala Pro Ala Ala Ala
225                 230                 235                 240

Pro Phe Val Pro Phe Ser Gly Gly Gly Gln Arg Leu Gly Gly Pro Pro
                245                 250                 255

Gly Pro Thr Arg Pro Leu Thr Ser Ser Ser Ala Lys Leu Pro Lys Ser
            260                 265                 270

Leu Ser Ser Pro Gly Gly Pro Ser Lys Pro Lys Lys Ser Lys Ser Gly
        275                 280                 285

Gln Asp Pro Gln Gln Glu Gln Glu Gln Glu Arg Glu Arg Asp Pro Gln
    290                 295                 300

Gln Glu Gln Glu Arg Glu Arg Pro Val Asp Arg Glu Pro Val Asp Arg
305                 310                 315                 320

Glu Pro Val Val Cys His Pro Asp Leu Glu Glu Arg Leu Gln Ala Trp
                325                 330                 335

Pro Ala Glu Leu Pro Asp Glu Phe Phe Glu Leu Thr Val Asp Asp Val
            340                 345                 350

Arg Arg Arg Leu Ala Gln Leu Lys Ser Glu Arg Lys Arg Leu Glu Glu
        355                 360                 365

Ala Pro Leu Val Thr Lys Ala Phe Arg Glu Ala Gln Ile Lys Glu Lys
    370                 375                 380

Leu Glu Arg Tyr Pro Lys Val Ala Leu Arg Val Leu Phe Pro Asp Arg
385                 390                 395                 400

Tyr Val Leu Gln Gly Phe Phe Arg Pro Ser Glu Thr Val Gly Asp Leu
                405                 410                 415

Arg Asp Phe Val Arg Ser His Leu Gly Asn Pro Glu Leu Ser Phe Tyr
            420                 425                 430
```

```
Leu Phe Ile Thr Pro Pro Lys Thr Val Leu Asp Asp His Thr Gln Thr
        435                 440                 445

Leu Phe Gln Pro Gln Leu Gly Asp Arg Val Ala Pro Phe Thr Leu Gly
    450                 455                 460

Pro Ser Leu Lys Arg Cys Leu Gly Pro Glu Gln Arg Thr Arg Leu Pro
465                 470                 475                 480

Val Val Gly Asp Gly Gly Asp Val Asp Ser Gly Arg Leu Leu Phe Trp
                485                 490                 495

Gly Pro Ser Arg Gly Arg Ala Ser Pro Ser Thr Gly Gln Pro Pro Cys
            500                 505                 510

His Pro Val Cys Arg Pro Ser Ser Pro Pro Ser Pro Arg Pro Ser Ser
        515                 520                 525

Gly Asp Pro Ser Arg Val Lys Ala Gly His Lys His Val Gly Thr Gly
    530                 535                 540

Arg Ala Asn Leu Phe Pro Ala Ala Leu Val His Leu Gly Ala Glu Glu
545                 550                 555                 560

Pro Ala Gly Val Tyr Leu Glu Pro Gly Leu Leu Glu His Ala Ile Ser
                565                 570                 575

Pro Ser Ala Ala Asp Val Leu Val Ala Arg Tyr Met Ser Arg Ala Ala
            580                 585                 590

Gly Ser Pro Ser Pro Leu Pro Ala Pro Asp Pro Ala Pro Lys Ser Glu
        595                 600                 605

Pro Ala Ala Glu Glu Gly Ala Leu Val Pro Pro Glu Pro Ile Pro Gly
    610                 615                 620

Thr Ala Gln Pro Val Lys Arg Ser Leu Gly Lys Val Pro Lys Trp Leu
625                 630                 635                 640

Lys Leu Pro Ala Ser Lys Arg
                645
```

<210> 4342

<211> 58
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 969; "

<220>
<221> source
<223> /note="Gene Symbol: ASPSCR1; "

<220>
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<223> /note="Gene Name:
alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000344020"

<400> 4342
Met Ala Ala Pro Ala Gly Gly Gly Gly Ser Ala Val Ser Val Leu Ala
1 5 10 15

Pro Asn Gly Arg Arg His Thr Val Lys Val Thr Pro Ser Thr Val Leu
20 25 30

Leu Gln Val Leu Glu Asp Thr Cys Arg Arg Gln Asp Phe Asn Pro Cys
35 40 45

Glu Tyr Asp Leu Lys Cys Pro Trp Ala Val
50 55

<210> 4343
<211> 179
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 969; "

<220>
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<223> /note="Gene Symbol: ASPSCR1; "

<220>
<221> source
<223> /note="Gene Name:
alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461980"

<400> 4343
Arg Val Leu Phe Pro Asp Arg Tyr Val Leu Gln Gly Phe Phe Arg Pro
1   5   10   15

Ser Glu Thr Val Gly Asp Leu Arg Asp Phe Val Arg Ser His Leu Gly
            20   25   30

Asn Pro Glu Leu Ser Phe Tyr Leu Phe Ile Thr Pro Pro Lys Thr Val
        35   40   45

Leu Asp Asp His Thr Gln Thr Leu Phe Gln Ala Asn Leu Phe Pro Ala
    50   55   60

Ala Leu Val His Leu Gly Ala Glu Glu Pro Ala Gly Val Tyr Leu Glu
65   70   75   80

Pro Gly Leu Leu Glu His Ala Ile Ser Pro Ser Ala Ala Asp Val Leu
                85   90   95

Val Ala Arg Tyr Met Ser Arg Ala Ala Gly Ser Pro Ser Pro Leu Pro
            100   105   110

Ala Pro Asp Pro Ala Pro Lys Ser Glu Pro Ala Ala Glu Glu Gly Ala
        115   120   125

Leu Val Pro Pro Glu Pro Ile Pro Gly Thr Ala Gln Pro Val Lys Arg
    130   135   140

Ser Leu Gly Lys Pro Ala Arg Gly Glu Ser Cys Gln Pro Glu Val Pro
145   150   155   160

Thr Pro Pro Ala Thr Gly Pro Pro Pro Leu Pro Ala Gly Ile Lys Thr
                165   170   175

Cys Ala Ser

<210> 4344
<211> 188
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ASPSCR1; "

<220>
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region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461984"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4344

```
Xaa Arg His Thr Val Lys Val Thr Pro Ser Thr Val Leu Leu Gln Val
1               5                   10                  15

Leu Glu Asp Thr Cys Arg Arg Gln Asp Phe Asn Pro Cys Glu Tyr Asp
            20                  25                  30

Leu Lys Phe Gln Arg Ser Val Leu Asp Leu Ser Leu Gln Trp Arg Phe
        35                  40                  45

Ala Asn Leu Pro Asn Asn Ala Lys Leu Glu Met Val Pro Ala Ser Arg
    50                  55                  60

Ser Arg Glu Gly Pro Glu Asn Met Val Arg Ile Ala Leu Gln Leu Asp
65                  70                  75                  80

Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys Ser Gly Gln Thr Leu Trp
                85                  90                  95

Glu Leu Leu Ser His Phe Pro Gln Ile Arg Glu Cys Leu Gln His Pro
            100                 105                 110

Gly Gly Ala Thr Pro Val Cys Val Tyr Thr Arg Asp Glu Pro Ser Pro
        115                 120                 125
```

```
Gly Gln Trp Arg Glu Thr Arg Ala Leu Glu Ser Thr Thr Cys Phe Met
    130                 135                 140

Glu Lys Glu Gly Val Ala Gly Pro Arg Ser Pro Gly Cys Pro Glu Thr
145                 150                 155                 160

Ser Leu Gly Ala Leu Phe Val Phe Ser Ala Ser Leu Lys Ala Gln Glu
                165                 170                 175

Ser Gln Lys Trp Phe His Leu Ile Asn Ile Cys Phe
            180                 185


<210> 4345
<211> 353
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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      alveolar soft part sarcoma chromosome
      region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462218"

<400> 4345
Met Lys Cys Tyr Asp Pro Val Gly Lys Thr Pro Gly Ser Leu Gly Ser
1               5                   10                  15

Ser Ala Ser Ala Gly Gln Ala Ala Ala Ser Ala Pro Leu Pro Leu Glu
            20                  25                  30

Ser Gly Glu Leu Ser Arg Gly Asp Leu Ser Arg Pro Glu Asp Ala Asp
        35                  40                  45

Thr Ser Gly Pro Cys Cys Glu His Thr Gln Glu Lys Gln Ser Thr Arg
    50                  55                  60
```

```
Ala Pro Ala Ala Ala Pro Phe Val Pro Phe Ser Gly Gly Gly Gln Arg
65                  70                  75                  80

Leu Gly Gly Pro Pro Gly Pro Thr Arg Pro Leu Thr Ser Ser Ser Ala
                85                  90                  95

Lys Leu Pro Lys Ser Leu Ser Ser Pro Gly Gly Pro Ser Lys Pro Lys
            100                 105                 110

Lys Ser Lys Ser Gly Gln Asp Pro Gln Gln Glu Gln Glu Gln Glu Arg
        115                 120                 125

Glu Arg Asp Pro Gln Gln Glu Gln Glu Arg Glu Arg Pro Val Asp Arg
    130                 135                 140

Glu Pro Val Asp Arg Glu Pro Val Val Cys His Pro Asp Leu Glu Glu
145                 150                 155                 160

Arg Leu Gln Ala Trp Pro Ala Glu Leu Pro Asp Glu Phe Phe Glu Leu
                165                 170                 175

Thr Val Asp Asp Val Arg Arg Arg Leu Ala Gln Leu Lys Ser Glu Arg
            180                 185                 190

Lys Arg Leu Glu Glu Ala Pro Leu Val Thr Lys Ala Phe Arg Glu Ala
        195                 200                 205

Gln Ile Lys Glu Lys Leu Glu Arg Tyr Pro Lys Val Ala Leu Arg Val
    210                 215                 220

Leu Phe Pro Asp Arg Tyr Val Leu Gln Gly Phe Phe Arg Pro Ser Glu
225                 230                 235                 240

Thr Val Gly Asp Leu Arg Asp Phe Val Arg Ser His Leu Gly Asn Pro
                245                 250                 255

Glu Leu Ser Phe Tyr Leu Phe Ile Thr Pro Pro Lys Thr Val Leu Asp
            260                 265                 270

Asp His Thr Gln Thr Leu Phe Gln Ala Asn Leu Phe Pro Ala Ala Leu
        275                 280                 285
```

```
Val His Leu Gly Ala Glu Glu Pro Ala Gly Val Tyr Leu Glu Pro Gly
    290                 295                 300

Leu Leu Glu His Ala Ile Ser Pro Ser Ala Ala Asp Val Leu Val Ala
305                 310                 315                 320

Arg Tyr Met Ser Arg Ala Ala Gly Ser Pro Ser Pro Leu Pro Ala Pro
                325                 330                 335

Asp Pro Ala Pro Lys Ser Glu Pro Ala Ala Glu Glu Gly Ala Leu Val
            340                 345                 350

Pro
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<210> 4346
<211> 501
<212> PRT
<213> Homo sapiens

<220>
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alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
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<223> /note="Uniprot ID: Q9BZE9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462329"

<400> 4346

```
Met Val Pro Ala Ser Arg Ser Arg Glu Gly Pro Glu Asn Met Val Arg
1               5                   10                  15

Ile Ala Leu Gln Leu Asp Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys
            20                  25                  30

Ser Gly Gln Thr Leu Trp Glu Leu Leu Ser His Phe Pro Gln Ile Arg
```

```
        35                  40                  45

Glu Cys Leu Gln His Pro Gly Gly Ala Thr Pro Val Cys Val Tyr Thr
    50                  55                  60

Arg Asp Glu Val Thr Gly Glu Ala Ala Leu Arg Gly Thr Thr Leu Gln
65                  70                  75                  80

Ser Leu Gly Leu Thr Gly Gly Ser Ala Thr Ile Arg Phe Val Met Lys
                85                  90                  95

Cys Tyr Asp Pro Val Gly Lys Thr Pro Gly Ser Leu Gly Ser Ser Ala
            100                 105                 110

Ser Ala Gly Gln Ala Ala Ala Ser Ala Pro Leu Pro Leu Glu Ser Gly
        115                 120                 125

Glu Leu Ser Arg Gly Asp Leu Ser Arg Pro Glu Asp Ala Asp Thr Ser
    130                 135                 140

Gly Pro Cys Cys Glu His Thr Gln Glu Lys Gln Ser Thr Arg Ala Pro
145                 150                 155                 160

Ala Ala Ala Pro Phe Val Pro Phe Ser Gly Gly Gly Gln Arg Leu Gly
                165                 170                 175

Gly Pro Pro Gly Pro Thr Arg Pro Leu Thr Ser Ser Ser Ala Lys Leu
            180                 185                 190

Pro Lys Ser Leu Ser Ser Pro Gly Gly Pro Ser Lys Pro Lys Lys Ser
        195                 200                 205

Lys Ser Gly Gln Asp Pro Gln Gln Glu Gln Glu Gln Glu Arg Glu Arg
    210                 215                 220

Asp Pro Gln Gln Glu Gln Glu Arg Glu Arg Pro Val Asp Arg Glu Pro
225                 230                 235                 240

Val Asp Arg Glu Pro Val Val Cys His Pro Asp Leu Glu Glu Arg Leu
                245                 250                 255

Gln Ala Trp Pro Ala Glu Leu Pro Asp Glu Phe Phe Glu Leu Thr Val
            260                 265                 270
```

```
Asp Asp Val Arg Arg Arg Leu Ala Gln Leu Lys Ser Glu Arg Lys Arg
        275                 280                 285

Leu Glu Glu Ala Pro Leu Val Thr Lys Ala Phe Arg Glu Ala Gln Ile
    290                 295                 300

Lys Glu Lys Leu Glu Arg Tyr Pro Lys Val Ala Leu Arg Val Leu Phe
305                 310                 315                 320

Pro Asp Arg Tyr Val Leu Gln Gly Phe Phe Arg Pro Ser Glu Thr Val
                325                 330                 335

Gly Asp Leu Arg Asp Phe Val Arg Ser His Leu Gly Asn Pro Glu Leu
            340                 345                 350

Ser Phe Tyr Leu Cys Leu Ser Ser Phe Gly Arg Met Asp Gly Arg Gly
        355                 360                 365

Pro Arg Cys Phe Leu Thr Arg Arg Cys Leu Leu Ser Ser Val Ile Thr
    370                 375                 380

Pro Pro Lys Thr Val Leu Asp Asp His Thr Gln Thr Leu Phe Gln Ala
385                 390                 395                 400

Asn Leu Phe Pro Ala Ala Leu Val His Leu Gly Ala Glu Glu Pro Ala
                405                 410                 415

Gly Val Tyr Leu Glu Pro Gly Leu Leu Glu His Ala Ile Ser Pro Ser
            420                 425                 430

Ala Ala Asp Val Leu Val Ala Arg Tyr Met Ser Arg Ala Ala Gly Ser
        435                 440                 445

Pro Ser Pro Leu Pro Ala Pro Asp Pro Ala Pro Lys Ser Glu Pro Ala
    450                 455                 460

Ala Glu Glu Gly Ala Leu Val Pro Pro Glu Pro Ile Pro Gly Thr Ala
465                 470                 475                 480

Gln Pro Val Lys Arg Ser Leu Gly Lys Val Pro Lys Trp Leu Lys Leu
                485                 490                 495
```

Pro Ala Ser Lys Arg
500

<210> 4347
<211> 307
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 969; "

<220>
<221> source
<223> /note="Gene Symbol: ASPSCR1; "

<220>
<221> source
<223> /note="Gene Name:
alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463316"

<400> 4347
Met Gly Val Phe Pro Glu Ala Ala Thr Lys Pro Leu Leu Ser Met Gly
1 5 10 15

Trp Cys Gly Lys Ser Leu Ser Ala Cys Gly Ser Ala Gly Ala Pro Val
20 25 30

Leu Glu Asp Thr Cys Arg Arg Gln Asp Phe Asn Pro Cys Glu Tyr Asp
35 40 45

Leu Lys Phe Gln Arg Ser Val Leu Asp Leu Ser Leu Gln Trp Arg Phe
50 55 60

Ala Asn Leu Pro Asn Asn Ala Lys Leu Glu Met Val Pro Ala Ser Arg
65 70 75 80

Ser Arg Glu Gly Pro Glu Asn Met Val Arg Ile Ala Leu Gln Leu Asp
85 90 95

Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys Ser Gly Gln Thr Leu Trp
100 105 110

```
Glu Leu Leu Ser His Phe Pro Gln Ile Arg Glu Cys Leu Gln His Pro
        115                 120                 125

Gly Gly Ala Thr Pro Val Cys Val Tyr Thr Arg Asp Glu Val Thr Gly
    130                 135                 140

Glu Ala Ala Leu Arg Gly Thr Thr Leu Gln Ser Leu Gly Leu Thr Gly
145                 150                 155                 160

Gly Ser Ala Thr Ile Arg Phe Val Met Lys Cys Tyr Asp Pro Val Gly
                165                 170                 175

Lys Thr Pro Gly Ser Leu Gly Ser Ser Ala Ser Ala Gly Gln Ala Ala
            180                 185                 190

Ala Ser Ala Pro Leu Pro Leu Glu Ser Gly Glu Leu Ser Arg Gly Asp
        195                 200                 205

Leu Ser Arg Pro Glu Asp Ala Asp Thr Ser Gly Pro Cys Cys Glu His
    210                 215                 220

Thr Gln Glu Lys Gln Ser Thr Arg Ala Pro Ala Ala Ala Pro Phe Val
225                 230                 235                 240

Pro Phe Ser Gly Gly Gly Gln Arg Leu Gly Gly Pro Pro Gly Pro Thr
                245                 250                 255

Arg Pro Leu Thr Ser Ser Ser Ala Lys Leu Pro Lys Ser Leu Ser Ser
            260                 265                 270

Pro Gly Gly Pro Ser Lys Pro Lys Lys Ser Lys Ser Gly Gln Asp Pro
        275                 280                 285

Gln Gln Glu Gln Glu Gln Glu Arg Glu Arg Asp Pro Gln Gln Glu Gln
    290                 295                 300

Glu Arg Glu
305
```

<210> 4348
<211> 4
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 969; "

<220>
<221> source
<223> /note="Gene Symbol: ASPSCR1; "

<220>
<221> source
<223> /note="Gene Name:
alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463708"

<400> 4348
Met Pro Ser Trp
1

<210> 4349
<211> 470
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 969; "

<220>
<221> source
<223> /note="Gene Symbol: ASPSCR1; "

<220>
<221> source
<223> /note="Gene Name:
alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463992"

<400> 4349
Met Val Pro Ala Ser Arg Ser Arg Glu Gly Pro Glu Asn Met Val Arg
1 5 10 15

Ile Ala Leu Gln Leu Asp Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys
20 25 30

Ser Gly Gln Thr Leu Trp Glu Leu Leu Ser His Phe Pro Gln Ile Arg
35 40 45

```
Glu Cys Leu Gln His Pro Gly Gly Ala Thr Pro Val Cys Val Tyr Thr
    50                  55                  60

Arg Asp Glu Val Thr Gly Glu Ala Ala Leu Arg Gly Thr Thr Leu Gln
65                  70                  75                  80

Ser Leu Gly Leu Thr Gly Gly Ser Ala Thr Ile Arg Phe Val Met Lys
                85                  90                  95

Cys Tyr Asp Pro Val Gly Lys Thr Pro Gly Ser Leu Gly Ser Ser Ala
            100                 105                 110

Ser Ala Gly Gln Ala Ala Ala Ser Ala Pro Leu Pro Leu Glu Ser Gly
        115                 120                 125

Glu Leu Ser Arg Gly Asp Leu Ser Arg Pro Glu Asp Ala Asp Thr Ser
    130                 135                 140

Gly Pro Cys Cys Glu His Thr Gln Glu Lys Gln Ser Thr Arg Ala Pro
145                 150                 155                 160

Ala Ala Ala Pro Phe Val Pro Phe Ser Gly Gly Gly Gln Arg Leu Gly
                165                 170                 175

Gly Pro Pro Gly Pro Thr Arg Pro Leu Thr Ser Ser Ser Ala Lys Leu
            180                 185                 190

Pro Lys Ser Leu Ser Ser Pro Gly Gly Pro Ser Lys Pro Lys Lys Ser
        195                 200                 205

Lys Ser Gly Gln Asp Pro Gln Gln Glu Gln Glu Gln Glu Arg Glu Arg
    210                 215                 220

Asp Pro Gln Gln Glu Gln Glu Arg Glu Arg Pro Val Asp Arg Glu Pro
225                 230                 235                 240

Val Asp Arg Glu Pro Val Val Cys His Pro Asp Leu Glu Glu Arg Leu
                245                 250                 255

Gln Ala Trp Pro Ala Glu Leu Pro Asp Glu Phe Phe Glu Leu Thr Val
            260                 265                 270
```

```
Asp Asp Val Arg Arg Arg Leu Ala Gln Leu Lys Ser Glu Arg Lys Arg
        275                 280                 285

Leu Glu Glu Ala Pro Leu Val Thr Lys Ala Phe Arg Glu Ala Gln Ile
    290                 295                 300

Lys Glu Lys Leu Glu Arg Tyr Pro Lys Thr Glu Ser Leu Ser Val Ala
305                 310                 315                 320

Gln Ala Gly Val Ser Gly Ala Ile Ser Ala His Cys Lys Leu Arg Leu
                325                 330                 335

Pro Gly Ser Ser Gly Ser Pro Ala Ser Ala Ser Gln Val Ala Gly Ile
            340                 345                 350

Ser Gly Gly Ser Glu Gly Pro Val Pro Arg Pro Leu Arg Pro Thr Gly
        355                 360                 365

Leu Leu Pro Pro Gln Arg Asp Ser Gly Gly Leu Ala Arg Leu Arg Glu
    370                 375                 380

Glu Pro Pro Gly Glu Pro Arg Ala Val Ile Leu Pro Val His His Pro
385                 390                 395                 400

Ser Lys Asn Ser Pro Gly Arg Pro His Ala Asp Pro Leu Ser Gly Glu
                405                 410                 415

Pro Leu Pro Gly Arg Ser Gly Ala Leu Gly Ser Arg Gly Ala Gly Arg
            420                 425                 430

Cys Leu Pro Gly Ala Trp Pro Ala Gly Ala Cys His Leu Pro Ile Cys
        435                 440                 445

Gly Arg Cys Ala Gly Gly Gln Val His Val Gln Gly Arg Arg Val Pro
    450                 455                 460

Phe Pro Ile Ala Ser Pro
465                 470
```

<210> 4350
<211> 160
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 969; "

<220>
<221> source
<223> /note="Gene Symbol: ASPSCR1; "

<220>
<221> source
<223> /note="Gene Name:
alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464044"

<400> 4350
Met Ala Ala Pro Ala Gly Gly Gly Gly Ser Ala Val Ser Val Leu Ala
1 5 10 15

Pro Asn Gly Arg Arg His Thr Val Lys Val Thr Pro Ser Thr Val Leu
20 25 30

Leu Gln Val Leu Glu Asp Thr Cys Arg Arg Gln Asp Phe Asn Pro Cys
35 40 45

Glu Tyr Asp Leu Lys Phe Gln Arg Ser Val Leu Asp Leu Ser Leu Gln
50 55 60

Trp Arg Phe Ala Asn Leu Pro Asn Asn Ala Lys Leu Glu Met Val Pro
65 70 75 80

Ala Ser Arg Ser Arg Glu Gly Pro Glu Asn Met Val Arg Ile Ala Leu
85 90 95

Gln Leu Asp Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys Ser Gly Gln
100 105 110

Thr Leu Trp Glu Leu Leu Ser His Phe Pro Gln Ile Ser Pro Trp Thr
115 120 125

Gly Ser Pro Trp Thr Gly Ser Arg Trp Cys Ala Thr Pro Thr Trp Arg
130 135 140

Ser Gly Cys Arg Pro Gly Gln Arg Ser Cys Leu Met Ser Ser Leu Ser

145 150 155 160

<210> 4351
<211> 182
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 969; "

<220>
<221> source
<223> /note="Gene Symbol: ASPSCR1; "

<220>
<221> source
<223> /note="Gene Name:
alveolar soft part sarcoma chromosome
region, candidate 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464408"

<400> 4351
Met Ala Ala Pro Ala Gly Gly Gly Gly Ser Ala Val Ser Val Leu Ala
1 5 10 15

Pro Asn Gly Arg Arg His Thr Val Lys Val Thr Pro Ser Thr Val Leu
20 25 30

Leu Gln Val Leu Glu Asp Thr Cys Arg Arg Gln Asp Phe Asn Pro Cys
35 40 45

Glu Tyr Asp Leu Lys Phe Gln Arg Ser Val Leu Asp Leu Ser Leu Gln
50 55 60

Trp Arg Phe Ala Asn Leu Pro Asn Asn Ala Lys Leu Glu Met Val Pro
65 70 75 80

Ala Ser Arg Ser Arg Glu Gly Pro Glu Asn Met Val Arg Ile Ala Leu
85 90 95

Gln Leu Asp Asp Gly Ser Arg Leu Gln Asp Ser Phe Cys Ser Gly Gln
100 105 110

Thr Leu Trp Glu Leu Leu Ser His Phe Pro Gln Ile Arg Glu Cys Leu
115 120 125

```
Gln His Pro Gly Gly Ala Thr Pro Val Cys Val Tyr Thr Arg Asp Glu
    130                 135                 140

Val Gly Gly Leu Leu Leu Leu Thr Gln Ser Pro Leu Thr Phe Ser Pro
145                 150                 155                 160

Leu Ser Asn Trp Lys Ile Cys Cys Pro Ala Ala Val Ser Arg Ala Val
                165                 170                 175

Ala Gly Asp Ser Gly Ser
            180
```

<210> 4352
<211> 326
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 970; "

<220>
<221> source
<223> /note="Gene Symbol: ALX1; "

<220>
<221> source
<223> /note="Gene Name:
ALX homeobox 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q15699; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000315417"

<400> 4352

```
Met Glu Phe Leu Ser Glu Lys Phe Ala Leu Lys Ser Pro Pro Ser Lys
1               5                   10                  15

Asn Ser Asp Phe Tyr Met Gly Ala Gly Gly Pro Leu Glu His Val Met
            20                  25                  30

Glu Thr Leu Asp Asn Glu Ser Phe Tyr Ser Lys Ala Ser Ala Gly Lys
        35                  40                  45
```

```
Cys Val Gln Ala Phe Gly Pro Leu Pro Arg Ala Glu His His Val Arg
    50                  55                  60

Leu Glu Arg Thr Ser Pro Cys Gln Asp Ser Ser Val Asn Tyr Gly Ile
65                  70                  75                  80

Thr Lys Val Glu Gly Gln Pro Leu His Thr Glu Leu Asn Arg Ala Met
                85                  90                  95

Asp Asn Cys Asn Ser Leu Arg Met Ser Pro Val Lys Gly Met Gln Glu
            100                 105                 110

Lys Gly Glu Leu Asp Glu Leu Gly Asp Lys Cys Asp Ser Asn Val Ser
        115                 120                 125

Ser Ser Lys Lys Arg Arg His Arg Thr Thr Phe Thr Ser Leu Gln Leu
    130                 135                 140

Glu Glu Leu Glu Lys Val Phe Gln Lys Thr His Tyr Pro Asp Val Tyr
145                 150                 155                 160

Val Arg Glu Gln Leu Ala Leu Arg Thr Glu Leu Thr Glu Ala Arg Val
                165                 170                 175

Gln Val Trp Phe Gln Asn Arg Arg Ala Lys Trp Arg Lys Arg Glu Arg
            180                 185                 190

Tyr Gly Gln Ile Gln Gln Ala Lys Ser His Phe Ala Ala Thr Tyr Asp
        195                 200                 205

Ile Ser Val Leu Pro Arg Thr Asp Ser Tyr Pro Gln Ile Gln Asn Asn
    210                 215                 220

Leu Trp Ala Gly Asn Ala Ser Gly Gly Ser Val Val Thr Ser Cys Met
225                 230                 235                 240

Leu Pro Arg Asp Thr Ser Ser Cys Met Thr Pro Tyr Ser His Ser Pro
                245                 250                 255

Arg Thr Asp Ser Ser Tyr Thr Gly Phe Ser Asn His Gln Asn Gln Phe
            260                 265                 270

Ser His Val Pro Leu Asn Asn Phe Phe Thr Asp Ser Leu Leu Thr Gly
```

```
        275                 280                 285

Ala Thr Asn Gly His Ala Phe Glu Thr Lys Pro Glu Phe Glu Arg Arg
    290                 295                 300

Ser Ser Ser Ile Ala Val Leu Arg Met Lys Ala Lys Glu His Thr Ala
305                 310                 315                 320

Asn Ile Ser Trp Ala Met
                325


<210> 4353
<211> 343
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 971; "

<220>
<221> source
<223> /note="Gene Symbol: ALX3; "

<220>
<221> source
<223> /note="Gene Name:
      ALX homeobox 3; "

<220>
<221> source
<223> /note="Uniprot ID:  O95076; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358807"

<400> 4353
Met Asp Pro Glu His Cys Ala Pro Phe Arg Val Gly Pro Ala Pro Gly
1               5                   10                  15

Pro Tyr Val Ala Ser Gly Asp Glu Pro Pro Gly Pro Gln Gly Thr Pro
            20                  25                  30

Ala Ala Ala Pro His Leu His Pro Ala Pro Pro Arg Gly Pro Arg Leu
        35                  40                  45

Thr Arg Phe Pro Ala Cys Gly Pro Leu Glu Pro Tyr Leu Pro Glu Pro
    50                  55                  60
```

Ala Lys Pro Pro Ala Lys Tyr Leu Gln Asp Leu Gly Pro Gly Pro Ala
65 70 75 80

Leu Asn Gly Gly His Phe Tyr Glu Gly Pro Ala Glu Ala Glu Glu Lys
85 90 95

Thr Ser Lys Ala Ala Ser Phe Pro Gln Leu Pro Leu Asp Cys Arg Gly
100 105 110

Gly Pro Arg Asp Gly Pro Ser Asn Leu Gln Gly Ser Pro Gly Pro Cys
115 120 125

Leu Ala Ser Leu His Leu Pro Leu Ser Pro Gly Leu Pro Asp Ser Met
130 135 140

Glu Leu Ala Lys Asn Lys Ser Lys Lys Arg Arg Asn Arg Thr Thr Phe
145 150 155 160

Ser Thr Phe Gln Leu Glu Glu Leu Glu Lys Val Phe Gln Lys Thr His
165 170 175

Tyr Pro Asp Val Tyr Ala Arg Glu Gln Leu Ala Leu Arg Thr Asp Leu
180 185 190

Thr Glu Ala Arg Val Gln Val Trp Phe Gln Asn Arg Arg Ala Lys Trp
195 200 205

Arg Lys Arg Glu Arg Tyr Gly Lys Ile Gln Glu Gly Arg Asn Pro Phe
210 215 220

Thr Ala Ala Tyr Asp Ile Ser Val Leu Pro Arg Thr Asp Ser His Pro
225 230 235 240

Gln Leu Gln Asn Ser Leu Trp Ala Ser Pro Gly Ser Gly Ser Pro Gly
245 250 255

Gly Pro Cys Leu Val Ser Pro Glu Gly Ile Pro Ser Pro Cys Met Ser
260 265 270

Pro Tyr Ser His Pro His Gly Ser Val Ala Gly Phe Met Gly Val Pro
275 280 285

```
Ala Pro Ser Ala Ala His Pro Gly Ile Tyr Ser Ile His Gly Phe Pro
    290                 295                 300

Pro Thr Leu Gly Gly His Ser Phe Glu Pro Ser Ser Asp Gly Asp Tyr
305                 310                 315                 320

Lys Ser Pro Ser Leu Val Ser Leu Arg Val Lys Pro Lys Glu Pro Pro
                325                 330                 335

Gly Leu Leu Asn Trp Thr Thr
            340


<210> 4354
<211> 411
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 972; "

<220>
<221> source
<223> /note="Gene Symbol: ALX4; "

<220>
<221> source
<223> /note="Gene Name:
      ALX homeobox 4; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9H161; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000332744"

<400> 4354
Met Asn Ala Glu Thr Cys Val Ser Tyr Cys Glu Ser Pro Ala Ala Ala
1               5                   10                  15

Met Asp Ala Tyr Tyr Ser Pro Val Ser Gln Ser Arg Glu Gly Ser Ser
            20                  25                  30

Pro Phe Arg Ala Phe Pro Gly Gly Asp Lys Phe Gly Thr Thr Phe Leu
        35                  40                  45

Ser Ala Ala Ala Lys Ala Gln Gly Phe Gly Asp Ala Lys Ser Arg Ala
    50                  55                  60
```

```
Arg Tyr Gly Ala Gly Gln Gln Asp Leu Ala Thr Pro Leu Glu Ser Gly
65                  70                  75                  80

Ala Gly Ala Arg Gly Ser Phe Asn Lys Phe Gln Pro Gln Pro Ser Thr
                85                  90                  95

Pro Gln Pro Gln Pro Pro Pro Gln Pro Gln Pro Gln Gln Gln Gln Pro
            100                 105                 110

Gln Pro Gln Pro Pro Ala Gln Pro His Leu Tyr Leu Gln Arg Gly Ala
        115                 120                 125

Cys Lys Thr Pro Pro Asp Gly Ser Leu Lys Leu Gln Glu Gly Ser Ser
    130                 135                 140

Gly His Ser Ala Ala Leu Gln Val Pro Cys Tyr Ala Lys Glu Ser Ser
145                 150                 155                 160

Leu Gly Glu Pro Glu Leu Pro Pro Asp Ser Asp Thr Val Gly Met Asp
                165                 170                 175

Ser Ser Tyr Leu Ser Val Lys Glu Ala Gly Val Lys Gly Pro Gln Asp
            180                 185                 190

Arg Ala Ser Ser Asp Leu Pro Ser Pro Leu Glu Lys Ala Asp Ser Glu
        195                 200                 205

Ser Asn Lys Gly Lys Lys Arg Arg Asn Arg Thr Thr Phe Thr Ser Tyr
    210                 215                 220

Gln Leu Glu Glu Leu Glu Lys Val Phe Gln Lys Thr His Tyr Pro Asp
225                 230                 235                 240

Val Tyr Ala Arg Glu Gln Leu Ala Met Arg Thr Asp Leu Thr Glu Ala
                245                 250                 255

Arg Val Gln Val Trp Phe Gln Asn Arg Arg Ala Lys Trp Arg Lys Arg
            260                 265                 270

Glu Arg Phe Gly Gln Met Gln Gln Val Arg Thr His Phe Ser Thr Ala
        275                 280                 285
```

```
Tyr Glu Leu Pro Leu Leu Thr Arg Ala Glu Asn Tyr Ala Gln Ile Gln
    290                 295                 300

Asn Pro Ser Trp Leu Gly Asn Asn Gly Ala Ala Ser Pro Val Pro Ala
305                 310                 315                 320

Cys Val Val Pro Cys Asp Pro Val Pro Ala Cys Met Ser Pro His Ala
                325                 330                 335

His Pro Pro Gly Ser Gly Ala Ser Ser Val Thr Asp Phe Leu Ser Val
            340                 345                 350

Ser Gly Ala Gly Ser His Val Gly Gln Thr His Met Gly Ser Leu Phe
        355                 360                 365

Gly Ala Ala Ser Leu Ser Pro Gly Leu Asn Gly Tyr Glu Leu Asn Gly
    370                 375                 380

Glu Pro Asp Arg Lys Thr Ser Ser Ile Ala Ala Leu Arg Met Lys Ala
385                 390                 395                 400

Lys Glu His Ser Ala Ala Ile Ser Trp Ala Thr
                405                 410


<210> 4355
<211> 264
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 973; "

<220>
<221> source
<223> /note="Gene Symbol: ALYREF; "

<220>
<221> source
<223> /note="Gene Name:
      Aly/REF export
      factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421592"

<400> 4355
```

```
Met Pro Asp Ser Ala Pro Ala Met Ala Asp Lys Met Asp Met Ser Leu
1               5                  10                  15

Asp Asp Ile Ile Lys Leu Asn Arg Ser Gln Arg Gly Gly Arg Gly Gly
            20                  25                  30

Gly Arg Gly Arg Gly Arg Ala Gly Ser Gln Gly Gly Arg Gly Gly Gly
        35                  40                  45

Ala Gln Ala Ala Ala Arg Val Asn Arg Gly Gly Gly Pro Ile Arg Asn
    50                  55                  60

Arg Pro Ala Ile Ala Arg Gly Ala Ala Gly Gly Gly Gly Arg Asn Arg
65                  70                  75                  80

Pro Ala Pro Tyr Ser Arg Pro Lys Gln Leu Pro Asp Lys Trp Gln His
                85                  90                  95

Asp Leu Phe Asp Ser Gly Phe Gly Gly Gly Ala Gly Val Glu Thr Gly
            100                 105                 110

Gly Lys Leu Leu Val Ser Asn Leu Asp Phe Gly Val Ser Asp Ala Asp
        115                 120                 125

Ile Gln Glu Leu Phe Ala Glu Phe Gly Thr Leu Lys Lys Ala Ala Val
    130                 135                 140

His Tyr Asp Arg Ser Gly Arg Ser Leu Gly Thr Ala Asp Val His Phe
145                 150                 155                 160

Glu Arg Lys Ala Asp Ala Leu Lys Ala Met Lys Gln Tyr Asn Gly Val
                165                 170                 175

Pro Leu Asp Gly Arg Pro Met Asn Ile Gln Leu Val Thr Ser Gln Ile
            180                 185                 190

Asp Ala Gln Arg Arg Pro Ala Gln Ser Val Asn Arg Gly Gly Met Thr
        195                 200                 205

Arg Asn Arg Gly Ala Gly Gly Phe Gly Gly Gly Gly Gly Thr Arg Arg
    210                 215                 220

Gly Thr Arg Gly Gly Ala Arg Gly Arg Gly Arg Gly Ala Gly Arg Asn
```

225 230 235 240

Ser Lys Gln Gln Leu Ser Ala Glu Glu Leu Asp Ala Gln Leu Asp Ala
245 250 255

Tyr Asn Ala Arg Met Asp Thr Ser
260

<210> 4356
<211> 447
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 974; "

<220>
<221> source
<223> /note="Gene Symbol: AMBN; "

<220>
<221> source
<223> /note="Gene Name:
ameloblastin (enamel matrix prt); "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP70; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000313809"

<400> 4356
Met Ser Ala Ser Lys Ile Pro Leu Phe Lys Met Lys Asp Leu Ile Leu
1 5 10 15

Ile Leu Cys Leu Leu Glu Met Ser Phe Ala Val Pro Phe Phe Pro Gln
20 25 30

Gln Ser Gly Thr Pro Gly Met Ala Ser Leu Ser Leu Glu Thr Met Arg
35 40 45

Gln Leu Gly Ser Leu Gln Arg Leu Asn Thr Leu Ser Gln Tyr Ser Arg
50 55 60

Tyr Gly Phe Gly Lys Ser Phe Asn Ser Leu Trp Met His Gly Leu Leu
65 70 75 80

```
Pro Pro His Ser Ser Leu Pro Trp Met Arg Pro Arg Glu His Glu Thr
                85                  90                  95

Gln Gln Tyr Glu Tyr Ser Leu Pro Val His Pro Pro Pro Leu Pro Ser
            100                 105                 110

Gln Pro Ser Leu Lys Pro Gln Gln Pro Gly Leu Lys Pro Phe Leu Gln
        115                 120                 125

Ser Ala Ala Ala Thr Thr Asn Gln Ala Thr Ala Leu Lys Glu Ala Leu
    130                 135                 140

Gln Pro Pro Ile His Leu Gly His Leu Pro Leu Gln Glu Gly Glu Leu
145                 150                 155                 160

Pro Leu Val Gln Gln Gln Val Ala Pro Ser Asp Lys Pro Pro Lys Pro
                165                 170                 175

Glu Leu Pro Gly Val Asp Phe Ala Asp Pro Gln Gly Pro Ser Leu Pro
            180                 185                 190

Gly Met Asp Phe Pro Asp Pro Gln Gly Pro Ser Leu Pro Gly Leu Asp
        195                 200                 205

Phe Ala Asp Pro Gln Gly Ser Thr Ile Phe Gln Ile Ala Arg Leu Ile
    210                 215                 220

Ser His Gly Pro Met Pro Gln Asn Lys Gln Ser Pro Leu Tyr Pro Gly
225                 230                 235                 240

Met Leu Tyr Val Pro Phe Gly Ala Asn Gln Leu Asn Ala Pro Ala Arg
                245                 250                 255

Leu Gly Ile Met Ser Ser Glu Glu Val Ala Gly Gly Arg Glu Asp Pro
            260                 265                 270

Met Ala Tyr Gly Ala Met Phe Pro Gly Phe Gly Gly Met Arg Pro Gly
        275                 280                 285

Phe Glu Gly Met Pro His Asn Pro Ala Met Gly Gly Asp Phe Thr Leu
    290                 295                 300
```

```
Glu Phe Asp Ser Pro Val Ala Ala Thr Lys Gly Pro Glu Asn Glu Glu
305                 310                 315                 320

Gly Gly Ala Gln Gly Ser Pro Met Pro Glu Ala Asn Pro Asp Asn Leu
                325                 330                 335

Glu Asn Pro Ala Phe Leu Thr Glu Leu Glu Pro Ala Pro His Ala Gly
            340                 345                 350

Leu Leu Ala Leu Pro Lys Asp Asp Ile Pro Gly Leu Pro Arg Ser Pro
        355                 360                 365

Ser Gly Lys Met Lys Gly Leu Pro Ser Val Thr Pro Ala Ala Ala Asp
    370                 375                 380

Pro Leu Met Thr Pro Glu Leu Ala Asp Val Tyr Arg Thr Tyr Asp Ala
385                 390                 395                 400

Asp Met Thr Thr Ser Val Asp Phe Gln Glu Glu Ala Thr Met Asp Thr
                405                 410                 415

Thr Met Ala Pro Asn Ser Leu Gln Thr Ser Met Pro Gly Asn Lys Ala
            420                 425                 430

Gln Glu Pro Glu Met Met His Asp Ala Trp His Phe Gln Glu Pro
        435                 440                 445


<210> 4357
<211> 432
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 974; "

<220>
<221> source
<223> /note="Gene Symbol: AMBN; "

<220>
<221> source
<223> /note="Gene Name:
      ameloblastin (enamel matrix prt); "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NP70; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000391234"

<400> 4357
Met Ser Ala Ser Lys Ile Pro Leu Phe Lys Met Lys Asp Leu Ile Leu
1   5   10   15

Ile Leu Cys Leu Leu Glu Met Ser Phe Ala Val Pro Phe Phe Pro Gln
            20   25   30

Gln Ser Gly Thr Pro Gly Met Ala Ser Leu Ser Leu Glu Thr Met Arg
        35   40   45

Gln Leu Gly Ser Leu Gln Arg Leu Asn Thr Leu Ser Gln Tyr Ser Arg
    50   55   60

Tyr Gly Phe Gly Lys Ser Phe Asn Ser Leu Trp Met His Gly Leu Leu
65   70   75   80

Pro Pro His Ser Ser Leu Pro Trp Met Arg Pro Arg Glu His Glu Thr
                85   90   95

Gln Gln Pro Ser Leu Lys Pro Gln Gln Pro Gly Leu Lys Pro Phe Leu
            100   105   110

Gln Ser Ala Ala Ala Thr Thr Asn Gln Ala Thr Ala Leu Lys Glu Ala
        115   120   125

Leu Gln Pro Pro Ile His Leu Gly His Leu Pro Leu Gln Glu Gly Glu
    130   135   140

Leu Pro Leu Val Gln Gln Gln Val Ala Pro Ser Asp Lys Pro Pro Lys
145   150   155   160

Pro Glu Leu Pro Gly Val Asp Phe Ala Asp Pro Gln Gly Pro Ser Leu
                165   170   175

Pro Gly Met Asp Phe Pro Asp Pro Gln Gly Pro Ser Leu Pro Gly Leu
            180   185   190

Asp Phe Ala Asp Pro Gln Gly Ser Thr Ile Phe Gln Ile Ala Arg Leu
        195   200   205

```
Ile Ser His Gly Pro Met Pro Gln Asn Lys Gln Ser Pro Leu Tyr Pro
    210                 215                 220

Gly Met Leu Tyr Val Pro Phe Gly Ala Asn Gln Leu Asn Ala Pro Ala
225                 230                 235                 240

Arg Leu Gly Ile Met Ser Ser Glu Glu Val Ala Gly Gly Arg Glu Asp
                245                 250                 255

Pro Met Ala Tyr Gly Ala Met Phe Pro Gly Phe Gly Gly Met Arg Pro
            260                 265                 270

Gly Phe Glu Gly Met Pro His Asn Pro Ala Met Gly Gly Asp Phe Thr
        275                 280                 285

Leu Glu Phe Asp Ser Pro Val Ala Ala Thr Lys Gly Pro Glu Asn Glu
    290                 295                 300

Glu Gly Gly Ala Gln Gly Ser Pro Met Pro Glu Ala Asn Pro Asp Asn
305                 310                 315                 320

Leu Glu Asn Pro Ala Phe Leu Thr Glu Leu Glu Pro Ala Pro His Ala
                325                 330                 335

Gly Leu Leu Ala Leu Pro Lys Asp Asp Ile Pro Gly Leu Pro Arg Ser
            340                 345                 350

Pro Ser Gly Lys Met Lys Gly Leu Pro Ser Val Thr Pro Ala Ala Ala
        355                 360                 365

Asp Pro Leu Met Thr Pro Glu Leu Ala Asp Val Tyr Arg Thr Tyr Asp
    370                 375                 380

Ala Asp Met Thr Thr Ser Val Asp Phe Gln Glu Glu Ala Thr Met Asp
385                 390                 395                 400

Thr Thr Met Ala Pro Asn Ser Leu Gln Thr Ser Met Pro Gly Asn Lys
                405                 410                 415

Ala Gln Glu Pro Glu Met Met His Asp Ala Trp His Phe Gln Glu Pro
            420                 425                 430
```

<210> 4358
<211> 446
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 974; "

<220>
<221> source
<223> /note="Gene Symbol: AMBN; "

<220>
<221> source
<223> /note="Gene Name:
ameloblastin (enamel matrix prt); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479096"

<400> 4358
Met Ser Ala Ser Lys Ile Pro Leu Phe Lys Met Lys Asp Leu Ile Leu
1 5 10 15

Ile Leu Cys Leu Leu Glu Met Ser Phe Ala Val Pro Phe Phe Pro Gln
20 25 30

Gln Ser Gly Thr Pro Gly Met Ala Ser Leu Ser Leu Glu Thr Met Arg
35 40 45

Gln Leu Gly Ser Leu Gln Arg Leu Asn Thr Leu Ser Gln Tyr Ser Arg
50 55 60

Tyr Gly Phe Gly Lys Ser Phe Asn Ser Leu Trp Met His Gly Leu Leu
65 70 75 80

Pro Pro His Ser Ser Leu Pro Trp Met Arg Pro Arg Glu His Glu Thr
85 90 95

Gln Gln Tyr Glu Tyr Ser Leu Pro Val His Pro Pro Pro Leu Pro Ser
100 105 110

Gln Pro Ser Leu Lys Pro Gln Gln Pro Gly Leu Lys Pro Phe Leu Gln
115 120 125

Ser Ala Ala Ala Thr Thr Asn Gln Ala Thr Ala Leu Lys Glu Ala Leu
130 135 140

```
Gln Pro Pro Ile His Leu Gly His Leu Pro Leu Gln Glu Gly Glu Leu
145                 150                 155                 160

Pro Leu Val Gln Gln Gln Val Ala Pro Ser Asp Lys Pro Pro Lys Pro
                165                 170                 175

Glu Leu Arg Val Asp Phe Ala Asp Pro Gln Gly Pro Ser Leu Pro Gly
            180                 185                 190

Met Asp Phe Pro Asp Pro Gln Gly Pro Ser Leu Pro Gly Leu Asp Phe
        195                 200                 205

Ala Asp Pro Gln Gly Ser Thr Ile Phe Gln Ile Ala Arg Leu Ile Ser
    210                 215                 220

His Gly Pro Met Pro Gln Asn Lys Gln Ser Pro Leu Tyr Pro Gly Met
225                 230                 235                 240

Leu Tyr Val Pro Phe Gly Ala Asn Gln Leu Asn Ala Pro Ala Arg Leu
                245                 250                 255

Gly Ile Met Ser Ser Glu Glu Val Ala Gly Gly Arg Glu Asp Pro Met
            260                 265                 270

Ala Tyr Gly Ala Met Phe Pro Gly Phe Gly Gly Met Arg Pro Gly Phe
        275                 280                 285

Glu Gly Met Pro His Asn Pro Ala Met Gly Gly Asp Phe Thr Leu Glu
    290                 295                 300

Phe Asp Ser Pro Val Ala Ala Thr Lys Gly Pro Glu Asn Glu Glu Gly
305                 310                 315                 320

Gly Ala Gln Gly Ser Pro Met Pro Glu Ala Asn Pro Asp Asn Leu Glu
                325                 330                 335

Asn Pro Ala Phe Leu Thr Glu Leu Glu Pro Ala Pro His Ala Gly Leu
            340                 345                 350

Leu Ala Leu Pro Lys Asp Asp Ile Pro Gly Leu Pro Arg Ser Pro Ser
        355                 360                 365
```

```
Gly Lys Met Lys Gly Leu Pro Ser Val Thr Pro Ala Ala Ala Asp Pro
    370                 375                 380

Leu Met Thr Pro Glu Leu Ala Asp Val Tyr Arg Thr Tyr Asp Ala Asp
385                 390                 395                 400

Met Thr Thr Ser Val Asp Phe Gln Glu Glu Ala Thr Met Asp Thr Thr
                405                 410                 415

Met Ala Pro Asn Ser Leu Gln Thr Ser Met Pro Gly Asn Lys Ala Gln
            420                 425                 430

Glu Pro Glu Met Met His Asp Ala Trp His Phe Gln Glu Pro
        435                 440                 445
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<210> 4359
<211> 175
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 975; "

<220>
<221> source
<223> /note="Gene Symbol: AMELX; "

<220>
<221> source
<223> /note="Gene Name:
amelogenin, X-linked; "

<220>
<221> source
<223> /note="Uniprot ID: Q99217; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000335312"

<400> 4359

```
Met Gly Thr Trp Ile Leu Phe Ala Cys Leu Leu Gly Ala Ala Phe Ala
1               5                   10                  15

Met Pro Val Leu Thr Pro Leu Lys Trp Tyr Gln Ser Ile Arg Pro Pro
            20                  25                  30

Tyr Pro Ser Tyr Gly Tyr Glu Pro Met Gly Gly Trp Leu His His Gln
```

```
        35                  40                  45

Ile Ile Pro Val Leu Ser Gln Gln His Pro Pro Thr His Thr Leu Gln
    50                  55                  60

Pro His His His Ile Pro Val Val Pro Ala Gln Gln Pro Val Ile Pro
65                  70                  75                  80

Gln Gln Pro Met Met Pro Val Pro Gly Gln His Ser Met Thr Pro Ile
                85                  90                  95

Gln His His Gln Pro Asn Leu Pro Pro Pro Ala Gln Gln Pro Tyr Gln
            100                 105                 110

Pro Gln Pro Val Gln Pro Gln Pro His Gln Pro Met Gln Pro Gln Pro
        115                 120                 125

Pro Val His Pro Met Gln Pro Leu Pro Pro Gln Pro Pro Leu Pro Pro
    130                 135                 140

Met Phe Pro Met Gln Pro Leu Pro Pro Met Leu Pro Asp Leu Thr Leu
145                 150                 155                 160

Glu Ala Trp Pro Ser Thr Asp Lys Thr Lys Arg Glu Glu Val Asp
                165                 170                 175


<210> 4360
<211> 205
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 975; "

<220>
<221> source
<223> /note="Gene Symbol: AMELX; "

<220>
<221> source
<223> /note="Gene Name:
      amelogenin, X-linked; "

<220>
<221> source
<223> /note="Uniprot ID:  Q99217; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000370088"

<400> 4360
Met Gly Thr Trp Ile Leu Phe Ala Cys Leu Leu Gly Ala Ala Phe Ala
1   5   10   15

Met Pro Leu Pro Pro His Pro Gly His Pro Gly Tyr Ile Asn Phe Ser
            20   25   30

Tyr Glu Asn Ser His Ser Gln Ala Ile Asn Val Asp Arg Thr Ala Leu
        35   40   45

Val Leu Thr Pro Leu Lys Trp Tyr Gln Ser Ile Arg Pro Pro Tyr Pro
    50   55   60

Ser Tyr Gly Tyr Glu Pro Met Gly Gly Trp Leu His His Gln Ile Ile
65   70   75   80

Pro Val Leu Ser Gln Gln His Pro Pro Thr His Thr Leu Gln Pro His
                85   90   95

His His Ile Pro Val Val Pro Ala Gln Gln Pro Val Ile Pro Gln Gln
            100   105   110

Pro Met Met Pro Val Pro Gly Gln His Ser Met Thr Pro Ile Gln His
        115   120   125

His Gln Pro Asn Leu Pro Pro Pro Ala Gln Gln Pro Tyr Gln Pro Gln
    130   135   140

Pro Val Gln Pro Gln Pro His Gln Pro Met Gln Pro Gln Pro Pro Val
145   150   155   160

His Pro Met Gln Pro Leu Pro Pro Gln Pro Pro Leu Pro Pro Met Phe
                165   170   175

Pro Met Gln Pro Leu Pro Pro Met Leu Pro Asp Leu Thr Leu Glu Ala
            180   185   190

Trp Pro Ser Thr Asp Lys Thr Lys Arg Glu Glu Val Asp
        195   200   205

<210> 4361
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 975; "

<220>
<221> source
<223> /note="Gene Symbol: AMELX; "

<220>
<221> source
<223> /note="Gene Name:
amelogenin, X-linked; "

<220>
<221> source
<223> /note="Uniprot ID: Q99217; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000370090"

<400> 4361
Met Gly Thr Trp Ile Leu Phe Ala Cys Leu Leu Gly Ala Ala Phe Ala
1   5   10   15

Met Pro Leu Pro Pro His Pro Gly His Pro Gly Tyr Ile Asn Phe Ser
            20   25   30

Tyr Glu Val Leu Thr Pro Leu Lys Trp Tyr Gln Ser Ile Arg Pro Pro
        35   40   45

Tyr Pro Ser Tyr Gly Tyr Glu Pro Met Gly Gly Trp Leu His His Gln
    50   55   60

Ile Ile Pro Val Leu Ser Gln Gln His Pro Pro Thr His Thr Leu Gln
65   70   75   80

Pro His His His Ile Pro Val Val Pro Ala Gln Gln Pro Val Ile Pro
                85   90   95

Gln Gln Pro Met Met Pro Val Pro Gly Gln His Ser Met Thr Pro Ile
            100   105   110

Gln His His Gln Pro Asn Leu Pro Pro Pro Ala Gln Gln Pro Tyr Gln
        115   120   125

```
Pro Gln Pro Val Gln Pro Gln Pro His Gln Pro Met Gln Pro Gln Pro
    130                 135                 140

Pro Val His Pro Met Gln Pro Leu Pro Pro Gln Pro Pro Leu Pro Pro
145                 150                 155                 160

Met Phe Pro Met Gln Pro Leu Pro Pro Met Leu Pro Asp Leu Thr Leu
                165                 170                 175

Glu Ala Trp Pro Ser Thr Asp Lys Thr Lys Arg Glu Glu Val Asp
            180                 185                 190


<210> 4362
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 976; "

<220>
<221> source
<223> /note="Gene Symbol: AMELY; "

<220>
<221> source
<223> /note="Gene Name:
      amelogenin, Y-linked; "

<220>
<221> source
<223> /note="Uniprot ID:  Q99218; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000215479"

<400> 4362
Met Gly Thr Trp Ile Leu Phe Ala Cys Leu Val Gly Ala Ala Phe Ala
1               5                   10                  15

Met Pro Leu Pro Pro His Pro Gly His Pro Gly Tyr Ile Asn Phe Ser
            20                  25                  30

Tyr Glu Val Leu Thr Pro Leu Lys Trp Tyr Gln Ser Met Ile Arg Pro
        35                  40                  45
```

```
Pro Tyr Ser Ser Tyr Gly Tyr Glu Pro Met Gly Gly Trp Leu His His
    50                  55                  60

Gln Ile Ile Pro Val Val Ser Gln Gln His Pro Leu Thr His Thr Leu
65                  70                  75                  80

Gln Ser His His His Ile Pro Val Val Pro Ala Gln Gln Pro Arg Val
                85                  90                  95

Arg Gln Gln Ala Leu Met Pro Val Pro Gly Gln Gln Ser Met Thr Pro
            100                 105                 110

Thr Gln His His Gln Pro Asn Leu Pro Leu Pro Ala Gln Gln Pro Phe
        115                 120                 125

Gln Pro Gln Pro Val Gln Pro Gln Pro His Gln Pro Met Gln Pro Gln
    130                 135                 140

Pro Pro Val Gln Pro Met Gln Pro Leu Leu Pro Gln Pro Pro Leu Pro
145                 150                 155                 160

Pro Met Phe Pro Leu Arg Pro Leu Pro Pro Ile Leu Pro Asp Leu His
                165                 170                 175

Leu Glu Ala Trp Pro Ala Thr Asp Lys Thr Lys Gln Glu Glu Val Asp
            180                 185                 190


<210> 4363
<211> 206
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 976; "

<220>
<221> source
<223> /note="Gene Symbol: AMELY; "

<220>
<221> source
<223> /note="Gene Name:
      amelogenin, Y-linked; "

<220>
<221> source
<223> /note="Uniprot ID:  Q99218; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000372505"

<400> 4363
Met Gly Thr Trp Ile Leu Phe Ala Cys Leu Val Gly Ala Ala Phe Ala
1   5   10   15

Met Pro Leu Pro Pro His Pro Gly His Pro Gly Tyr Ile Asn Phe Ser
            20   25   30

Tyr Glu Asn Ser His Ser Gln Ala Ile Asn Val Asp Arg Ile Ala Leu
        35   40   45

Val Leu Thr Pro Leu Lys Trp Tyr Gln Ser Met Ile Arg Pro Pro Tyr
    50   55   60

Ser Ser Tyr Gly Tyr Glu Pro Met Gly Gly Trp Leu His His Gln Ile
65   70   75   80

Ile Pro Val Val Ser Gln Gln His Pro Leu Thr His Thr Leu Gln Ser
                85   90   95

His His His Ile Pro Val Val Pro Ala Gln Gln Pro Arg Val Arg Gln
            100   105   110

Gln Ala Leu Met Pro Val Pro Gly Gln Gln Ser Met Thr Pro Thr Gln
        115   120   125

His His Gln Pro Asn Leu Pro Leu Pro Ala Gln Gln Pro Phe Gln Pro
    130   135   140

Gln Pro Val Gln Pro Gln Pro His Gln Pro Met Gln Pro Gln Pro Pro
145   150   155   160

Val Gln Pro Met Gln Pro Leu Leu Pro Gln Pro Pro Leu Pro Pro Met
                165   170   175

Phe Pro Leu Arg Pro Leu Pro Pro Ile Leu Pro Asp Leu His Leu Glu
            180   185   190

Ala Trp Pro Ala Thr Asp Lys Thr Lys Gln Glu Glu Val Asp
        195   200   205

<210> 4364
<211> 209
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 977; "

<220>
<221> source
<223> /note="Gene Symbol: AMTN; "

<220>
<221> source
<223> /note="Gene Name:
amelotin; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UX39; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000341013"

<400> 4364
Met Arg Ser Thr Ile Leu Leu Phe Cys Leu Leu Gly Ser Thr Arg Ser
1   5   10   15

Leu Pro Gln Leu Lys Pro Ala Leu Gly Leu Pro Pro Thr Lys Leu Ala
            20   25   30

Pro Asp Gln Gly Thr Leu Pro Asn Gln Gln Gln Ser Asn Gln Val Phe
        35   40   45

Pro Ser Leu Ser Leu Ile Pro Leu Thr Gln Met Leu Thr Leu Gly Pro
    50   55   60

Asp Leu His Leu Leu Asn Pro Ala Ala Gly Met Thr Pro Gly Thr Gln
65   70   75   80

Thr His Pro Leu Thr Leu Gly Gly Leu Asn Val Gln Gln Gln Leu His
                85   90   95

Pro His Val Leu Pro Ile Phe Val Thr Gln Leu Gly Ala Gln Gly Thr
            100   105   110

Ile Leu Ser Ser Glu Glu Leu Pro Gln Ile Phe Thr Ser Leu Ile Ile

```
        115                 120                 125

His Ser Leu Phe Pro Gly Gly Ile Leu Pro Thr Ser Gln Ala Gly Ala
    130                 135                 140

Asn Pro Asp Val Gln Asp Gly Ser Leu Pro Ala Gly Gly Ala Gly Val
145                 150                 155                 160

Asn Pro Ala Thr Gln Gly Thr Pro Ala Gly Arg Leu Pro Thr Pro Ser
                165                 170                 175

Gly Thr Asp Asp Asp Phe Ala Val Thr Thr Pro Ala Gly Ile Gln Arg
            180                 185                 190

Ser Thr His Ala Ile Glu Glu Ala Thr Thr Glu Ser Ala Asn Gly Ile
        195                 200                 205

Gln
```

<210> 4365
<211> 208
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 977; "

<220>
<221> source
<223> /note="Gene Symbol: AMTN; "

<220>
<221> source
<223> /note="Gene Name:
amelotin; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UX39; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422452"

<400> 4365

```
Met Arg Ser Thr Ile Leu Leu Phe Cys Leu Leu Gly Ser Thr Arg Ser
1               5                   10                  15
```

```
Leu Pro Leu Lys Pro Ala Leu Gly Leu Pro Pro Thr Lys Leu Ala Pro
            20                  25                  30

Asp Gln Gly Thr Leu Pro Asn Gln Gln Ser Asn Gln Val Phe Pro
        35                  40                  45

Ser Leu Ser Leu Ile Pro Leu Thr Gln Met Leu Thr Leu Gly Pro Asp
    50                  55                  60

Leu His Leu Leu Asn Pro Ala Ala Gly Met Thr Pro Gly Thr Gln Thr
65                  70                  75                  80

His Pro Leu Thr Leu Gly Gly Leu Asn Val Gln Gln Gln Leu His Pro
                85                  90                  95

His Val Leu Pro Ile Phe Val Thr Gln Leu Gly Ala Gln Gly Thr Ile
            100                 105                 110

Leu Ser Ser Glu Glu Leu Pro Gln Ile Phe Thr Ser Leu Ile Ile His
        115                 120                 125

Ser Leu Phe Pro Gly Gly Ile Leu Pro Thr Ser Gln Ala Gly Ala Asn
    130                 135                 140

Pro Asp Val Gln Asp Gly Ser Leu Pro Ala Gly Gly Ala Gly Val Asn
145                 150                 155                 160

Pro Ala Thr Gln Gly Thr Pro Ala Gly Arg Leu Pro Thr Pro Ser Gly
                165                 170                 175

Thr Asp Asp Asp Phe Ala Val Thr Thr Pro Ala Gly Ile Gln Arg Ser
            180                 185                 190

Thr His Ala Ile Glu Glu Ala Thr Thr Glu Ser Ala Asn Gly Ile Gln
        195                 200                 205


<210> 4366
<211> 426
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 978; "
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<220>
<221> source
<223> /note="Gene Symbol: AMDHD1; "

<220>
<221> source
<223> /note="Gene Name:
amidohydrolase
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q96NU7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000266736"

<400> 4366
Met Ala Ser Gly His Ser Leu Leu Leu Glu Asn Ala Gln Gln Val Val
1   5   10   15

Leu Val Cys Ala Arg Gly Glu Arg Phe Leu Ala Arg Asp Ala Leu Arg
            20   25   30

Ser Leu Ala Val Leu Glu Gly Ala Ser Leu Val Val Gly Lys Asp Gly
        35   40   45

Phe Ile Lys Ala Ile Gly Pro Ala Asp Val Ile Gln Arg Gln Phe Ser
    50   55   60

Gly Glu Thr Phe Glu Glu Ile Ile Asp Cys Ser Gly Lys Cys Ile Leu
65   70   75   80

Pro Gly Leu Val Asp Ala His Thr His Pro Val Trp Ala Gly Glu Arg
                85   90   95

Val His Glu Phe Ala Met Lys Leu Ala Gly Ala Thr Tyr Met Glu Ile
            100   105   110

His Gln Ala Gly Gly Gly Ile His Phe Thr Val Glu Arg Thr Arg Gln
        115   120   125

Ala Thr Glu Glu Glu Leu Phe Arg Ser Leu Gln Gln Arg Leu Gln Cys
    130   135   140

Met Met Arg Ala Gly Thr Thr Leu Val Glu Cys Lys Ser Gly Tyr Gly

145 150 155 160

Leu Asp Leu Glu Thr Glu Leu Lys Met Leu Arg Val Ile Glu Arg Ala
165 170 175

Arg Arg Glu Leu Asp Ile Gly Ile Ser Ala Thr Tyr Cys Gly Ala His
180 185 190

Ser Val Pro Lys Gly Lys Thr Ala Thr Glu Ala Ala Asp Asp Ile Ile
195 200 205

Asn Asn His Leu Pro Lys Leu Lys Glu Leu Gly Arg Asn Gly Glu Ile
210 215 220

His Val Asp Asn Ile Asp Val Phe Cys Glu Lys Gly Val Phe Asp Leu
225 230 235 240

Asp Ser Thr Arg Arg Ile Leu Gln Arg Gly Lys Asp Ile Gly Leu Gln
245 250 255

Ile Asn Phe His Gly Asp Glu Leu His Pro Met Lys Ala Ala Glu Leu
260 265 270

Gly Ala Glu Leu Gly Ala Gln Ala Ile Ser His Leu Glu Glu Val Ser
275 280 285

Asp Glu Gly Ile Val Ala Met Ala Thr Ala Arg Cys Ser Ala Ile Leu
290 295 300

Leu Pro Thr Thr Ala Tyr Met Leu Arg Leu Lys Gln Pro Arg Ala Arg
305 310 315 320

Lys Met Leu Asp Glu Gly Val Ile Val Ala Leu Gly Ser Asp Phe Asn
325 330 335

Pro Asn Ala Tyr Cys Phe Ser Met Pro Met Val Met His Leu Ala Cys
340 345 350

Val Asn Met Arg Met Ser Met Pro Glu Ala Leu Ala Ala Ala Thr Ile
355 360 365

Asn Ala Ala Tyr Ala Leu Gly Lys Ser His Thr His Gly Ser Leu Glu
370 375 380

```
Val Gly Lys Gln Gly Asp Leu Ile Ile Ile Asn Ser Ser Arg Trp Glu
385                 390                 395                 400


His Leu Ile Tyr Gln Phe Gly Gly His His Glu Leu Ile Glu Tyr Val
                405                 410                 415


Ile Ala Lys Gly Lys Leu Ile Tyr Lys Thr
            420                 425


<210> 4367
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 978; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD1; "

<220>
<221> source
<223> /note="Gene Name:
      amidohydrolase
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448632"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4367
Xaa Leu Val Val Gly Lys Asp Gly Phe Ile Lys Ala Ile Gly Pro Ala
1               5                   10                  15


Asp Val Ile Gln Arg Gln Phe Ser Gly Glu Thr Phe Glu Glu Ile Ile
            20                  25                  30


Asp Cys Ser Gly Lys Cys Ile Leu Pro Val Gly Arg Ser His Leu His
        35                  40                  45


Gly Asn Ser Pro Gly Arg Arg Arg Asp Pro Leu Tyr Arg Gly Ala His
```

```
    50                  55                  60

Ala Pro Ser His Arg Gly Gly Ala Val Pro Leu Leu Ala Ala Thr Ala
65                  70                  75                  80

Pro Val His Asp Glu Gly Trp His His Ala Gly Gly Val Gln Glu Trp
                85                  90                  95

Ile Trp Pro Arg Pro Gly Asp Arg Ala Gln Asp Ala Ala Arg Asp
            100                 105                 110


<210> 4368
<211> 6
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 978; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD1; "

<220>
<221> source
<223> /note="Gene Name:
      amidohydrolase
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448918"

<400> 4368
Met Lys Leu Ala Gly Ala
1               5


<210> 4369
<211> 409
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD2; "

<220>
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<221> source
<223> /note="Gene Name:
amidohydrolase
domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y303; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000293971"

<400> 4369

```
Met Arg Gly Glu Gln Gly Ala Ala Gly Ala Arg Val Leu Gln Phe Thr
1               5                  10                  15

Asn Cys Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp
            20                  25                  30

Val Arg Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu
        35                  40                  45

Arg Arg Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala
    50                  55                  60

Pro Gly Phe Ile Asp Val Gln Ile Asn Gly Gly Phe Gly Val Asp Phe
65                  70                  75                  80

Ser Gln Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg
                85                  90                  95

Arg Ile Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr
            100                 105                 110

Ser Pro Pro Glu Val Tyr His Lys Val Val Pro Gln Ile Pro Val Lys
        115                 120                 125

Ser Gly Gly Pro His Gly Ala Gly Val Leu Gly Leu His Leu Glu Gly
    130                 135                 140

Pro Phe Ile Ser Arg Glu Lys Arg Gly Ala His Pro Glu Ala His Leu
145                 150                 155                 160

Arg Ser Phe Glu Ala Asp Ala Phe Gln Asp Leu Leu Ala Thr Tyr Gly
                165                 170                 175
```

```
Pro Leu Asp Asn Val Arg Ile Val Thr Leu Ala Pro Glu Leu Gly Arg
            180                 185                 190

Ser His Glu Val Ile Arg Ala Leu Thr Ala Arg Gly Ile Cys Val Ser
        195                 200                 205

Leu Gly His Ser Val Ala Asp Leu Arg Ala Ala Glu Asp Ala Val Trp
    210                 215                 220

Ser Gly Ala Thr Phe Ile Thr His Leu Phe Asn Ala Met Leu Pro Phe
225                 230                 235                 240

His His Arg Asp Pro Gly Ile Val Gly Leu Leu Thr Ser Asp Arg Leu
                245                 250                 255

Pro Ala Gly Arg Cys Ile Phe Tyr Gly Met Ile Ala Asp Gly Thr His
            260                 265                 270

Thr Asn Pro Ala Ala Leu Arg Ile Ala His Arg Ala His Pro Gln Gly
        275                 280                 285

Leu Val Leu Val Thr Asp Ala Ile Pro Ala Leu Gly Leu Gly Asn Gly
    290                 295                 300

Arg His Thr Leu Gly Gln Gln Glu Val Glu Val Asp Gly Leu Thr Ala
305                 310                 315                 320

Tyr Val Ala Gly Thr Lys Thr Leu Ser Gly Ser Ile Ala Pro Met Asp
                325                 330                 335

Val Cys Val Arg His Phe Leu Gln Ala Thr Gly Cys Ser Met Glu Ser
            340                 345                 350

Ala Leu Glu Ala Ala Ser Leu His Pro Ala Gln Leu Leu Gly Leu Glu
        355                 360                 365

Lys Ser Lys Gly Thr Leu Asp Phe Gly Ala Asp Ala Asp Phe Val Val
    370                 375                 380

Leu Asp Asp Ser Leu His Val Gln Ala Thr Tyr Ile Ser Gly Glu Leu
385                 390                 395                 400
```

Val Trp Gln Ala Asp Ala Ala Arg Gln
405

<210> 4370
<211> 439
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD2; "

<220>
<221> source
<223> /note="Gene Name:
amidohydrolase
domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y303; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000307481"

<400> 4370
Met Arg Gly Glu Gln Gly Ala Ala Gly Ala Arg Val Leu Gln Phe Thr
1 5 10 15

Asn Cys Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp
20 25 30

Val Arg Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu
35 40 45

Arg Arg Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala
50 55 60

Pro Gly Phe Ile Asp Val Gln Ile Asn Gly Gly Phe Gly Val Asp Phe
65 70 75 80

Ser Gln Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg
85 90 95

Arg Ile Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr

```
            100                 105                 110

Ser Pro Pro Glu Val Tyr His Lys Val Val Pro Gln Ile Pro Val Lys
        115                 120                 125

Ser Gly Gly Pro His Gly Ala Gly Val Leu Gly Leu His Leu Glu Gly
    130                 135                 140

Pro Phe Ile Ser Arg Glu Lys Arg Gly Ala His Pro Glu Ala His Leu
145                 150                 155                 160

Arg Ser Phe Glu Ala Asp Ala Phe Gln Asp Leu Leu Ala Thr Tyr Gly
                165                 170                 175

Pro Leu Asp Asn Val Arg Ile Val Thr Leu Ala Pro Glu Leu Gly Arg
            180                 185                 190

Ser His Glu Val Ile Arg Ala Leu Thr Ala Arg Gly Ile Cys Val Ser
        195                 200                 205

Leu Gly His Ser Val Ala Asp Leu Arg Ala Ala Glu Asp Ala Val Trp
    210                 215                 220

Ser Gly Ala Thr Phe Ile Thr His Leu Phe Asn Ala Met Leu Pro Phe
225                 230                 235                 240

His His Arg Asp Pro Gly Ile Val Gly Leu Leu Thr Ser Asp Arg Leu
                245                 250                 255

Pro Ala Gly Arg Cys Ile Phe Tyr Gly Met Ile Ala Asp Gly Thr His
            260                 265                 270

Thr Asn Pro Ala Ala Leu Arg Ile Ala His Arg Ala His Pro Gln Gly
        275                 280                 285

Leu Val Leu Val Thr Asp Ala Ile Pro Ala Leu Gly Leu Gly Asn Gly
    290                 295                 300

Arg His Thr Leu Gly Gln Gln Glu Val Glu Val Asp Gly Leu Thr Ala
305                 310                 315                 320

Tyr Val Ala Gly Glu Arg Pro Asp Pro Leu Gly Pro Arg Ser Gln Pro
                325                 330                 335
```

```
Ala Cys Gln Val Ala His Asp Pro Pro Arg Ala Cys Pro Leu Cys Ser
            340                 345                 350

Gln Gly Thr Lys Thr Leu Ser Gly Ser Ile Ala Pro Met Asp Val Cys
        355                 360                 365

Val Arg His Phe Leu Gln Ala Thr Gly Cys Ser Met Glu Ser Ala Leu
    370                 375                 380

Glu Ala Ala Ser Leu His Pro Ala Gln Leu Leu Gly Leu Glu Lys Ser
385                 390                 395                 400

Lys Gly Thr Leu Asp Phe Gly Ala Asp Ala Asp Phe Val Val Leu Asp
                405                 410                 415

Asp Ser Leu His Val Gln Ala Thr Tyr Ile Ser Gly Glu Leu Val Trp
            420                 425                 430

Gln Ala Asp Ala Ala Arg Gln
        435


<210> 4371
<211> 594
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD2; "

<220>
<221> source
<223> /note="Gene Name:
      amidohydrolase
      domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y303; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391596"
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<400> 4371
Met Arg Gly Glu Gln Gly Ala Ala Gly Ala Arg Val Leu Gln Phe Thr
1 5 10 15

Asn Cys Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp
20 25 30

Val Arg Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu
35 40 45

Arg Arg Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala
50 55 60

Pro Gly Phe Ile Asp Val Gln Ile Asn Gly Gly Phe Gly Val Asp Phe
65 70 75 80

Ser Gln Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg
85 90 95

Arg Ile Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr
100 105 110

Ser Pro Pro Glu Val Tyr His Lys Val Val Pro Gln Ile Pro Val Lys
115 120 125

Ser Gly Gly Pro His Gly Ala Gly Val Leu Gly Leu His Leu Glu Gly
130 135 140

Pro Phe Ile Ser Arg Glu Lys Arg Gly Ala His Pro Glu Ala His Leu
145 150 155 160

Arg Ser Phe Glu Ala Asp Ala Phe Gln Asp Leu Leu Ala Thr Tyr Gly
165 170 175

Pro Leu Asp Asn Val Arg Ile Val Thr Leu Ala Pro Glu Leu Gly Arg
180 185 190

Ser His Glu Val Ile Arg Ala Leu Thr Ala Arg Gly Ile Cys Val Ser
195 200 205

Leu Gly His Ser Val Ala Asp Leu Arg Ala Ala Glu Asp Ala Val Trp
210 215 220

```
Ser Gly Ala Thr Phe Ile Thr His Leu Phe Asn Ala Met Leu Pro Phe
225                 230                 235                 240

His His Arg Asp Pro Gly Ile Val Gly Leu Leu Thr Ser Asp Arg Leu
                245                 250                 255

Pro Ala Gly Arg Cys Ile Phe Tyr Gly Met Ile Ala Asp Gly Thr His
            260                 265                 270

Thr Asn Pro Ala Ala Leu Arg Ile Ala His Arg Ala His Pro Gln Gly
        275                 280                 285

Leu Val Leu Val Thr Asp Ala Ile Pro Ala Leu Gly Leu Gly Asn Gly
    290                 295                 300

Arg His Thr Leu Gly Gln Gln Glu Val Glu Val Asp Gly Leu Thr Ala
305                 310                 315                 320

Tyr Val Ala Gly Glu Arg Pro Asp Pro Leu Gly Pro Arg Ser Gln Pro
                325                 330                 335

Ala Cys Gln Val Ala His Asp Pro Pro Arg Ala Cys Pro Leu Cys Ser
            340                 345                 350

Gln Gly Thr Lys Thr Leu Ser Gly Ser Ile Ala Pro Met Asp Val Cys
        355                 360                 365

Val Arg His Phe Leu Gln Ala Thr Gly Cys Ser Met Glu Ser Ala Leu
    370                 375                 380

Glu Ala Ala Ser Leu His Pro Ala Gln Leu Leu Gly Leu Glu Lys Ser
385                 390                 395                 400

Lys Gly Thr Leu Asp Phe Gly Ala Asp Ala Asp Phe Val Val Leu Asp
                405                 410                 415

Asp Ser Leu His Val Gln Ala Thr Tyr Ile Ser Gly Pro Val Leu Ala
            420                 425                 430

Gly Cys Gly Asp Pro Ala Trp Cys Trp Arg Ala Val Trp Glu Ala Pro
        435                 440                 445

Val Cys Pro Ala His Pro Ile Ser Val Ile Leu Pro Ser Ser Val Ser
```

```
    450                 455                 460

Pro Trp Pro Trp His Thr Pro Met Trp Gln Thr Arg Ala Val Arg Leu
465                 470                 475                 480

Pro Glu Gln Leu Arg Gly Gly Trp Ala Ser Gly Ala Leu Leu Ala Leu
                485                 490                 495

Arg Thr Ala Thr Val Gly Ser Asp Val Arg Asp Trp Cys Ser Pro Thr
            500                 505                 510

Ser Gly Val Ile Val Leu Thr Phe Ser Pro Phe Glu Phe Trp Gly Gly
        515                 520                 525

Trp Leu Pro Ser Pro Leu Leu Thr Gly Ala Val Leu Gly Thr Gly Gly
    530                 535                 540

Thr Arg Leu Ala Leu Pro Leu Phe Ser Ser Leu Cys Cys Lys Ala Gln
545                 550                 555                 560

Leu Arg Lys Cys Leu Gln Val Gln Arg Asp Arg Met Val Trp Ala Pro
                565                 570                 575

Pro Val Gly Arg Glu Gln Pro Gly Lys Asn His Leu Pro Gly Gln Gly
            580                 585                 590

Leu Ala
```

<210> 4372
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD2; "

<220>
<221> source
<223> /note="Gene Name:
amidohydrolase
domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456656"

<400> 4372
Met Arg Gly Glu Gln Gly Ala Ala Gly Ala Arg Val Leu Gln Phe Thr
1   5   10   15

Asn Cys Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp
            20   25   30

Val Arg Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu
        35   40   45

Arg Arg Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala
    50   55   60

Pro Gly Phe Ile Asp Val Gln Ile Asn Gly Gly Phe Gly Val Asp Phe
65   70   75   80

Ser Gln Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg
                85   90   95

Arg Ile Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr
            100   105   110

Ser Pro Pro Glu Val Tyr His Lys Ile Pro Val Lys Ser Gly Gly Pro
        115   120   125

His Gly Ala Gly Val Leu Gly Leu His Leu Glu Gly Pro Phe Ile Ser
    130   135   140

Arg Glu Lys Arg Gly Ala His Pro Glu Ala His
145   150   155

<210> 4373
<211> 300
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source

<223> /note="Gene Symbol: AMDHD2; "

<220>
<221> source
<223> /note="Gene Name:
amidohydrolase
domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456898"

<400> 4373

```
Met Arg Gly Glu Gln Gly Ala Ala Gly Ala Arg Val Leu Gln Phe Thr
1               5                  10                  15

Asn Cys Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp
            20                  25                  30

Val Arg Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu
        35                  40                  45

Arg Arg Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala
    50                  55                  60

Pro Gly Phe Ile Asp Val Gln Ile Asn Gly Gly Phe Gly Val Asp Phe
65                  70                  75                  80

Ser Gln Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg
                85                  90                  95

Arg Ile Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr
            100                 105                 110

Ser Pro Pro Glu Val Tyr His Lys Val Val Pro Gln Ile Pro Val Lys
        115                 120                 125

Ser Gly Gly Pro His Gly Ala Gly Val Leu Gly His Ser Val Ala Asp
    130                 135                 140

Leu Arg Ala Ala Glu Asp Ala Val Trp Ser Gly Ala Thr Phe Ile Thr
145                 150                 155                 160

His Leu Phe Asn Ala Met Leu Pro Phe His His Arg Asp Pro Gly Ile
                165                 170                 175
```

```
Val Gly Leu Leu Thr Ser Asp Arg Leu Pro Ala Gly Arg Cys Ile Phe
            180                 185                 190

Tyr Gly Met Ile Ala Asp Gly Thr His Thr Asn Pro Ala Ala Leu Arg
        195                 200                 205

Ile Ala His Arg Ala His Pro Gln Gly Leu Val Leu Val Thr Asp Ala
    210                 215                 220

Ile Pro Ala Leu Gly Leu Gly Asn Gly Arg His Thr Leu Gly Gln Gln
225                 230                 235                 240

Glu Val Glu Val Asp Gly Leu Thr Ala Tyr Val Ala Gly Cys Ser Met
                245                 250                 255

Glu Ser Ala Leu Glu Ala Ala Ser Leu His Pro Ala Gln Leu Leu Gly
            260                 265                 270

Leu Glu Lys Ser Lys Gly Thr Leu Asp Phe Gly Ala Asp Ala Asp Phe
        275                 280                 285

Val Val Leu Asp Asp Ser Leu His Val Gln Ala Thr
    290                 295                 300


<210> 4374
<211> 165
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD2; "

<220>
<221> source
<223> /note="Gene Name:
      amidohydrolase
      domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457021"

<400> 4374
Met Arg Gly Glu Gln Gly Ala Ala Gly Ala Arg Val Leu Gln Phe Thr
```

```
1               5                   10                  15

Asn Cys Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp
            20                  25                  30

Val Arg Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu
        35                  40                  45

Arg Arg Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala
    50                  55                  60

Pro Gly Phe Ile Asp Val Gln Ile Asn Gly Gly Phe Gly Val Asp Phe
65                  70                  75                  80

Ser Gln Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg
                85                  90                  95

Arg Ile Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr
            100                 105                 110

Ser Pro Pro Glu Val Tyr His Lys Gly Cys Thr Trp Arg Ala Pro Ser
        115                 120                 125

Ser Ala Gly Arg Ser Gly Ala Arg Thr Pro Arg Pro Thr Ser Ala Pro
    130                 135                 140

Ser Arg Pro Met Pro Ser Arg Thr Cys Trp Pro Pro Thr Gly Pro Trp
145                 150                 155                 160

Thr Met Ser Ala Ser
                165


<210> 4375
<211> 269
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD2; "

<220>
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<221> source
<223> /note="Gene Name:
amidohydrolase
domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457136"

<400> 4375
Met Leu Pro Phe His His Arg Asp Pro Gly Ile Val Gly Leu Leu Thr
1 5 10 15

Ser Asp Arg Leu Pro Ala Gly Arg Cys Ile Phe Tyr Gly Met Ile Ala
20 25 30

Asp Gly Thr His Thr Asn Pro Ala Ala Leu Arg Ile Ala His Arg Ala
35 40 45

His Pro Gln Gly Leu Val Leu Val Thr Asp Ala Ile Pro Ala Leu Gly
50 55 60

Leu Gly Asn Gly Arg His Thr Leu Gly Gln Gln Glu Val Glu Val Asp
65 70 75 80

Gly Leu Thr Ala Tyr Val Ala Gly Glu Arg Pro Asp Pro Leu Gly Pro
85 90 95

Arg Ser Gln Pro Ala Cys Gln Val Ala His Asp Pro Pro Arg Ala Cys
100 105 110

Pro Leu Cys Ser Gln Gly Thr Lys Thr Leu Ser Gly Ser Ile Ala Pro
115 120 125

Met Asp Val Cys Val Arg His Phe Leu Gln Ala Thr Gly Cys Ser Met
130 135 140

Glu Ser Ala Leu Glu Ala Ala Ser Leu His Pro Ala Gln Leu Leu Gly
145 150 155 160

Leu Glu Lys Ser Lys Gly Thr Leu Asp Phe Gly Ala Asp Ala Asp Phe
165 170 175

Val Val Leu Asp Asp Ser Leu His Val Gln Ala Thr Tyr Ile Ser Gly
180 185 190

```
Pro Val Leu Ala Gly Cys Gly Asp Pro Ala Trp Cys Trp Arg Ala Val
        195                 200                 205

Trp Glu Ala Pro Val Cys Pro Ala His Pro Ile Ser Val Ile Leu Pro
    210                 215                 220

Ser Ser Val Ser Pro Trp Pro Trp His Thr Pro Met Trp Gln Thr Arg
225                 230                 235                 240

Ala Val Arg Leu Pro Glu Gln Leu Arg Gly Gly Trp Ala Ser Gly Ala
                245                 250                 255

Leu Leu Ala Leu Arg Thr Ala Thr Val Gly Ser Asp Val
            260                 265


<210> 4376
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 979; "

<220>
<221> source
<223> /note="Gene Symbol: AMDHD2; "

<220>
<221> source
<223> /note="Gene Name:
      amidohydrolase
      domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457398"

<400> 4376
Met Arg Gly Glu Gln Gly Ala Ala Gly Ala Arg Val Leu Gln Phe Thr
1               5                   10                  15

Asn Cys Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp
            20                  25                  30

Val Arg Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu
        35                  40                  45
```

```
Arg Arg Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala
    50                  55                  60

Pro Gly Phe Ile Asp Val Gln Ile Asn Gly Gly Phe Gly Val Asp Phe
65                  70                  75                  80

Ser Gln Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg
                85                  90                  95

Arg Ile Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr
            100                 105                 110

Ser Pro Pro Glu Val Tyr His Lys Val Val Pro Gln Ile Pro Val Lys
        115                 120                 125

Ser Gly Gly Pro His Gly Ala Gly Val Leu Gly His Ser Val Ala Asp
    130                 135                 140

Leu Arg Ala Ala Glu Asp Ala Val Trp Ser Gly Ala Thr Phe Ile Thr
145                 150                 155                 160

His Leu Phe Asn Ala Met Leu Pro Phe His His Arg Asp Pro Gly Ile
                165                 170                 175

Val Gly Leu Leu Thr Ser Asp Arg Leu Pro Ala Gly Arg Cys Ile Phe
            180                 185                 190

Tyr Gly Met Ile Ala Asp Gly Thr His Thr Asn Pro Ala Ala Leu Arg
        195                 200                 205

Ile Ala His Arg Ala His Pro Gln Gly Leu Val Leu Val Thr Asp Ala
    210                 215                 220

Ile Pro Ala Leu Gly Leu Gly Asn Gly Arg His Thr Leu Gly Gln Gln
225                 230                 235                 240

Glu Val Glu Val Asp Gly Leu Thr Ala Tyr Val Ala Gly Glu Arg Pro
                245                 250                 255

Asp Pro Leu Gly Pro Arg Ser Gln Pro Ala Cys Gln Val Ala His Asp
            260                 265                 270

Pro Pro Arg Ala Cys Pro Leu Cys Ser Gln Gly Thr Lys Thr Leu Ser
```

275 280 285

Gly Ser Ile Ala Pro Met Asp Val
290 295

<210> 4377
<211> 751
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 980; "

<220>
<221> source
<223> /note="Gene Symbol: AOC1; "

<220>
<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: P19801; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354193"

<400> 4377
Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val
20 25 30

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

```
Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
            100                 105                 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
        115                 120                 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
    130                 135                 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145                 150                 155                 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
                165                 170                 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
            180                 185                 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
        195                 200                 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
    210                 215                 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225                 230                 235                 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
                245                 250                 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
            260                 265                 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
        275                 280                 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
    290                 295                 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305                 310                 315                 320
```

```
Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
                325                 330                 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
            340                 345                 350

Gln Glu Ala Val Ala Leu Tyr Gly Gly His Thr Pro Ala Gly Met Gln
        355                 360                 365

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
    370                 375                 380

Leu Ala Pro Gly Ile Asp Cys Pro Glu Thr Ala Thr Phe Leu Asp Thr
385                 390                 395                 400

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
                405                 410                 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
            420                 425                 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
        435                 440                 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
    450                 455                 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465                 470                 475                 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
                485                 490                 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
            500                 505                 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
        515                 520                 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
    530                 535                 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
```

545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Thr
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 4378
<211> 770
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 980; "

<220>
<221> source
<223> /note="Gene Symbol: AOC1; "

<220>
<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: P19801; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000411613"

<400> 4378

```
Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1               5                  10                  15

Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val
            20                  25                  30

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
        35                  40                  45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
    50                  55                  60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65                  70                  75                  80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
                85                  90                  95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
            100                 105                 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
        115                 120                 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
    130                 135                 140
```

```
Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145                 150                 155                 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
                165                 170                 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
            180                 185                 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
        195                 200                 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
    210                 215                 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225                 230                 235                 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
                245                 250                 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
            260                 265                 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
        275                 280                 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
    290                 295                 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305                 310                 315                 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
                325                 330                 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
            340                 345                 350

Gln Glu Ala Val Ala Leu Tyr Gly Gly His Thr Pro Ala Gly Met Gln
        355                 360                 365

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
```

370 375 380

Leu Ala Pro Gly Ile Asp Cys Pro Glu Thr Ala Thr Phe Leu Asp Thr
385 390 395 400

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Thr
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

```
Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Thr Glu Gly Gly Gln
    610                 615                 620

Pro Arg Ala Leu Ser Gln Ala Ala Ser Pro Val Pro Gly Arg Tyr Pro
625                 630                 635                 640

Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile
                645                 650                 655

Tyr His Gln Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe
            660                 665                 670

Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val
        675                 680                 685

Thr Val Gly Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr
    690                 695                 700

Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe
705                 710                 715                 720

Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp
                725                 730                 735

Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp
            740                 745                 750

Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg
        755                 760                 765

Pro Val
    770


<210> 4379
<211> 337
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 980; "

<220>
<221> source
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<223> /note="Gene Symbol: AOC1; "

<220>
<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417392"

<400> 4379

```
Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1               5                  10                  15

Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val
            20                  25                  30

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
        35                  40                  45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
    50                  55                  60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65                  70                  75                  80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
                85                  90                  95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
            100                 105                 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
        115                 120                 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
    130                 135                 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145                 150                 155                 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
                165                 170                 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
```

```
            180                 185                 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
        195                 200                 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
    210                 215                 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225                 230                 235                 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
                245                 250                 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
            260                 265                 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
        275                 280                 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
    290                 295                 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305                 310                 315                 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
                325                 330                 335

Leu


<210> 4380
<211> 751
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 980; "

<220>
<221> source
<223> /note="Gene Symbol: AOC1; "

<220>
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<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: P19801; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418328"

<400> 4380

```
Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1               5                  10                  15

Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val
            20                  25                  30

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
        35                  40                  45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
    50                  55                  60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65                  70                  75                  80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
                85                  90                  95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
            100                 105                 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
        115                 120                 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
    130                 135                 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145                 150                 155                 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
                165                 170                 175
```

```
Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
            180                 185                 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
        195                 200                 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
    210                 215                 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225                 230                 235                 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
                245                 250                 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
            260                 265                 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
        275                 280                 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
    290                 295                 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305                 310                 315                 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
                325                 330                 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
            340                 345                 350

Gln Glu Ala Val Ala Leu Tyr Gly Gly His Thr Pro Ala Gly Met Gln
        355                 360                 365

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
    370                 375                 380

Leu Ala Pro Gly Ile Asp Cys Pro Glu Thr Ala Thr Phe Leu Asp Thr
385                 390                 395                 400

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
```

405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Thr
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

```
Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
                645                 650                 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
            660                 665                 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
        675                 680                 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
    690                 695                 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705                 710                 715                 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
                725                 730                 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
            740                 745                 750


<210> 4381
<211> 249
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 980; "

<220>
<221> source
<223> /note="Gene Symbol: AOC1; "

<220>
<221> source
<223> /note="Gene Name:
      amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418557"

<400> 4381
Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1               5                   10                  15
```

```
Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val
            20                  25                  30

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
        35                  40                  45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
    50                  55                  60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65                  70                  75                  80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
                85                  90                  95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
            100                 105                 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
        115                 120                 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
    130                 135                 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145                 150                 155                 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
                165                 170                 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
            180                 185                 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
        195                 200                 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
    210                 215                 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225                 230                 235                 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu
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<210> 4382
<211> 751
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 980; "

<220>
<221> source
<223> /note="Gene Symbol: AOC1; "

<220>
<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: P19801; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418614"

<400> 4382
Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1   5   10   15

Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val
            20   25   30

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
        35   40   45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
    50   55   60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65   70   75   80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
                85   90   95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
            100   105   110

```
Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
        115                 120                 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
    130                 135                 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145                 150                 155                 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
                165                 170                 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
            180                 185                 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
        195                 200                 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
    210                 215                 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225                 230                 235                 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
                245                 250                 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
            260                 265                 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
        275                 280                 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
    290                 295                 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305                 310                 315                 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
                325                 330                 335
```

```
Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
            340                 345                 350

Gln Glu Ala Val Ala Leu Tyr Gly Gly His Thr Pro Ala Gly Met Gln
        355                 360                 365

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
    370                 375                 380

Leu Ala Pro Gly Ile Asp Cys Pro Glu Thr Ala Thr Phe Leu Asp Thr
385                 390                 395                 400

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
                405                 410                 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
            420                 425                 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
        435                 440                 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
    450                 455                 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465                 470                 475                 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
                485                 490                 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
            500                 505                 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
        515                 520                 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
    530                 535                 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545                 550                 555                 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
```

565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Thr
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 4383
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 980; "

<220>

<221> source
<223> /note="Gene Symbol: AOC1; "

<220>
<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481520"

<400> 4383

```
Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr Phe Tyr
1               5                  10                  15

Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His Leu Ile
            20                  25                  30

Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu Asp Val
        35                  40                  45

Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu Glu Asn
    50                  55                  60

Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro Thr Leu
65                  70                  75                  80

Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys
                85                  90                  95

Arg Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro
            100                 105                 110

Trp Gly His Lys Arg Thr Tyr Arg Leu Gln Ile His Ser Met Ala Asp
        115                 120                 125

Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala
    130                 135                 140

Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser
145                 150                 155                 160

Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Trp Ser Leu
                165                 170                 175
```

Ser Ser Phe Phe Thr Thr Thr Arg Thr Leu Lys Met Arg Thr Trp Trp
180 185 190

Pro Gly

<210> 4384
<211> 710
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 980; "

<220>
<221> source
<223> /note="Gene Symbol: AOC1; "

<220>
<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481717"

<400> 4384
Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val
20 25 30

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

```
Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
        115                 120                 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
    130                 135                 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145                 150                 155                 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
                165                 170                 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
            180                 185                 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
        195                 200                 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
    210                 215                 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225                 230                 235                 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
                245                 250                 255

Glu Val Asp Val Val Val Leu Glu Asp Arg Cys Leu Gly Ala Arg Gly
            260                 265                 270

Met Thr Ala Gln Arg Ser Arg Pro Ser Ser Pro Pro Gln Ala Pro Arg
        275                 280                 285

Gly Leu Pro Gln Pro His Pro Cys Glu Arg Pro Pro Leu Gly Pro Ala
    290                 295                 300

Pro Arg Pro Ser Leu Gln Ala Gly Gly Gln Arg Cys Ala Leu Arg Arg
305                 310                 315                 320

Leu Glu Leu Cys Leu Pro Leu Arg Ser Ser Ser Gly Leu Gln Val Leu
                325                 330                 335
```

Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val Gln
340 345 350

Glu Ala Val Ala Leu Tyr Gly Gly His Thr Pro Ala Gly Met Gln Thr
355 360 365

Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu Leu
370 375 380

Ala Pro Gly Ile Asp Cys Pro Glu Thr Ala Thr Phe Leu Asp Thr Phe
385 390 395 400

His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu Cys
405 410 415

Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn Ser
420 425 430

Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln Val
435 440 445

Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile Trp
450 455 460

Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His Ala
465 470 475 480

Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Cys Ala Arg
485 490 495

His Ser Pro Ala His Pro Pro Asp Trp Gln His Thr His Ser Leu Val
500 505 510

His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser Phe Gln
515 520 525

Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg
530 535 540

His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu
545 550 555 560

```
Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr Leu Leu
                565                 570                 575

Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Thr Tyr Arg
            580                 585                 590

Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly Trp Gln
        595                 600                 605

Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys
    610                 615                 620

Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln Asn Asp
625                 630                 635                 640

Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn Asn Glu
                645                 650                 655

Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly Phe Leu
            660                 665                 670

His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn
        675                 680                 685

Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro
    690                 695                 700

Trp His Pro Glu Thr Leu
705                 710
```

<210> 4385
<211> 756
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 981; "

<220>
<221> source
<223> /note="Gene Symbol: AOC2; "

<220>
<221> source
<223> /note="Gene Name:
amine oxidase, copper containing 2 (retina-specific); "

<220>
<221> source
<223> /note="Uniprot ID: O75106; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000253799"

<400> 4385
Met His Leu Lys Ile Val Leu Ala Phe Leu Ala Leu Ser Leu Ile Thr
1   5   10   15

Ile Phe Ala Leu Ala Tyr Val Leu Leu Thr Ser Pro Gly Gly Ser Ser
            20   25   30

Gln Pro Pro His Cys Pro Ser Val Ser His Arg Ala Gln Pro Trp Pro
        35   40   45

His Pro Gly Gln Ser Gln Leu Phe Ala Asp Leu Ser Arg Glu Glu Leu
    50   55   60

Thr Ala Val Met Arg Phe Leu Thr Gln Arg Leu Gly Pro Gly Leu Val
65   70   75   80

Asp Ala Ala Gln Ala Gln Pro Ser Asp Asn Cys Ile Phe Ser Val Glu
                85   90   95

Leu Gln Leu Pro Pro Lys Ala Ala Ala Leu Ala His Leu Asp Arg Gly
            100   105   110

Ser Pro Pro Pro Ala Arg Glu Ala Leu Ala Ile Val Leu Phe Gly Gly
        115   120   125

Gln Pro Gln Pro Asn Val Ser Glu Leu Val Val Gly Pro Leu Pro His
    130   135   140

Pro Ser Tyr Met Arg Asp Val Thr Val Glu Arg His Gly Gly Pro Leu
145   150   155   160

Pro Tyr His Arg Arg Pro Val Leu Arg Ala Glu Phe Thr Gln Met Trp
                165   170   175

Arg His Leu Lys Glu Val Glu Leu Pro Lys Ala Pro Ile Phe Leu Ser
            180   185   190

```
Ser Thr Phe Asn Tyr Asn Gly Ser Thr Leu Ala Ala Val His Ala Thr
        195                 200                 205

Pro Arg Gly Leu Arg Ser Gly Asp Arg Ala Thr Trp Met Ala Leu Tyr
    210                 215                 220

His Asn Ile Ser Gly Val Gly Leu Phe Leu His Pro Val Gly Leu Glu
225                 230                 235                 240

Leu Leu Leu Asp His Arg Ala Leu Asp Pro Ala His Trp Thr Val Gln
                245                 250                 255

Gln Val Phe Tyr Leu Gly His Tyr Tyr Ala Asp Leu Gly Gln Leu Glu
            260                 265                 270

Arg Glu Phe Lys Ser Gly Arg Leu Glu Val Val Arg Val Pro Leu Pro
        275                 280                 285

Pro Pro Asn Gly Ala Ser Ser Leu Arg Ser Arg Asn Ser Pro Gly Pro
    290                 295                 300

Leu Pro Pro Leu Gln Phe Ser Pro Gln Gly Ser Gln Tyr Ser Val Gln
305                 310                 315                 320

Gly Asn Leu Val Val Ser Ser Leu Trp Ser Phe Thr Phe Gly His Gly
                325                 330                 335

Val Phe Ser Gly Leu Arg Ile Phe Asp Val Arg Phe Gln Gly Glu Arg
            340                 345                 350

Ile Ala Tyr Glu Val Ser Val Gln Glu Cys Val Ser Ile Tyr Gly Ala
        355                 360                 365

Asp Ser Pro Lys Thr Met Leu Thr Arg Tyr Leu Asp Ser Ser Phe Gly
    370                 375                 380

Leu Gly Arg Asn Ser Arg Gly Leu Val Arg Gly Val Asp Cys Pro Tyr
385                 390                 395                 400

Gln Ala Thr Met Val Asp Ile His Ile Leu Val Gly Lys Gly Ala Val
                405                 410                 415
```

```
Gln Leu Leu Pro Gly Ala Val Cys Val Phe Glu Glu Ala Gln Gly Leu
            420                 425                 430

Pro Leu Arg Arg His His Asn Tyr Leu Gln Asn His Phe Tyr Gly Gly
        435                 440                 445

Leu Ala Ser Ser Ala Leu Val Val Arg Ser Val Ser Ser Val Gly Asn
    450                 455                 460

Tyr Asp Tyr Ile Trp Asp Phe Val Leu Tyr Pro Asn Gly Ala Leu Glu
465                 470                 475                 480

Gly Arg Val His Ala Thr Gly Tyr Ile Asn Thr Ala Phe Leu Lys Gly
                485                 490                 495

Gly Glu Glu Gly Leu Leu Phe Gly Asn Arg Val Gly Glu Arg Val Leu
            500                 505                 510

Gly Thr Val His Thr His Ala Phe His Phe Lys Leu Asp Leu Asp Val
        515                 520                 525

Ala Gly Leu Lys Asn Trp Val Val Ala Glu Asp Val Val Phe Lys Pro
    530                 535                 540

Val Ala Ala Pro Trp Asn Pro Glu His Trp Leu Gln Arg Pro Gln Leu
545                 550                 555                 560

Thr Arg Gln Val Leu Gly Lys Glu Asp Leu Thr Ala Phe Ser Leu Gly
                565                 570                 575

Ser Pro Leu Pro Arg Tyr Leu Tyr Leu Ala Ser Asn Gln Thr Asn Ala
            580                 585                 590

Trp Gly His Gln Arg Gly Tyr Arg Ile Gln Ile His Ser Pro Leu Gly
        595                 600                 605

Ile His Ile Pro Leu Glu Ser Asp Met Glu Arg Ala Leu Ser Trp Gly
    610                 615                 620

Arg Tyr Gln Leu Val Val Thr Gln Arg Lys Glu Glu Glu Ser Gln Ser
625                 630                 635                 640

Ser Ser Ile Tyr His Gln Asn Asp Ile Trp Thr Pro Thr Val Thr Phe
```

```
                645                 650                 655

Ala Asp Phe Ile Asn Asn Glu Thr Leu Leu Gly Glu Asp Leu Val Ala
            660                 665                 670

Trp Val Thr Ala Ser Phe Leu His Ile Pro His Ala Glu Asp Ile Pro
        675                 680                 685

Asn Thr Val Thr Leu Gly Asn Arg Val Gly Phe Leu Leu Arg Pro Tyr
    690                 695                 700

Asn Phe Phe Asp Glu Asp Pro Ser Ile Phe Ser Pro Gly Ser Val Tyr
705                 710                 715                 720

Phe Glu Lys Gly Gln Asp Ala Gly Leu Cys Ser Ile Asn Pro Val Ala
                725                 730                 735

Cys Leu Pro Asp Leu Ala Ala Cys Val Pro Asp Leu Pro Pro Phe Ser
            740                 745                 750

Tyr His Gly Phe
        755


<210> 4386
<211> 729
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 981; "

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<223> /note="Gene Symbol: AOC2; "

<220>
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<223> /note="Gene Name:
      amine oxidase, copper containing 2 (retina-specific); "

<220>
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<223> /note="Uniprot ID:  O75106; "

<220>
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<223> /note="ENSP ID: ENSP00000406134"
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<400> 4386
Met His Leu Lys Ile Val Leu Ala Phe Leu Ala Leu Ser Leu Ile Thr
1 5 10 15

Ile Phe Ala Leu Ala Tyr Val Leu Leu Thr Ser Pro Gly Gly Ser Ser
20 25 30

Gln Pro Pro His Cys Pro Ser Val Ser His Arg Ala Gln Pro Trp Pro
35 40 45

His Pro Gly Gln Ser Gln Leu Phe Ala Asp Leu Ser Arg Glu Glu Leu
50 55 60

Thr Ala Val Met Arg Phe Leu Thr Gln Arg Leu Gly Pro Gly Leu Val
65 70 75 80

Asp Ala Ala Gln Ala Gln Pro Ser Asp Asn Cys Ile Phe Ser Val Glu
85 90 95

Leu Gln Leu Pro Pro Lys Ala Ala Ala Leu Ala His Leu Asp Arg Gly
100 105 110

Ser Pro Pro Pro Ala Arg Glu Ala Leu Ala Ile Val Leu Phe Gly Gly
115 120 125

Gln Pro Gln Pro Asn Val Ser Glu Leu Val Val Gly Pro Leu Pro His
130 135 140

Pro Ser Tyr Met Arg Asp Val Thr Val Glu Arg His Gly Gly Pro Leu
145 150 155 160

Pro Tyr His Arg Arg Pro Val Leu Arg Ala Glu Phe Thr Gln Met Trp
165 170 175

Arg His Leu Lys Glu Val Glu Leu Pro Lys Ala Pro Ile Phe Leu Ser
180 185 190

Ser Thr Phe Asn Tyr Asn Gly Ser Thr Leu Ala Ala Val His Ala Thr
195 200 205

Pro Arg Gly Leu Arg Ser Gly Asp Arg Ala Thr Trp Met Ala Leu Tyr
210 215 220

```
His Asn Ile Ser Gly Val Gly Leu Phe Leu His Pro Val Gly Leu Glu
225                 230                 235                 240

Leu Leu Leu Asp His Arg Ala Leu Asp Pro Ala His Trp Thr Val Gln
                245                 250                 255

Gln Val Phe Tyr Leu Gly His Tyr Tyr Ala Asp Leu Gly Gln Leu Glu
            260                 265                 270

Arg Glu Phe Lys Ser Gly Arg Leu Glu Val Val Arg Val Pro Leu Pro
        275                 280                 285

Pro Pro Asn Gly Ala Ser Ser Leu Arg Ser Arg Asn Ser Pro Gly Pro
    290                 295                 300

Leu Pro Pro Leu Gln Phe Ser Pro Gln Gly Ser Gln Tyr Ser Val Gln
305                 310                 315                 320

Gly Asn Leu Val Val Ser Ser Leu Trp Ser Phe Thr Phe Gly His Gly
                325                 330                 335

Val Phe Ser Gly Leu Arg Ile Phe Asp Val Arg Phe Gln Gly Glu Arg
            340                 345                 350

Ile Ala Tyr Glu Val Ser Val Gln Glu Cys Val Ser Ile Tyr Gly Ala
        355                 360                 365

Asp Ser Pro Lys Thr Met Leu Thr Arg Tyr Leu Asp Ser Ser Phe Gly
    370                 375                 380

Leu Gly Arg Asn Ser Arg Gly Leu Val Arg Gly Val Asp Cys Pro Tyr
385                 390                 395                 400

Gln Ala Thr Met Val Asp Ile His Ile Leu Val Gly Lys Gly Ala Val
                405                 410                 415

Gln Leu Leu Pro Gly Ala Val Cys Val Phe Glu Glu Ala Gln Gly Leu
            420                 425                 430

Pro Leu Arg Arg His His Asn Tyr Leu Gln Asn His Phe Tyr Gly Gly
        435                 440                 445

Leu Ala Ser Ser Ala Leu Val Val Arg Ser Val Ser Ser Val Gly Asn
```

```
    450                 455                 460

Tyr Asp Tyr Ile Trp Asp Phe Val Leu Tyr Pro Asn Gly Ala Leu Glu
465                 470                 475                 480

Gly Arg Val His Ala Thr Gly Tyr Ile Asn Thr Ala Phe Leu Lys Gly
                485                 490                 495

Gly Glu Glu Gly Leu Leu Phe Gly Asn Arg Val Gly Glu Arg Val Leu
            500                 505                 510

Gly Thr Val His Thr His Ala Phe His Phe Lys Leu Asp Leu Asp Val
        515                 520                 525

Ala Gly Leu Lys Asn Trp Val Val Ala Glu Asp Val Val Phe Lys Pro
    530                 535                 540

Val Ala Ala Pro Trp Asn Pro Glu His Trp Leu Gln Arg Pro Gln Leu
545                 550                 555                 560

Thr Arg Gln Val Leu Gly Lys Glu Asp Leu Thr Ala Phe Ser Leu Gly
                565                 570                 575

Ser Pro Leu Pro Arg Tyr Leu Tyr Leu Ala Ser Asn Gln Thr Asn Ala
            580                 585                 590

Trp Gly His Gln Arg Gly Tyr Gln Leu Val Val Thr Gln Arg Lys Glu
        595                 600                 605

Glu Glu Ser Gln Ser Ser Ser Ile Tyr His Gln Asn Asp Ile Trp Thr
    610                 615                 620

Pro Thr Val Thr Phe Ala Asp Phe Ile Asn Asn Glu Thr Leu Leu Gly
625                 630                 635                 640

Glu Asp Leu Val Ala Trp Val Thr Ala Ser Phe Leu His Ile Pro His
                645                 650                 655

Ala Glu Asp Ile Pro Asn Thr Val Thr Leu Gly Asn Arg Val Gly Phe
            660                 665                 670

Leu Leu Arg Pro Tyr Asn Phe Phe Asp Glu Asp Pro Ser Ile Phe Ser
        675                 680                 685
```

```
Pro Gly Ser Val Tyr Phe Glu Lys Gly Gln Asp Ala Gly Leu Cys Ser
    690                 695                 700

Ile Asn Pro Val Ala Cys Leu Pro Asp Leu Ala Ala Cys Val Pro Asp
705                 710                 715                 720

Leu Pro Pro Phe Ser Tyr His Gly Phe
                725

<210> 4387
<211> 763
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 982; "

<220>
<221> source
<223> /note="Gene Symbol: AOC3; "

<220>
<221> source
<223> /note="Gene Name:
      amine oxidase, copper containing 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q16853; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312326"

<400> 4387
Met Asn Gln Lys Thr Ile Leu Val Leu Leu Ile Leu Ala Val Ile Thr
1               5                   10                  15

Ile Phe Ala Leu Val Cys Val Leu Leu Val Gly Arg Gly Gly Asp Gly
            20                  25                  30

Gly Glu Pro Ser Gln Leu Pro His Cys Pro Ser Val Ser Pro Ser Ala
        35                  40                  45

Gln Pro Trp Thr His Pro Gly Gln Ser Gln Leu Phe Ala Asp Leu Ser
    50                  55                  60
```

```
Arg Glu Glu Leu Thr Ala Val Met Arg Phe Leu Thr Gln Arg Leu Gly
65                  70                  75                  80

Pro Gly Leu Val Asp Ala Ala Gln Ala Arg Pro Ser Asp Asn Cys Val
                85                  90                  95

Phe Ser Val Glu Leu Gln Leu Pro Pro Lys Ala Ala Ala Leu Ala His
            100                 105                 110

Leu Asp Arg Gly Ser Pro Pro Pro Ala Arg Glu Ala Leu Ala Ile Val
        115                 120                 125

Phe Phe Gly Arg Gln Pro Gln Pro Asn Val Ser Glu Leu Val Val Gly
    130                 135                 140

Pro Leu Pro His Pro Ser Tyr Met Arg Asp Val Thr Val Glu Arg His
145                 150                 155                 160

Gly Gly Pro Leu Pro Tyr His Arg Arg Pro Val Leu Phe Gln Glu Tyr
                165                 170                 175

Leu Asp Ile Asp Gln Met Ile Phe Asn Arg Glu Leu Pro Gln Ala Ser
            180                 185                 190

Gly Leu Leu His His Cys Cys Phe Tyr Lys His Arg Gly Arg Asn Leu
        195                 200                 205

Val Thr Met Thr Thr Ala Pro Arg Gly Leu Gln Ser Gly Asp Arg Ala
    210                 215                 220

Thr Trp Phe Gly Leu Tyr Tyr Asn Ile Ser Gly Ala Gly Phe Phe Leu
225                 230                 235                 240

His His Val Gly Leu Glu Leu Leu Val Asn His Lys Ala Leu Asp Pro
                245                 250                 255

Ala Arg Trp Thr Ile Gln Lys Val Phe Tyr Gln Gly Arg Tyr Tyr Asp
            260                 265                 270

Ser Leu Ala Gln Leu Glu Ala Gln Phe Glu Ala Gly Leu Val Asn Val
        275                 280                 285

Val Leu Ile Pro Asp Asn Gly Thr Gly Gly Ser Trp Ser Leu Lys Ser
```

290 295 300

Pro Val Pro Pro Gly Pro Ala Pro Pro Leu Gln Phe Tyr Pro Gln Gly
305 310 315 320

Pro Arg Phe Ser Val Gln Gly Ser Arg Val Ala Ser Ser Leu Trp Thr
325 330 335

Phe Ser Phe Gly Leu Gly Ala Phe Ser Gly Pro Arg Ile Phe Asp Val
340 345 350

Arg Phe Gln Gly Glu Arg Leu Val Tyr Glu Ile Ser Leu Gln Glu Ala
355 360 365

Leu Ala Ile Tyr Gly Gly Asn Ser Pro Ala Ala Met Thr Thr Arg Tyr
370 375 380

Val Asp Gly Gly Phe Gly Met Gly Lys Tyr Thr Thr Pro Leu Thr Arg
385 390 395 400

Gly Val Asp Cys Pro Tyr Leu Ala Thr Tyr Val Asp Trp His Phe Leu
405 410 415

Leu Glu Ser Gln Ala Pro Lys Thr Ile Arg Asp Ala Phe Cys Val Phe
420 425 430

Glu Gln Asn Gln Gly Leu Pro Leu Arg Arg His His Ser Asp Leu Tyr
435 440 445

Ser His Tyr Phe Gly Gly Leu Ala Glu Thr Val Leu Val Val Arg Ser
450 455 460

Met Ser Thr Leu Leu Asn Tyr Asp Tyr Val Trp Asp Thr Val Phe His
465 470 475 480

Pro Ser Gly Ala Ile Glu Ile Arg Phe Tyr Ala Thr Gly Tyr Ile Ser
485 490 495

Ser Ala Phe Leu Phe Gly Ala Thr Gly Lys Tyr Gly Asn Gln Val Ser
500 505 510

Glu His Thr Leu Gly Thr Val His Thr His Ser Ala His Phe Lys Val
515 520 525

```
Asp Leu Asp Val Ala Gly Leu Glu Asn Trp Val Trp Ala Glu Asp Met
    530                 535                 540

Val Phe Val Pro Met Ala Val Pro Trp Ser Pro Glu His Gln Leu Gln
545                 550                 555                 560

Arg Leu Gln Val Thr Arg Lys Leu Leu Glu Met Glu Glu Gln Ala Ala
                565                 570                 575

Phe Leu Val Gly Ser Ala Thr Pro Arg Tyr Leu Tyr Leu Ala Ser Asn
            580                 585                 590

His Ser Asn Lys Trp Gly His Pro Arg Gly Tyr Arg Ile Gln Met Leu
        595                 600                 605

Ser Phe Ala Gly Glu Pro Leu Pro Gln Asn Ser Ser Met Ala Arg Gly
    610                 615                 620

Phe Ser Trp Glu Arg Tyr Gln Leu Ala Val Thr Gln Arg Lys Glu Glu
625                 630                 635                 640

Glu Pro Ser Ser Ser Ser Val Phe Asn Gln Asn Asp Pro Trp Ala Pro
                645                 650                 655

Thr Val Asp Phe Ser Asp Phe Ile Asn Asn Glu Thr Ile Ala Gly Lys
            660                 665                 670

Asp Leu Val Ala Trp Val Thr Ala Gly Phe Leu His Ile Pro His Ala
        675                 680                 685

Glu Asp Ile Pro Asn Thr Val Thr Val Gly Asn Gly Val Gly Phe Phe
    690                 695                 700

Leu Arg Pro Tyr Asn Phe Phe Asp Glu Asp Pro Ser Phe Tyr Ser Ala
705                 710                 715                 720

Asp Ser Ile Tyr Phe Arg Gly Asp Gln Asp Ala Gly Ala Cys Glu Val
                725                 730                 735

Asn Pro Leu Ala Cys Leu Pro Gln Ala Ala Ala Cys Ala Pro Asp Leu
            740                 745                 750
```

```
Pro Ala Phe Ser His Gly Gly Phe Ser His Asn
        755                 760


<210> 4388
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 982; "

<220>
<221> source
<223> /note="Gene Symbol: AOC3; "

<220>
<221> source
<223> /note="Gene Name:
      amine oxidase, copper containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464787"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4388
Xaa Tyr Asp Tyr Val Trp Asp Thr Val Phe His Pro Ser Gly Ala Ile
1               5                  10                  15


Glu Ile Arg Phe Tyr Ala Thr Gly Tyr Ile Ser Ser Ala Phe Leu Phe
            20                  25                  30


Gly Ala Thr Gly Lys Tyr Gly Asn Gln Val Ser Glu His Thr Leu Gly
        35                  40                  45


Thr Val His Thr His Ser Ala His Phe Lys Val Asp Leu Asp Val Ala
    50                  55                  60


Gly Asp Pro Glu Ala Ala Gly Asp Gly Gly Ala Gly Arg Leu Pro Arg
65                  70                  75                  80


Gly Lys Arg His Pro Ser Leu Pro Val Pro Gly Gln Gln Pro Gln Gln
                85                  90                  95
```

```
Gln Val Gly Ser Pro Pro Gly Leu Pro His Pro Asp Ala Gln Leu Cys
            100                 105                 110

Trp Arg Ala Ala Ala Pro Lys Gln Leu His Gly Glu Arg Leu Gln Leu
        115                 120                 125

Gly Glu Val Pro Ala Gly Cys Asp Pro Ala Glu Gly Gly Gly Ala Gln
    130                 135                 140


<210> 4389
<211> 152
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
      amine oxidase, copper containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465913"

<400> 4389
Met Val Phe Val Pro Met Ala Val Pro Trp Ser Pro Glu His Gln Leu
1               5                   10                  15

Gln Arg Leu Gln Val Thr Arg Lys Leu Leu Glu Met Glu Glu Gln Ala
            20                  25                  30

Ala Phe Leu Val Gly Ser Ala Thr Pro Arg Tyr Leu Tyr Leu Ala Ser
        35                  40                  45

Asn His Ser Asn Lys Trp Gly His Pro Arg Gly Tyr Arg Ile Gln Met
    50                  55                  60

Leu Ser Phe Ala Gly Glu Pro Leu Pro Gln Asn Ser Ser Met Ala Arg
65                  70                  75                  80

Gly Phe Ser Trp Glu Arg Tyr Gln Leu Ala Val Thr Gln Arg Lys Glu
```

```
                85                  90                  95

Glu Glu Pro Ser Ser Ser Ser Val Phe Asn Gln Asn Asp Pro Trp Ala
            100                 105                 110

Pro Thr Val Asp Phe Ser Asp Phe Ile Asn Asn Glu Thr Ile Ala Gly
        115                 120                 125

Lys Asp Leu Val Ala Trp Val Thr Ala Gly Phe Leu His Ile Pro His
    130                 135                 140

Ala Glu Asp Ile Pro Asn Thr Val
145                 150


<210> 4390
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AOC3; "

<220>
<221> source
<223> /note="Gene Name:
      amine oxidase, copper containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468043"

<400> 4390
Met Val Phe Val Pro Met Ala Val Pro Trp Ser Pro Glu His Gln Leu
1               5                   10                  15

Gln Arg Leu Gln Val Thr Arg Lys Leu Leu Glu Met Glu Glu Gln Ala
            20                  25                  30

Ala Phe Leu Val Gly Ser Ala Thr Pro Arg Tyr Leu Tyr Leu Ala Ser
        35                  40                  45

Asn His Ser Asn Lys Trp Gly His Pro Arg Gly Tyr Arg Ile Gln Met
    50                  55                  60
```

```
Leu Ser Phe Ala Gly Glu Pro Leu Pro Gln Asn Ser Ser Met Ala Arg
65                  70                  75                  80

Gly Phe Ser Trp Glu Arg Tyr Gln Leu Ala Val Thr Gln Arg Lys Glu
                85                  90                  95

Glu Glu Pro Ser Ser Ser Ser Val Phe Asn Gln Asn Asp Pro Trp Ala
            100                 105                 110


<210> 4391
<211> 220
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 982; "

<220>
<221> source
<223> /note="Gene Symbol: AOC3; "

<220>
<221> source
<223> /note="Gene Name:
      amine oxidase, copper containing 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q16853; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468632"

<400> 4391
Met Val Phe Val Pro Met Ala Val Pro Trp Ser Pro Glu His Gln Leu
1               5                   10                  15

Gln Arg Leu Gln Val Thr Arg Lys Leu Leu Glu Met Glu Glu Gln Ala
            20                  25                  30

Ala Phe Leu Val Gly Ser Ala Thr Pro Arg Tyr Leu Tyr Leu Ala Ser
        35                  40                  45

Asn His Ser Asn Lys Trp Gly His Pro Arg Gly Tyr Arg Ile Gln Met
    50                  55                  60

Leu Ser Phe Ala Gly Glu Pro Leu Pro Gln Asn Ser Ser Met Ala Arg
```

```
65                  70                  75                  80

Gly Phe Ser Trp Glu Arg Tyr Gln Leu Ala Val Thr Gln Arg Lys Glu
                85                  90                  95

Glu Glu Pro Ser Ser Ser Ser Val Phe Asn Gln Asn Asp Pro Trp Ala
            100                 105                 110

Pro Thr Val Asp Phe Ser Asp Phe Ile Asn Asn Glu Thr Ile Ala Gly
        115                 120                 125

Lys Asp Leu Val Ala Trp Val Thr Ala Gly Phe Leu His Ile Pro His
    130                 135                 140

Ala Glu Asp Ile Pro Asn Thr Val Thr Val Gly Asn Gly Val Gly Phe
145                 150                 155                 160

Phe Leu Arg Pro Tyr Asn Phe Phe Asp Glu Asp Pro Ser Phe Tyr Ser
                165                 170                 175

Ala Asp Ser Ile Tyr Phe Arg Gly Asp Gln Asp Ala Gly Ala Cys Glu
            180                 185                 190

Val Asn Pro Leu Ala Cys Leu Pro Gln Ala Ala Ala Cys Ala Pro Asp
        195                 200                 205

Leu Pro Ala Phe Ser His Gly Gly Phe Ser His Asn
    210                 215                 220


<210> 4392
<211> 220
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 982; "

<220>
<221> source
<223> /note="Gene Symbol: AOC3; "

<220>
<221> source
<223> /note="Gene Name:
      amine oxidase, copper containing 3; "
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<220>
<221> source
<223> /note="Uniprot ID: Q16853; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477686"

<400> 4392
Met Val Phe Val Pro Met Ala Val Pro Trp Ser Pro Glu His Gln Leu
1   5   10   15

Gln Arg Leu Gln Val Thr Arg Lys Leu Leu Glu Met Glu Glu Gln Ala
            20   25   30

Ala Phe Leu Val Gly Ser Ala Thr Pro Arg Tyr Leu Tyr Leu Ala Ser
        35   40   45

Asn His Ser Asn Lys Trp Gly His Pro Arg Gly Tyr Arg Ile Gln Met
    50   55   60

Leu Ser Phe Ala Gly Glu Pro Leu Pro Gln Asn Ser Ser Met Ala Arg
65   70   75   80

Gly Phe Ser Trp Glu Arg Tyr Gln Leu Ala Val Thr Gln Arg Lys Glu
                85   90   95

Glu Glu Pro Ser Ser Ser Ser Val Phe Asn Gln Asn Asp Pro Trp Ala
            100   105   110

Pro Thr Val Asp Phe Ser Asp Phe Ile Asn Asn Glu Thr Ile Ala Gly
        115   120   125

Lys Asp Leu Val Ala Trp Val Thr Ala Gly Phe Leu His Ile Pro His
    130   135   140

Ala Glu Asp Ile Pro Asn Thr Val Thr Val Gly Asn Gly Val Gly Phe
145   150   155   160

Phe Leu Arg Pro Tyr Asn Phe Phe Asp Glu Asp Pro Ser Phe Tyr Ser
                165   170   175

Ala Asp Ser Ile Tyr Phe Arg Gly Asp Gln Asp Ala Gly Ala Cys Glu
            180   185   190

```
Val Asn Pro Leu Ala Cys Leu Pro Gln Ala Ala Ala Cys Ala Pro Asp
        195                 200                 205

Leu Pro Ala Phe Ser His Gly Gly Phe Ser His Asn
    210                 215                 220


<210> 4393
<211> 634
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 982; "

<220>
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<223> /note="Gene Symbol: AOC3; "

<220>
<221> source
<223> /note="Gene Name:
      amine oxidase, copper containing 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q16853; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484312"

<400> 4393
Met Asn Gln Lys Thr Ile Leu Val Leu Leu Ile Leu Ala Val Ile Thr
1               5                   10                  15

Ile Phe Ala Leu Val Cys Val Leu Leu Val Gly Arg Gly Gly Asp Gly
            20                  25                  30

Gly Glu Pro Ser Gln Leu Pro His Cys Pro Ser Val Ser Pro Ser Ala
        35                  40                  45

Gln Pro Trp Thr His Pro Gly Gln Ser Gln Leu Phe Ala Asp Leu Ser
    50                  55                  60

Arg Glu Glu Leu Thr Ala Val Met Arg Phe Leu Thr Gln Arg Leu Gly
65                  70                  75                  80

Pro Gly Leu Val Asp Ala Ala Gln Ala Arg Pro Ser Asp Asn Cys Val
                85                  90                  95
```

```
Phe Ser Val Glu Leu Gln Leu Pro Pro Lys Ala Ala Ala Leu Ala His
            100                 105                 110

Leu Asp Arg Gly Ser Pro Pro Pro Ala Arg Glu Ala Leu Ala Ile Val
        115                 120                 125

Phe Phe Gly Arg Gln Pro Gln Pro Asn Val Ser Glu Leu Val Val Gly
    130                 135                 140

Pro Leu Pro His Pro Ser Tyr Met Arg Asp Val Thr Val Glu Arg His
145                 150                 155                 160

Gly Gly Pro Leu Pro Tyr His Arg Arg Pro Val Leu Phe Gln Glu Tyr
                165                 170                 175

Leu Asp Ile Asp Gln Met Ile Phe Asn Arg Glu Leu Pro Gln Ala Ser
            180                 185                 190

Gly Leu Leu His His Cys Cys Phe Tyr Lys His Arg Gly Arg Asn Leu
        195                 200                 205

Val Thr Met Thr Thr Ala Pro Arg Gly Leu Gln Ser Gly Asp Arg Ala
    210                 215                 220

Thr Trp Phe Gly Leu Tyr Tyr Asn Ile Ser Gly Ala Gly Phe Phe Leu
225                 230                 235                 240

His His Val Gly Leu Glu Leu Leu Val Asn His Lys Ala Leu Asp Pro
                245                 250                 255

Ala Arg Trp Thr Ile Gln Lys Val Phe Tyr Gln Gly Arg Tyr Tyr Asp
            260                 265                 270

Ser Leu Ala Gln Leu Glu Ala Gln Phe Glu Ala Gly Leu Val Asn Val
        275                 280                 285

Val Leu Ile Pro Asp Asn Gly Thr Gly Gly Ser Trp Ser Leu Lys Ser
    290                 295                 300

Pro Val Pro Pro Gly Pro Ala Pro Pro Leu Gln Phe Tyr Pro Gln Gly
305                 310                 315                 320
```

```
Pro Arg Phe Ser Val Gln Gly Ser Arg Val Ala Ser Ser Leu Trp Thr
                325                 330                 335

Phe Ser Phe Gly Leu Gly Ala Phe Ser Gly Pro Arg Ile Phe Asp Val
            340                 345                 350

Arg Phe Gln Gly Glu Arg Leu Val Tyr Glu Ile Ser Leu Gln Glu Ala
        355                 360                 365

Leu Ala Ile Tyr Gly Gly Asn Ser Pro Ala Ala Met Thr Thr Arg Tyr
    370                 375                 380

Val Asp Gly Gly Phe Gly Met Gly Lys Tyr Thr Thr Pro Leu Thr Arg
385                 390                 395                 400

Gly Val Asp Cys Pro Tyr Leu Ala Thr Tyr Val Asp Trp His Phe Leu
                405                 410                 415

Leu Glu Ser Gln Ala Pro Lys Thr Ile Arg Asp Ala Phe Cys Val Phe
            420                 425                 430

Glu Gln Asn Gln Gly Leu Pro Leu Arg Arg His His Ser Asp Leu Tyr
        435                 440                 445

Ser His Tyr Phe Gly Gly Leu Ala Glu Thr Val Leu Val Val Arg Ser
    450                 455                 460

Met Ser Thr Leu Leu Asn Tyr Asp Tyr Val Trp Asp Thr Val Phe His
465                 470                 475                 480

Pro Ser Gly Ala Ile Glu Ile Arg Phe Tyr Ala Thr Gly Tyr Ile Ser
                485                 490                 495

Ser Ala Phe Leu Phe Gly Ala Thr Gly Lys Tyr Gly Asn Gln Val Ser
            500                 505                 510

Glu His Thr Leu Gly Thr Val His Thr His Ser Ala His Phe Lys Val
        515                 520                 525

Asp Leu Asp Val Ala Gly Leu Glu Asn Trp Val Trp Ala Glu Asp Met
    530                 535                 540
```

```
Val Phe Val Pro Met Ala Val Pro Trp Ser Pro Glu His Gln Leu Gln
545                 550                 555                 560


Arg Leu Gln Val Thr Arg Lys Leu Leu Glu Met Glu Glu Gln Ala Ala
                565                 570                 575


Phe Leu Val Gly Ser Ala Thr Pro Arg Tyr Leu Tyr Leu Ala Ser Asn
            580                 585                 590


His Ser Asn Lys Trp Gly His Pro Arg Gly Tyr Arg Ile Gln Met Leu
        595                 600                 605


Ser Phe Ala Gly Glu Pro Leu Pro Gln Asn Ser Ser Met Ala Arg Gly
    610                 615                 620


Phe Ser Trp Glu Arg Ile Trp Trp Pro Gly
625                 630


<210> 4394
<211> 312
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 983; "

<220>
<221> source
<223> /note="Gene Symbol: AIMP1; "

<220>
<221> source
<223> /note="Gene Name:
      aminoacyl tRNA synthetase complex-interacting
      multifunctional prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q12904; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000350699"

<400> 4394
Met Ala Asn Asn Asp Ala Val Leu Lys Arg Leu Glu Gln Lys Gly Ala
1               5                   10                  15


Glu Ala Asp Gln Ile Ile Glu Tyr Leu Lys Gln Gln Val Ser Leu Leu
```

```
            20                  25                  30

Lys Glu Lys Ala Ile Leu Gln Ala Thr Leu Arg Glu Glu Lys Lys Leu
        35                  40                  45

Arg Val Glu Asn Ala Lys Leu Lys Lys Glu Ile Glu Glu Leu Lys Gln
    50                  55                  60

Glu Leu Ile Gln Ala Glu Ile Gln Asn Gly Val Lys Gln Ile Pro Phe
65                  70                  75                  80

Pro Ser Gly Thr Pro Leu His Ala Asn Ser Met Val Ser Glu Asn Val
                85                  90                  95

Ile Gln Ser Thr Ala Val Thr Thr Val Ser Ser Gly Thr Lys Glu Gln
            100                 105                 110

Ile Lys Gly Gly Thr Gly Asp Glu Lys Lys Ala Lys Glu Lys Ile Glu
        115                 120                 125

Lys Lys Gly Glu Lys Lys Glu Lys Lys Gln Gln Ser Ile Ala Gly Ser
    130                 135                 140

Ala Asp Ser Lys Pro Ile Asp Val Ser Arg Leu Asp Leu Arg Ile Gly
145                 150                 155                 160

Cys Ile Ile Thr Ala Arg Lys His Pro Asp Ala Asp Ser Leu Tyr Val
                165                 170                 175

Glu Glu Val Asp Val Gly Glu Ile Ala Pro Arg Thr Val Val Ser Gly
            180                 185                 190

Leu Val Asn His Val Pro Leu Glu Gln Met Gln Asn Arg Met Val Ile
        195                 200                 205

Leu Leu Cys Asn Leu Lys Pro Ala Lys Met Arg Gly Val Leu Ser Gln
    210                 215                 220

Ala Met Val Met Cys Ala Ser Ser Pro Glu Lys Ile Glu Ile Leu Ala
225                 230                 235                 240

Pro Pro Asn Gly Ser Val Pro Gly Asp Arg Ile Thr Phe Asp Ala Phe
                245                 250                 255
```

```
Pro Gly Glu Pro Asp Lys Glu Leu Asn Pro Lys Lys Lys Ile Trp Glu
            260                 265                 270

Gln Ile Gln Pro Asp Leu His Thr Asn Asp Glu Cys Val Ala Thr Tyr
        275                 280                 285

Lys Gly Val Pro Phe Glu Val Lys Gly Lys Gly Val Cys Arg Ala Gln
    290                 295                 300

Thr Met Ser Asn Ser Gly Ile Lys
305                 310


<210> 4395
<211> 336
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 983; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
      aminoacyl tRNA synthetase complex-interacting
      multifunctional prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q12904; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378191"

<400> 4395
Met Leu Pro Ala Val Ala Val Ser Glu Pro Val Val Leu Arg Phe Met
1               5                   10                  15

Ile Phe Cys Arg Leu Leu Ala Lys Met Ala Asn Asn Asp Ala Val Leu
            20                  25                  30

Lys Arg Leu Glu Gln Lys Gly Ala Glu Ala Asp Gln Ile Ile Glu Tyr
        35                  40                  45
```

```
Leu Lys Gln Gln Val Ser Leu Leu Lys Glu Lys Ala Ile Leu Gln Ala
    50                  55                  60

Thr Leu Arg Glu Glu Lys Lys Leu Arg Val Glu Asn Ala Lys Leu Lys
65                  70                  75                  80

Lys Glu Ile Glu Glu Leu Lys Gln Glu Leu Ile Gln Ala Glu Ile Gln
                85                  90                  95

Asn Gly Val Lys Gln Ile Pro Phe Pro Ser Gly Thr Pro Leu His Ala
            100                 105                 110

Asn Ser Met Val Ser Glu Asn Val Ile Gln Ser Thr Ala Val Thr Thr
        115                 120                 125

Val Ser Ser Gly Thr Lys Glu Gln Ile Lys Gly Gly Thr Gly Asp Glu
    130                 135                 140

Lys Lys Ala Lys Glu Lys Ile Glu Lys Lys Gly Glu Lys Lys Glu Lys
145                 150                 155                 160

Lys Gln Gln Ser Ile Ala Gly Ser Ala Asp Ser Lys Pro Ile Asp Val
                165                 170                 175

Ser Arg Leu Asp Leu Arg Ile Gly Cys Ile Ile Thr Ala Arg Lys His
            180                 185                 190

Pro Asp Ala Asp Ser Leu Tyr Val Glu Glu Val Asp Val Gly Glu Ile
        195                 200                 205

Ala Pro Arg Thr Val Val Ser Gly Leu Val Asn His Val Pro Leu Glu
    210                 215                 220

Gln Met Gln Asn Arg Met Val Ile Leu Leu Cys Asn Leu Lys Pro Ala
225                 230                 235                 240

Lys Met Arg Gly Val Leu Ser Gln Ala Met Val Met Cys Ala Ser Ser
                245                 250                 255

Pro Glu Lys Ile Glu Ile Leu Ala Pro Pro Asn Gly Ser Val Pro Gly
            260                 265                 270
```

```
Asp Arg Ile Thr Phe Asp Ala Phe Pro Gly Glu Pro Asp Lys Glu Leu
        275                 280                 285

Asn Pro Lys Lys Lys Ile Trp Glu Gln Ile Gln Pro Asp Leu His Thr
    290                 295                 300

Asn Asp Glu Cys Val Ala Thr Tyr Lys Gly Val Pro Phe Glu Val Lys
305                 310                 315                 320

Gly Lys Gly Val Cys Arg Ala Gln Thr Met Ser Asn Ser Gly Ile Lys
                325                 330                 335


<210> 4396
<211> 312
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 983; "

<220>
<221> source
<223> /note="Gene Symbol: AIMP1; "

<220>
<221> source
<223> /note="Gene Name:
      aminoacyl tRNA synthetase complex-interacting
      multifunctional prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q12904; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405248"

<400> 4396
Met Ala Asn Asn Asp Ala Val Leu Lys Arg Leu Glu Gln Lys Gly Ala
1               5                   10                  15

Glu Ala Asp Gln Ile Ile Glu Tyr Leu Lys Gln Gln Val Ser Leu Leu
            20                  25                  30

Lys Glu Lys Ala Ile Leu Gln Ala Thr Leu Arg Glu Glu Lys Lys Leu
        35                  40                  45

Arg Val Glu Asn Ala Lys Leu Lys Lys Glu Ile Glu Glu Leu Lys Gln
```

```
    50                  55                  60

Glu Leu Ile Gln Ala Glu Ile Gln Asn Gly Val Lys Gln Ile Pro Phe
65                  70                  75                  80

Pro Ser Gly Thr Pro Leu His Ala Asn Ser Met Val Ser Glu Asn Val
                85                  90                  95

Ile Gln Ser Thr Ala Val Thr Thr Val Ser Ser Gly Thr Lys Glu Gln
            100                 105                 110

Ile Lys Gly Gly Thr Gly Asp Glu Lys Lys Ala Lys Glu Lys Ile Glu
        115                 120                 125

Lys Lys Gly Glu Lys Lys Glu Lys Lys Gln Gln Ser Ile Ala Gly Ser
    130                 135                 140

Ala Asp Ser Lys Pro Ile Asp Val Ser Arg Leu Asp Leu Arg Ile Gly
145                 150                 155                 160

Cys Ile Ile Thr Ala Arg Lys His Pro Asp Ala Asp Ser Leu Tyr Val
                165                 170                 175

Glu Glu Val Asp Val Gly Glu Ile Ala Pro Arg Thr Val Val Ser Gly
            180                 185                 190

Leu Val Asn His Val Pro Leu Glu Gln Met Gln Asn Arg Met Val Ile
        195                 200                 205

Leu Leu Cys Asn Leu Lys Pro Ala Lys Met Arg Gly Val Leu Ser Gln
    210                 215                 220

Ala Met Val Met Cys Ala Ser Ser Pro Glu Lys Ile Glu Ile Leu Ala
225                 230                 235                 240

Pro Pro Asn Gly Ser Val Pro Gly Asp Arg Ile Thr Phe Asp Ala Phe
                245                 250                 255

Pro Gly Glu Pro Asp Lys Glu Leu Asn Pro Lys Lys Lys Ile Trp Glu
            260                 265                 270

Gln Ile Gln Pro Asp Leu His Thr Asn Asp Glu Cys Val Ala Thr Tyr
        275                 280                 285
```

Lys Gly Val Pro Phe Glu Val Lys Gly Lys Gly Val Cys Arg Ala Gln
290 295 300

Thr Met Ser Asn Ser Gly Ile Lys
305 310

<210> 4397
<211> 150
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AIMP1; "

<220>
<221> source
<223> /note="Gene Name:
aminoacyl tRNA synthetase complex-interacting
multifunctional prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423681"

<400> 4397
Met Ala Asn Asn Asp Ala Val Leu Lys Arg Leu Glu Gln Lys Gly Ala
1 5 10 15

Glu Ala Asp Gln Ile Ile Glu Tyr Leu Lys Gln Gln Val Ser Leu Leu
20 25 30

Lys Glu Lys Ala Ile Leu Gln Ala Thr Leu Arg Glu Glu Lys Lys Leu
35 40 45

Arg Val Glu Asn Ala Lys Leu Lys Lys Glu Ile Glu Glu Leu Lys Gln
50 55 60

Glu Leu Ile Gln Ala Glu Ile Gln Asn Gly Val Lys Gln Ile Pro Phe
65 70 75 80

Pro Ser Gly Thr Pro Leu His Ala Asn Ser Met Val Ser Glu Asn Val
85 90 95

```
Ile Gln Ser Thr Ala Val Thr Thr Val Ser Ser Gly Thr Lys Glu Gln
            100                 105                 110

Ile Lys Gly Gly Thr Gly Asp Glu Lys Lys Ala Lys Glu Lys Ile Glu
        115                 120                 125

Lys Lys Gly Glu Lys Lys Glu Lys Lys Gln Gln Ser Ile Ala Gly Ser
    130                 135                 140

Ala Asp Ser Lys Pro Ile
145                 150


<210> 4398
<211> 320
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 984; "

<220>
<221> source
<223> /note="Gene Symbol: AIMP2; "

<220>
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<223> /note="Gene Name:
      aminoacyl tRNA synthetase complex-interacting
      multifunctional prt 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q13155; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000223029"

<400> 4398
Met Pro Met Tyr Gln Val Lys Pro Tyr His Gly Gly Gly Ala Pro Leu
1               5                   10                  15

Arg Val Glu Leu Pro Thr Cys Met Tyr Arg Leu Pro Asn Val His Gly
            20                  25                  30

Arg Ser Tyr Gly Pro Ala Pro Gly Ala Gly His Val Gln Glu Glu Ser
        35                  40                  45
```

```
Asn Leu Ser Leu Gln Ala Leu Glu Ser Arg Gln Asp Asp Ile Leu Lys
    50                  55                  60

Arg Leu Tyr Glu Leu Lys Ala Ala Val Asp Gly Leu Ser Lys Met Ile
65                  70                  75                  80

Gln Thr Pro Asp Ala Asp Leu Asp Val Thr Asn Ile Ile Gln Ala Asp
                85                  90                  95

Glu Pro Thr Thr Leu Thr Thr Asn Ala Leu Asp Leu Asn Ser Val Leu
            100                 105                 110

Gly Lys Asp Tyr Gly Ala Leu Lys Asp Ile Val Ile Asn Ala Asn Pro
        115                 120                 125

Ala Ser Pro Pro Leu Ser Leu Leu Val Leu His Arg Leu Leu Cys Glu
    130                 135                 140

His Phe Arg Val Leu Ser Thr Val His Thr His Ser Ser Val Lys Ser
145                 150                 155                 160

Val Pro Glu Asn Leu Leu Lys Cys Phe Gly Glu Gln Asn Lys Lys Gln
                165                 170                 175

Pro Arg Gln Asp Tyr Gln Leu Gly Phe Thr Leu Ile Trp Lys Asn Val
            180                 185                 190

Pro Lys Thr Gln Met Lys Phe Ser Ile Gln Thr Met Cys Pro Ile Glu
        195                 200                 205

Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser Leu Phe Gly Gln Lys
    210                 215                 220

His Asn Ala Val Asn Ala Thr Leu Ile Asp Ser Trp Val Asp Ile Ala
225                 230                 235                 240

Ile Phe Gln Leu Lys Glu Gly Ser Ser Lys Glu Lys Ala Ala Val Phe
                245                 250                 255

Arg Ser Met Asn Ser Ala Leu Gly Lys Ser Pro Trp Leu Ala Gly Asn
            260                 265                 270

Glu Leu Thr Val Ala Asp Val Val Leu Trp Ser Val Leu Gln Gln Ile
```

275 280 285

Gly Gly Cys Ser Val Thr Val Pro Ala Asn Val Gln Arg Trp Met Arg
290 295 300

Ser Cys Glu Asn Leu Ala Pro Phe Asn Thr Ala Leu Lys Leu Leu Lys
305 310 315 320

<210> 4399
<211> 251
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 984; "

<220>
<221> source
<223> /note="Gene Symbol: AIMP2; "

<220>
<221> source
<223> /note="Gene Name:
aminoacyl tRNA synthetase complex-interacting
multifunctional prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378658"

<400> 4399
Met Pro Met Tyr Gln Val Lys Pro Tyr His Gly Gly Gly Ala Pro Leu
1 5 10 15

Arg Val Glu Leu Pro Thr Cys Met Tyr Arg Leu Pro Asn Val His Gly
20 25 30

Arg Ser Tyr Gly Pro Ala Pro Gly Ala Gly His Val Gln Asp Tyr Gly
35 40 45

Ala Leu Lys Asp Ile Val Ile Asn Ala Asn Pro Ala Ser Pro Pro Leu
50 55 60

Ser Leu Leu Val Leu His Arg Leu Leu Cys Glu His Phe Arg Val Leu
65 70 75 80

Ser Thr Val His Thr His Ser Ser Val Lys Ser Val Pro Glu Asn Leu
85 90 95

```
Leu Lys Cys Phe Gly Glu Gln Asn Lys Lys Gln Pro Arg Gln Asp Tyr
            100                 105                 110

Gln Leu Gly Phe Thr Leu Ile Trp Lys Asn Val Pro Lys Thr Gln Met
        115                 120                 125

Lys Phe Ser Ile Gln Thr Met Cys Pro Ile Glu Gly Glu Gly Asn Ile
    130                 135                 140

Ala Arg Phe Leu Phe Ser Leu Phe Gly Gln Lys His Asn Ala Val Asn
145                 150                 155                 160

Ala Thr Leu Ile Asp Ser Trp Val Asp Ile Ala Ile Phe Gln Leu Lys
                165                 170                 175

Glu Gly Ser Ser Lys Glu Lys Ala Ala Val Phe Arg Ser Met Asn Ser
            180                 185                 190

Ala Leu Gly Lys Ser Pro Trp Leu Ala Gly Asn Glu Leu Thr Val Ala
        195                 200                 205

Asp Val Val Leu Trp Ser Val Leu Gln Gln Ile Gly Gly Cys Ser Val
    210                 215                 220

Thr Val Pro Ala Asn Val Gln Arg Trp Met Arg Ser Cys Glu Asn Leu
225                 230                 235                 240

Ala Pro Phe Asn Thr Ala Leu Lys Leu Leu Lys
                245                 250


<210> 4400
<211> 242
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 984; "

<220>
<221> source
<223> /note="Gene Symbol: AIMP2; "

<220>
<221> source
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<223> /note="Gene Name:
aminoacyl tRNA synthetase complex-interacting
multifunctional prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000383327"

<400> 4400

```
Met Ile Gln Thr Pro Asp Ala Asp Leu Asp Val Thr Asn Ile Ile Gln
1               5                  10                  15

Ala Asp Glu Pro Thr Thr Leu Thr Thr Asn Ala Leu Asp Leu Asn Ser
            20                  25                  30

Val Leu Gly Lys Asp Tyr Gly Ala Leu Lys Asp Ile Val Ile Asn Ala
        35                  40                  45

Asn Pro Ala Ser Pro Pro Leu Ser Leu Leu Val Leu His Arg Leu Leu
    50                  55                  60

Cys Glu His Phe Arg Val Leu Ser Thr Val His Thr His Ser Ser Val
65                  70                  75                  80

Lys Ser Val Pro Glu Asn Leu Leu Lys Cys Phe Gly Glu Gln Asn Lys
                85                  90                  95

Lys Gln Pro Arg Gln Asp Tyr Gln Leu Gly Phe Thr Leu Ile Trp Lys
            100                 105                 110

Asn Val Pro Lys Thr Gln Met Lys Phe Ser Ile Gln Thr Met Cys Pro
        115                 120                 125

Ile Glu Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser Leu Phe Gly
    130                 135                 140

Gln Lys His Asn Ala Val Asn Ala Thr Leu Ile Asp Ser Trp Val Asp
145                 150                 155                 160

Ile Ala Ile Phe Gln Leu Lys Glu Gly Ser Ser Lys Glu Lys Ala Ala
                165                 170                 175

Val Phe Arg Ser Met Asn Ser Ala Leu Gly Lys Ser Pro Trp Leu Ala
            180                 185                 190
```

```
Gly Asn Glu Leu Thr Val Ala Asp Val Val Leu Trp Ser Val Leu Gln
        195                 200                 205

Gln Ile Gly Gly Cys Ser Val Thr Val Pro Ala Asn Val Gln Arg Trp
    210                 215                 220

Met Arg Ser Cys Glu Asn Leu Ala Pro Phe Asn Thr Ala Leu Lys Leu
225                 230                 235                 240

Leu Lys
```

<210> 4401
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 984; "

<220>
<221> source
<223> /note="Gene Symbol: AIMP2; "

<220>
<221> source
<223> /note="Gene Name:
aminoacyl tRNA synthetase complex-interacting
multifunctional prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392519"

<400> 4401

```
Met Pro Met Tyr Gln Val Lys Pro Tyr His Gly Gly Gly Ala Pro Leu
1               5                   10                  15

Arg Val Glu Leu Pro Thr Cys Met Tyr Arg Leu Pro Asn Val His Gly
            20                  25                  30

Arg Ser Tyr Gly Pro Ala Pro Gly Ala Gly His Val Gln Pro Leu Gln
        35                  40                  45
```

<210> 4402
<211> 408
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 985; "

<220>
<221> source
<223> /note="Gene Symbol: ACY1; "

<220>
<221> source
<223> /note="Gene Name:
aminoacylase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q03154; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384296"

<400> 4402

```
Met Thr Ser Lys Gly Pro Glu Glu Glu His Pro Ser Val Thr Leu Phe
1               5                  10                  15

Arg Gln Tyr Leu Arg Ile Arg Thr Val Gln Pro Lys Pro Asp Tyr Gly
            20                  25                  30

Ala Ala Val Ala Phe Phe Glu Glu Thr Ala Arg Gln Leu Gly Leu Gly
        35                  40                  45

Cys Gln Lys Val Glu Val Ala Pro Gly Tyr Val Val Thr Val Leu Thr
    50                  55                  60

Trp Pro Gly Thr Asn Pro Thr Leu Ser Ser Ile Leu Leu Asn Ser His
65                  70                  75                  80

Thr Asp Val Val Pro Val Phe Lys Glu His Trp Ser His Asp Pro Phe
                85                  90                  95

Glu Ala Phe Lys Asp Ser Glu Gly Tyr Ile Tyr Ala Arg Gly Ala Gln
            100                 105                 110

Asp Met Lys Cys Val Ser Ile Gln Tyr Leu Glu Ala Val Arg Arg Leu
        115                 120                 125

Lys Val Glu Gly His Arg Phe Pro Arg Thr Ile His Met Thr Phe Val
    130                 135                 140
```

```
Pro Asp Glu Glu Val Gly Gly His Gln Gly Met Glu Leu Phe Val Gln
145                 150                 155                 160

Arg Pro Glu Phe His Ala Leu Arg Ala Gly Phe Ala Leu Asp Glu Gly
                165                 170                 175

Ile Ala Asn Pro Thr Asp Ala Phe Thr Val Phe Tyr Ser Glu Arg Ser
            180                 185                 190

Pro Trp Trp Val Arg Val Thr Ser Thr Gly Arg Pro Gly His Ala Ser
        195                 200                 205

Arg Phe Met Glu Asp Thr Ala Ala Glu Lys Leu His Lys Val Val Asn
    210                 215                 220

Ser Ile Leu Ala Phe Arg Glu Lys Glu Trp Gln Arg Leu Gln Ser Asn
225                 230                 235                 240

Pro His Leu Lys Glu Gly Ser Val Thr Ser Val Asn Leu Thr Lys Leu
                245                 250                 255

Glu Gly Gly Val Ala Tyr Asn Val Ile Pro Ala Thr Met Ser Ala Ser
            260                 265                 270

Phe Asp Phe Arg Val Ala Pro Asp Val Asp Phe Lys Ala Phe Glu Glu
        275                 280                 285

Gln Leu Gln Ser Trp Cys Gln Ala Ala Gly Glu Gly Val Thr Leu Glu
    290                 295                 300

Phe Ala Gln Lys Trp Met His Pro Gln Val Thr Pro Thr Asp Asp Ser
305                 310                 315                 320

Asn Pro Trp Trp Ala Ala Phe Ser Arg Val Cys Lys Asp Met Asn Leu
                325                 330                 335

Thr Leu Glu Pro Glu Ile Met Pro Ala Ala Thr Asp Asn Arg Tyr Ile
            340                 345                 350

Arg Ala Val Gly Val Pro Ala Leu Gly Phe Ser Pro Met Asn Arg Thr
        355                 360                 365
```

```
Pro Val Leu Leu His Asp His Asp Glu Arg Leu His Glu Ala Val Phe
    370                 375                 380

Leu Arg Gly Val Asp Ile Tyr Thr Arg Leu Leu Pro Ala Leu Ala Ser
385                 390                 395                 400

Val Pro Ala Leu Pro Ser Asp Ser
                405
```

<210> 4403
<211> 373
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 985; "

<220>
<221> source
<223> /note="Gene Symbol: ACY1; "

<220>
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<223> /note="Gene Name:
aminoacylase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q03154; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417056"

<400> 4403

```
Met Thr Ser Lys Gly Pro Glu Glu Glu His Pro Ser Val Thr Leu Phe
1               5                   10                  15

Arg Gln Tyr Leu Arg Ile Arg Thr Val Gln Pro Lys Pro Asp Tyr Gly
            20                  25                  30

Thr Asn Pro Thr Leu Ser Ser Ile Leu Leu Asn Ser His Thr Asp Val
        35                  40                  45

Val Pro Val Phe Lys Glu His Trp Ser His Asp Pro Phe Glu Ala Phe
    50                  55                  60

Lys Asp Ser Glu Gly Tyr Ile Tyr Ala Arg Gly Ala Gln Asp Met Lys
65                  70                  75                  80
```

```
Cys Val Ser Ile Gln Tyr Leu Glu Ala Val Arg Arg Leu Lys Val Glu
                85                  90                  95

Gly His Arg Phe Pro Arg Thr Ile His Met Thr Phe Val Pro Asp Glu
            100                 105                 110

Glu Val Gly Gly His Gln Gly Met Glu Leu Phe Val Gln Arg Pro Glu
        115                 120                 125

Phe His Ala Leu Arg Ala Gly Phe Ala Leu Asp Glu Gly Ile Ala Asn
    130                 135                 140

Pro Thr Asp Ala Phe Thr Val Phe Tyr Ser Glu Arg Ser Pro Trp Trp
145                 150                 155                 160

Val Arg Val Thr Ser Thr Gly Arg Pro Gly His Ala Ser Arg Phe Met
                165                 170                 175

Glu Asp Thr Ala Ala Glu Lys Leu His Lys Val Val Asn Ser Ile Leu
            180                 185                 190

Ala Phe Arg Glu Lys Glu Trp Gln Arg Leu Gln Ser Asn Pro His Leu
        195                 200                 205

Lys Glu Gly Ser Val Thr Ser Val Asn Leu Thr Lys Leu Glu Gly Gly
    210                 215                 220

Val Ala Tyr Asn Val Ile Pro Ala Thr Met Ser Ala Ser Phe Asp Phe
225                 230                 235                 240

Arg Val Ala Pro Asp Val Asp Phe Lys Ala Phe Glu Glu Gln Leu Gln
                245                 250                 255

Ser Trp Cys Gln Ala Ala Gly Glu Gly Val Thr Leu Glu Phe Ala Gln
            260                 265                 270

Lys Trp Met His Pro Gln Val Thr Pro Thr Asp Asp Ser Asn Pro Trp
        275                 280                 285

Trp Ala Ala Phe Ser Arg Val Cys Lys Asp Met Asn Leu Thr Leu Glu
    290                 295                 300
```

```
Pro Glu Ile Met Pro Ala Ala Thr Asp Asn Arg Tyr Ile Arg Ala Val
305                 310                 315                 320

Gly Val Pro Ala Leu Gly Phe Ser Pro Met Asn Arg Thr Pro Val Leu
                325                 330                 335

Leu His Asp His Asp Glu Arg Leu His Glu Ala Val Phe Leu Arg Gly
            340                 345                 350

Val Asp Ile Tyr Thr Arg Leu Leu Pro Ala Leu Ala Ser Val Pro Ala
        355                 360                 365

Leu Pro Ser Asp Ser
    370


<210> 4404
<211> 336
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 985; "

<220>
<221> source
<223> /note="Gene Symbol: ACY1; "

<220>
<221> source
<223> /note="Gene Name:
      aminoacylase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q03154; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417618"

<400> 4404
Met Thr Ser Lys Gly Pro Glu Glu Glu His Pro Ser Val Thr Leu Phe
1               5                   10                  15

Arg Gln Tyr Leu Arg Ile Arg Thr Val Gln Pro Lys Pro Asp Tyr Gly
            20                  25                  30

Ala Ala Val Ala Phe Phe Glu Glu Thr Ala Arg Gln Leu Gly Leu Gly
```

```
        35                  40                  45

Cys Gln Lys Val Glu Val Ala Pro Gly Tyr Val Val Thr Val Leu Thr
    50                  55                  60

Trp Pro Gly Thr Asn Pro Thr Leu Ser Ser Ile Leu Leu Asn Ser His
65                  70                  75                  80

Thr Asp Val Val Pro Val Phe Lys Glu His Trp Ser His Asp Pro Phe
                85                  90                  95

Glu Ala Phe Lys Asp Ser Glu Gly Ile Ala Asn Pro Thr Asp Ala Phe
            100                 105                 110

Thr Val Phe Tyr Ser Glu Arg Ser Pro Trp Trp Val Arg Val Thr Ser
        115                 120                 125

Thr Gly Arg Pro Gly His Ala Ser Arg Phe Met Glu Asp Thr Ala Ala
    130                 135                 140

Glu Lys Leu His Lys Val Val Asn Ser Ile Leu Ala Phe Arg Glu Lys
145                 150                 155                 160

Glu Trp Gln Arg Leu Gln Ser Asn Pro His Leu Lys Glu Gly Ser Val
                165                 170                 175

Thr Ser Val Asn Leu Thr Lys Leu Glu Gly Gly Val Ala Tyr Asn Val
            180                 185                 190

Ile Pro Ala Thr Met Ser Ala Ser Phe Asp Phe Arg Val Ala Pro Asp
        195                 200                 205

Val Asp Phe Lys Ala Phe Glu Glu Gln Leu Gln Ser Trp Cys Gln Ala
    210                 215                 220

Ala Gly Glu Gly Val Thr Leu Glu Phe Ala Gln Lys Trp Met His Pro
225                 230                 235                 240

Gln Val Thr Pro Thr Asp Asp Ser Asn Pro Trp Trp Ala Ala Phe Ser
                245                 250                 255

Arg Val Cys Lys Asp Met Asn Leu Thr Leu Glu Pro Glu Ile Met Pro
            260                 265                 270
```

```
Ala Ala Thr Asp Asn Arg Tyr Ile Arg Ala Val Gly Val Pro Ala Leu
        275                 280                 285

Gly Phe Ser Pro Met Asn Arg Thr Pro Val Leu Leu His Asp His Asp
    290                 295                 300

Glu Arg Leu His Glu Ala Val Phe Leu Arg Gly Val Asp Ile Tyr Thr
305                 310                 315                 320

Arg Leu Leu Pro Ala Leu Ala Ser Val Pro Ala Leu Pro Ser Asp Ser
                325                 330                 335


<210> 4405
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 985; "

<220>
<221> source
<223> /note="Gene Symbol: ACY1; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000418683"

<400> 4405
Met Thr Ser Lys Gly Pro Glu Glu Glu His Pro Ser Val Thr Leu Phe
1               5                   10                  15

Arg Gln Tyr Leu Arg Ile Arg Thr Val Gln Pro Lys Pro Asp Tyr Gly
            20                  25                  30

Ala Ala Val Ala Phe Phe Glu Glu Thr Ala Arg Gln Leu Gly Leu Gly
        35                  40                  45

Cys Gln Lys Val Glu Val Ala Pro Gly Tyr Val Val Thr Val Leu Thr
    50                  55                  60
```

```
Trp Pro Gly Thr Asn Pro Thr Leu Ser Ser Ile Leu Leu Asn Ser His
65                  70                  75                  80

Thr Asp Val Val Pro Val Phe Lys Glu His Trp Ser His Asp Pro Phe
                85                  90                  95

Glu Ala Phe Lys Asp Ser Glu Gly Tyr Ile Tyr Ala Arg Gly Ala Gln
            100                 105                 110

Asp Met Lys Cys Val Ser Ile Gln Tyr Leu Glu Ala Val Arg Arg Leu
        115                 120                 125

Lys Val Glu Gly His Arg Phe Pro Arg Thr Ile His Met Thr Phe Val
    130                 135                 140

Pro Asp Glu Glu Val Gly Gly His Gln Gly Met Glu Leu Phe Val Gln
145                 150                 155                 160

Arg Pro Glu Phe His Ala Leu Arg Ala Gly Phe Ala Leu Asp Glu Gly
                165                 170                 175

Ile Ala Asn Pro Thr Asp Ala Phe Thr Val Phe Tyr Ser Glu Arg Ser
            180                 185                 190

Pro Trp Cys Cys Ser Gln Thr Pro Thr
        195                 200


<210> 4406
<211> 343
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 985; "

<220>
<221> source
<223> /note="Gene Symbol: ACY1; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  Q03154; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000419262"

<400> 4406
Met Thr Ser Lys Gly Pro Glu Glu Glu His Pro Ser Val Thr Leu Phe
1   5   10   15

Arg Gln Tyr Leu Arg Ile Arg Thr Val Gln Pro Lys Pro Asp Tyr Gly
            20   25   30

Ala Ala Val Ala Phe Phe Glu Glu Thr Ala Arg Gln Leu Gly Leu Gly
        35   40   45

Cys Gln Lys Val Glu Val Ala Pro Gly Tyr Val Val Thr Val Leu Thr
    50   55   60

Trp Pro Gly Thr Asn Pro Thr Leu Ser Ser Ile Leu Leu Asn Ser His
65   70   75   80

Thr Asp Val Val Pro Val Phe Lys Glu His Trp Ser His Asp Pro Phe
                85   90   95

Glu Ala Phe Lys Asp Ser Glu Gly Tyr Ile Tyr Ala Arg Gly Ala Gln
            100   105   110

Asp Met Lys Cys Val Ser Ile Gln Tyr Leu Glu Ala Val Arg Arg Leu
        115   120   125

Lys Val Glu Gly His Arg Phe Pro Arg Thr Ile His Met Thr Phe Val
    130   135   140

Pro Asp Glu Glu Val Gly Gly His Gln Gly Met Glu Leu Phe Val Gln
145   150   155   160

Arg Pro Glu Phe His Ala Leu Arg Ala Gly Phe Ala Leu Asp Glu Gly
                165   170   175

Ile Ala Asn Pro Thr Asp Ala Phe Thr Val Phe Tyr Ser Glu Arg Ser
            180   185   190

Pro Trp Trp Val Arg Val Thr Ser Thr Gly Arg Pro Gly His Ala Ser
        195   200   205

```
Arg Phe Met Glu Asp Thr Ala Ala Glu Lys Leu Ala Phe Glu Glu Gln
    210                 215                 220

Leu Gln Ser Trp Cys Gln Ala Ala Gly Glu Gly Val Thr Leu Glu Phe
225                 230                 235                 240

Ala Gln Lys Trp Met His Pro Gln Val Thr Pro Thr Asp Asp Ser Asn
                245                 250                 255

Pro Trp Trp Ala Ala Phe Ser Arg Val Cys Lys Asp Met Asn Leu Thr
            260                 265                 270

Leu Glu Pro Glu Ile Met Pro Ala Ala Thr Asp Asn Arg Tyr Ile Arg
        275                 280                 285

Ala Val Gly Val Pro Ala Leu Gly Phe Ser Pro Met Asn Arg Thr Pro
    290                 295                 300

Val Leu Leu His Asp His Asp Glu Arg Leu His Glu Ala Val Phe Leu
305                 310                 315                 320

Arg Gly Val Asp Ile Tyr Thr Arg Leu Leu Pro Ala Leu Ala Ser Val
                325                 330                 335

Pro Ala Leu Pro Ser Asp Ser
            340


<210> 4407
<211> 228
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<220>
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<223> /note="Gene Name:
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<223> /note="ENSP ID: ENSP00000419830"

<400> 4407

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Met Thr Ser Lys Gly Pro Glu Glu Glu His Pro Ser Val Thr Leu Phe
1               5                  10                  15

Arg Gln Tyr Leu Arg Ile Arg Thr Val Gln Pro Lys Pro Asp Tyr Gly
            20                  25                  30

Ala Ala Val Ala Phe Phe Glu Glu Thr Ala Arg Gln Leu Gly Leu Gly
        35                  40                  45

Cys Gln Lys Val Glu Thr Thr Tyr Pro Pro Asp His Leu Gln Val Ala
    50                  55                  60

Pro Gly Tyr Val Val Thr Val Leu Thr Trp Pro Gly Thr Asn Pro Thr
65                  70                  75                  80

Leu Ser Ser Ile Leu Leu Asn Ser His Thr Asp Val Val Pro Val Phe
                85                  90                  95

Lys Glu His Trp Ser His Asp Pro Phe Glu Ala Phe Lys Asp Ser Glu
            100                 105                 110

Gly Tyr Ile Tyr Ala Arg Gly Ala Gln Asp Met Lys Cys Val Ser Ile
        115                 120                 125

Gln Tyr Leu Glu Ala Val Arg Arg Leu Lys Val Glu Gly His Arg Phe
    130                 135                 140

Pro Arg Thr Ile His Met Thr Phe Val Pro Asp Glu Glu Val Gly Gly
145                 150                 155                 160

His Gln Gly Met Glu Leu Phe Val Gln Arg Pro Glu Phe His Ala Leu
                165                 170                 175

Arg Ala Gly Phe Ala Leu Asp Glu Gly Ile Ala Asn Pro Thr Asp Ala
            180                 185                 190

Phe Thr Val Phe Tyr Ser Glu Arg Ser Pro Trp Trp Val Arg Val Thr
        195                 200                 205

Ser Thr Gly Arg Pro Gly His Ala Ser Arg Phe Met Glu Asp Thr Ala
    210                 215                 220
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Ala Glu Lys Leu
225

<210> 4408
<211> 319
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<220>
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<223> /note="Gene Symbol: ACY3; "

<220>
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<223> /note="Gene Name:
aminoacylase 3; "

<220>
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<223> /note="Uniprot ID: Q96HD9; "

<220>
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<400> 4408
Met Cys Ser Leu Pro Val Pro Arg Glu Pro Leu Arg Arg Val Ala Val
1 5 10 15

Thr Gly Gly Thr His Gly Asn Glu Met Ser Gly Val Tyr Leu Ala Arg
20 25 30

His Trp Leu His Ala Pro Ala Glu Leu Gln Arg Ala Ser Phe Ser Ala
35 40 45

Val Pro Val Leu Ala Asn Pro Ala Ala Thr Ser Gly Cys Arg Arg Tyr
50 55 60

Val Asp His Asp Leu Asn Arg Thr Phe Thr Ser Ser Phe Leu Asn Ser
65 70 75 80

Arg Pro Thr Pro Asp Asp Pro Tyr Glu Val Thr Arg Ala Arg Glu Leu
85 90 95

```
Asn Gln Leu Leu Gly Pro Lys Ala Ser Gly Gln Ala Phe Asp Phe Val
            100                 105                 110

Leu Asp Leu His Asn Thr Thr Ala Asn Met Gly Thr Cys Leu Ile Ala
        115                 120                 125

Lys Ser Ser His Glu Val Phe Ala Met His Leu Cys Arg His Leu Gln
    130                 135                 140

Leu Gln Tyr Pro Glu Leu Ser Cys Gln Val Phe Leu Tyr Gln Arg Ser
145                 150                 155                 160

Gly Glu Glu Ser Tyr Asn Leu Asp Ser Val Ala Lys Asn Gly Leu Gly
                165                 170                 175

Leu Glu Leu Gly Pro Gln Pro Gln Gly Val Leu Arg Ala Asp Ile Phe
            180                 185                 190

Ser Arg Met Arg Thr Leu Val Ala Thr Val Leu Asp Phe Ile Glu Leu
        195                 200                 205

Phe Asn Gln Gly Thr Ala Phe Pro Ala Phe Glu Met Glu Ala Tyr Arg
    210                 215                 220

Pro Val Gly Val Val Asp Phe Pro Arg Thr Glu Ala Gly His Leu Ala
225                 230                 235                 240

Gly Thr Val His Pro Gln Leu Gln Asp Arg Asp Phe Gln Pro Leu Gln
                245                 250                 255

Pro Gly Ala Pro Ile Phe Gln Met Phe Ser Gly Glu Asp Leu Leu Tyr
            260                 265                 270

Glu Gly Glu Ser Thr Val Tyr Pro Val Phe Ile Asn Glu Ala Ala Tyr
        275                 280                 285

Tyr Glu Lys Gly Val Ala Phe Val Gln Thr Glu Lys Phe Thr Phe Thr
    290                 295                 300

Val Pro Ala Met Pro Ala Leu Thr Pro Ala Pro Ser Pro Ala Ser
305                 310                 315
```

<210> 4409

<211> 198
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<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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<400> 4409

Met	Gly	Thr	Cys	Leu	Ile	Ala	Lys	Ser	Ser	His	Glu	Val	Phe	Ala	Met
1				5					10					15	

His	Leu	Cys	Arg	His	Leu	Gln	Leu	Gln	Tyr	Pro	Glu	Leu	Ser	Cys	Gln
			20					25					30		

Val	Phe	Leu	Tyr	Gln	Arg	Ser	Gly	Glu	Glu	Ser	Tyr	Asn	Leu	Asp	Ser
		35					40					45			

Val	Ala	Lys	Asn	Gly	Leu	Gly	Leu	Glu	Leu	Gly	Pro	Gln	Pro	Gln	Gly
	50					55					60				

Val	Leu	Arg	Ala	Asp	Ile	Phe	Ser	Arg	Met	Arg	Thr	Leu	Val	Ala	Thr
65					70					75					80

Val	Leu	Asp	Phe	Ile	Glu	Leu	Phe	Asn	Gln	Gly	Thr	Ala	Phe	Pro	Ala
				85					90					95	

Phe	Glu	Met	Glu	Ala	Tyr	Arg	Pro	Val	Gly	Val	Val	Asp	Phe	Pro	Arg
			100					105					110		

Thr	Glu	Ala	Gly	His	Leu	Ala	Gly	Thr	Val	His	Pro	Gln	Leu	Gln	Asp
		115					120					125			

Arg	Asp	Phe	Gln	Pro	Leu	Gln	Pro	Gly	Ala	Pro	Ile	Phe	Gln	Met	Phe
	130					135					140				

```
Ser Gly Glu Asp Leu Leu Tyr Glu Gly Glu Ser Thr Val Tyr Pro Val
145                 150                 155                 160


Phe Ile Asn Glu Ala Ala Tyr Tyr Glu Lys Gly Val Ala Phe Val Gln
                165                 170                 175


Thr Glu Lys Phe Thr Phe Thr Val Pro Ala Met Pro Ala Leu Thr Pro
            180                 185                 190


Ala Pro Ser Pro Ala Ser
        195


<210> 4410
<211> 425
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AADAT; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  Q8N5Z0; "

<220>
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<223> /note="ENSP ID: ENSP00000226840"

<400> 4410
Met Asn Tyr Ala Arg Phe Ile Thr Ala Ala Ser Ala Ala Arg Asn Pro
1               5                   10                  15


Ser Pro Ile Arg Thr Met Thr Asp Ile Leu Ser Arg Gly Pro Lys Ser
            20                  25                  30


Met Ile Ser Leu Ala Gly Gly Leu Pro Asn Pro Asn Met Phe Pro Phe
        35                  40                  45


Lys Thr Ala Val Ile Thr Val Glu Asn Gly Lys Thr Ile Gln Phe Gly
```

```
    50                  55                  60

Glu Glu Met Met Lys Arg Ala Leu Gln Tyr Ser Pro Ser Ala Gly Ile
65                  70                  75                  80

Pro Glu Leu Leu Ser Trp Leu Lys Gln Leu Gln Ile Lys Leu His Asn
                85                  90                  95

Pro Pro Thr Ile His Tyr Pro Pro Ser Gln Gly Gln Met Asp Leu Cys
            100                 105                 110

Val Thr Ser Gly Ser Gln Gln Gly Leu Cys Lys Val Phe Glu Met Ile
        115                 120                 125

Ile Asn Pro Gly Asp Asn Val Leu Leu Asp Glu Pro Ala Tyr Ser Gly
    130                 135                 140

Thr Leu Gln Ser Leu His Pro Leu Gly Cys Asn Ile Ile Asn Val Ala
145                 150                 155                 160

Ser Asp Glu Ser Gly Ile Val Pro Asp Ser Leu Arg Asp Ile Leu Ser
                165                 170                 175

Arg Trp Lys Pro Glu Asp Ala Lys Asn Pro Gln Lys Asn Thr Pro Lys
            180                 185                 190

Phe Leu Tyr Thr Val Pro Asn Gly Asn Asn Pro Thr Gly Asn Ser Leu
        195                 200                 205

Thr Ser Glu Arg Lys Lys Glu Ile Tyr Glu Leu Ala Arg Lys Tyr Asp
    210                 215                 220

Phe Leu Ile Ile Glu Asp Asp Pro Tyr Tyr Phe Leu Gln Phe Asn Lys
225                 230                 235                 240

Phe Arg Val Pro Thr Phe Leu Ser Met Asp Val Asp Gly Arg Val Ile
                245                 250                 255

Arg Ala Asp Ser Phe Ser Lys Ile Ile Ser Ser Gly Leu Arg Ile Gly
            260                 265                 270

Phe Leu Thr Gly Pro Lys Pro Leu Ile Glu Arg Val Ile Leu His Ile
        275                 280                 285
```

```
Gln Val Ser Thr Leu His Pro Ser Thr Phe Asn Gln Leu Met Ile Ser
    290                 295                 300

Gln Leu Leu His Glu Trp Gly Glu Glu Gly Phe Met Ala His Val Asp
305                 310                 315                 320

Arg Val Ile Asp Phe Tyr Ser Asn Gln Lys Asp Ala Ile Leu Ala Ala
                325                 330                 335

Ala Asp Lys Trp Leu Thr Gly Leu Ala Glu Trp His Val Pro Ala Ala
            340                 345                 350

Gly Met Phe Leu Trp Ile Lys Val Lys Gly Ile Asn Asp Val Lys Glu
        355                 360                 365

Leu Ile Glu Glu Lys Ala Val Lys Met Gly Val Leu Met Leu Pro Gly
    370                 375                 380

Asn Ala Phe Tyr Val Asp Ser Ser Ala Pro Ser Pro Tyr Leu Arg Ala
385                 390                 395                 400

Ser Phe Ser Ser Ala Ser Pro Glu Gln Met Asp Val Ala Phe Gln Val
                405                 410                 415

Leu Ala Gln Leu Ile Lys Glu Ser Leu
            420                 425


<210> 4411
<211> 425
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<221> source
<223> /note="Uniprot ID: Q8N5Z0; "

<220>
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<223> /note="ENSP ID: ENSP00000336808"

<400> 4411
Met Asn Tyr Ala Arg Phe Ile Thr Ala Ala Ser Ala Ala Arg Asn Pro
1   5   10   15

Ser Pro Ile Arg Thr Met Thr Asp Ile Leu Ser Arg Gly Pro Lys Ser
            20   25   30

Met Ile Ser Leu Ala Gly Gly Leu Pro Asn Pro Asn Met Phe Pro Phe
        35   40   45

Lys Thr Ala Val Ile Thr Val Glu Asn Gly Lys Thr Ile Gln Phe Gly
    50   55   60

Glu Glu Met Met Lys Arg Ala Leu Gln Tyr Ser Pro Ser Ala Gly Ile
65   70   75   80

Pro Glu Leu Leu Ser Trp Leu Lys Gln Leu Gln Ile Lys Leu His Asn
                85   90   95

Pro Pro Thr Ile His Tyr Pro Pro Ser Gln Gly Gln Met Asp Leu Cys
            100   105   110

Val Thr Ser Gly Ser Gln Gln Gly Leu Cys Lys Val Phe Glu Met Ile
        115   120   125

Ile Asn Pro Gly Asp Asn Val Leu Leu Asp Glu Pro Ala Tyr Ser Gly
    130   135   140

Thr Leu Gln Ser Leu His Pro Leu Gly Cys Asn Ile Ile Asn Val Ala
145   150   155   160

Ser Asp Glu Ser Gly Ile Val Pro Asp Ser Leu Arg Asp Ile Leu Ser
                165   170   175

Arg Trp Lys Pro Glu Asp Ala Lys Asn Pro Gln Lys Asn Thr Pro Lys
            180   185   190

Phe Leu Tyr Thr Val Pro Asn Gly Asn Asn Pro Thr Gly Asn Ser Leu

```
        195                 200                 205

Thr Ser Glu Arg Lys Lys Glu Ile Tyr Glu Leu Ala Arg Lys Tyr Asp
    210                 215                 220

Phe Leu Ile Ile Glu Asp Asp Pro Tyr Tyr Phe Leu Gln Phe Asn Lys
225                 230                 235                 240

Phe Arg Val Pro Thr Phe Leu Ser Met Asp Val Asp Gly Arg Val Ile
                245                 250                 255

Arg Ala Asp Ser Phe Ser Lys Ile Ile Ser Ser Gly Leu Arg Ile Gly
            260                 265                 270

Phe Leu Thr Gly Pro Lys Pro Leu Ile Glu Arg Val Ile Leu His Ile
        275                 280                 285

Gln Val Ser Thr Leu His Pro Ser Thr Phe Asn Gln Leu Met Ile Ser
    290                 295                 300

Gln Leu Leu His Glu Trp Gly Glu Glu Gly Phe Met Ala His Val Asp
305                 310                 315                 320

Arg Val Ile Asp Phe Tyr Ser Asn Gln Lys Asp Ala Ile Leu Ala Ala
                325                 330                 335

Ala Asp Lys Trp Leu Thr Gly Leu Ala Glu Trp His Val Pro Ala Ala
            340                 345                 350

Gly Met Phe Leu Trp Ile Lys Val Lys Gly Ile Asn Asp Val Lys Glu
        355                 360                 365

Leu Ile Glu Glu Lys Ala Val Lys Met Gly Val Leu Met Leu Pro Gly
    370                 375                 380

Asn Ala Phe Tyr Val Asp Ser Ser Ala Pro Ser Pro Tyr Leu Arg Ala
385                 390                 395                 400

Ser Phe Ser Ser Ala Ser Pro Glu Gln Met Asp Val Ala Phe Gln Val
                405                 410                 415

Leu Ala Gln Leu Ile Lys Glu Ser Leu
            420                 425
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<210> 4412
<211> 209
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
aminoadipate aminotransferase; "

<220>
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<400> 4412
Met Asn Tyr Ala Arg Phe Ile Thr Ala Ala Ser Ala Ala Arg Asn Pro
1 5 10 15

Ser Pro Ile Arg Thr Met Thr Asp Ile Leu Ser Arg Gly Pro Lys Ser
20 25 30

Met Ile Ser Leu Ala Gly Gly Leu Pro Asn Pro Asn Met Phe Pro Phe
35 40 45

Lys Thr Ala Val Ile Thr Val Glu Asn Gly Lys Thr Ile Gln Phe Gly
50 55 60

Glu Glu Met Met Lys Arg Ala Leu Gln Tyr Ser Pro Ser Ala Gly Ile
65 70 75 80

Pro Glu Leu Leu Ser Trp Leu Lys Gln Leu Gln Ile Lys Leu His Asn
85 90 95

Pro Pro Thr Ile His Tyr Pro Pro Ser Gln Gly Gln Met Asp Leu Cys
100 105 110

Val Thr Ser Gly Ser Gln Gln Gly Leu Cys Lys Val Phe Glu Met Ile
115 120 125

```
Ile Asn Pro Gly Asp Asn Val Leu Leu Asp Glu Pro Ala Tyr Ser Gly
    130                 135                 140

Thr Leu Gln Ser Leu His Pro Leu Gly Cys Asn Ile Ile Asn Val Ala
145                 150                 155                 160

Ser Asp Glu Ser Gly Ile Val Pro Asp Ser Leu Arg Asp Ile Leu Ser
                165                 170                 175

Arg Trp Lys Pro Glu Asp Ala Lys Asn Pro Gln Lys Asn Thr Pro Lys
            180                 185                 190

Phe Leu Tyr Thr Val Pro Asn Gly Asn Asn Pro Thr Gly Asn Ser Leu
        195                 200                 205

Thr
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<210> 4413
<211> 429
<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: Q8N5Z0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423190"

<400> 4413

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Met Asn Tyr Ala Arg Phe Ile Thr Ala Ala Ser Ala Ala Arg Asn Pro
1               5                   10                  15

Ser Pro Ile Arg Thr Met Ser Glu Lys Arg Ala Asp Ile Leu Ser Arg
            20                  25                  30
```

```
Gly Pro Lys Ser Met Ile Ser Leu Ala Gly Gly Leu Pro Asn Pro Asn
        35                  40                  45

Met Phe Pro Phe Lys Thr Ala Val Ile Thr Val Glu Asn Gly Lys Thr
    50                  55                  60

Ile Gln Phe Gly Glu Glu Met Met Lys Arg Ala Leu Gln Tyr Ser Pro
65                  70                  75                  80

Ser Ala Gly Ile Pro Glu Leu Leu Ser Trp Leu Lys Gln Leu Gln Ile
                85                  90                  95

Lys Leu His Asn Pro Pro Thr Ile His Tyr Pro Pro Ser Gln Gly Gln
            100                 105                 110

Met Asp Leu Cys Val Thr Ser Gly Ser Gln Gln Gly Leu Cys Lys Val
        115                 120                 125

Phe Glu Met Ile Ile Asn Pro Gly Asp Asn Val Leu Leu Asp Glu Pro
    130                 135                 140

Ala Tyr Ser Gly Thr Leu Gln Ser Leu His Pro Leu Gly Cys Asn Ile
145                 150                 155                 160

Ile Asn Val Ala Ser Asp Glu Ser Gly Ile Val Pro Asp Ser Leu Arg
                165                 170                 175

Asp Ile Leu Ser Arg Trp Lys Pro Glu Asp Ala Lys Asn Pro Gln Lys
            180                 185                 190

Asn Thr Pro Lys Phe Leu Tyr Thr Val Pro Asn Gly Asn Asn Pro Thr
        195                 200                 205

Gly Asn Ser Leu Thr Ser Glu Arg Lys Lys Glu Ile Tyr Glu Leu Ala
    210                 215                 220

Arg Lys Tyr Asp Phe Leu Ile Ile Glu Asp Asp Pro Tyr Tyr Phe Leu
225                 230                 235                 240

Gln Phe Asn Lys Phe Arg Val Pro Thr Phe Leu Ser Met Asp Val Asp
                245                 250                 255
```

```
Gly Arg Val Ile Arg Ala Asp Ser Phe Ser Lys Ile Ile Ser Ser Gly
            260                 265                 270

Leu Arg Ile Gly Phe Leu Thr Gly Pro Lys Pro Leu Ile Glu Arg Val
        275                 280                 285

Ile Leu His Ile Gln Val Ser Thr Leu His Pro Ser Thr Phe Asn Gln
    290                 295                 300

Leu Met Ile Ser Gln Leu Leu His Glu Trp Gly Glu Glu Gly Phe Met
305                 310                 315                 320

Ala His Val Asp Arg Val Ile Asp Phe Tyr Ser Asn Gln Lys Asp Ala
                325                 330                 335

Ile Leu Ala Ala Ala Asp Lys Trp Leu Thr Gly Leu Ala Glu Trp His
            340                 345                 350

Val Pro Ala Ala Gly Met Phe Leu Trp Ile Lys Val Lys Gly Ile Asn
        355                 360                 365

Asp Val Lys Glu Leu Ile Glu Glu Lys Ala Val Lys Met Gly Val Leu
    370                 375                 380

Met Leu Pro Gly Asn Ala Phe Tyr Val Asp Ser Ser Ala Pro Ser Pro
385                 390                 395                 400

Tyr Leu Arg Ala Ser Phe Ser Ser Ala Ser Pro Glu Gln Met Asp Val
                405                 410                 415

Ala Phe Gln Val Leu Ala Gln Leu Ile Lys Glu Ser Leu
            420                 425


<210> 4414
<211> 425
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: AADAT; "
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<220>
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<223> /note="Gene Name:
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<223> /note="Uniprot ID: Q8N5Z0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423341"

<400> 4414

```
Met Asn Tyr Ala Arg Phe Ile Thr Ala Ala Ser Ala Ala Arg Asn Pro
1               5                  10                  15

Ser Pro Ile Arg Thr Met Thr Asp Ile Leu Ser Arg Gly Pro Lys Ser
            20                  25                  30

Met Ile Ser Leu Ala Gly Gly Leu Pro Asn Pro Asn Met Phe Pro Phe
        35                  40                  45

Lys Thr Ala Val Ile Thr Val Glu Asn Gly Lys Thr Ile Gln Phe Gly
    50                  55                  60

Glu Glu Met Met Lys Arg Ala Leu Gln Tyr Ser Pro Ser Ala Gly Ile
65                  70                  75                  80

Pro Glu Leu Leu Ser Trp Leu Lys Gln Leu Gln Ile Lys Leu His Asn
                85                  90                  95

Pro Pro Thr Ile His Tyr Pro Pro Ser Gln Gly Gln Met Asp Leu Cys
            100                 105                 110

Val Thr Ser Gly Ser Gln Gln Gly Leu Cys Lys Val Phe Glu Met Ile
        115                 120                 125

Ile Asn Pro Gly Asp Asn Val Leu Leu Asp Glu Pro Ala Tyr Ser Gly
    130                 135                 140

Thr Leu Gln Ser Leu His Pro Leu Gly Cys Asn Ile Ile Asn Val Ala
145                 150                 155                 160

Ser Asp Glu Ser Gly Ile Val Pro Asp Ser Leu Arg Asp Ile Leu Ser
                165                 170                 175
```

```
Arg Trp Lys Pro Glu Asp Ala Lys Asn Pro Gln Lys Asn Thr Pro Lys
            180                 185                 190

Phe Leu Tyr Thr Val Pro Asn Gly Asn Asn Pro Thr Gly Asn Ser Leu
        195                 200                 205

Thr Ser Glu Arg Lys Lys Glu Ile Tyr Glu Leu Ala Arg Lys Tyr Asp
    210                 215                 220

Phe Leu Ile Ile Glu Asp Asp Pro Tyr Tyr Phe Leu Gln Phe Asn Lys
225                 230                 235                 240

Phe Arg Val Pro Thr Phe Leu Ser Met Asp Val Asp Gly Arg Val Ile
                245                 250                 255

Arg Ala Asp Ser Phe Ser Lys Ile Ile Ser Ser Gly Leu Arg Ile Gly
            260                 265                 270

Phe Leu Thr Gly Pro Lys Pro Leu Ile Glu Arg Val Ile Leu His Ile
        275                 280                 285

Gln Val Ser Thr Leu His Pro Ser Thr Phe Asn Gln Leu Met Ile Ser
    290                 295                 300

Gln Leu Leu His Glu Trp Gly Glu Glu Gly Phe Met Ala His Val Asp
305                 310                 315                 320

Arg Val Ile Asp Phe Tyr Ser Asn Gln Lys Asp Ala Ile Leu Ala Ala
                325                 330                 335

Ala Asp Lys Trp Leu Thr Gly Leu Ala Glu Trp His Val Pro Ala Ala
            340                 345                 350

Gly Met Phe Leu Trp Ile Lys Val Lys Gly Ile Asn Asp Val Lys Glu
        355                 360                 365

Leu Ile Glu Glu Lys Ala Val Lys Met Gly Val Leu Met Leu Pro Gly
    370                 375                 380

Asn Ala Phe Tyr Val Asp Ser Ser Ala Pro Ser Pro Tyr Leu Arg Ala
385                 390                 395                 400
```

Ser Phe Ser Ser Ala Ser Pro Glu Gln Met Asp Val Ala Phe Gln Val
405 410 415

Leu Ala Gln Leu Ile Lys Glu Ser Leu
420 425

<210> 4415
<211> 180
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
aminoadipate aminotransferase; "

<220>
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<223> /note="ENSP ID: ENSP00000423843"

<400> 4415
Met Asn Tyr Ala Arg Phe Ile Thr Ala Ala Ser Ala Ala Arg Asn Pro
1 5 10 15

Ser Pro Ile Arg Thr Met Thr Asp Ile Leu Ser Arg Gly Pro Lys Ser
20 25 30

Met Ile Ser Leu Ala Gly Gly Leu Pro Asn Pro Asn Met Phe Pro Phe
35 40 45

Lys Thr Ala Val Ile Thr Val Glu Asn Gly Lys Thr Ile Gln Phe Gly
50 55 60

Glu Glu Met Met Lys Arg Ala Leu Gln Tyr Ser Pro Ser Ala Gly Ile
65 70 75 80

Pro Glu Leu Leu Ser Trp Leu Lys Gln Leu Gln Ile Lys Leu His Asn
85 90 95

Pro Pro Thr Ile His Tyr Pro Pro Ser Gln Gly Gln Met Asp Leu Cys

```
            100                 105                 110

Val Thr Ser Gly Ser Gln Gln Gly Leu Cys Lys Val Phe Glu Met Ile
        115                 120                 125

Ile Asn Pro Gly Asp Asn Val Leu Leu Asp Glu Pro Ala Tyr Ser Gly
    130                 135                 140

Thr Leu Gln Ser Leu His Pro Leu Gly Cys Asn Ile Ile Asn Val Ala
145                 150                 155                 160

Ser Asp Glu Ser Gly Ile Val Pro Asp Ser Leu Arg Asp Ile Leu Ser
                165                 170                 175

Arg Trp Lys Pro
            180


<210> 4416
<211> 220
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AADAT; "

<220>
<221> source
<223> /note="Gene Name:
      aminoadipate aminotransferase; "

<220>
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<223> /note="ENSP ID: ENSP00000425067"

<400> 4416
Met His Ser Val Gln Met Gly Val Gln Trp Arg Gly Pro Ala Asp Ile
1               5                   10                  15

Leu Ser Arg Gly Pro Lys Ser Met Ile Ser Leu Ala Gly Gly Leu Pro
            20                  25                  30

Asn Pro Asn Met Phe Pro Phe Lys Thr Ala Val Ile Thr Val Glu Asn
        35                  40                  45
```

```
Gly Lys Thr Ile Gln Phe Gly Glu Glu Met Met Lys Arg Ala Leu Gln
    50                  55                  60

Tyr Ser Pro Ser Ala Gly Ile Pro Glu Leu Leu Ser Trp Leu Lys Gln
65                  70                  75                  80

Leu Gln Ile Lys Leu His Asn Pro Pro Thr Ile His Tyr Pro Pro Ser
                85                  90                  95

Gln Gly Gln Met Asp Leu Cys Val Thr Ser Gly Ser Gln Gln Gly Leu
            100                 105                 110

Cys Lys Val Phe Glu Met Ile Ile Asn Pro Gly Asp Asn Val Leu Leu
        115                 120                 125

Asp Glu Pro Ala Tyr Ser Gly Thr Leu Gln Ser Leu His Pro Leu Gly
    130                 135                 140

Cys Asn Ile Ile Asn Val Ala Ser Asp Glu Ser Gly Ile Val Pro Asp
145                 150                 155                 160

Ser Leu Arg Asp Ile Leu Ser Arg Trp Lys Pro Glu Asp Ala Lys Asn
                165                 170                 175

Pro Gln Lys Asn Thr Pro Lys Phe Leu Tyr Thr Val Pro Asn Gly Asn
            180                 185                 190

Asn Pro Thr Gly Asn Ser Leu Thr Ser Glu Arg Lys Lys Glu Ile Tyr
        195                 200                 205

Glu Leu Ala Arg Lys Tyr Asp Phe Leu Ile Ile Glu
    210                 215                 220


<210> 4417
<211> 1098
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: AASDH; "
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<220>
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<223> /note="Gene Name:
aminoadipate-semialdehyde dehydrogenase; "

<220>
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<220>
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<400> 4417

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Met Thr Leu Gln Glu Leu Val His Lys Ala Ala Ser Cys Tyr Met Asp
1               5                  10                  15

Arg Val Ala Val Cys Phe Asp Glu Cys Asn Asn Gln Leu Pro Val Tyr
            20                  25                  30

Tyr Thr Tyr Lys Thr Val Val Asn Ala Ala Ser Glu Leu Ser Asn Phe
        35                  40                  45

Leu Leu Leu His Cys Asp Phe Gln Gly Ile Arg Glu Ile Gly Leu Tyr
    50                  55                  60

Cys Gln Pro Gly Ile Asp Leu Pro Ser Trp Ile Leu Gly Ile Leu Gln
65                  70                  75                  80

Val Pro Ala Ala Tyr Val Pro Ile Glu Pro Asp Ser Pro Pro Ser Leu
                85                  90                  95

Ser Thr His Phe Met Lys Lys Cys Asn Leu Lys Tyr Ile Leu Val Glu
            100                 105                 110

Lys Lys Gln Ile Asn Lys Phe Lys Ser Phe His Glu Thr Leu Leu Asn
        115                 120                 125

Tyr Asp Thr Phe Thr Val Glu His Asn Asp Leu Val Leu Phe Arg Leu
    130                 135                 140

His Trp Lys Asn Thr Glu Val Asn Leu Met Leu Asn Asp Gly Lys Glu
145                 150                 155                 160

Lys Tyr Glu Lys Glu Lys Ile Lys Ser Ile Ser Ser Glu His Val Asn
                165                 170                 175
```

```
Glu Glu Lys Ala Glu Glu His Met Asp Leu Arg Leu Lys His Cys Leu
            180                 185                 190

Ala Tyr Val Leu His Thr Ser Gly Thr Thr Gly Ile Pro Lys Ile Val
        195                 200                 205

Arg Val Pro His Lys Cys Ile Val Pro Asn Ile Gln His Phe Arg Val
    210                 215                 220

Leu Phe Asp Ile Thr Gln Glu Asp Val Leu Phe Leu Ala Ser Pro Leu
225                 230                 235                 240

Thr Phe Asp Pro Ser Val Val Glu Ile Phe Leu Ala Leu Ser Ser Gly
                245                 250                 255

Ala Ser Leu Leu Ile Val Pro Thr Ser Val Lys Leu Leu Pro Ser Lys
            260                 265                 270

Leu Ala Ser Val Leu Phe Ser His His Arg Val Thr Val Leu Gln Ala
        275                 280                 285

Thr Pro Thr Leu Leu Arg Arg Phe Gly Ser Gln Leu Ile Lys Ser Thr
    290                 295                 300

Val Leu Ser Ala Thr Thr Ser Leu Arg Val Leu Ala Leu Gly Gly Glu
305                 310                 315                 320

Ala Phe Pro Ser Leu Thr Val Leu Arg Ser Trp Arg Gly Glu Gly Asn
                325                 330                 335

Lys Thr Gln Ile Phe Asn Val Tyr Gly Ile Thr Glu Val Ser Ser Trp
            340                 345                 350

Ala Thr Ile Tyr Arg Ile Pro Glu Lys Thr Leu Asn Ser Thr Leu Lys
        355                 360                 365

Cys Glu Leu Pro Val Gln Leu Gly Phe Pro Leu Leu Gly Thr Val Val
    370                 375                 380

Glu Val Arg Asp Thr Asn Gly Phe Thr Ile Gln Glu Gly Ser Gly Gln
385                 390                 395                 400
```

Val Phe Leu Gly Gly Arg Asn Arg Val Cys Phe Leu Asp Asp Glu Val
405 410 415

Thr Val Pro Leu Gly Thr Met Arg Ala Thr Gly Asp Phe Val Thr Val
420 425 430

Lys Asp Gly Glu Ile Phe Phe Leu Gly Arg Lys Asp Ser Gln Ile Lys
435 440 445

Arg His Gly Lys Arg Leu Asn Ile Glu Leu Val Gln Gln Val Ala Glu
450 455 460

Glu Leu Gln Gln Val Glu Ser Cys Ala Val Thr Trp Tyr Asn Gln Glu
465 470 475 480

Lys Leu Ile Leu Phe Met Val Ser Lys Asp Ala Ser Val Lys Glu Tyr
485 490 495

Ile Phe Lys Glu Leu Gln Lys Tyr Leu Pro Ser His Ala Val Pro Asp
500 505 510

Glu Leu Val Leu Ile Asp Ser Leu Pro Phe Thr Ser His Gly Lys Ile
515 520 525

Asp Val Ser Glu Leu Asn Lys Ile Tyr Leu Asn Tyr Ile Asn Leu Lys
530 535 540

Ser Glu Asn Lys Leu Ser Gly Lys Glu Asp Leu Trp Glu Lys Leu Gln
545 550 555 560

Tyr Leu Trp Lys Ser Thr Leu Asn Leu Pro Glu Asp Leu Leu Arg Val
565 570 575

Pro Asp Glu Ser Leu Phe Leu Asn Ser Gly Gly Asp Ser Leu Lys Ser
580 585 590

Ile Arg Leu Leu Ser Glu Ile Glu Lys Leu Val Gly Thr Ser Val Pro
595 600 605

Gly Leu Leu Glu Ile Ile Leu Ser Ser Ser Ile Leu Glu Ile Tyr Asn
610 615 620

```
His Ile Leu Gln Thr Val Val Pro Asp Glu Asp Val Thr Phe Arg Lys
625                 630                 635                 640

Ser Cys Ala Thr Lys Arg Lys Leu Ser Asp Ile Asn Gln Glu Glu Ala
                645                 650                 655

Ser Gly Thr Ser Leu His Gln Lys Ala Ile Met Thr Phe Thr Cys His
            660                 665                 670

Asn Glu Ile Asn Ala Phe Val Val Leu Ser Arg Gly Ser Gln Ile Leu
        675                 680                 685

Ser Leu Asn Ser Thr Arg Phe Leu Thr Lys Leu Gly His Cys Ser Ser
    690                 695                 700

Ala Cys Pro Ser Asp Ser Val Ser Gln Thr Asn Ile Gln Asn Leu Lys
705                 710                 715                 720

Gly Leu Asn Ser Pro Val Leu Ile Gly Lys Ser Lys Asp Pro Ser Cys
                725                 730                 735

Val Ala Lys Val Ser Glu Glu Gly Lys Pro Ala Ile Gly Thr Gln Lys
            740                 745                 750

Met Glu Leu His Val Arg Trp Arg Ser Asp Thr Gly Lys Cys Val Asp
        755                 760                 765

Ala Ser Pro Leu Val Val Ile Pro Thr Phe Asp Lys Ser Ser Thr Thr
    770                 775                 780

Val Tyr Ile Gly Ser His Ser His Arg Met Lys Ala Val Asp Phe Tyr
785                 790                 795                 800

Ser Gly Lys Val Lys Trp Glu Gln Ile Leu Gly Asp Arg Ile Glu Ser
                805                 810                 815

Ser Ala Cys Val Ser Lys Cys Gly Asn Phe Ile Val Val Gly Cys Tyr
            820                 825                 830

Asn Gly Leu Val Tyr Val Leu Lys Ser Asn Ser Gly Glu Lys Tyr Trp
        835                 840                 845

Met Phe Thr Thr Glu Asp Ala Val Lys Ser Ser Ala Thr Met Asp Pro
```

```
    850                 855                 860

Thr Thr Gly Leu Ile Tyr Ile Gly Ser His Asp Gln His Ala Tyr Ala
865                 870                 875                 880

Leu Asp Ile Tyr Arg Lys Lys Cys Val Trp Lys Ser Lys Cys Gly Gly
                885                 890                 895

Thr Val Phe Ser Ser Pro Cys Leu Asn Leu Ile Pro His His Leu Tyr
            900                 905                 910

Phe Ala Thr Leu Gly Gly Leu Leu Leu Ala Val Asn Pro Ala Thr Gly
        915                 920                 925

Asn Val Ile Trp Lys His Ser Cys Gly Lys Pro Leu Phe Ser Ser Pro
    930                 935                 940

Gln Cys Cys Ser Gln Tyr Ile Cys Ile Gly Cys Val Asp Gly Asn Leu
945                 950                 955                 960

Leu Cys Phe Thr His Phe Gly Glu Gln Val Trp Gln Phe Ser Thr Ser
                965                 970                 975

Gly Pro Ile Phe Ser Ser Pro Cys Thr Ser Pro Ser Glu Gln Lys Ile
            980                 985                 990

Phe Phe Gly Ser His Asp Cys Phe  Ile Tyr Cys Cys Asn  Met Lys
Gly
        995                 1000                1005

His Leu  Gln Trp Lys Phe Glu  Thr Thr Ser Arg Val  Tyr Ala Thr
    1010                1015                1020

Pro Phe  Ala Phe His Asn Tyr  Asn Gly Ser Asn Glu  Met Leu Leu
    1025                1030                1035

Ala Ala  Ala Ser Thr Asp Gly  Lys Val Trp Ile Leu  Glu Ser Gln
    1040                1045                1050

Ser Gly  Gln Leu Gln Ser Val  Tyr Glu Leu Pro Gly  Glu Val Phe
    1055                1060                1065

Ser Ser  Pro Val Val Leu Glu  Ser Met Leu Ile Ile  Gly Cys Arg
```

```
    1070                1075                1080

Asp Asn  Tyr Val Tyr Cys Leu  Asp Leu Leu Gly Gly  Asn Gln Lys
    1085                1090                1095


<210> 4418
<211> 857
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 988; "

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      aminoadipate-semialdehyde dehydrogenase; "

<220>
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Met Thr Leu Gln Glu Leu Val His Lys Ala Ala Ser Cys Tyr Met Asp
1               5                  10                  15


Arg Val Ala Val Cys Phe Asp Glu Cys Asn Asn Gln Leu Pro Val Tyr
            20                  25                  30


Tyr Thr Tyr Lys Thr Val Val Asn Ala Ala Ser Glu Leu Ser Asn Phe
        35                  40                  45


Leu Leu Leu His Cys Asp Phe Gln Gly Ile Arg Glu Ile Gly Leu Tyr
    50                  55                  60


Cys Gln Pro Gly Ile Asp Leu Pro Ser Trp Ile Leu Gly Ile Leu Gln
65                  70                  75                  80


Val Pro Ala Ala Tyr Val Pro Ile Glu Pro Asp Ser Pro Pro Ser Leu
                85                  90                  95
```

```
Ser Thr His Phe Met Lys Lys Cys Asn Leu Lys Tyr Ile Leu Val Glu
            100                 105                 110

Lys Lys Gln Ile Asn Lys Phe Lys Ser Phe His Glu Thr Leu Leu Asn
        115                 120                 125

Tyr Asp Thr Phe Thr Val Glu His Asn Asp Leu Val Leu Phe Arg Leu
    130                 135                 140

His Trp Lys Asn Thr Glu Val Asn Leu Met Leu Asn Asp Gly Lys Glu
145                 150                 155                 160

Lys Tyr Glu Lys Glu Lys Ile Lys Ser Ile Ser Ser Glu His Val Asn
                165                 170                 175

Glu Glu Lys Ala Glu Glu His Met Asp Leu Arg Leu Lys His Cys Leu
            180                 185                 190

Ala Tyr Val Leu His Thr Ser Gly Thr Thr Gly Ile Pro Lys Ile Val
        195                 200                 205

Arg Val Pro His Lys Cys Ile Val Pro Asn Ile Gln His Phe Arg Val
    210                 215                 220

Leu Phe Asp Ile Thr Gln Glu Asp Val Leu Phe Leu Ala Ser Pro Leu
225                 230                 235                 240

Thr Phe Asp Pro Ser Val Val Glu Ile Phe Leu Ala Leu Ser Ser Gly
                245                 250                 255

Ala Ser Leu Leu Ile Val Pro Thr Ser Val Lys Leu Leu Pro Ser Lys
            260                 265                 270

Leu Ala Ser Val Leu Phe Ser His His Arg Val Thr Val Leu Gln Ala
        275                 280                 285

Thr Pro Thr Leu Leu Arg Arg Phe Gly Ser Gln Leu Ile Lys Ser Thr
    290                 295                 300

Val Leu Ser Ala Thr Thr Ser Leu Arg Val Leu Ala Leu Gly Gly Glu
305                 310                 315                 320
```

```
Ala Phe Pro Ser Leu Thr Val Leu Arg Ser Trp Arg Gly Glu Gly Asn
                325                 330                 335

Lys Thr Gln Ile Phe Asn Val Tyr Gly Ile Thr Glu Val Ser Ser Trp
            340                 345                 350

Ala Thr Ile Tyr Arg Ile Pro Glu Lys Thr Leu Asn Ser Thr Leu Lys
        355                 360                 365

Cys Glu Leu Pro Val Gln Leu Gly Phe Pro Leu Leu Gly Thr Val Val
    370                 375                 380

Glu Val Arg Asp Thr Asn Gly Phe Thr Ile Gln Glu Gly Ser Gly Gln
385                 390                 395                 400

Val Phe Leu Gly Gly Arg Asn Arg Val Cys Phe Leu Asp Asp Glu Val
                405                 410                 415

Thr Val Pro Leu Gly Thr Met Arg Ala Thr Gly Asp Phe Val Thr Val
            420                 425                 430

Lys Asp Gly Glu Ile Phe Phe Leu Gly Arg Lys Asp Ser Gln Ile Lys
        435                 440                 445

Arg His Gly Lys Arg Leu Asn Ile Glu Leu Val Gln Gln Val Ala Glu
    450                 455                 460

Glu Leu Gln Gln Val Glu Ser Cys Ala Val Thr Trp Tyr Asn Gln Glu
465                 470                 475                 480

Lys Leu Ile Leu Phe Met Val Ser Lys Asp Ala Ser Val Lys Glu Tyr
                485                 490                 495

Ile Phe Lys Glu Leu Gln Lys Tyr Leu Pro Ser His Ala Val Pro Asp
            500                 505                 510

Glu Leu Val Leu Ile Asp Ser Leu Pro Phe Thr Ser His Gly Lys Ile
        515                 520                 525

Asp Val Ser Glu Leu Asn Lys Ile Tyr Leu Asn Tyr Ile Asn Leu Lys
    530                 535                 540

Ser Glu Asn Lys Leu Ser Gly Lys Glu Asp Leu Trp Glu Lys Leu Gln
```

545 550 555 560

Tyr Leu Trp Lys Ser Thr Leu Asn Leu Pro Glu Asp Leu Leu Arg Val
565 570 575

Pro Asp Glu Ser Leu Phe Leu Asn Ser Gly Gly Asp Ser Leu Lys Ser
580 585 590

Ile Arg Leu Leu Ser Glu Ile Glu Lys Leu Val Gly Thr Ser Val Pro
595 600 605

Gly Leu Leu Glu Ile Ile Leu Ser Ser Ser Ile Leu Glu Ile Tyr Asn
610 615 620

His Ile Leu Gln Thr Val Val Pro Asp Glu Asp Val Thr Phe Arg Lys
625 630 635 640

Ser Cys Ala Thr Lys Arg Lys Leu Ser Asp Ile Asn Gln Glu Glu Ala
645 650 655

Ser Gly Thr Ser Leu His Gln Lys Ala Ile Met Thr Phe Thr Cys His
660 665 670

Asn Glu Ile Asn Ala Phe Val Val Leu Ser Arg Gly Ser Gln Ile Leu
675 680 685

Ser Leu Asn Ser Thr Arg Phe Leu Thr Lys Leu Gly His Cys Ser Ser
690 695 700

Ala Cys Pro Ser Asp Ser Val Ser Gln Thr Asn Ile Gln Asn Leu Lys
705 710 715 720

Gly Leu Asn Ser Pro Val Leu Ile Gly Lys Ser Lys Asp Pro Ser Cys
725 730 735

Val Ala Lys Val Ser Glu Glu Gly Lys Pro Ala Ile Gly Thr Gln Lys
740 745 750

Met Glu Leu His Val Arg Trp Arg Ser Asp Thr Gly Lys Cys Val Asp
755 760 765

Ala Ser Pro Leu Val Val Ile Pro Thr Phe Asp Lys Ser Ser Thr Thr
770 775 780

```
Val Tyr Ile Gly Ser His Ser His Arg Met Lys Ala Val Asp Phe Tyr
785                 790                 795                 800


Ser Gly Lys Val Lys Trp Glu Gln Ile Leu Gly Asp Arg Ile Glu Ser
                805                 810                 815


Ser Ala Cys Val Ser Lys Cys Gly Asn Phe Ile Val Val Gly Leu Ala
            820                 825                 830


Val Leu Tyr Gln Trp Thr Asn Leu Phe Ile Pro Val Tyr Leu Thr Ile
        835                 840                 845


Arg Ala Lys Asn Ile Phe Trp Phe Pro
    850                 855


<210> 4419
<211> 841
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Uniprot ID:  Q4L235; "

<220>
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<223> /note="ENSP ID: ENSP00000421171"

<400> 4419
Met Thr Leu Gln Glu Leu Val His Lys Ala Ala Ser Cys Tyr Met Asp
1               5                   10                  15


Arg Val Ala Val Cys Phe Asp Glu Cys Asn Asn Gln Leu Pro Val Tyr
            20                  25                  30
```

```
Tyr Thr Tyr Lys Thr Val Val Asn Ala Ala Ser Glu Leu Ser Asn Phe
        35                  40                  45

Leu Leu Leu His Cys Asp Phe Gln Gly Ile Arg Glu Ile Gly Leu Tyr
    50                  55                  60

Cys Gln Pro Gly Ile Asp Leu Pro Ser Trp Ile Leu Gly Ile Leu Gln
65                  70                  75                  80

Val Pro Ala Ala Tyr Val Pro Ile Glu Pro Asp Ser Pro Pro Ser Leu
                85                  90                  95

Ser Thr His Phe Met Lys Lys Cys Asn Leu Lys Tyr Ile Leu Val Glu
            100                 105                 110

Lys Lys Gln Ile Asn Lys Phe Lys Ser Phe His Glu Thr Leu Leu Asn
        115                 120                 125

Tyr Asp Thr Phe Thr Val Glu His Asn Asp Leu Val Leu Phe Arg Leu
    130                 135                 140

His Trp Lys Asn Thr Glu Val Asn Leu Met Leu Asn Asp Gly Lys Glu
145                 150                 155                 160

Lys Tyr Glu Lys Glu Lys Ile Lys Ser Ile Ser Ser Glu His Val Asn
                165                 170                 175

Glu Glu Lys Ala Glu Glu His Met Asp Leu Arg Leu Lys His Cys Leu
            180                 185                 190

Ala Tyr Val Leu His Thr Ser Gly Thr Thr Gly Ile Pro Lys Ile Val
        195                 200                 205

Arg Val Pro His Lys Cys Ile Val Pro Asn Ile Gln His Phe Arg Val
    210                 215                 220

Leu Phe Asp Ile Thr Gln Glu Asp Val Leu Phe Leu Ala Ser Pro Leu
225                 230                 235                 240

Thr Phe Asp Pro Ser Val Val Glu Ile Phe Leu Ala Leu Ser Ser Gly
                245                 250                 255

Ala Ser Leu Leu Ile Val Pro Thr Ser Val Lys Leu Leu Pro Ser Lys
```

260 265 270

Leu Ala Ser Val Leu Phe Ser His His Arg Val Thr Val Leu Gln Ala
275 280 285

Thr Pro Thr Leu Leu Arg Arg Phe Gly Ser Gln Leu Ile Lys Ser Thr
290 295 300

Val Leu Ser Ala Thr Thr Ser Leu Arg Val Leu Ala Leu Gly Gly Glu
305 310 315 320

Ala Phe Pro Ser Leu Thr Val Leu Arg Ser Trp Arg Gly Glu Gly Asn
325 330 335

Lys Thr Gln Ile Phe Asn Val Tyr Gly Ile Thr Glu Val Ser Ser Trp
340 345 350

Ala Thr Ile Tyr Arg Ile Pro Glu Lys Thr Leu Asn Ser Thr Leu Lys
355 360 365

Cys Glu Leu Pro Val Gln Leu Gly Phe Pro Leu Leu Gly Thr Val Val
370 375 380

Glu Val Arg Asp Thr Asn Gly Phe Thr Ile Gln Glu Gly Ser Gly Gln
385 390 395 400

Val Phe Leu Gly Gly Arg Asn Arg Val Cys Phe Leu Asp Asp Glu Val
405 410 415

Thr Val Pro Leu Gly Thr Met Arg Ala Thr Gly Asp Phe Val Thr Val
420 425 430

Lys Asp Gly Glu Ile Phe Phe Leu Gly Arg Lys Asp Ser Gln Ile Lys
435 440 445

Arg His Gly Lys Arg Leu Asn Ile Glu Leu Val Gln Gln Val Ala Glu
450 455 460

Glu Leu Gln Gln Val Glu Ser Cys Ala Val Thr Trp Tyr Asn Gln Glu
465 470 475 480

Lys Leu Ile Leu Phe Met Val Ser Lys Asp Ala Ser Val Lys Glu Tyr
485 490 495

```
Ile Phe Lys Glu Leu Gln Lys Tyr Leu Pro Ser His Ala Val Pro Asp
            500                 505                 510

Glu Leu Val Leu Ile Asp Ser Leu Pro Phe Thr Ser His Gly Lys Ile
        515                 520                 525

Asp Val Ser Glu Leu Asn Lys Ile Tyr Leu Asn Tyr Ile Asn Leu Lys
    530                 535                 540

Ser Glu Asn Lys Leu Ser Gly Lys Glu Asp Leu Trp Glu Lys Leu Gln
545                 550                 555                 560

Tyr Leu Trp Lys Ser Thr Leu Asn Leu Pro Glu Asp Leu Leu Arg Val
                565                 570                 575

Pro Asp Glu Ser Leu Phe Leu Asn Ser Gly Gly Asp Ser Leu Lys Ser
            580                 585                 590

Ile Arg Leu Leu Ser Glu Ile Glu Lys Leu Val Gly Thr Ser Val Pro
        595                 600                 605

Gly Leu Leu Glu Ile Ile Leu Ser Ser Ser Ile Leu Glu Ile Tyr Asn
    610                 615                 620

His Ile Leu Gln Thr Val Val Pro Asp Glu Asp Val Thr Phe Arg Lys
625                 630                 635                 640

Ser Cys Ala Thr Lys Arg Lys Leu Ser Asp Ile Asn Gln Glu Glu Ala
                645                 650                 655

Ser Gly Thr Ser Leu His Gln Lys Ala Ile Met Thr Phe Thr Cys His
            660                 665                 670

Asn Glu Ile Asn Ala Phe Val Val Leu Ser Arg Gly Ser Gln Ile Leu
        675                 680                 685

Ser Leu Asn Ser Thr Arg Phe Leu Thr Lys Leu Gly His Cys Ser Ser
    690                 695                 700

Ala Cys Pro Ser Asp Ser Val Ser Gln Thr Asn Ile Gln Asn Leu Lys
705                 710                 715                 720
```

```
Gly Leu Asn Ser Pro Val Leu Ile Gly Lys Ser Lys Asp Pro Ser Cys
                725                 730                 735

Val Ala Lys Val Ser Glu Glu Gly Lys Pro Ala Ile Gly Thr Gln Lys
            740                 745                 750

Met Glu Leu His Val Arg Trp Arg Ser Asp Thr Gly Lys Cys Val Asp
        755                 760                 765

Ala Ser Pro Leu Val Val Ile Pro Thr Phe Asp Lys Ser Ser Thr Thr
    770                 775                 780

Val Tyr Ile Gly Ser His Ser His Arg Met Lys Ala Val Asp Phe Tyr
785                 790                 795                 800

Ser Gly Lys Val Lys Trp Glu Gln Ile Leu Gly Asp Arg Ile Glu Ser
                805                 810                 815

Ser Ala Cys Val Ser Lys Cys Gly Asn Phe Ile Val Val Gly Lys Phe
            820                 825                 830

Leu Asn Leu Arg Phe Val Glu Leu Asn
        835                 840


<210> 4420
<211> 86
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: AASDH; "

<220>
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<223> /note="Gene Name:
      aminoadipate-semialdehyde dehydrogenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421658"

<400> 4420
Met Thr Leu Gln Glu Leu Val His Lys Ala Ala Ser Cys Tyr Met Asp
```

```
1               5                   10                  15

Arg Val Ala Val Cys Phe Asp Glu Cys Asn Asn Gln Leu Pro Val Tyr
            20                  25                  30

Tyr Thr Tyr Lys Thr Val Val Asn Ala Ala Ser Glu Leu Ser Asn Phe
        35                  40                  45

Leu Leu Leu His Cys Asp Phe Gln Gly Ile Arg Glu Ile Gly Leu Tyr
    50                  55                  60

Cys Gln Pro Gly Ile Asp Leu Pro Ser Trp Ile Leu Gly Asn Leu Asn
65                  70                  75                  80

Leu Phe Met Lys His Tyr
                85


<210> 4421
<211> 998
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 988; "

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      aminoadipate-semialdehyde dehydrogenase; "

<220>
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<223> /note="Uniprot ID:  Q4L235; "

<220>
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<223> /note="ENSP ID: ENSP00000423760"

<400> 4421
Met Lys Lys Cys Asn Leu Lys Tyr Ile Leu Val Glu Lys Lys Gln Ile
1               5                   10                  15

Asn Lys Phe Lys Ser Phe His Glu Thr Leu Leu Asn Tyr Asp Thr Phe
            20                  25                  30
```

```
Thr Val Glu His Asn Asp Leu Val Leu Phe Arg Leu His Trp Lys Asn
        35                  40                  45

Thr Glu Val Asn Leu Met Leu Asn Asp Gly Lys Glu Lys Tyr Glu Lys
    50                  55                  60

Glu Lys Ile Lys Ser Ile Ser Ser Glu His Val Asn Glu Glu Lys Ala
65                  70                  75                  80

Glu Glu His Met Asp Leu Arg Leu Lys His Cys Leu Ala Tyr Val Leu
                85                  90                  95

His Thr Ser Gly Thr Thr Gly Ile Pro Lys Ile Val Arg Val Pro His
            100                 105                 110

Lys Cys Ile Val Pro Asn Ile Gln His Phe Arg Val Leu Phe Asp Ile
        115                 120                 125

Thr Gln Glu Asp Val Leu Phe Leu Ala Ser Pro Leu Thr Phe Asp Pro
    130                 135                 140

Ser Val Val Glu Ile Phe Leu Ala Leu Ser Ser Gly Ala Ser Leu Leu
145                 150                 155                 160

Ile Val Pro Thr Ser Val Lys Leu Leu Pro Ser Lys Leu Ala Ser Val
                165                 170                 175

Leu Phe Ser His His Arg Val Thr Val Leu Gln Ala Thr Pro Thr Leu
            180                 185                 190

Leu Arg Arg Phe Gly Ser Gln Leu Ile Lys Ser Thr Val Leu Ser Ala
        195                 200                 205

Thr Thr Ser Leu Arg Val Leu Ala Leu Gly Gly Glu Ala Phe Pro Ser
    210                 215                 220

Leu Thr Val Leu Arg Ser Trp Arg Gly Glu Gly Asn Lys Thr Gln Ile
225                 230                 235                 240

Phe Asn Val Tyr Gly Ile Thr Glu Val Ser Ser Trp Ala Thr Ile Tyr
                245                 250                 255
```

```
Arg Ile Pro Glu Lys Thr Leu Asn Ser Thr Leu Lys Cys Glu Leu Pro
            260                 265                 270

Val Gln Leu Gly Phe Pro Leu Leu Gly Thr Val Val Glu Val Arg Asp
        275                 280                 285

Thr Asn Gly Phe Thr Ile Gln Glu Gly Ser Gly Gln Val Phe Leu Gly
    290                 295                 300

Gly Arg Asn Arg Val Cys Phe Leu Asp Asp Glu Val Thr Val Pro Leu
305                 310                 315                 320

Gly Thr Met Arg Ala Thr Gly Asp Phe Val Thr Val Lys Asp Gly Glu
                325                 330                 335

Ile Phe Phe Leu Gly Arg Lys Asp Ser Gln Ile Lys Arg His Gly Lys
            340                 345                 350

Arg Leu Asn Ile Glu Leu Val Gln Gln Val Ala Glu Glu Leu Gln Gln
        355                 360                 365

Val Glu Ser Cys Ala Val Thr Trp Tyr Asn Gln Glu Lys Leu Ile Leu
    370                 375                 380

Phe Met Val Ser Lys Asp Ala Ser Val Lys Glu Tyr Ile Phe Lys Glu
385                 390                 395                 400

Leu Gln Lys Tyr Leu Pro Ser His Ala Val Pro Asp Glu Leu Val Leu
                405                 410                 415

Ile Asp Ser Leu Pro Phe Thr Ser His Gly Lys Ile Asp Val Ser Glu
            420                 425                 430

Leu Asn Lys Ile Tyr Leu Asn Tyr Ile Asn Leu Lys Ser Glu Asn Lys
        435                 440                 445

Leu Ser Gly Lys Glu Asp Leu Trp Glu Lys Leu Gln Tyr Leu Trp Lys
    450                 455                 460

Ser Thr Leu Asn Leu Pro Glu Asp Leu Leu Arg Val Pro Asp Glu Ser
465                 470                 475                 480

Leu Phe Leu Asn Ser Gly Gly Asp Ser Leu Lys Ser Ile Arg Leu Leu
```

485 490 495

Ser Glu Ile Glu Lys Leu Val Gly Thr Ser Val Pro Gly Leu Leu Glu
500 505 510

Ile Ile Leu Ser Ser Ser Ile Leu Glu Ile Tyr Asn His Ile Leu Gln
515 520 525

Thr Val Val Pro Asp Glu Asp Val Thr Phe Arg Lys Ser Cys Ala Thr
530 535 540

Lys Arg Lys Leu Ser Asp Ile Asn Gln Glu Glu Ala Ser Gly Thr Ser
545 550 555 560

Leu His Gln Lys Ala Ile Met Thr Phe Thr Cys His Asn Glu Ile Asn
565 570 575

Ala Phe Val Val Leu Ser Arg Gly Ser Gln Ile Leu Ser Leu Asn Ser
580 585 590

Thr Arg Phe Leu Thr Lys Leu Gly His Cys Ser Ser Ala Cys Pro Ser
595 600 605

Asp Ser Val Ser Gln Thr Asn Ile Gln Asn Leu Lys Gly Leu Asn Ser
610 615 620

Pro Val Leu Ile Gly Lys Ser Lys Asp Pro Ser Cys Val Ala Lys Val
625 630 635 640

Ser Glu Glu Gly Lys Pro Ala Ile Gly Thr Gln Lys Met Glu Leu His
645 650 655

Val Arg Trp Arg Ser Asp Thr Gly Lys Cys Val Asp Ala Ser Pro Leu
660 665 670

Val Val Ile Pro Thr Phe Asp Lys Ser Ser Thr Thr Val Tyr Ile Gly
675 680 685

Ser His Ser His Arg Met Lys Ala Val Asp Phe Tyr Ser Gly Lys Val
690 695 700

Lys Trp Glu Gln Ile Leu Gly Asp Arg Ile Glu Ser Ser Ala Cys Val
705 710 715 720

Ser Lys Cys Gly Asn Phe Ile Val Val Gly Cys Tyr Asn Gly Leu Val
725 730 735

Tyr Val Leu Lys Ser Asn Ser Gly Glu Lys Tyr Trp Met Phe Thr Thr
740 745 750

Glu Asp Ala Val Lys Ser Ser Ala Thr Met Asp Pro Thr Thr Gly Leu
755 760 765

Ile Tyr Ile Gly Ser His Asp Gln His Ala Tyr Ala Leu Asp Ile Tyr
770 775 780

Arg Lys Lys Cys Val Trp Lys Ser Lys Cys Gly Gly Thr Val Phe Ser
785 790 795 800

Ser Pro Cys Leu Asn Leu Ile Pro His His Leu Tyr Phe Ala Thr Leu
805 810 815

Gly Gly Leu Leu Leu Ala Val Asn Pro Ala Thr Gly Asn Val Ile Trp
820 825 830

Lys His Ser Cys Gly Lys Pro Leu Phe Ser Ser Pro Gln Cys Cys Ser
835 840 845

Gln Tyr Ile Cys Ile Gly Cys Val Asp Gly Asn Leu Leu Cys Phe Thr
850 855 860

His Phe Gly Glu Gln Val Trp Gln Phe Ser Thr Ser Gly Pro Ile Phe
865 870 875 880

Ser Ser Pro Cys Thr Ser Pro Ser Glu Gln Lys Ile Phe Phe Gly Ser
885 890 895

His Asp Cys Phe Ile Tyr Cys Cys Asn Met Lys Gly His Leu Gln Trp
900 905 910

Lys Phe Glu Thr Thr Ser Arg Val Tyr Ala Thr Pro Phe Ala Phe His
915 920 925

Asn Tyr Asn Gly Ser Asn Glu Met Leu Leu Ala Ala Ala Ser Thr Asp
930 935 940

```
Gly Lys Val Trp Ile Leu Glu Ser Gln Ser Gly Gln Leu Gln Ser Val
945                 950                 955                 960


Tyr Glu Leu Pro Gly Glu Val Phe Ser Ser Pro Val Val Leu Glu Ser
                965                 970                 975


Met Leu Ile Ile Gly Cys Arg Asp Asn Tyr Val Tyr Cys Leu Asp Leu
            980                 985                 990


Leu Gly Gly Asn Gln Lys
        995


<210> 4422
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 988; "

<220>
<221> source
<223> /note="Gene Symbol: AASDH; "

<220>
<221> source
<223> /note="Gene Name:
      aminoadipate-semialdehyde dehydrogenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427298"

<400> 4422
Met Thr Leu Gln Glu Leu Val His Lys Ala Ala Ser Cys Tyr Met Asp
1               5                   10                  15


Arg Val Ala Val Cys Phe Asp Glu Cys Asn Asn Gln Leu Pro Val Tyr
            20                  25                  30


Tyr Thr Tyr Lys Thr Val Val Asn Ala Ala Ser Glu Leu Ser Asn Phe
        35                  40                  45


Leu Leu Leu His Cys Asp Phe Gln Gly Ile Arg Glu Ile Gly Leu Tyr
    50                  55                  60


Cys Gln Pro Gly Ile Asp Leu Pro Ser Trp Ile Leu Gly Ile Leu Gln
```

65 70 75 80

Val Pro Ala Ala Tyr Val Pro Ile Glu Pro Asp Ser Pro Pro Ser Leu
85 90 95

Ser Thr His Phe Met Lys Lys Cys Asn Leu Lys Tyr Ile Leu Val Glu
100 105 110

Lys Lys Gln Ile Asn Gly Thr Phe
115 120

<210> 4423
<211> 945
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 988; "

<220>
<221> source
<223> /note="Gene Symbol: AASDH; "

<220>
<221> source
<223> /note="Gene Name:
aminoadipate-semialdehyde dehydrogenase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473564"

<400> 4423
Met Leu Asn Asp Gly Lys Glu Lys Tyr Glu Lys Glu Lys Ile Lys Ser
1 5 10 15

Ile Ser Ser Glu His Val Asn Glu Glu Lys Ala Glu Glu His Met Asp
20 25 30

Leu Arg Leu Lys His Cys Leu Ala Tyr Val Leu His Thr Ser Gly Thr
35 40 45

Thr Gly Ile Pro Lys Ile Val Arg Val Pro His Lys Cys Ile Val Pro
50 55 60

Asn Ile Gln His Phe Arg Val Leu Phe Asp Ile Thr Gln Glu Asp Val
65 70 75 80

```
Leu Phe Leu Ala Ser Pro Leu Thr Phe Asp Pro Ser Val Val Glu Ile
                85                  90                  95

Phe Leu Ala Leu Ser Ser Gly Ala Ser Leu Leu Ile Val Pro Thr Ser
            100                 105                 110

Val Lys Leu Leu Pro Ser Lys Leu Ala Ser Val Leu Phe Ser His His
        115                 120                 125

Arg Val Thr Val Leu Gln Ala Thr Pro Thr Leu Leu Arg Arg Phe Gly
    130                 135                 140

Ser Gln Leu Ile Lys Ser Thr Val Leu Ser Ala Thr Thr Ser Leu Arg
145                 150                 155                 160

Val Leu Ala Leu Gly Gly Glu Ala Phe Pro Ser Leu Thr Val Leu Arg
                165                 170                 175

Ser Trp Arg Gly Glu Gly Asn Lys Thr Gln Ile Phe Asn Val Tyr Gly
            180                 185                 190

Ile Thr Glu Val Ser Ser Trp Ala Thr Ile Tyr Arg Ile Pro Glu Lys
        195                 200                 205

Thr Leu Asn Ser Thr Leu Lys Cys Glu Leu Pro Val Gln Leu Gly Phe
    210                 215                 220

Pro Leu Leu Gly Thr Val Val Glu Val Arg Asp Thr Asn Gly Phe Thr
225                 230                 235                 240

Ile Gln Glu Gly Ser Gly Gln Val Phe Leu Gly Gly Arg Asn Arg Val
                245                 250                 255

Cys Phe Leu Asp Asp Glu Val Thr Val Pro Leu Gly Thr Met Arg Ala
            260                 265                 270

Thr Gly Asp Phe Val Thr Val Lys Asp Gly Glu Ile Phe Phe Leu Gly
        275                 280                 285

Arg Lys Asp Ser Gln Ile Lys Arg His Gly Lys Arg Leu Asn Ile Glu
    290                 295                 300
```

```
Leu Val Gln Gln Val Ala Glu Glu Leu Gln Gln Val Glu Ser Cys Ala
305                 310                 315                 320

Val Thr Trp Tyr Asn Gln Glu Lys Leu Ile Leu Phe Met Val Ser Lys
                325                 330                 335

Asp Ala Ser Val Lys Glu Tyr Ile Phe Lys Glu Leu Gln Lys Tyr Leu
            340                 345                 350

Pro Ser His Ala Val Pro Asp Glu Leu Val Leu Ile Asp Ser Leu Pro
        355                 360                 365

Phe Thr Ser His Gly Lys Ile Asp Val Ser Glu Leu Asn Lys Ile Tyr
    370                 375                 380

Leu Asn Tyr Ile Asn Leu Lys Ser Glu Asn Lys Leu Ser Gly Lys Glu
385                 390                 395                 400

Asp Leu Trp Glu Lys Leu Gln Tyr Leu Trp Lys Ser Thr Leu Asn Leu
                405                 410                 415

Pro Glu Asp Leu Leu Arg Val Pro Asp Glu Ser Leu Phe Leu Asn Ser
            420                 425                 430

Gly Gly Asp Ser Leu Lys Ser Ile Arg Leu Leu Ser Glu Ile Glu Lys
        435                 440                 445

Leu Val Gly Thr Ser Val Pro Gly Leu Leu Glu Ile Ile Leu Ser Ser
    450                 455                 460

Ser Ile Leu Glu Ile Tyr Asn His Ile Leu Gln Thr Val Val Pro Asp
465                 470                 475                 480

Glu Asp Val Thr Phe Arg Lys Ser Cys Ala Thr Lys Arg Lys Leu Ser
                485                 490                 495

Asp Ile Asn Gln Glu Glu Ala Ser Gly Thr Ser Leu His Gln Lys Ala
            500                 505                 510

Ile Met Thr Phe Thr Cys His Asn Glu Ile Asn Ala Phe Val Val Leu
        515                 520                 525

Ser Arg Gly Ser Gln Ile Leu Ser Leu Asn Ser Thr Arg Phe Leu Thr
```

530 535 540

Lys Leu Gly His Cys Ser Ser Ala Cys Pro Ser Asp Ser Val Ser Gln
545 550 555 560

Thr Asn Ile Gln Asn Leu Lys Gly Leu Asn Ser Pro Val Leu Ile Gly
565 570 575

Lys Ser Lys Asp Pro Ser Cys Val Ala Lys Val Ser Glu Glu Gly Lys
580 585 590

Pro Ala Ile Gly Thr Gln Lys Met Glu Leu His Val Arg Trp Arg Ser
595 600 605

Asp Thr Gly Lys Cys Val Asp Ala Ser Pro Leu Val Val Ile Pro Thr
610 615 620

Phe Asp Lys Ser Ser Thr Thr Val Tyr Ile Gly Ser His Ser His Arg
625 630 635 640

Met Lys Ala Val Asp Phe Tyr Ser Gly Lys Val Lys Trp Glu Gln Ile
645 650 655

Leu Gly Asp Arg Ile Glu Ser Ser Ala Cys Val Ser Lys Cys Gly Asn
660 665 670

Phe Ile Val Val Gly Cys Tyr Asn Gly Leu Val Tyr Val Leu Lys Ser
675 680 685

Asn Ser Gly Glu Lys Tyr Trp Met Phe Thr Thr Glu Asp Ala Val Lys
690 695 700

Ser Ser Ala Thr Met Asp Pro Thr Thr Gly Leu Ile Tyr Ile Gly Ser
705 710 715 720

His Asp Gln His Ala Tyr Ala Leu Asp Ile Tyr Arg Lys Lys Cys Val
725 730 735

Trp Lys Ser Lys Cys Gly Gly Thr Val Phe Ser Ser Pro Cys Leu Asn
740 745 750

Leu Ile Pro His His Leu Tyr Phe Ala Thr Leu Gly Gly Leu Leu Leu
755 760 765

```
Ala Val Asn Pro Ala Thr Gly Asn Val Ile Trp Lys His Ser Cys Gly
    770                 775                 780

Lys Pro Leu Phe Ser Ser Pro Gln Cys Cys Ser Gln Tyr Ile Cys Ile
785                 790                 795                 800

Gly Cys Val Asp Gly Asn Leu Leu Cys Phe Thr His Phe Gly Glu Gln
                805                 810                 815

Val Trp Gln Phe Ser Thr Ser Gly Pro Ile Phe Ser Ser Pro Cys Thr
            820                 825                 830

Ser Pro Ser Glu Gln Lys Ile Phe Phe Gly Ser His Asp Cys Phe Ile
        835                 840                 845

Tyr Cys Cys Asn Met Lys Gly His Leu Gln Trp Lys Phe Glu Thr Thr
    850                 855                 860

Ser Arg Val Tyr Ala Thr Pro Phe Ala Phe His Asn Tyr Asn Gly Ser
865                 870                 875                 880

Asn Glu Met Leu Leu Ala Ala Ala Ser Thr Asp Gly Lys Val Trp Ile
                885                 890                 895

Leu Glu Ser Gln Ser Gly Gln Leu Gln Ser Val Tyr Glu Leu Pro Gly
            900                 905                 910

Glu Val Phe Ser Ser Pro Val Val Leu Glu Ser Met Leu Ile Ile Gly
        915                 920                 925

Cys Arg Asp Asn Tyr Val Tyr Cys Leu Asp Leu Leu Gly Gly Asn Gln
    930                 935                 940

Lys
945
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<210> 4424
<211> 309
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 989; "

<220>
<221> source
<223> /note="Gene Symbol: AASDHPPT; "

<220>
<221> source
<223> /note="Gene Name:
aminoadipate-semialdehyde
dehydrogenase-phosphopantetheinyl transferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NRN7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000278618"

<400> 4424

```
Met Val Phe Pro Ala Lys Arg Phe Cys Leu Val Pro Ser Met Glu Gly
1               5                  10                  15

Val Arg Trp Ala Phe Ser Cys Gly Thr Trp Leu Pro Ser Arg Ala Glu
            20                  25                  30

Trp Leu Leu Ala Val Arg Ser Ile Gln Pro Glu Glu Lys Glu Arg Ile
        35                  40                  45

Gly Gln Phe Val Phe Ala Arg Asp Ala Lys Ala Ala Met Ala Gly Arg
    50                  55                  60

Leu Met Ile Arg Lys Leu Val Ala Glu Lys Leu Asn Ile Pro Trp Asn
65                  70                  75                  80

His Ile Arg Leu Gln Arg Thr Ala Lys Gly Lys Pro Val Leu Ala Lys
                85                  90                  95

Asp Ser Ser Asn Pro Tyr Pro Asn Phe Asn Phe Asn Ile Ser His Gln
            100                 105                 110

Gly Asp Tyr Ala Val Leu Ala Ala Glu Pro Glu Leu Gln Val Gly Ile
        115                 120                 125

Asp Ile Met Lys Thr Ser Phe Pro Gly Arg Gly Ser Ile Pro Glu Phe
    130                 135                 140
```

```
Phe His Ile Met Lys Arg Lys Phe Thr Asn Lys Glu Trp Glu Thr Ile
145                 150                 155                 160

Arg Ser Phe Lys Asp Glu Trp Thr Gln Leu Asp Met Phe Tyr Arg Asn
                165                 170                 175

Trp Ala Leu Lys Glu Ser Phe Ile Lys Ala Ile Gly Val Gly Leu Gly
            180                 185                 190

Phe Glu Leu Gln Arg Leu Glu Phe Asp Leu Ser Pro Leu Asn Leu Asp
        195                 200                 205

Ile Gly Gln Val Tyr Lys Glu Thr Arg Leu Phe Leu Asp Gly Glu Glu
    210                 215                 220

Glu Lys Glu Trp Ala Phe Glu Glu Ser Lys Ile Asp Glu His His Phe
225                 230                 235                 240

Val Ala Val Ala Leu Arg Lys Pro Asp Gly Ser Arg His Gln Asp Val
                245                 250                 255

Pro Ser Gln Asp Asp Ser Lys Pro Thr Gln Arg Gln Phe Thr Ile Leu
            260                 265                 270

Asn Phe Asn Asp Leu Met Ser Ser Ala Val Pro Met Thr Pro Glu Asp
        275                 280                 285

Pro Ser Phe Trp Asp Cys Phe Cys Phe Thr Glu Glu Ile Pro Ile Arg
    290                 295                 300

Asn Gly Thr Lys Ser
305


<210> 4425
<211> 190
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 989; "

<220>
<221> source
<223> /note="Gene Symbol: AASDHPPT; "
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<220>
<221> source
<223> /note="Gene Name:
aminoadipate-semialdehyde
dehydrogenase-phosphopantetheinyl transferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435099"

<400> 4425
Met Ile Arg Lys Leu Val Ala Glu Lys Leu Asn Ile Pro Trp Asn His
1 5 10 15

Ile Arg Leu Gln Arg Thr Ala Lys Gly Lys Pro Val Leu Ala Lys Asp
20 25 30

Ser Ser Asn Pro Tyr Pro Asn Phe Asn Phe Asn Ile Ser His Gln Gly
35 40 45

Asp Tyr Ala Val Leu Ala Ala Glu Pro Glu Leu Gln Val Gly Ile Asp
50 55 60

Ile Met Lys Thr Ser Phe Pro Gly Arg Gly Ser Ile Pro Glu Phe Phe
65 70 75 80

His Ile Met Lys Arg Lys Phe Thr Asn Lys Glu Trp Glu Thr Ile Arg
85 90 95

Ser Phe Lys Asp Glu Trp Thr Gln Leu Asp Met Phe Tyr Arg Asn Trp
100 105 110

Ala Leu Lys Glu Ser Phe Ile Lys Ala Ile Gly Val Gly Leu Gly Phe
115 120 125

Glu Leu Gln Arg Leu Glu Phe Asp Leu Ser Pro Leu Asn Leu Asp Ile
130 135 140

Gly Gln Val Tyr Lys Glu Thr Arg Leu Phe Leu Asp Gly Glu Glu Glu
145 150 155 160

Lys Glu Trp Ala Phe Glu Glu Ser Lys Ile Asp Glu His His Phe Val
165 170 175

Ala Val Ala Leu Arg Lys Pro Asp Gly Ser Arg His Gln Asp
180 185 190

<210> 4426
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 989; "

<220>
<221> source
<223> /note="Gene Symbol: AASDHPPT; "

<220>
<221> source
<223> /note="Gene Name:
aminoadipate-semialdehyde
dehydrogenase-phosphopantetheinyl transferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NRN7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437144"

<400> 4426
Met Val Phe Pro Ala Lys Arg Phe Cys Leu Val Pro Ser Met Glu Gly
1   5   10   15

Val Arg Trp Ala Phe Ser Cys Gly Thr Trp Leu Pro Ser Arg Ala Glu
            20   25   30

Trp Leu Leu Ala Val Arg Ser Ile Gln Pro Glu Glu Lys Glu Arg Ile
        35   40   45

Gly Gln Phe Val Phe Ala Arg Asp Ala Lys Ala Ala Met Ala Gly Arg
    50   55   60

Leu Met Ile Arg Lys Leu Val Ala Glu Lys Leu Asn Ile Pro Trp Asn
65   70   75   80

His Ile Arg Leu Gln Arg Thr Ala Lys Gly Lys Pro Val Leu Ala Lys
                85   90   95

Asp Ser Ser Asn Pro Tyr Pro Asn Phe Asn Phe Asn Ile Ser His Gln
            100   105   110

```
Gly Asp Tyr Ala Val Leu Ala Ala Glu Pro Glu Leu Gln Val Gly Ile
        115                 120                 125


Asp Ile Met Lys Thr Ser Phe Pro Gly Thr
    130                 135


<210> 4427
<211> 160
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 989; "

<220>
<221> source
<223> /note="Gene Symbol: AASDHPPT; "

<220>
<221> source
<223> /note="Gene Name:
      aminoadipate-semialdehyde
      dehydrogenase-phosphopantetheinyl transferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437175"

<400> 4427
Met Ile Arg Lys Leu Val Ala Glu Lys Leu Asn Ile Pro Trp Asn His
1               5                   10                  15


Ile Arg Leu Gln Arg Thr Ala Lys Gly Lys Pro Val Leu Ala Lys Asp
            20                  25                  30


Ser Ser Asn Pro Tyr Pro Asn Phe Asn Phe Asn Ile Ser His Gln Gly
        35                  40                  45


Asp Tyr Ala Val Leu Ala Ala Glu Pro Glu Leu Gln Val Gly Ile Asp
    50                  55                  60


Ile Met Lys Thr Ser Phe Pro Gly Arg Gly Ser Ile Pro Glu Phe Phe
65                  70                  75                  80


His Ile Met Lys Arg Lys Phe Thr Asn Lys Glu Trp Glu Thr Ile Arg
                85                  90                  95
```

```
Ser Phe Lys Asp Glu Trp Thr Gln Leu Asp Met Phe Tyr Arg Asn Trp
            100                 105                 110

Ala Leu Lys Glu Ser Phe Ile Lys Ala Ile Gly Val Gly Leu Gly Phe
        115                 120                 125

Glu Leu Gln Arg Leu Glu Phe Asp Leu Ser Pro Leu Asn Leu Asp Ile
    130                 135                 140

Gly Gln Val Tyr Lys Glu Thr Arg Leu Phe Leu Asp Gly Glu Glu Glu
145                 150                 155                 160
```

<210> 4428
<211> 732
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 990; "

<220>
<221> source
<223> /note="Gene Symbol: AASS; "

<220>
<221> source
<223> /note="Gene Name:
aminoadipate-semialdehyde synthase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000351834"

<400> 4428

```
Met Leu Gln Val His Arg Thr Gly Leu Gly Arg Leu Gly Val Ser Leu
1               5                   10                  15

Ser Lys Gly Leu His His Lys Ala Val Leu Ala Val Arg Arg Glu Asp
            20                  25                  30

Val Asn Ala Trp Glu Arg Arg Ala Pro Leu Ala Pro Lys His Ile Lys
        35                  40                  45

Gly Ile Thr Asn Leu Gly Tyr Lys Val Leu Ile Gln Pro Ser Asn Arg
    50                  55                  60

Arg Ala Ile His Asp Lys Asp Tyr Val Lys Ala Gly Gly Ile Leu Gln
65                  70                  75                  80
```

```
Glu Asp Ile Ser Glu Ala Cys Leu Ile Leu Gly Val Lys Arg Pro Pro
                85                  90                  95

Glu Glu Lys Leu Met Ser Arg Lys Thr Tyr Ala Phe Phe Ser His Thr
            100                 105                 110

Ile Lys Ala Gln Glu Ala Asn Met Gly Leu Leu Asp Glu Ile Leu Lys
        115                 120                 125

Gln Glu Ile Arg Leu Ile Asp Tyr Glu Lys Met Val Asp His Arg Gly
    130                 135                 140

Val Arg Val Val Ala Phe Gly Gln Trp Ala Gly Val Ala Gly Met Ile
145                 150                 155                 160

Asn Ile Leu His Gly Met Gly Leu Arg Leu Leu Ala Leu Gly His His
                165                 170                 175

Thr Pro Phe Met His Ile Gly Met Ala His Asn Tyr Arg Asn Ser Ser
            180                 185                 190

Gln Ala Val Gln Ala Val Arg Asp Ala Gly Tyr Glu Ile Ser Leu Gly
        195                 200                 205

Leu Met Pro Lys Ser Ile Gly Pro Leu Thr Phe Val Phe Thr Gly Thr
    210                 215                 220

Gly Asn Val Ser Lys Gly Ala Gln Ala Ile Phe Asn Glu Leu Pro Cys
225                 230                 235                 240

Glu Tyr Val Glu Pro His Glu Leu Lys Glu Val Ser Gln Thr Gly Asp
                245                 250                 255

Leu Arg Lys Val Tyr Gly Thr Val Leu Ser Arg His His His Leu Val
            260                 265                 270

Arg Lys Thr Asp Ala Val Tyr Asp Pro Ala Glu Tyr Asp Lys His Pro
        275                 280                 285

Glu Arg Tyr Ile Ser Arg Phe Asn Thr Asp Ile Ala Pro Tyr Thr Thr
    290                 295                 300
```

```
Cys Leu Ile Asn Gly Ile Tyr Trp Glu Gln Asn Thr Pro Arg Leu Leu
305                 310                 315                 320

Thr Arg Gln Asp Ala Gln Ser Leu Leu Ala Pro Gly Lys Phe Ser Pro
                325                 330                 335

Ala Gly Val Glu Gly Cys Pro Ala Leu Pro His Lys Leu Val Ala Ile
            340                 345                 350

Cys Asp Ile Ser Ala Asp Thr Gly Gly Ser Ile Glu Phe Met Thr Glu
        355                 360                 365

Cys Thr Thr Ile Glu His Pro Phe Cys Met Tyr Asp Ala Asp Gln His
    370                 375                 380

Ile Ile His Asp Ser Val Glu Gly Ser Gly Ile Leu Met Cys Ser Ile
385                 390                 395                 400

Asp Asn Leu Pro Ala Gln Leu Pro Ile Glu Ala Thr Glu Cys Phe Gly
                405                 410                 415

Asp Met Leu Tyr Pro Tyr Val Glu Glu Met Ile Leu Ser Asp Ala Thr
            420                 425                 430

Gln Pro Leu Glu Ser Gln Asn Phe Ser Pro Val Val Arg Asp Ala Val
        435                 440                 445

Ile Thr Ser Asn Gly Thr Leu Pro Asp Lys Tyr Lys Tyr Ile Gln Thr
    450                 455                 460

Leu Arg Glu Ser Arg Glu Arg Ala Gln Ser Leu Ser Met Gly Thr Arg
465                 470                 475                 480

Arg Lys Val Leu Val Leu Gly Ser Gly Tyr Ile Ser Glu Pro Val Leu
                485                 490                 495

Glu Tyr Leu Ser Arg Asp Gly Asn Ile Glu Ile Thr Val Gly Ser Asp
            500                 505                 510

Met Lys Asn Gln Ile Glu Gln Leu Gly Lys Lys Tyr Asn Ile Asn Pro
        515                 520                 525
```

```
Val Ser Met Asp Ile Cys Lys Gln Glu Glu Lys Leu Gly Phe Leu Val
    530                 535                 540

Ala Lys Gln Asp Leu Val Ile Ser Leu Leu Pro Tyr Val Leu His Pro
545                 550                 555                 560

Leu Val Ala Lys Ala Cys Ile Thr Asn Lys Val Asn Met Val Thr Ala
                565                 570                 575

Ser Tyr Ile Thr Pro Ala Leu Lys Glu Leu Glu Lys Ser Val Glu Asp
            580                 585                 590

Ala Gly Ile Thr Ile Ile Gly Glu Leu Gly Leu Asp Pro Gly Leu Asp
        595                 600                 605

His Met Leu Ala Met Glu Thr Ile Asp Lys Ala Lys Glu Val Gly Ala
    610                 615                 620

Thr Ile Glu Ser Tyr Ile Ser Tyr Cys Gly Gly Leu Pro Ala Pro Glu
625                 630                 635                 640

His Ser Asn Asn Pro Leu Arg Tyr Lys Phe Ser Trp Ser Pro Val Gly
                645                 650                 655

Val Leu Met Asn Val Met Gln Ser Ala Thr Tyr Leu Leu Asp Gly Lys
            660                 665                 670

Val Val Asn Val Ala Gly Gly Ile Ser Phe Leu Asp Ala Val Thr Ser
        675                 680                 685

Met Asp Phe Phe Pro Gly Leu Asn Leu Glu Gly Tyr Pro Asn Arg Asp
    690                 695                 700

Ser Thr Lys Tyr Ala Glu Ile Tyr Gly Ile Ser Ser Ala His Thr Leu
705                 710                 715                 720

Leu Arg Gly Thr Leu Arg Tyr Lys Gly Leu Glu Cys
                725                 730
```

<210> 4429
<211> 926
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 990; "

<220>
<221> source
<223> /note="Gene Symbol: AASS; "

<220>
<221> source
<223> /note="Gene Name:
aminoadipate-semialdehyde synthase; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UDR5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377040"

<400> 4429
Met Leu Gln Val His Arg Thr Gly Leu Gly Arg Leu Gly Val Ser Leu
1   5   10   15

Ser Lys Gly Leu His His Lys Ala Val Leu Ala Val Arg Arg Glu Asp
            20   25   30

Val Asn Ala Trp Glu Arg Arg Ala Pro Leu Ala Pro Lys His Ile Lys
        35   40   45

Gly Ile Thr Asn Leu Gly Tyr Lys Val Leu Ile Gln Pro Ser Asn Arg
    50   55   60

Arg Ala Ile His Asp Lys Asp Tyr Val Lys Ala Gly Gly Ile Leu Gln
65   70   75   80

Glu Asp Ile Ser Glu Ala Cys Leu Ile Leu Gly Val Lys Arg Pro Pro
                85   90   95

Glu Glu Lys Leu Met Ser Arg Lys Thr Tyr Ala Phe Phe Ser His Thr
            100   105   110

Ile Lys Ala Gln Glu Ala Asn Met Gly Leu Leu Asp Glu Ile Leu Lys
        115   120   125

Gln Glu Ile Arg Leu Ile Asp Tyr Glu Lys Met Val Asp His Arg Gly
    130   135   140

```
Val Arg Val Val Ala Phe Gly Gln Trp Ala Gly Val Ala Gly Met Ile
145                 150                 155                 160

Asn Ile Leu His Gly Met Gly Leu Arg Leu Leu Ala Leu Gly His His
                165                 170                 175

Thr Pro Phe Met His Ile Gly Met Ala His Asn Tyr Arg Asn Ser Ser
            180                 185                 190

Gln Ala Val Gln Ala Val Arg Asp Ala Gly Tyr Glu Ile Ser Leu Gly
        195                 200                 205

Leu Met Pro Lys Ser Ile Gly Pro Leu Thr Phe Val Phe Thr Gly Thr
    210                 215                 220

Gly Asn Val Ser Lys Gly Ala Gln Ala Ile Phe Asn Glu Leu Pro Cys
225                 230                 235                 240

Glu Tyr Val Glu Pro His Glu Leu Lys Glu Val Ser Gln Thr Gly Asp
                245                 250                 255

Leu Arg Lys Val Tyr Gly Thr Val Leu Ser Arg His His His Leu Val
            260                 265                 270

Arg Lys Thr Asp Ala Val Tyr Asp Pro Ala Glu Tyr Asp Lys His Pro
        275                 280                 285

Glu Arg Tyr Ile Ser Arg Phe Asn Thr Asp Ile Ala Pro Tyr Thr Thr
    290                 295                 300

Cys Leu Ile Asn Gly Ile Tyr Trp Glu Gln Asn Thr Pro Arg Leu Leu
305                 310                 315                 320

Thr Arg Gln Asp Ala Gln Ser Leu Leu Ala Pro Gly Lys Phe Ser Pro
                325                 330                 335

Ala Gly Val Glu Gly Cys Pro Ala Leu Pro His Lys Leu Val Ala Ile
            340                 345                 350

Cys Asp Ile Ser Ala Asp Thr Gly Gly Ser Ile Glu Phe Met Thr Glu
        355                 360                 365
```

```
Cys Thr Thr Ile Glu His Pro Phe Cys Met Tyr Asp Ala Asp Gln His
    370                 375                 380

Ile Ile His Asp Ser Val Glu Gly Ser Gly Ile Leu Met Cys Ser Ile
385                 390                 395                 400

Asp Asn Leu Pro Ala Gln Leu Pro Ile Glu Ala Thr Glu Cys Phe Gly
                405                 410                 415

Asp Met Leu Tyr Pro Tyr Val Glu Glu Met Ile Leu Ser Asp Ala Thr
            420                 425                 430

Gln Pro Leu Glu Ser Gln Asn Phe Ser Pro Val Val Arg Asp Ala Val
        435                 440                 445

Ile Thr Ser Asn Gly Thr Leu Pro Asp Lys Tyr Lys Tyr Ile Gln Thr
    450                 455                 460

Leu Arg Glu Ser Arg Glu Arg Ala Gln Ser Leu Ser Met Gly Thr Arg
465                 470                 475                 480

Arg Lys Val Leu Val Leu Gly Ser Gly Tyr Ile Ser Glu Pro Val Leu
                485                 490                 495

Glu Tyr Leu Ser Arg Asp Gly Asn Ile Glu Ile Thr Val Gly Ser Asp
            500                 505                 510

Met Lys Asn Gln Ile Glu Gln Leu Gly Lys Lys Tyr Asn Ile Asn Pro
        515                 520                 525

Val Ser Met Asp Ile Cys Lys Gln Glu Glu Lys Leu Gly Phe Leu Val
    530                 535                 540

Ala Lys Gln Asp Leu Val Ile Ser Leu Leu Pro Tyr Val Leu His Pro
545                 550                 555                 560

Leu Val Ala Lys Ala Cys Ile Thr Asn Lys Val Asn Met Val Thr Ala
                565                 570                 575

Ser Tyr Ile Thr Pro Ala Leu Lys Glu Leu Glu Lys Ser Val Glu Asp
            580                 585                 590

Ala Gly Ile Thr Ile Ile Gly Glu Leu Gly Leu Asp Pro Gly Leu Asp
```

595 600 605

His Met Leu Ala Met Glu Thr Ile Asp Lys Ala Lys Glu Val Gly Ala
610 615 620

Thr Ile Glu Ser Tyr Ile Ser Tyr Cys Gly Gly Leu Pro Ala Pro Glu
625 630 635 640

His Ser Asn Asn Pro Leu Arg Tyr Lys Phe Ser Trp Ser Pro Val Gly
645 650 655

Val Leu Met Asn Val Met Gln Ser Ala Thr Tyr Leu Leu Asp Gly Lys
660 665 670

Val Val Asn Val Ala Gly Gly Ile Ser Phe Leu Asp Ala Val Thr Ser
675 680 685

Met Asp Phe Phe Pro Gly Leu Asn Leu Glu Gly Tyr Pro Asn Arg Asp
690 695 700

Ser Thr Lys Tyr Ala Glu Ile Tyr Gly Ile Ser Ser Ala His Thr Leu
705 710 715 720

Leu Arg Gly Thr Leu Arg Tyr Lys Gly Tyr Met Lys Ala Leu Asn Gly
725 730 735

Phe Val Lys Leu Gly Leu Ile Asn Arg Glu Ala Leu Pro Ala Phe Arg
740 745 750

Pro Glu Ala Asn Pro Leu Thr Trp Lys Gln Leu Leu Cys Asp Leu Val
755 760 765

Gly Ile Ser Pro Ser Ser Glu His Asp Val Leu Lys Glu Ala Val Leu
770 775 780

Lys Lys Leu Gly Gly Asp Asn Thr Gln Leu Glu Ala Ala Glu Trp Leu
785 790 795 800

Gly Leu Leu Gly Asp Glu Gln Val Pro Gln Ala Glu Ser Ile Leu Asp
805 810 815

Ala Leu Ser Lys His Leu Val Met Lys Leu Ser Tyr Gly Pro Glu Glu
820 825 830

```
Lys Asp Met Ile Val Met Arg Asp Ser Phe Gly Ile Arg His Pro Ser
        835                 840                 845

Gly His Leu Glu His Lys Thr Ile Asp Leu Val Ala Tyr Gly Asp Ile
    850                 855                 860

Asn Gly Phe Ser Ala Met Ala Lys Thr Val Gly Leu Pro Thr Ala Met
865                 870                 875                 880

Ala Ala Lys Met Leu Leu Asp Gly Glu Ile Gly Ala Lys Gly Leu Met
                885                 890                 895

Gly Pro Phe Ser Lys Glu Ile Tyr Gly Pro Ile Leu Glu Arg Ile Lys
            900                 905                 910

Ala Glu Gly Ile Ile Tyr Thr Thr Gln Ser Thr Ile Lys Pro
        915                 920                 925


<210> 4430
<211> 21
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 990; "

<220>
<221> source
<223> /note="Gene Symbol: AASS; "

<220>
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<223> /note="Gene Name:
      aminoadipate-semialdehyde synthase; "

<220>
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<400> 4430
Trp Ile Gly Met Leu Asn Asn Val Glu Tyr Leu Pro Met Val Ser Ser
1               5                   10                  15

Leu Thr Pro Ser Pro
            20
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<210> 4431
<211> 926
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
aminoadipate-semialdehyde synthase; "

<220>
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<223> /note="Uniprot ID: Q9UDR5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403768"

<400> 4431
Met Leu Gln Val His Arg Thr Gly Leu Gly Arg Leu Gly Val Ser Leu
1   5   10   15

Ser Lys Gly Leu His His Lys Ala Val Leu Ala Val Arg Arg Glu Asp
            20   25   30

Val Asn Ala Trp Glu Arg Arg Ala Pro Leu Ala Pro Lys His Ile Lys
        35   40   45

Gly Ile Thr Asn Leu Gly Tyr Lys Val Leu Ile Gln Pro Ser Asn Arg
    50   55   60

Arg Ala Ile His Asp Lys Asp Tyr Val Lys Ala Gly Gly Ile Leu Gln
65   70   75   80

Glu Asp Ile Ser Glu Ala Cys Leu Ile Leu Gly Val Lys Arg Pro Pro
                85   90   95

Glu Glu Lys Leu Met Ser Arg Lys Thr Tyr Ala Phe Phe Ser His Thr
            100   105   110

Ile Lys Ala Gln Glu Ala Asn Met Gly Leu Leu Asp Glu Ile Leu Lys
        115   120   125

```
Gln Glu Ile Arg Leu Ile Asp Tyr Glu Lys Met Val Asp His Arg Gly
    130                 135                 140

Val Arg Val Val Ala Phe Gly Gln Trp Ala Gly Val Ala Gly Met Ile
145                 150                 155                 160

Asn Ile Leu His Gly Met Gly Leu Arg Leu Leu Ala Leu Gly His His
                165                 170                 175

Thr Pro Phe Met His Ile Gly Met Ala His Asn Tyr Arg Asn Ser Ser
            180                 185                 190

Gln Ala Val Gln Ala Val Arg Asp Ala Gly Tyr Glu Ile Ser Leu Gly
        195                 200                 205

Leu Met Pro Lys Ser Ile Gly Pro Leu Thr Phe Val Phe Thr Gly Thr
    210                 215                 220

Gly Asn Val Ser Lys Gly Ala Gln Ala Ile Phe Asn Glu Leu Pro Cys
225                 230                 235                 240

Glu Tyr Val Glu Pro His Glu Leu Lys Glu Val Ser Gln Thr Gly Asp
                245                 250                 255

Leu Arg Lys Val Tyr Gly Thr Val Leu Ser Arg His His His Leu Val
            260                 265                 270

Arg Lys Thr Asp Ala Val Tyr Asp Pro Ala Glu Tyr Asp Lys His Pro
        275                 280                 285

Glu Arg Tyr Ile Ser Arg Phe Asn Thr Asp Ile Ala Pro Tyr Thr Thr
    290                 295                 300

Cys Leu Ile Asn Gly Ile Tyr Trp Glu Gln Asn Thr Pro Arg Leu Leu
305                 310                 315                 320

Thr Arg Gln Asp Ala Gln Ser Leu Leu Ala Pro Gly Lys Phe Ser Pro
                325                 330                 335

Ala Gly Val Glu Gly Cys Pro Ala Leu Pro His Lys Leu Val Ala Ile
            340                 345                 350
```

```
Cys Asp Ile Ser Ala Asp Thr Gly Gly Ser Ile Glu Phe Met Thr Glu
        355                 360                 365

Cys Thr Thr Ile Glu His Pro Phe Cys Met Tyr Asp Ala Asp Gln His
    370                 375                 380

Ile Ile His Asp Ser Val Glu Gly Ser Gly Ile Leu Met Cys Ser Ile
385                 390                 395                 400

Asp Asn Leu Pro Ala Gln Leu Pro Ile Glu Ala Thr Glu Cys Phe Gly
                405                 410                 415

Asp Met Leu Tyr Pro Tyr Val Glu Glu Met Ile Leu Ser Asp Ala Thr
            420                 425                 430

Gln Pro Leu Glu Ser Gln Asn Phe Ser Pro Val Val Arg Asp Ala Val
        435                 440                 445

Ile Thr Ser Asn Gly Thr Leu Pro Asp Lys Tyr Lys Tyr Ile Gln Thr
    450                 455                 460

Leu Arg Glu Ser Arg Glu Arg Ala Gln Ser Leu Ser Met Gly Thr Arg
465                 470                 475                 480

Arg Lys Val Leu Val Leu Gly Ser Gly Tyr Ile Ser Glu Pro Val Leu
                485                 490                 495

Glu Tyr Leu Ser Arg Asp Gly Asn Ile Glu Ile Thr Val Gly Ser Asp
            500                 505                 510

Met Lys Asn Gln Ile Glu Gln Leu Gly Lys Lys Tyr Asn Ile Asn Pro
        515                 520                 525

Val Ser Met Asp Ile Cys Lys Gln Glu Glu Lys Leu Gly Phe Leu Val
    530                 535                 540

Ala Lys Gln Asp Leu Val Ile Ser Leu Leu Pro Tyr Val Leu His Pro
545                 550                 555                 560

Leu Val Ala Lys Ala Cys Ile Thr Asn Lys Val Asn Met Val Thr Ala
                565                 570                 575
```

```
Ser Tyr Ile Thr Pro Ala Leu Lys Glu Leu Glu Lys Ser Val Glu Asp
            580                 585                 590

Ala Gly Ile Thr Ile Ile Gly Glu Leu Gly Leu Asp Pro Gly Leu Asp
        595                 600                 605

His Met Leu Ala Met Glu Thr Ile Asp Lys Ala Lys Glu Val Gly Ala
    610                 615                 620

Thr Ile Glu Ser Tyr Ile Ser Tyr Cys Gly Gly Leu Pro Ala Pro Glu
625                 630                 635                 640

His Ser Asn Asn Pro Leu Arg Tyr Lys Phe Ser Trp Ser Pro Val Gly
                645                 650                 655

Val Leu Met Asn Val Met Gln Ser Ala Thr Tyr Leu Leu Asp Gly Lys
            660                 665                 670

Val Val Asn Val Ala Gly Gly Ile Ser Phe Leu Asp Ala Val Thr Ser
        675                 680                 685

Met Asp Phe Phe Pro Gly Leu Asn Leu Glu Gly Tyr Pro Asn Arg Asp
    690                 695                 700

Ser Thr Lys Tyr Ala Glu Ile Tyr Gly Ile Ser Ser Ala His Thr Leu
705                 710                 715                 720

Leu Arg Gly Thr Leu Arg Tyr Lys Gly Tyr Met Lys Ala Leu Asn Gly
                725                 730                 735

Phe Val Lys Leu Gly Leu Ile Asn Arg Glu Ala Leu Pro Ala Phe Arg
            740                 745                 750

Pro Glu Ala Asn Pro Leu Thr Trp Lys Gln Leu Leu Cys Asp Leu Val
        755                 760                 765

Gly Ile Ser Pro Ser Ser Glu His Asp Val Leu Lys Glu Ala Val Leu
    770                 775                 780

Lys Lys Leu Gly Gly Asp Asn Thr Gln Leu Glu Ala Ala Glu Trp Leu
785                 790                 795                 800

Gly Leu Leu Gly Asp Glu Gln Val Pro Gln Ala Glu Ser Ile Leu Asp
```

```
                805                 810                 815

Ala Leu Ser Lys His Leu Val Met Lys Leu Ser Tyr Gly Pro Glu Glu
            820                 825                 830

Lys Asp Met Ile Val Met Arg Asp Ser Phe Gly Ile Arg His Pro Ser
        835                 840                 845

Gly His Leu Glu His Lys Thr Ile Asp Leu Val Ala Tyr Gly Asp Ile
    850                 855                 860

Asn Gly Phe Ser Ala Met Ala Lys Thr Val Gly Leu Pro Thr Ala Met
865                 870                 875                 880

Ala Ala Lys Met Leu Leu Asp Gly Glu Ile Gly Ala Lys Gly Leu Met
                885                 890                 895

Gly Pro Phe Ser Lys Glu Ile Tyr Gly Pro Ile Leu Glu Arg Ile Lys
            900                 905                 910

Ala Glu Gly Ile Ile Tyr Thr Thr Gln Ser Thr Ile Lys Pro
        915                 920                 925


<210> 4432
<211> 511
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 990; "

<220>
<221> source
<223> /note="Gene Symbol: AASS; "

<220>
<221> source
<223> /note="Gene Name:
      aminoadipate-semialdehyde synthase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414001"

<400> 4432
Met Leu Gln Val His Arg Thr Gly Leu Gly Arg Leu Gly Val Ser Leu
1               5                   10                  15
```

```
Ser Lys Gly Leu His His Lys Ala Val Leu Ala Val Arg Arg Glu Asp
            20                  25                  30

Val Asn Ala Trp Glu Arg Arg Ala Pro Leu Ala Pro Lys His Ile Lys
        35                  40                  45

Gly Ile Thr Asn Leu Gly Tyr Lys Val Leu Ile Gln Pro Ser Asn Arg
    50                  55                  60

Arg Ala Ile His Asp Lys Asp Tyr Val Lys Ala Gly Gly Ile Leu Gln
65                  70                  75                  80

Glu Asp Ile Ser Glu Ala Cys Leu Ile Leu Gly Val Lys Arg Pro Pro
                85                  90                  95

Glu Glu Lys Leu Met Ser Arg Lys Thr Tyr Ala Phe Phe Ser His Thr
            100                 105                 110

Ile Lys Ala Gln Glu Ala Asn Met Gly Leu Leu Asp Glu Ile Leu Lys
        115                 120                 125

Gln Glu Ile Arg Leu Ile Asp Tyr Glu Lys Met Val Asp His Arg Gly
    130                 135                 140

Val Arg Val Val Ala Phe Gly Gln Trp Ala Gly Val Ala Gly Met Ile
145                 150                 155                 160

Asn Ile Leu His Gly Met Gly Leu Arg Leu Leu Ala Leu Gly His His
                165                 170                 175

Thr Pro Phe Met His Ile Gly Met Ala His Asn Tyr Arg Asn Ser Ser
            180                 185                 190

Gln Ala Val Gln Ala Val Arg Asp Ala Gly Tyr Glu Ile Ser Leu Gly
        195                 200                 205

Leu Met Pro Lys Ser Ile Gly Pro Leu Thr Phe Val Phe Thr Gly Thr
    210                 215                 220

Gly Asn Val Ser Lys Gly Ala Gln Ala Ile Phe Asn Glu Leu Pro Cys
225                 230                 235                 240
```

```
Glu Tyr Val Glu Pro His Glu Leu Lys Glu Val Ser Gln Thr Gly Asp
                245                 250                 255

Leu Arg Lys Val Tyr Gly Thr Val Leu Ser Arg His His His Leu Val
            260                 265                 270

Arg Lys Thr Asp Ala Val Tyr Asp Pro Ala Glu Tyr Asp Lys His Pro
        275                 280                 285

Glu Arg Tyr Ile Ser Arg Phe Asn Thr Asp Ile Ala Pro Tyr Thr Thr
    290                 295                 300

Cys Leu Ile Asn Gly Ile Tyr Trp Glu Gln Asn Thr Pro Arg Leu Leu
305                 310                 315                 320

Thr Arg Gln Asp Ala Gln Ser Leu Leu Ala Pro Gly Lys Phe Ser Pro
                325                 330                 335

Ala Gly Val Glu Gly Cys Pro Ala Leu Pro His Lys Leu Val Ala Ile
            340                 345                 350

Cys Asp Ile Ser Ala Asp Thr Gly Gly Ser Ile Glu Phe Met Thr Glu
        355                 360                 365

Cys Thr Thr Ile Glu His Pro Phe Cys Met Tyr Asp Ala Asp Gln His
    370                 375                 380

Ile Ile His Asp Ser Val Glu Gly Ser Gly Ile Leu Met Cys Ser Ile
385                 390                 395                 400

Asp Asn Leu Pro Ala Gln Leu Pro Ile Glu Ala Thr Glu Cys Phe Gly
                405                 410                 415

Asp Met Leu Tyr Pro Tyr Val Glu Glu Met Ile Leu Ser Asp Ala Thr
            420                 425                 430

Gln Pro Leu Glu Ser Gln Asn Phe Ser Pro Val Val Arg Asp Ala Val
        435                 440                 445

Ile Thr Ser Asn Gly Thr Leu Pro Asp Lys Tyr Lys Tyr Ile Gln Thr
    450                 455                 460

Leu Arg Glu Ser Arg Glu Arg Ala Gln Ser Leu Ser Met Gly Thr Arg
```

```
465                 470                 475                 480

Arg Lys Val Leu Val Leu Gly Ser Gly Tyr Ile Ser Glu Pro Val Leu
                485                 490                 495

Glu Tyr Leu Ser Arg Asp Gly Asn Ile Glu Ile Thr Asp Leu Thr
            500                 505                 510


<210> 4433
<211> 336
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 991; "

<220>
<221> source
<223> /note="Gene Symbol: ACMSD; "

<220>
<221> source
<223> /note="Gene Name:
      aminocarboxymuconate semialdehyde decarboxylase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8TDX5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348459"

<400> 4433
Met Lys Ile Asp Ile His Ser His Ile Leu Pro Lys Glu Trp Pro Asp
1               5                   10                  15

Leu Lys Lys Arg Phe Gly Tyr Gly Gly Trp Val Gln Leu Gln His His
            20                  25                  30

Ser Lys Gly Glu Ala Lys Leu Leu Lys Asp Gly Lys Val Phe Arg Val
        35                  40                  45

Val Arg Glu Asn Cys Trp Asp Pro Glu Val Arg Ile Arg Glu Met Asp
    50                  55                  60

Gln Lys Gly Val Thr Val Gln Ala Leu Ser Thr Val Pro Val Met Phe
65                  70                  75                  80
```

```
Ser Tyr Trp Ala Lys Pro Glu Asp Thr Leu Asn Leu Cys Gln Leu Leu
                85                  90                  95

Asn Asn Asp Leu Ala Ser Thr Val Val Ser Tyr Pro Arg Arg Phe Val
            100                 105                 110

Gly Leu Gly Thr Leu Pro Met Gln Ala Pro Glu Leu Ala Val Lys Glu
        115                 120                 125

Met Glu Arg Cys Val Lys Glu Leu Gly Phe Pro Gly Val Gln Ile Gly
    130                 135                 140

Thr His Val Asn Glu Trp Asp Leu Asn Ala Gln Glu Leu Phe Pro Val
145                 150                 155                 160

Tyr Ala Ala Ala Glu Arg Leu Lys Cys Ser Leu Phe Val His Pro Trp
                165                 170                 175

Asp Met Gln Met Asp Gly Arg Met Ala Lys Tyr Trp Leu Pro Trp Leu
            180                 185                 190

Val Gly Met Pro Ala Glu Thr Thr Ile Ala Ile Cys Ser Met Ile Met
        195                 200                 205

Gly Gly Val Phe Glu Lys Phe Pro Lys Leu Lys Val Cys Phe Ala His
    210                 215                 220

Gly Gly Gly Ala Phe Pro Phe Thr Val Gly Arg Ile Ser His Gly Phe
225                 230                 235                 240

Ser Met Arg Pro Asp Leu Cys Ala Gln Asp Asn Pro Met Asn Pro Lys
                245                 250                 255

Lys Tyr Leu Gly Ser Phe Tyr Thr Asp Ala Leu Val His Asp Pro Leu
            260                 265                 270

Ser Leu Lys Leu Leu Thr Asp Val Ile Gly Lys Asp Lys Val Ile Leu
        275                 280                 285

Gly Thr Asp Tyr Pro Phe Pro Leu Gly Glu Leu Glu Pro Gly Lys Leu
    290                 295                 300
```

```
Ile Glu Ser Met Glu Glu Phe Asp Glu Glu Thr Lys Asn Lys Leu Lys
305                 310                 315                 320


Ala Gly Asn Ala Leu Ala Phe Leu Gly Leu Glu Arg Lys Gln Phe Glu
                325                 330                 335


<210> 4434
<211> 278
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: ACMSD; "

<220>
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<223> /note="Gene Name:
      aminocarboxymuconate semialdehyde decarboxylase; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8TDX5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376659"

<400> 4434
Met Gly Lys Ser Ser Glu Trp Cys Glu Arg Ile Ala Gly Ile Gln Lys
1               5                   10                  15


Phe Val Leu Glu Lys Trp Thr Lys Lys Ala Lys Pro Glu Asp Thr Leu
            20                  25                  30


Asn Leu Cys Gln Leu Leu Asn Asn Asp Leu Ala Ser Thr Val Val Ser
        35                  40                  45


Tyr Pro Arg Arg Phe Val Gly Leu Gly Thr Leu Pro Met Gln Ala Pro
    50                  55                  60


Glu Leu Ala Val Lys Glu Met Glu Arg Cys Val Lys Glu Leu Gly Phe
65                  70                  75                  80


Pro Gly Val Gln Ile Gly Thr His Val Asn Glu Trp Asp Leu Asn Ala
                85                  90                  95
```

```
Gln Glu Leu Phe Pro Val Tyr Ala Ala Ala Glu Arg Leu Lys Cys Ser
            100                 105                 110

Leu Phe Val His Pro Trp Asp Met Gln Met Asp Gly Arg Met Ala Lys
        115                 120                 125

Tyr Trp Leu Pro Trp Leu Val Gly Met Pro Ala Glu Thr Thr Ile Ala
    130                 135                 140

Ile Cys Ser Met Ile Met Gly Gly Val Phe Glu Lys Phe Pro Lys Leu
145                 150                 155                 160

Lys Val Cys Phe Ala His Gly Gly Gly Ala Phe Pro Phe Thr Val Gly
                165                 170                 175

Arg Ile Ser His Gly Phe Ser Met Arg Pro Asp Leu Cys Ala Gln Asp
            180                 185                 190

Asn Pro Met Asn Pro Lys Lys Tyr Leu Gly Ser Phe Tyr Thr Asp Ala
        195                 200                 205

Leu Val His Asp Pro Leu Ser Leu Lys Leu Leu Thr Asp Val Ile Gly
    210                 215                 220

Lys Asp Lys Val Ile Leu Gly Thr Asp Tyr Pro Phe Pro Leu Gly Glu
225                 230                 235                 240

Leu Glu Pro Gly Lys Leu Ile Glu Ser Met Glu Glu Phe Asp Glu Glu
                245                 250                 255

Thr Lys Asn Lys Leu Lys Ala Gly Asn Ala Leu Ala Phe Leu Gly Leu
            260                 265                 270

Glu Arg Lys Gln Phe Glu
        275
```

<210> 4435
<211> 330
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 992; "

<220>
<221> source
<223> /note="Gene Symbol: ALAD; "

<220>
<221> source
<223> /note="Gene Name:
aminolevulinate dehydratase; "

<220>
<221> source
<223> /note="Uniprot ID: P13716; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386284"

<400> 4435

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Met Gln Pro Gln Ser Val Leu His Ser Gly Tyr Phe His Pro Leu Leu
1               5                  10                  15

Arg Ala Trp Gln Thr Ala Thr Thr Thr Leu Asn Ala Ser Asn Leu Ile
            20                  25                  30

Tyr Pro Ile Phe Val Thr Asp Val Pro Asp Asp Ile Gln Pro Ile Thr
        35                  40                  45

Ser Leu Pro Gly Val Ala Arg Tyr Gly Val Lys Arg Leu Glu Glu Met
    50                  55                  60

Leu Arg Pro Leu Val Glu Glu Gly Leu Arg Cys Val Leu Ile Phe Gly
65                  70                  75                  80

Val Pro Ser Arg Val Pro Lys Asp Glu Arg Gly Ser Ala Ala Asp Ser
                85                  90                  95

Glu Glu Ser Pro Ala Ile Glu Ala Ile His Leu Leu Arg Lys Thr Phe
            100                 105                 110

Pro Asn Leu Leu Val Ala Cys Asp Val Cys Leu Cys Pro Tyr Thr Ser
        115                 120                 125

His Gly His Cys Gly Leu Leu Ser Glu Asn Gly Ala Phe Arg Ala Glu
    130                 135                 140

Glu Ser Arg Gln Arg Leu Ala Glu Val Ala Leu Ala Tyr Ala Lys Ala
```

```
145                 150                 155                 160

Gly Cys Gln Val Val Ala Pro Ser Asp Met Met Asp Gly Arg Val Glu
                165                 170                 175

Ala Ile Lys Glu Ala Leu Met Ala His Gly Leu Gly Asn Arg Val Ser
            180                 185                 190

Val Met Ser Tyr Ser Ala Lys Phe Ala Ser Cys Phe Tyr Gly Pro Phe
        195                 200                 205

Arg Asp Ala Ala Lys Ser Ser Pro Ala Phe Gly Asp Arg Arg Cys Tyr
    210                 215                 220

Gln Leu Pro Pro Gly Ala Arg Gly Leu Ala Leu Arg Ala Val Asp Arg
225                 230                 235                 240

Asp Val Arg Glu Gly Ala Asp Met Leu Met Val Lys Pro Gly Met Pro
                245                 250                 255

Tyr Leu Asp Ile Val Arg Glu Val Lys Asp Lys His Pro Asp Leu Pro
            260                 265                 270

Leu Ala Val Tyr His Val Ser Gly Glu Phe Ala Met Leu Trp His Gly
        275                 280                 285

Ala Gln Ala Gly Ala Phe Asp Leu Lys Ala Ala Val Leu Glu Ala Met
    290                 295                 300

Thr Ala Phe Arg Arg Ala Gly Ala Asp Ile Ile Ile Thr Tyr Tyr Thr
305                 310                 315                 320

Pro Gln Leu Leu Gln Trp Leu Lys Glu Glu
                325                 330


<210> 4436
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 992; "

<220>
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<221> source
<223> /note="Gene Symbol: ALAD; "

<220>
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<223> /note="Gene Name:
aminolevulinate dehydratase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392748"

<400> 4436
Met Pro Leu Cys Pro Leu Ala His Ala Met Gln Pro Gln Ser Val Leu
1 5 10 15

His Ser Gly Tyr Phe His Pro Leu Leu Arg Ala Trp Gln Thr Ala Thr
20 25 30

Thr Thr Leu Asn Ala Ser Asn Leu Ile Tyr Pro Ile Phe Val Thr Asp
35 40 45

Val Pro Asp Asp Ile Gln Pro Ile Thr Ser Leu Pro Gly Val Ala Arg
50 55 60

Tyr Gly Val Lys Arg Leu Glu Glu Met Leu Arg Pro Leu Val Glu Glu
65 70 75 80

Gly Leu Arg Cys Val Leu Ile Phe Gly Val Pro Ser Arg Val Pro Lys
85 90 95

Asp Glu Arg Gly Ser Ala Ala Asp Ser Glu Glu Ser Pro Ala Ile Glu
100 105 110

Ala Ile His Leu Leu Arg Lys Thr
115 120

<210> 4437
<211> 14
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
<221> source
<223> /note="Gene Name:
aminolevulinate dehydratase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398438"

<400> 4437
Met Pro Leu Cys Pro Leu Ala His Ala Met Gln Pro Gln Ser
1 5 10

<210> 4438
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 992; "

<220>
<221> source
<223> /note="Gene Symbol: ALAD; "

<220>
<221> source
<223> /note="Gene Name:
aminolevulinate dehydratase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415737"

<400> 4438
Met Pro Leu Cys Pro Leu Ala His Ala Met Gln Pro Gln Ser Val Leu
1 5 10 15

His Ser Gly Tyr Phe His Pro Leu Leu Arg Ala Trp Gln Thr Ala Thr
20 25 30

Thr Thr Leu Asn Ala Ser Asn Leu Ile Tyr Pro Ile Phe Val Thr Asp
35 40 45

Val Pro Asp Asp Ile Gln Pro Ile Thr Ser Leu
50 55

<210> 4439
<211> 403
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 993; "

<220>
<221> source
<223> /note="Gene Symbol: AMT; "

<220>
<221> source
<223> /note="Gene Name:
amino
methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: P48728; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000273588"

<400> 4439

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Met Gln Arg Ala Val Ser Val Val Ala Arg Leu Gly Phe Arg Leu Gln
1               5                  10                  15


Ala Phe Pro Pro Ala Leu Cys Arg Pro Leu Ser Cys Ala Gln Glu Val
            20                  25                  30


Leu Arg Arg Thr Pro Leu Tyr Asp Phe His Leu Ala His Gly Gly Lys
        35                  40                  45


Met Val Ala Phe Ala Gly Trp Ser Leu Pro Val Gln Tyr Arg Asp Ser
    50                  55                  60


His Thr Asp Ser His Leu His Thr Arg Gln His Cys Ser Leu Phe Asp
65                  70                  75                  80


Val Ser His Met Leu Gln Thr Lys Ile Leu Gly Ser Asp Arg Val Lys
                85                  90                  95


Leu Met Glu Ser Leu Val Val Gly Asp Ile Ala Glu Leu Arg Pro Asn
            100                 105                 110


Gln Gly Thr Leu Ser Leu Phe Thr Asn Glu Ala Gly Gly Ile Leu Asp
        115                 120                 125
```

```
Asp Leu Ile Val Thr Asn Thr Ser Glu Gly His Leu Tyr Val Val Ser
    130                 135                 140

Asn Ala Gly Cys Trp Glu Lys Asp Leu Ala Leu Met Gln Asp Lys Val
145                 150                 155                 160

Arg Glu Leu Gln Asn Gln Gly Arg Asp Val Gly Leu Glu Val Leu Asp
                165                 170                 175

Asn Ala Leu Leu Ala Leu Gln Gly Pro Thr Ala Ala Gln Val Leu Gln
            180                 185                 190

Ala Gly Val Ala Asp Asp Leu Arg Lys Leu Pro Phe Met Thr Ser Ala
        195                 200                 205

Val Met Glu Val Phe Gly Val Ser Gly Cys Arg Val Thr Arg Cys Gly
    210                 215                 220

Tyr Thr Gly Glu Asp Gly Val Glu Ile Ser Val Pro Val Ala Gly Ala
225                 230                 235                 240

Val His Leu Ala Thr Ala Ile Leu Lys Asn Pro Glu Val Lys Leu Ala
                245                 250                 255

Gly Leu Ala Ala Arg Asp Ser Leu Arg Leu Glu Ala Gly Leu Cys Leu
            260                 265                 270

Tyr Gly Asn Asp Ile Asp Glu His Thr Thr Pro Val Glu Gly Ser Leu
        275                 280                 285

Ser Trp Thr Leu Gly Lys Arg Arg Arg Ala Ala Met Asp Phe Pro Gly
    290                 295                 300

Ala Lys Val Ile Val Pro Gln Leu Lys Gly Arg Val Gln Arg Arg Arg
305                 310                 315                 320

Val Gly Leu Met Cys Glu Gly Ala Pro Met Arg Ala His Ser Pro Ile
                325                 330                 335

Leu Asn Met Glu Gly Thr Lys Ile Gly Thr Val Thr Ser Gly Cys Pro
            340                 345                 350

Ser Pro Ser Leu Lys Lys Asn Val Ala Met Gly Tyr Val Pro Cys Glu
```

355 360 365

Tyr Ser Arg Pro Gly Thr Met Leu Leu Val Glu Val Arg Arg Lys Gln
370 375 380

Gln Met Ala Val Val Ser Lys Met Pro Phe Val Pro Thr Asn Tyr Tyr
385 390 395 400

Thr Leu Lys

<210> 4440
<211> 386
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 993; "

<220>
<221> source
<223> /note="Gene Symbol: AMT; "

<220>
<221> source
<223> /note="Gene Name:
amino
methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: P48728; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378747"

<400> 4440
Met Gln Arg Ala Val Ser Val Val Ala Arg Leu Gly Phe Arg Leu Gln
1 5 10 15

Ala Phe Pro Pro Ala Leu Cys Arg Pro Leu Ser Cys Ala Gln Glu Val
20 25 30

Leu Arg Arg Thr Pro Leu Tyr Asp Phe His Leu Ala His Gly Gly Lys
35 40 45

Met Val Ala Phe Ala Gly Trp Ser Leu Pro Val Gln Tyr Arg Asp Ser
50 55 60

```
His Thr Asp Ser His Leu His Thr Arg Gln His Cys Ser Leu Phe Asp
65                  70                  75                  80

Val Ser His Met Leu Gln Thr Lys Ile Leu Gly Ser Asp Arg Val Lys
                85                  90                  95

Leu Met Glu Ser Leu Val Val Gly Asp Ile Ala Glu Leu Arg Pro Asn
            100                 105                 110

Gln Gly Thr Leu Ser Leu Phe Thr Asn Glu Ala Gly Gly Ile Leu Asp
        115                 120                 125

Asp Leu Ile Val Thr Asn Thr Ser Glu Gly His Leu Tyr Val Val Ser
    130                 135                 140

Asn Ala Gly Cys Trp Glu Lys Asp Leu Ala Leu Met Gln Asp Lys Val
145                 150                 155                 160

Arg Glu Leu Gln Asn Gln Gly Arg Asp Val Gly Leu Glu Val Leu Asp
                165                 170                 175

Asn Ala Leu Leu Ala Leu Gln Gly Pro Thr Ala Ala Gln Val Leu Gln
            180                 185                 190

Ala Gly Val Ala Asp Asp Leu Arg Lys Leu Pro Phe Met Thr Ser Ala
        195                 200                 205

Val Met Glu Val Phe Gly Val Ser Gly Cys Arg Val Thr Arg Cys Gly
    210                 215                 220

Tyr Thr Gly Glu Asp Gly Val Glu Ile Ser Val Pro Val Ala Gly Ala
225                 230                 235                 240

Val His Leu Ala Thr Ala Ile Leu Lys Asn Pro Glu Val Lys Leu Ala
                245                 250                 255

Gly Leu Ala Ala Arg Asp Ser Leu Arg Leu Glu Ala Gly Leu Cys Leu
            260                 265                 270

Tyr Gly Asn Asp Ile Asp Glu His Thr Thr Pro Val Glu Gly Ser Leu
        275                 280                 285
```

```
Ser Trp Thr Leu Gly Lys Arg Arg Arg Ala Ala Met Asp Phe Pro Gly
    290                 295                 300

Ala Lys Val Ile Val Pro Gln Leu Lys Gly Arg Val Gln Arg Arg Arg
305                 310                 315                 320

Val Gly Leu Met Cys Glu Gly Ala Pro Met Arg Ala His Ser Pro Ile
                325                 330                 335

Leu Asn Met Glu Gly Thr Lys Ile Gly Thr Val Thr Ser Gly Cys Pro
            340                 345                 350

Ser Pro Ser Leu Lys Lys Asn Val Ala Met Gly Tyr Val Pro Cys Glu
        355                 360                 365

Tyr Ser Arg Pro Gly Thr Met Leu Leu Val Glu Leu Pro Ser Gly Pro
    370                 375                 380

Cys Phe
385
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<210> 4441
<211> 262
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 993; "

<220>
<221> source
<223> /note="Gene Symbol: AMT; "

<220>
<221> source
<223> /note="Gene Name:
amino
methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388068"

<400> 4441

```
Met Gln Arg Ala Val Ser Val Val Ala Arg Leu Gly Phe Arg Leu Gln
1               5                  10                  15
```

```
Ala Phe Pro Pro Ala Leu Cys Arg Pro Leu Ser Cys Ala Gln Thr Lys
            20                  25                  30

Ile Leu Gly Ser Asp Arg Val Lys Leu Met Glu Ser Leu Val Val Gly
        35                  40                  45

Asp Ile Ala Glu Leu Arg Pro Asn Gln Gly Thr Leu Ser Leu Phe Thr
    50                  55                  60

Asn Glu Ala Gly Gly Ile Leu Asp Asp Leu Ile Val Thr Asn Thr Ser
65                  70                  75                  80

Glu Gly His Leu Tyr Val Val Ser Asn Ala Gly Cys Trp Glu Lys Asp
                85                  90                  95

Leu Ala Leu Met Gln Asp Lys Val Arg Glu Leu Gln Asn Gln Gly Arg
            100                 105                 110

Asp Val Gly Leu Glu Val Leu Asp Asn Ala Leu Leu Ala Leu Gln Gly
        115                 120                 125

Pro Thr Ala Ala Gln Val Leu Gln Ala Gly Val Ala Asp Asp Leu Arg
    130                 135                 140

Lys Leu Pro Phe Met Thr Ser Ala Val Met Glu Val Phe Gly Val Ser
145                 150                 155                 160

Gly Cys Arg Val Thr Arg Cys Gly Tyr Thr Gly Glu Asp Gly Val Glu
                165                 170                 175

Ile Ser Val Pro Val Ala Gly Ala Val His Leu Ala Thr Ala Ile Leu
            180                 185                 190

Lys Asn Pro Glu Val Lys Leu Ala Gly Leu Ala Ala Arg Asp Ser Leu
        195                 200                 205

Arg Leu Glu Ala Gly Leu Cys Leu Tyr Gly Asn Asp Ile Asp Glu His
    210                 215                 220

Thr Thr Pro Val Glu Gly Ser Leu Ser Trp Thr Leu Gly Lys Arg Arg
225                 230                 235                 240

Arg Ala Ala Met Asp Phe Pro Gly Ala Lys Val Ile Val Pro Gln Leu
```

245 250 255

Lys Gly Arg Val Gln Arg
260

<210> 4442
<211> 39
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 993; "

<220>
<221> source
<223> /note="Gene Symbol: AMT; "

<220>
<221> source
<223> /note="Gene Name:
amino
methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399943"

<400> 4442
Met Gln Arg Ala Val Ser Val Val Ala Arg Leu Gly Phe Arg Leu Gln
1 5 10 15

Ala Phe Pro Pro Ala Leu Cys Arg Pro Leu Ser Cys Ala Gln Trp Ser
20 25 30

Thr Pro Trp Leu Cys Leu Leu
35

<210> 4443
<211> 384
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 993; "

<220>
<221> source
<223> /note="Gene Symbol: AMT; "

<220>

<221> source
<223> /note="Gene Name:
amino
methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403821"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4443

```
Xaa Ala Val Ser Val Val Ala Arg Leu Gly Phe Arg Leu Gln Ala Phe
1               5                  10                  15

Pro Pro Ala Leu Cys Arg Pro Leu Ser Cys Ala Gln Glu Val Leu Arg
            20                  25                  30

Arg Thr Pro Leu Tyr Asp Phe His Leu Ala His Gly Gly Lys Met Val
        35                  40                  45

Ala Phe Ala Gly Trp Ser Leu Pro Val Gln Tyr Arg Asp Ser His Thr
    50                  55                  60

Asp Ser His Leu His Thr Arg Gln His Cys Ser Leu Phe Asp Val Ser
65                  70                  75                  80

His Met Leu Gln Thr Lys Ile Leu Gly Ser Asp Arg Val Lys Leu Met
                85                  90                  95

Glu Ser Leu Val Val Gly Asp Ile Ala Glu Leu Arg Pro Asn Gln Gly
            100                 105                 110

Thr Leu Ser Leu Phe Thr Asn Glu Ala Gly Gly Ile Leu Asp Asp Leu
        115                 120                 125

Ile Val Thr Asn Thr Ser Glu Gly His Leu Tyr Val Val Ser Asn Ala
    130                 135                 140

Gly Cys Trp Glu Lys Asp Leu Ala Leu Met Gln Asp Lys Val Arg Glu
145                 150                 155                 160

Leu Gln Asn Gln Gly Arg Asp Val Gly Leu Glu Val Leu Asp Asn Ala
```

```
                165                 170                 175

Leu Leu Ala Leu Gln Gly Pro Thr Ala Ala Gln Val Leu Gln Ala Gly
            180                 185                 190

Val Ala Asp Asp Leu Arg Lys Leu Pro Phe Met Thr Ser Ala Val Met
        195                 200                 205

Glu Val Phe Gly Val Ser Gly Cys Arg Val Thr Arg Cys Gly Tyr Thr
    210                 215                 220

Gly Glu Asp Gly Val Glu Ile Ser Val Pro Val Ala Gly Ala Val His
225                 230                 235                 240

Leu Ala Thr Ala Ile Leu Lys Asn Pro Glu Val Lys Leu Ala Gly Leu
                245                 250                 255

Ala Ala Arg Asp Ser Leu Arg Leu Glu Ala Gly Leu Cys Leu Tyr Gly
            260                 265                 270

Asn Asp Ile Asp Glu His Thr Thr Pro Val Glu Gly Ser Leu Ser Trp
        275                 280                 285

Thr Leu Gly Lys Arg Arg Arg Ala Ala Met Asp Phe Pro Gly Ala Lys
    290                 295                 300

Val Ile Val Pro Gln Leu Lys Gly Arg Val Gln Arg Arg Arg Val Gly
305                 310                 315                 320

Leu Met Cys Glu Gly Ala Pro Met Arg Ala His Ser Pro Ile Leu Asn
                325                 330                 335

Met Glu Gly Thr Lys Ile Gly Thr Val Thr Ser Gly Cys Pro Ser Pro
            340                 345                 350

Ser Leu Lys Lys Asn Val Ala Met Gly Tyr Val Pro Cys Glu Tyr Ser
        355                 360                 365

Arg Pro Gly Thr Met Leu Leu Val Glu Leu Pro Ser Gly Pro Cys Phe
    370                 375                 380
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<210> 4444
<211> 359

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 993; "

<220>
<221> source
<223> /note="Gene Symbol: AMT; "

<220>
<221> source
<223> /note="Gene Name:
amino
methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: P48728; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415619"

<400> 4444
Met Gln Arg Ala Val Ser Val Val Ala Arg Leu Gly Phe Arg Leu Gln
1   5   10   15

Ala Phe Pro Pro Ala Leu Cys Arg Pro Leu Ser Cys Ala Gln Glu Val
            20   25   30

Leu Arg Arg Thr Pro Leu Tyr Asp Phe His Leu Ala His Gly Gly Lys
        35   40   45

Met Val Ala Phe Ala Gly Trp Ser Leu Pro Val Gln Tyr Arg Asp Ser
    50   55   60

His Thr Asp Ser His Leu His Thr Arg Gln His Cys Ser Leu Phe Asp
65   70   75   80

Val Ser His Met Leu Gln Thr Lys Ile Leu Gly Ser Asp Arg Val Lys
                85   90   95

Leu Met Glu Ser Leu Val Val Gly Asp Ile Ala Glu Leu Arg Pro Asn
            100   105   110

Gln Asp Lys Val Arg Glu Leu Gln Asn Gln Gly Arg Asp Val Gly Leu
        115   120   125

```
Glu Val Leu Asp Asn Ala Leu Leu Ala Leu Gln Gly Pro Thr Ala Ala
    130                 135                 140

Gln Val Leu Gln Ala Gly Val Ala Asp Asp Leu Arg Lys Leu Pro Phe
145                 150                 155                 160

Met Thr Ser Ala Val Met Glu Val Phe Gly Val Ser Gly Cys Arg Val
                165                 170                 175

Thr Arg Cys Gly Tyr Thr Gly Glu Asp Gly Val Glu Ile Ser Val Pro
            180                 185                 190

Val Ala Gly Ala Val His Leu Ala Thr Ala Ile Leu Lys Asn Pro Glu
        195                 200                 205

Val Lys Leu Ala Gly Leu Ala Ala Arg Asp Ser Leu Arg Leu Glu Ala
    210                 215                 220

Gly Leu Cys Leu Tyr Gly Asn Asp Ile Asp Glu His Thr Thr Pro Val
225                 230                 235                 240

Glu Gly Ser Leu Ser Trp Thr Leu Gly Lys Arg Arg Arg Ala Ala Met
                245                 250                 255

Asp Phe Pro Gly Ala Lys Val Ile Val Pro Gln Leu Lys Gly Arg Val
            260                 265                 270

Gln Arg Arg Arg Val Gly Leu Met Cys Glu Gly Ala Pro Met Arg Ala
        275                 280                 285

His Ser Pro Ile Leu Asn Met Glu Gly Thr Lys Ile Gly Thr Val Thr
    290                 295                 300

Ser Gly Cys Pro Ser Pro Ser Leu Lys Lys Asn Val Ala Met Gly Tyr
305                 310                 315                 320

Val Pro Cys Glu Tyr Ser Arg Pro Gly Thr Met Leu Leu Val Glu Val
                325                 330                 335

Arg Arg Lys Gln Gln Met Ala Val Val Ser Lys Met Pro Phe Val Pro
            340                 345                 350
```

Thr Asn Tyr Tyr Thr Leu Lys
355

<210> 4445
<211> 347
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 993; "

<220>
<221> source
<223> /note="Gene Symbol: AMT; "

<220>
<221> source
<223> /note="Gene Name:
amino
methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: P48728; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443200"

<400> 4445
Met Gln Arg Ala Val Ser Val Val Ala Arg Leu Gly Phe Arg Leu Gln
1 5 10 15

Ala Phe Pro Pro Ala Leu Cys Arg Pro Leu Ser Cys Ala Gln Thr Lys
20 25 30

Ile Leu Gly Ser Asp Arg Val Lys Leu Met Glu Ser Leu Val Val Gly
35 40 45

Asp Ile Ala Glu Leu Arg Pro Asn Gln Gly Thr Leu Ser Leu Phe Thr
50 55 60

Asn Glu Ala Gly Gly Ile Leu Asp Asp Leu Ile Val Thr Asn Thr Ser
65 70 75 80

Glu Gly His Leu Tyr Val Val Ser Asn Ala Gly Cys Trp Glu Lys Asp
85 90 95

Leu Ala Leu Met Gln Asp Lys Val Arg Glu Leu Gln Asn Gln Gly Arg

100 105 110

Asp Val Gly Leu Glu Val Leu Asp Asn Ala Leu Leu Ala Leu Gln Gly
115 120 125

Pro Thr Ala Ala Gln Val Leu Gln Ala Gly Val Ala Asp Asp Leu Arg
130 135 140

Lys Leu Pro Phe Met Thr Ser Ala Val Met Glu Val Phe Gly Val Ser
145 150 155 160

Gly Cys Arg Val Thr Arg Cys Gly Tyr Thr Gly Glu Asp Gly Val Glu
165 170 175

Ile Ser Val Pro Val Ala Gly Ala Val His Leu Ala Thr Ala Ile Leu
180 185 190

Lys Asn Pro Glu Val Lys Leu Ala Gly Leu Ala Ala Arg Asp Ser Leu
195 200 205

Arg Leu Glu Ala Gly Leu Cys Leu Tyr Gly Asn Asp Ile Asp Glu His
210 215 220

Thr Thr Pro Val Glu Gly Ser Leu Ser Trp Thr Leu Gly Lys Arg Arg
225 230 235 240

Arg Ala Ala Met Asp Phe Pro Gly Ala Lys Val Ile Val Pro Gln Leu
245 250 255

Lys Gly Arg Val Gln Arg Arg Arg Val Gly Leu Met Cys Glu Gly Ala
260 265 270

Pro Met Arg Ala His Ser Pro Ile Leu Asn Met Glu Gly Thr Lys Ile
275 280 285

Gly Thr Val Thr Ser Gly Cys Pro Ser Pro Ser Leu Lys Lys Asn Val
290 295 300

Ala Met Gly Tyr Val Pro Cys Glu Tyr Ser Arg Pro Gly Thr Met Leu
305 310 315 320

Leu Val Glu Val Arg Arg Lys Gln Gln Met Ala Val Val Ser Lys Met
325 330 335

Pro Phe Val Pro Thr Asn Tyr Tyr Thr Leu Lys
340 345

<210> 4446
<211> 919
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 994; "

<220>
<221> source
<223> /note="Gene Symbol: NPEPPS; "

<220>
<221> source
<223> /note="Gene Name:
aminopeptidase puromycin sensitive; "

<220>
<221> source
<223> /note="Uniprot ID: P55786; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000320324"

<400> 4446
Met Trp Leu Ala Ala Ala Ala Pro Ser Leu Ala Arg Arg Leu Leu Phe
1 5 10 15

Leu Gly Pro Pro Pro Pro Pro Leu Leu Leu Leu Val Phe Ser Arg Ser
20 25 30

Ser Arg Arg Arg Leu His Ser Leu Gly Leu Ala Ala Met Pro Glu Lys
35 40 45

Arg Pro Phe Glu Arg Leu Pro Ala Asp Val Ser Pro Ile Asn Tyr Ser
50 55 60

Leu Cys Leu Lys Pro Asp Leu Leu Asp Phe Thr Phe Glu Gly Lys Leu
65 70 75 80

Glu Ala Ala Ala Gln Val Arg Gln Ala Thr Asn Gln Ile Val Met Asn
85 90 95

```
Cys Ala Asp Ile Asp Ile Ile Thr Ala Ser Tyr Ala Pro Glu Gly Asp
            100                 105                 110

Glu Glu Ile His Ala Thr Gly Phe Asn Tyr Gln Asn Glu Asp Glu Lys
        115                 120                 125

Val Thr Leu Ser Phe Pro Ser Thr Leu Gln Thr Gly Thr Gly Thr Leu
    130                 135                 140

Lys Ile Asp Phe Val Gly Glu Leu Asn Asp Lys Met Lys Gly Phe Tyr
145                 150                 155                 160

Arg Ser Lys Tyr Thr Thr Pro Ser Gly Glu Val Arg Tyr Ala Ala Val
                165                 170                 175

Thr Gln Phe Glu Ala Thr Asp Ala Arg Arg Ala Phe Pro Cys Trp Asp
            180                 185                 190

Glu Pro Ala Ile Lys Ala Thr Phe Asp Ile Ser Leu Val Val Pro Lys
        195                 200                 205

Asp Arg Val Ala Leu Ser Asn Met Asn Val Ile Asp Arg Lys Pro Tyr
    210                 215                 220

Pro Asp Asp Glu Asn Leu Val Glu Val Lys Phe Ala Arg Thr Pro Val
225                 230                 235                 240

Met Ser Thr Tyr Leu Val Ala Phe Val Val Gly Glu Tyr Asp Phe Val
                245                 250                 255

Glu Thr Arg Ser Lys Asp Gly Val Cys Val Arg Val Tyr Thr Pro Val
            260                 265                 270

Gly Lys Ala Glu Gln Gly Lys Phe Ala Leu Glu Val Ala Ala Lys Thr
        275                 280                 285

Leu Pro Phe Tyr Lys Asp Tyr Phe Asn Val Pro Tyr Pro Leu Pro Lys
    290                 295                 300

Ile Asp Leu Ile Ala Ile Ala Asp Phe Ala Ala Gly Ala Met Glu Asn
305                 310                 315                 320

Trp Gly Leu Val Thr Tyr Arg Glu Thr Ala Leu Leu Ile Asp Pro Lys
```

325 330 335

Asn Ser Cys Ser Ser Ser Arg Gln Trp Val Ala Leu Val Val Gly His
340 345 350

Glu Leu Ala His Gln Trp Phe Gly Asn Leu Val Thr Met Glu Trp Trp
355 360 365

Thr His Leu Trp Leu Asn Glu Gly Phe Ala Ser Trp Ile Glu Tyr Leu
370 375 380

Cys Val Asp His Cys Phe Pro Glu Tyr Asp Ile Trp Thr Gln Phe Val
385 390 395 400

Ser Ala Asp Tyr Thr Arg Ala Gln Glu Leu Asp Ala Leu Asp Asn Ser
405 410 415

His Pro Ile Glu Val Ser Val Gly His Pro Ser Glu Val Asp Glu Ile
420 425 430

Phe Asp Ala Ile Ser Tyr Ser Lys Gly Ala Ser Val Ile Arg Met Leu
435 440 445

His Asp Tyr Ile Gly Asp Lys Asp Phe Lys Lys Gly Met Asn Met Tyr
450 455 460

Leu Thr Lys Phe Gln Gln Lys Asn Ala Ala Thr Glu Asp Leu Trp Glu
465 470 475 480

Ser Leu Glu Asn Ala Ser Gly Lys Pro Ile Ala Ala Val Met Asn Thr
485 490 495

Trp Thr Lys Gln Met Gly Phe Pro Leu Ile Tyr Val Glu Ala Glu Gln
500 505 510

Val Glu Asp Asp Arg Leu Leu Arg Leu Ser Gln Lys Lys Phe Cys Ala
515 520 525

Gly Gly Ser Tyr Val Gly Glu Asp Cys Pro Gln Trp Met Val Pro Ile
530 535 540

Thr Ile Ser Thr Ser Glu Asp Pro Asn Gln Ala Lys Leu Lys Ile Leu
545 550 555 560

```
Met Asp Lys Pro Glu Met Asn Val Val Leu Lys Asn Val Lys Pro Asp
                565                 570                 575

Gln Trp Val Lys Leu Asn Leu Gly Thr Val Gly Phe Tyr Arg Thr Gln
            580                 585                 590

Tyr Ser Ser Ala Met Leu Glu Ser Leu Leu Pro Gly Ile Arg Asp Leu
        595                 600                 605

Ser Leu Pro Pro Val Asp Arg Leu Gly Leu Gln Asn Asp Leu Phe Ser
    610                 615                 620

Leu Ala Arg Ala Gly Ile Ile Ser Thr Val Glu Val Leu Lys Val Met
625                 630                 635                 640

Glu Ala Phe Val Asn Glu Pro Asn Tyr Thr Val Trp Ser Asp Leu Ser
                645                 650                 655

Cys Asn Leu Gly Ile Leu Ser Thr Leu Leu Ser His Thr Asp Phe Tyr
            660                 665                 670

Glu Glu Ile Gln Glu Phe Val Lys Asp Val Phe Ser Pro Ile Gly Glu
        675                 680                 685

Arg Leu Gly Trp Asp Pro Lys Pro Gly Glu Gly His Leu Asp Ala Leu
    690                 695                 700

Leu Arg Gly Leu Val Leu Gly Lys Leu Gly Lys Ala Gly His Lys Ala
705                 710                 715                 720

Thr Leu Glu Glu Ala Arg Arg Arg Phe Lys Asp His Val Glu Gly Lys
                725                 730                 735

Gln Ile Leu Ser Ala Asp Leu Arg Ser Pro Val Tyr Leu Thr Val Leu
            740                 745                 750

Lys His Gly Asp Gly Thr Thr Leu Asp Ile Met Leu Lys Leu His Lys
        755                 760                 765

Gln Ala Asp Met Gln Glu Glu Lys Asn Arg Ile Glu Arg Val Leu Gly
    770                 775                 780
```

```
Ala Thr Leu Leu Pro Asp Leu Ile Gln Lys Val Leu Thr Phe Ala Leu
785                 790                 795                 800

Ser Glu Glu Val Arg Pro Gln Asp Thr Val Ser Val Ile Gly Gly Val
                805                 810                 815

Ala Gly Gly Ser Lys His Gly Arg Lys Ala Ala Trp Lys Phe Ile Lys
            820                 825                 830

Asp Asn Trp Glu Glu Leu Tyr Asn Arg Tyr Gln Gly Gly Phe Leu Ile
        835                 840                 845

Ser Arg Leu Ile Lys Leu Ser Val Glu Gly Phe Ala Val Asp Lys Met
    850                 855                 860

Ala Gly Glu Val Lys Ala Phe Phe Glu Ser His Pro Ala Pro Ser Ala
865                 870                 875                 880

Glu Arg Thr Ile Gln Gln Cys Cys Glu Asn Ile Leu Leu Asn Ala Ala
                885                 890                 895

Trp Leu Lys Arg Asp Ala Glu Ser Ile His Gln Tyr Leu Leu Gln Arg
            900                 905                 910

Lys Ala Ser Pro Pro Thr Val
        915


<210> 4447
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 994; "

<220>
<221> source
<223> /note="Gene Symbol: NPEPPS; "

<220>
<221> source
<223> /note="Gene Name:
      aminopeptidase puromycin sensitive; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000432127"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4447
Xaa Lys Asn Val Lys Pro Asp Gln Trp Val Lys Leu Asn Leu Gly Thr
1 5 10 15

Val Gly Phe Tyr Arg Thr Gln Tyr Ser Ser Ala Met Leu Glu Ser Leu
20 25 30

Leu Pro Gly Ile Arg Asp Leu Ser Leu Pro Pro Val Asp Arg Leu Gly
35 40 45

Leu Gln Asn Asp Leu Phe Ser Leu Thr Ser Met Arg Lys Ser Arg Ser
50 55 60

Leu
65

<210> 4448
<211> 915
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 994; "

<220>
<221> source
<223> /note="Gene Symbol: NPEPPS; "

<220>
<221> source
<223> /note="Gene Name:
aminopeptidase puromycin sensitive; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433287"

<400> 4448
Met Ala Ser Phe Ser Met Asp Cys Ser Pro Ser Phe Cys Val Pro Gly
1 5 10 15

Leu Trp Asn Pro Phe Ile Ile Phe Arg Ser Arg Ser Ser Arg Arg Arg

20 25 30

Leu His Ser Leu Gly Leu Ala Ala Met Pro Glu Lys Arg Pro Phe Glu
35 40 45

Arg Leu Pro Ala Asp Val Ser Pro Ile Asn Tyr Ser Leu Cys Leu Lys
50 55 60

Pro Asp Leu Leu Asp Phe Thr Phe Glu Gly Lys Leu Glu Ala Ala Ala
65 70 75 80

Gln Val Arg Gln Ala Thr Asn Gln Ile Val Met Asn Cys Ala Asp Ile
85 90 95

Asp Ile Ile Thr Ala Ser Tyr Ala Pro Glu Gly Asp Glu Glu Ile His
100 105 110

Ala Thr Gly Phe Asn Tyr Gln Asn Glu Asp Glu Lys Val Thr Leu Ser
115 120 125

Phe Pro Ser Thr Leu Gln Thr Gly Thr Gly Thr Leu Lys Ile Asp Phe
130 135 140

Val Gly Glu Leu Asn Asp Lys Met Lys Gly Phe Tyr Arg Ser Lys Tyr
145 150 155 160

Thr Thr Pro Ser Gly Glu Val Arg Tyr Ala Ala Val Thr Gln Phe Glu
165 170 175

Ala Thr Asp Ala Arg Arg Ala Phe Pro Cys Trp Asp Glu Pro Ala Ile
180 185 190

Lys Ala Thr Phe Asp Ile Ser Leu Val Val Pro Lys Asp Arg Val Ala
195 200 205

Leu Ser Asn Met Asn Val Ile Asp Arg Lys Pro Tyr Pro Asp Asp Glu
210 215 220

Asn Leu Val Glu Val Lys Phe Ala Arg Thr Pro Val Met Ser Thr Tyr
225 230 235 240

Leu Val Ala Phe Val Val Gly Glu Tyr Asp Phe Val Glu Thr Arg Ser
245 250 255

```
Lys Asp Gly Val Cys Val Arg Val Tyr Thr Pro Val Gly Lys Ala Glu
            260                 265                 270

Gln Gly Lys Phe Ala Leu Glu Val Ala Ala Lys Thr Leu Pro Phe Tyr
        275                 280                 285

Lys Asp Tyr Phe Asn Val Pro Tyr Pro Leu Pro Lys Ile Asp Leu Ile
    290                 295                 300

Ala Ile Ala Asp Phe Ala Ala Gly Ala Met Glu Asn Trp Gly Leu Val
305                 310                 315                 320

Thr Tyr Arg Glu Thr Ala Leu Leu Ile Asp Pro Lys Asn Ser Cys Ser
                325                 330                 335

Ser Ser Arg Gln Trp Val Ala Leu Val Val Gly His Glu Leu Ala His
            340                 345                 350

Gln Trp Phe Gly Asn Leu Val Thr Met Glu Trp Trp Thr His Leu Trp
        355                 360                 365

Leu Asn Glu Gly Phe Ala Ser Trp Ile Glu Tyr Leu Cys Val Asp His
    370                 375                 380

Cys Phe Pro Glu Tyr Asp Ile Trp Thr Gln Phe Val Ser Ala Asp Tyr
385                 390                 395                 400

Thr Arg Ala Gln Glu Leu Asp Ala Leu Asp Asn Ser His Pro Ile Glu
                405                 410                 415

Val Ser Val Gly His Pro Ser Glu Val Asp Glu Ile Phe Asp Ala Ile
            420                 425                 430

Ser Tyr Ser Lys Gly Ala Ser Val Ile Arg Met Leu His Asp Tyr Ile
        435                 440                 445

Gly Asp Lys Asp Phe Lys Lys Gly Met Asn Met Tyr Leu Thr Lys Phe
    450                 455                 460

Gln Gln Lys Asn Ala Ala Thr Glu Asp Leu Trp Glu Ser Leu Glu Asn
465                 470                 475                 480
```

Ala Ser Gly Lys Pro Ile Ala Ala Val Met Asn Thr Trp Thr Lys Gln
485 490 495

Met Gly Phe Pro Leu Ile Tyr Val Glu Ala Glu Gln Val Glu Asp Asp
500 505 510

Arg Leu Leu Arg Leu Ser Gln Lys Lys Phe Cys Ala Gly Gly Ser Tyr
515 520 525

Val Gly Glu Asp Cys Pro Gln Trp Met Val Pro Ile Thr Ile Ser Thr
530 535 540

Ser Glu Asp Pro Asn Gln Ala Lys Leu Lys Ile Leu Met Asp Lys Pro
545 550 555 560

Glu Met Asn Val Val Leu Lys Asn Val Lys Pro Asp Gln Trp Val Lys
565 570 575

Leu Asn Leu Gly Thr Val Gly Phe Tyr Arg Thr Gln Tyr Ser Ser Ala
580 585 590

Met Leu Glu Ser Leu Leu Pro Gly Ile Arg Asp Leu Ser Leu Pro Pro
595 600 605

Val Asp Arg Leu Gly Leu Gln Asn Asp Leu Phe Ser Leu Ala Arg Ala
610 615 620

Gly Ile Ile Ser Thr Val Glu Val Leu Lys Val Met Glu Ala Phe Val
625 630 635 640

Asn Glu Pro Asn Tyr Thr Val Trp Ser Asp Leu Ser Cys Asn Leu Gly
645 650 655

Ile Leu Ser Thr Leu Leu Ser His Thr Asp Phe Tyr Glu Glu Ile Gln
660 665 670

Glu Phe Val Lys Asp Val Phe Ser Pro Ile Gly Glu Arg Leu Gly Trp
675 680 685

Asp Pro Lys Pro Gly Glu Gly His Leu Asp Ala Leu Leu Arg Gly Leu
690 695 700

Val Leu Gly Lys Leu Gly Lys Ala Gly His Lys Ala Thr Leu Glu Glu
705 710 715 720

Ala Arg Arg Arg Phe Lys Asp His Val Glu Gly Lys Gln Ile Leu Ser
725 730 735

Ala Asp Leu Arg Ser Pro Val Tyr Leu Thr Val Leu Lys His Gly Asp
740 745 750

Gly Thr Thr Leu Asp Ile Met Leu Lys Leu His Lys Gln Ala Asp Met
755 760 765

Gln Glu Glu Lys Asn Arg Ile Glu Arg Val Leu Gly Ala Thr Leu Leu
770 775 780

Pro Asp Leu Ile Gln Lys Val Leu Thr Phe Ala Leu Ser Glu Glu Val
785 790 795 800

Arg Pro Gln Asp Thr Val Ser Val Ile Gly Gly Val Ala Gly Gly Ser
805 810 815

Lys His Gly Arg Lys Ala Ala Trp Lys Phe Ile Lys Asp Asn Trp Glu
820 825 830

Glu Leu Tyr Asn Arg Tyr Gln Gly Gly Phe Leu Ile Ser Arg Leu Ile
835 840 845

Lys Leu Ser Val Glu Gly Phe Ala Val Asp Lys Met Ala Gly Glu Val
850 855 860

Lys Ala Phe Phe Glu Ser His Pro Ala Pro Ser Ala Glu Arg Thr Ile
865 870 875 880

Gln Gln Cys Cys Glu Asn Ile Leu Leu Asn Ala Ala Trp Leu Lys Arg
885 890 895

Asp Ala Glu Ser Ile His Gln Tyr Leu Leu Gln Arg Lys Ala Ser Pro
900 905 910

Pro Thr Val
915

<210> 4449

<211> 169
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
aminopeptidase puromycin sensitive; "

<220>
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<223> /note="ENSP ID: ENSP00000433549"

<400> 4449

```
Leu His Lys Gln Ala Asp Met Gln Glu Glu Lys Asn Arg Ile Glu Arg
1               5                  10                  15

Val Leu Gly Ala Thr Leu Leu Pro Asp Leu Ile Gln Lys Val Leu Thr
            20                  25                  30

Phe Ala Leu Ser Glu Glu Val Arg Pro Gln Asp Thr Val Ser Val Ile
        35                  40                  45

Gly Gly Val Ala Gly Gly Ser Lys His Gly Arg Lys Ala Ala Trp Lys
    50                  55                  60

Phe Ile Lys Asp Asn Trp Glu Glu Leu Tyr Asn Arg Tyr Gln Gly Gly
65                  70                  75                  80

Phe Leu Ile Ser Arg Leu Ile Lys Val Gln Trp Leu Thr Pro Val Ile
                85                  90                  95

Pro Ala Leu Trp Asp Ala Glu Leu Ser Val Glu Gly Phe Ala Val Asp
            100                 105                 110

Lys Met Ala Gly Glu Val Lys Ala Phe Phe Glu Ser His Pro Ala Pro
        115                 120                 125

Ser Ala Glu Arg Thr Ile Gln Gln Cys Cys Glu Asn Ile Leu Leu Asn
    130                 135                 140
```

Ala Ala Trp Leu Lys Arg Asp Ala Glu Ser Ile His Gln Tyr Leu Leu
145 150 155 160

Gln Arg Lys Ala Ser Pro Pro Thr Val
165

<210> 4450
<211> 141
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<220>
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<400> 4450
Ser Arg Ser Ser Arg Arg Arg Leu His Ser Leu Gly Leu Ala Ala Met
1 5 10 15

Pro Glu Lys Arg Pro Phe Glu Arg Leu Pro Ala Asp Val Ser Pro Ile
20 25 30

Asn Tyr Ser Leu Cys Leu Lys Pro Asp Leu Leu Asp Phe Thr Phe Glu
35 40 45

Gly Lys Leu Glu Ala Ala Ala Gln Val Arg Gln Ala Thr Asn Gln Ile
50 55 60

Val Met Asn Cys Ala Asp Ile Asp Ile Ile Thr Ala Ser Tyr Ala Pro
65 70 75 80

Glu Gly Asp Glu Glu Ile His Ala Thr Gly Phe Asn Tyr Gln Asn Glu
85 90 95

Asp Glu Lys Val Thr Leu Ser Phe Pro Ser Thr Leu Gln Thr Gly Thr

100 105 110

Gly Thr Leu Lys Ile Asp Phe Val Gly Glu Leu Asn Asp Lys Met Lys
115 120 125

Gly Phe Tyr Arg Ile Asn Ala Trp Leu Val Ala Trp His
130 135 140

<210> 4451
<211> 134
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000433735"

<400> 4451
Met Ala Ser Phe Ser Met Asp Cys Ser Pro Ser Phe Cys Val Pro Gly
1 5 10 15

Leu Trp Asn Pro Phe Ile Ile Phe Arg Ser Arg Ser Ser Arg Arg Arg
20 25 30

Leu His Ser Leu Gly Leu Ala Ala Met Pro Glu Lys Arg Pro Phe Glu
35 40 45

Arg Leu Pro Ala Asp Val Ser Pro Ile Asn Tyr Ser Leu Cys Leu Lys
50 55 60

Pro Asp Leu Leu Asp Phe Thr Phe Glu Gly Lys Leu Glu Ala Ala Ala
65 70 75 80

Gln Val Arg Gln Ala Thr Asn Gln Ile Val Met Asn Cys Ala Asp Ile
85 90 95

```
Asp Ile Ile Thr Ala Ser Tyr Ala Pro Glu Gly Asp Glu Val Ser Gly
            100                 105                 110

Leu Gln Met Phe Arg Ser Leu Ile Thr Phe His Leu Trp Thr Ala Phe
        115                 120                 125

Leu Leu Val His Leu Ser
    130


<210> 4452
<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000434554"

<400> 4452
Met Ala Ser Phe Ser Met Asp Cys Ser Pro Ser Phe Cys Val Pro Gly
1               5                   10                  15

Leu Trp Asn Pro Phe Ile Ile Phe Arg Ser Arg Ser Ser Arg Arg Arg
            20                  25                  30

Leu His Ser Leu Gly Leu Ala Ala Met Pro Glu Lys Arg Pro Phe Glu
        35                  40                  45

Arg Leu Pro Ala Asp Val Ser Pro Ile Asn Tyr Ser Leu Cys Leu Lys
    50                  55                  60

Pro Asp Leu Leu Asp Phe Thr Phe Glu Gly Lys Leu Glu Ala Ala Ala
65                  70                  75                  80

Gln Val Arg Gln Ala Thr Asn Gln Ile Val Met Asn Cys Ala Asp Ile
```

```
                85                  90                  95

Asp Ile Ile Thr Ala Ser Tyr Ala Pro Glu Gly Asp Glu Glu Ile His
            100                 105                 110

Ala Thr Gly Phe Asn Tyr Gln Asn Glu Asp Glu Lys Val Thr Leu Ser
        115                 120                 125

Phe Pro Ser Thr Leu Gln Thr Gly Asn Asn Ser Phe Gln Tyr Phe Val
    130                 135                 140

Phe Cys Leu Val Cys His Phe Leu Glu Val Val Thr Val Asn Ile Leu
145                 150                 155                 160

Leu Trp Phe Asp Gly Leu Gly Asp Leu Lys Pro Ser Lys Ser Val Arg
                165                 170                 175

Glu Pro
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<210> 4453
<211> 163
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000434585"

<400> 4453

```
Met Trp Leu Ala Ala Ala Ala Pro Ser Leu Ala Arg Arg Leu Leu Phe
1               5                   10                  15

Leu Gly Pro Pro Pro Pro Pro Leu Leu Leu Leu Val Phe Ser Arg Ser
            20                  25                  30
```

```
Ser Arg Arg Arg Leu His Ser Leu Gly Leu Ala Ala Met Pro Glu Lys
        35                  40                  45

Arg Pro Phe Glu Arg Leu Pro Ala Asp Val Ser Pro Ile Asn Tyr Ser
    50                  55                  60

Leu Cys Leu Lys Pro Asp Leu Leu Asp Phe Thr Phe Glu Gly Lys Leu
65                  70                  75                  80

Glu Ala Ala Ala Gln Val Arg Gln Ala Thr Asn Gln Ile Val Met Asn
                85                  90                  95

Cys Ala Asp Ile Asp Ile Ile Thr Ala Ser Tyr Ala Pro Glu Gly Asp
            100                 105                 110

Glu Glu Ile His Ala Thr Gly Phe Asn Tyr Gln Asn Glu Asp Glu Lys
        115                 120                 125

Val Thr Leu Ser Phe Pro Ser Thr Leu Gln Thr Gly Thr Gly Thr Leu
    130                 135                 140

Lys Ile Asp Phe Val Gly Glu Leu Asn Asp Lys Met Lys Gly Phe Tyr
145                 150                 155                 160

Arg Ser Tyr
```

<210> 4454
<211> 158
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 994; "

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<223> /note="Gene Symbol: NPEPPS; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source

<223> /note="ENSP ID: ENSP00000435639"

<400> 4454
Met Glu Asn Trp Gly Leu Val Thr Tyr Arg Glu Thr Ala Leu Leu Ile
1 5 10 15

Asp Pro Lys Asn Ser Cys Ser Ser Ser Arg Gln Trp Val Ala Leu Val
20 25 30

Val Gly His Glu Leu Ala His Gln Trp Phe Gly Asn Leu Val Thr Met
35 40 45

Glu Trp Trp Thr His Leu Trp Leu Asn Glu Gly Phe Ala Ser Trp Ile
50 55 60

Glu Tyr Leu Cys Val Asp His Cys Phe Pro Glu Tyr Asp Ile Trp Thr
65 70 75 80

Gln Phe Val Ser Ala Asp Tyr Thr Arg Ala Gln Glu Leu Asp Ala Leu
85 90 95

Asp Asn Ser His Pro Ile Glu Val Ser Val Gly His Pro Ser Glu Val
100 105 110

Asp Glu Ile Phe Asp Ala Ile Ser Tyr Ser Lys Gly Ala Ser Val Ile
115 120 125

Arg Met Leu His Asp Tyr Ile Gly Asp Lys Asp Phe Lys Lys Gly Met
130 135 140

Asn Met Tyr Leu Thr Lys Phe Gln Gln Lys Asn Ala Ala Thr
145 150 155

<210> 4455
<211> 172
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Name:
aminopeptidase puromycin sensitive; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435966"

<400> 4455
Met Glu Asn Trp Gly Leu Val Thr Tyr Ser Ser Phe Ile Ala Ile Tyr
1 5 10 15

Pro Ala Trp Arg Thr Phe Pro Asn Phe Ile Ser Ser Ser Gln Val Phe
20 25 30

Thr Cys Leu Ser Pro Gln His Lys His Trp Val Ala Leu Val Val Gly
35 40 45

His Glu Leu Ala His Gln Trp Phe Gly Asn Leu Val Thr Met Glu Trp
50 55 60

Trp Thr His Leu Trp Leu Asn Glu Gly Phe Ala Ser Trp Ile Glu Tyr
65 70 75 80

Leu Cys Val Asp His Cys Phe Pro Glu Tyr Asp Ile Trp Thr Gln Phe
85 90 95

Val Ser Ala Asp Tyr Thr Arg Ala Gln Glu Leu Asp Ala Leu Asp Asn
100 105 110

Ser His Pro Ile Glu Val Ser Val Gly His Pro Ser Glu Val Asp Glu
115 120 125

Ile Phe Asp Ala Ile Ser Tyr Ser Lys Gly Ala Ser Val Ile Arg Met
130 135 140

Leu His Asp Tyr Ile Gly Asp Lys Asp Phe Lys Lys Gly Met Asn Met
145 150 155 160

Tyr Leu Thr Lys Phe Gln Gln Lys Asn Ala Ala Thr
165 170

<210> 4456
<211> 127
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 994; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
aminopeptidase puromycin sensitive; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436733"

<400> 4456
Met Glu Asn Trp Gly Leu Val Thr Tyr Arg Glu Thr Ala Leu Leu Ile
1 5 10 15

Asp Pro Lys Asn Ser Cys Ser Ser Ser Arg Gln Trp Val Ala Leu Val
20 25 30

Val Gly His Glu Leu Ala His Gln Trp Phe Gly Asn Leu Val Thr Met
35 40 45

Glu Trp Trp Thr His Leu Trp Leu Asn Glu Gly Phe Ala Ser Trp Ile
50 55 60

Glu Tyr Leu Cys Val Asp His Cys Phe Pro Glu Tyr Asp Ile Trp Thr
65 70 75 80

Gln Phe Val Ser Ala Asp Tyr Thr Arg Ala Gln Glu Leu Asp Ala Leu
85 90 95

Asp Asn Ser His Pro Ile Glu Tyr Tyr Arg Leu Ser Ala Ser Cys His
100 105 110

Asn Pro Glu Ser His Cys Leu Pro Gly Gln Cys Gly Pro Ser Ile
115 120 125

<210> 4457
<211> 201
<212> PRT
<213> Homo sapiens

<220>

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<223> /note="Gene Name:
aminopeptidase puromycin sensitive; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437019"

<400> 4457

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Met Ala Ser Phe Ser Met Asp Cys Ser Pro Ser Phe Cys Val Pro Gly
1               5                  10                  15

Leu Trp Asn Pro Phe Ile Ile Phe Arg Ser Leu Gly Leu Ala Ala Met
            20                  25                  30

Pro Glu Lys Arg Pro Phe Glu Arg Leu Pro Ala Asp Val Ser Pro Ile
        35                  40                  45

Asn Tyr Ser Leu Cys Leu Lys Pro Asp Leu Leu Asp Phe Thr Phe Glu
    50                  55                  60

Gly Lys Leu Glu Ala Ala Ala Gln Val Arg Gln Ala Thr Asn Gln Ile
65                  70                  75                  80

Val Met Asn Cys Ala Asp Ile Asp Ile Ile Thr Ala Ser Tyr Ala Pro
                85                  90                  95

Glu Gly Asp Glu Glu Ile His Ala Thr Gly Phe Asn Tyr Gln Asn Glu
            100                 105                 110

Asp Glu Lys Val Thr Leu Ser Phe Pro Ser Thr Leu Gln Thr Gly Thr
        115                 120                 125

Gly Thr Leu Lys Ile Asp Phe Val Gly Glu Leu Asn Asp Lys Met Lys
    130                 135                 140

Gly Phe Tyr Arg Ser Lys Tyr Thr Thr Pro Ser Gly Glu Val Arg Tyr
145                 150                 155                 160
```

```
Ala Ala Val Thr Gln Phe Glu Ala Thr Asp Ala Arg Arg Ala Phe Pro
                165                 170                 175

Cys Trp Asp Glu Pro Ala Ile Lys Ala Thr Phe Asp Ile Ser Leu Val
            180                 185                 190

Val Pro Lys Asp Arg Val Ala Leu Ser
        195                 200


<210> 4458
<211> 523
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 995; "

<220>
<221> source
<223> /note="Gene Symbol: NPEPL1; "

<220>
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<223> /note="Gene Name:
      aminopeptidase-like 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NDH3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348395"

<400> 4458
Met Ala Asn Val Gly Leu Gln Phe Gln Ala Ser Ala Gly Asp Ser Asp
1               5                   10                  15

Pro Gln Ser Arg Pro Leu Leu Leu Leu Gly Gln Leu His His Leu His
            20                  25                  30

Arg Val Pro Trp Ser His Val Arg Gly Lys Leu Gln Pro Arg Val Thr
        35                  40                  45

Glu Glu Leu Trp Gln Ala Ala Leu Ser Thr Leu Asn Pro Asn Pro Thr
    50                  55                  60

Asp Ser Cys Pro Leu Tyr Leu Asn Tyr Ala Thr Val Ala Ala Leu Pro
65                  70                  75                  80
```

```
Cys Arg Val Ser Arg His Asn Ser Pro Ser Ala Ala His Phe Ile Thr
                85                  90                  95

Arg Leu Val Arg Thr Cys Leu Pro Pro Gly Ala His Arg Cys Ile Val
            100                 105                 110

Met Val Cys Glu Gln Pro Glu Val Phe Ala Ser Ala Cys Ala Leu Ala
        115                 120                 125

Arg Ala Phe Pro Leu Phe Thr His Arg Ser Gly Ala Ser Arg Arg Leu
    130                 135                 140

Glu Lys Lys Thr Val Thr Val Glu Phe Phe Leu Val Gly Gln Asp Asn
145                 150                 155                 160

Gly Pro Val Glu Val Ser Thr Leu Gln Cys Leu Ala Asn Ala Thr Asp
                165                 170                 175

Gly Val Arg Leu Ala Ala Arg Ile Val Asp Thr Pro Cys Asn Glu Met
            180                 185                 190

Asn Thr Asp Thr Phe Leu Glu Glu Ile Asn Lys Val Gly Lys Glu Leu
        195                 200                 205

Gly Ile Ile Pro Thr Ile Ile Arg Asp Glu Glu Leu Lys Thr Arg Gly
    210                 215                 220

Phe Gly Gly Ile Tyr Gly Val Gly Lys Ala Ala Leu His Pro Pro Ala
225                 230                 235                 240

Leu Ala Val Leu Ser His Thr Pro Asp Gly Ala Thr Gln Thr Ile Ala
                245                 250                 255

Trp Val Gly Lys Gly Ile Val Tyr Asp Thr Gly Gly Leu Ser Ile Lys
            260                 265                 270

Gly Lys Thr Thr Met Pro Gly Met Lys Arg Asp Cys Gly Gly Ala Ala
        275                 280                 285

Ala Val Leu Gly Ala Phe Arg Ala Ala Ile Lys Gln Gly Phe Lys Asp
    290                 295                 300
```

```
Asn Leu His Ala Val Phe Cys Leu Ala Glu Asn Ser Val Gly Pro Asn
305                 310                 315                 320

Ala Thr Arg Pro Asp Asp Ile His Leu Leu Tyr Ser Gly Lys Thr Val
                325                 330                 335

Glu Ile Asn Asn Thr Asp Ala Glu Gly Arg Leu Val Leu Ala Asp Gly
            340                 345                 350

Val Ser Tyr Ala Cys Lys Asp Leu Gly Ala Asp Ile Ile Leu Asp Met
        355                 360                 365

Ala Thr Leu Thr Gly Ala Gln Gly Ile Ala Thr Gly Lys Tyr His Ala
    370                 375                 380

Ala Val Leu Thr Asn Ser Ala Glu Trp Glu Ala Ala Cys Val Lys Ala
385                 390                 395                 400

Gly Arg Lys Cys Gly Asp Leu Val His Pro Leu Val Tyr Cys Pro Glu
                405                 410                 415

Leu His Phe Ser Glu Phe Thr Ser Ala Val Ala Asp Met Lys Asn Ser
            420                 425                 430

Val Ala Asp Arg Asp Asn Ser Pro Ser Ser Cys Ala Gly Leu Phe Ile
        435                 440                 445

Ala Ser His Ile Gly Phe Asp Trp Pro Gly Val Trp Val His Leu Asp
    450                 455                 460

Ile Ala Ala Pro Val His Ala Gly Glu Arg Ala Thr Gly Phe Gly Val
465                 470                 475                 480

Ala Leu Leu Leu Ala Leu Phe Gly Arg Ala Ser Glu Asp Pro Leu Leu
                485                 490                 495

Asn Leu Val Ser Pro Leu Gly Cys Glu Val Asp Val Glu Glu Gly Asp
            500                 505                 510

Leu Gly Arg Asp Ser Lys Arg Arg Arg Leu Val
        515                 520
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<210> 4459
<211> 495
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 995; "

<220>
<221> source
<223> /note="Gene Symbol: NPEPL1; "

<220>
<221> source
<223> /note="Gene Name:
aminopeptidase-like 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NDH3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434810"

<400> 4459
Met Glu Leu His Gly Gly Asn Arg Gly Gly Tyr Gln Pro Lys Ala Leu
1   5   10   15

Glu Gln Ser Gly Cys Trp Leu Trp Gln Ala Ala Leu Ser Thr Leu Asn
            20   25   30

Pro Asn Pro Thr Asp Ser Cys Pro Leu Tyr Leu Asn Tyr Ala Thr Val
        35   40   45

Ala Ala Leu Pro Cys Arg Val Ser Arg His Asn Ser Pro Ser Ala Ala
    50   55   60

His Phe Ile Thr Arg Leu Val Arg Thr Cys Leu Pro Pro Gly Ala His
65   70   75   80

Arg Cys Ile Val Met Val Cys Glu Gln Pro Glu Val Phe Ala Ser Ala
                85   90   95

Cys Ala Leu Ala Arg Ala Phe Pro Leu Phe Thr His Arg Ser Gly Ala
            100   105   110

Ser Arg Arg Leu Glu Lys Lys Thr Val Thr Val Glu Phe Phe Leu Val
        115   120   125

```
Gly Gln Asp Asn Gly Pro Val Glu Val Ser Thr Leu Gln Cys Leu Ala
    130                 135                 140

Asn Ala Thr Asp Gly Val Arg Leu Ala Ala Arg Ile Val Asp Thr Pro
145                 150                 155                 160

Cys Asn Glu Met Asn Thr Asp Thr Phe Leu Glu Glu Ile Asn Lys Val
                165                 170                 175

Gly Lys Glu Leu Gly Ile Ile Pro Thr Ile Ile Arg Asp Glu Glu Leu
            180                 185                 190

Lys Thr Arg Gly Phe Gly Gly Ile Tyr Gly Val Gly Lys Ala Ala Leu
        195                 200                 205

His Pro Pro Ala Leu Ala Val Leu Ser His Thr Pro Asp Gly Ala Thr
    210                 215                 220

Gln Thr Ile Ala Trp Val Gly Lys Gly Ile Val Tyr Asp Thr Gly Gly
225                 230                 235                 240

Leu Ser Ile Lys Gly Lys Thr Thr Met Pro Gly Met Lys Arg Asp Cys
                245                 250                 255

Gly Gly Ala Ala Ala Val Leu Gly Ala Phe Arg Ala Ala Ile Lys Gln
            260                 265                 270

Gly Phe Lys Asp Asn Leu His Ala Val Phe Cys Leu Ala Glu Asn Ser
        275                 280                 285

Val Gly Pro Asn Ala Thr Arg Pro Asp Asp Ile His Leu Leu Tyr Ser
    290                 295                 300

Gly Lys Thr Val Glu Ile Asn Asn Thr Asp Ala Glu Gly Arg Leu Val
305                 310                 315                 320

Leu Ala Asp Gly Val Ser Tyr Ala Cys Lys Asp Leu Gly Ala Asp Ile
                325                 330                 335

Ile Leu Asp Met Ala Thr Leu Thr Gly Ala Gln Gly Ile Ala Thr Gly
            340                 345                 350
```

```
Lys Tyr His Ala Ala Val Leu Thr Asn Ser Ala Glu Trp Glu Ala Ala
        355                 360                 365

Cys Val Lys Ala Gly Arg Lys Cys Gly Asp Leu Val His Pro Leu Val
    370                 375                 380

Tyr Cys Pro Glu Leu His Phe Ser Glu Phe Thr Ser Ala Val Ala Asp
385                 390                 395                 400

Met Lys Asn Ser Val Ala Asp Arg Asp Asn Ser Pro Ser Ser Cys Ala
                405                 410                 415

Gly Leu Phe Ile Ala Ser His Ile Gly Phe Asp Trp Pro Gly Val Trp
            420                 425                 430

Val His Leu Asp Ile Ala Ala Pro Val His Ala Gly Glu Arg Ala Thr
        435                 440                 445

Gly Phe Gly Val Ala Leu Leu Leu Ala Leu Phe Gly Arg Ala Ser Glu
    450                 455                 460

Asp Pro Leu Leu Asn Leu Val Ser Pro Leu Gly Cys Glu Val Asp Val
465                 470                 475                 480

Glu Glu Gly Asp Leu Gly Arg Asp Ser Lys Arg Arg Arg Leu Val
                485                 490                 495


<210> 4460
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 995; "

<220>
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<223> /note="Gene Symbol: NPEPL1; "

<220>
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<223> /note="Gene Name:
      aminopeptidase-like 1; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000436265"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4460

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Xaa Met Val Cys Glu Gln Pro Glu Val Phe Ala Ser Ala Cys Ala Leu
1               5                  10                  15

Ala Arg Ala Phe Pro Leu Phe Thr His Arg Ser Gly Ala Ser Arg Arg
            20                  25                  30

Leu Glu Lys Lys Thr Val Thr Val Glu Phe Phe Leu Val Gly Gln Asp
        35                  40                  45

Asn Gly Pro Val Glu Val Ser Thr Leu Gln Cys Leu Ala Asn Ala Thr
    50                  55                  60

Asp Gly Val Arg Leu Ala Ala Arg Ile Val Asp Thr Pro Cys Asn Glu
65                  70                  75                  80

Met Asn Thr Asp Thr Phe Leu Glu Glu Ile Asn Lys Val Gly Lys Glu
                85                  90                  95

Leu Gly Ile Ile Pro Thr Ile Ile Arg Asp Glu Glu Leu Lys Thr Arg
            100                 105                 110

Gly Phe Gly Gly Ile Tyr Gly Val Gly Lys Ala Ala Leu His Pro Pro
        115                 120                 125

Ala Leu Ala Val Leu Ser His Thr Pro Asp Gly Ala Thr Gln Thr Ile
    130                 135                 140

Ala Trp Val Gly Lys Gly Ile Val Tyr Asp Thr Gly Gly Leu Ser Ile
145                 150                 155                 160

Lys Gly Lys Arg Ala Arg Lys Arg Ile Gln Trp Leu Pro Asp Leu Phe
                165                 170                 175

Gly Thr Val Ala
            180
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<210> 4461
<211> 475
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: NPEPL1; "

<220>
<221> source
<223> /note="Gene Name:
aminopeptidase-like 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NDH3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437112"

<400> 4461
Met Glu Leu Trp Gln Ala Ala Leu Ser Thr Leu Asn Pro Asn Pro Thr
1   5   10   15

Asp Ser Cys Pro Leu Tyr Leu Asn Tyr Ala Thr Val Ala Ala Leu Pro
            20   25   30

Cys Arg Val Ser Arg His Asn Ser Pro Ser Ala Ala His Phe Ile Thr
        35   40   45

Arg Leu Val Arg Thr Cys Leu Pro Pro Gly Ala His Arg Cys Ile Val
    50   55   60

Met Val Cys Glu Gln Pro Glu Val Phe Ala Ser Ala Cys Ala Leu Ala
65   70   75   80

Arg Ala Phe Pro Leu Phe Thr His Arg Ser Gly Ala Ser Arg Arg Leu
                85   90   95

Glu Lys Lys Thr Val Thr Val Glu Phe Phe Leu Val Gly Gln Asp Asn
            100   105   110

Gly Pro Val Glu Val Ser Thr Leu Gln Cys Leu Ala Asn Ala Thr Asp
        115   120   125

```
Gly Val Arg Leu Ala Ala Arg Ile Val Asp Thr Pro Cys Asn Glu Met
    130                 135                 140

Asn Thr Asp Thr Phe Leu Glu Glu Ile Asn Lys Val Gly Lys Glu Leu
145                 150                 155                 160

Gly Ile Ile Pro Thr Ile Ile Arg Asp Glu Glu Leu Lys Thr Arg Gly
                165                 170                 175

Phe Gly Gly Ile Tyr Gly Val Gly Lys Ala Ala Leu His Pro Pro Ala
            180                 185                 190

Leu Ala Val Leu Ser His Thr Pro Asp Gly Ala Thr Gln Thr Ile Ala
        195                 200                 205

Trp Val Gly Lys Gly Ile Val Tyr Asp Thr Gly Gly Leu Ser Ile Lys
    210                 215                 220

Gly Lys Thr Thr Met Pro Gly Met Lys Arg Asp Cys Gly Gly Ala Ala
225                 230                 235                 240

Ala Val Leu Gly Ala Phe Arg Ala Ala Ile Lys Gln Gly Phe Lys Asp
                245                 250                 255

Asn Leu His Ala Val Phe Cys Leu Ala Glu Asn Ser Val Gly Pro Asn
            260                 265                 270

Ala Thr Arg Pro Asp Asp Ile His Leu Leu Tyr Ser Gly Lys Thr Val
        275                 280                 285

Glu Ile Asn Asn Thr Asp Ala Glu Gly Arg Leu Val Leu Ala Asp Gly
    290                 295                 300

Val Ser Tyr Ala Cys Lys Asp Leu Gly Ala Asp Ile Ile Leu Asp Met
305                 310                 315                 320

Ala Thr Leu Thr Gly Ala Gln Gly Ile Ala Thr Gly Lys Tyr His Ala
                325                 330                 335

Ala Val Leu Thr Asn Ser Ala Glu Trp Glu Ala Ala Cys Val Lys Ala
            340                 345                 350
```

```
Gly Arg Lys Cys Gly Asp Leu Val His Pro Leu Val Tyr Cys Pro Glu
        355                 360                 365

Leu His Phe Ser Glu Phe Thr Ser Ala Val Ala Asp Met Lys Asn Ser
    370                 375                 380

Val Ala Asp Arg Asp Asn Ser Pro Ser Ser Cys Ala Gly Leu Phe Ile
385                 390                 395                 400

Ala Ser His Ile Gly Phe Asp Trp Pro Gly Val Trp Val His Leu Asp
                405                 410                 415

Ile Ala Ala Pro Val His Ala Gly Glu Arg Ala Thr Gly Phe Gly Val
            420                 425                 430

Ala Leu Leu Leu Ala Leu Phe Gly Arg Ala Ser Glu Asp Pro Leu Leu
        435                 440                 445

Asn Leu Val Ser Pro Leu Gly Cys Glu Val Asp Val Glu Glu Gly Asp
    450                 455                 460

Leu Gly Arg Asp Ser Lys Arg Arg Arg Leu Val
465                 470                 475


<210> 4462
<211> 264
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 996; "

<220>
<221> source
<223> /note="Gene Symbol: AES; "

<220>
<221> source
<223> /note="Gene Name:
      amino-terminal enhancer of split; "

<220>
<221> source
<223> /note="Uniprot ID:  Q08117; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000221561"

<400> 4462

```
Met Cys His Lys Asn Gly Phe Pro Gln Glu Gly Gly Ile Thr Ala Ala
1               5                  10                  15

Phe Leu Gln Lys Arg Lys Leu Arg Leu Ser Lys Asn His Arg Pro Ala
            20                  25                  30

Arg Ala Lys Val Thr Glu His Val Arg Gly Thr Arg Pro Gly Arg Ala
        35                  40                  45

Thr Ala Gly Pro Ala Ala Ser Thr Arg Ala Ala Gly Ser Leu Phe Phe
    50                  55                  60

Asp Arg Trp Gly Asn Arg Gly Pro Ala Gly Cys Arg Gly Ser Ser His
65                  70                  75                  80

Leu Pro Gln Gln Leu Lys Phe Thr Thr Ser Asp Ser Cys Asp Arg Ile
                85                  90                  95

Lys Asp Glu Phe Gln Leu Leu Gln Ala Gln Tyr His Ser Leu Lys Leu
            100                 105                 110

Glu Cys Asp Lys Leu Ala Ser Glu Lys Ser Glu Met Gln Arg His Tyr
        115                 120                 125

Val Met Tyr Tyr Glu Met Ser Tyr Gly Leu Asn Ile Glu Met His Lys
    130                 135                 140

Gln Ala Glu Ile Val Lys Arg Leu Asn Gly Ile Cys Ala Gln Val Leu
145                 150                 155                 160

Pro Tyr Leu Ser Gln Glu His Gln Gln Gln Val Leu Gly Ala Ile Glu
                165                 170                 175

Arg Ala Lys Gln Val Thr Ala Pro Glu Leu Asn Ser Ile Ile Arg Gln
            180                 185                 190

Gln Leu Gln Ala His Gln Leu Ser Gln Leu Gln Ala Leu Ala Leu Pro
        195                 200                 205

Leu Thr Pro Leu Pro Val Gly Leu Gln Pro Pro Ser Leu Pro Ala Val
    210                 215                 220
```

```
Ser Ala Gly Thr Gly Leu Leu Ser Leu Ser Ala Leu Gly Ser Gln Ala
225                 230                 235                 240


His Leu Ser Lys Glu Asp Lys Asn Gly His Asp Gly Asp Thr His Gln
                245                 250                 255


Glu Asp Asp Gly Glu Lys Ser Asp
            260


<210> 4463
<211> 197
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 996; "

<220>
<221> source
<223> /note="Gene Symbol: AES; "

<220>
<221> source
<223> /note="Gene Name:
      amino-terminal enhancer of split; "

<220>
<221> source
<223> /note="Uniprot ID:  Q08117; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000317537"

<400> 4463
Met Met Phe Pro Gln Ser Arg His Ser Gly Ser Ser His Leu Pro Gln
1               5                   10                  15


Gln Leu Lys Phe Thr Thr Ser Asp Ser Cys Asp Arg Ile Lys Asp Glu
            20                  25                  30


Phe Gln Leu Leu Gln Ala Gln Tyr His Ser Leu Lys Leu Glu Cys Asp
        35                  40                  45


Lys Leu Ala Ser Glu Lys Ser Glu Met Gln Arg His Tyr Val Met Tyr
    50                  55                  60
```

```
Tyr Glu Met Ser Tyr Gly Leu Asn Ile Glu Met His Lys Gln Ala Glu
65                  70                  75                  80

Ile Val Lys Arg Leu Asn Gly Ile Cys Ala Gln Val Leu Pro Tyr Leu
                85                  90                  95

Ser Gln Glu His Gln Gln Gln Val Leu Gly Ala Ile Glu Arg Ala Lys
            100                 105                 110

Gln Val Thr Ala Pro Glu Leu Asn Ser Ile Ile Arg Gln Gln Leu Gln
        115                 120                 125

Ala His Gln Leu Ser Gln Leu Gln Ala Leu Ala Leu Pro Leu Thr Pro
    130                 135                 140

Leu Pro Val Gly Leu Gln Pro Pro Ser Leu Pro Ala Val Ser Ala Gly
145                 150                 155                 160

Thr Gly Leu Leu Ser Leu Ser Ala Leu Gly Ser Gln Ala His Leu Ser
                165                 170                 175

Lys Glu Asp Lys Asn Gly His Asp Gly Asp Thr His Gln Glu Asp Asp
            180                 185                 190

Gly Glu Lys Ser Asp
        195


<210> 4464
<211> 264
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 996; "

<220>
<221> source
<223> /note="Gene Symbol: AES; "

<220>
<221> source
<223> /note="Gene Name:
      amino-terminal enhancer of split; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466038"
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4464
Xaa Ala Phe Leu Gln Lys Arg Lys Leu Arg Leu Ser Lys Asn His Arg
1 5 10 15

Pro Ala Arg Ala Lys Val Thr Glu His Val Arg Gly Thr Arg Pro Gly
20 25 30

Arg Ala Thr Ala Gly Pro Ala Ala Ser Thr Arg Ala Ala Gly Ser Leu
35 40 45

Phe Phe Asp Arg Trp Gly Asn Arg Gly Pro Ala Gly Cys Arg Gly Ser
50 55 60

Ser His Leu Pro Gln Gln Leu Lys Phe Thr Thr Ser Asp Ser Cys Asp
65 70 75 80

Arg Ile Lys Asp Glu Phe Gln Leu Leu Gln Ala Gln Tyr His Ser Leu
85 90 95

Lys Leu Glu Cys Asp Lys Leu Ala Ser Glu Lys Ser Glu Met Gln Arg
100 105 110

His Tyr Val Met Tyr Tyr Glu Met Ser Tyr Gly Leu Asn Ile Glu Met
115 120 125

His Lys Gln Ala Glu Ile Val Lys Arg Leu Asn Gly Ile Cys Ala Gln
130 135 140

Val Leu Pro Tyr Leu Ser Gln Glu His Gln Gln Gln Val Leu Gly Ala
145 150 155 160

Ile Glu Arg Ala Lys Gln Val Thr Ala Pro Glu Leu Asn Ser Ile Ile
165 170 175

Arg Val Cys Met Gly Thr Trp Ala Gly Gly Arg Gly Thr Gly Gly Pro
180 185 190

Gln Ala Ala Asn Val Pro Leu Pro Arg Pro Ala Ala Ala Ala Pro Ser

195 200 205

Pro Pro Ala Val Pro Ala Ala Gly Pro Gly Pro Ala Leu Asp Pro Thr
210 215 220

Thr Arg Gly Ala Ala Ala Ala Phe Ala Ala Gly Gly Gln Arg Arg His
225 230 235 240

Arg Pro Pro Leu Ala Val Arg Ala Gly Phe Pro Gly Pro Pro Leu Gln
245 250 255

Gly Arg Gln Glu Arg Ala Arg Trp
260

<210> 4465
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 996; "

<220>
<221> source
<223> /note="Gene Symbol: AES; "

<220>
<221> source
<223> /note="Gene Name:
amino-terminal enhancer of split; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466179"

<400> 4465
Met Met Phe Pro Gln Ser Arg His Ser Gly Ser Ser His Leu Pro Gln
1 5 10 15

Gln Leu Lys Phe Thr Thr Ser Asp Ser Cys Asp Arg Ile Lys Asp Glu
20 25 30

Phe Gln Leu Leu Gln Ala Gln Tyr His Arg Leu Arg Ser Ser Lys Gly
35 40 45

<210> 4466
<211> 141
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 996; "

<220>
<221> source
<223> /note="Gene Symbol: AES; "

<220>
<221> source
<223> /note="Gene Name:
amino-terminal enhancer of split; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467831"

<400> 4466
Met Gln Arg His Tyr Val Met Tyr Tyr Glu Met Ser Tyr Gly Leu Asn
1 5 10 15

Ile Glu Met His Lys Gln Ala Glu Ile Val Lys Arg Leu Asn Gly Ile
20 25 30

Cys Ala Gln Val Leu Pro Tyr Leu Ser Gln Glu His Gln Gln Gln Val
35 40 45

Leu Gly Ala Ile Glu Arg Ala Lys Gln Val Thr Ala Pro Glu Leu Asn
50 55 60

Ser Ile Ile Arg Gln Gln Leu Gln Ala His Gln Leu Ser Gln Leu Gln
65 70 75 80

Ala Leu Ala Leu Pro Leu Thr Pro Leu Pro Val Gly Leu Gln Pro Pro
85 90 95

Ser Leu Pro Ala Val Ser Ala Gly Thr Gly Leu Leu Ser Leu Ser Ala
100 105 110

Leu Gly Ser Gln Ala His Leu Ser Lys Glu Asp Lys Asn Gly His Asp
115 120 125

Gly Asp Thr His Gln Glu Asp Asp Gly Glu Lys Ser Asp
130 135 140

<210> 4467

<211> 310
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 997; "

<220>
<221> source
<223> /note="Gene Symbol: AMMECR1L; "

<220>
<221> source
<223> /note="Gene Name:
AMMECR
1-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q6DCA0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000272647"

<400> 4467

Met	Gly	Lys	Arg	Arg	Cys	Val	Pro	Pro	Leu	Glu	Pro	Lys	Leu	Ala	Ala
1				5				10					15		

Gly	Cys	Cys	Gly	Val	Lys	Lys	Pro	Lys	Leu	Ser	Gly	Ser	Gly	Thr	His
		20					25					30			

Ser	His	Gly	Asn	Gln	Ser	Thr	Thr	Val	Pro	Gly	Ser	Ser	Ser	Gly	Pro
	35					40					45				

Leu	Gln	Asn	His	Gln	His	Val	Asp	Ser	Ser	Ser	Gly	Arg	Glu	Asn	Val
	50					55					60				

Ser	Asp	Leu	Thr	Leu	Gly	Pro	Gly	Asn	Ser	Pro	Ile	Thr	Arg	Met	Asn
65				70					75						80

Pro	Ala	Ser	Gly	Ala	Leu	Ser	Pro	Leu	Pro	Arg	Pro	Asn	Gly	Thr	Ala
				85					90					95	

Asn	Thr	Thr	Lys	Asn	Leu	Val	Val	Thr	Ala	Glu	Met	Cys	Cys	Tyr	Cys
		100					105					110			

Phe	Asp	Val	Leu	Tyr	Cys	His	Leu	Tyr	Gly	Phe	Pro	Gln	Pro	Arg	Leu
	115					120					125				

```
Pro Arg Phe Thr Asn Asp Pro Tyr Pro Leu Phe Val Thr Trp Lys Thr
    130                 135                 140

Gly Arg Asp Lys Arg Leu Arg Gly Cys Ile Gly Thr Phe Ser Ala Met
145                 150                 155                 160

Asn Leu His Ser Gly Leu Arg Glu Tyr Thr Leu Thr Ser Ala Leu Lys
                165                 170                 175

Asp Ser Arg Phe Pro Pro Leu Thr Arg Glu Glu Leu Pro Lys Leu Phe
            180                 185                 190

Cys Ser Val Ser Leu Leu Thr Asn Phe Glu Asp Ala Ser Asp Tyr Leu
        195                 200                 205

Asp Trp Glu Val Gly Val His Gly Ile Arg Ile Glu Phe Ile Asn Glu
    210                 215                 220

Lys Gly Val Lys Arg Thr Ala Thr Tyr Leu Pro Glu Val Ala Lys Glu
225                 230                 235                 240

Gln Asp Trp Asp Gln Ile Gln Thr Ile Asp Ser Leu Leu Arg Lys Gly
                245                 250                 255

Gly Phe Lys Ala Pro Ile Thr Ser Glu Phe Arg Lys Thr Ile Lys Leu
            260                 265                 270

Thr Arg Tyr Arg Ser Glu Lys Val Thr Ile Ser Tyr Ala Glu Tyr Ile
        275                 280                 285

Ala Ser Arg Gln His Cys Phe Gln Asn Gly Thr Leu His Ala Pro Pro
    290                 295                 300

Leu Tyr Asn His Tyr Ser
305                 310


<210> 4468
<211> 310
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Payload ID: 997; "

<220>
<221> source
<223> /note="Gene Symbol: AMMECR1L; "

<220>
<221> source
<223> /note="Gene Name:
AMMECR
1-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q6DCA0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376726"

<400> 4468

```
Met Gly Lys Arg Arg Cys Val Pro Pro Leu Glu Pro Lys Leu Ala Ala
1               5                  10                  15


Gly Cys Cys Gly Val Lys Lys Pro Lys Leu Ser Gly Ser Gly Thr His
            20                  25                  30


Ser His Gly Asn Gln Ser Thr Thr Val Pro Gly Ser Ser Ser Gly Pro
        35                  40                  45


Leu Gln Asn His Gln His Val Asp Ser Ser Ser Gly Arg Glu Asn Val
    50                  55                  60


Ser Asp Leu Thr Leu Gly Pro Gly Asn Ser Pro Ile Thr Arg Met Asn
65                  70                  75                  80


Pro Ala Ser Gly Ala Leu Ser Pro Leu Pro Arg Pro Asn Gly Thr Ala
                85                  90                  95


Asn Thr Thr Lys Asn Leu Val Val Thr Ala Glu Met Cys Cys Tyr Cys
            100                 105                 110


Phe Asp Val Leu Tyr Cys His Leu Tyr Gly Phe Pro Gln Pro Arg Leu
        115                 120                 125


Pro Arg Phe Thr Asn Asp Pro Tyr Pro Leu Phe Val Thr Trp Lys Thr
    130                 135                 140
```

```
Gly Arg Asp Lys Arg Leu Arg Gly Cys Ile Gly Thr Phe Ser Ala Met
145                 150                 155                 160

Asn Leu His Ser Gly Leu Arg Glu Tyr Thr Leu Thr Ser Ala Leu Lys
                165                 170                 175

Asp Ser Arg Phe Pro Pro Leu Thr Arg Glu Glu Leu Pro Lys Leu Phe
            180                 185                 190

Cys Ser Val Ser Leu Leu Thr Asn Phe Glu Asp Ala Ser Asp Tyr Leu
        195                 200                 205

Asp Trp Glu Val Gly Val His Gly Ile Arg Ile Glu Phe Ile Asn Glu
    210                 215                 220

Lys Gly Val Lys Arg Thr Ala Thr Tyr Leu Pro Glu Val Ala Lys Glu
225                 230                 235                 240

Gln Asp Trp Asp Gln Ile Gln Thr Ile Asp Ser Leu Leu Arg Lys Gly
                245                 250                 255

Gly Phe Lys Ala Pro Ile Thr Ser Glu Phe Arg Lys Thr Ile Lys Leu
            260                 265                 270

Thr Arg Tyr Arg Ser Glu Lys Val Thr Ile Ser Tyr Ala Glu Tyr Ile
        275                 280                 285

Ala Ser Arg Gln His Cys Phe Gln Asn Gly Thr Leu His Ala Pro Pro
    290                 295                 300

Leu Tyr Asn His Tyr Ser
305                 310


<210> 4469
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 998; "

<220>
<221> source
<223> /note="Gene Symbol: AMN; "
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<220>
<221> source
<223> /note="Gene Name:
amnion associated transmembrane prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BXJ7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299155"

<400> 4469
Met Gly Val Leu Gly Arg Val Leu Leu Trp Leu Gln Leu Cys Ala Leu
1   5   10   15

Thr Gln Ala Val Ser Lys Leu Trp Val Pro Asn Thr Asp Phe Asp Val
            20   25   30

Ala Ala Asn Trp Ser Gln Asn Arg Thr Pro Cys Ala Gly Gly Ala Val
        35   40   45

Glu Phe Pro Ala Asp Lys Met Val Ser Val Leu Val Gln Glu Gly His
    50   55   60

Ala Val Ser Asp Met Leu Leu Pro Leu Asp Gly Glu Leu Val Leu Ala
65   70   75   80

Ser Gly Ala Gly Phe Gly Val Ser Asp Val Gly Ser His Leu Asp Cys
                85   90   95

Gly Ala Gly Glu Pro Ala Val Phe Arg Asp Ser Asp Arg Phe Ser Trp
            100   105   110

His Asp Pro His Leu Trp Arg Ser Gly Asp Glu Ala Pro Gly Leu Phe
        115   120   125

Phe Val Asp Ala Glu Arg Val Pro Cys Arg His Asp Asp Val Phe Phe
    130   135   140

Pro Pro Ser Ala Ser Phe Arg Val Gly Leu Gly Pro Gly Ala Ser Pro
145   150   155   160

Val Arg Val Arg Ser Ile Ser Ala Leu Gly Arg Thr Phe Thr Arg Asp
                165   170   175

```
Glu Asp Leu Ala Val Phe Leu Ala Ser Arg Ala Gly Arg Leu Arg Phe
            180                 185                 190

His Gly Pro Gly Ala Leu Ser Val Gly Pro Glu Asp Cys Ala Asp Pro
        195                 200                 205

Ser Gly Cys Val Cys Gly Asn Ala Glu Ala Gln Pro Trp Ile Cys Ala
    210                 215                 220

Ala Leu Leu Gln Pro Leu Gly Gly Arg Cys Pro Gln Ala Ala Cys His
225                 230                 235                 240

Ser Ala Leu Arg Pro Gln Gly Gln Cys Cys Asp Leu Cys Gly Ala Val
                245                 250                 255

Val Leu Leu Thr His Gly Pro Ala Phe Asp Leu Glu Arg Tyr Arg Ala
            260                 265                 270

Arg Ile Leu Asp Thr Phe Leu Gly Leu Pro Gln Tyr His Gly Leu Gln
        275                 280                 285

Val Ala Val Ser Lys Val Pro Arg Ser Ser Arg Leu Arg Glu Ala Asp
    290                 295                 300

Thr Glu Ile Gln Val Val Leu Val Glu Asn Gly Pro Glu Thr Gly Gly
305                 310                 315                 320

Ala Gly Arg Leu Ala Arg Ala Leu Leu Ala Asp Val Ala Glu Asn Gly
                325                 330                 335

Glu Ala Leu Gly Val Leu Glu Ala Thr Met Arg Glu Ser Gly Ala His
            340                 345                 350

Val Trp Gly Ser Ser Ala Ala Gly Leu Ala Gly Gly Val Ala Ala Ala
        355                 360                 365

Val Leu Leu Ala Leu Leu Val Leu Leu Val Ala Pro Pro Leu Leu Arg
    370                 375                 380

Arg Ala Gly Arg Leu Arg Trp Arg Arg His Glu Ala Ala Ala Pro Ala
385                 390                 395                 400
```

Gly Ala Pro Leu Gly Phe Arg Asn Pro Val Phe Asp Val Thr Ala Ser
405 410 415

Glu Glu Leu Pro Leu Pro Arg Arg Leu Ser Leu Val Pro Lys Ala Ala
420 425 430

Ala Asp Ser Thr Ser His Ser Tyr Phe Val Asn Pro Leu Phe Ala Gly
435 440 445

Ala Glu Ala Glu Ala
450

<210> 4470
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 998; "

<220>
<221> source
<223> /note="Gene Symbol: AMN; "

<220>
<221> source
<223> /note="Gene Name:
amnion associated transmembrane prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452831"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4470
Xaa Ala Pro Gly Leu Phe Phe Val Asp Ala Glu Arg Val Pro Cys Arg
1 5 10 15

His Asp Asp Val Phe Phe Pro Pro Ser Ala Ser Phe Arg Val Gly Leu
20 25 30

Gly Pro Gly Ala Ser Pro Val Arg Val Arg Ser Glu Ala Leu Gly Val
35 40 45

```
Leu Glu Ala Thr Met Arg Glu Ser Gly Ala His Val Trp Gly Ser Ser
    50                  55                  60

Ala Ala Gly Leu Ala Gly Gly Val Ala Ala Ala Val Leu Leu Ala Leu
65                  70                  75                  80

Leu Val Leu Leu Val Ala Pro Pro Leu Leu Arg Arg Ala Gly Arg Leu
                85                  90                  95

Arg Trp Arg Arg His Glu Ala Ala Ala Pro Ala Gly Ala Pro Leu Gly
            100                 105                 110

Phe Arg Asn Pro Val Phe Asp Val Thr Ala Ser Glu Glu Leu Pro Leu
        115                 120                 125

Pro Arg Arg
    130


<210> 4471
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 998; "

<220>
<221> source
<223> /note="Gene Symbol: AMN; "

<220>
<221> source
<223> /note="Gene Name:
      amnion associated transmembrane prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453786"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4471
Xaa Leu Trp Arg Ser Gly Asp Glu Ala Pro Gly Leu Phe Phe Val Asp
1               5                   10                  15
```

```
Ala Glu Arg Val Pro Cys Arg His Asp Asp Val Phe Phe Pro Pro Ser
            20                  25                  30

Ala Ser Phe Arg Val Gly Leu Gly Pro Gly Ala Ser Pro Thr Phe Thr
        35                  40                  45

Arg Asp Glu Asp Leu Ala Val Phe Leu Ala Ser Arg Ala Gly Arg Leu
    50                  55                  60

Arg Phe His Gly Pro Gly Ala Leu Ser Val Gly Pro Glu Asp Cys Ala
65                  70                  75                  80

Asp Pro Ser Gly Cys Val Cys Gly Asn Ala Glu Ala Gln Pro Trp Ile
                85                  90                  95

Cys Ala Ala Leu Leu Gln Pro Leu Gly Gly Arg
            100                 105


<210> 4472
<211> 653
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 999; "

<220>
<221> source
<223> /note="Gene Symbol: AMPH; "

<220>
<221> source
<223> /note="Gene Name:
      amphiphysin; "

<220>
<221> source
<223> /note="Uniprot ID:  P49418; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000317441"

<400> 4472
Met Ala Asp Ile Lys Thr Gly Ile Phe Ala Lys Asn Val Gln Lys Arg
1               5                   10                  15

Leu Asn Arg Ala Gln Glu Lys Val Leu Gln Lys Leu Gly Lys Ala Asp
            20                  25                  30
```

```
Glu Thr Lys Asp Glu Gln Phe Glu Glu Tyr Val Gln Asn Phe Lys Arg
        35                  40                  45

Gln Glu Ala Glu Gly Thr Arg Leu Gln Arg Glu Leu Arg Gly Tyr Leu
    50                  55                  60

Ala Ala Ile Lys Gly Met Gln Glu Ala Ser Met Lys Leu Thr Glu Ser
65                  70                  75                  80

Leu His Glu Val Tyr Glu Pro Asp Trp Tyr Gly Arg Glu Asp Val Lys
                85                  90                  95

Met Val Gly Glu Lys Cys Asp Val Leu Trp Glu Asp Phe His Gln Lys
            100                 105                 110

Leu Val Asp Gly Ser Leu Leu Thr Leu Asp Thr Tyr Leu Gly Gln Phe
        115                 120                 125

Pro Asp Ile Lys Asn Arg Ile Ala Lys Arg Ser Arg Lys Leu Val Asp
    130                 135                 140

Tyr Asp Ser Ala Arg His His Leu Glu Ala Leu Gln Ser Ser Lys Arg
145                 150                 155                 160

Lys Asp Glu Ser Arg Ile Ser Lys Ala Glu Glu Glu Phe Gln Lys Ala
                165                 170                 175

Gln Lys Val Phe Glu Glu Phe Asn Val Asp Leu Gln Glu Glu Leu Pro
            180                 185                 190

Ser Leu Trp Ser Arg Arg Val Gly Phe Tyr Val Asn Thr Phe Lys Asn
        195                 200                 205

Val Ser Ser Leu Glu Ala Lys Phe His Lys Glu Ile Ala Val Leu Cys
    210                 215                 220

His Lys Leu Tyr Glu Val Met Thr Lys Leu Gly Asp Gln His Ala Asp
225                 230                 235                 240

Lys Ala Phe Thr Ile Gln Gly Ala Pro Ser Asp Ser Gly Pro Leu Arg
                245                 250                 255
```

```
Ile Ala Lys Thr Pro Ser Pro Pro Glu Glu Pro Ser Pro Leu Pro Ser
            260                 265                 270

Pro Thr Ala Ser Pro Asn His Thr Leu Ala Pro Ala Ser Pro Ala Pro
        275                 280                 285

Ala Arg Pro Arg Ser Pro Ser Gln Thr Arg Lys Gly Pro Pro Val Pro
    290                 295                 300

Pro Leu Pro Lys Val Thr Pro Thr Lys Glu Leu Gln Gln Glu Asn Ile
305                 310                 315                 320

Ile Ser Phe Phe Glu Asp Asn Phe Val Pro Glu Ile Ser Val Thr Thr
                325                 330                 335

Pro Ser Gln Asn Glu Val Pro Glu Val Lys Lys Glu Glu Thr Leu Leu
            340                 345                 350

Asp Leu Asp Phe Asp Pro Phe Lys Pro Glu Val Thr Pro Ala Gly Ser
        355                 360                 365

Ala Gly Val Thr His Ser Pro Met Ser Gln Thr Leu Pro Trp Asp Leu
    370                 375                 380

Trp Thr Thr Ser Thr Asp Leu Val Gln Pro Ala Ser Gly Gly Ser Phe
385                 390                 395                 400

Asn Gly Phe Thr Gln Pro Gln Asp Thr Ser Leu Phe Thr Met Gln Thr
                405                 410                 415

Asp Gln Ser Met Ile Cys Asn Leu Ile Ile Pro Gly Ala Asp Ala Asp
            420                 425                 430

Ala Ala Val Gly Thr Leu Val Ser Ala Ala Glu Gly Ala Pro Gly Glu
        435                 440                 445

Glu Ala Glu Ala Glu Lys Ala Thr Val Pro Ala Gly Glu Gly Val Ser
    450                 455                 460

Leu Glu Glu Ala Lys Ile Gly Thr Glu Thr Thr Glu Gly Ala Glu Ser
465                 470                 475                 480
```

```
Ala Gln Pro Glu Ala Glu Glu Leu Glu Ala Thr Val Pro Gln Glu Lys
                485                 490                 495

Val Ile Pro Ser Val Val Ile Glu Pro Ala Ser Asn His Glu Glu Glu
            500                 505                 510

Gly Glu Asn Glu Ile Thr Ile Gly Ala Glu Pro Lys Glu Thr Thr Glu
        515                 520                 525

Asp Ala Ala Pro Pro Gly Pro Thr Ser Glu Thr Pro Glu Leu Ala Thr
    530                 535                 540

Glu Gln Lys Pro Ile Gln Asp Pro Gln Pro Thr Pro Ser Ala Pro Ala
545                 550                 555                 560

Met Gly Ala Ala Asp Gln Leu Ala Ser Ala Arg Glu Ala Ser Gln Glu
                565                 570                 575

Leu Pro Pro Gly Phe Leu Tyr Lys Val Glu Thr Leu His Asp Phe Glu
            580                 585                 590

Ala Ala Asn Ser Asp Glu Leu Thr Leu Gln Arg Gly Asp Val Val Leu
        595                 600                 605

Val Val Pro Ser Asp Ser Glu Ala Asp Gln Asp Ala Gly Trp Leu Val
    610                 615                 620

Gly Val Lys Glu Ser Asp Trp Leu Gln Tyr Arg Asp Leu Ala Thr Tyr
625                 630                 635                 640

Lys Gly Leu Phe Pro Glu Asn Phe Thr Arg Arg Leu Asp
                645                 650
```

<210> 4473
<211> 695
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 999; "

<220>
<221> source
<223> /note="Gene Symbol: AMPH; "

<220>
<221> source
<223> /note="Gene Name:
amphiphysin; "

<220>
<221> source
<223> /note="Uniprot ID: P49418; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348602"

<400> 4473
Met Ala Asp Ile Lys Thr Gly Ile Phe Ala Lys Asn Val Gln Lys Arg
1   5   10   15

Leu Asn Arg Ala Gln Glu Lys Val Leu Gln Lys Leu Gly Lys Ala Asp
            20   25   30

Glu Thr Lys Asp Glu Gln Phe Glu Glu Tyr Val Gln Asn Phe Lys Arg
        35   40   45

Gln Glu Ala Glu Gly Thr Arg Leu Gln Arg Glu Leu Arg Gly Tyr Leu
    50   55   60

Ala Ala Ile Lys Gly Met Gln Glu Ala Ser Met Lys Leu Thr Glu Ser
65   70   75   80

Leu His Glu Val Tyr Glu Pro Asp Trp Tyr Gly Arg Glu Asp Val Lys
                85   90   95

Met Val Gly Glu Lys Cys Asp Val Leu Trp Glu Asp Phe His Gln Lys
            100   105   110

Leu Val Asp Gly Ser Leu Leu Thr Leu Asp Thr Tyr Leu Gly Gln Phe
        115   120   125

Pro Asp Ile Lys Asn Arg Ile Ala Lys Arg Ser Arg Lys Leu Val Asp
    130   135   140

Tyr Asp Ser Ala Arg His His Leu Glu Ala Leu Gln Ser Ser Lys Arg
145   150   155   160

Lys Asp Glu Ser Arg Ile Ser Lys Ala Glu Glu Glu Phe Gln Lys Ala
                165   170   175

```
Gln Lys Val Phe Glu Glu Phe Asn Val Asp Leu Gln Glu Glu Leu Pro
            180                 185                 190

Ser Leu Trp Ser Arg Arg Val Gly Phe Tyr Val Asn Thr Phe Lys Asn
        195                 200                 205

Val Ser Ser Leu Glu Ala Lys Phe His Lys Glu Ile Ala Val Leu Cys
    210                 215                 220

His Lys Leu Tyr Glu Val Met Thr Lys Leu Gly Asp Gln His Ala Asp
225                 230                 235                 240

Lys Ala Phe Thr Ile Gln Gly Ala Pro Ser Asp Ser Gly Pro Leu Arg
                245                 250                 255

Ile Ala Lys Thr Pro Ser Pro Pro Glu Glu Pro Ser Pro Leu Pro Ser
            260                 265                 270

Pro Thr Ala Ser Pro Asn His Thr Leu Ala Pro Ala Ser Pro Ala Pro
        275                 280                 285

Ala Arg Pro Arg Ser Pro Ser Gln Thr Arg Lys Gly Pro Pro Val Pro
    290                 295                 300

Pro Leu Pro Lys Val Thr Pro Thr Lys Glu Leu Gln Gln Glu Asn Ile
305                 310                 315                 320

Ile Ser Phe Phe Glu Asp Asn Phe Val Pro Glu Ile Ser Val Thr Thr
                325                 330                 335

Pro Ser Gln Asn Glu Val Pro Glu Val Lys Lys Glu Glu Thr Leu Leu
            340                 345                 350

Asp Leu Asp Phe Asp Pro Phe Lys Pro Glu Val Thr Pro Ala Gly Ser
        355                 360                 365

Ala Gly Val Thr His Ser Pro Met Ser Gln Thr Leu Pro Trp Asp Leu
    370                 375                 380

Trp Thr Thr Ser Thr Asp Leu Val Gln Pro Ala Ser Gly Gly Ser Phe
385                 390                 395                 400
```

```
Asn Gly Phe Thr Gln Pro Gln Asp Thr Ser Leu Phe Thr Met Gln Thr
                405                 410                 415

Asp Gln Ser Met Ile Cys Asn Leu Ala Glu Ser Glu Gln Ala Pro Pro
            420                 425                 430

Thr Glu Pro Lys Ala Glu Glu Pro Leu Ala Ala Val Thr Pro Ala Val
        435                 440                 445

Gly Leu Asp Leu Gly Met Asp Thr Arg Ala Glu Glu Pro Val Glu Glu
    450                 455                 460

Ala Val Ile Ile Pro Gly Ala Asp Ala Asp Ala Ala Val Gly Thr Leu
465                 470                 475                 480

Val Ser Ala Ala Glu Gly Ala Pro Gly Glu Glu Ala Glu Ala Glu Lys
                485                 490                 495

Ala Thr Val Pro Ala Gly Glu Gly Val Ser Leu Glu Glu Ala Lys Ile
            500                 505                 510

Gly Thr Glu Thr Thr Glu Gly Ala Glu Ser Ala Gln Pro Glu Ala Glu
        515                 520                 525

Glu Leu Glu Ala Thr Val Pro Gln Glu Lys Val Ile Pro Ser Val Val
    530                 535                 540

Ile Glu Pro Ala Ser Asn His Glu Glu Glu Gly Glu Asn Glu Ile Thr
545                 550                 555                 560

Ile Gly Ala Glu Pro Lys Glu Thr Thr Glu Asp Ala Ala Pro Pro Gly
                565                 570                 575

Pro Thr Ser Glu Thr Pro Glu Leu Ala Thr Glu Gln Lys Pro Ile Gln
            580                 585                 590

Asp Pro Gln Pro Thr Pro Ser Ala Pro Ala Met Gly Ala Ala Asp Gln
        595                 600                 605

Leu Ala Ser Ala Arg Glu Ala Ser Gln Glu Leu Pro Pro Gly Phe Leu
    610                 615                 620

Tyr Lys Val Glu Thr Leu His Asp Phe Glu Ala Ala Asn Ser Asp Glu
```

625 630 635 640

Leu Thr Leu Gln Arg Gly Asp Val Val Leu Val Val Pro Ser Asp Ser
645 650 655

Glu Ala Asp Gln Asp Ala Gly Trp Leu Val Gly Val Lys Glu Ser Asp
660 665 670

Trp Leu Gln Tyr Arg Asp Leu Ala Thr Tyr Lys Gly Leu Phe Pro Glu
675 680 685

Asn Phe Thr Arg Arg Leu Asp
690 695

<210> 4474
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 999; "

<220>
<221> source
<223> /note="Gene Symbol: AMPH; "

<220>
<221> source
<223> /note="Gene Name:
amphiphysin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400404"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4474
Xaa Gly Gly Asn Glu Gln Leu Pro Pro Lys Pro Ala Pro Glu Ala Gly
1 5 10 15

Val Ala Ile Ala Ala Cys Val Glu Met Glu Gln Leu Tyr Asp Pro Leu
20 25 30

Asp Ser Asp Met Pro Ala Met Asp Thr Ala Gly Leu Phe Lys Glu Ser

```
        35                  40                  45

His Glu Asp Met Lys Lys Ser Asp Glu Glu Glu Glu Lys Gln Lys Met
    50                  55                  60

Glu Asp Ser Leu Trp Ala Gly Val Glu Ala Cys Gln Lys Ala Ser Gly
65                  70                  75                  80

Gly Ser Phe Asn Gly Phe Thr Gln Pro Gln Asp Thr Ser Leu Phe Thr
                85                  90                  95

Met Gln Thr Asp Gln Ser Met Ile Cys Asn Leu Glu Ile Thr Val Asn
            100                 105                 110


<210> 4475
<211> 578
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 999; "

<220>
<221> source
<223> /note="Gene Symbol: AMPH; "

<220>
<221> source
<223> /note="Gene Name:
      amphiphysin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415085"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4475
Xaa Asp Ser Gly Pro Leu Arg Ile Ala Lys Thr Pro Ser Pro Pro Glu
1               5                   10                  15

Glu Pro Ser Pro Leu Pro Ser Pro Thr Ala Ser Pro Asn His Thr Leu
            20                  25                  30

Ala Pro Ala Ser Pro Ala Pro Ala Arg Pro Arg Ser Pro Ser Gln Thr
```

```
        35                  40                  45

Arg Lys Gly Pro Pro Val Pro Pro Leu Pro Lys Val Thr Pro Thr Lys
    50                  55                  60

Glu Leu Gln Gln Glu Asn Ile Ile Ser Phe Phe Glu Asp Asn Phe Val
65                  70                  75                  80

Pro Glu Ile Ser Val Thr Thr Pro Ser Gln Asn Glu Val Pro Glu Val
                85                  90                  95

Lys Lys Glu Glu Thr Leu Leu Asp Leu Asp Phe Asp Pro Phe Lys Pro
            100                 105                 110

Glu Val Thr Pro Ala Gly Ser Ala Gly Val Thr His Ser Pro Met Ser
        115                 120                 125

Gln Thr Leu Pro Trp Asp Leu Trp Thr Thr Ser Thr Asp Leu Val Gln
    130                 135                 140

Pro Thr Asp Ser Ser Glu Ser Leu Ser Leu Cys Asn Leu Ile Met Glu
145                 150                 155                 160

Glu Thr Pro Asp Ser Gly Leu Ala Glu Glu Ile Gln Arg Ser Gln Asn
                165                 170                 175

Asp Ile Gly Ala Phe Thr Trp Gly Pro Asp Ala Ser Thr Asp Arg Val
            180                 185                 190

Ser Gln Glu Val Thr Ser Gly Gly Phe Gly Glu Asp Ser Ala Cys Pro
        195                 200                 205

Ser Glu Thr Glu Gln Asp Ile Arg Leu Ser Thr Ser Leu Leu Ser Ser
    210                 215                 220

Ala Asp Trp Pro Thr Val Ala Glu Glu Ser Glu His Ala Pro Gly Pro
225                 230                 235                 240

Ala Phe Pro Gly Gly Asn Glu Gln Leu Pro Pro Lys Pro Ala Pro Glu
                245                 250                 255

Ala Gly Val Ala Ile Ala Ala Cys Val Glu Met Glu Gln Leu Tyr Asp
            260                 265                 270
```

```
Pro Leu Asp Ser Asp Met Pro Ala Met Asp Thr Ala Gly Leu Phe Lys
        275                 280                 285

Glu Ser His Glu Asp Met Lys Lys Ser Asp Glu Glu Glu Glu Lys Gln
    290                 295                 300

Lys Met Glu Asp Ser Leu Trp Ala Gly Val Glu Ala Cys Gln Lys Ala
305                 310                 315                 320

Ser Gly Gly Ser Phe Asn Gly Phe Thr Gln Pro Gln Asp Thr Ser Leu
                325                 330                 335

Phe Thr Met Gln Thr Asp Gln Ser Met Ile Cys Asn Leu Ile Ile Pro
            340                 345                 350

Gly Ala Asp Ala Asp Ala Ala Val Gly Thr Leu Val Ser Ala Ala Glu
        355                 360                 365

Gly Ala Pro Gly Glu Glu Ala Glu Ala Glu Lys Ala Thr Val Pro Ala
    370                 375                 380

Gly Glu Gly Val Ser Leu Glu Glu Ala Lys Ile Gly Thr Glu Thr Thr
385                 390                 395                 400

Glu Gly Ala Glu Ser Ala Gln Pro Glu Ala Glu Glu Leu Glu Ala Thr
                405                 410                 415

Val Pro Gln Glu Lys Val Ile Pro Ser Val Val Ile Glu Pro Ala Ser
            420                 425                 430

Asn His Glu Glu Glu Gly Glu Asn Glu Ile Thr Ile Gly Ala Glu Pro
        435                 440                 445

Lys Glu Thr Thr Glu Asp Ala Ala Pro Pro Gly Pro Thr Ser Glu Thr
    450                 455                 460

Pro Glu Leu Ala Thr Glu Gln Lys Pro Ile Gln Asp Pro Gln Pro Thr
465                 470                 475                 480

Pro Ser Ala Pro Ala Met Gly Ala Ala Asp Gln Leu Ala Ser Ala Arg
                485                 490                 495
```

Glu Ala Ser Gln Glu Leu Pro Pro Gly Phe Leu Tyr Lys Val Glu Thr
500 505 510

Leu His Asp Phe Glu Ala Ala Asn Ser Asp Glu Leu Thr Leu Gln Arg
515 520 525

Gly Asp Val Val Leu Val Val Pro Ser Asp Ser Glu Ala Asp Gln Asp
530 535 540

Ala Gly Trp Leu Val Gly Val Lys Glu Ser Asp Trp Leu Gln Tyr Arg
545 550 555 560

Asp Leu Ala Thr Tyr Lys Gly Leu Phe Pro Glu Asn Phe Thr Arg Arg
565 570 575

Leu Asp

<210> 4476
<211> 252
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1000; "

<220>
<221> source
<223> /note="Gene Symbol: AREG; "

<220>
<221> source
<223> /note="Gene Name:
amphiregulin; "

<220>
<221> source
<223> /note="Uniprot ID: P15514; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379097"

<400> 4476
Met Arg Ala Pro Leu Leu Pro Pro Ala Pro Val Val Leu Ser Leu Leu
1 5 10 15

Ile Leu Gly Ser Gly His Tyr Ala Ala Gly Leu Asp Leu Asn Asp Thr

20 25 30

Tyr Ser Gly Lys Arg Glu Pro Phe Ser Gly Asp His Ser Ala Asp Gly
35 40 45

Phe Glu Val Thr Ser Arg Ser Glu Met Ser Ser Gly Ser Glu Ile Ser
50 55 60

Pro Val Ser Glu Met Pro Ser Ser Ser Glu Pro Ser Ser Gly Ala Asp
65 70 75 80

Tyr Asp Tyr Ser Glu Glu Tyr Asp Asn Glu Pro Gln Ile Pro Gly Tyr
85 90 95

Ile Val Asp Asp Ser Val Arg Val Glu Gln Val Val Lys Pro Pro Gln
100 105 110

Asn Lys Thr Glu Ser Glu Asn Thr Ser Asp Lys Pro Lys Arg Lys Lys
115 120 125

Lys Gly Gly Lys Asn Gly Lys Asn Arg Arg Asn Arg Lys Lys Lys Asn
130 135 140

Pro Cys Asn Ala Glu Phe Gln Asn Phe Cys Ile His Gly Glu Cys Lys
145 150 155 160

Tyr Ile Glu His Leu Glu Ala Val Thr Cys Lys Cys Gln Gln Glu Tyr
165 170 175

Phe Gly Glu Arg Cys Gly Glu Lys Ser Met Lys Thr His Ser Met Ile
180 185 190

Asp Ser Ser Leu Ser Lys Ile Ala Leu Ala Ala Ile Ala Ala Phe Met
195 200 205

Ser Ala Val Ile Leu Thr Ala Val Ala Val Ile Thr Val Gln Leu Arg
210 215 220

Arg Gln Tyr Val Arg Lys Tyr Glu Gly Glu Ala Glu Glu Arg Lys Lys
225 230 235 240

Leu Arg Gln Glu Asn Gly Asn Val His Ala Ile Ala
245 250

<210> 4477
<211> 274
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1000; "

<220>
<221> source
<223> /note="Gene Symbol: AREG; "

<220>
<221> source
<223> /note="Gene Name:
amphiregulin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421414"

<400> 4477
Met Arg Ala Pro Leu Leu Pro Pro Ala Pro Val Val Leu Ser Leu Leu
1 5 10 15

Ile Leu Gly Ser Gly His Tyr Ala Ala Gly Leu Asp Leu Asn Asp Thr
20 25 30

Tyr Ser Gly Lys Arg Glu Pro Phe Ser Gly Asp His Ser Ala Asp Gly
35 40 45

Phe Glu Val Thr Ser Arg Ser Glu Met Ser Ser Gly Ser Glu Ile Ser
50 55 60

Pro Val Ser Glu Met Pro Ser Ser Ser Glu Pro Ser Ser Gly Ala Asp
65 70 75 80

Tyr Asp Tyr Ser Glu Glu Tyr Asp Asn Glu Pro Gln Ile Pro Gly Tyr
85 90 95

Ile Val Asp Asp Ser Val Arg Val Glu Gln Val Val Lys Pro Pro Gln
100 105 110

Asn Lys Thr Glu Ser Glu Asn Thr Ser Asp Lys Pro Lys Arg Lys Lys
115 120 125

```
Lys Gly Gly Lys Asn Gly Lys Asn Arg Arg Asn Arg Lys Lys Lys Asn
    130                 135                 140

Pro Cys Asn Ala Glu Phe Gln Asn Phe Cys Ile His Gly Glu Cys Lys
145                 150                 155                 160

Tyr Ile Glu His Leu Glu Ala Val Thr Cys Lys Cys Gln Gln Glu Tyr
                165                 170                 175

Phe Gly Glu Arg Cys Gly Glu Lys Ser Met Lys Thr His Ser Met Ile
            180                 185                 190

Asp Ser Ser Leu Ser Lys Ile Ala Leu Ala Ala Ile Ala Ala Phe Met
        195                 200                 205

Ser Ala Val Ile Leu Thr Ala Val Ala Val Ile Thr Val Gln Ile Ser
    210                 215                 220

His Trp Ser His Cys Gln Val Ile Ala Ile Asn Asp Glu Ser Val Leu
225                 230                 235                 240

Phe Pro Val Asp His Lys Thr Met Asp Pro Phe Cys Tyr Asp Gly Phe
                245                 250                 255

Lys Leu Ser Ile Val Thr Phe Tyr Ala Ile Ser Val Tyr Lys Gly Ala
            260                 265                 270

Arg Arg
```

<210> 4478
<211> 511
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1001; "

<220>
<221> source
<223> /note="Gene Symbol: AMY1A; "

<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 1A (salivary); "

<220>
<221> source
<223> /note="Uniprot ID: P04745; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359100"

<400> 4478
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1   5   10   15

Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20   25   30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35   40   45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50   55   60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65   70   75   80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85   90   95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100   105   110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115   120   125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130   135   140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145   150   155   160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165   170   175

Leu Ser Gly Leu Leu Asp Leu Ala Leu Gly Lys Asp Tyr Val Arg Ser
            180   185   190

```
Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Ile Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Glu Gly
225                 230                 235                 240

Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Met Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Tyr Phe Glu Asn Gly Lys Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asp Asn Gly Val Thr Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400

His Arg Trp Arg Gln Ile Arg Asn Met Val Asn Phe Arg Asn Val Val
                405                 410                 415
```

```
Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445

Trp Thr Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460

Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480

Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495

Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510


<210> 4479
<211> 226
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1001; "

<220>
<221> source
<223> /note="Gene Symbol: AMY1A; "

<220>
<221> source
<223> /note="Gene Name:
      amylase, alpha 1A (salivary); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399836"

<400> 4479
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1               5                   10                  15

Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20                  25                  30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35                  40                  45
```

```
Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50                  55                  60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65                  70                  75                  80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85                  90                  95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100                 105                 110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115                 120                 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130                 135                 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145                 150                 155                 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165                 170                 175

Leu Ser Gly Leu Leu Asp Leu Ala Leu Gly Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Ile Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu
225
```

<210> 4480
<211> 105
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1001; "

<220>
<221> source
<223> /note="Gene Symbol: AMY1A; "

<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 1A (salivary); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000408386"

<400> 4480
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1 5 10 15

Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
20 25 30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
35 40 45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
50 55 60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65 70 75 80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
85 90 95

Met Val Thr Arg Cys Asn Asn Val Gly
100 105

<210> 4481
<211> 511
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1002; "

<220>
<221> source
<223> /note="Gene Symbol: AMY1B; "

<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 1B (salivary); "

<220>
<221> source
<223> /note="Uniprot ID: P04745; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000330484"

<400> 4481
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1   5   10   15

Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20   25   30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35   40   45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50   55   60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65   70   75   80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85   90   95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100   105   110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115   120   125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130   135   140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145   150   155   160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165   170   175

```
Leu Ser Gly Leu Leu Asp Leu Ala Leu Gly Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Ile Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Glu Gly
225                 230                 235                 240

Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Met Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Tyr Phe Glu Asn Gly Lys Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asp Asn Gly Val Thr Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400
```

```
His Arg Trp Arg Gln Ile Arg Asn Met Val Asn Phe Arg Asn Val Val
                405                 410                 415

Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445

Trp Thr Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460

Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480

Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495

Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510


<210> 4482
<211> 511
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1002; "

<220>
<221> source
<223> /note="Gene Symbol: AMY1B; "

<220>
<221> source
<223> /note="Gene Name:
      amylase, alpha 1B (salivary); "

<220>
<221> source
<223> /note="Uniprot ID:  P04745; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359097"

<400> 4482
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1               5                   10                  15
```

```
Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20                  25                  30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35                  40                  45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50                  55                  60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65                  70                  75                  80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85                  90                  95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100                 105                 110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115                 120                 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130                 135                 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145                 150                 155                 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165                 170                 175

Leu Ser Gly Leu Leu Asp Leu Ala Leu Gly Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Ile Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Glu Gly
225                 230                 235                 240
```

```
Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Met Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Tyr Phe Glu Asn Gly Lys Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asp Asn Gly Val Thr Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400

His Arg Trp Arg Gln Ile Arg Asn Met Val Asn Phe Arg Asn Val Val
                405                 410                 415

Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445

Trp Thr Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460
```

```
Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480


Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495


Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510


<210> 4483
<211> 226
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1002; "

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<221> source
<223> /note="Gene Symbol: AMY1B; "

<220>
<221> source
<223> /note="Gene Name:
      amylase, alpha 1B (salivary); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390219"

<400> 4483
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1               5                   10                  15


Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20                  25                  30


Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35                  40                  45


Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50                  55                  60


Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65                  70                  75                  80


Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85                  90                  95
```

```
Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100                 105                 110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115                 120                 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130                 135                 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145                 150                 155                 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165                 170                 175

Leu Ser Gly Leu Leu Asp Leu Ala Leu Gly Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Ile Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu
225
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<210> 4484
<211> 105
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 1B (salivary); "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000393584"

<400> 4484
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1   5   10   15

Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20   25   30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35   40   45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50   55   60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65   70   75   80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85   90   95

Met Val Thr Arg Cys Asn Asn Val Gly
            100   105

<210> 4485
<211> 511
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: AMY1C; "

<220>
<221> source
<223> /note="Gene Name:
      amylase, alpha 1C (salivary); "

<220>
<221> source
<223> /note="Uniprot ID: P04745; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359096"

<400> 4485
Met Lys Leu Phe Trp Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1 5 10 15

Tyr Ser Ser Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
20 25 30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
35 40 45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
50 55 60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65 70 75 80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
85 90 95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
100 105 110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
115 120 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
130 135 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145 150 155 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
165 170 175

Leu Ser Gly Leu Leu Asp Leu Ala Leu Gly Lys Asp Tyr Val Arg Ser
180 185 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
195 200 205

Phe Arg Ile Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
210 215 220

```
Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Glu Gly
225                 230                 235                 240

Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Met Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Tyr Phe Glu Asn Gly Lys Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asp Asn Gly Val Thr Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400

His Arg Trp Arg Gln Ile Arg Asn Met Val Asn Phe Arg Asn Val Val
                405                 410                 415

Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445
```

```
Trp Thr Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460

Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480

Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495

Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510
```

<210> 4486
<211> 209
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1004; "

<220>
<221> source
<223> /note="Gene Symbol: AMY2A; "

<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 2A (pancreatic); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390832"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4486

```
Xaa Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln Tyr
1               5                   10                  15

Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe Glu
            20                  25                  30

Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala Pro
        35                  40                  45
```

```
Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val Ala
    50                  55                  60

Ile Tyr Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val Ser
65                  70                  75                  80

Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn Met
                85                  90                  95

Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala Val
            100                 105                 110

Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser Thr
        115                 120                 125

Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val Pro
    130                 135                 140

Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser Gly
145                 150                 155                 160

Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Ile Asp Leu Gly Gly
                165                 170                 175

Glu Pro Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu
            180                 185                 190

Phe Lys Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly
        195                 200                 205

Glu
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<210> 4487
<211> 511
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AMY2A; "

<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 2A (pancreatic); "

<220>
<221> source
<223> /note="Uniprot ID: P04746; "

<220>
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<223> /note="ENSP ID: ENSP00000397582"

<400> 4487
Met Lys Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1 5 10 15

Tyr Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
20 25 30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
35 40 45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
50 55 60

Ala Ile Tyr Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65 70 75 80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
85 90 95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
100 105 110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
115 120 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
130 135 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145 150 155 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
165 170 175

```
Leu Thr Gly Leu Leu Asp Leu Ala Leu Glu Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Leu Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Ala Gly
225                 230                 235                 240

Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Val Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Gln Phe Gln Asn Gly Asn Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asn Asn Gly Val Ile Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400
```

```
His Arg Trp Arg Gln Ile Arg Asn Met Val Ile Phe Arg Asn Val Val
                405                 410                 415

Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445

Trp Ser Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460

Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480

Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495

Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510


<210> 4488
<211> 511
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1004; "

<220>
<221> source
<223> /note="Gene Symbol: AMY2A; "

<220>
<221> source
<223> /note="Gene Name:
      amylase, alpha 2A (pancreatic); "

<220>
<221> source
<223> /note="Uniprot ID:  P04746; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481450"

<400> 4488
Met Lys Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1               5                  10                  15
```

```
Tyr Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20                  25                  30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35                  40                  45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50                  55                  60

Ala Ile Tyr Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65                  70                  75                  80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85                  90                  95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100                 105                 110

Val Ile Asn His Met Cys Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115                 120                 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130                 135                 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145                 150                 155                 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165                 170                 175

Leu Thr Gly Leu Leu Asp Leu Ala Leu Glu Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Leu Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Ala Gly
225                 230                 235                 240
```

```
Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Val Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Gln Phe Gln Asn Gly Asn Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asn Asn Gly Val Ile Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400

His Arg Trp Arg Gln Ile Arg Asn Met Val Ile Phe Arg Asn Val Val
                405                 410                 415

Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445

Trp Ser Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460
```

```
Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480


Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495


Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510


<210> 4489
<211> 511
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1005; "

<220>
<221> source
<223> /note="Gene Symbol: AMY2B; "

<220>
<221> source
<223> /note="Gene Name:
      amylase, alpha 2B (pancreatic); "

<220>
<221> source
<223> /note="Uniprot ID:  P19961; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354610"

<400> 4489
Met Lys Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1               5                   10                  15


Tyr Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20                  25                  30


Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35                  40                  45


Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50                  55                  60


Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65                  70                  75                  80
```

```
Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85                  90                  95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100                 105                 110

Val Ile Asn His Met Ser Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115                 120                 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130                 135                 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145                 150                 155                 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165                 170                 175

Leu Val Gly Leu Leu Asp Leu Ala Leu Glu Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Leu Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Ala Gly
225                 230                 235                 240

Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Met Pro Ser
    290                 295                 300
```

```
Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Gln Phe Gln Asn Gly Asn Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asn Asn Gly Val Ile Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400

His Arg Trp Arg Gln Ile Arg Asn Met Val Asn Phe Arg Asn Val Val
                405                 410                 415

Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445

Trp Thr Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460

Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480

Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495

Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510
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<210> 4490
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: AMY2B; "

<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 2B (pancreatic); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391423"

<400> 4490
Met Lys Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1 5 10 15

Tyr Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
20 25 30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
35 40 45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
50 55 60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65 70 75 80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
85 90 95

<210> 4491
<211> 86
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1005; "

<220>
<221> source
<223> /note="Gene Symbol: AMY2B; "

<220>

<221> source
<223> /note="Gene Name:
amylase, alpha 2B (pancreatic); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401627"

<400> 4491
Met Lys Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1 5 10 15

Tyr Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
20 25 30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
35 40 45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
50 55 60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65 70 75 80

Ser Tyr Lys Leu Cys Thr
85

<210> 4492
<211> 370
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1005; "

<220>
<221> source
<223> /note="Gene Symbol: AMY2B; "

<220>
<221> source
<223> /note="Gene Name:
amylase, alpha 2B (pancreatic); "

<220>
<221> source
<223> /note="Uniprot ID: P19961; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000433347"

<400> 4492

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Met Lys Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1               5                  10                  15

Tyr Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20                  25                  30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35                  40                  45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50                  55                  60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65                  70                  75                  80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85                  90                  95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100                 105                 110

Val Ile Asn His Met Ser Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115                 120                 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130                 135                 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145                 150                 155                 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165                 170                 175

Leu Val Gly Leu Leu Asp Leu Ala Leu Glu Lys Asp Tyr Val Arg Ser
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Leu Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220
```

```
Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Ala Gly
225                 230                 235                 240

Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Met Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Gln Phe Gln Asn Gly Asn Glu
        355                 360                 365

His Gly
    370


<210> 4493
<211> 511
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Name:
amylase, alpha 2B (pancreatic); "

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<400> 4493

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Met Lys Phe Phe Leu Leu Leu Phe Thr Ile Gly Phe Cys Trp Ala Gln
1               5                  10                  15

Tyr Ser Pro Asn Thr Gln Gln Gly Arg Thr Ser Ile Val His Leu Phe
            20                  25                  30

Glu Trp Arg Trp Val Asp Ile Ala Leu Glu Cys Glu Arg Tyr Leu Ala
        35                  40                  45

Pro Lys Gly Phe Gly Gly Val Gln Val Ser Pro Pro Asn Glu Asn Val
    50                  55                  60

Ala Ile His Asn Pro Phe Arg Pro Trp Trp Glu Arg Tyr Gln Pro Val
65                  70                  75                  80

Ser Tyr Lys Leu Cys Thr Arg Ser Gly Asn Glu Asp Glu Phe Arg Asn
                85                  90                  95

Met Val Thr Arg Cys Asn Asn Val Gly Val Arg Ile Tyr Val Asp Ala
            100                 105                 110

Val Ile Asn His Met Ser Gly Asn Ala Val Ser Ala Gly Thr Ser Ser
        115                 120                 125

Thr Cys Gly Ser Tyr Phe Asn Pro Gly Ser Arg Asp Phe Pro Ala Val
    130                 135                 140

Pro Tyr Ser Gly Trp Asp Phe Asn Asp Gly Lys Cys Lys Thr Gly Ser
145                 150                 155                 160

Gly Asp Ile Glu Asn Tyr Asn Asp Ala Thr Gln Val Arg Asp Cys Arg
                165                 170                 175

Leu Val Gly Leu Leu Asp Leu Ala Leu Glu Lys Asp Tyr Val Arg Ser
```

```
            180                 185                 190

Lys Ile Ala Glu Tyr Met Asn His Leu Ile Asp Ile Gly Val Ala Gly
        195                 200                 205

Phe Arg Leu Asp Ala Ser Lys His Met Trp Pro Gly Asp Ile Lys Ala
    210                 215                 220

Ile Leu Asp Lys Leu His Asn Leu Asn Ser Asn Trp Phe Pro Ala Gly
225                 230                 235                 240

Ser Lys Pro Phe Ile Tyr Gln Glu Val Ile Asp Leu Gly Gly Glu Pro
                245                 250                 255

Ile Lys Ser Ser Asp Tyr Phe Gly Asn Gly Arg Val Thr Glu Phe Lys
            260                 265                 270

Tyr Gly Ala Lys Leu Gly Thr Val Ile Arg Lys Trp Asn Gly Glu Lys
        275                 280                 285

Met Ser Tyr Leu Lys Asn Trp Gly Glu Gly Trp Gly Phe Met Pro Ser
    290                 295                 300

Asp Arg Ala Leu Val Phe Val Asp Asn His Asp Asn Gln Arg Gly His
305                 310                 315                 320

Gly Ala Gly Gly Ala Ser Ile Leu Thr Phe Trp Asp Ala Arg Leu Tyr
                325                 330                 335

Lys Met Ala Val Gly Phe Met Leu Ala His Pro Tyr Gly Phe Thr Arg
            340                 345                 350

Val Met Ser Ser Tyr Arg Trp Pro Arg Gln Phe Gln Asn Gly Asn Asp
        355                 360                 365

Val Asn Asp Trp Val Gly Pro Pro Asn Asn Asn Gly Val Ile Lys Glu
    370                 375                 380

Val Thr Ile Asn Pro Asp Thr Thr Cys Gly Asn Asp Trp Val Cys Glu
385                 390                 395                 400

His Arg Trp Arg Gln Ile Arg Asn Met Val Asn Phe Arg Asn Val Val
                405                 410                 415
```

```
Asp Gly Gln Pro Phe Thr Asn Trp Tyr Asp Asn Gly Ser Asn Gln Val
            420                 425                 430

Ala Phe Gly Arg Gly Asn Arg Gly Phe Ile Val Phe Asn Asn Asp Asp
        435                 440                 445

Trp Thr Phe Ser Leu Thr Leu Gln Thr Gly Leu Pro Ala Gly Thr Tyr
    450                 455                 460

Cys Asp Val Ile Ser Gly Asp Lys Ile Asn Gly Asn Cys Thr Gly Ile
465                 470                 475                 480

Lys Ile Tyr Val Ser Asp Asp Gly Lys Ala His Phe Ser Ile Ser Asn
                485                 490                 495

Ser Ala Glu Asp Pro Phe Ile Ala Ile His Ala Glu Ser Lys Leu
            500                 505                 510


<210> 4494
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<223> /note="Gene Name:
      amylo-alpha-1, 6-glucosidase,
      4-alpha-glucanotransferase; "

<220>
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<223> /note="Uniprot ID:  P35573; "

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Met Gly His Ser Lys Gln Ile Arg Ile Leu Leu Leu Asn Glu Met Glu
1               5                   10                  15
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```
Lys Leu Glu Lys Thr Leu Phe Arg Leu Glu Gln Gly Tyr Glu Leu Gln
            20                  25                  30

Phe Arg Leu Gly Pro Thr Leu Gln Gly Lys Ala Val Thr Val Tyr Thr
        35                  40                  45

Asn Tyr Pro Phe Pro Gly Glu Thr Phe Asn Arg Glu Lys Phe Arg Ser
    50                  55                  60

Leu Asp Trp Glu Asn Pro Thr Glu Arg Glu Asp Asp Ser Asp Lys Tyr
65                  70                  75                  80

Cys Lys Leu Asn Leu Gln Gln Ser Gly Ser Phe Gln Tyr Tyr Phe Leu
                85                  90                  95

Gln Gly Asn Glu Lys Ser Gly Gly Gly Tyr Ile Val Val Asp Pro Ile
            100                 105                 110

Leu Arg Val Gly Ala Asp Asn His Val Leu Pro Leu Asp Cys Val Thr
        115                 120                 125

Leu Gln Thr Phe Leu Ala Lys Cys Leu Gly Pro Phe Asp Glu Trp Glu
    130                 135                 140

Ser Arg Leu Arg Val Ala Lys Glu Ser Gly Tyr Asn Met Ile His Phe
145                 150                 155                 160

Thr Pro Leu Gln Thr Leu Gly Leu Ser Arg Ser Cys Tyr Ser Leu Ala
                165                 170                 175

Asn Gln Leu Glu Leu Asn Pro Asp Phe Ser Arg Pro Asn Arg Lys Tyr
            180                 185                 190

Thr Trp Asn Asp Val Gly Gln Leu Val Glu Lys Leu Lys Lys Glu Trp
        195                 200                 205

Asn Val Ile Cys Ile Thr Asp Val Val Tyr Asn His Thr Ala Ala Asn
    210                 215                 220

Ser Lys Trp Ile Gln Glu His Pro Glu Cys Ala Tyr Asn Leu Val Asn
225                 230                 235                 240
```

```
Ser Pro His Leu Lys Pro Ala Trp Val Leu Asp Arg Ala Leu Trp Arg
                245                 250                 255

Phe Ser Cys Asp Val Ala Glu Gly Lys Tyr Lys Glu Lys Gly Ile Pro
            260                 265                 270

Ala Leu Ile Glu Asn Asp His His Met Asn Ser Ile Arg Lys Ile Ile
        275                 280                 285

Trp Glu Asp Ile Phe Pro Lys Leu Lys Leu Trp Glu Phe Phe Gln Val
    290                 295                 300

Asp Val Asn Lys Ala Val Glu Gln Phe Arg Arg Leu Leu Thr Gln Glu
305                 310                 315                 320

Asn Arg Arg Val Thr Lys Ser Asp Pro Asn Gln His Leu Thr Ile Ile
                325                 330                 335

Gln Asp Pro Glu Tyr Arg Arg Phe Gly Cys Thr Val Asp Met Asn Ile
            340                 345                 350

Ala Leu Thr Thr Phe Ile Pro His Asp Lys Gly Pro Ala Ala Ile Glu
        355                 360                 365

Glu Cys Cys Asn Trp Phe His Lys Arg Met Glu Glu Leu Asn Ser Glu
    370                 375                 380

Lys His Arg Leu Ile Asn Tyr His Gln Glu Gln Ala Val Asn Cys Leu
385                 390                 395                 400

Leu Gly Asn Val Phe Tyr Glu Arg Leu Ala Gly His Gly Pro Lys Leu
                405                 410                 415

Gly Pro Val Thr Arg Lys His Pro Leu Val Thr Arg Tyr Phe Thr Phe
            420                 425                 430

Pro Phe Glu Glu Ile Asp Phe Ser Met Glu Glu Ser Met Ile His Leu
        435                 440                 445

Pro Asn Lys Ala Cys Phe Leu Met Ala His Asn Gly Trp Val Met Gly
    450                 455                 460

Asp Asp Pro Leu Arg Asn Phe Ala Glu Pro Gly Ser Glu Val Tyr Leu
```

```
465                 470                 475                 480

Arg Arg Glu Leu Ile Cys Trp Gly Asp Ser Val Lys Leu Arg Tyr Gly
                485                 490                 495

Asn Lys Pro Glu Asp Cys Pro Tyr Leu Trp Ala His Met Lys Lys Tyr
            500                 505                 510

Thr Glu Ile Thr Ala Thr Tyr Phe Gln Gly Val Arg Leu Asp Asn Cys
        515                 520                 525

His Ser Thr Pro Leu His Val Ala Glu Tyr Met Leu Asp Ala Ala Arg
    530                 535                 540

Asn Leu Gln Pro Asn Leu Tyr Val Val Ala Glu Leu Phe Thr Gly Ser
545                 550                 555                 560

Glu Asp Leu Asp Asn Val Phe Val Thr Arg Leu Gly Ile Ser Ser Leu
                565                 570                 575

Ile Arg Glu Ala Met Ser Ala Tyr Asn Ser His Glu Glu Gly Arg Leu
            580                 585                 590

Val Tyr Arg Tyr Gly Gly Glu Pro Val Gly Ser Phe Val Gln Pro Cys
        595                 600                 605

Leu Arg Pro Leu Met Pro Ala Ile Ala His Ala Leu Phe Met Asp Ile
    610                 615                 620

Thr His Asp Asn Glu Cys Pro Ile Val His Arg Ser Ala Tyr Asp Ala
625                 630                 635                 640

Leu Pro Ser Thr Thr Ile Val Ser Met Ala Cys Cys Ala Ser Gly Ser
                645                 650                 655

Thr Arg Gly Tyr Asp Glu Leu Val Pro His Gln Ile Ser Val Val Ser
            660                 665                 670

Glu Glu Arg Phe Tyr Thr Lys Trp Asn Pro Glu Ala Leu Pro Ser Asn
        675                 680                 685

Thr Gly Glu Val Asn Phe Gln Ser Gly Ile Ile Ala Ala Arg Cys Ala
    690                 695                 700
```

```
Ile Ser Lys Leu His Gln Glu Leu Gly Ala Lys Gly Phe Ile Gln Val
705                 710                 715                 720

Tyr Val Asp Gln Val Asp Glu Asp Ile Val Ala Val Thr Arg His Ser
                725                 730                 735

Pro Ser Ile His Gln Ser Val Val Ala Val Ser Arg Thr Ala Phe Arg
            740                 745                 750

Asn Pro Lys Thr Ser Phe Tyr Ser Lys Glu Val Pro Gln Met Cys Ile
        755                 760                 765

Pro Gly Lys Ile Glu Glu Val Val Leu Glu Ala Arg Thr Ile Glu Arg
    770                 775                 780

Asn Thr Lys Pro Tyr Arg Lys Asp Glu Asn Ser Ile Asn Gly Thr Pro
785                 790                 795                 800

Asp Ile Thr Val Glu Ile Arg Glu His Ile Gln Leu Asn Glu Ser Lys
                805                 810                 815

Ile Val Lys Gln Ala Gly Val Ala Thr Lys Gly Pro Asn Glu Tyr Ile
            820                 825                 830

Gln Glu Ile Glu Phe Glu Asn Leu Ser Pro Gly Ser Val Ile Ile Phe
        835                 840                 845

Arg Val Ser Leu Asp Pro His Ala Gln Val Ala Val Gly Ile Leu Arg
    850                 855                 860

Asn His Leu Thr Gln Phe Ser Pro His Phe Lys Ser Gly Ser Leu Ala
865                 870                 875                 880

Val Asp Asn Ala Asp Pro Ile Leu Lys Ile Pro Phe Ala Ser Leu Ala
                885                 890                 895

Ser Arg Leu Thr Leu Ala Glu Leu Asn Gln Ile Leu Tyr Arg Cys Glu
            900                 905                 910

Ser Glu Glu Lys Glu Asp Gly Gly Gly Cys Tyr Asp Ile Pro Asn Trp
        915                 920                 925
```

```
Ser Ala Leu Lys Tyr Ala Gly Leu Gln Gly Leu Met Ser Val Leu Ala
    930                 935                 940

Glu Ile Arg Pro Lys Asn Asp Leu Gly His Pro Phe Cys Asn Asn Leu
945                 950                 955                 960

Arg Ser Gly Asp Trp Met Ile Asp Tyr Val Ser Asn Arg Leu Ile Ser
                965                 970                 975

Arg Ser Gly Thr Ile Ala Glu Val Gly Lys Trp Leu Gln Ala Met Phe
            980                 985                 990

Phe Tyr Leu Lys Gln Ile Pro Arg  Tyr Leu Ile Pro Cys  Tyr Phe
Asp
        995                 1000                1005

Ala Ile  Leu Ile Gly Ala Tyr  Thr Thr Leu Leu Asp  Thr Ala Trp
    1010                1015                1020

Lys Gln  Met Ser Ser Phe Val  Gln Asn Gly Ser Thr  Phe Val Lys
    1025                1030                1035

His Leu  Ser Leu Gly Ser Val  Gln Leu Cys Gly Val  Gly Lys Phe
    1040                1045                1050

Pro Ser  Leu Pro Ile Leu Ser  Pro Ala Leu Met Asp  Val Pro Tyr
    1055                1060                1065

Arg Leu  Asn Glu Ile Thr Lys  Glu Lys Glu Gln Cys  Cys Val Ser
    1070                1075                1080

Leu Ala  Ala Gly Leu Pro His  Phe Ser Ser Gly Ile  Phe Arg Cys
    1085                1090                1095

Trp Gly  Arg Asp Thr Phe Ile  Ala Leu Arg Gly Ile  Leu Leu Ile
    1100                1105                1110

Thr Gly  Arg Tyr Val Glu Ala  Arg Asn Ile Ile Leu  Ala Phe Ala
    1115                1120                1125

Gly Thr  Leu Arg His Gly Leu  Ile Pro Asn Leu Leu  Gly Glu Gly
    1130                1135                1140
```

```
Ile Tyr  Ala Arg Tyr Asn Cys  Arg Asp Ala Val Trp  Trp Trp Leu
    1145                1150                1155

Gln Cys  Ile Gln Asp Tyr Cys  Lys Met Val Pro Asn  Gly Leu Asp
    1160                1165                1170

Ile Leu  Lys Cys Pro Val Ser  Arg Met Tyr Pro Thr  Asp Asp Ser
    1175                1180                1185

Ala Pro  Leu Pro Ala Gly Thr  Leu Asp Gln Pro Leu  Phe Glu Val
    1190                1195                1200

Ile Gln  Glu Ala Met Gln Lys  His Met Gln Gly Ile  Gln Phe Arg
    1205                1210                1215

Glu Arg  Asn Ala Gly Pro Gln  Ile Asp Arg Asn Met  Lys Asp Glu
    1220                1225                1230

Gly Phe  Asn Ile Thr Ala Gly  Val Asp Glu Glu Thr  Gly Phe Val
    1235                1240                1245

Tyr Gly  Gly Asn Arg Phe Asn  Cys Gly Thr Trp Met  Asp Lys Met
    1250                1255                1260

Gly Glu  Ser Asp Arg Ala Arg  Asn Arg Gly Ile Pro  Ala Thr Pro
    1265                1270                1275

Arg Asp  Gly Ser Ala Val Glu  Ile Val Gly Leu Ser  Lys Ser Ala
    1280                1285                1290

Val Arg  Trp Leu Leu Glu Leu  Ser Lys Lys Asn Ile  Phe Pro Tyr
    1295                1300                1305

His Glu  Val Thr Val Lys Arg  His Gly Lys Ala Ile  Lys Val Ser
    1310                1315                1320

Tyr Asp  Glu Trp Asn Arg Lys  Ile Gln Asp Asn Phe  Glu Lys Leu
    1325                1330                1335

Phe His  Val Ser Glu Asp Pro  Ser Asp Leu Asn Glu  Lys His Pro
    1340                1345                1350
```

```
Asn Leu  Val His Lys Arg Gly  Ile Tyr Lys Asp Ser  Tyr Gly Ala
    1355                1360                1365

Ser Ser  Pro Trp Cys Asp Tyr  Gln Leu Arg Pro Asn  Phe Thr Ile
    1370                1375                1380

Ala Met  Val Val Ala Pro Glu  Leu Phe Thr Thr Glu  Lys Ala Trp
    1385                1390                1395

Lys Ala  Leu Glu Ile Ala Glu  Lys Lys Leu Leu Gly  Pro Leu Gly
    1400                1405                1410

Met Lys  Thr Leu Asp Pro Asp  Asp Met Val Tyr Cys  Gly Ile Tyr
    1415                1420                1425

Asp Asn  Ala Leu Asp Asn Asp  Asn Tyr Asn Leu Ala  Lys Gly Phe
    1430                1435                1440

Asn Tyr  His Gln Gly Pro Glu  Trp Leu Trp Pro Ile  Gly Tyr Phe
    1445                1450                1455

Leu Arg  Ala Lys Leu Tyr Phe  Ser Arg Leu Met Gly  Pro Glu Thr
    1460                1465                1470

Thr Ala  Lys Thr Ile Val Leu  Val Lys Asn Val Leu  Ser Arg His
    1475                1480                1485

Tyr Val  His Leu Glu Arg Ser  Pro Trp Lys Gly Leu  Pro Glu Leu
    1490                1495                1500

Thr Asn  Glu Asn Ala Gln Tyr  Cys Pro Phe Ser Cys  Glu Thr Gln
    1505                1510                1515

Ala Trp  Ser Ile Ala Thr Ile  Leu Glu Thr Leu Tyr  Asp Leu
    1520                1525                1530


<210> 4495
<211> 1515
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 1006; "
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<220>
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<223> /note="Gene Name:
amylo-alpha-1, 6-glucosidase,
4-alpha-glucanotransferase; "

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Met Ser Leu Leu Thr Cys Ala Phe Tyr Leu Gly Tyr Glu Leu Gln Phe
1   5   10   15

Arg Leu Gly Pro Thr Leu Gln Gly Lys Ala Val Thr Val Tyr Thr Asn
            20   25   30

Tyr Pro Phe Pro Gly Glu Thr Phe Asn Arg Glu Lys Phe Arg Ser Leu
        35   40   45

Asp Trp Glu Asn Pro Thr Glu Arg Glu Asp Asp Ser Asp Lys Tyr Cys
    50   55   60

Lys Leu Asn Leu Gln Gln Ser Gly Ser Phe Gln Tyr Tyr Phe Leu Gln
65   70   75   80

Gly Asn Glu Lys Ser Gly Gly Gly Tyr Ile Val Val Asp Pro Ile Leu
                85   90   95

Arg Val Gly Ala Asp Asn His Val Leu Pro Leu Asp Cys Val Thr Leu
            100   105   110

Gln Thr Phe Leu Ala Lys Cys Leu Gly Pro Phe Asp Glu Trp Glu Ser
        115   120   125

Arg Leu Arg Val Ala Lys Glu Ser Gly Tyr Asn Met Ile His Phe Thr
    130   135   140

Pro Leu Gln Thr Leu Gly Leu Ser Arg Ser Cys Tyr Ser Leu Ala Asn
145   150   155   160

```
Gln Leu Glu Leu Asn Pro Asp Phe Ser Arg Pro Asn Arg Lys Tyr Thr
                165                 170                 175

Trp Asn Asp Val Gly Gln Leu Val Glu Lys Leu Lys Lys Glu Trp Asn
            180                 185                 190

Val Ile Cys Ile Thr Asp Val Val Tyr Asn His Thr Ala Ala Asn Ser
        195                 200                 205

Lys Trp Ile Gln Glu His Pro Glu Cys Ala Tyr Asn Leu Val Asn Ser
    210                 215                 220

Pro His Leu Lys Pro Ala Trp Val Leu Asp Arg Ala Leu Trp Arg Phe
225                 230                 235                 240

Ser Cys Asp Val Ala Glu Gly Lys Tyr Lys Glu Lys Gly Ile Pro Ala
                245                 250                 255

Leu Ile Glu Asn Asp His His Met Asn Ser Ile Arg Lys Ile Ile Trp
            260                 265                 270

Glu Asp Ile Phe Pro Lys Leu Lys Leu Trp Glu Phe Phe Gln Val Asp
        275                 280                 285

Val Asn Lys Ala Val Glu Gln Phe Arg Arg Leu Leu Thr Gln Glu Asn
    290                 295                 300

Arg Arg Val Thr Lys Ser Asp Pro Asn Gln His Leu Thr Ile Ile Gln
305                 310                 315                 320

Asp Pro Glu Tyr Arg Arg Phe Gly Cys Thr Val Asp Met Asn Ile Ala
                325                 330                 335

Leu Thr Thr Phe Ile Pro His Asp Lys Gly Pro Ala Ala Ile Glu Glu
            340                 345                 350

Cys Cys Asn Trp Phe His Lys Arg Met Glu Glu Leu Asn Ser Glu Lys
        355                 360                 365

His Arg Leu Ile Asn Tyr His Gln Glu Gln Ala Val Asn Cys Leu Leu
    370                 375                 380
```

```
Gly Asn Val Phe Tyr Glu Arg Leu Ala Gly His Gly Pro Lys Leu Gly
385                 390                 395                 400

Pro Val Thr Arg Lys His Pro Leu Val Thr Arg Tyr Phe Thr Phe Pro
                405                 410                 415

Phe Glu Glu Ile Asp Phe Ser Met Glu Glu Ser Met Ile His Leu Pro
            420                 425                 430

Asn Lys Ala Cys Phe Leu Met Ala His Asn Gly Trp Val Met Gly Asp
        435                 440                 445

Asp Pro Leu Arg Asn Phe Ala Glu Pro Gly Ser Glu Val Tyr Leu Arg
    450                 455                 460

Arg Glu Leu Ile Cys Trp Gly Asp Ser Val Lys Leu Arg Tyr Gly Asn
465                 470                 475                 480

Lys Pro Glu Asp Cys Pro Tyr Leu Trp Ala His Met Lys Lys Tyr Thr
                485                 490                 495

Glu Ile Thr Ala Thr Tyr Phe Gln Gly Val Arg Leu Asp Asn Cys His
            500                 505                 510

Ser Thr Pro Leu His Val Ala Glu Tyr Met Leu Asp Ala Ala Arg Asn
        515                 520                 525

Leu Gln Pro Asn Leu Tyr Val Val Ala Glu Leu Phe Thr Gly Ser Glu
    530                 535                 540

Asp Leu Asp Asn Val Phe Val Thr Arg Leu Gly Ile Ser Ser Leu Ile
545                 550                 555                 560

Arg Glu Ala Met Ser Ala Tyr Asn Ser His Glu Glu Gly Arg Leu Val
                565                 570                 575

Tyr Arg Tyr Gly Gly Glu Pro Val Gly Ser Phe Val Gln Pro Cys Leu
            580                 585                 590

Arg Pro Leu Met Pro Ala Ile Ala His Ala Leu Phe Met Asp Ile Thr
        595                 600                 605
```

```
His Asp Asn Glu Cys Pro Ile Val His Arg Ser Ala Tyr Asp Ala Leu
    610                 615                 620

Pro Ser Thr Thr Ile Val Ser Met Ala Cys Cys Ala Ser Gly Ser Thr
625                 630                 635                 640

Arg Gly Tyr Asp Glu Leu Val Pro His Gln Ile Ser Val Val Ser Glu
                645                 650                 655

Glu Arg Phe Tyr Thr Lys Trp Asn Pro Glu Ala Leu Pro Ser Asn Thr
            660                 665                 670

Gly Glu Val Asn Phe Gln Ser Gly Ile Ile Ala Ala Arg Cys Ala Ile
        675                 680                 685

Ser Lys Leu His Gln Glu Leu Gly Ala Lys Gly Phe Ile Gln Val Tyr
    690                 695                 700

Val Asp Gln Val Asp Glu Asp Ile Val Ala Val Thr Arg His Ser Pro
705                 710                 715                 720

Ser Ile His Gln Ser Val Val Ala Val Ser Arg Thr Ala Phe Arg Asn
                725                 730                 735

Pro Lys Thr Ser Phe Tyr Ser Lys Glu Val Pro Gln Met Cys Ile Pro
            740                 745                 750

Gly Lys Ile Glu Glu Val Val Leu Glu Ala Arg Thr Ile Glu Arg Asn
        755                 760                 765

Thr Lys Pro Tyr Arg Lys Asp Glu Asn Ser Ile Asn Gly Thr Pro Asp
    770                 775                 780

Ile Thr Val Glu Ile Arg Glu His Ile Gln Leu Asn Glu Ser Lys Ile
785                 790                 795                 800

Val Lys Gln Ala Gly Val Ala Thr Lys Gly Pro Asn Glu Tyr Ile Gln
                805                 810                 815

Glu Ile Glu Phe Glu Asn Leu Ser Pro Gly Ser Val Ile Ile Phe Arg
            820                 825                 830

Val Ser Leu Asp Pro His Ala Gln Val Ala Val Gly Ile Leu Arg Asn
```

```
        835                 840                 845

His Leu Thr Gln Phe Ser Pro His Phe Lys Ser Gly Ser Leu Ala Val
    850                 855                 860

Asp Asn Ala Asp Pro Ile Leu Lys Ile Pro Phe Ala Ser Leu Ala Ser
865                 870                 875                 880

Arg Leu Thr Leu Ala Glu Leu Asn Gln Ile Leu Tyr Arg Cys Glu Ser
                885                 890                 895

Glu Glu Lys Glu Asp Gly Gly Gly Cys Tyr Asp Ile Pro Asn Trp Ser
            900                 905                 910

Ala Leu Lys Tyr Ala Gly Leu Gln Gly Leu Met Ser Val Leu Ala Glu
        915                 920                 925

Ile Arg Pro Lys Asn Asp Leu Gly His Pro Phe Cys Asn Asn Leu Arg
    930                 935                 940

Ser Gly Asp Trp Met Ile Asp Tyr Val Ser Asn Arg Leu Ile Ser Arg
945                 950                 955                 960

Ser Gly Thr Ile Ala Glu Val Gly Lys Trp Leu Gln Ala Met Phe Phe
                965                 970                 975

Tyr Leu Lys Gln Ile Pro Arg Tyr Leu Ile Pro Cys Tyr Phe Asp Ala
            980                 985                 990

Ile Leu Ile Gly Ala Tyr Thr Thr  Leu Leu Asp Thr Ala  Trp Lys
Gln
        995                 1000                1005

Met Ser  Ser Phe Val Gln Asn  Gly Ser Thr Phe Val  Lys His Leu
    1010                1015                1020

Ser Leu  Gly Ser Val Gln Leu  Cys Gly Val Gly Lys  Phe Pro Ser
    1025                1030                1035

Leu Pro  Ile Leu Ser Pro Ala  Leu Met Asp Val Pro  Tyr Arg Leu
    1040                1045                1050

Asn Glu  Ile Thr Lys Glu Lys  Glu Gln Cys Cys Val  Ser Leu Ala
```

1055 1060 1065

Ala Gly Leu Pro His Phe Ser Ser Gly Ile Phe Arg Cys Trp Gly
1070 1075 1080

Arg Asp Thr Phe Ile Ala Leu Arg Gly Ile Leu Leu Ile Thr Gly
1085 1090 1095

Arg Tyr Val Glu Ala Arg Asn Ile Ile Leu Ala Phe Ala Gly Thr
1100 1105 1110

Leu Arg His Gly Leu Ile Pro Asn Leu Leu Gly Glu Gly Ile Tyr
1115 1120 1125

Ala Arg Tyr Asn Cys Arg Asp Ala Val Trp Trp Trp Leu Gln Cys
1130 1135 1140

Ile Gln Asp Tyr Cys Lys Met Val Pro Asn Gly Leu Asp Ile Leu
1145 1150 1155

Lys Cys Pro Val Ser Arg Met Tyr Pro Thr Asp Asp Ser Ala Pro
1160 1165 1170

Leu Pro Ala Gly Thr Leu Asp Gln Pro Leu Phe Glu Val Ile Gln
1175 1180 1185

Glu Ala Met Gln Lys His Met Gln Gly Ile Gln Phe Arg Glu Arg
1190 1195 1200

Asn Ala Gly Pro Gln Ile Asp Arg Asn Met Lys Asp Glu Gly Phe
1205 1210 1215

Asn Ile Thr Ala Gly Val Asp Glu Glu Thr Gly Phe Val Tyr Gly
1220 1225 1230

Gly Asn Arg Phe Asn Cys Gly Thr Trp Met Asp Lys Met Gly Glu
1235 1240 1245

Ser Asp Arg Ala Arg Asn Arg Gly Ile Pro Ala Thr Pro Arg Asp
1250 1255 1260

Gly Ser Ala Val Glu Ile Val Gly Leu Ser Lys Ser Ala Val Arg
1265 1270 1275

```
Trp Leu  Leu Glu Leu Ser Lys  Lys Asn Ile Phe Pro  Tyr His Glu
    1280                 1285                 1290

Val Thr  Val Lys Arg His Gly  Lys Ala Ile Lys Val  Ser Tyr Asp
    1295                 1300                 1305

Glu Trp  Asn Arg Lys Ile Gln  Asp Asn Phe Glu Lys  Leu Phe His
    1310                 1315                 1320

Val Ser  Glu Asp Pro Ser Asp  Leu Asn Glu Lys His  Pro Asn Leu
    1325                 1330                 1335

Val His  Lys Arg Gly Ile Tyr  Lys Asp Ser Tyr Gly  Ala Ser Ser
    1340                 1345                 1350

Pro Trp  Cys Asp Tyr Gln Leu  Arg Pro Asn Phe Thr  Ile Ala Met
    1355                 1360                 1365

Val Val  Ala Pro Glu Leu Phe  Thr Thr Glu Lys Ala  Trp Lys Ala
    1370                 1375                 1380

Leu Glu  Ile Ala Glu Lys Lys  Leu Leu Gly Pro Leu  Gly Met Lys
    1385                 1390                 1395

Thr Leu  Asp Pro Asp Asp Met  Val Tyr Cys Gly Ile  Tyr Asp Asn
    1400                 1405                 1410

Ala Leu  Asp Asn Asp Asn Tyr  Asn Leu Ala Lys Gly  Phe Asn Tyr
    1415                 1420                 1425

His Gln  Gly Pro Glu Trp Leu  Trp Pro Ile Gly Tyr  Phe Leu Arg
    1430                 1435                 1440

Ala Lys  Leu Tyr Phe Ser Arg  Leu Met Gly Pro Glu  Thr Thr Ala
    1445                 1450                 1455

Lys Thr  Ile Val Leu Val Lys  Asn Val Leu Ser Arg  His Tyr Val
    1460                 1465                 1470

His Leu  Glu Arg Ser Pro Trp  Lys Gly Leu Pro Glu  Leu Thr Asn
    1475                 1480                 1485
```

```
Glu Asn  Ala Gln Tyr Cys Pro  Phe Ser Cys Glu Thr  Gln Ala Trp
    1490                1495                1500


Ser Ile  Ala Thr Ile Leu Glu  Thr Leu Tyr Asp Leu
    1505                1510                1515


<210> 4496
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<212> PRT
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<220>
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<220>
<221> source
<223> /note="Gene Symbol: AGL; "

<220>
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<223> /note="Gene Name:
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      4-alpha-glucanotransferase; "

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<400> 4496
Met Ala Pro Ile Leu Ser Ile Asn Leu Phe Ile Gly Tyr Glu Leu Gln
1               5                  10                  15


Phe Arg Leu Gly Pro Thr Leu Gln Gly Lys Ala Val Thr Val Tyr Thr
            20                  25                  30


Asn Tyr Pro Phe Pro Gly Glu Thr Phe Asn Arg Glu Lys Phe Arg Ser
        35                  40                  45


Leu Asp Trp Glu Asn Pro Thr Glu Arg Glu Asp Asp Ser Asp Lys Tyr
    50                  55                  60


Cys Lys Leu Asn Leu Gln Gln Ser Gly Ser Phe Gln Tyr Tyr Phe Leu
65                  70                  75                  80
```

```
Gln Gly Asn Glu Lys Ser Gly Gly Gly Tyr Ile Val Val Asp Pro Ile
                85                  90                  95

Leu Arg Val Gly Ala Asp Asn His Val Leu Pro Leu Asp Cys Val Thr
            100                 105                 110

Leu Gln Thr Phe Leu Ala Lys Cys Leu Gly Pro Phe Asp Glu Trp Glu
        115                 120                 125

Ser Arg Leu Arg Val Ala Lys Glu Ser Gly Tyr Asn Met Ile His Phe
    130                 135                 140

Thr Pro Leu Gln Thr Leu Gly Leu Ser Arg Ser Cys Tyr Ser Leu Ala
145                 150                 155                 160

Asn Gln Leu Glu Leu Asn Pro Asp Phe Ser Arg Pro Asn Arg Lys Tyr
                165                 170                 175

Thr Trp Asn Asp Val Gly Gln Leu Val Glu Lys Leu Lys Lys Glu Trp
            180                 185                 190

Asn Val Ile Cys Ile Thr Asp Val Val Tyr Asn His Thr Ala Ala Asn
        195                 200                 205

Ser Lys Trp Ile Gln Glu His Pro Glu Cys Ala Tyr Asn Leu Val Asn
    210                 215                 220

Ser Pro His Leu Lys Pro Ala Trp Val Leu Asp Arg Ala Leu Trp Arg
225                 230                 235                 240

Phe Ser Cys Asp Val Ala Glu Gly Lys Tyr Lys Glu Lys Gly Ile Pro
                245                 250                 255

Ala Leu Ile Glu Asn Asp His His Met Asn Ser Ile Arg Lys Ile Ile
            260                 265                 270

Trp Glu Asp Ile Phe Pro Lys Leu Lys Leu Trp Glu Phe Phe Gln Val
        275                 280                 285

Asp Val Asn Lys Ala Val Glu Gln Phe Arg Arg Leu Leu Thr Gln Glu
    290                 295                 300

Asn Arg Arg Val Thr Lys Ser Asp Pro Asn Gln His Leu Thr Ile Ile
```

305 310 315 320

Gln Asp Pro Glu Tyr Arg Arg Phe Gly Cys Thr Val Asp Met Asn Ile
325 330 335

Ala Leu Thr Thr Phe Ile Pro His Asp Lys Gly Pro Ala Ala Ile Glu
340 345 350

Glu Cys Cys Asn Trp Phe His Lys Arg Met Glu Glu Leu Asn Ser Glu
355 360 365

Lys His Arg Leu Ile Asn Tyr His Gln Glu Gln Ala Val Asn Cys Leu
370 375 380

Leu Gly Asn Val Phe Tyr Glu Arg Leu Ala Gly His Gly Pro Lys Leu
385 390 395 400

Gly Pro Val Thr Arg Lys His Pro Leu Val Thr Arg Tyr Phe Thr Phe
405 410 415

Pro Phe Glu Glu Ile Asp Phe Ser Met Glu Glu Ser Met Ile His Leu
420 425 430

Pro Asn Lys Ala Cys Phe Leu Met Ala His Asn Gly Trp Val Met Gly
435 440 445

Asp Asp Pro Leu Arg Asn Phe Ala Glu Pro Gly Ser Glu Val Tyr Leu
450 455 460

Arg Arg Glu Leu Ile Cys Trp Gly Asp Ser Val Lys Leu Arg Tyr Gly
465 470 475 480

Asn Lys Pro Glu Asp Cys Pro Tyr Leu Trp Ala His Met Lys Lys Tyr
485 490 495

Thr Glu Ile Thr Ala Thr Tyr Phe Gln Gly Val Arg Leu Asp Asn Cys
500 505 510

His Ser Thr Pro Leu His Val Ala Glu Tyr Met Leu Asp Ala Ala Arg
515 520 525

Asn Leu Gln Pro Asn Leu Tyr Val Val Ala Glu Leu Phe Thr Gly Ser
530 535 540

```
Glu Asp Leu Asp Asn Val Phe Val Thr Arg Leu Gly Ile Ser Ser Leu
545                 550                 555                 560

Ile Arg Glu Ala Met Ser Ala Tyr Asn Ser His Glu Glu Gly Arg Leu
                565                 570                 575

Val Tyr Arg Tyr Gly Gly Glu Pro Val Gly Ser Phe Val Gln Pro Cys
            580                 585                 590

Leu Arg Pro Leu Met Pro Ala Ile Ala His Ala Leu Phe Met Asp Ile
        595                 600                 605

Thr His Asp Asn Glu Cys Pro Ile Val His Arg Ser Ala Tyr Asp Ala
    610                 615                 620

Leu Pro Ser Thr Thr Ile Val Ser Met Ala Cys Cys Ala Ser Gly Ser
625                 630                 635                 640

Thr Arg Gly Tyr Asp Glu Leu Val Pro His Gln Ile Ser Val Val Ser
                645                 650                 655

Glu Glu Arg Phe Tyr Thr Lys Trp Asn Pro Glu Ala Leu Pro Ser Asn
            660                 665                 670

Thr Gly Glu Val Asn Phe Gln Ser Gly Ile Ile Ala Ala Arg Cys Ala
        675                 680                 685

Ile Ser Lys Leu His Gln Glu Leu Gly Ala Lys Gly Phe Ile Gln Val
    690                 695                 700

Tyr Val Asp Gln Val Asp Glu Asp Ile Val Ala Val Thr Arg His Ser
705                 710                 715                 720

Pro Ser Ile His Gln Ser Val Val Ala Val Ser Arg Thr Ala Phe Arg
                725                 730                 735

Asn Pro Lys Thr Ser Phe Tyr Ser Lys Glu Val Pro Gln Met Cys Ile
            740                 745                 750

Pro Gly Lys Ile Glu Glu Val Val Leu Glu Ala Arg Thr Ile Glu Arg
        755                 760                 765
```

```
Asn Thr Lys Pro Tyr Arg Lys Asp Glu Asn Ser Ile Asn Gly Thr Pro
    770                 775                 780

Asp Ile Thr Val Glu Ile Arg Glu His Ile Gln Leu Asn Glu Ser Lys
785                 790                 795                 800

Ile Val Lys Gln Ala Gly Val Ala Thr Lys Gly Pro Asn Glu Tyr Ile
                805                 810                 815

Gln Glu Ile Glu Phe Glu Asn Leu Ser Pro Gly Ser Val Ile Ile Phe
            820                 825                 830

Arg Val Ser Leu Asp Pro His Ala Gln Val Ala Val Gly Ile Leu Arg
        835                 840                 845

Asn His Leu Thr Gln Phe Ser Pro His Phe Lys Ser Gly Ser Leu Ala
    850                 855                 860

Val Asp Asn Ala Asp Pro Ile Leu Lys Ile Pro Phe Ala Ser Leu Ala
865                 870                 875                 880

Ser Arg Leu Thr Leu Ala Glu Leu Asn Gln Ile Leu Tyr Arg Cys Glu
                885                 890                 895

Ser Glu Glu Lys Glu Asp Gly Gly Gly Cys Tyr Asp Ile Pro Asn Trp
            900                 905                 910

Ser Ala Leu Lys Tyr Ala Gly Leu Gln Gly Leu Met Ser Val Leu Ala
        915                 920                 925

Glu Ile Arg Pro Lys Asn Asp Leu Gly His Pro Phe Cys Asn Asn Leu
    930                 935                 940

Arg Ser Gly Asp Trp Met Ile Asp Tyr Val Ser Asn Arg Leu Ile Ser
945                 950                 955                 960

Arg Ser Gly Thr Ile Ala Glu Val Gly Lys Trp Leu Gln Ala Met Phe
                965                 970                 975

Phe Tyr Leu Lys Gln Ile Pro Arg Tyr Leu Ile Pro Cys Tyr Phe Asp
            980                 985                 990
```

```
Ala Ile Leu Ile Gly Ala Tyr Thr  Thr Leu Leu Asp Thr  Ala Trp
Lys
        995                 1000                1005

Gln Met  Ser Ser Phe Val Gln  Asn Gly Ser Thr Phe  Val Lys His
    1010                1015                1020

Leu Ser  Leu Gly Ser Val Gln  Leu Cys Gly Val Gly  Lys Phe Pro
    1025                1030                1035

Ser Leu  Pro Ile Leu Ser Pro  Ala Leu Met Asp Val  Pro Tyr Arg
    1040                1045                1050

Leu Asn  Glu Ile Thr Lys Glu  Lys Glu Gln Cys Cys  Val Ser Leu
    1055                1060                1065

Ala Ala  Gly Leu Pro His Phe  Ser Ser Gly Ile Phe  Arg Cys Trp
    1070                1075                1080

Gly Arg  Asp Thr Phe Ile Ala  Leu Arg Gly Ile Leu  Leu Ile Thr
    1085                1090                1095

Gly Arg  Tyr Val Glu Ala Arg  Asn Ile Ile Leu Ala  Phe Ala Gly
    1100                1105                1110

Thr Leu  Arg His Gly Leu Ile  Pro Asn Leu Leu Gly  Glu Gly Ile
    1115                1120                1125

Tyr Ala  Arg Tyr Asn Cys Arg  Asp Ala Val Trp Trp  Trp Leu Gln
    1130                1135                1140

Cys Ile  Gln Asp Tyr Cys Lys  Met Val Pro Asn Gly  Leu Asp Ile
    1145                1150                1155

Leu Lys  Cys Pro Val Ser Arg  Met Tyr Pro Thr Asp  Asp Ser Ala
    1160                1165                1170

Pro Leu  Pro Ala Gly Thr Leu  Asp Gln Pro Leu Phe  Glu Val Ile
    1175                1180                1185

Gln Glu  Ala Met Gln Lys His  Met Gln Gly Ile Gln  Phe Arg Glu
    1190                1195                1200
```

```
Arg Asn  Ala Gly Pro Gln Ile  Asp Arg Asn Met Lys  Asp Glu Gly
    1205                 1210                 1215

Phe Asn  Ile Thr Ala Gly Val  Asp Glu Glu Thr Gly  Phe Val Tyr
    1220                 1225                 1230

Gly Gly  Asn Arg Phe Asn Cys  Gly Thr Trp Met Asp  Lys Met Gly
    1235                 1240                 1245

Glu Ser  Asp Arg Ala Arg Asn  Arg Gly Ile Pro Ala  Thr Pro Arg
    1250                 1255                 1260

Asp Gly  Ser Ala Val Glu Ile  Val Gly Leu Ser Lys  Ser Ala Val
    1265                 1270                 1275

Arg Trp  Leu Leu Glu Leu Ser  Lys Lys Asn Ile Phe  Pro Tyr His
    1280                 1285                 1290

Glu Val  Thr Val Lys Arg His  Gly Lys Ala Ile Lys  Val Ser Tyr
    1295                 1300                 1305

Asp Glu  Trp Asn Arg Lys Ile  Gln Asp Asn Phe Glu  Lys Leu Phe
    1310                 1315                 1320

His Val  Ser Glu Asp Pro Ser  Asp Leu Asn Glu Lys  His Pro Asn
    1325                 1330                 1335

Leu Val  His Lys Arg Gly Ile  Tyr Lys Asp Ser Tyr  Gly Ala Ser
    1340                 1345                 1350

Ser Pro  Trp Cys Asp Tyr Gln  Leu Arg Pro Asn Phe  Thr Ile Ala
    1355                 1360                 1365

Met Val  Val Ala Pro Glu Leu  Phe Thr Thr Glu Lys  Ala Trp Lys
    1370                 1375                 1380

Ala Leu  Glu Ile Ala Glu Lys  Lys Leu Leu Gly Pro  Leu Gly Met
    1385                 1390                 1395

Lys Thr  Leu Asp Pro Asp Asp  Met Val Tyr Cys Gly  Ile Tyr Asp
    1400                 1405                 1410

Asn Ala  Leu Asp Asn Asp Asn  Tyr Asn Leu Ala Lys  Gly Phe Asn
```

```
    1415                1420                1425

Tyr His  Gln Gly Pro Glu Trp  Leu Trp Pro Ile Gly  Tyr Phe Leu
    1430                1435                1440

Arg Ala  Lys Leu Tyr Phe Ser  Arg Leu Met Gly Pro  Glu Thr Thr
    1445                1450                1455

Ala Lys  Thr Ile Val Leu Val  Lys Asn Val Leu Ser  Arg His Tyr
    1460                1465                1470

Val His  Leu Glu Arg Ser Pro  Trp Lys Gly Leu Pro  Glu Leu Thr
    1475                1480                1485

Asn Glu  Asn Ala Gln Tyr Cys  Pro Phe Ser Cys Glu  Thr Gln Ala
    1490                1495                1500

Trp Ser  Ile Ala Thr Ile Leu  Glu Thr Leu Tyr Asp  Leu
    1505                1510                1515


<210> 4497
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<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<223> /note="Gene Name:
      amylo-alpha-1, 6-glucosidase,
      4-alpha-glucanotransferase; "

<220>
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<223> /note="Uniprot ID:  P35573; "

<220>
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Met Gly His Ser Lys Gln Ile Arg Ile Leu Leu Leu Asn Glu Met Glu
1               5                  10                  15
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Lys Leu Glu Lys Thr Leu Phe Arg Leu Glu Gln Gly Tyr Glu Leu Gln
            20                  25                  30

Phe Arg Leu Gly Pro Thr Leu Gln Gly Lys Ala Val Thr Val Tyr Thr
        35                  40                  45

Asn Tyr Pro Phe Pro Gly Glu Thr Phe Asn Arg Glu Lys Phe Arg Ser
    50                  55                  60

Leu Asp Trp Glu Asn Pro Thr Glu Arg Glu Asp Asp Ser Asp Lys Tyr
65                  70                  75                  80

Cys Lys Leu Asn Leu Gln Gln Ser Gly Ser Phe Gln Tyr Tyr Phe Leu
                85                  90                  95

Gln Gly Asn Glu Lys Ser Gly Gly Gly Tyr Ile Val Val Asp Pro Ile
            100                 105                 110

Leu Arg Val Gly Ala Asp Asn His Val Leu Pro Leu Asp Cys Val Thr
        115                 120                 125

Leu Gln Thr Phe Leu Ala Lys Cys Leu Gly Pro Phe Asp Glu Trp Glu
    130                 135                 140

Ser Arg Leu Arg Val Ala Lys Glu Ser Gly Tyr Asn Met Ile His Phe
145                 150                 155                 160

Thr Pro Leu Gln Thr Leu Gly Leu Ser Arg Ser Cys Tyr Ser Leu Ala
                165                 170                 175

Asn Gln Leu Glu Leu Asn Pro Asp Phe Ser Arg Pro Asn Arg Lys Tyr
            180                 185                 190

Thr Trp Asn Asp Val Gly Gln Leu Val Glu Lys Leu Lys Lys Glu Trp
        195                 200                 205

Asn Val Ile Cys Ile Thr Asp Val Val Tyr Asn His Thr Ala Ala Asn
    210                 215                 220

Ser Lys Trp Ile Gln Glu His Pro Glu Cys Ala Tyr Asn Leu Val Asn
225                 230                 235                 240
```

```
Ser Pro His Leu Lys Pro Ala Trp Val Leu Asp Arg Ala Leu Trp Arg
                245                 250                 255

Phe Ser Cys Asp Val Ala Glu Gly Lys Tyr Lys Glu Lys Gly Ile Pro
            260                 265                 270

Ala Leu Ile Glu Asn Asp His His Met Asn Ser Ile Arg Lys Ile Ile
        275                 280                 285

Trp Glu Asp Ile Phe Pro Lys Leu Lys Leu Trp Glu Phe Phe Gln Val
    290                 295                 300

Asp Val Asn Lys Ala Val Glu Gln Phe Arg Arg Leu Leu Thr Gln Glu
305                 310                 315                 320

Asn Arg Arg Val Thr Lys Ser Asp Pro Asn Gln His Leu Thr Ile Ile
                325                 330                 335

Gln Asp Pro Glu Tyr Arg Arg Phe Gly Cys Thr Val Asp Met Asn Ile
            340                 345                 350

Ala Leu Thr Thr Phe Ile Pro His Asp Lys Gly Pro Ala Ala Ile Glu
        355                 360                 365

Glu Cys Cys Asn Trp Phe His Lys Arg Met Glu Glu Leu Asn Ser Glu
    370                 375                 380

Lys His Arg Leu Ile Asn Tyr His Gln Glu Gln Ala Val Asn Cys Leu
385                 390                 395                 400

Leu Gly Asn Val Phe Tyr Glu Arg Leu Ala Gly His Gly Pro Lys Leu
                405                 410                 415

Gly Pro Val Thr Arg Lys His Pro Leu Val Thr Arg Tyr Phe Thr Phe
            420                 425                 430

Pro Phe Glu Glu Ile Asp Phe Ser Met Glu Glu Ser Met Ile His Leu
        435                 440                 445

Pro Asn Lys Ala Cys Phe Leu Met Ala His Asn Gly Trp Val Met Gly
    450                 455                 460
```

```
Asp Asp Pro Leu Arg Asn Phe Ala Glu Pro Gly Ser Glu Val Tyr Leu
465                 470                 475                 480

Arg Arg Glu Leu Ile Cys Trp Gly Asp Ser Val Lys Leu Arg Tyr Gly
                485                 490                 495

Asn Lys Pro Glu Asp Cys Pro Tyr Leu Trp Ala His Met Lys Lys Tyr
            500                 505                 510

Thr Glu Ile Thr Ala Thr Tyr Phe Gln Gly Val Arg Leu Asp Asn Cys
        515                 520                 525

His Ser Thr Pro Leu His Val Ala Glu Tyr Met Leu Asp Ala Ala Arg
    530                 535                 540

Asn Leu Gln Pro Asn Leu Tyr Val Val Ala Glu Leu Phe Thr Gly Ser
545                 550                 555                 560

Glu Asp Leu Asp Asn Val Phe Val Thr Arg Leu Gly Ile Ser Ser Leu
                565                 570                 575

Ile Arg Glu Ala Met Ser Ala Tyr Asn Ser His Glu Glu Gly Arg Leu
            580                 585                 590

Val Tyr Arg Tyr Gly Gly Glu Pro Val Gly Ser Phe Val Gln Pro Cys
        595                 600                 605

Leu Arg Pro Leu Met Pro Ala Ile Ala His Ala Leu Phe Met Asp Ile
    610                 615                 620

Thr His Asp Asn Glu Cys Pro Ile Val His Arg Ser Ala Tyr Asp Ala
625                 630                 635                 640

Leu Pro Ser Thr Thr Ile Val Ser Met Ala Cys Cys Ala Ser Gly Ser
                645                 650                 655

Thr Arg Gly Tyr Asp Glu Leu Val Pro His Gln Ile Ser Val Val Ser
            660                 665                 670

Glu Glu Arg Phe Tyr Thr Lys Trp Asn Pro Glu Ala Leu Pro Ser Asn
        675                 680                 685

Thr Gly Glu Val Asn Phe Gln Ser Gly Ile Ile Ala Ala Arg Cys Ala
```

690 695 700

Ile Ser Lys Leu His Gln Glu Leu Gly Ala Lys Gly Phe Ile Gln Val
705 710 715 720

Tyr Val Asp Gln Val Asp Glu Asp Ile Val Ala Val Thr Arg His Ser
725 730 735

Pro Ser Ile His Gln Ser Val Val Ala Val Ser Arg Thr Ala Phe Arg
740 745 750

Asn Pro Lys Thr Ser Phe Tyr Ser Lys Glu Val Pro Gln Met Cys Ile
755 760 765

Pro Gly Lys Ile Glu Glu Val Val Leu Glu Ala Arg Thr Ile Glu Arg
770 775 780

Asn Thr Lys Pro Tyr Arg Lys Asp Glu Asn Ser Ile Asn Gly Thr Pro
785 790 795 800

Asp Ile Thr Val Glu Ile Arg Glu His Ile Gln Leu Asn Glu Ser Lys
805 810 815

Ile Val Lys Gln Ala Gly Val Ala Thr Lys Gly Pro Asn Glu Tyr Ile
820 825 830

Gln Glu Ile Glu Phe Glu Asn Leu Ser Pro Gly Ser Val Ile Ile Phe
835 840 845

Arg Val Ser Leu Asp Pro His Ala Gln Val Ala Val Gly Ile Leu Arg
850 855 860

Asn His Leu Thr Gln Phe Ser Pro His Phe Lys Ser Gly Ser Leu Ala
865 870 875 880

Val Asp Asn Ala Asp Pro Ile Leu Lys Ile Pro Phe Ala Ser Leu Ala
885 890 895

Ser Arg Leu Thr Leu Ala Glu Leu Asn Gln Ile Leu Tyr Arg Cys Glu
900 905 910

Ser Glu Glu Lys Glu Asp Gly Gly Gly Cys Tyr Asp Ile Pro Asn Trp
915 920 925

```
Ser Ala Leu Lys Tyr Ala Gly Leu Gln Gly Leu Met Ser Val Leu Ala
    930                 935                 940

Glu Ile Arg Pro Lys Asn Asp Leu Gly His Pro Phe Cys Asn Asn Leu
945                 950                 955                 960

Arg Ser Gly Asp Trp Met Ile Asp Tyr Val Ser Asn Arg Leu Ile Ser
                965                 970                 975

Arg Ser Gly Thr Ile Ala Glu Val Gly Lys Trp Leu Gln Ala Met Phe
            980                 985                 990

Phe Tyr Leu Lys Gln Ile Pro Arg  Tyr Leu Ile Pro Cys  Tyr Phe
Asp
        995                 1000                1005

Ala Ile  Leu Ile Gly Ala Tyr  Thr Thr Leu Leu Asp  Thr Ala Trp
    1010                1015                1020

Lys Gln  Met Ser Ser Phe Val  Gln Asn Gly Ser Thr  Phe Val Lys
    1025                1030                1035

His Leu  Ser Leu Gly Ser Val  Gln Leu Cys Gly Val  Gly Lys Phe
    1040                1045                1050

Pro Ser  Leu Pro Ile Leu Ser  Pro Ala Leu Met Asp  Val Pro Tyr
    1055                1060                1065

Arg Leu  Asn Glu Ile Thr Lys  Glu Lys Glu Gln Cys  Cys Val Ser
    1070                1075                1080

Leu Ala  Ala Gly Leu Pro His  Phe Ser Ser Gly Ile  Phe Arg Cys
    1085                1090                1095

Trp Gly  Arg Asp Thr Phe Ile  Ala Leu Arg Gly Ile  Leu Leu Ile
    1100                1105                1110

Thr Gly  Arg Tyr Val Glu Ala  Arg Asn Ile Ile Leu  Ala Phe Ala
    1115                1120                1125

Gly Thr  Leu Arg His Gly Leu  Ile Pro Asn Leu Leu  Gly Glu Gly
    1130                1135                1140
```

```
Ile Tyr  Ala Arg Tyr Asn Cys  Arg Asp Ala Val Trp  Trp Trp Leu
    1145                1150                1155

Gln Cys  Ile Gln Asp Tyr Cys  Lys Met Val Pro Asn  Gly Leu Asp
    1160                1165                1170

Ile Leu  Lys Cys Pro Val Ser  Arg Met Tyr Pro Thr  Asp Asp Ser
    1175                1180                1185

Ala Pro  Leu Pro Ala Gly Thr  Leu Asp Gln Pro Leu  Phe Glu Val
    1190                1195                1200

Ile Gln  Glu Ala Met Gln Lys  His Met Gln Gly Ile  Gln Phe Arg
    1205                1210                1215

Glu Arg  Asn Ala Gly Pro Gln  Ile Asp Arg Asn Met  Lys Asp Glu
    1220                1225                1230

Gly Phe  Asn Ile Thr Ala Gly  Val Asp Glu Glu Thr  Gly Phe Val
    1235                1240                1245

Tyr Gly  Gly Asn Arg Phe Asn  Cys Gly Thr Trp Met  Asp Lys Met
    1250                1255                1260

Gly Glu  Ser Asp Arg Ala Arg  Asn Arg Gly Ile Pro  Ala Thr Pro
    1265                1270                1275

Arg Asp  Gly Ser Ala Val Glu  Ile Val Gly Leu Ser  Lys Ser Ala
    1280                1285                1290

Val Arg  Trp Leu Leu Glu Leu  Ser Lys Lys Asn Ile  Phe Pro Tyr
    1295                1300                1305

His Glu  Val Thr Val Lys Arg  His Gly Lys Ala Ile  Lys Val Ser
    1310                1315                1320

Tyr Asp  Glu Trp Asn Arg Lys  Ile Gln Asp Asn Phe  Glu Lys Leu
    1325                1330                1335

Phe His  Val Ser Glu Asp Pro  Ser Asp Leu Asn Glu  Lys His Pro
    1340                1345                1350
```

```
Asn Leu  Val His Lys Arg Gly  Ile Tyr Lys Asp Ser  Tyr Gly Ala
    1355                1360                1365

Ser Ser  Pro Trp Cys Asp Tyr  Gln Leu Arg Pro Asn  Phe Thr Ile
    1370                1375                1380

Ala Met  Val Val Ala Pro Glu  Leu Phe Thr Thr Glu  Lys Ala Trp
    1385                1390                1395

Lys Ala  Leu Glu Ile Ala Glu  Lys Lys Leu Leu Gly  Pro Leu Gly
    1400                1405                1410

Met Lys  Thr Leu Asp Pro Asp  Asp Met Val Tyr Cys  Gly Ile Tyr
    1415                1420                1425

Asp Asn  Ala Leu Asp Asn Asp  Asn Tyr Asn Leu Ala  Lys Gly Phe
    1430                1435                1440

Asn Tyr  His Gln Gly Pro Glu  Trp Leu Trp Pro Ile  Gly Tyr Phe
    1445                1450                1455

Leu Arg  Ala Lys Leu Tyr Phe  Ser Arg Leu Met Gly  Pro Glu Thr
    1460                1465                1470

Thr Ala  Lys Thr Ile Val Leu  Val Lys Asn Val Leu  Ser Arg His
    1475                1480                1485

Tyr Val  His Leu Glu Arg Ser  Pro Trp Lys Gly Leu  Pro Glu Leu
    1490                1495                1500

Thr Asn  Glu Asn Ala Gln Tyr  Cys Pro Phe Ser Cys  Glu Thr Gln
    1505                1510                1515

Ala Trp  Ser Ile Ala Thr Ile  Leu Glu Thr Leu Tyr  Asp Leu
    1520                1525                1530


<210> 4498
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<212> PRT
<213> Homo sapiens

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<220>
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amylo-alpha-1, 6-glucosidase,
4-alpha-glucanotransferase; "

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Phe Arg Leu Gly Pro Thr Leu Gln Gly Lys Ala Val Thr Val Tyr Thr
            20   25   30

Asn Tyr Pro Phe Pro Gly Glu Thr Phe Asn Arg Glu Lys Phe Arg Ser
        35   40   45

Leu Asp Trp Glu Asn Pro Thr Glu Arg Glu Asp Asp Ser Asp Lys Tyr
    50   55   60

Cys Lys Leu Asn Leu Gln Gln Ser Gly Ser Phe Gln Tyr Tyr Phe Leu
65   70   75   80

Gln Gly Asn Glu Lys Ser Gly Gly Gly Tyr Ile Val Val Asp Pro Ile
                85   90   95

Leu Arg Val Gly Ala Asp Asn His Val Leu Pro Leu Asp Cys Val Thr
            100   105   110

Leu Gln Thr Phe Leu Ala Lys Cys Leu Gly Pro Phe Asp Glu Trp Glu
        115   120   125

Ser Arg Leu Arg Val Ala Lys Glu Ser Gly Tyr Asn Met Ile His Phe
    130   135   140

Thr Pro Leu Gln Thr Leu Gly Leu Ser Arg Ser Cys Tyr Ser Leu Ala

145 150 155 160

Asn Gln Leu Glu Leu Asn Pro Asp Phe Ser Arg Pro Asn Arg Lys Tyr
165 170 175

Thr Trp Asn Asp Val Gly Gln Leu Val Glu Lys Leu Lys Lys Glu Trp
180 185 190

Asn Val Ile Cys Ile Thr Asp Val Val Tyr Asn His Thr Ala Ala Asn
195 200 205

Ser Lys Trp Ile Gln Glu His Pro Glu Cys Ala Tyr Asn Leu Val Asn
210 215 220

Ser Pro His Leu Lys Pro Ala Trp Val Leu Asp Arg Ala Leu Trp Arg
225 230 235 240

Phe Ser Cys Asp Val Ala Glu Gly Lys Tyr Lys Glu Lys Gly Ile Pro
245 250 255

Ala Leu Ile Glu Asn Asp His His Met Asn Ser Ile Arg Lys Ile Ile
260 265 270

Trp Glu Asp Ile Phe Pro Lys Leu Lys Leu Trp Glu Phe Phe Gln Val
275 280 285

Asp Val Asn Lys Ala Val Glu Gln Phe Arg Arg Leu Leu Thr Gln Glu
290 295 300

Asn Arg Arg Val Thr Lys Ser Asp Pro Asn Gln His Leu Thr Ile Ile
305 310 315 320

Gln Asp Pro Glu Tyr Arg Arg Phe Gly Cys Thr Val Asp Met Asn Ile
325 330 335

Ala Leu Thr Thr Phe Ile Pro His Asp Lys Gly Pro Ala Ala Ile Glu
340 345 350

Glu Cys Cys Asn Trp Phe His Lys Arg Met Glu Glu Leu Asn Ser Glu
355 360 365

Lys His Arg Leu Ile Asn Tyr His Gln Glu Gln Ala Val Asn Cys Leu
370 375 380

Leu Gly Asn Val Phe Tyr Glu Arg Leu Ala Gly His Gly Pro Lys Leu
385 390 395 400

Gly Pro Val Thr Arg Lys His Pro Leu Val Thr Arg Tyr Phe Thr Phe
405 410 415

Pro Phe Glu Glu Ile Asp Phe Ser Met Glu Glu Ser Met Ile His Leu
420 425 430

Pro Asn Lys Ala Cys Phe Leu Met Ala His Asn Gly Trp Val Met Gly
435 440 445

Asp Asp Pro Leu Arg Asn Phe Ala Glu Pro Gly Ser Glu Val Tyr Leu
450 455 460

Arg Arg Glu Leu Ile Cys Trp Gly Asp Ser Val Lys Leu Arg Tyr Gly
465 470 475 480

Asn Lys Pro Glu Asp Cys Pro Tyr Leu Trp Ala His Met Lys Lys Tyr
485 490 495

Thr Glu Ile Thr Ala Thr Tyr Phe Gln Gly Val Arg Leu Asp Asn Cys
500 505 510

His Ser Thr Pro Leu His Val Ala Glu Tyr Met Leu Asp Ala Ala Arg
515 520 525

Asn Leu Gln Pro Asn Leu Tyr Val Val Ala Glu Leu Phe Thr Gly Ser
530 535 540

Glu Asp Leu Asp Asn Val Phe Val Thr Arg Leu Gly Ile Ser Ser Leu
545 550 555 560

Ile Arg Glu Ala Met Ser Ala Tyr Asn Ser His Glu Glu Gly Arg Leu
565 570 575

Val Tyr Arg Tyr Gly Gly Glu Pro Val Gly Ser Phe Val Gln Pro Cys
580 585 590

Leu Arg Pro Leu Met Pro Ala Ile Ala His Ala Leu Phe Met Asp Ile
595 600 605

```
Thr His Asp Asn Glu Cys Pro Ile Val His Arg Ser Ala Tyr Asp Ala
    610                 615                 620

Leu Pro Ser Thr Thr Ile Val Ser Met Ala Cys Cys Ala Ser Gly Ser
625                 630                 635                 640

Thr Arg Gly Tyr Asp Glu Leu Val Pro His Gln Ile Ser Val Val Ser
                645                 650                 655

Glu Glu Arg Phe Tyr Thr Lys Trp Asn Pro Glu Ala Leu Pro Ser Asn
            660                 665                 670

Thr Gly Glu Val Asn Phe Gln Ser Gly Ile Ile Ala Ala Arg Cys Ala
        675                 680                 685

Ile Ser Lys Leu His Gln Glu Leu Gly Ala Lys Gly Phe Ile Gln Val
    690                 695                 700

Tyr Val Asp Gln Val Asp Glu Asp Ile Val Ala Val Thr Arg His Ser
705                 710                 715                 720

Pro Ser Ile His Gln Ser Val Val Ala Val Ser Arg Thr Ala Phe Arg
                725                 730                 735

Asn Pro Lys Thr Ser Phe Tyr Ser Lys Glu Val Pro Gln Met Cys Ile
            740                 745                 750

Pro Gly Lys Ile Glu Glu Val Val Leu Glu Ala Arg Thr Ile Glu Arg
        755                 760                 765

Asn Thr Lys Pro Tyr Arg Lys Asp Glu Asn Ser Ile Asn Gly Thr Pro
    770                 775                 780

Asp Ile Thr Val Glu Ile Arg Glu His Ile Gln Leu Asn Glu Ser Lys
785                 790                 795                 800

Ile Val Lys Gln Ala Gly Val Ala Thr Lys Gly Pro Asn Glu Tyr Ile
                805                 810                 815

Gln Glu Ile Glu Phe Glu Asn Leu Ser Pro Gly Ser Val Ile Ile Phe
            820                 825                 830
```

```
Arg Val Ser Leu Asp Pro His Ala Gln Val Ala Val Gly Ile Leu Arg
        835                 840                 845

Asn His Leu Thr Gln Phe Ser Pro His Phe Lys Ser Gly Ser Leu Ala
    850                 855                 860

Val Asp Asn Ala Asp Pro Ile Leu Lys Ile Pro Phe Ala Ser Leu Ala
865                 870                 875                 880

Ser Arg Leu Thr Leu Ala Glu Leu Asn Gln Ile Leu Tyr Arg Cys Glu
                885                 890                 895

Ser Glu Glu Lys Glu Asp Gly Gly Gly Cys Tyr Asp Ile Pro Asn Trp
            900                 905                 910

Ser Ala Leu Lys Tyr Ala Gly Leu Gln Gly Leu Met Ser Val Leu Ala
        915                 920                 925

Glu Ile Arg Pro Lys Asn Asp Leu Gly His Pro Phe Cys Asn Asn Leu
    930                 935                 940

Arg Ser Gly Asp Trp Met Ile Asp Tyr Val Ser Asn Arg Leu Ile Ser
945                 950                 955                 960

Arg Ser Gly Thr Ile Ala Glu Val Gly Lys Trp Leu Gln Ala Met Phe
                965                 970                 975

Phe Tyr Leu Lys Gln Ile Pro Arg Tyr Leu Ile Pro Cys Tyr Phe Asp
            980                 985                 990

Ala Ile Leu Ile Gly Ala Tyr Thr  Thr Leu Leu Asp Thr  Ala Trp
Lys
        995                 1000                1005

Gln Met  Ser Ser Phe Val Gln  Asn Gly Ser Thr Phe  Val Lys His
    1010                1015                1020

Leu Ser  Leu Gly Ser Val Gln  Leu Cys Gly Val Gly  Lys Phe Pro
    1025                1030                1035

Ser Leu  Pro Ile Leu Ser Pro  Ala Leu Met Asp Val  Pro Tyr Arg
    1040                1045                1050
```

```
Leu Asn  Glu Ile Thr Lys Glu  Lys Glu Gln Cys Cys  Val Ser Leu
    1055                1060                1065

Ala Ala  Gly Leu Pro His Phe  Ser Ser Gly Ile Phe  Arg Cys Trp
    1070                1075                1080

Gly Arg  Asp Thr Phe Ile Ala  Leu Arg Gly Ile Leu  Leu Ile Thr
    1085                1090                1095

Gly Arg  Tyr Val Glu Ala Arg  Asn Ile Ile Leu Ala  Phe Ala Gly
    1100                1105                1110

Thr Leu  Arg His Gly Leu Ile  Pro Asn Leu Leu Gly  Glu Gly Ile
    1115                1120                1125

Tyr Ala  Arg Tyr Asn Cys Arg  Asp Ala Val Trp Trp  Trp Leu Gln
    1130                1135                1140

Cys Ile  Gln Asp Tyr Cys Lys  Met Val Pro Asn Gly  Leu Asp Ile
    1145                1150                1155

Leu Lys  Cys Pro Val Ser Arg  Met Tyr Pro Thr Asp  Asp Ser Ala
    1160                1165                1170

Pro Leu  Pro Ala Gly Thr Leu  Asp Gln Pro Leu Phe  Glu Val Ile
    1175                1180                1185

Gln Glu  Ala Met Gln Lys His  Met Gln Gly Ile Gln  Phe Arg Glu
    1190                1195                1200

Arg Asn  Ala Gly Pro Gln Ile  Asp Arg Asn Met Lys  Asp Glu Gly
    1205                1210                1215

Phe Asn  Ile Thr Ala Gly Val  Asp Glu Glu Thr Gly  Phe Val Tyr
    1220                1225                1230

Gly Gly  Asn Arg Phe Asn Cys  Gly Thr Trp Met Asp  Lys Met Gly
    1235                1240                1245

Glu Ser  Asp Arg Ala Arg Asn  Arg Gly Ile Pro Ala  Thr Pro Arg
    1250                1255                1260

Asp Gly  Ser Ala Val Glu Ile  Val Gly Leu Ser Lys  Ser Ala Val
```

```
    1265                1270                1275

Arg Trp  Leu Leu Glu Leu Ser  Lys Lys Asn Ile Phe  Pro Tyr His
    1280                1285                1290

Glu Val  Thr Val Lys Arg His  Gly Lys Ala Ile Lys  Val Ser Tyr
    1295                1300                1305

Asp Glu  Trp Asn Arg Lys Ile  Gln Asp Asn Phe Glu  Lys Leu Phe
    1310                1315                1320

His Val  Ser Glu Asp Pro Ser  Asp Leu Asn Glu Lys  His Pro Asn
    1325                1330                1335

Leu Val  His Lys Arg Gly Ile  Tyr Lys Asp Ser Tyr  Gly Ala Ser
    1340                1345                1350

Ser Pro  Trp Cys Asp Tyr Gln  Leu Arg Pro Asn Phe  Thr Ile Ala
    1355                1360                1365

Met Val  Val Ala Pro Glu Leu  Phe Thr Thr Glu Lys  Ala Trp Lys
    1370                1375                1380

Ala Leu  Glu Ile Ala Glu Lys  Lys Leu Leu Gly Pro  Leu Gly Met
    1385                1390                1395

Lys Thr  Leu Asp Pro Asp Asp  Met Val Tyr Cys Gly  Ile Tyr Asp
    1400                1405                1410

Asn Ala  Leu Asp Asn Asp Asn  Tyr Asn Leu Ala Lys  Gly Phe Asn
    1415                1420                1425

Tyr His  Gln Gly Pro Glu Trp  Leu Trp Pro Ile Gly  Tyr Phe Leu
    1430                1435                1440

Arg Ala  Lys Leu Tyr Phe Ser  Arg Leu Met Gly Pro  Glu Thr Thr
    1445                1450                1455

Ala Lys  Thr Ile Val Leu Val  Lys Asn Val Leu Ser  Arg His Tyr
    1460                1465                1470

Val His  Leu Glu Arg Ser Pro  Trp Lys Gly Leu Pro  Glu Leu Thr
    1475                1480                1485
```

```
Asn Glu  Asn Ala Gln Tyr Cys  Pro Phe Ser Cys Glu  Thr Gln Ala
    1490                 1495                 1500


Trp Ser  Ile Ala Thr Ile Leu  Glu Thr Leu Tyr Asp  Leu
    1505                 1510                 1515


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      4-alpha-glucanotransferase; "

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Met Gly His Ser Lys Gln Ile Arg Ile Leu Leu Leu Asn Glu Met Glu
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Lys Leu Glu Lys Thr Leu Phe Arg Leu Glu Gln Gly Tyr Glu Leu Gln
            20                  25                  30


Phe Arg Leu Gly Pro Thr Leu Gln Gly Lys Ala Val Thr Val Tyr Thr
        35                  40                  45


Asn Tyr Pro Phe Pro Gly Glu Thr Phe Asn Arg Glu Lys Phe Arg Ser
    50                  55                  60


Leu Asp Trp Glu Asn Pro Thr Glu Arg Glu Asp Asp Ser Asp Lys Tyr
65                  70                  75                  80
```

```
Cys Lys Leu Asn Leu Gln Gln Ser Gly Ser Phe Gln Tyr Tyr Phe Leu
                85                  90                  95

Gln Gly Asn Glu Lys Ser Gly Gly Gly Tyr Ile Val Val Asp Pro Ile
            100                 105                 110

Leu Arg Val Gly Ala Asp Asn His Val Leu Pro Leu Asp Cys Val Thr
        115                 120                 125

Leu Gln Thr Phe Leu Ala Lys Cys Leu Gly Pro Phe Asp Glu Trp Glu
    130                 135                 140

Ser Arg Leu Arg Val Ala Lys Glu Ser Gly Tyr Asn Met Ile His Phe
145                 150                 155                 160

Thr Pro Leu Gln Thr Leu Gly Leu Ser Arg Ser Cys Tyr Ser Leu Ala
                165                 170                 175

Asn Gln Leu Glu Leu Asn Pro Asp Phe Ser Arg Pro Asn Arg Lys Tyr
            180                 185                 190

Thr Trp Asn Asp Val Gly Gln Leu Val Glu Lys Leu Lys Lys Glu Trp
        195                 200                 205

Asn Val Ile Cys Ile Thr Asp Val Val Tyr Asn His Thr Ala Ala Asn
    210                 215                 220

Ser Lys Trp Ile Gln Glu His Pro Glu Cys Ala Tyr Asn Leu Val Asn
225                 230                 235                 240

Ser Pro His Leu Lys Pro Ala Trp Val Leu Asp Arg Ala Leu Trp Arg
                245                 250                 255

Phe Ser Cys Asp Val Ala Glu Gly Lys Tyr Lys Glu Lys Gly Ile Pro
            260                 265                 270

Ala Leu Ile Glu Asn Asp His His Met Asn Ser Ile Arg Lys Ile Ile
        275                 280                 285

Trp Glu Asp Ile Phe Pro Lys Leu Lys Leu Trp Glu Phe Phe Gln Val
    290                 295                 300
```

```
Asp Val Asn Lys Ala Val Glu Gln Phe Arg Arg Leu Leu Thr Gln Glu
305                 310                 315                 320

Asn Arg Arg Val Thr Lys Ser Asp Pro Asn Gln His Leu Thr Ile Ile
                325                 330                 335

Gln Asp Pro Glu Tyr Arg Arg Phe Gly Cys Thr Val Asp Met Asn Ile
            340                 345                 350

Ala Leu Thr Thr Phe Ile Pro His Asp Lys Gly Pro Ala Ala Ile Glu
        355                 360                 365

Glu Cys Cys Asn Trp Phe His Lys Arg Met Glu Glu Leu Asn Ser Glu
    370                 375                 380

Lys His Arg Leu Ile Asn Tyr His Gln Glu Gln Ala Val Asn Cys Leu
385                 390                 395                 400

Leu Gly Asn Val Phe Tyr Glu Arg Leu Ala Gly His Gly Pro Lys Leu
                405                 410                 415

Gly Pro Val Thr Arg Lys His Pro Leu Val Thr Arg Tyr Phe Thr Phe
            420                 425                 430

Pro Phe Glu Glu Ile Asp Phe Ser Met Glu Glu Ser Met Ile His Leu
        435                 440                 445

Pro Asn Lys Ala Cys Phe Leu Met Ala His Asn Gly Trp Val Met Gly
    450                 455                 460

Asp Asp Pro Leu Arg Asn Phe Ala Glu Pro Gly Ser Glu Val Tyr Leu
465                 470                 475                 480

Arg Arg Glu Leu Ile Cys Trp Gly Asp Ser Val Lys Leu Arg Tyr Gly
                485                 490                 495

Asn Lys Pro Glu Asp Cys Pro Tyr Leu Trp Ala His Met Lys Lys Tyr
            500                 505                 510

Thr Glu Ile Thr Ala Thr Tyr Phe Gln Gly Val Arg Leu Asp Asn Cys
        515                 520                 525

His Ser Thr Pro Leu His Val Ala Glu Tyr Met Leu Asp Ala Ala Arg
```

530 535 540

Asn Leu Gln Pro Asn Leu Tyr Val Val Ala Glu Leu Phe Thr Gly Ser
545 550 555 560

Glu Asp Leu Asp Asn Val Phe Val Thr Arg Leu Gly Ile Ser Ser Leu
565 570 575

Ile Arg Glu Ala Met Ser Ala Tyr Asn Ser His Glu Glu Gly Arg Leu
580 585 590

Val Tyr Arg Tyr Gly Gly Glu Pro Val Gly Ser Phe Val Gln Pro Cys
595 600 605

Leu Arg Pro Leu Met Pro Ala Ile Ala His Ala Leu Phe Met Asp Ile
610 615 620

Thr His Asp Asn Glu Cys Pro Ile Val His Arg Ser Ala Tyr Asp Ala
625 630 635 640

Leu Pro Ser Thr Thr Ile Val Ser Met Ala Cys Cys Ala Ser Gly Ser
645 650 655

Thr Arg Gly Tyr Asp Glu Leu Val Pro His Gln Ile Ser Val Val Ser
660 665 670

Glu Glu Arg Phe Tyr Thr Lys Trp Asn Pro Glu Ala Leu Pro Ser Asn
675 680 685

Thr Gly Glu Val Asn Phe Gln Ser Gly Ile Ile Ala Ala Arg Cys Ala
690 695 700

Ile Ser Lys Leu His Gln Glu Leu Gly Ala Lys Gly Phe Ile Gln Val
705 710 715 720

Tyr Val Asp Gln Val Asp Glu Asp Ile Val Ala Val Thr Arg His Ser
725 730 735

Pro Ser Ile His Gln Ser Val Val Ala Val Ser Arg Thr Ala Phe Arg
740 745 750

Asn Pro Lys Thr Ser Phe Tyr Ser Lys Glu Val Pro Gln Met Cys Ile
755 760 765

```
Pro Gly Lys Ile Glu Glu Val Val Leu Glu Ala Arg Thr Ile Glu Arg
    770                 775                 780

Asn Thr Lys Pro Tyr Arg Lys Asp Glu Asn Ser Ile Asn Gly Thr Pro
785                 790                 795                 800

Asp Ile Thr Val Glu Ile Arg Glu His Ile Gln Leu Asn Glu Ser Lys
                805                 810                 815

Ile Val Lys Gln Ala Gly Val Ala Thr Lys Gly Pro Asn Glu Tyr Ile
            820                 825                 830

Gln Glu Ile Glu Phe Glu Asn Leu Ser Pro Gly Ser Val Ile Ile Phe
        835                 840                 845

Arg Val Ser Leu Asp Pro His Ala Gln Val Ala Val Gly Ile Leu Arg
    850                 855                 860

Asn His Leu Thr Gln Phe Ser Pro His Phe Lys Ser Gly Ser Leu Ala
865                 870                 875                 880

Val Asp Asn Ala Asp Pro Ile Leu Lys Ile Pro Phe Ala Ser Leu Ala
                885                 890                 895

Ser Arg Leu Thr Leu Ala Glu Leu Asn Gln Ile Leu Tyr Arg Cys Glu
            900                 905                 910

Ser Glu Glu Lys Glu Asp Gly Gly Gly Cys Tyr Asp Ile Pro Asn Trp
        915                 920                 925

Ser Ala Leu Lys Tyr Ala Gly Leu Gln Gly Leu Met Ser Val Leu Ala
    930                 935                 940

Glu Ile Arg Pro Lys Asn Asp Leu Gly His Pro Phe Cys Asn Asn Leu
945                 950                 955                 960

Arg Ser Gly Asp Trp Met Ile Asp Tyr Val Ser Asn Arg Leu Ile Ser
                965                 970                 975

Arg Ser Gly Thr Ile Ala Glu Val Gly Lys Trp Leu Gln Ala Met Phe
            980                 985                 990
```

Phe Tyr Leu Lys Gln Ile Pro Arg Tyr Leu Ile Pro Cys Tyr Phe Asp
995 1000 1005

Ala Ile Leu Ile Gly Ala Tyr Thr Thr Leu Leu Asp Thr Ala Trp
1010 1015 1020

Lys Gln Met Ser Ser Phe Val Gln Asn Gly Ser Thr Phe Val Lys
1025 1030 1035

His Leu Ser Leu Gly Ser Val Gln Leu Cys Gly Val Gly Lys Phe
1040 1045 1050

Pro Ser Leu Pro Ile Leu Ser Pro Ala Leu Met Asp Val Pro Tyr
1055 1060 1065

Arg Leu Asn Glu Ile Thr Lys Glu Lys Glu Gln Cys Cys Val Ser
1070 1075 1080

Leu Ala Ala Gly Leu Pro His Phe Ser Ser Gly Ile Phe Arg Cys
1085 1090 1095

Trp Gly Arg Asp Thr Phe Ile Ala Leu Arg Gly Ile Leu Leu Ile
1100 1105 1110

Thr Gly Arg Tyr Val Glu Ala Arg Asn Ile Ile Leu Ala Phe Ala
1115 1120 1125

Gly Thr Leu Arg His Gly Leu Ile Pro Asn Leu Leu Gly Glu Gly
1130 1135 1140

Ile Tyr Ala Arg Tyr Asn Cys Arg Asp Ala Val Trp Trp Trp Leu
1145 1150 1155

Gln Cys Ile Gln Asp Tyr Cys Lys Met Val Pro Asn Gly Leu Asp
1160 1165 1170

Ile Leu Lys Cys Pro Val Ser Arg Met Tyr Pro Thr Asp Asp Ser
1175 1180 1185

Ala Pro Leu Pro Ala Gly Thr Leu Asp Gln Pro Leu Phe Glu Val
1190 1195 1200

```
Ile Gln  Glu Ala Met Gln Lys  His Met Gln Gly Ile  Gln Phe Arg
    1205                 1210                 1215

Glu Arg  Asn Ala Gly Pro Gln  Ile Asp Arg Asn Met  Lys Asp Glu
    1220                 1225                 1230

Gly Phe  Asn Ile Thr Ala Gly  Val Asp Glu Glu Thr  Gly Phe Val
    1235                 1240                 1245

Tyr Gly  Gly Asn Arg Phe Asn  Cys Gly Thr Trp Met  Asp Lys Met
    1250                 1255                 1260

Gly Glu  Ser Asp Arg Ala Arg  Asn Arg Gly Ile Pro  Ala Thr Pro
    1265                 1270                 1275

Arg Asp  Gly Ser Ala Val Glu  Ile Val Gly Leu Ser  Lys Ser Ala
    1280                 1285                 1290

Val Arg  Trp Leu Leu Glu Leu  Ser Lys Lys Asn Ile  Phe Pro Tyr
    1295                 1300                 1305

His Glu  Val Thr Val Lys Arg  His Gly Lys Ala Ile  Lys Val Ser
    1310                 1315                 1320

Tyr Asp  Glu Trp Asn Arg Lys  Ile Gln Asp Asn Phe  Glu Lys Leu
    1325                 1330                 1335

Phe His  Val Ser Glu Asp Pro  Ser Asp Leu Asn Glu  Lys His Pro
    1340                 1345                 1350

Asn Leu  Val His Lys Arg Gly  Ile Tyr Lys Asp Ser  Tyr Gly Ala
    1355                 1360                 1365

Ser Ser  Pro Trp Cys Asp Tyr  Gln Leu Arg Pro Asn  Phe Thr Ile
    1370                 1375                 1380

Ala Met  Val Val Ala Pro Glu  Leu Phe Thr Thr Glu  Lys Ala Trp
    1385                 1390                 1395

Lys Ala  Leu Glu Ile Ala Glu  Lys Lys Leu Leu Gly  Pro Leu Gly
    1400                 1405                 1410
```

```
Met Lys  Thr Leu Asp Pro Asp  Asp Met Val Tyr Cys  Gly Ile Tyr
    1415                1420                1425

Asp Asn  Ala Leu Asp Asn Asp  Asn Tyr Asn Leu Ala  Lys Gly Phe
    1430                1435                1440

Asn Tyr  His Gln Gly Pro Glu  Trp Leu Trp Pro Ile  Gly Tyr Phe
    1445                1450                1455

Leu Arg  Ala Lys Leu Tyr Phe  Ser Arg Leu Met Gly  Pro Glu Thr
    1460                1465                1470

Thr Ala  Lys Thr Ile Val Leu  Val Lys Asn Val Leu  Ser Arg His
    1475                1480                1485

Tyr Val  His Leu Glu Arg Ser  Pro Trp Lys Gly Leu  Pro Glu Leu
    1490                1495                1500

Thr Asn  Glu Asn Ala Gln Tyr  Cys Pro Phe Ser Cys  Glu Thr Gln
    1505                1510                1515

Ala Trp  Ser Ile Ala Thr Ile  Leu Glu Thr Leu Tyr  Asp Leu
    1520                1525                1530


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      4-alpha-glucanotransferase; "

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<223> /note="ENSP ID: ENSP00000359184"

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Met Gly His Ser Lys Gln Ile Arg Ile Leu Leu Leu Asn Glu Met Glu
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Lys Leu Glu Lys Thr Leu Phe Arg Leu Glu Gln Gly Tyr Glu Leu Gln
            20                  25                  30

Phe Arg Leu Gly Pro Thr Leu Gln Gly Lys Ala Val Thr Val Tyr Thr
        35                  40                  45

Asn Tyr Pro Phe Pro Gly Glu Thr Phe Asn Arg Glu Lys Phe Arg Ser
    50                  55                  60

Leu Asp Trp Glu Asn Pro Thr Glu Arg Glu Asp Asp Ser Asp Lys Tyr
65                  70                  75                  80

Cys Lys Leu Asn Leu Gln Gln Ser Gly Ser Phe Gln Tyr Tyr Phe Leu
                85                  90                  95

Gln Gly Asn Glu Lys Ser Gly Gly Gly Tyr Ile Val Val Asp Pro Ile
            100                 105                 110

Leu Arg Val Gly Ala Asp Asn His Val Leu Pro Leu Asp Cys Val Thr
        115                 120                 125

Leu Gln Thr Phe Leu Ala Lys Cys Leu Gly Pro Phe Asp Glu Trp Glu
    130                 135                 140

Ser Arg Leu Arg Val Ala Lys Glu Ser Gly Tyr Asn Met Ile His Phe
145                 150                 155                 160

Thr Pro Leu Gln Thr Leu Gly Leu Ser Arg Ser Cys Tyr Ser Leu Ala
                165                 170                 175

Asn Gln Leu Glu Leu Asn Pro Asp Phe Ser Arg Pro Asn Arg Lys Tyr
            180                 185                 190

Thr Trp Asn Asp Val Gly Gln Leu Val Glu Lys Leu Lys Lys Glu Trp
        195                 200                 205

Asn Val Ile Cys Ile Thr Asp Val Val Tyr Asn His Thr Ala Ala Asn
    210                 215                 220
```

```
Ser Lys Trp Ile Gln Glu His Pro Glu Cys Ala Tyr Asn Leu Val Asn
225                 230                 235                 240

Ser Pro His Leu Lys Pro Ala Trp Val Leu Asp Arg Ala Leu Trp Arg
                245                 250                 255

Phe Ser Cys Asp Val Ala Glu Gly Lys Tyr Lys Glu Lys Gly Ile Pro
            260                 265                 270

Ala Leu Ile Glu Asn Asp His His Met Asn Ser Ile Arg Lys Ile Ile
        275                 280                 285

Trp Glu Asp Ile Phe Pro Lys Leu Lys Leu Trp Glu Phe Phe Gln Val
    290                 295                 300

Asp Val Asn Lys Ala Val Glu Gln Phe Arg Arg Leu Leu Thr Gln Glu
305                 310                 315                 320

Asn Arg Arg Val Thr Lys Ser Asp Pro Asn Gln His Leu Thr Ile Ile
                325                 330                 335

Gln Asp Pro Glu Tyr Arg Arg Phe Gly Cys Thr Val Asp Met Asn Ile
            340                 345                 350

Ala Leu Thr Thr Phe Ile Pro His Asp Lys Gly Pro Ala Ala Ile Glu
        355                 360                 365

Glu Cys Cys Asn Trp Phe His Lys Arg Met Glu Glu Leu Asn Ser Glu
    370                 375                 380

Lys His Arg Leu Ile Asn Tyr His Gln Glu Gln Ala Val Asn Cys Leu
385                 390                 395                 400

Leu Gly Asn Val Phe Tyr Glu Arg Leu Ala Gly His Gly Pro Lys Leu
                405                 410                 415

Gly Pro Val Thr Arg Lys His Pro Leu Val Thr Arg Tyr Phe Thr Phe
            420                 425                 430

Pro Phe Glu Glu Ile Asp Phe Ser Met Glu Glu Ser Met Ile His Leu
        435                 440                 445
```

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Pro Asn Lys Ala Cys Phe Leu Met Ala His Asn Gly Trp Val Met Gly
    450                 455                 460

Asp Asp Pro Leu Arg Asn Phe Ala Glu Pro Gly Ser Glu Val Tyr Leu
465                 470                 475                 480

Arg Arg Glu Leu Ile Cys Trp Gly Asp Ser Val Lys Leu Arg Tyr Gly
                485                 490                 495

Asn Lys Pro Glu Asp Cys Pro Tyr Leu Trp Ala His Met Lys Lys Tyr
            500                 505                 510

Thr Glu Ile Thr Ala Thr Tyr Phe Gln Gly Val Arg Leu Asp Asn Cys
        515                 520                 525

His Ser Thr Pro Leu His Val Ala Glu Tyr Met Leu Asp Ala Ala Arg
    530                 535                 540

Asn Leu Gln Pro Asn Leu Tyr Val Val Ala Glu Leu Phe Thr Gly Ser
545                 550                 555                 560

Glu Asp Leu Asp Asn Val Phe Val Thr Arg Leu Gly Ile Ser Ser Leu
                565                 570                 575

Ile Arg Glu Ala Met Ser Ala Tyr Asn Ser His Glu Glu Gly Arg Leu
            580                 585                 590

Val Tyr Arg Tyr Gly Gly Glu Pro Val Gly Ser Phe Val Gln Pro Cys
        595                 600                 605

Leu Arg Pro Leu Met Pro Ala Ile Ala His Ala Leu Phe Met Asp Ile
    610                 615                 620

Thr His Asp Asn Glu Cys Pro Ile Val His Arg Ser Ala Tyr Asp Ala
625                 630                 635                 640

Leu Pro Ser Thr Thr Ile Val Ser Met Ala Cys Cys Ala Ser Gly Ser
                645                 650                 655

Thr Arg Gly Tyr Asp Glu Leu Val Pro His Gln Ile Ser Val Val Ser
            660                 665                 670
```

```
Glu Glu Arg Phe Tyr Thr Lys Trp Asn Pro Glu Ala Leu Pro Ser Asn
        675                 680                 685

Thr Gly Glu Val Asn Phe Gln Ser Gly Ile Ile Ala Ala Arg Cys Ala
    690                 695                 700

Ile Ser Lys Leu His Gln Glu Leu Gly Ala Lys Gly Phe Ile Gln Val
705                 710                 715                 720

Tyr Val Asp Gln Val Asp Glu Asp Ile Val Ala Val Thr Arg His Ser
                725                 730                 735

Pro Ser Ile His Gln Ser Val Val Ala Val Ser Arg Thr Ala Phe Arg
            740                 745                 750

Asn Pro Lys Thr Ser Phe Tyr Ser Lys Glu Val Pro Gln Met Cys Ile
        755                 760                 765

Pro Gly Lys Ile Glu Glu Val Val Leu Glu Ala Arg Thr Ile Glu Arg
    770                 775                 780

Asn Thr Lys Pro Tyr Arg Lys Asp Glu Asn Ser Ile Asn Gly Thr Pro
785                 790                 795                 800

Asp Ile Thr Val Glu Ile Arg Glu His Ile Gln Leu Asn Glu Ser Lys
                805                 810                 815

Ile Val Lys Gln Ala Gly Val Ala Thr Lys Gly Pro Asn Glu Tyr Ile
            820                 825                 830

Gln Glu Ile Glu Phe Glu Asn Leu Ser Pro Gly Ser Val Ile Ile Phe
        835                 840                 845

Arg Val Ser Leu Asp Pro His Ala Gln Val Ala Val Gly Ile Leu Arg
    850                 855                 860

Asn His Leu Thr Gln Phe Ser Pro His Phe Lys Ser Gly Ser Leu Ala
865                 870                 875                 880

Val Asp Asn Ala Asp Pro Ile Leu Lys Ile Pro Phe Ala Ser Leu Ala
                885                 890                 895

Ser Arg Leu Thr Leu Ala Glu Leu Asn Gln Ile Leu Tyr Arg Cys Glu
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900 905 910

Ser Glu Glu Lys Glu Asp Gly Gly Gly Cys Tyr Asp Ile Pro Asn Trp
915 920 925

Ser Ala Leu Lys Tyr Ala Gly Leu Gln Gly Leu Met Ser Val Leu Ala
930 935 940

Glu Ile Arg Pro Lys Asn Asp Leu Gly His Pro Phe Cys Asn Asn Leu
945 950 955 960

Arg Ser Gly Asp Trp Met Ile Asp Tyr Val Ser Asn Arg Leu Ile Ser
965 970 975

Arg Ser Gly Thr Ile Ala Glu Val Gly Lys Trp Leu Gln Ala Met Phe
980 985 990

Phe Tyr Leu Lys Gln Ile Pro Arg Tyr Leu Ile Pro Cys Tyr Phe
Asp
995 1000 1005

Ala Ile Leu Ile Gly Ala Tyr Thr Thr Leu Leu Asp Thr Ala Trp
1010 1015 1020

Lys Gln Met Ser Ser Phe Val Gln Asn Gly Ser Thr Phe Val Lys
1025 1030 1035

His Leu Ser Leu Gly Ser Val Gln Leu Cys Gly Val Gly Lys Phe
1040 1045 1050

Pro Ser Leu Pro Ile Leu Ser Pro Ala Leu Met Asp Val Pro Tyr
1055 1060 1065

Arg Leu Asn Glu Ile Thr Lys Glu Lys Glu Gln Cys Cys Val Ser
1070 1075 1080

Leu Ala Ala Gly Leu Pro His Phe Ser Ser Gly Ile Phe Arg Cys
1085 1090 1095

Trp Gly Arg Asp Thr Phe Ile Ala Leu Arg Gly Ile Leu Leu Ile
1100 1105 1110

Thr Gly Arg Tyr Val Glu Ala Arg Asn Ile Ile Leu Ala Phe Ala

```
    1115                1120                1125

Gly Thr  Leu Arg His Gly Leu  Ile Pro Asn Leu Leu  Gly Glu Gly
    1130                1135                1140

Ile Tyr  Ala Arg Tyr Asn Cys  Arg Asp Ala Val Trp  Trp Trp Leu
    1145                1150                1155

Gln Cys  Ile Gln Asp Tyr Cys  Lys Met Val Pro Asn  Gly Leu Asp
    1160                1165                1170

Ile Leu  Lys Cys Pro Val Ser  Arg Met Tyr Pro Thr  Asp Asp Ser
    1175                1180                1185

Ala Pro  Leu Pro Ala Gly Thr  Leu Asp Gln Pro Leu  Phe Glu Val
    1190                1195                1200

Ile Gln  Glu Ala Met Gln Lys  His Met Gln Gly Ile  Gln Phe Arg
    1205                1210                1215

Glu Arg  Asn Ala Gly Pro Gln  Ile Asp Arg Asn Met  Lys Asp Glu
    1220                1225                1230

Gly Phe  Asn Ile Thr Ala Gly  Val Asp Glu Glu Thr  Gly Phe Val
    1235                1240                1245

Tyr Gly  Gly Asn Arg Phe Asn  Cys Gly Thr Trp Met  Asp Lys Met
    1250                1255                1260

Gly Glu  Ser Asp Arg Ala Arg  Asn Arg Gly Ile Pro  Ala Thr Pro
    1265                1270                1275

Arg Asp  Gly Ser Ala Val Glu  Ile Val Gly Leu Ser  Lys Ser Ala
    1280                1285                1290

Val Arg  Trp Leu Leu Glu Leu  Ser Lys Lys Asn Ile  Phe Pro Tyr
    1295                1300                1305

His Glu  Val Thr Val Lys Arg  His Gly Lys Ala Ile  Lys Val Ser
    1310                1315                1320

Tyr Asp  Glu Trp Asn Arg Lys  Ile Gln Asp Asn Phe  Glu Lys Leu
    1325                1330                1335
```

```
Phe His  Val Ser Glu Asp Pro  Ser Asp Leu Asn Glu  Lys His Pro
    1340                1345                1350

Asn Leu  Val His Lys Arg Gly  Ile Tyr Lys Asp Ser  Tyr Gly Ala
    1355                1360                1365

Ser Ser  Pro Trp Cys Asp Tyr  Gln Leu Arg Pro Asn  Phe Thr Ile
    1370                1375                1380

Ala Met  Val Val Ala Pro Glu  Leu Phe Thr Thr Glu  Lys Ala Trp
    1385                1390                1395

Lys Ala  Leu Glu Ile Ala Glu  Lys Lys Leu Leu Gly  Pro Leu Gly
    1400                1405                1410

Met Lys  Thr Leu Asp Pro Asp  Asp Met Val Tyr Cys  Gly Ile Tyr
    1415                1420                1425

Asp Asn  Ala Leu Asp Asn Asp  Asn Tyr Asn Leu Ala  Lys Gly Phe
    1430                1435                1440

Asn Tyr  His Gln Gly Pro Glu  Trp Leu Trp Pro Ile  Gly Tyr Phe
    1445                1450                1455

Leu Arg  Ala Lys Leu Tyr Phe  Ser Arg Leu Met Gly  Pro Glu Thr
    1460                1465                1470

Thr Ala  Lys Thr Ile Val Leu  Val Lys Asn Val Leu  Ser Arg His
    1475                1480                1485

Tyr Val  His Leu Glu Arg Ser  Pro Trp Lys Gly Leu  Pro Glu Leu
    1490                1495                1500

Thr Asn  Glu Asn Ala Gln Tyr  Cys Pro Phe Ser Cys  Glu Thr Gln
    1505                1510                1515

Ala Trp  Ser Ile Ala Thr Ile  Leu Glu Thr Leu Tyr  Asp Leu
    1520                1525                1530
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amyloid beta (A4) precursor prt; "

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Met Leu Pro Gly Leu Ala Leu Leu Leu Leu Ala Ala Trp Thr Ala Arg
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Ala Leu Glu Val Pro Thr Asp Gly Asn Ala Gly Leu Leu Ala Glu Pro
            20   25   30

Gln Ile Ala Met Phe Cys Gly Arg Leu Asn Met His Met Asn Val Gln
        35   40   45

Asn Gly Lys Trp Asp Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp
    50   55   60

Thr Lys Glu Gly Ile Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu
65   70   75   80

Gln Ile Thr Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn
                85   90   95

Trp Cys Lys Arg Gly Arg Lys Gln Cys Lys Thr His Pro His Phe Val
            100   105   110

Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu
        115   120   125

Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys

```
    130                 135                 140

Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu
145                 150                 155                 160

Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile
                165                 170                 175

Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu
            180                 185                 190

Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val
        195                 200                 205

Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys
    210                 215                 220

Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu
225                 230                 235                 240

Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu
                245                 250                 255

Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile
            260                 265                 270

Ala Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg
        275                 280                 285

Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala Met Ile
    290                 295                 300

Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro Phe Phe
305                 310                 315                 320

Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu Tyr
                325                 330                 335

Cys Met Ala Val Cys Gly Ser Ala Met Ser Gln Ser Leu Leu Lys Thr
            340                 345                 350

Thr Gln Glu Pro Leu Ala Arg Asp Pro Val Lys Leu Pro Thr Thr Ala
        355                 360                 365
```

```
Ala Ser Thr Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro Gly Asp
    370                 375                 380

Glu Asn Glu His Ala His Phe Gln Lys Ala Lys Glu Arg Leu Glu Ala
385                 390                 395                 400

Lys His Arg Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu Glu Ala
                405                 410                 415

Glu Arg Gln Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala Val Ile
            420                 425                 430

Gln His Phe Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala Ala Asn
        435                 440                 445

Glu Arg Gln Gln Leu Val Glu Thr His Met Ala Arg Val Glu Ala Met
    450                 455                 460

Leu Asn Asp Arg Arg Arg Leu Ala Leu Glu Asn Tyr Ile Thr Ala Leu
465                 470                 475                 480

Gln Ala Val Pro Pro Arg Pro Arg His Val Phe Asn Met Leu Lys Lys
                485                 490                 495

Tyr Val Arg Ala Glu Gln Lys Asp Arg Gln His Thr Leu Lys His Phe
            500                 505                 510

Glu His Val Arg Met Val Asp Pro Lys Lys Ala Ala Gln Ile Arg Ser
        515                 520                 525

Gln Val Met Thr His Leu Arg Val Ile Tyr Glu Arg Met Asn Gln Ser
    530                 535                 540

Leu Ser Leu Leu Tyr Asn Val Pro Ala Val Ala Glu Glu Ile Gln Asp
545                 550                 555                 560

Glu Val Asp Glu Leu Leu Gln Lys Glu Gln Asn Tyr Ser Asp Asp Val
                565                 570                 575

Leu Ala Asn Met Ile Ser Glu Pro Arg Ile Ser Tyr Gly Asn Asp Ala
            580                 585                 590
```

```
Leu Met Pro Ser Leu Thr Glu Thr Lys Thr Thr Val Glu Leu Leu Pro
        595                 600                 605

Val Asn Gly Glu Phe Ser Leu Asp Asp Leu Gln Pro Trp His Ser Phe
    610                 615                 620

Gly Ala Asp Ser Val Pro Ala Asn Thr Glu Asn Glu Val Glu Pro Val
625                 630                 635                 640

Asp Ala Arg Pro Ala Ala Asp Arg Gly Leu Thr Thr Arg Pro Gly Ser
                645                 650                 655

Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys Met Asp
            660                 665                 670

Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys Leu
        675                 680                 685

Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile Gly
    690                 695                 700

Leu Met Val Gly Gly Val Val Ile Ala Thr Val Ile Val Ile Thr Leu
705                 710                 715                 720

Val Met Leu Lys Lys Lys Gln Tyr Thr Ser Ile His His Gly Val Val
                725                 730                 735

Glu Val Asp Ala Ala Val Thr Pro Glu Glu Arg His Leu Ser Lys Met
            740                 745                 750

Gln Gln Asn Gly Tyr Glu Asn Pro Thr Tyr Lys Phe Phe Glu Gln Met
        755                 760                 765

Gln Asn
    770
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<220>
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Met Leu Pro Gly Leu Ala Leu Leu Leu Leu Ala Ala Trp Thr Ala Arg
1               5                  10                  15

Ala Leu Glu Val Pro Thr Asp Gly Asn Ala Gly Leu Leu Ala Glu Pro
            20                  25                  30

Gln Ile Ala Met Phe Cys Gly Arg Leu Asn Met His Met Asn Val Gln
        35                  40                  45

Asn Gly Lys Trp Asp Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp
    50                  55                  60

Thr Lys Glu Gly Ile Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu
65                  70                  75                  80

Gln Ile Thr Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn
                85                  90                  95

Trp Cys Lys Arg Gly Arg Lys Gln Cys Lys Thr His Pro His Phe Val
            100                 105                 110

Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu
        115                 120                 125

Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys
    130                 135                 140

Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu
145                 150                 155                 160
```

Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile
165 170 175

Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu
180 185 190

Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val
195 200 205

Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys
210 215 220

Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu
225 230 235 240

Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu
245 250 255

Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile
260 265 270

Ala Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg
275 280 285

Val Pro Thr Thr Ala Ala Ser Thr Pro Asp Ala Val Asp Lys Tyr Leu
290 295 300

Glu Thr Pro Gly Asp Glu Asn Glu His Ala His Phe Gln Lys Ala Lys
305 310 315 320

Glu Arg Leu Glu Ala Lys His Arg Glu Arg Met Ser Gln Val Met Arg
325 330 335

Glu Trp Glu Glu Ala Glu Arg Gln Ala Lys Asn Leu Pro Lys Ala Asp
340 345 350

Lys Lys Ala Val Ile Gln His Phe Gln Glu Lys Val Glu Ser Leu Glu
355 360 365

Gln Glu Ala Ala Asn Glu Arg Gln Gln Leu Val Glu Thr His Met Ala
370 375 380

```
Arg Val Glu Ala Met Leu Asn Asp Arg Arg Arg Leu Ala Leu Glu Asn
385                 390                 395                 400

Tyr Ile Thr Ala Leu Gln Ala Val Pro Pro Arg Pro Arg His Val Phe
                405                 410                 415

Asn Met Leu Lys Lys Tyr Val Arg Ala Glu Gln Lys Asp Arg Gln His
            420                 425                 430

Thr Leu Lys His Phe Glu His Val Arg Met Val Asp Pro Lys Lys Ala
        435                 440                 445

Ala Gln Ile Arg Ser Gln Val Met Thr His Leu Arg Val Ile Tyr Glu
    450                 455                 460

Arg Met Asn Gln Ser Leu Ser Leu Leu Tyr Asn Val Pro Ala Val Ala
465                 470                 475                 480

Glu Glu Ile Gln Asp Glu Val Asp Glu Leu Leu Gln Lys Glu Gln Asn
                485                 490                 495

Tyr Ser Asp Asp Val Leu Ala Asn Met Ile Ser Glu Pro Arg Ile Ser
            500                 505                 510

Tyr Gly Asn Asp Ala Leu Met Pro Ser Leu Thr Glu Thr Lys Thr Thr
        515                 520                 525

Val Glu Leu Leu Pro Val Asn Gly Glu Phe Ser Leu Asp Asp Leu Gln
    530                 535                 540

Pro Trp His Ser Phe Gly Ala Asp Ser Val Pro Ala Asn Thr Glu Asn
545                 550                 555                 560

Glu Val Glu Pro Val Asp Ala Arg Pro Ala Ala Asp Arg Gly Leu Thr
                565                 570                 575

Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser
            580                 585                 590

Glu Val Lys Met Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val
        595                 600                 605
```

```
His His Gln Lys Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys
    610                 615                 620

Gly Ala Ile Ile Gly Leu Met Val Gly Gly Val Val Ile Ala Thr Val
625                 630                 635                 640

Ile Val Ile Thr Leu Val Met Leu Lys Lys Lys Gln Tyr Thr Ser Ile
                645                 650                 655

His His Gly Val Val Glu Val Asp Ala Ala Val Thr Pro Glu Glu Arg
            660                 665                 670

His Leu Ser Lys Met Gln Gln Asn Gly Tyr Glu Asn Pro Thr Tyr Lys
        675                 680                 685

Phe Phe Glu Gln Met Gln Asn
    690                 695


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<220>
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Met Leu Pro Gly Leu Ala Leu Leu Leu Leu Ala Ala Trp Thr Ala Arg
1               5                   10                  15

Ala Leu Glu Val Tyr Pro Glu Leu Gln Ile Thr Asn Val Val Glu Ala
            20                  25                  30
```

```
Asn Gln Pro Val Thr Ile Gln Asn Trp Cys Lys Arg Gly Arg Lys Gln
        35                  40                  45

Cys Lys Thr His Pro His Phe Val Ile Pro Tyr Arg Cys Leu Val Gly
    50                  55                  60

Glu Phe Val Ser Asp Ala Leu Leu Val Pro Asp Lys Cys Lys Phe Leu
65                  70                  75                  80

His Gln Glu Arg Met Asp Val Cys Glu Thr His Leu His Trp His Thr
                85                  90                  95

Val Ala Lys Glu Thr Cys Ser Glu Lys Ser Thr Asn Leu His Asp Tyr
            100                 105                 110

Gly Met Leu Leu Pro Cys Gly Ile Asp Lys Phe Arg Gly Val Glu Phe
        115                 120                 125

Val Cys Cys Pro Leu Ala Glu Glu Ser Asp Asn Val Asp Ser Ala Asp
    130                 135                 140

Ala Glu Glu Asp Asp Ser Asp Val Trp Trp Gly Gly Ala Asp Thr Asp
145                 150                 155                 160

Tyr Ala Asp Gly Ser Glu Asp Lys Val Val Glu Val Ala Glu Glu Glu
                165                 170                 175

Glu Val Ala Glu Val Glu Glu Glu Glu Ala Asp Asp Asp Glu Asp Asp
            180                 185                 190

Glu Asp Gly Asp Glu Val Glu Glu Glu Ala Glu Glu Pro Tyr Glu Glu
        195                 200                 205

Ala Thr Glu Arg Thr Thr Ser Ile Ala Thr Thr Thr Thr Thr Thr Thr
    210                 215                 220

Glu Ser Val Glu Glu Val Val Arg Val Pro Thr Thr Ala Ala Ser Thr
225                 230                 235                 240

Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro Gly Asp Glu Asn Glu
                245                 250                 255
```

```
His Ala His Phe Gln Lys Ala Lys Glu Arg Leu Glu Ala Lys His Arg
            260                 265                 270

Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu Glu Ala Glu Arg Gln
        275                 280                 285

Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala Val Ile Gln His Phe
    290                 295                 300

Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala Ala Asn Glu Arg Gln
305                 310                 315                 320

Gln Leu Val Glu Thr His Met Ala Arg Val Glu Ala Met Leu Asn Asp
                325                 330                 335

Arg Arg Arg Leu Ala Leu Glu Asn Tyr Ile Thr Ala Leu Gln Ala Val
            340                 345                 350

Pro Pro Arg Pro Arg His Val Phe Asn Met Leu Lys Lys Tyr Val Arg
        355                 360                 365

Ala Glu Gln Lys Asp Arg Gln His Thr Leu Lys His Phe Glu His Val
    370                 375                 380

Arg Met Val Asp Pro Lys Lys Ala Ala Gln Ile Arg Ser Gln Val Met
385                 390                 395                 400

Thr His Leu Arg Val Ile Tyr Glu Arg Met Asn Gln Ser Leu Ser Leu
                405                 410                 415

Leu Tyr Asn Val Pro Ala Val Ala Glu Glu Ile Gln Asp Glu Val Asp
            420                 425                 430

Glu Leu Leu Gln Lys Glu Gln Asn Tyr Ser Asp Asp Val Leu Ala Asn
        435                 440                 445

Met Ile Ser Glu Pro Arg Ile Ser Tyr Gly Asn Asp Ala Leu Met Pro
    450                 455                 460

Ser Leu Thr Glu Thr Lys Thr Thr Val Glu Leu Leu Pro Val Asn Gly
465                 470                 475                 480
```

```
Glu Phe Ser Leu Asp Asp Leu Gln Pro Trp His Ser Phe Gly Ala Asp
                485                 490                 495

Ser Val Pro Ala Asn Thr Glu Asn Glu Val Glu Pro Val Asp Ala Arg
            500                 505                 510

Pro Ala Ala Asp Arg Gly Leu Thr Thr Arg Pro Gly Ser Gly Leu Thr
        515                 520                 525

Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys Met Asp Ala Glu Phe
    530                 535                 540

Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys Leu Val Phe Phe
545                 550                 555                 560

Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile Gly Leu Met Val
                565                 570                 575

Gly Gly Val Val Ile Ala Thr Val Ile Val Ile Thr Leu Val Met Leu
            580                 585                 590

Lys Lys Lys Gln Tyr Thr Ser Ile His His Gly Val Val Glu Val Asp
        595                 600                 605

Ala Ala Val Thr Pro Glu Glu Arg His Leu Ser Lys Met Gln Gln Asn
    610                 615                 620

Gly Tyr Glu Asn Pro Thr Tyr Lys Phe Phe Glu Gln Met Gln Asn
625                 630                 635


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<211> 751
<212> PRT
<213> Homo sapiens

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Met Leu Pro Gly Leu Ala Leu Leu Leu Leu Ala Ala Trp Thr Ala Arg
1   5   10   15

Ala Leu Glu Val Pro Thr Asp Gly Asn Ala Gly Leu Leu Ala Glu Pro
            20   25   30

Gln Ile Ala Met Phe Cys Gly Arg Leu Asn Met His Met Asn Val Gln
        35   40   45

Asn Gly Lys Trp Asp Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp
    50   55   60

Thr Lys Glu Gly Ile Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu
65   70   75   80

Gln Ile Thr Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn
                85   90   95

Trp Cys Lys Arg Gly Arg Lys Gln Cys Lys Thr His Pro His Phe Val
            100   105   110

Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu
        115   120   125

Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys
    130   135   140

Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu
145   150   155   160

Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile
                165   170   175

Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu
            180   185   190

```
Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val
        195                 200                 205

Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys
    210                 215                 220

Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu
225                 230                 235                 240

Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu
                245                 250                 255

Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile
            260                 265                 270

Ala Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg
        275                 280                 285

Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala Met Ile
    290                 295                 300

Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro Phe Phe
305                 310                 315                 320

Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu Tyr
                325                 330                 335

Cys Met Ala Val Cys Gly Ser Ala Ile Pro Thr Thr Ala Ala Ser Thr
            340                 345                 350

Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro Gly Asp Glu Asn Glu
        355                 360                 365

His Ala His Phe Gln Lys Ala Lys Glu Arg Leu Glu Ala Lys His Arg
    370                 375                 380

Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu Glu Ala Glu Arg Gln
385                 390                 395                 400

Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala Val Ile Gln His Phe
                405                 410                 415
```

```
Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala Ala Asn Glu Arg Gln
            420                 425                 430

Gln Leu Val Glu Thr His Met Ala Arg Val Glu Ala Met Leu Asn Asp
        435                 440                 445

Arg Arg Arg Leu Ala Leu Glu Asn Tyr Ile Thr Ala Leu Gln Ala Val
    450                 455                 460

Pro Pro Arg Pro Arg His Val Phe Asn Met Leu Lys Lys Tyr Val Arg
465                 470                 475                 480

Ala Glu Gln Lys Asp Arg Gln His Thr Leu Lys His Phe Glu His Val
                485                 490                 495

Arg Met Val Asp Pro Lys Lys Ala Ala Gln Ile Arg Ser Gln Val Met
            500                 505                 510

Thr His Leu Arg Val Ile Tyr Glu Arg Met Asn Gln Ser Leu Ser Leu
        515                 520                 525

Leu Tyr Asn Val Pro Ala Val Ala Glu Glu Ile Gln Asp Glu Val Asp
    530                 535                 540

Glu Leu Leu Gln Lys Glu Gln Asn Tyr Ser Asp Asp Val Leu Ala Asn
545                 550                 555                 560

Met Ile Ser Glu Pro Arg Ile Ser Tyr Gly Asn Asp Ala Leu Met Pro
                565                 570                 575

Ser Leu Thr Glu Thr Lys Thr Thr Val Glu Leu Leu Pro Val Asn Gly
            580                 585                 590

Glu Phe Ser Leu Asp Asp Leu Gln Pro Trp His Ser Phe Gly Ala Asp
        595                 600                 605

Ser Val Pro Ala Asn Thr Glu Asn Glu Val Glu Pro Val Asp Ala Arg
    610                 615                 620

Pro Ala Ala Asp Arg Gly Leu Thr Thr Arg Pro Gly Ser Gly Leu Thr
625                 630                 635                 640

Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys Met Asp Ala Glu Phe
```

```
                645                 650                 655

Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys Leu Val Phe Phe
            660                 665                 670

Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile Gly Leu Met Val
        675                 680                 685

Gly Gly Val Val Ile Ala Thr Val Ile Val Ile Thr Leu Val Met Leu
    690                 695                 700

Lys Lys Lys Gln Tyr Thr Ser Ile His His Gly Val Val Glu Val Asp
705                 710                 715                 720

Ala Ala Val Thr Pro Glu Glu Arg His Leu Ser Lys Met Gln Gln Asn
                725                 730                 735

Gly Tyr Glu Asn Pro Thr Tyr Lys Phe Phe Glu Gln Met Gln Asn
            740                 745                 750


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<400> 4505
Met Leu Pro Gly Leu Ala Leu Leu Leu Leu Ala Ala Trp Thr Ala Arg
1               5                  10                  15
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Ala Leu Glu Val Pro Thr Asp Gly Asn Ala Gly Leu Leu Ala Glu Pro
            20                  25                  30

Gln Ile Ala Met Phe Cys Gly Arg Leu Asn Met His Met Asn Val Gln
        35                  40                  45

Asn Gly Lys Trp Asp Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp
    50                  55                  60

Thr Lys Glu Gly Ile Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu
65                  70                  75                  80

Gln Ile Thr Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn
                85                  90                  95

Trp Cys Lys Arg Gly Arg Lys Gln Cys Lys Thr His Pro His Phe Val
            100                 105                 110

Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu
        115                 120                 125

Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys
    130                 135                 140

Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu
145                 150                 155                 160

Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile
                165                 170                 175

Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu
            180                 185                 190

Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val
        195                 200                 205

Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys
    210                 215                 220

Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu
225                 230                 235                 240
```

```
Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu
                245                 250                 255

Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile
            260                 265                 270

Ala Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg
        275                 280                 285

Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala Met Ile
    290                 295                 300

Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro Phe Phe
305                 310                 315                 320

Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu Tyr
                325                 330                 335

Cys Met Ala Val Cys Gly Ser Ala Met Ser Gln Ser Leu Leu Lys Thr
            340                 345                 350

Thr Gln Glu Pro Leu Ala Arg Asp Pro Val Lys Leu Pro Thr Thr Ala
        355                 360                 365

Ala Ser Thr Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro Gly Asp
    370                 375                 380

Glu Asn Glu His Ala His Phe Gln Lys Ala Lys Glu Arg Leu Glu Ala
385                 390                 395                 400

Lys His Arg Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu Glu Ala
                405                 410                 415

Glu Arg Gln Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala Val Ile
            420                 425                 430

Gln His Phe Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala Ala Asn
        435                 440                 445

Glu Arg Gln Gln Leu Val Glu Thr His Met Ala Arg Val Glu Ala Met
    450                 455                 460

Leu Asn Asp Arg Arg Arg Leu Ala Leu Glu Asn Tyr Ile Thr Ala Leu
```

```
465                 470                 475                 480

Gln Ala Val Pro Pro Arg Pro Arg His Val Phe Asn Met Leu Lys Lys
                485                 490                 495

Tyr Val Arg Ala Glu Gln Lys Asp Arg Gln His Thr Leu Lys His Phe
            500                 505                 510

Glu His Val Arg Met Val Asp Pro Lys Lys Ala Ala Gln Ile Arg Ser
        515                 520                 525

Gln Val Met Thr His Leu Arg Val Ile Tyr Glu Arg Met Asn Gln Ser
    530                 535                 540

Leu Ser Leu Leu Tyr Asn Val Pro Ala Val Ala Glu Glu Ile Gln Asp
545                 550                 555                 560

Glu Val Asp Glu Leu Leu Gln Lys Glu Gln Asn Tyr Ser Asp Asp Val
                565                 570                 575

Leu Ala Asn Met Ile Ser Glu Pro Arg Ile Ser Tyr Gly Asn Asp Ala
            580                 585                 590

Leu Met Pro Ser Leu Thr Glu Thr Lys Thr Thr Val Glu Leu Leu Pro
        595                 600                 605

Val Asn Gly Glu Phe Ser Leu Asp Asp Leu Gln Pro Trp His Ser Phe
    610                 615                 620

Gly Ala Asp Ser Val Pro Ala Asn Thr Glu Asn Glu Gly Ser Gly Leu
625                 630                 635                 640

Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys Met Asp Ala Glu
                645                 650                 655

Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys Leu Val Phe
            660                 665                 670

Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile Gly Leu Met
        675                 680                 685

Val Gly Gly Val Val Ile Ala Thr Val Ile Val Ile Thr Leu Val Met
    690                 695                 700
```

```
Leu Lys Lys Lys Gln Tyr Thr Ser Ile His His Gly Val Val Glu Val
705                 710                 715                 720


Asp Ala Ala Val Thr Pro Glu Glu Arg His Leu Ser Lys Met Gln Gln
                725                 730                 735


Asn Gly Tyr Glu Asn Pro Thr Tyr Lys Phe Phe Glu Gln Met Gln Asn
            740                 745                 750


<210> 4506
<211> 660
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1007; "

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<223> /note="Gene Symbol: APP; "

<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt; "

<220>
<221> source
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<400> 4506
Met Phe Cys Gly Arg Leu Asn Met His Met Asn Val Gln Asn Gly Lys
1               5                   10                  15


Trp Asp Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp Thr Lys Glu
            20                  25                  30


Gly Ile Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu Gln Ile Thr
        35                  40                  45


Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn Trp Cys Lys
    50                  55                  60


Arg Gly Arg Lys Gln Cys Lys Thr His Pro His Phe Val Ile Pro Tyr
65                  70                  75                  80
```

```
Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu Val Pro Asp
                85                  90                  95

Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys Glu Thr His
            100                 105                 110

Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu Lys Ser Thr
        115                 120                 125

Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile Asp Lys Phe
    130                 135                 140

Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu Ser Asp Asn
145                 150                 155                 160

Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val Trp Trp Gly
                165                 170                 175

Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys Val Val Glu
            180                 185                 190

Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu Glu Ala Asp
        195                 200                 205

Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu Glu Ala Glu
    210                 215                 220

Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile Ala Thr Thr
225                 230                 235                 240

Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg Val Pro Thr
                245                 250                 255

Thr Ala Ala Ser Thr Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro
            260                 265                 270

Gly Asp Glu Asn Glu His Ala His Phe Gln Lys Ala Lys Glu Arg Leu
        275                 280                 285

Glu Ala Lys His Arg Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu
    290                 295                 300

Glu Ala Glu Arg Gln Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala
```

305 310 315 320

Val Ile Gln His Phe Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala
325 330 335

Ala Asn Glu Arg Gln Gln Leu Val Glu Thr His Met Ala Arg Val Glu
340 345 350

Ala Met Leu Asn Asp Arg Arg Arg Leu Ala Leu Glu Asn Tyr Ile Thr
355 360 365

Ala Leu Gln Ala Val Pro Pro Arg Pro Arg His Val Phe Asn Met Leu
370 375 380

Lys Lys Tyr Val Arg Ala Glu Gln Lys Asp Arg Gln His Thr Leu Lys
385 390 395 400

His Phe Glu His Val Arg Met Val Asp Pro Lys Lys Ala Ala Gln Ile
405 410 415

Arg Ser Gln Val Met Thr His Leu Arg Val Ile Tyr Glu Arg Met Asn
420 425 430

Gln Ser Leu Ser Leu Leu Tyr Asn Val Pro Ala Val Ala Glu Glu Ile
435 440 445

Gln Asp Glu Val Asp Glu Leu Leu Gln Lys Glu Gln Asn Tyr Ser Asp
450 455 460

Asp Val Leu Ala Asn Met Ile Ser Glu Pro Arg Ile Ser Tyr Gly Asn
465 470 475 480

Asp Ala Leu Met Pro Ser Leu Thr Glu Thr Lys Thr Thr Val Glu Leu
485 490 495

Leu Pro Val Asn Gly Glu Phe Ser Leu Asp Asp Leu Gln Pro Trp His
500 505 510

Ser Phe Gly Ala Asp Ser Val Pro Ala Asn Thr Glu Asn Glu Val Glu
515 520 525

Pro Val Asp Ala Arg Pro Ala Ala Asp Arg Gly Leu Thr Thr Arg Pro
530 535 540

```
Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys
545                 550                 555                 560

Met Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln
                565                 570                 575

Lys Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile
            580                 585                 590

Ile Gly Leu Met Val Gly Gly Val Val Ile Ala Thr Val Ile Val Ile
        595                 600                 605

Thr Leu Val Met Leu Lys Lys Lys Gln Tyr Thr Ser Ile His His Gly
    610                 615                 620

Val Val Glu Val Asp Ala Ala Val Thr Pro Glu Glu Arg His Leu Ser
625                 630                 635                 640

Lys Met Gln Gln Asn Gly Tyr Glu Asn Pro Thr Tyr Lys Phe Phe Glu
                645                 650                 655

Gln Met Gln Asn
            660


<210> 4507
<211> 746
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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      amyloid beta (A4) precursor prt; "

<220>
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<223> /note="Uniprot ID:  P05067; "

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<221> source
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<400> 4507
Met Asp Gln Leu Glu Asp Leu Leu Val Leu Phe Ile Asn Tyr Val Pro
1 5 10 15

Thr Asp Gly Asn Ala Gly Leu Leu Ala Glu Pro Gln Ile Ala Met Phe
20 25 30

Cys Gly Arg Leu Asn Met His Met Asn Val Gln Asn Gly Lys Trp Asp
35 40 45

Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp Thr Lys Glu Gly Ile
50 55 60

Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu Gln Ile Thr Asn Val
65 70 75 80

Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn Trp Cys Lys Arg Gly
85 90 95

Arg Lys Gln Cys Lys Thr His Pro His Phe Val Ile Pro Tyr Arg Cys
100 105 110

Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu Val Pro Asp Lys Cys
115 120 125

Lys Phe Leu His Gln Glu Arg Met Asp Val Cys Glu Thr His Leu His
130 135 140

Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu Lys Ser Thr Asn Leu
145 150 155 160

His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile Asp Lys Phe Arg Gly
165 170 175

Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu Ser Asp Asn Val Asp
180 185 190

Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val Trp Trp Gly Gly Ala
195 200 205

Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys Val Val Glu Val Ala

```
    210                 215                 220

Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu Glu Ala Asp Asp Asp
225                 230                 235                 240

Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu Glu Ala Glu Glu Pro
                245                 250                 255

Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile Ala Thr Thr Thr Thr
            260                 265                 270

Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg Glu Val Cys Ser Glu
        275                 280                 285

Gln Ala Glu Thr Gly Pro Cys Arg Ala Met Ile Ser Arg Trp Tyr Phe
    290                 295                 300

Asp Val Thr Glu Gly Lys Cys Ala Pro Phe Phe Tyr Gly Gly Cys Gly
305                 310                 315                 320

Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu Tyr Cys Met Ala Val Cys
                325                 330                 335

Gly Ser Ala Ile Pro Thr Thr Ala Ala Ser Thr Pro Asp Ala Val Asp
            340                 345                 350

Lys Tyr Leu Glu Thr Pro Gly Asp Glu Asn Glu His Ala His Phe Gln
        355                 360                 365

Lys Ala Lys Glu Arg Leu Glu Ala Lys His Arg Glu Arg Met Ser Gln
    370                 375                 380

Val Met Arg Glu Trp Glu Glu Ala Glu Arg Gln Ala Lys Asn Leu Pro
385                 390                 395                 400

Lys Ala Asp Lys Lys Ala Val Ile Gln His Phe Gln Glu Lys Val Glu
                405                 410                 415

Ser Leu Glu Gln Glu Ala Ala Asn Glu Arg Gln Gln Leu Val Glu Thr
            420                 425                 430

His Met Ala Arg Val Glu Ala Met Leu Asn Asp Arg Arg Arg Leu Ala
        435                 440                 445
```

```
Leu Glu Asn Tyr Ile Thr Ala Leu Gln Ala Val Pro Pro Arg Pro Arg
    450                 455                 460

His Val Phe Asn Met Leu Lys Lys Tyr Val Arg Ala Glu Gln Lys Asp
465                 470                 475                 480

Arg Gln His Thr Leu Lys His Phe Glu His Val Arg Met Val Asp Pro
                485                 490                 495

Lys Lys Ala Ala Gln Ile Arg Ser Gln Val Met Thr His Leu Arg Val
            500                 505                 510

Ile Tyr Glu Arg Met Asn Gln Ser Leu Ser Leu Leu Tyr Asn Val Pro
        515                 520                 525

Ala Val Ala Glu Glu Ile Gln Asp Glu Val Asp Glu Leu Leu Gln Lys
    530                 535                 540

Glu Gln Asn Tyr Ser Asp Asp Val Leu Ala Asn Met Ile Ser Glu Pro
545                 550                 555                 560

Arg Ile Ser Tyr Gly Asn Asp Ala Leu Met Pro Ser Leu Thr Glu Thr
                565                 570                 575

Lys Thr Thr Val Glu Leu Leu Pro Val Asn Gly Glu Phe Ser Leu Asp
            580                 585                 590

Asp Leu Gln Pro Trp His Ser Phe Gly Ala Asp Ser Val Pro Ala Asn
        595                 600                 605

Thr Glu Asn Glu Val Glu Pro Val Asp Ala Arg Pro Ala Ala Asp Arg
    610                 615                 620

Gly Leu Thr Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu
625                 630                 635                 640

Glu Ile Ser Glu Val Lys Met Asp Ala Glu Phe Arg His Asp Ser Gly
                645                 650                 655

Tyr Glu Val His His Gln Lys Leu Val Phe Phe Ala Glu Asp Val Gly
            660                 665                 670
```

```
Ser Asn Lys Gly Ala Ile Ile Gly Leu Met Val Gly Gly Val Val Ile
        675                 680                 685

Ala Thr Val Ile Val Ile Thr Leu Val Met Leu Lys Lys Lys Gln Tyr
    690                 695                 700

Thr Ser Ile His His Gly Val Val Glu Val Asp Ala Ala Val Thr Pro
705                 710                 715                 720

Glu Glu Arg His Leu Ser Lys Met Gln Gln Asn Gly Tyr Glu Asn Pro
                725                 730                 735

Thr Tyr Lys Phe Phe Glu Gln Met Gln Asn
            740                 745


<210> 4508
<211> 485
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: APP; "

<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396923"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4508
Xaa Leu Gln Ile Thr Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile
1               5                   10                  15

Gln Asn Trp Cys Lys Arg Gly Arg Lys Gln Cys Lys Thr His Pro His
            20                  25                  30
```

```
Phe Val Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala
        35                  40                  45

Leu Leu Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp
    50                  55                  60

Val Cys Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys
65                  70                  75                  80

Ser Glu Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys
                85                  90                  95

Gly Ile Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala
            100                 105                 110

Glu Glu Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser
        115                 120                 125

Asp Val Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu
    130                 135                 140

Asp Lys Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu
145                 150                 155                 160

Glu Glu Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val
                165                 170                 175

Glu Glu Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr
            180                 185                 190

Ser Ile Ala Thr Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val
        195                 200                 205

Val Arg Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala
    210                 215                 220

Met Ile Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro
225                 230                 235                 240

Phe Phe Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu
                245                 250                 255
```

```
Glu Tyr Cys Met Ala Val Cys Gly Ser Ala Ile Pro Thr Thr Ala Ala
            260                 265                 270

Ser Thr Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro Gly Asp Glu
        275                 280                 285

Asn Glu His Ala His Phe Gln Lys Ala Lys Glu Arg Leu Glu Ala Lys
    290                 295                 300

His Arg Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu Glu Ala Glu
305                 310                 315                 320

Arg Gln Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala Val Ile Gln
                325                 330                 335

His Phe Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala Ala Asn Glu
            340                 345                 350

Arg Gln Gln Leu Val Glu Thr His Met Ala Arg Val Glu Ala Met Leu
        355                 360                 365

Asn Asp Arg Arg Arg Leu Ala Leu Glu Asn Tyr Ile Thr Ala Leu Gln
    370                 375                 380

Ala Val Pro Pro Arg Pro Arg His Val Phe Asn Met Leu Lys Lys Tyr
385                 390                 395                 400

Val Arg Ala Glu Gln Lys Asp Arg Gln His Thr Leu Lys His Phe Glu
                405                 410                 415

His Val Arg Met Val Asp Pro Lys Lys Ala Ala Gln Ile Arg Ser Gln
            420                 425                 430

Val Met Thr His Leu Arg Val Ile Tyr Glu Arg Met Asn Gln Ser Leu
        435                 440                 445

Ser Leu Leu Tyr Asn Val Pro Ala Val Ala Glu Glu Ile Gln Asp Glu
    450                 455                 460

Val Gly Ala Val Ala His Ala Cys Asn Ser Ser Ile Leu Gly Gly Gln
465                 470                 475                 480

Gly Gly Gln Met Thr
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<210> 4509
<211> 714
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1007; "

<220>
<221> source
<223> /note="Gene Symbol: APP; "

<220>
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amyloid beta (A4) precursor prt; "

<220>
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<223> /note="ENSP ID: ENSP00000398879"

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Met Leu Pro Gly Leu Ala Leu Leu Leu Leu Ala Ala Trp Thr Ala Arg
1 5 10 15

Ala Leu Glu Val Tyr Pro Glu Leu Gln Ile Thr Asn Val Val Glu Ala
20 25 30

Asn Gln Pro Val Thr Ile Gln Asn Trp Cys Lys Arg Gly Arg Lys Gln
35 40 45

Cys Lys Thr His Pro His Phe Val Ile Pro Tyr Arg Cys Leu Val Gly
50 55 60

Glu Phe Val Ser Asp Ala Leu Leu Val Pro Asp Lys Cys Lys Phe Leu
65 70 75 80

His Gln Glu Arg Met Asp Val Cys Glu Thr His Leu His Trp His Thr
85 90 95

Val Ala Lys Glu Thr Cys Ser Glu Lys Ser Thr Asn Leu His Asp Tyr
100 105 110

Gly Met Leu Leu Pro Cys Gly Ile Asp Lys Phe Arg Gly Val Glu Phe
115 120 125

```
Val Cys Cys Pro Leu Ala Glu Glu Ser Asp Asn Val Asp Ser Ala Asp
    130                 135                 140

Ala Glu Glu Asp Asp Ser Asp Val Trp Trp Gly Gly Ala Asp Thr Asp
145                 150                 155                 160

Tyr Ala Asp Gly Ser Glu Asp Lys Val Val Glu Val Ala Glu Glu Glu
                165                 170                 175

Glu Val Ala Glu Val Glu Glu Glu Glu Ala Asp Asp Asp Glu Asp Asp
            180                 185                 190

Glu Asp Gly Asp Glu Val Glu Glu Glu Ala Glu Glu Pro Tyr Glu Glu
        195                 200                 205

Ala Thr Glu Arg Thr Thr Ser Ile Ala Thr Thr Thr Thr Thr Thr Thr
    210                 215                 220

Glu Ser Val Glu Glu Val Val Arg Glu Val Cys Ser Glu Gln Ala Glu
225                 230                 235                 240

Thr Gly Pro Cys Arg Ala Met Ile Ser Arg Trp Tyr Phe Asp Val Thr
                245                 250                 255

Glu Gly Lys Cys Ala Pro Phe Phe Tyr Gly Gly Cys Gly Gly Asn Arg
            260                 265                 270

Asn Asn Phe Asp Thr Glu Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
        275                 280                 285

Met Ser Gln Ser Leu Leu Lys Thr Thr Gln Glu Pro Leu Ala Arg Asp
    290                 295                 300

Pro Val Lys Leu Pro Thr Thr Ala Ala Ser Thr Pro Asp Ala Val Asp
305                 310                 315                 320

Lys Tyr Leu Glu Thr Pro Gly Asp Glu Asn Glu His Ala His Phe Gln
                325                 330                 335

Lys Ala Lys Glu Arg Leu Glu Ala Lys His Arg Glu Arg Met Ser Gln
            340                 345                 350
```

```
Val Met Arg Glu Trp Glu Glu Ala Glu Arg Gln Ala Lys Asn Leu Pro
        355                 360                 365

Lys Ala Asp Lys Lys Ala Val Ile Gln His Phe Gln Glu Lys Val Glu
    370                 375                 380

Ser Leu Glu Gln Glu Ala Ala Asn Glu Arg Gln Gln Leu Val Glu Thr
385                 390                 395                 400

His Met Ala Arg Val Glu Ala Met Leu Asn Asp Arg Arg Arg Leu Ala
                405                 410                 415

Leu Glu Asn Tyr Ile Thr Ala Leu Gln Ala Val Pro Pro Arg Pro Arg
            420                 425                 430

His Val Phe Asn Met Leu Lys Lys Tyr Val Arg Ala Glu Gln Lys Asp
        435                 440                 445

Arg Gln His Thr Leu Lys His Phe Glu His Val Arg Met Val Asp Pro
    450                 455                 460

Lys Lys Ala Ala Gln Ile Arg Ser Gln Val Met Thr His Leu Arg Val
465                 470                 475                 480

Ile Tyr Glu Arg Met Asn Gln Ser Leu Ser Leu Leu Tyr Asn Val Pro
                485                 490                 495

Ala Val Ala Glu Glu Ile Gln Asp Glu Val Asp Glu Leu Leu Gln Lys
            500                 505                 510

Glu Gln Asn Tyr Ser Asp Asp Val Leu Ala Asn Met Ile Ser Glu Pro
        515                 520                 525

Arg Ile Ser Tyr Gly Asn Asp Ala Leu Met Pro Ser Leu Thr Glu Thr
    530                 535                 540

Lys Thr Thr Val Glu Leu Leu Pro Val Asn Gly Glu Phe Ser Leu Asp
545                 550                 555                 560

Asp Leu Gln Pro Trp His Ser Phe Gly Ala Asp Ser Val Pro Ala Asn
                565                 570                 575

Thr Glu Asn Glu Val Glu Pro Val Asp Ala Arg Pro Ala Ala Asp Arg
```

```
            580                 585                 590

Gly Leu Thr Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu
        595                 600                 605

Glu Ile Ser Glu Val Lys Met Asp Ala Glu Phe Arg His Asp Ser Gly
    610                 615                 620

Tyr Glu Val His His Gln Lys Leu Val Phe Phe Ala Glu Asp Val Gly
625                 630                 635                 640

Ser Asn Lys Gly Ala Ile Ile Gly Leu Met Val Gly Gly Val Val Ile
                645                 650                 655

Ala Thr Val Ile Val Ile Thr Leu Val Met Leu Lys Lys Lys Gln Tyr
            660                 665                 670

Thr Ser Ile His His Gly Val Val Glu Val Asp Ala Ala Val Thr Pro
        675                 680                 685

Glu Glu Arg His Leu Ser Lys Met Gln Gln Asn Gly Tyr Glu Asn Pro
    690                 695                 700

Thr Tyr Lys Phe Phe Glu Gln Met Gln Asn
705                 710


<210> 4510
<211> 181
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1007; "

<220>
<221> source
<223> /note="Gene Symbol: APP; "

<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406539"
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4510
Xaa Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys Val
1   5   10   15

Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu Glu
            20   25   30

Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu Glu
        35   40   45

Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile Ala
    50   55   60

Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg Val
65   70   75   80

Ser Gln Ser Leu Leu Lys Thr Thr Gln Glu Pro Leu Ala Arg Asp Pro
                85   90   95

Val Lys Leu Pro Thr Thr Ala Ala Ser Thr Pro Asp Ala Val Asp Lys
            100   105   110

Tyr Leu Glu Thr Pro Gly Asp Glu Asn Glu His Ala His Phe Gln Lys
        115   120   125

Ala Lys Glu Arg Leu Glu Ala Lys His Arg Glu Arg Met Ser Gln Val
    130   135   140

Met Arg Glu Trp Glu Glu Ala Glu Arg Gln Ala Lys Asn Leu Pro Lys
145   150   155   160

Ala Asp Lys Lys Ala Val Ile Gln His Phe Gln Glu Lys Val Glu Ser
                165   170   175

Leu Glu Gln Glu Ala
            180

<210> 4511
<211> 837

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1008; "

<220>
<221> source
<223> /note="Gene Symbol: APBA1; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q02410; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265381"

<400> 4511
Met Asn His Leu Glu Gly Ser Ala Glu Val Glu Val Thr Asp Glu Ala
1   5   10   15

Ala Gly Gly Glu Val Asn Glu Ser Val Glu Ala Asp Leu Glu His Pro
            20   25   30

Glu Val Glu Glu Glu Gln Gln Gln Pro Pro Gln Gln Gln His Tyr Val
        35   40   45

Gly Arg His Gln Arg Gly Arg Ala Leu Glu Asp Leu Arg Ala Gln Leu
    50   55   60

Gly Gln Glu Glu Glu Glu Arg Gly Glu Cys Leu Ala Arg Ser Ala Ser
65   70   75   80

Thr Glu Ser Gly Phe His Asn His Thr Asp Thr Ala Glu Gly Asp Val
                85   90   95

Ile Ala Ala Ala Arg Asp Gly Tyr Asp Ala Glu Arg Ala Gln Asp Pro
            100   105   110

Glu Asp Glu Ser Ala Tyr Ala Val Gln Tyr Arg Pro Glu Ala Glu Glu
        115   120   125

```
Tyr Thr Glu Gln Ala Glu Ala Glu His Ala Glu Ala Thr His Arg Arg
    130                 135                 140

Ala Leu Pro Asn His Leu His Phe His Ser Leu Glu His Glu Glu Ala
145                 150                 155                 160

Met Asn Ala Ala Tyr Ser Gly Tyr Val Tyr Thr His Arg Leu Phe His
                165                 170                 175

Arg Gly Glu Asp Glu Pro Tyr Ser Glu Pro Tyr Ala Asp Tyr Gly Gly
            180                 185                 190

Leu Gln Glu His Val Tyr Glu Glu Ile Gly Asp Ala Pro Glu Leu Asp
        195                 200                 205

Ala Arg Asp Gly Leu Arg Leu Tyr Glu Gln Glu Arg Asp Glu Ala Ala
    210                 215                 220

Ala Tyr Arg Gln Glu Ala Leu Gly Ala Arg Leu His His Tyr Asp Glu
225                 230                 235                 240

Arg Ser Asp Gly Glu Ser Asp Ser Pro Glu Lys Glu Ala Glu Phe Ala
                245                 250                 255

Pro Tyr Pro Arg Met Asp Ser Tyr Glu Gln Glu Glu Asp Ile Asp Gln
            260                 265                 270

Ile Val Ala Glu Val Lys Gln Ser Met Ser Ser Gln Ser Leu Asp Lys
        275                 280                 285

Ala Ala Glu Asp Met Pro Glu Ala Glu Gln Asp Leu Glu Arg Pro Pro
    290                 295                 300

Thr Pro Ala Gly Gly Arg Pro Asp Ser Pro Gly Leu Gln Ala Pro Ala
305                 310                 315                 320

Gly Gln Gln Arg Ala Val Gly Pro Ala Gly Gly Gly Glu Ala Gly Gln
                325                 330                 335

Arg Tyr Ser Lys Glu Lys Arg Asp Ala Ile Ser Leu Ala Ile Lys Asp
            340                 345                 350
```

```
Ile Lys Glu Ala Ile Glu Glu Val Lys Thr Arg Thr Ile Arg Ser Pro
        355                 360                 365

Tyr Thr Pro Asp Glu Pro Lys Glu Pro Ile Trp Val Met Arg Gln Asp
    370                 375                 380

Ile Ser Pro Thr Arg Asp Cys Asp Asp Gln Arg Pro Met Asp Gly Asp
385                 390                 395                 400

Ser Pro Ser Pro Gly Ser Ser Ser Pro Leu Gly Ala Glu Ser Ser Ser
                405                 410                 415

Thr Ser Leu His Pro Ser Asp Pro Val Glu Ala Ser Thr Asn Lys Glu
            420                 425                 430

Ser Arg Lys Ser Leu Ala Ser Phe Pro Thr Tyr Val Glu Val Pro Gly
        435                 440                 445

Pro Cys Asp Pro Glu Asp Leu Ile Asp Gly Ile Ile Phe Ala Ala Asn
    450                 455                 460

Tyr Leu Gly Ser Thr Gln Leu Leu Ser Asp Lys Thr Pro Ser Lys Asn
465                 470                 475                 480

Val Arg Met Met Gln Ala Gln Glu Ala Val Ser Arg Ile Lys Met Ala
                485                 490                 495

Gln Lys Leu Ala Lys Ser Arg Lys Lys Ala Pro Glu Gly Glu Ser Gln
            500                 505                 510

Pro Met Thr Glu Val Asp Leu Phe Ile Ser Thr Gln Arg Ile Lys Val
        515                 520                 525

Leu Asn Ala Asp Thr Gln Glu Thr Met Met Asp His Pro Leu Arg Thr
    530                 535                 540

Ile Ser Tyr Ile Ala Asp Ile Gly Asn Ile Val Val Leu Met Ala Arg
545                 550                 555                 560

Arg Arg Met Pro Arg Ser Asn Ser Gln Glu Asn Val Glu Ala Ser His
                565                 570                 575

Pro Ser Gln Asp Gly Lys Arg Gln Tyr Lys Met Ile Cys His Val Phe
```

```
            580                 585                 590

Glu Ser Glu Asp Ala Gln Leu Ile Ala Gln Ser Ile Gly Gln Ala Phe
        595                 600                 605

Ser Val Ala Tyr Gln Glu Phe Leu Arg Ala Asn Gly Ile Asn Pro Glu
    610                 615                 620

Asp Leu Ser Gln Lys Glu Tyr Ser Asp Leu Leu Asn Thr Gln Asp Met
625                 630                 635                 640

Tyr Asn Asp Asp Leu Ile His Phe Ser Lys Ser Glu Asn Cys Lys Asp
                645                 650                 655

Val Phe Ile Glu Lys Gln Lys Gly Glu Ile Leu Gly Val Val Ile Val
            660                 665                 670

Glu Ser Gly Trp Gly Ser Ile Leu Pro Thr Val Ile Ile Ala Asn Met
        675                 680                 685

Met His Gly Gly Pro Ala Glu Lys Ser Gly Lys Leu Asn Ile Gly Asp
    690                 695                 700

Gln Ile Met Ser Ile Asn Gly Thr Ser Leu Val Gly Leu Pro Leu Ser
705                 710                 715                 720

Thr Cys Gln Ser Ile Ile Lys Gly Leu Lys Asn Gln Ser Arg Val Lys
                725                 730                 735

Leu Asn Ile Val Arg Cys Pro Pro Val Thr Thr Val Leu Ile Arg Arg
            740                 745                 750

Pro Asp Leu Arg Tyr Gln Leu Gly Phe Ser Val Gln Asn Gly Ile Ile
        755                 760                 765

Cys Ser Leu Met Arg Gly Gly Ile Ala Glu Arg Gly Gly Val Arg Val
    770                 775                 780

Gly His Arg Ile Ile Glu Ile Asn Gly Gln Ser Val Val Ala Thr Pro
785                 790                 795                 800

His Glu Lys Ile Val His Ile Leu Ser Asn Ala Val Gly Glu Ile His
                805                 810                 815
```

```
Met Lys Thr Met Pro Ala Ala Met Tyr Arg Leu Leu Thr Ala Gln Glu
            820                 825                 830

Gln Pro Val Tyr Ile
        835
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<210> 4512
<211> 437
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1008; "

<220>
<221> source
<223> /note="Gene Symbol: APBA1; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479031"

<400> 4512

```
Ser Pro Ser Pro Gly Ser Ser Ser Pro Leu Gly Ala Glu Ser Ser Ser
1               5                  10                  15

Thr Ser Leu His Pro Ser Asp Pro Val Glu Ala Ser Thr Asn Lys Glu
            20                  25                  30

Ser Arg Lys Ser Leu Ala Ser Phe Pro Thr Tyr Val Glu Val Pro Gly
        35                  40                  45

Pro Cys Asp Pro Glu Asp Leu Ile Asp Gly Ile Ile Phe Ala Ala Asn
    50                  55                  60

Tyr Leu Gly Ser Thr Gln Leu Leu Ser Asp Lys Thr Pro Ser Lys Asn
65                  70                  75                  80

Val Arg Met Met Gln Ala Gln Glu Ala Val Ser Arg Ile Lys Met Ala
                85                  90                  95
```

```
Gln Lys Leu Ala Lys Ser Arg Lys Lys Ala Pro Glu Gly Glu Ser Gln
            100                 105                 110

Pro Met Thr Glu Val Asp Leu Phe Ile Ser Thr Gln Arg Ile Lys Val
        115                 120                 125

Leu Asn Ala Asp Thr Gln Glu Thr Met Met Asp His Pro Leu Arg Thr
    130                 135                 140

Ile Ser Tyr Ile Ala Asp Ile Gly Asn Ile Val Val Leu Met Ala Arg
145                 150                 155                 160

Arg Arg Met Pro Arg Ser Asn Ser Gln Glu Asn Val Glu Ala Ser His
                165                 170                 175

Pro Ser Gln Asp Gly Lys Arg Gln Tyr Lys Met Ile Cys His Val Phe
            180                 185                 190

Glu Ser Glu Asp Ala Gln Leu Ile Ala Gln Ser Ile Gly Gln Ala Phe
        195                 200                 205

Ser Val Ala Tyr Gln Glu Phe Leu Arg Ala Asn Gly Ile Asn Pro Glu
    210                 215                 220

Asp Leu Ser Gln Lys Glu Tyr Ser Asp Leu Leu Asn Thr Gln Asp Met
225                 230                 235                 240

Tyr Asn Asp Asp Leu Ile His Phe Ser Lys Ser Glu Asn Cys Lys Asp
                245                 250                 255

Val Phe Ile Glu Lys Gln Lys Gly Glu Ile Leu Gly Val Val Ile Val
            260                 265                 270

Glu Ser Gly Trp Gly Ser Ile Leu Pro Thr Val Ile Ile Ala Asn Met
        275                 280                 285

Met His Gly Gly Pro Ala Glu Lys Ser Gly Lys Leu Asn Ile Gly Asp
    290                 295                 300

Gln Ile Met Ser Ile Asn Gly Thr Ser Leu Val Gly Leu Pro Leu Ser
305                 310                 315                 320
```

```
Thr Cys Gln Ser Ile Ile Lys Gly Leu Lys Asn Gln Ser Arg Val Lys
                325                 330                 335

Leu Asn Ile Val Arg Cys Pro Pro Val Thr Thr Val Leu Ile Arg Arg
            340                 345                 350

Pro Asp Leu Arg Tyr Gln Leu Gly Phe Ser Val Gln Asn Gly Ile Ile
        355                 360                 365

Cys Ser Leu Met Arg Gly Gly Ile Ala Glu Arg Gly Gly Val Arg Val
    370                 375                 380

Gly His Arg Ile Ile Glu Ile Asn Gly Gln Ser Val Val Ala Thr Pro
385                 390                 395                 400

His Glu Lys Ile Val His Ile Leu Ser Asn Ala Val Gly Glu Ile His
                405                 410                 415

Met Lys Thr Met Pro Ala Ala Met Tyr Arg Leu Leu Thr Ala Gln Glu
            420                 425                 430

Gln Pro Val Tyr Ile
        435


<210> 4513
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1008; "

<220>
<221> source
<223> /note="Gene Symbol: APBA1; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family A,
      member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486435"

<400> 4513
Glu Asp Leu Ile Asp Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser
```

```
1               5                   10                  15

Thr Gln Leu Leu Ser Asp Lys Thr Pro Ser Lys Asn Val Arg Met Met
            20                  25                  30

Gln Ala Gln Glu Ala Val Ser Arg Ile Lys Ala Pro Glu Gly Glu Ser
        35                  40                  45

Gln Pro Met Thr Glu Val Asp Leu Phe Ile Ser Thr Gln Arg Ile Lys
    50                  55                  60

Val Leu Asn Ala Asp Thr Gln Glu Thr Met Met Asp His Pro Leu Arg
65                  70                  75                  80

Thr Ile Ser Tyr Ile Ala Asp Ile Gly Asn Ile Val Val Leu Met Ala
                85                  90                  95

Arg Arg Arg Met Pro Arg Ser Asn Ser Gln Glu Asn Val Glu Ala Ser
            100                 105                 110

His Pro Ser Gln Asp Gly Lys Arg Gln Tyr
        115                 120


<210> 4514
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1008; "

<220>
<221> source
<223> /note="Gene Symbol: APBA1; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family A,
      member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486873"

<400> 4514
Glu Asp Leu Ile Asp Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser
1               5                   10                  15
```

```
Thr Gln Leu Leu Ser Asp Lys Thr Pro Ser Lys Asn Val Arg Met Met
            20                  25                  30

Gln Ala Gln Glu Ala Val Ser Arg Ile Lys Ala Pro Glu Gly Glu Ser
        35                  40                  45

Gln Pro Met Thr Glu Val Asp Leu Phe Ile Ser Thr Gln Arg Ile Lys
    50                  55                  60

Val Leu Asn Ala Asp Thr Gln Glu Thr Met Met Asp His Pro Leu Arg
65                  70                  75                  80

Thr Ile Ser Tyr Ile Ala Asp Ile Gly Asn Ile Val Val Leu Met Ala
                85                  90                  95

Arg Arg Arg Met Pro Arg Ser Asn Ser Gln Glu Asn Val Glu Ala Ser
            100                 105                 110

His Pro Ser Gln Asp Gly Lys Arg Gln Tyr
        115                 120


<210> 4515
<211> 737
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family A,
      member 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q99767; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409312"
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<400> 4515
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1 5 10 15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
20 25 30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
35 40 45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
50 55 60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65 70 75 80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
85 90 95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
100 105 110

Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
115 120 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
130 135 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145 150 155 160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
165 170 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
180 185 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
195 200 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
210 215 220

```
Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
            260                 265                 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
        275                 280                 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
    290                 295                 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305                 310                 315                 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
                325                 330                 335

Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
            340                 345                 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
        355                 360                 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
    370                 375                 380

Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
385                 390                 395                 400

Val Ser Arg Val Lys Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu
                405                 410                 415

Val Asp Leu Phe Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp
            420                 425                 430

Thr Gln Glu Thr Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile
        435                 440                 445

Ala Asp Ile Gly Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro
```

```
    450                 455                 460

Arg Ser Ala Ser Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu
465                 470                 475                 480

Gly Lys Lys Gln Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp
                485                 490                 495

Ala Gln Leu Ile Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr
            500                 505                 510

Gln Glu Phe Leu Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln
        515                 520                 525

Lys Glu Tyr Ser Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp
    530                 535                 540

Leu Ile His Phe Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu
545                 550                 555                 560

Lys His Lys Gly Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp
                565                 570                 575

Gly Ser Ile Leu Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly
            580                 585                 590

Pro Ala Ala Arg Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser
        595                 600                 605

Ile Asn Gly Thr Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly
    610                 615                 620

Ile Ile Lys Gly Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val
625                 630                 635                 640

Ser Cys Pro Pro Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys
                645                 650                 655

Tyr Gln Leu Gly Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met
            660                 665                 670

Arg Gly Gly Ile Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile
        675                 680                 685
```

```
Ile Glu Ile Asn Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile
    690                 695                 700

Val Gln Ala Leu Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met
705                 710                 715                 720

Pro Ala Ala Met Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr
                725                 730                 735

Ile
```

<210> 4516
<211> 4
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452699"

<400> 4516
Met Ala His Arg
1

<210> 4517
<211> 737
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
<221> source

<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q99767; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452722"

<400> 4517

```
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1               5                   10                  15


Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20                  25                  30


Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35                  40                  45


Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50                  55                  60


Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65                  70                  75                  80


Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85                  90                  95


Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100                 105                 110


Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115                 120                 125


Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130                 135                 140


Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145                 150                 155                 160
```

```
Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165                 170                 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180                 185                 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195                 200                 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
            260                 265                 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
        275                 280                 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
    290                 295                 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305                 310                 315                 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
                325                 330                 335

Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
            340                 345                 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
        355                 360                 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
    370                 375                 380

Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
```

385 390 395 400

Val Ser Arg Val Lys Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu
405 410 415

Val Asp Leu Phe Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp
420 425 430

Thr Gln Glu Thr Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile
435 440 445

Ala Asp Ile Gly Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro
450 455 460

Arg Ser Ala Ser Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu
465 470 475 480

Gly Lys Lys Gln Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp
485 490 495

Ala Gln Leu Ile Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr
500 505 510

Gln Glu Phe Leu Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln
515 520 525

Lys Glu Tyr Ser Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp
530 535 540

Leu Ile His Phe Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu
545 550 555 560

Lys His Lys Gly Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp
565 570 575

Gly Ser Ile Leu Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly
580 585 590

Pro Ala Ala Arg Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser
595 600 605

Ile Asn Gly Thr Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly
610 615 620

```
Ile Ile Lys Gly Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val
625                 630                 635                 640

Ser Cys Pro Pro Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys
                645                 650                 655

Tyr Gln Leu Gly Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met
            660                 665                 670

Arg Gly Gly Ile Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile
        675                 680                 685

Ile Glu Ile Asn Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile
    690                 695                 700

Val Gln Ala Leu Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met
705                 710                 715                 720

Pro Ala Ala Met Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr
                725                 730                 735

Ile
```

<210> 4518
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453034"

<400> 4518
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1   5   10   15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20   25   30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35   40   45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50   55   60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65   70   75   80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85   90   95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100   105   110

<210> 4519
<211> 749
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family A,
      member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q99767; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453144"

<400> 4519

```
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1               5                  10                  15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20                  25                  30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35                  40                  45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50                  55                  60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65                  70                  75                  80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85                  90                  95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100                 105                 110

Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115                 120                 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130                 135                 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145                 150                 155                 160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165                 170                 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180                 185                 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195                 200                 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
```

225 230 235 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
245 250 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
260 265 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
275 280 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
290 295 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305 310 315 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
325 330 335

Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
340 345 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
355 360 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
370 375 380

Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
385 390 395 400

Val Ser Arg Val Lys Arg Met Gln Lys Ala Ala Lys Ile Lys Lys Lys
405 410 415

Ala Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu Val Asp Leu Phe
420 425 430

Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp Thr Gln Glu Thr
435 440 445

Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile Ala Asp Ile Gly
450 455 460

```
Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro Arg Ser Ala Ser
465                 470                 475                 480

Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu Gly Lys Lys Gln
                485                 490                 495

Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp Ala Gln Leu Ile
            500                 505                 510

Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr Gln Glu Phe Leu
        515                 520                 525

Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln Lys Glu Tyr Ser
    530                 535                 540

Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp Leu Ile His Phe
545                 550                 555                 560

Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu Lys His Lys Gly
                565                 570                 575

Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp Gly Ser Ile Leu
            580                 585                 590

Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly Pro Ala Ala Arg
        595                 600                 605

Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser Ile Asn Gly Thr
    610                 615                 620

Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly Ile Ile Lys Gly
625                 630                 635                 640

Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val Ser Cys Pro Pro
                645                 650                 655

Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys Tyr Gln Leu Gly
            660                 665                 670

Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met Arg Gly Gly Ile
        675                 680                 685
```

```
Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile Ile Glu Ile Asn
    690                 695                 700

Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile Val Gln Ala Leu
705                 710                 715                 720

Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met Pro Ala Ala Met
                725                 730                 735

Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr Ile
            740                 745


<210> 4520
<211> 749
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family A,
      member 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q99767; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453293"

<400> 4520
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1               5                   10                  15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20                  25                  30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35                  40                  45
```

```
Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50                  55                  60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65                  70                  75                  80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85                  90                  95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100                 105                 110

Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115                 120                 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130                 135                 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145                 150                 155                 160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165                 170                 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180                 185                 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195                 200                 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
            260                 265                 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
```

275 280 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
290 295 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305 310 315 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
325 330 335

Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
340 345 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
355 360 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
370 375 380

Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
385 390 395 400

Val Ser Arg Val Lys Arg Met Gln Lys Ala Ala Lys Ile Lys Lys Lys
405 410 415

Ala Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu Val Asp Leu Phe
420 425 430

Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp Thr Gln Glu Thr
435 440 445

Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile Ala Asp Ile Gly
450 455 460

Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro Arg Ser Ala Ser
465 470 475 480

Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu Gly Lys Lys Gln
485 490 495

Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp Ala Gln Leu Ile
500 505 510

```
Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr Gln Glu Phe Leu
        515                 520                 525

Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln Lys Glu Tyr Ser
    530                 535                 540

Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp Leu Ile His Phe
545                 550                 555                 560

Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu Lys His Lys Gly
                565                 570                 575

Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp Gly Ser Ile Leu
            580                 585                 590

Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly Pro Ala Ala Arg
        595                 600                 605

Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser Ile Asn Gly Thr
    610                 615                 620

Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly Ile Ile Lys Gly
625                 630                 635                 640

Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val Ser Cys Pro Pro
                645                 650                 655

Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys Tyr Gln Leu Gly
            660                 665                 670

Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met Arg Gly Gly Ile
        675                 680                 685

Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile Ile Glu Ile Asn
    690                 695                 700

Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile Val Gln Ala Leu
705                 710                 715                 720

Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met Pro Ala Ala Met
                725                 730                 735
```

Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr Ile
740 745

<210> 4521
<211> 263
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: APBA2; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453715"

<400> 4521
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1 5 10 15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
20 25 30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
35 40 45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
50 55 60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65 70 75 80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
85 90 95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
100 105 110

```
Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115                 120                 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130                 135                 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145                 150                 155                 160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165                 170                 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180                 185                 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195                 200                 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu
            260


<210> 4522
<211> 27
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family A,
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member 2; "

<220>
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<223> /note="ENSP ID: ENSP00000453981"

<400> 4522
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1   5   10   15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln
            20   25

<210> 4523
<211> 70
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
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<223> /note="ENSP ID: ENSP00000454001"

<400> 4523
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1   5   10   15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20   25   30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35   40   45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50   55   60

Asn His Ser Pro Asp Gly
65   70

<210> 4524
<211> 749
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q99767; "

<220>
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<223> /note="ENSP ID: ENSP00000454171"

<400> 4524
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1   5   10   15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20   25   30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35   40   45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50   55   60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65   70   75   80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85   90   95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100   105   110

```
Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115                 120                 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130                 135                 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145                 150                 155                 160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165                 170                 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180                 185                 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195                 200                 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
            260                 265                 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
        275                 280                 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
    290                 295                 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305                 310                 315                 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
                325                 330                 335
```

```
Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
            340                 345                 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
        355                 360                 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
    370                 375                 380

Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
385                 390                 395                 400

Val Ser Arg Val Lys Arg Met Gln Lys Ala Ala Lys Ile Lys Lys Lys
                405                 410                 415

Ala Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu Val Asp Leu Phe
            420                 425                 430

Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp Thr Gln Glu Thr
        435                 440                 445

Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile Ala Asp Ile Gly
    450                 455                 460

Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro Arg Ser Ala Ser
465                 470                 475                 480

Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu Gly Lys Lys Gln
                485                 490                 495

Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp Ala Gln Leu Ile
            500                 505                 510

Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr Gln Glu Phe Leu
        515                 520                 525

Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln Lys Glu Tyr Ser
    530                 535                 540

Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp Leu Ile His Phe
545                 550                 555                 560

Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu Lys His Lys Gly
```

565 570 575

Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp Gly Ser Ile Leu
580 585 590

Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly Pro Ala Ala Arg
595 600 605

Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser Ile Asn Gly Thr
610 615 620

Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly Ile Ile Lys Gly
625 630 635 640

Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val Ser Cys Pro Pro
645 650 655

Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys Tyr Gln Leu Gly
660 665 670

Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met Arg Gly Gly Ile
675 680 685

Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile Ile Glu Ile Asn
690 695 700

Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile Val Gln Ala Leu
705 710 715 720

Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met Pro Ala Ala Met
725 730 735

Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr Ile
740 745

<210> 4525
<211> 749
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q99767; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480384"

<400> 4525

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Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1               5                  10                  15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20                  25                  30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35                  40                  45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50                  55                  60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65                  70                  75                  80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85                  90                  95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100                 105                 110

Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115                 120                 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130                 135                 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145                 150                 155                 160
```

```
Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165                 170                 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180                 185                 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195                 200                 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
            260                 265                 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
        275                 280                 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
    290                 295                 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305                 310                 315                 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
                325                 330                 335

Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
            340                 345                 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
        355                 360                 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
    370                 375                 380
```

```
Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
385                 390                 395                 400

Val Ser Arg Val Lys Arg Met Gln Lys Ala Ala Lys Ile Lys Lys Lys
                405                 410                 415

Ala Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu Val Asp Leu Phe
            420                 425                 430

Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp Thr Gln Glu Thr
        435                 440                 445

Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile Ala Asp Ile Gly
    450                 455                 460

Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro Arg Ser Ala Ser
465                 470                 475                 480

Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu Gly Lys Lys Gln
                485                 490                 495

Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp Ala Gln Leu Ile
            500                 505                 510

Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr Gln Glu Phe Leu
        515                 520                 525

Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln Lys Glu Tyr Ser
    530                 535                 540

Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp Leu Ile His Phe
545                 550                 555                 560

Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu Lys His Lys Gly
                565                 570                 575

Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp Gly Ser Ile Leu
            580                 585                 590

Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly Pro Ala Ala Arg
        595                 600                 605

Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser Ile Asn Gly Thr
```

610 615 620

Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly Ile Ile Lys Gly
625 630 635 640

Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val Ser Cys Pro Pro
645 650 655

Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys Tyr Gln Leu Gly
660 665 670

Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met Arg Gly Gly Ile
675 680 685

Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile Ile Glu Ile Asn
690 695 700

Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile Val Gln Ala Leu
705 710 715 720

Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met Pro Ala Ala Met
725 730 735

Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr Ile
740 745

<210> 4526
<211> 737
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q99767; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483174"

<400> 4526
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1   5   10   15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
            20   25   30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
        35   40   45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50   55   60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65   70   75   80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85   90   95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100   105   110

Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115   120   125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130   135   140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145   150   155   160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165   170   175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180   185   190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195   200   205

```
Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
            260                 265                 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
        275                 280                 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
    290                 295                 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305                 310                 315                 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
                325                 330                 335

Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
            340                 345                 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
        355                 360                 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
    370                 375                 380

Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
385                 390                 395                 400

Val Ser Arg Val Lys Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu
                405                 410                 415

Val Asp Leu Phe Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp
            420                 425                 430
```

```
Thr Gln Glu Thr Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile
        435                 440                 445

Ala Asp Ile Gly Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro
    450                 455                 460

Arg Ser Ala Ser Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu
465                 470                 475                 480

Gly Lys Lys Gln Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp
                485                 490                 495

Ala Gln Leu Ile Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr
            500                 505                 510

Gln Glu Phe Leu Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln
        515                 520                 525

Lys Glu Tyr Ser Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp
    530                 535                 540

Leu Ile His Phe Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu
545                 550                 555                 560

Lys His Lys Gly Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp
                565                 570                 575

Gly Ser Ile Leu Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly
            580                 585                 590

Pro Ala Ala Arg Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser
        595                 600                 605

Ile Asn Gly Thr Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly
    610                 615                 620

Ile Ile Lys Gly Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val
625                 630                 635                 640

Ser Cys Pro Pro Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys
                645                 650                 655

Tyr Gln Leu Gly Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met
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660 665 670

Arg Gly Gly Ile Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile
675 680 685

Ile Glu Ile Asn Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile
690 695 700

Val Gln Ala Leu Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met
705 710 715 720

Pro Ala Ala Met Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr
725 730 735

Ile

<210> 4527
<211> 263
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
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<223> /note="Gene Name:
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member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487880"

<400> 4527
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1 5 10 15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
20 25 30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
35 40 45

```
Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
    50                  55                  60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65                  70                  75                  80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
                85                  90                  95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
            100                 105                 110

Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
        115                 120                 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
    130                 135                 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145                 150                 155                 160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
                165                 170                 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
            180                 185                 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
        195                 200                 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu
            260
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<210> 4528
<211> 27
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488031"

<400> 4528
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1 5 10 15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln
20 25

<210> 4529
<211> 749
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1009; "

<220>
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amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q99767; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000488107"

<400> 4529
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1 5 10 15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
20 25 30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
35 40 45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
50 55 60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65 70 75 80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
85 90 95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
100 105 110

Gly Met Asp Cys Asn Gly Glu Glu Tyr Leu Ala His Ser Ala His Pro
115 120 125

Val Asp Thr Asp Glu Cys Gln Glu Ala Val Glu Glu Trp Thr Asp Ser
130 135 140

Ala Gly Pro His Pro His Gly His Glu Ala Glu Gly Ser Gln Asp Tyr
145 150 155 160

Pro Asp Gly Gln Leu Pro Ile Pro Glu Asp Glu Pro Ser Val Leu Glu
165 170 175

Ala His Asp Gln Glu Glu Asp Gly His Tyr Cys Ala Ser Lys Glu Gly
180 185 190

Tyr Gln Asp Tyr Tyr Pro Glu Glu Ala Asn Gly Asn Thr Gly Ala Ser
195 200 205

Pro Tyr Arg Leu Arg Arg Gly Asp Gly Asp Leu Glu Asp Gln Glu Glu

```
    210                 215                 220

Asp Ile Asp Gln Ile Val Ala Glu Ile Lys Met Ser Leu Ser Met Thr
225                 230                 235                 240

Ser Ile Thr Ser Ala Ser Glu Ala Ser Pro Glu His Gly Pro Glu Pro
                245                 250                 255

Gly Pro Glu Asp Ser Val Glu Ala Cys Pro Pro Ile Lys Ala Ser Cys
            260                 265                 270

Ser Pro Ser Arg His Glu Ala Arg Pro Lys Ser Leu Asn Leu Leu Pro
        275                 280                 285

Glu Ala Lys His Pro Gly Asp Pro Gln Arg Gly Phe Lys Pro Lys Thr
    290                 295                 300

Arg Thr Pro Glu Glu Arg Leu Lys Trp Pro His Glu Gln Val Cys Asn
305                 310                 315                 320

Gly Leu Glu Gln Pro Arg Lys Gln Gln Arg Ser Asp Leu Asn Gly Pro
                325                 330                 335

Val Asp Asn Asn Asn Ile Pro Glu Thr Lys Lys Val Ala Ser Phe Pro
            340                 345                 350

Ser Phe Val Ala Val Pro Gly Pro Cys Glu Pro Glu Asp Leu Ile Asp
        355                 360                 365

Gly Ile Ile Phe Ala Ala Asn Tyr Leu Gly Ser Thr Gln Leu Leu Ser
    370                 375                 380

Glu Arg Asn Pro Ser Lys Asn Ile Arg Met Met Gln Ala Gln Glu Ala
385                 390                 395                 400

Val Ser Arg Val Lys Arg Met Gln Lys Ala Ala Lys Ile Lys Lys Lys
                405                 410                 415

Ala Asn Ser Glu Gly Asp Ala Gln Thr Leu Thr Glu Val Asp Leu Phe
            420                 425                 430

Ile Ser Thr Gln Arg Ile Lys Val Leu Asn Ala Asp Thr Gln Glu Thr
        435                 440                 445
```

```
Met Met Asp His Ala Leu Arg Thr Ile Ser Tyr Ile Ala Asp Ile Gly
    450                 455                 460

Asn Ile Val Val Leu Met Ala Arg Arg Arg Met Pro Arg Ser Ala Ser
465                 470                 475                 480

Gln Asp Cys Ile Glu Thr Thr Pro Gly Ala Gln Glu Gly Lys Lys Gln
                485                 490                 495

Tyr Lys Met Ile Cys His Val Phe Glu Ser Glu Asp Ala Gln Leu Ile
            500                 505                 510

Ala Gln Ser Ile Gly Gln Ala Phe Ser Val Ala Tyr Gln Glu Phe Leu
        515                 520                 525

Arg Ala Asn Gly Ile Asn Pro Glu Asp Leu Ser Gln Lys Glu Tyr Ser
    530                 535                 540

Asp Ile Ile Asn Thr Gln Glu Met Tyr Asn Asp Asp Leu Ile His Phe
545                 550                 555                 560

Ser Asn Ser Glu Asn Cys Lys Glu Leu Gln Leu Glu Lys His Lys Gly
                565                 570                 575

Glu Ile Leu Gly Val Val Val Val Glu Ser Gly Trp Gly Ser Ile Leu
            580                 585                 590

Pro Thr Val Ile Leu Ala Asn Met Met Asn Gly Gly Pro Ala Ala Arg
        595                 600                 605

Ser Gly Lys Leu Ser Ile Gly Asp Gln Ile Met Ser Ile Asn Gly Thr
    610                 615                 620

Ser Leu Val Gly Leu Pro Leu Ala Thr Cys Gln Gly Ile Ile Lys Gly
625                 630                 635                 640

Leu Lys Asn Gln Thr Gln Val Lys Leu Asn Ile Val Ser Cys Pro Pro
                645                 650                 655

Val Thr Thr Val Leu Ile Lys Arg Pro Asp Leu Lys Tyr Gln Leu Gly
            660                 665                 670
```

```
Phe Ser Val Gln Asn Gly Ile Ile Cys Ser Leu Met Arg Gly Gly Ile
        675                 680                 685

Ala Glu Arg Gly Gly Val Arg Val Gly His Arg Ile Ile Glu Ile Asn
    690                 695                 700

Gly Gln Ser Val Val Ala Thr Ala His Glu Lys Ile Val Gln Ala Leu
705                 710                 715                 720

Ser Asn Ser Val Gly Glu Ile His Met Lys Thr Met Pro Ala Ala Met
                725                 730                 735

Phe Arg Leu Leu Thr Gly Gln Glu Thr Pro Leu Tyr Ile
            740                 745


<210> 4530
<211> 4
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<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1009; "

<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family A,
      member 2; "

<220>
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<223> /note="ENSP ID: ENSP00000488322"

<400> 4530
Met Ala His Arg
1


<210> 4531
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
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<223> /note="ENSP ID: ENSP00000488620"

<400> 4531
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1 5 10 15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
20 25 30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
35 40 45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
50 55 60

Asn His Ser Pro Asp Gly Asp Ser Ser Ser Asp Tyr Val Asn Asn Thr
65 70 75 80

Ser Glu Glu Glu Asp Tyr Asp Glu Gly Leu Pro Glu Glu Glu Glu Gly
85 90 95

Ile Thr Tyr Tyr Ile Arg Tyr Cys Pro Glu Asp Asp Ser Tyr Leu Glu
100 105 110

<210> 4532
<211> 70
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APBA2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 2; "

<220>
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<223> /note="ENSP ID: ENSP00000488632"

<400> 4532
Met Ala His Arg Lys Leu Glu Ser Val Gly Ser Gly Met Leu Asp His
1 5 10 15

Arg Val Arg Pro Gly Pro Val Pro His Ser Gln Glu Pro Glu Ser Glu
20 25 30

Asp Met Glu Leu Pro Leu Glu Gly Tyr Val Pro Glu Gly Leu Glu Leu
35 40 45

Ala Ala Leu Arg Pro Glu Ser Pro Ala Pro Glu Glu Gln Glu Cys His
50 55 60

Asn His Ser Pro Asp Gly
65 70

<210> 4533
<211> 575
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APBA3; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family A,
member 3; "

<220>
<221> source
<223> /note="Uniprot ID: O96018; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000315136"

<400> 4533
Met Asp Phe Pro Thr Ile Ser Arg Ser Pro Ser Gly Pro Pro Ala Met
1 5 10 15

Asp Leu Glu Gly Pro Arg Asp Ile Leu Val Pro Ser Glu Asp Leu Thr
20 25 30

Pro Asp Ser Gln Trp Asp Pro Met Pro Gly Gly Pro Gly Ser Leu Ser
35 40 45

Arg Met Glu Leu Asp Glu Ser Ser Leu Gln Glu Leu Val Gln Gln Phe
50 55 60

Glu Ala Leu Pro Gly Asp Leu Val Gly Pro Ser Pro Gly Gly Ala Pro
65 70 75 80

Cys Pro Leu His Ile Ala Thr Gly His Gly Leu Ala Ser Gln Glu Ile
85 90 95

Ala Asp Ala His Gly Leu Leu Ser Ala Glu Ala Gly Arg Asp Asp Leu
100 105 110

Leu Gly Leu Leu His Cys Glu Glu Cys Pro Pro Ser Gln Thr Gly Pro
115 120 125

Glu Glu Pro Leu Glu Pro Ala Pro Arg Leu Leu Gln Pro Pro Glu Asp
130 135 140

Pro Asp Glu Asp Ser Asp Ser Pro Glu Trp Val Glu Gly Ala Ser Ala
145 150 155 160

Glu Gln Glu Gly Ser Arg Ser Ser Ser Ser Ser Pro Glu Pro Trp Leu
165 170 175

Glu Thr Val Pro Leu Val Thr Pro Glu Glu Pro Pro Ala Gly Ala Gln
180 185 190

Ser Pro Glu Thr Leu Ala Ser Tyr Pro Ala Pro Gln Glu Val Pro Gly
195 200 205

Pro Cys Asp His Glu Asp Leu Leu Asp Gly Val Ile Phe Gly Ala Arg
210 215 220

```
Tyr Leu Gly Ser Thr Gln Leu Val Ser Glu Arg Asn Pro Pro Thr Ser
225                 230                 235                 240

Thr Arg Met Ala Gln Ala Arg Glu Ala Met Asp Arg Val Lys Ala Pro
                245                 250                 255

Asp Gly Glu Thr Gln Pro Met Thr Glu Val Asp Leu Phe Val Ser Thr
            260                 265                 270

Lys Arg Ile Lys Val Leu Thr Ala Asp Ser Gln Glu Ala Met Met Asp
        275                 280                 285

His Ala Leu His Thr Ile Ser Tyr Thr Ala Asp Ile Gly Cys Val Leu
    290                 295                 300

Val Leu Met Ala Arg Arg Arg Leu Ala Arg Arg Pro Ala Pro Gln Asp
305                 310                 315                 320

His Gly Arg Arg Leu Tyr Lys Met Leu Cys His Val Phe Tyr Ala Glu
                325                 330                 335

Asp Ala Gln Leu Ile Ala Gln Ala Ile Gly Gln Ala Phe Ala Ala Ala
            340                 345                 350

Tyr Ser Gln Phe Leu Arg Glu Ser Gly Ile Asp Pro Ser Gln Val Gly
        355                 360                 365

Val His Pro Ser Pro Gly Ala Cys His Leu His Asn Gly Asp Leu Asp
    370                 375                 380

His Phe Ser Asn Ser Asp Asn Cys Arg Glu Val His Leu Glu Lys Arg
385                 390                 395                 400

Arg Gly Glu Gly Leu Gly Val Ala Leu Val Glu Ser Gly Trp Gly Ser
                405                 410                 415

Leu Leu Pro Thr Ala Val Ile Ala Asn Leu Leu His Gly Gly Pro Ala
            420                 425                 430

Glu Arg Ser Gly Ala Leu Ser Ile Gly Asp Arg Leu Thr Ala Ile Asn
        435                 440                 445
```

```
Gly Thr Ser Leu Val Gly Leu Pro Leu Ala Ala Cys Gln Ala Ala Val
    450                 455                 460

Arg Glu Thr Lys Ser Gln Thr Ser Val Thr Leu Ser Ile Val His Cys
465                 470                 475                 480

Pro Pro Val Thr Thr Ala Ile Ile His Arg Pro His Ala Arg Glu Gln
                485                 490                 495

Leu Gly Phe Cys Val Glu Asp Gly Ile Ile Cys Ser Leu Leu Arg Gly
            500                 505                 510

Gly Ile Ala Glu Arg Gly Gly Ile Arg Val Gly His Arg Ile Ile Glu
        515                 520                 525

Ile Asn Gly Gln Ser Val Val Ala Thr Pro His Ala Arg Ile Ile Glu
    530                 535                 540

Leu Leu Thr Glu Ala Tyr Gly Glu Val His Ile Lys Thr Met Pro Ala
545                 550                 555                 560

Ala Thr Tyr Arg Leu Leu Thr Gly Gln Glu Gln Pro Val Tyr Leu
                565                 570                 575


<210> 4534
<211> 708
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
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<223> /note="Uniprot ID:  O00213; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000299402"

<400> 4534

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Met Ser Val Pro Ser Ser Leu Ser Gln Ser Ala Ile Asn Ala Asn Ser
1               5                  10                  15

His Gly Gly Pro Ala Leu Ser Leu Pro Leu Pro Leu His Ala Ala His
            20                  25                  30

Asn Gln Leu Leu Asn Ala Lys Leu Gln Ala Thr Ala Val Gly Pro Lys
        35                  40                  45

Asp Leu Arg Ser Ala Met Gly Glu Gly Gly Gly Pro Glu Pro Gly Pro
    50                  55                  60

Ala Asn Ala Lys Trp Leu Lys Glu Gly Gln Asn Gln Leu Arg Arg Ala
65                  70                  75                  80

Ala Thr Ala His Arg Asp Gln Asn Arg Asn Val Thr Leu Thr Leu Ala
                85                  90                  95

Glu Glu Ala Ser Gln Glu Pro Glu Met Ala Pro Leu Gly Pro Lys Gly
            100                 105                 110

Leu Ile His Leu Tyr Ser Glu Leu Glu Leu Ser Ala His Asn Ala Ala
        115                 120                 125

Asn Arg Gly Leu Arg Gly Pro Gly Leu Ile Ile Ser Thr Gln Glu Gln
    130                 135                 140

Gly Pro Asp Glu Gly Glu Glu Lys Ala Ala Gly Glu Ala Glu Glu Glu
145                 150                 155                 160

Glu Glu Asp Asp Asp Asp Glu Glu Glu Glu Glu Asp Leu Ser Ser Pro
                165                 170                 175

Pro Gly Leu Pro Glu Pro Leu Glu Ser Val Glu Ala Pro Pro Arg Pro
            180                 185                 190

Gln Ala Leu Thr Asp Gly Pro Arg Glu His Ser Lys Ser Ala Ser Leu
        195                 200                 205

Leu Phe Gly Met Arg Asn Ser Ala Ala Ser Asp Glu Asp Ser Ser Trp
    210                 215                 220
```

```
Ala Thr Leu Ser Gln Gly Ser Pro Ser Tyr Gly Ser Pro Glu Asp Thr
225                 230                 235                 240

Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr Asp Ser Asp Leu Pro
                245                 250                 255

Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His
            260                 265                 270

Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro
        275                 280                 285

Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly
    290                 295                 300

Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu
305                 310                 315                 320

Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu
                325                 330                 335

Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro
            340                 345                 350

Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys
        355                 360                 365

Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu
    370                 375                 380

Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln
385                 390                 395                 400

Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp
                405                 410                 415

Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys
            420                 425                 430

Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile
        435                 440                 445
```

```
Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser Gly Arg Asp Phe Ala
    450                 455                 460

Tyr Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe
465                 470                 475                 480

Arg Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile
                485                 490                 495

Cys Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn
            500                 505                 510

Gly Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe Gln Val
        515                 520                 525

Glu Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln Val Tyr
    530                 535                 540

Tyr Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp Val Ile
545                 550                 555                 560

Asn Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu Gln Trp
                565                 570                 575

Thr Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile Leu His
            580                 585                 590

Gln Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe Leu Ser
        595                 600                 605

Phe Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile Met Ala
    610                 615                 620

Ala Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu Pro Asn
625                 630                 635                 640

Ala Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr
                645                 650                 655

Gln Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys Leu Pro
            660                 665                 670
```

```
Ala Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr Val Arg
        675                 680                 685


Arg Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg Leu Gly
    690                 695                 700


Ala His Thr Pro
705


<210> 4535
<211> 708
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1011; "

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<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
<221> source
<223> /note="Uniprot ID:  O00213; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000311912"

<400> 4535
Met Ser Val Pro Ser Ser Leu Ser Gln Ser Ala Ile Asn Ala Asn Ser
1               5                  10                  15


His Gly Gly Pro Ala Leu Ser Leu Pro Leu Pro Leu His Ala Ala His
            20                  25                  30


Asn Gln Leu Leu Asn Ala Lys Leu Gln Ala Thr Ala Val Gly Pro Lys
        35                  40                  45


Asp Leu Arg Ser Ala Met Gly Glu Gly Gly Gly Pro Glu Pro Gly Pro
    50                  55                  60


Ala Asn Ala Lys Trp Leu Lys Glu Gly Gln Asn Gln Leu Arg Arg Ala
```

65 70 75 80

Ala Thr Ala His Arg Asp Gln Asn Arg Asn Val Thr Leu Thr Leu Ala
85 90 95

Glu Glu Ala Ser Gln Glu Pro Glu Met Ala Pro Leu Gly Pro Lys Gly
100 105 110

Leu Ile His Leu Tyr Ser Glu Leu Glu Leu Ser Ala His Asn Ala Ala
115 120 125

Asn Arg Gly Leu Arg Gly Pro Gly Leu Ile Ile Ser Thr Gln Glu Gln
130 135 140

Gly Pro Asp Glu Gly Glu Glu Lys Ala Ala Gly Glu Ala Glu Glu Glu
145 150 155 160

Glu Glu Asp Asp Asp Asp Glu Glu Glu Glu Glu Asp Leu Ser Ser Pro
165 170 175

Pro Gly Leu Pro Glu Pro Leu Glu Ser Val Glu Ala Pro Pro Arg Pro
180 185 190

Gln Ala Leu Thr Asp Gly Pro Arg Glu His Ser Lys Ser Ala Ser Leu
195 200 205

Leu Phe Gly Met Arg Asn Ser Ala Ala Ser Asp Glu Asp Ser Ser Trp
210 215 220

Ala Thr Leu Ser Gln Gly Ser Pro Ser Tyr Gly Ser Pro Glu Asp Thr
225 230 235 240

Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr Asp Ser Asp Leu Pro
245 250 255

Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His
260 265 270

Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro
275 280 285

Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly
290 295 300

```
Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu
305                 310                 315                 320

Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu
                325                 330                 335

Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro
            340                 345                 350

Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys
        355                 360                 365

Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu
    370                 375                 380

Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln
385                 390                 395                 400

Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp
                405                 410                 415

Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys
            420                 425                 430

Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile
        435                 440                 445

Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser Gly Arg Asp Phe Ala
    450                 455                 460

Tyr Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe
465                 470                 475                 480

Arg Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile
                485                 490                 495

Cys Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn
            500                 505                 510

Gly Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe Gln Val
        515                 520                 525
```

```
Glu Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln Val Tyr
    530                 535                 540

Tyr Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp Val Ile
545                 550                 555                 560

Asn Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu Gln Trp
                565                 570                 575

Thr Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile Leu His
            580                 585                 590

Gln Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe Leu Ser
        595                 600                 605

Phe Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile Met Ala
    610                 615                 620

Ala Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu Pro Asn
625                 630                 635                 640

Ala Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr
                645                 650                 655

Gln Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys Leu Pro
            660                 665                 670

Ala Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr Val Arg
        675                 680                 685

Arg Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg Leu Gly
    690                 695                 700

Ala His Thr Pro
705

<210> 4536
<211> 710
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1011; "
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<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 (Fe65); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000374556"

<400> 4536
Met Ser Val Pro Ser Ser Leu Ser Gln Ser Ala Ile Asn Ala Asn Ser
1 5 10 15

His Gly Gly Pro Ala Leu Ser Leu Pro Leu Pro Leu His Ala Ala His
20 25 30

Asn Gln Leu Leu Asn Ala Lys Leu Gln Ala Thr Ala Val Gly Pro Lys
35 40 45

Asp Leu Arg Ser Ala Met Gly Glu Gly Gly Gly Pro Glu Pro Gly Pro
50 55 60

Ala Asn Ala Lys Trp Leu Lys Glu Gly Gln Asn Gln Leu Arg Arg Ala
65 70 75 80

Ala Thr Ala His Arg Asp Gln Asn Arg Asn Val Thr Leu Thr Leu Ala
85 90 95

Glu Glu Ala Ser Gln Glu Pro Glu Met Ala Pro Leu Gly Pro Lys Gly
100 105 110

Leu Ile His Leu Tyr Ser Glu Leu Glu Leu Ser Ala His Asn Ala Ala
115 120 125

Asn Arg Gly Leu Arg Gly Pro Gly Leu Ile Ile Ser Thr Gln Glu Gln
130 135 140

Gly Pro Asp Glu Gly Glu Glu Lys Ala Ala Gly Glu Ala Glu Glu Glu
145 150 155 160

Glu Glu Asp Asp Asp Asp Glu Glu Glu Glu Glu Asp Leu Ser Ser Pro

```
                165                 170                 175

Pro Gly Leu Pro Glu Pro Leu Glu Ser Val Glu Ala Pro Pro Arg Pro
            180                 185                 190

Gln Ala Leu Thr Asp Gly Pro Arg Glu His Ser Lys Ser Ala Ser Leu
        195                 200                 205

Leu Phe Gly Met Arg Asn Ser Ala Ala Ser Asp Glu Asp Ser Ser Trp
    210                 215                 220

Ala Thr Leu Ser Gln Gly Ser Pro Ser Tyr Gly Ser Pro Glu Asp Thr
225                 230                 235                 240

Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr Asp Ser Asp Leu Pro
                245                 250                 255

Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His
            260                 265                 270

Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro
        275                 280                 285

Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly
    290                 295                 300

Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu
305                 310                 315                 320

Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu
                325                 330                 335

Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro
            340                 345                 350

Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys
        355                 360                 365

Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu
    370                 375                 380

Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln
385                 390                 395                 400
```

Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp
405 410 415

Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys
420 425 430

Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile
435 440 445

Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser Gly Ser Asn Arg Asp
450 455 460

Phe Ala Tyr Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His
465 470 475 480

Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His
485 490 495

Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu
500 505 510

Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe
515 520 525

Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln
530 535 540

Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp
545 550 555 560

Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu
565 570 575

Gln Trp Thr Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile
580 585 590

Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe
595 600 605

Leu Ser Phe Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile
610 615 620

```
Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu
625                 630                 635                 640

Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu
                645                 650                 655

Arg Tyr Gln Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys
            660                 665                 670

Leu Pro Ala Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr
        675                 680                 685

Val Arg Arg Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg
    690                 695                 700

Leu Gly Ala His Thr Pro
705                 710


<210> 4537
<211> 488
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1011; "

<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
<221> source
<223> /note="Uniprot ID:  O00213; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433338"

<400> 4537
Met Ser Ala Met Phe Ser Gln Asp Phe Phe Leu Ala Ile Ile Leu Gln
1               5                   10                  15
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Asp Ser Ser Ala Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr Asp
            20                  25                  30

Ser Asp Leu Pro Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly Thr
        35                  40                  45

Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro Gly
    50                  55                  60

Arg Ala Ser Pro Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln Leu
65                  70                  75                  80

Thr Trp Thr Gly Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu Phe
                85                  90                  95

Trp Lys Asp Glu Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu Lys
            100                 105                 110

Glu Pro Glu Glu Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser Pro
        115                 120                 125

Glu Pro Leu Pro Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr Asn
    130                 135                 140

Pro Gly Ile Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met
145                 150                 155                 160

Thr Glu Glu Glu Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn Asn
                165                 170                 175

Cys Ile Arg Gln Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro Met
            180                 185                 190

Ser Gly Gly Trp Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu Asp
        195                 200                 205

Glu Thr Leu Lys Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His Ala
    210                 215                 220

Gln Pro Ile Ile Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser Gly
225                 230                 235                 240

Arg Asp Phe Ala Tyr Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys
```

```
                245                 250                 255

Cys His Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser
            260                 265                 270

Leu His Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg
        275                 280                 285

Cys Leu Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu Val Asp Val
    290                 295                 300

Pro Phe Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys
305                 310                 315                 320

Phe Gln Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly
                325                 330                 335

Val Asp Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser
            340                 345                 350

Arg Glu Gln Trp Thr Pro Ser His Val Ser Val Ala Pro Ala Thr Leu
        355                 360                 365

Thr Ile Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val
    370                 375                 380

Arg Phe Leu Ser Phe Leu Ala Val Gly Arg Asp Val His Thr Phe Ala
385                 390                 395                 400

Phe Ile Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp
                405                 410                 415

Cys Glu Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys
            420                 425                 430

Met Leu Arg Tyr Gln Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr
        435                 440                 445

Ser Cys Leu Pro Ala Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly
    450                 455                 460

Trp Thr Val Arg Arg Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro
465                 470                 475                 480
```

Lys Arg Leu Gly Ala His Thr Pro
485

<210> 4538
<211> 451
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1011; "

<220>
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<223> /note="Gene Symbol: APBB1; "

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amyloid beta (A4) precursor prt-binding, family B,
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<220>
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<220>
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<400> 4538
Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His Ile Pro Thr
1 5 10 15

Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro Ser Gln Gly
20 25 30

Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly Phe Ala His
35 40 45

Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu Pro Ser Asp
50 55 60

Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu Gly Thr Leu
65 70 75 80

Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro Gln Glu Glu
85 90 95

```
Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys Cys Phe Ala
            100                 105                 110

Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu Leu Ala Pro
        115                 120                 125

Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr
    130                 135                 140

His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp Gly Glu Gly
145                 150                 155                 160

Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys Leu Val Glu
                165                 170                 175

Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile Ser Ile Arg
            180                 185                 190

Val Trp Gly Val Gly Arg Asp Ser Gly Arg Glu Arg Asp Phe Ala Tyr
        195                 200                 205

Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe Arg
    210                 215                 220

Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile Cys
225                 230                 235                 240

Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn Gly
                245                 250                 255

Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe Gln Val Glu
            260                 265                 270

Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln Val Tyr Tyr
        275                 280                 285

Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp Val Ile Asn
    290                 295                 300

Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu Gln Trp Thr
305                 310                 315                 320
```

```
Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile Leu His Gln
                325                 330                 335

Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe Leu Ser Phe
            340                 345                 350

Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile Met Ala Ala
        355                 360                 365

Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu Pro Asn Ala
    370                 375                 380

Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln
385                 390                 395                 400

Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys Leu Pro Ala
                405                 410                 415

Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr Val Arg Arg
            420                 425                 430

Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg Leu Gly Ala
        435                 440                 445

His Thr Pro
    450


<210> 4539
<211> 261
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1011; "

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<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
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<223> /note="Gene Name:
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      member 1 (Fe65); "

<220>
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<223> /note="ENSP ID: ENSP00000476536"

<400> 4539

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Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His Ile Pro Thr
1               5                  10                  15

Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro Ser Gln Gly
            20                  25                  30

Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly Phe Ala His
        35                  40                  45

Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu Pro Ser Asp
    50                  55                  60

Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu Gly Thr Leu
65                  70                  75                  80

Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro Gln Glu Glu
                85                  90                  95

Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys Cys Phe Ala
            100                 105                 110

Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu Leu Ala Pro
        115                 120                 125

Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr
    130                 135                 140

His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp Gly Glu Gly
145                 150                 155                 160

Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys Leu Val Glu
                165                 170                 175

Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile Ser Ile Arg
            180                 185                 190

Val Trp Gly Val Gly Arg Asp Ser Gly Arg Asp Phe Ala Tyr Val Ala
        195                 200                 205

Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe Arg Cys Glu
    210                 215                 220
```

```
Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile Cys Ser Lys
225                 230                 235                 240


Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn Gly Leu Ser
                245                 250                 255


Leu Asp His Ser Lys
            260


<210> 4540
<211> 451
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
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<223> /note="Uniprot ID:  O00213; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476646"

<400> 4540
Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His Ile Pro Thr
1               5                   10                  15


Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro Ser Gln Gly
            20                  25                  30


Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly Phe Ala His
        35                  40                  45


Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu Pro Ser Asp
    50                  55                  60
```

```
Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu Gly Thr Leu
65                  70                  75                  80

Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro Gln Glu Glu
                85                  90                  95

Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys Cys Phe Ala
            100                 105                 110

Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu Leu Ala Pro
        115                 120                 125

Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr
    130                 135                 140

His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp Gly Glu Gly
145                 150                 155                 160

Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys Leu Val Glu
                165                 170                 175

Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile Ser Ile Arg
            180                 185                 190

Val Trp Gly Val Gly Arg Asp Ser Gly Arg Glu Arg Asp Phe Ala Tyr
        195                 200                 205

Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe Arg
    210                 215                 220

Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile Cys
225                 230                 235                 240

Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn Gly
                245                 250                 255

Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe Gln Val Glu
            260                 265                 270

Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln Val Tyr Tyr
        275                 280                 285
```

```
Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp Val Ile Asn
    290                 295                 300

Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu Gln Trp Thr
305                 310                 315                 320

Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile Leu His Gln
                325                 330                 335

Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe Leu Ser Phe
            340                 345                 350

Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile Met Ala Ala
        355                 360                 365

Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu Pro Asn Ala
    370                 375                 380

Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln
385                 390                 395                 400

Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys Leu Pro Ala
                405                 410                 415

Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr Val Arg Arg
            420                 425                 430

Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg Leu Gly Ala
        435                 440                 445

His Thr Pro
    450


<210> 4541
<211> 87
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 (Fe65); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476647"

<400> 4541
Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His Ile Pro Thr
1 5 10 15

Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro Ser Gln Gly
20 25 30

Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly Phe Ala His
35 40 45

Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu Pro Ser Asp
50 55 60

Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu Gly Thr Leu
65 70 75 80

Thr Phe Pro Ala Gln Ser Leu
85

<210> 4542
<211> 706
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: APBB1; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 (Fe65); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476776"

<400> 4542
Met Ser Val Pro Ser Ser Leu Ser Gln Ser Ala Ile Asn Ala Asn Ser
1 5 10 15

His Gly Gly Pro Ala Leu Ser Leu Pro Leu Pro Leu His Ala Ala His
20 25 30

Asn Gln Leu Leu Asn Ala Lys Leu Gln Ala Thr Ala Val Gly Pro Lys
35 40 45

Asp Leu Arg Ser Ala Met Gly Glu Gly Gly Gly Pro Glu Pro Gly Pro
50 55 60

Ala Asn Ala Lys Trp Leu Lys Glu Gly Gln Asn Gln Leu Arg Arg Ala
65 70 75 80

Ala Thr Ala His Arg Asp Gln Asn Arg Asn Val Thr Leu Thr Leu Ala
85 90 95

Glu Glu Ala Ser Gln Glu Pro Glu Met Ala Pro Leu Gly Pro Lys Gly
100 105 110

Leu Ile His Leu Tyr Ser Glu Leu Glu Leu Ser Ala His Asn Ala Ala
115 120 125

Asn Arg Gly Leu Arg Gly Pro Gly Leu Ile Ile Ser Thr Gln Glu Gln
130 135 140

Gly Pro Asp Glu Gly Glu Glu Lys Ala Ala Gly Glu Ala Glu Glu Glu
145 150 155 160

Glu Glu Asp Asp Asp Asp Glu Glu Glu Glu Glu Asp Leu Ser Ser Pro
165 170 175

Pro Gly Leu Pro Glu Pro Leu Glu Ser Val Glu Ala Pro Pro Arg Pro
180 185 190

Gln Ala Leu Thr Asp Gly Pro Arg Glu His Ser Lys Ser Ala Ser Leu
195 200 205

Leu Phe Gly Met Arg Asn Ser Ala Ala Ser Asp Glu Asp Ser Ser Trp
210 215 220

```
Ala Thr Leu Ser Gln Gly Ser Pro Ser Tyr Gly Ser Pro Glu Asp Thr
225                 230                 235                 240

Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr Asp Ser Asp Leu Pro
                245                 250                 255

Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His
            260                 265                 270

Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro
        275                 280                 285

Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly
    290                 295                 300

Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu
305                 310                 315                 320

Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu
                325                 330                 335

Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro
            340                 345                 350

Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys
        355                 360                 365

Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu
    370                 375                 380

Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln
385                 390                 395                 400

Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp
                405                 410                 415

Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys
            420                 425                 430

Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile
        435                 440                 445
```

```
Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser Gly Arg Glu Arg Asp
    450                 455                 460

Phe Ala Tyr Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His
465                 470                 475                 480

Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His
                485                 490                 495

Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu
            500                 505                 510

Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe
        515                 520                 525

Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln
    530                 535                 540

Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp
545                 550                 555                 560

Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu
                565                 570                 575

Gln Trp Thr Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile
            580                 585                 590

Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe
        595                 600                 605

Leu Ser Phe Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile
    610                 615                 620

Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu
625                 630                 635                 640

Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Val
                645                 650                 655

Glu Gln Glu Glu Leu Val Gln Ala Arg Pro His Pro Pro Gly Pro Ser
            660                 665                 670

Arg Gly Arg Arg Arg Lys Gly Leu Val Gln Ala Trp Val Pro Ser Pro
```

675 680 685

Cys Ser Met Gly Thr Ser Ala Val Leu Ile Ser Leu Ile Lys Ser Val
690 695 700

Cys Thr
705

<210> 4543
<211> 490
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1011; "

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<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 (Fe65); "

<220>
<221> source
<223> /note="Uniprot ID: O00213; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476846"

<400> 4543
Met Ser Ala Met Phe Ser Gln Asp Phe Phe Leu Ala Ile Ile Leu Gln
1 5 10 15

Asp Ser Ser Ala Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr Asp
20 25 30

Ser Asp Leu Pro Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly Thr
35 40 45

Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro Gly
50 55 60

Arg Ala Ser Pro Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln Leu
65 70 75 80

```
Thr Trp Thr Gly Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu Phe
                85                  90                  95

Trp Lys Asp Glu Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu Lys
            100                 105                 110

Glu Pro Glu Glu Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser Pro
        115                 120                 125

Glu Pro Leu Pro Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr Asn
    130                 135                 140

Pro Gly Ile Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met
145                 150                 155                 160

Thr Glu Glu Glu Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn Asn
                165                 170                 175

Cys Ile Arg Gln Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro Met
            180                 185                 190

Ser Gly Gly Trp Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu Asp
        195                 200                 205

Glu Thr Leu Lys Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His Ala
    210                 215                 220

Gln Pro Ile Ile Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser Gly
225                 230                 235                 240

Arg Glu Arg Asp Phe Ala Tyr Val Ala Arg Asp Lys Leu Thr Gln Met
                245                 250                 255

Leu Lys Cys His Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile Ala
            260                 265                 270

Thr Ser Leu His Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg Asn
        275                 280                 285

Ala Arg Cys Leu Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu Val
    290                 295                 300
```

```
Asp Val Pro Phe Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu Val
305                 310                 315                 320

Gln Lys Phe Gln Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys Pro
                325                 330                 335

Val Gly Val Asp Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser Ser
            340                 345                 350

Ser Ser Arg Glu Gln Trp Thr Pro Ser His Val Ser Val Ala Pro Ala
        355                 360                 365

Thr Leu Thr Ile Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu Cys
    370                 375                 380

Arg Val Arg Phe Leu Ser Phe Leu Ala Val Gly Arg Asp Val His Thr
385                 390                 395                 400

Phe Ala Phe Ile Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His Met
                405                 410                 415

Phe Trp Cys Glu Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln Ala
            420                 425                 430

Ala Cys Met Leu Arg Tyr Gln Lys Cys Leu Asp Ala Arg Ser Gln Ala
        435                 440                 445

Ser Thr Ser Cys Leu Pro Ala Pro Pro Ala Glu Ser Val Ala Arg Arg
    450                 455                 460

Val Gly Trp Thr Val Arg Arg Gly Val Gln Ser Leu Trp Gly Ser Leu
465                 470                 475                 480

Lys Pro Lys Arg Leu Gly Ala His Thr Pro
                485                 490


<210> 4544
<211> 451
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1011; "
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<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 (Fe65); "

<220>
<221> source
<223> /note="Uniprot ID: O00213; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476871"

<400> 4544
Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His Ile Pro Thr
1   5   10   15

Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro Ser Gln Gly
            20   25   30

Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly Phe Ala His
        35   40   45

Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu Pro Ser Asp
    50   55   60

Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu Gly Thr Leu
65   70   75   80

Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro Gln Glu Glu
                85   90   95

Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys Cys Phe Ala
            100   105   110

Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu Leu Ala Pro
        115   120   125

Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr
    130   135   140

His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp Gly Glu Gly

145 150 155 160

Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys Leu Val Glu
165 170 175

Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile Ser Ile Arg
180 185 190

Val Trp Gly Val Gly Arg Asp Ser Gly Arg Glu Arg Asp Phe Ala Tyr
195 200 205

Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe Arg
210 215 220

Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile Cys
225 230 235 240

Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn Gly
245 250 255

Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe Gln Val Glu
260 265 270

Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln Val Tyr Tyr
275 280 285

Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp Val Ile Asn
290 295 300

Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu Gln Trp Thr
305 310 315 320

Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile Leu His Gln
325 330 335

Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe Leu Ser Phe
340 345 350

Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile Met Ala Ala
355 360 365

Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu Pro Asn Ala
370 375 380

Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln
385 390 395 400

Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys Leu Pro Ala
405 410 415

Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr Val Arg Arg
420 425 430

Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg Leu Gly Ala
435 440 445

His Thr Pro
450

<210> 4545
<211> 235
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 (Fe65); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477022"

<400> 4545
Met Leu Lys Cys His Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile
1 5 10 15

Ala Thr Ser Leu His Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg
20 25 30

Asn Ala Arg Cys Leu Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu
35 40 45

```
Val Asp Val Pro Phe Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu
    50                  55                  60

Val Gln Lys Phe Gln Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys
65                  70                  75                  80

Pro Val Gly Val Asp Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser
                85                  90                  95

Ser Ser Ser Arg Glu Gln Trp Thr Pro Ser His Val Ser Val Ala Pro
            100                 105                 110

Ala Thr Leu Thr Ile Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu
        115                 120                 125

Cys Arg Val Arg Phe Leu Ser Phe Leu Ala Val Gly Arg Asp Val His
    130                 135                 140

Thr Phe Ala Phe Ile Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His
145                 150                 155                 160

Met Phe Trp Cys Glu Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln
                165                 170                 175

Ala Ala Cys Met Leu Arg Tyr Gln Lys Cys Leu Asp Ala Arg Ser Gln
            180                 185                 190

Ala Ser Thr Ser Cys Leu Pro Ala Pro Pro Ala Glu Ser Val Ala Arg
        195                 200                 205

Arg Val Gly Trp Thr Val Arg Arg Gly Val Gln Ser Leu Trp Gly Ser
    210                 215                 220

Leu Lys Pro Lys Arg Leu Gly Ala His Thr Pro
225                 230                 235


<210> 4546
<211> 475
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1011; "
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<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 (Fe65); "

<220>
<221> source
<223> /note="Uniprot ID: O00213; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477069"

<400> 4546
Met Thr Gln Met Arg Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr
1   5   10   15

Asp Ser Asp Leu Pro Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly
            20   25   30

Thr Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro
        35   40   45

Gly Arg Ala Ser Pro Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln
    50   55   60

Leu Thr Trp Thr Gly Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu
65   70   75   80

Phe Trp Lys Asp Glu Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu
                85   90   95

Lys Glu Pro Glu Glu Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser
            100   105   110

Pro Glu Pro Leu Pro Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr
        115   120   125

Asn Pro Gly Ile Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
    130   135   140

Met Thr Glu Glu Glu Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn

145 150 155 160

Asn Cys Ile Arg Gln Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro
165 170 175

Met Ser Gly Gly Trp Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu
180 185 190

Asp Glu Thr Leu Lys Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His
195 200 205

Ala Gln Pro Ile Ile Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser
210 215 220

Gly Arg Glu Arg Asp Phe Ala Tyr Val Ala Arg Asp Lys Leu Thr Gln
225 230 235 240

Met Leu Lys Cys His Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile
245 250 255

Ala Thr Ser Leu His Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg
260 265 270

Asn Ala Arg Cys Leu Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu
275 280 285

Val Asp Val Pro Phe Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu
290 295 300

Val Gln Lys Phe Gln Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys
305 310 315 320

Pro Val Gly Val Asp Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser
325 330 335

Ser Ser Ser Arg Glu Gln Trp Thr Pro Ser His Val Ser Val Ala Pro
340 345 350

Ala Thr Leu Thr Ile Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu
355 360 365

Cys Arg Val Arg Phe Leu Ser Phe Leu Ala Val Gly Arg Asp Val His
370 375 380

```
Thr Phe Ala Phe Ile Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His
385                 390                 395                 400


Met Phe Trp Cys Glu Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln
                405                 410                 415


Ala Ala Cys Met Leu Arg Tyr Gln Lys Cys Leu Asp Ala Arg Ser Gln
            420                 425                 430


Ala Ser Thr Ser Cys Leu Pro Ala Pro Pro Ala Glu Ser Val Ala Arg
        435                 440                 445


Arg Val Gly Trp Thr Val Arg Arg Gly Val Gln Ser Leu Trp Gly Ser
    450                 455                 460


Leu Lys Pro Lys Arg Leu Gly Ala His Thr Pro
465                 470                 475


<210> 4547
<211> 710
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1011; "

<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
<221> source
<223> /note="Uniprot ID:  O00213; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477213"

<400> 4547
Met Ser Val Pro Ser Ser Leu Ser Gln Ser Ala Ile Asn Ala Asn Ser
1               5                   10                  15
```

```
His Gly Gly Pro Ala Leu Ser Leu Pro Leu Pro Leu His Ala Ala His
            20                  25                  30

Asn Gln Leu Leu Asn Ala Lys Leu Gln Ala Thr Ala Val Gly Pro Lys
        35                  40                  45

Asp Leu Arg Ser Ala Met Gly Glu Gly Gly Gly Pro Glu Pro Gly Pro
    50                  55                  60

Ala Asn Ala Lys Trp Leu Lys Glu Gly Gln Asn Gln Leu Arg Arg Ala
65                  70                  75                  80

Ala Thr Ala His Arg Asp Gln Asn Arg Asn Val Thr Leu Thr Leu Ala
                85                  90                  95

Glu Glu Ala Ser Gln Glu Pro Glu Met Ala Pro Leu Gly Pro Lys Gly
            100                 105                 110

Leu Ile His Leu Tyr Ser Glu Leu Glu Leu Ser Ala His Asn Ala Ala
        115                 120                 125

Asn Arg Gly Leu Arg Gly Pro Gly Leu Ile Ile Ser Thr Gln Glu Gln
    130                 135                 140

Gly Pro Asp Glu Gly Glu Glu Lys Ala Ala Gly Glu Ala Glu Glu Glu
145                 150                 155                 160

Glu Glu Asp Asp Asp Asp Glu Glu Glu Glu Glu Asp Leu Ser Ser Pro
                165                 170                 175

Pro Gly Leu Pro Glu Pro Leu Glu Ser Val Glu Ala Pro Pro Arg Pro
            180                 185                 190

Gln Ala Leu Thr Asp Gly Pro Arg Glu His Ser Lys Ser Ala Ser Leu
        195                 200                 205

Leu Phe Gly Met Arg Asn Ser Ala Ala Ser Asp Glu Asp Ser Ser Trp
    210                 215                 220

Ala Thr Leu Ser Gln Gly Ser Pro Ser Tyr Gly Ser Pro Glu Asp Thr
225                 230                 235                 240
```

```
Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr Asp Ser Asp Leu Pro
                245                 250                 255

Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His
            260                 265                 270

Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro
        275                 280                 285

Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly
    290                 295                 300

Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu
305                 310                 315                 320

Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu
                325                 330                 335

Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro
            340                 345                 350

Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys
        355                 360                 365

Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu
    370                 375                 380

Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln
385                 390                 395                 400

Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp
                405                 410                 415

Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys
            420                 425                 430

Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile
        435                 440                 445

Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser Gly Arg Glu Arg Asp
    450                 455                 460

Phe Ala Tyr Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His
```

```
465                 470                 475                 480

Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His
                485                 490                 495

Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu
            500                 505                 510

Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe
        515                 520                 525

Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln
    530                 535                 540

Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp
545                 550                 555                 560

Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu
                565                 570                 575

Gln Trp Thr Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile
            580                 585                 590

Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe
        595                 600                 605

Leu Ser Phe Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile
    610                 615                 620

Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu
625                 630                 635                 640

Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu
                645                 650                 655

Arg Tyr Gln Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys
            660                 665                 670

Leu Pro Ala Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr
        675                 680                 685

Val Arg Arg Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg
    690                 695                 700
```

```
Leu Gly Ala His Thr Pro
705                 710


<210> 4548
<211> 475
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1011; "

<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481817"

<400> 4548
Met Thr Gln Met Arg Asp Ser Phe Trp Asn Pro Asn Ala Phe Glu Thr
1               5                   10                  15


Asp Ser Asp Leu Pro Ala Gly Trp Met Arg Val Gln Asp Thr Ser Gly
            20                  25                  30


Thr Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Pro Pro
        35                  40                  45


Gly Arg Ala Ser Pro Ser Gln Gly Ser Ser Pro Gln Glu Glu Ser Gln
    50                  55                  60


Leu Thr Trp Thr Gly Phe Ala His Gly Glu Gly Phe Glu Asp Gly Glu
65                  70                  75                  80


Phe Trp Lys Asp Glu Pro Ser Asp Glu Ala Pro Met Glu Leu Gly Leu
                85                  90                  95


Lys Glu Pro Glu Glu Gly Thr Leu Thr Phe Pro Ala Gln Ser Leu Ser
            100                 105                 110
```

```
Pro Glu Pro Leu Pro Gln Glu Glu Glu Lys Leu Pro Pro Arg Asn Thr
        115                 120                 125

Asn Pro Gly Ile Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
    130                 135                 140

Met Thr Glu Glu Glu Leu Ala Pro Gly Arg Ser Ser Val Ala Val Asn
145                 150                 155                 160

Asn Cys Ile Arg Gln Leu Ser Tyr His Lys Asn Asn Leu His Asp Pro
                165                 170                 175

Met Ser Gly Gly Trp Gly Glu Gly Lys Asp Leu Leu Leu Gln Leu Glu
            180                 185                 190

Asp Glu Thr Leu Lys Leu Val Glu Pro Gln Ser Gln Ala Leu Leu His
        195                 200                 205

Ala Gln Pro Ile Ile Ser Ile Arg Val Trp Gly Val Gly Arg Asp Ser
    210                 215                 220

Gly Ser Asn Arg Asp Phe Ala Tyr Val Ala Arg Asp Lys Leu Thr Gln
225                 230                 235                 240

Met Leu Lys Cys His Val Phe Arg Cys Glu Ala Pro Ala Lys Asn Ile
                245                 250                 255

Ala Thr Ser Leu His Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Arg
            260                 265                 270

Asn Ala Arg Cys Leu Val Asn Gly Leu Ser Leu Asp His Ser Lys Leu
        275                 280                 285

Val Asp Val Pro Phe Gln Val Glu Phe Pro Ala Pro Lys Asn Glu Leu
    290                 295                 300

Val Gln Lys Phe Gln Val Tyr Tyr Leu Gly Asn Val Pro Val Ala Lys
305                 310                 315                 320

Pro Val Gly Val Asp Val Ile Asn Gly Ala Leu Glu Ser Val Leu Ser
                325                 330                 335
```

```
Ser Ser Ser Arg Glu Gln Trp Thr Pro Ser His Val Ser Val Ala Pro
            340                 345                 350

Ala Thr Leu Thr Ile Leu His Gln Gln Thr Glu Ala Val Leu Gly Glu
        355                 360                 365

Cys Arg Val Arg Phe Leu Ser Phe Leu Ala Val Gly Arg Asp Val His
    370                 375                 380

Thr Phe Ala Phe Ile Met Ala Ala Gly Pro Ala Ser Phe Cys Cys His
385                 390                 395                 400

Met Phe Trp Cys Glu Pro Asn Ala Ala Ser Leu Ser Glu Ala Val Gln
                405                 410                 415

Ala Ala Cys Met Leu Arg Tyr Gln Lys Cys Leu Asp Ala Arg Ser Gln
            420                 425                 430

Ala Ser Thr Ser Cys Leu Pro Ala Pro Pro Ala Glu Ser Val Ala Arg
        435                 440                 445

Arg Val Gly Trp Thr Val Arg Arg Gly Val Gln Ser Leu Trp Gly Ser
    450                 455                 460

Leu Lys Pro Lys Arg Leu Gly Ala His Thr Pro
465                 470                 475


<210> 4549
<211> 451
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1011; "

<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000483682"

<400> 4549

```
Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His Ile Pro Thr
1               5                  10                  15

Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro Ser Gln Gly
            20                  25                  30

Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly Phe Ala His
        35                  40                  45

Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu Pro Ser Asp
    50                  55                  60

Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu Gly Thr Leu
65                  70                  75                  80

Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro Gln Glu Glu
                85                  90                  95

Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys Cys Phe Ala
            100                 105                 110

Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu Leu Ala Pro
        115                 120                 125

Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr
    130                 135                 140

His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp Gly Glu Gly
145                 150                 155                 160

Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys Leu Val Glu
                165                 170                 175

Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile Ser Ile Arg
            180                 185                 190

Val Trp Gly Val Gly Arg Asp Ser Gly Ser Asn Arg Asp Phe Ala Tyr
        195                 200                 205

Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe Arg
    210                 215                 220
```

```
Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile Cys
225                 230                 235                 240

Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn Gly
                245                 250                 255

Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe Gln Val Glu
            260                 265                 270

Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln Val Tyr Tyr
        275                 280                 285

Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp Val Ile Asn
    290                 295                 300

Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu Gln Trp Thr
305                 310                 315                 320

Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile Leu His Gln
                325                 330                 335

Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe Leu Ser Phe
            340                 345                 350

Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile Met Ala Ala
        355                 360                 365

Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu Pro Asn Ala
    370                 375                 380

Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln
385                 390                 395                 400

Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys Leu Pro Ala
                405                 410                 415

Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr Val Arg Arg
            420                 425                 430

Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg Leu Gly Ala
        435                 440                 445
```

His Thr Pro
    450

<210> 4550
<211> 451
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1011; "

<220>
<221> source
<223> /note="Gene Symbol: APBB1; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 (Fe65); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484493"

<400> 4550
Met Arg Val Gln Asp Thr Ser Gly Thr Tyr Tyr Trp His Ile Pro Thr
1   5   10   15

Gly Thr Thr Gln Trp Glu Pro Pro Gly Arg Ala Ser Pro Ser Gln Gly
            20   25   30

Ser Ser Pro Gln Glu Glu Ser Gln Leu Thr Trp Thr Gly Phe Ala His
        35   40   45

Gly Glu Gly Phe Glu Asp Gly Glu Phe Trp Lys Asp Glu Pro Ser Asp
    50   55   60

Glu Ala Pro Met Glu Leu Gly Leu Lys Glu Pro Glu Glu Gly Thr Leu
65   70   75   80

Thr Phe Pro Ala Gln Ser Leu Ser Pro Glu Pro Leu Pro Gln Glu Glu
                85   90   95

Glu Lys Leu Pro Pro Arg Asn Thr Asn Pro Gly Ile Lys Cys Phe Ala
            100   105   110

```
Val Arg Ser Leu Gly Trp Val Glu Met Thr Glu Glu Glu Leu Ala Pro
        115                 120                 125

Gly Arg Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr
    130                 135                 140

His Lys Asn Asn Leu His Asp Pro Met Ser Gly Gly Trp Gly Glu Gly
145                 150                 155                 160

Lys Asp Leu Leu Leu Gln Leu Glu Asp Glu Thr Leu Lys Leu Val Glu
                165                 170                 175

Pro Gln Ser Gln Ala Leu Leu His Ala Gln Pro Ile Ile Ser Ile Arg
            180                 185                 190

Val Trp Gly Val Gly Arg Asp Ser Gly Ser Asn Arg Asp Phe Ala Tyr
        195                 200                 205

Val Ala Arg Asp Lys Leu Thr Gln Met Leu Lys Cys His Val Phe Arg
    210                 215                 220

Cys Glu Ala Pro Ala Lys Asn Ile Ala Thr Ser Leu His Glu Ile Cys
225                 230                 235                 240

Ser Lys Ile Met Ala Glu Arg Arg Asn Ala Arg Cys Leu Val Asn Gly
                245                 250                 255

Leu Ser Leu Asp His Ser Lys Leu Val Asp Val Pro Phe Gln Val Glu
            260                 265                 270

Phe Pro Ala Pro Lys Asn Glu Leu Val Gln Lys Phe Gln Val Tyr Tyr
        275                 280                 285

Leu Gly Asn Val Pro Val Ala Lys Pro Val Gly Val Asp Val Ile Asn
    290                 295                 300

Gly Ala Leu Glu Ser Val Leu Ser Ser Ser Ser Arg Glu Gln Trp Thr
305                 310                 315                 320

Pro Ser His Val Ser Val Ala Pro Ala Thr Leu Thr Ile Leu His Gln
                325                 330                 335

Gln Thr Glu Ala Val Leu Gly Glu Cys Arg Val Arg Phe Leu Ser Phe
```

```
            340                 345                 350

Leu Ala Val Gly Arg Asp Val His Thr Phe Ala Phe Ile Met Ala Ala
        355                 360                 365

Gly Pro Ala Ser Phe Cys Cys His Met Phe Trp Cys Glu Pro Asn Ala
    370                 375                 380

Ala Ser Leu Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln
385                 390                 395                 400

Lys Cys Leu Asp Ala Arg Ser Gln Ala Ser Thr Ser Cys Leu Pro Ala
                405                 410                 415

Pro Pro Ala Glu Ser Val Ala Arg Arg Val Gly Trp Thr Val Arg Arg
            420                 425                 430

Gly Val Gln Ser Leu Trp Gly Ser Leu Lys Pro Lys Arg Leu Gly Ala
        435                 440                 445

His Thr Pro
    450


<210> 4551
<211> 172
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1012; "

<220>
<221> source
<223> /note="Gene Symbol: APBB1IP; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 1 interacting prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q7Z5R6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349237"
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<400> 4551
Met Gly Glu Ser Ser Glu Asp Ile Asp Gln Met Phe Ser Thr Leu Leu
1   5   10   15

Gly Glu Met Asp Leu Leu Thr Gln Ser Leu Gly Val Asp Thr Leu Pro
            20   25   30

Pro Pro Asp Pro Asn Pro Pro Arg Ala Glu Phe Asn Tyr Ser Val Gly
        35   40   45

Phe Lys Asp Leu Asn Glu Ser Leu Asn Ala Leu Glu Asp Gln Asp Leu
    50   55   60

Asp Ala Leu Met Ala Asp Leu Val Ala Asp Ile Ser Glu Ala Glu Gln
65   70   75   80

Arg Thr Ile Gln Ala Gln Lys Glu Ser Leu Gln Asn Gln His His Ser
                85   90   95

Ala Ser Leu Gln Ala Ser Ile Phe Ser Gly Ala Ala Ser Leu Gly Tyr
            100   105   110

Gly Thr Asn Val Ala Ala Thr Gly Ile Ser Gln Tyr Glu Asp Asp Leu
        115   120   125

Pro Pro Pro Pro Ala Asp Pro Val Leu Asp Leu Pro Leu Pro Pro Pro
    130   135   140

Pro Pro Glu Pro Leu Ser Gln Val Ser Met Trp Asp Gln Arg Trp Gln
145   150   155   160

Asp His Gln Pro Leu Leu Pro Ile Thr Asp Val Pro
                165   170

<210> 4552
<211> 666
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1012; "

<220>
<221> source

<223> /note="Gene Symbol: APBB1IP; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 1 interacting prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q7Z5R6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000365411"

<400> 4552

Met	Gly	Glu	Ser	Ser	Glu	Asp	Ile	Asp	Gln	Met	Phe	Ser	Thr	Leu	Leu
1				5				10						15	

Gly	Glu	Met	Asp	Leu	Leu	Thr	Gln	Ser	Leu	Gly	Val	Asp	Thr	Leu	Pro
			20					25					30		

Pro	Pro	Asp	Pro	Asn	Pro	Pro	Arg	Ala	Glu	Phe	Asn	Tyr	Ser	Val	Gly
		35					40					45			

Phe	Lys	Asp	Leu	Asn	Glu	Ser	Leu	Asn	Ala	Leu	Glu	Asp	Gln	Asp	Leu
	50					55					60				

Asp	Ala	Leu	Met	Ala	Asp	Leu	Val	Ala	Asp	Ile	Ser	Glu	Ala	Glu	Gln
65				70					75						80

Arg	Thr	Ile	Gln	Ala	Gln	Lys	Glu	Ser	Leu	Gln	Asn	Gln	His	His	Ser
				85					90					95	

Ala	Ser	Leu	Gln	Ala	Ser	Ile	Phe	Ser	Gly	Ala	Ala	Ser	Leu	Gly	Tyr
			100					105					110		

Gly	Thr	Asn	Val	Ala	Ala	Thr	Gly	Ile	Ser	Gln	Tyr	Glu	Asp	Asp	Leu
		115					120					125			

Pro	Pro	Pro	Pro	Ala	Asp	Pro	Val	Leu	Asp	Leu	Pro	Leu	Pro	Pro	Pro
	130					135					140				

Pro	Pro	Glu	Pro	Leu	Ser	Gln	Glu	Glu	Glu	Glu	Ala	Gln	Ala	Lys	Ala
145				150					155						160

```
Asp Lys Ile Lys Leu Ala Leu Glu Lys Leu Lys Glu Ala Lys Val Lys
                165                 170                 175

Lys Leu Val Val Lys Val His Met Asn Asp Asn Ser Thr Lys Ser Leu
            180                 185                 190

Met Val Asp Glu Arg Gln Leu Ala Arg Asp Val Leu Asp Asn Leu Phe
        195                 200                 205

Glu Lys Thr His Cys Asp Cys Asn Val Asp Trp Cys Leu Tyr Glu Ile
    210                 215                 220

Tyr Pro Glu Leu Gln Ile Glu Arg Phe Phe Glu Asp His Glu Asn Val
225                 230                 235                 240

Val Glu Val Leu Ser Asp Trp Thr Arg Asp Thr Glu Asn Lys Ile Leu
                245                 250                 255

Phe Leu Glu Lys Glu Glu Lys Tyr Ala Val Phe Lys Asn Pro Gln Asn
            260                 265                 270

Phe Tyr Leu Asp Asn Arg Gly Lys Lys Glu Ser Lys Glu Thr Asn Glu
        275                 280                 285

Lys Met Asn Ala Lys Asn Lys Glu Ser Leu Leu Glu Glu Ser Phe Cys
    290                 295                 300

Gly Thr Ser Ile Ile Val Pro Glu Leu Glu Gly Ala Leu Tyr Leu Lys
305                 310                 315                 320

Glu Asp Gly Lys Lys Ser Trp Lys Arg Arg Tyr Phe Leu Leu Arg Ala
                325                 330                 335

Ser Gly Ile Tyr Tyr Val Pro Lys Gly Lys Thr Lys Thr Ser Arg Asp
            340                 345                 350

Leu Ala Cys Phe Ile Gln Phe Glu Asn Val Asn Ile Tyr Tyr Gly Thr
        355                 360                 365

Gln His Lys Met Lys Tyr Lys Ala Pro Thr Asp Tyr Cys Phe Val Leu
    370                 375                 380

Lys His Pro Gln Ile Gln Lys Glu Ser Gln Tyr Ile Lys Tyr Leu Cys
```

385 390 395 400

Cys Asp Asp Thr Arg Thr Leu Asn Gln Trp Val Met Gly Ile Arg Ile
405 410 415

Ala Lys Tyr Gly Lys Thr Leu Tyr Asp Asn Tyr Gln Arg Ala Val Ala
420 425 430

Lys Ala Gly Leu Ala Ser Arg Trp Thr Asn Leu Gly Thr Val Asn Ala
435 440 445

Ala Ala Pro Ala Gln Pro Ser Thr Gly Pro Lys Thr Gly Thr Thr Gln
450 455 460

Pro Asn Gly Gln Ile Pro Gln Ala Thr His Ser Val Ser Ala Val Leu
465 470 475 480

Gln Glu Ala Gln Arg His Ala Glu Thr Ser Lys Asp Lys Lys Pro Ala
485 490 495

Leu Gly Asn His His Asp Pro Ala Val Pro Arg Ala Pro His Ala Pro
500 505 510

Lys Ser Ser Leu Pro Pro Pro Pro Pro Val Arg Arg Ser Ser Asp Thr
515 520 525

Ser Gly Ser Pro Ala Thr Pro Leu Lys Ala Lys Gly Thr Gly Gly Gly
530 535 540

Gly Leu Pro Ala Pro Pro Asp Asp Phe Leu Pro Pro Pro Pro Pro Pro
545 550 555 560

Pro Pro Leu Asp Asp Pro Glu Leu Pro Pro Pro Pro Pro Asp Phe Met
565 570 575

Glu Pro Pro Pro Asp Phe Val Pro Pro Pro Pro Pro Ser Tyr Ala Gly
580 585 590

Ile Ala Gly Ser Glu Leu Pro Pro Pro Pro Pro Pro Pro Pro Ala Pro
595 600 605

Ala Pro Ala Pro Val Pro Asp Ser Ala Arg Pro Pro Pro Ala Val Ala
610 615 620

```
Lys Arg Pro Pro Val Pro Pro Lys Arg Gln Glu Asn Pro Gly His Pro
625                 630                 635                 640


Gly Gly Ala Gly Gly Gly Glu Gln Asp Phe Met Ser Asp Leu Met Lys
                645                 650                 655


Ala Leu Gln Lys Lys Arg Gly Asn Val Ser
            660                 665


<210> 4553
<211> 758
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q92870; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295974"

<400> 4553
Met Ser Glu Val Leu Pro Ala Asp Ser Gly Val Asp Thr Leu Ala Val
1               5                   10                  15


Phe Met Ala Ser Ser Gly Thr Thr Asp Val Thr Asn Arg Asn Ser Pro
            20                  25                  30


Ala Thr Pro Pro Asn Thr Leu Asn Leu Arg Ser Ser His Asn Glu Leu
        35                  40                  45


Leu Asn Ala Glu Ile Lys His Thr Glu Thr Lys Asn Ser Thr Pro Pro
    50                  55                  60
```

```
Lys Cys Arg Lys Lys Tyr Ala Leu Thr Asn Ile Gln Ala Ala Met Gly
65                  70                  75                  80

Leu Ser Asp Pro Ala Ala Gln Pro Leu Leu Gly Asn Gly Ser Ala Asn
                85                  90                  95

Ile Lys Leu Val Lys Asn Gly Glu Asn Gln Leu Arg Lys Ala Ala Glu
            100                 105                 110

Gln Gly Gln Gln Asp Pro Asn Lys Asn Leu Ser Pro Thr Ala Val Ile
        115                 120                 125

Asn Ile Thr Ser Glu Lys Leu Glu Gly Lys Glu Pro His Pro Gln Asp
    130                 135                 140

Ser Ser Ser Cys Glu Ile Leu Pro Ser Gln Pro Arg Arg Thr Lys Ser
145                 150                 155                 160

Phe Leu Asn Tyr Tyr Ala Asp Leu Glu Thr Ser Ala Arg Glu Leu Glu
                165                 170                 175

Gln Asn Arg Gly Asn His His Gly Thr Ala Glu Glu Lys Ser Gln Pro
            180                 185                 190

Val Gln Gly Gln Ala Ser Thr Ile Ile Gly Asn Gly Asp Leu Leu Leu
        195                 200                 205

Gln Lys Pro Asn Arg Pro Gln Ser Ser Pro Glu Asp Gly Gln Val Ala
    210                 215                 220

Thr Val Ser Ser Ser Pro Glu Thr Lys Lys Asp His Pro Lys Thr Gly
225                 230                 235                 240

Ala Lys Thr Asp Cys Ala Leu His Arg Ile Gln Asn Leu Ala Pro Ser
                245                 250                 255

Asp Glu Glu Ser Ser Trp Thr Thr Leu Ser Gln Asp Ser Ala Ser Pro
            260                 265                 270

Ser Ser Pro Asp Glu Thr Asp Ile Trp Ser Asp His Ser Phe Gln Thr
        275                 280                 285
```

```
Asp Pro Asp Leu Pro Pro Gly Trp Lys Arg Val Ser Asp Ile Ala Gly
    290                 295                 300

Thr Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Arg Pro
305                 310                 315                 320

Val Ser Ile Pro Ala Asp Leu Gln Gly Ser Arg Lys Gly Ser Leu Ser
                325                 330                 335

Ser Val Thr Pro Ser Pro Thr Pro Glu Asn Glu Lys Gln Pro Trp Ser
            340                 345                 350

Asp Phe Ala Val Leu Asn Gly Gly Lys Ile Asn Ser Asp Ile Trp Lys
        355                 360                 365

Asp Leu His Ala Ala Thr Val Asn Pro Asp Pro Ser Leu Lys Glu Phe
    370                 375                 380

Glu Gly Ala Thr Leu Arg Tyr Ala Ser Leu Lys Leu Arg Asn Ala Pro
385                 390                 395                 400

His Pro Asp Asp Asp Asp Ser Cys Ser Ile Asn Ser Asp Pro Glu Ala
                405                 410                 415

Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Ala Glu Glu
            420                 425                 430

Asp Leu Ala Pro Gly Lys Ser Ser Val Ala Val Asn Asn Cys Ile Arg
        435                 440                 445

Gln Leu Ser Tyr Cys Lys Asn Asp Ile Arg Asp Thr Val Gly Ile Trp
    450                 455                 460

Gly Glu Gly Lys Asp Met Tyr Leu Ile Leu Glu Asn Asp Met Leu Ser
465                 470                 475                 480

Leu Val Asp Pro Met Asp Arg Ser Val Leu His Ser Gln Pro Ile Val
                485                 490                 495

Ser Ile Arg Val Trp Gly Val Gly Arg Asp Asn Gly Arg Asp Phe Ala
            500                 505                 510

Tyr Val Ala Arg Asp Lys Asp Thr Arg Ile Leu Lys Cys His Val Phe
```

```
        515                 520                 525

Arg Cys Asp Thr Pro Ala Lys Ala Ile Ala Thr Ser Leu His Glu Ile
    530                 535                 540

Cys Ser Lys Ile Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys
545                 550                 555                 560

Ser Ser Leu Gln Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln
                565                 570                 575

Val Asp Phe Pro Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His Val
            580                 585                 590

Gln Tyr Leu Gly Met Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile
        595                 600                 605

Leu Asn Ser Ala Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp
    610                 615                 620

Trp Leu Ser Val Asn Met Asn Val Ala Asp Ala Thr Val Thr Val Ile
625                 630                 635                 640

Ser Glu Lys Asn Glu Glu Glu Val Leu Val Glu Cys Arg Val Arg Phe
                645                 650                 655

Leu Ser Phe Met Gly Val Gly Lys Asp Val His Thr Phe Ala Phe Ile
            660                 665                 670

Met Asp Thr Gly Asn Gln Arg Phe Glu Cys His Val Phe Trp Cys Glu
        675                 680                 685

Pro Asn Ala Gly Asn Val Ser Glu Ala Val Gln Ala Ala Cys Met Leu
    690                 695                 700

Arg Tyr Gln Lys Cys Leu Val Ala Arg Pro Pro Ser Gln Lys Val Arg
705                 710                 715                 720

Pro Pro Pro Pro Pro Ala Asp Ser Val Thr Arg Arg Val Thr Thr Asn
                725                 730                 735

Val Lys Arg Gly Val Leu Ser Leu Ile Asp Thr Leu Lys Gln Lys Arg
            740                 745                 750
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Pro Val Thr Glu Met Pro
        755

<210> 4554
<211> 10
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421205"

<400> 4554
Met Ser Glu Val Leu Pro Ala Asp Ser Gly
1   5   10

<210> 4555
<211> 87
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421301"

<400> 4555
Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln
1   5   10   15

Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro
            20   25   30

Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly
        35   40   45

Met Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala
    50   55   60

Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val
65   70   75   80

Asn Met Asn Val Ala Asp Ala
                85

<210> 4556
<211> 737
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421539"

<400> 4556
Met Ser Glu Val Leu Pro Ala Asp Ser Gly Val Asp Thr Leu Ala Val
1   5   10   15

Phe Met Ala Ser Ser Gly Thr Thr Asp Val Thr Asn Arg Asn Ser Pro
            20   25   30

```
Ala Thr Pro Pro Asn Thr Leu Asn Leu Arg Ser Ser His Asn Glu Leu
        35                  40                  45

Leu Asn Ala Glu Ile Lys His Thr Glu Thr Lys Asn Ser Thr Pro Pro
    50                  55                  60

Lys Cys Arg Lys Lys Tyr Ala Leu Thr Asn Ile Gln Ala Ala Met Gly
65                  70                  75                  80

Leu Ser Asp Pro Ala Ala Gln Pro Leu Leu Gly Asn Gly Ser Ala Asn
                85                  90                  95

Ile Lys Leu Val Lys Asn Gly Glu Asn Gln Leu Arg Lys Ala Ala Glu
            100                 105                 110

Gln Gly Gln Gln Asp Pro Asn Lys Asn Leu Ser Pro Thr Ala Val Ile
        115                 120                 125

Asn Ile Thr Ser Glu Lys Leu Glu Gly Lys Glu Pro His Pro Gln Asp
    130                 135                 140

Ser Ser Ser Cys Glu Ile Leu Pro Ser Gln Pro Arg Arg Thr Lys Ser
145                 150                 155                 160

Phe Leu Asn Tyr Tyr Ala Asp Leu Glu Thr Ser Ala Arg Glu Leu Glu
                165                 170                 175

Gln Asn Arg Gly Asn His His Gly Thr Ala Glu Glu Lys Ser Gln Pro
            180                 185                 190

Val Gln Gly Gln Ala Ser Thr Ile Ile Gly Asn Gly Asp Leu Leu Leu
        195                 200                 205

Gln Lys Pro Asn Arg Pro Gln Ser Ser Pro Glu Asp Gly Gln Val Ala
    210                 215                 220

Thr Val Ser Ser Ser Pro Glu Thr Lys Lys Asp His Pro Lys Thr Gly
225                 230                 235                 240

Ala Lys Thr Asp Cys Ala Leu His Arg Ile Gln Asn Leu Ala Pro Ser
                245                 250                 255

Asp Glu Glu Ser Ser Trp Thr Thr Leu Ser Gln Asp Ser Ala Ser Pro
```

```
            260                 265                 270

Ser Ser Pro Asp Glu Thr Asp Ile Trp Ser Asp His Ser Phe Gln Thr
        275                 280                 285

Asp Pro Asp Leu Pro Pro Gly Trp Lys Arg Val Ser Asp Ile Ala Gly
    290                 295                 300

Thr Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Arg Pro
305                 310                 315                 320

Val Ser Ile Pro Ala Asp Leu Gln Gly Ser Arg Lys Gly Ser Leu Ser
                325                 330                 335

Ser Val Thr Pro Ser Pro Thr Pro Glu Asn Glu Asp Leu His Ala Ala
            340                 345                 350

Thr Val Asn Pro Asp Pro Ser Leu Lys Glu Phe Glu Gly Ala Thr Leu
        355                 360                 365

Arg Tyr Ala Ser Leu Lys Leu Arg Asn Ala Pro His Pro Asp Asp Asp
    370                 375                 380

Asp Ser Cys Ser Ile Asn Ser Asp Pro Glu Ala Lys Cys Phe Ala Val
385                 390                 395                 400

Arg Ser Leu Gly Trp Val Glu Met Ala Glu Glu Asp Leu Ala Pro Gly
                405                 410                 415

Lys Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr Cys
            420                 425                 430

Lys Asn Asp Ile Arg Asp Thr Val Gly Ile Trp Gly Glu Gly Lys Asp
        435                 440                 445

Met Tyr Leu Ile Leu Glu Asn Asp Met Leu Ser Leu Val Asp Pro Met
    450                 455                 460

Asp Arg Ser Val Leu His Ser Gln Pro Ile Val Ser Ile Arg Val Trp
465                 470                 475                 480

Gly Val Gly Arg Asp Asn Gly Arg Asp Phe Ala Tyr Val Ala Arg Asp
                485                 490                 495
```

```
Lys Asp Thr Arg Ile Leu Lys Cys His Val Phe Arg Cys Asp Thr Pro
            500                 505                 510

Ala Lys Ala Ile Ala Thr Ser Leu His Glu Ile Cys Ser Lys Ile Met
        515                 520                 525

Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln Glu
    530                 535                 540

Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro Thr
545                 550                 555                 560

Pro Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly Met
                565                 570                 575

Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala Ile
            580                 585                 590

Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val Asn
        595                 600                 605

Met Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys Asn Glu
    610                 615                 620

Glu Glu Val Leu Val Glu Cys Arg Val Arg Phe Leu Ser Phe Met Gly
625                 630                 635                 640

Val Gly Lys Asp Val His Thr Phe Ala Phe Ile Met Asp Thr Gly Asn
                645                 650                 655

Gln Arg Phe Glu Cys His Val Phe Trp Cys Glu Pro Asn Ala Gly Asn
            660                 665                 670

Val Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln Lys Cys
        675                 680                 685

Leu Val Ala Arg Pro Pro Ser Gln Lys Val Arg Pro Pro Pro Pro Pro
    690                 695                 700

Ala Asp Ser Val Thr Arg Arg Val Thr Thr Asn Val Lys Arg Gly Val
705                 710                 715                 720
```

Leu Ser Leu Ile Asp Thr Leu Lys Gln Lys Arg Pro Val Thr Glu Met
725 730 735

Pro

<210> 4557
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421751"

<400> 4557
Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln
1 5 10 15

Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro
20 25 30

Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly
35 40 45

Met Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala
50 55 60

Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val
65 70 75 80

Asn Met Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys
85 90 95

<210> 4558
<211> 27
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422723"

<400> 4558
Met Ser Glu Val Leu Pro Ala Asp Ser Gly Val Asp Thr Leu Ala Val
1 5 10 15

Phe Met Ala Ser Ser Gly Thr Thr Asp Val Thr
20 25

<210> 4559
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422948"

<220>

<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4559
Xaa Asp Thr Pro Ala Lys Ala Ile Ala Thr Ser Leu His Glu Ile Cys
1   5   10   15

Ser Lys Val Arg Leu Trp Leu Asn Gly Arg Met Pro Lys Arg Trp Pro
            20   25   30

Ala Ala Pro Tyr Arg Lys Gly Pro Met
        35   40

<210> 4560
<211> 210
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q92870; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423765"

<400> 4560
Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln
1   5   10   15

Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro
            20   25   30

Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly
        35   40   45

```
Met Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala
    50                  55                  60

Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val
65                  70                  75                  80

Asn Met Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys Asn
                85                  90                  95

Glu Glu Glu Val Leu Val Glu Cys Arg Val Arg Phe Leu Ser Phe Met
            100                 105                 110

Gly Val Gly Lys Asp Val His Thr Phe Ala Phe Ile Met Asp Thr Gly
        115                 120                 125

Asn Gln Arg Phe Glu Cys His Val Phe Trp Cys Glu Pro Asn Ala Gly
    130                 135                 140

Asn Val Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln Lys
145                 150                 155                 160

Cys Leu Val Ala Arg Pro Pro Ser Gln Lys Val Arg Pro Pro Pro Pro
                165                 170                 175

Pro Ala Asp Ser Val Thr Arg Arg Val Thr Thr Asn Val Lys Arg Gly
            180                 185                 190

Val Leu Ser Leu Ile Asp Thr Leu Lys Gln Lys Arg Pro Val Thr Glu
        195                 200                 205

Met Pro
    210


<210> 4561
<211> 140
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "
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<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424414"

<400> 4561
Met Ala Ser Ser Gly Thr Thr Asp Val Thr Asn Arg Asn Ser Pro Ala
1 5 10 15

Thr Pro Pro Asn Thr Leu Asn Leu Arg Ser Ser His Asn Glu Leu Leu
20 25 30

Asn Ala Glu Ile Lys His Thr Glu Thr Lys Asn Ser Thr Pro Pro Lys
35 40 45

Cys Arg Lys Lys Tyr Ala Leu Thr Asn Ile Gln Ala Ala Met Gly Leu
50 55 60

Ser Asp Pro Ala Ala Gln Pro Leu Leu Gly Asn Gly Ser Ala Asn Ile
65 70 75 80

Lys Leu Val Lys Asn Gly Glu Asn Gln Leu Arg Lys Ala Ala Glu Gln
85 90 95

Gly Gln Gln Asp Pro Asn Lys Asn Leu Ser Pro Thr Ala Val Ile Asn
100 105 110

Ile Thr Ser Glu Lys Leu Glu Gly Lys Glu Pro His Pro Gln Asp Ser
115 120 125

Ser Ser Cys Glu Ile Leu Pro Ser Gln Pro Arg Arg
130 135 140

<210> 4562
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>

<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424579"

<400> 4562
Met Ser Glu Val Leu Pro Ala Asp Ser Gly Val Asp Thr Leu Ala Val
1 5 10 15

Phe Met Ala Ser Ser Gly Thr Thr Asp Val Thr Asn Arg Asn Ser Pro
20 25 30

Ala Thr Pro Pro Asn Thr Leu Asn Leu Arg Ser Ser His Asn Glu Leu
35 40 45

Leu Asn Ala Glu Ile Lys His Thr Glu Thr Lys Asn Ser Thr Pro Pro
50 55 60

Lys Cys Arg Lys
65

<210> 4563
<211> 142
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425121"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4563
Xaa Gly Glu Gly Lys Asp Met Tyr Leu Ile Leu Glu Asn Asp Met Leu
1   5   10   15

Ser Leu Val Asp Pro Met Asp Arg Ser Val Leu His Ser Gln Pro Ile
            20   25   30

Val Ser Ile Arg Val Trp Gly Val Gly Arg Asp Asn Gly Arg Glu Arg
        35   40   45

Asp Phe Ala Tyr Val Ala Arg Asp Lys Asp Thr Arg Ile Leu Lys Cys
    50   55   60

His Val Phe Arg Cys Asp Thr Pro Ala Lys Ala Ile Ala Thr Ser Leu
65   70   75   80

His Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Lys Asn Ala Lys Ala
                85   90   95

Leu Ala Cys Ser Ser Leu Gln Glu Arg Ala Asn Val Asn Leu Asp Val
            100   105   110

Pro Leu Gln Asp Phe Pro Thr Pro Lys Thr Glu Leu Val Gln Lys Phe
        115   120   125

His Val Gln Tyr Leu Gly Met Leu Pro Val Asp Lys Pro Val
    130   135   140

<210> 4564
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>

<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425202"

<400> 4564
Met Ala Ser Ser Gly Thr Thr Asp Val Thr Asn Arg Asn Ser Pro Ala
1 5 10 15

Thr Pro Pro Asn Thr Leu Asn Leu Arg Ser
20 25

<210> 4565
<211> 210
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q92870; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425802"

<400> 4565
Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln
1 5 10 15

Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro
20 25 30

Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly
35 40 45

```
Met Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala
    50                  55                  60

Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val
65                  70                  75                  80

Asn Met Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys Asn
                85                  90                  95

Glu Glu Glu Val Leu Val Glu Cys Arg Val Arg Phe Leu Ser Phe Met
            100                 105                 110

Gly Val Gly Lys Asp Val His Thr Phe Ala Phe Ile Met Asp Thr Gly
        115                 120                 125

Asn Gln Arg Phe Glu Cys His Val Phe Trp Cys Glu Pro Asn Ala Gly
    130                 135                 140

Asn Val Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln Lys
145                 150                 155                 160

Cys Leu Val Ala Arg Pro Pro Ser Gln Lys Val Arg Pro Pro Pro Pro
                165                 170                 175

Pro Ala Asp Ser Val Thr Arg Arg Val Thr Thr Asn Val Lys Arg Gly
            180                 185                 190

Val Leu Ser Leu Ile Asp Thr Leu Lys Gln Lys Arg Pro Val Thr Glu
        195                 200                 205

Met Pro
    210
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<210> 4566
<211> 736
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
<223> /note="Gene Symbol: APBB2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q92870; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426018"

<400> 4566

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Met Ser Glu Val Leu Pro Ala Asp Ser Gly Val Asp Thr Leu Ala Val
1               5                  10                  15

Phe Met Ala Ser Ser Gly Thr Thr Asp Val Thr Asn Arg Asn Ser Pro
            20                  25                  30

Ala Thr Pro Pro Asn Thr Leu Asn Leu Arg Ser Ser His Asn Glu Leu
        35                  40                  45

Leu Asn Ala Glu Ile Lys His Thr Glu Thr Lys Asn Ser Thr Pro Pro
    50                  55                  60

Lys Cys Arg Lys Lys Tyr Ala Leu Thr Asn Ile Gln Ala Ala Met Gly
65                  70                  75                  80

Leu Ser Asp Pro Ala Ala Gln Pro Leu Leu Gly Asn Gly Ser Ala Asn
                85                  90                  95

Ile Lys Leu Val Lys Asn Gly Glu Asn Gln Leu Arg Lys Ala Ala Glu
            100                 105                 110

Gln Gly Gln Gln Asp Pro Asn Lys Asn Leu Ser Pro Thr Ala Val Ile
        115                 120                 125

Asn Ile Thr Ser Glu Lys Leu Glu Gly Lys Glu Pro His Pro Gln Asp
    130                 135                 140

Ser Ser Ser Cys Glu Ile Leu Pro Ser Gln Pro Arg Arg Thr Lys Ser
145                 150                 155                 160

Phe Leu Asn Tyr Tyr Ala Asp Leu Glu Thr Ser Ala Arg Glu Leu Glu
```

```
                165                 170                 175

Gln Asn Arg Gly Asn His His Gly Thr Ala Glu Glu Lys Ser Gln Pro
            180                 185                 190

Val Gln Gly Gln Ala Ser Thr Ile Ile Gly Asn Gly Asp Leu Leu Leu
        195                 200                 205

Gln Lys Pro Asn Arg Pro Gln Ser Ser Pro Glu Asp Gly Gln Val Ala
    210                 215                 220

Thr Val Ser Ser Ser Pro Glu Thr Lys Lys Asp His Pro Lys Thr Gly
225                 230                 235                 240

Ala Lys Thr Asp Cys Ala Leu His Arg Ile Gln Asn Leu Ala Pro Ser
                245                 250                 255

Asp Glu Glu Ser Ser Trp Thr Thr Leu Ser Gln Asp Ser Ala Ser Pro
            260                 265                 270

Ser Ser Pro Asp Glu Thr Asp Ile Trp Ser Asp His Ser Phe Gln Thr
        275                 280                 285

Asp Pro Asp Leu Pro Pro Gly Trp Lys Arg Val Ser Asp Ile Ala Gly
    290                 295                 300

Thr Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Arg Pro
305                 310                 315                 320

Val Ser Ile Pro Ala Asp Leu Gln Gly Ser Arg Lys Gly Ser Leu Ser
                325                 330                 335

Ser Val Thr Pro Ser Pro Thr Pro Glu Asn Glu Asp Leu His Ala Ala
            340                 345                 350

Thr Val Asn Pro Asp Pro Ser Leu Lys Glu Phe Glu Gly Ala Thr Leu
        355                 360                 365

Arg Tyr Ala Ser Leu Lys Leu Arg Asn Ala Pro His Pro Asp Asp Asp
    370                 375                 380

Asp Ser Cys Ser Ile Asn Ser Asp Pro Glu Ala Lys Cys Phe Ala Val
385                 390                 395                 400
```

```
Arg Ser Leu Gly Trp Val Glu Met Ala Glu Glu Asp Leu Ala Pro Gly
                405                 410                 415

Lys Ser Ser Val Ala Val Asn Asn Cys Ile Arg Gln Leu Ser Tyr Cys
            420                 425                 430

Lys Asn Asp Ile Arg Asp Thr Val Gly Ile Trp Gly Glu Gly Lys Asp
        435                 440                 445

Met Tyr Leu Ile Leu Glu Asn Asp Met Leu Ser Leu Val Asp Pro Met
    450                 455                 460

Asp Arg Ser Val Leu His Ser Gln Pro Ile Val Ser Ile Arg Val Trp
465                 470                 475                 480

Gly Val Gly Arg Asp Asn Gly Arg Asp Phe Ala Tyr Val Ala Arg Asp
                485                 490                 495

Lys Asp Thr Arg Ile Leu Lys Cys His Val Phe Arg Cys Asp Thr Pro
            500                 505                 510

Ala Lys Ala Ile Ala Thr Ser Leu His Glu Ile Cys Ser Lys Ile Met
        515                 520                 525

Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln Glu
    530                 535                 540

Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Asp Phe Pro Thr Pro
545                 550                 555                 560

Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly Met Leu
                565                 570                 575

Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala Ile Glu
            580                 585                 590

Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val Asn Met
        595                 600                 605

Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys Asn Glu Glu
    610                 615                 620
```

```
Glu Val Leu Val Glu Cys Arg Val Arg Phe Leu Ser Phe Met Gly Val
625                 630                 635                 640

Gly Lys Asp Val His Thr Phe Ala Phe Ile Met Asp Thr Gly Asn Gln
                645                 650                 655

Arg Phe Glu Cys His Val Phe Trp Cys Glu Pro Asn Ala Gly Asn Val
            660                 665                 670

Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln Lys Cys Leu
        675                 680                 685

Val Ala Arg Pro Pro Ser Gln Lys Val Arg Pro Pro Pro Pro Pro Ala
    690                 695                 700

Asp Ser Val Thr Arg Arg Val Thr Thr Asn Val Lys Arg Gly Val Leu
705                 710                 715                 720

Ser Leu Ile Asp Thr Leu Lys Gln Lys Arg Pro Val Thr Glu Met Pro
                725                 730                 735


<210> 4567
<211> 179
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1013; "

<220>
<221> source
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<220>
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<223> /note="ENSP ID: ENSP00000426429"

<400> 4567
Val Leu His Ser Gln Pro Ile Val Ser Ile Arg Val Trp Gly Val Gly
1               5                   10                  15
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Arg Asp Asn Gly Arg Glu Arg Asp Phe Ala Tyr Val Ala Arg Asp Lys
            20                  25                  30

Asp Thr Arg Ile Leu Lys Cys His Val Phe Arg Cys Asp Thr Pro Ala
        35                  40                  45

Lys Ala Ile Ala Thr Ser Leu His Glu Ile Cys Ser Lys Ile Met Ala
    50                  55                  60

Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln Glu Arg
65                  70                  75                  80

Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro Thr Pro
                85                  90                  95

Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly Met Leu
            100                 105                 110

Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala Ile Glu
        115                 120                 125

Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val Asn Met
    130                 135                 140

Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys Asn Glu Glu
145                 150                 155                 160

Glu Val Leu Val Glu Cys Arg Val Arg Phe Leu Ser Phe Met Gly Val
                165                 170                 175

Gly Lys Asp
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<210> 4568
<211> 102
<212> PRT
<213> Homo sapiens

<220>
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member 2; "

<220>
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<400> 4568
Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln
1 5 10 15

Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro
20 25 30

Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly
35 40 45

Met Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala
50 55 60

Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val
65 70 75 80

Asn Met Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys Asn
85 90 95

Glu Glu Glu Val Leu Val
100

<210> 4569
<211> 759
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<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
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<223> /note="Uniprot ID: Q92870; "

<220>
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<400> 4569
Met Ser Glu Val Leu Pro Ala Asp Ser Gly Val Asp Thr Leu Ala Val
1   5   10   15

Phe Met Ala Ser Ser Gly Thr Thr Asp Val Thr Asn Arg Asn Ser Pro
            20   25   30

Ala Thr Pro Pro Asn Thr Leu Asn Leu Arg Ser Ser His Asn Glu Leu
        35   40   45

Leu Asn Ala Glu Ile Lys His Thr Glu Thr Lys Asn Ser Thr Pro Pro
    50   55   60

Lys Cys Arg Lys Lys Tyr Ala Leu Thr Asn Ile Gln Ala Ala Met Gly
65   70   75   80

Leu Ser Asp Pro Ala Ala Gln Pro Leu Leu Gly Asn Gly Ser Ala Asn
                85   90   95

Ile Lys Leu Val Lys Asn Gly Glu Asn Gln Leu Arg Lys Ala Ala Glu
            100   105   110

Gln Gly Gln Gln Asp Pro Asn Lys Asn Leu Ser Pro Thr Ala Val Ile
        115   120   125

Asn Ile Thr Ser Glu Lys Leu Glu Gly Lys Glu Pro His Pro Gln Asp
    130   135   140

Ser Ser Ser Cys Glu Ile Leu Pro Ser Gln Pro Arg Arg Thr Lys Ser
145   150   155   160

Phe Leu Asn Tyr Tyr Ala Asp Leu Glu Thr Ser Ala Arg Glu Leu Glu
                165   170   175

Gln Asn Arg Gly Asn His His Gly Thr Ala Glu Glu Lys Ser Gln Pro
            180   185   190

```
Val Gln Gly Gln Ala Ser Thr Ile Ile Gly Asn Gly Asp Leu Leu Leu
        195                 200                 205

Gln Lys Pro Asn Arg Pro Gln Ser Ser Pro Glu Asp Gly Gln Val Ala
    210                 215                 220

Thr Val Ser Ser Ser Pro Glu Thr Lys Lys Asp His Pro Lys Thr Gly
225                 230                 235                 240

Ala Lys Thr Asp Cys Ala Leu His Arg Ile Gln Asn Leu Ala Pro Ser
                245                 250                 255

Asp Glu Glu Ser Ser Trp Thr Thr Leu Ser Gln Asp Ser Ala Ser Pro
            260                 265                 270

Ser Ser Pro Asp Glu Thr Ala Asp Ile Trp Ser Asp His Ser Phe Gln
        275                 280                 285

Thr Asp Pro Asp Leu Pro Pro Gly Trp Lys Arg Val Ser Asp Ile Ala
    290                 295                 300

Gly Thr Tyr Tyr Trp His Ile Pro Thr Gly Thr Thr Gln Trp Glu Arg
305                 310                 315                 320

Pro Val Ser Ile Pro Ala Asp Leu Gln Gly Ser Arg Lys Gly Ser Leu
                325                 330                 335

Ser Ser Val Thr Pro Ser Pro Thr Pro Glu Asn Glu Lys Gln Pro Trp
            340                 345                 350

Ser Asp Phe Ala Val Leu Asn Gly Gly Lys Ile Asn Ser Asp Ile Trp
        355                 360                 365

Lys Asp Leu His Ala Ala Thr Val Asn Pro Asp Pro Ser Leu Lys Glu
    370                 375                 380

Phe Glu Gly Ala Thr Leu Arg Tyr Ala Ser Leu Lys Leu Arg Asn Ala
385                 390                 395                 400

Pro His Pro Asp Asp Asp Asp Ser Cys Ser Ile Asn Ser Asp Pro Glu
                405                 410                 415
```

```
Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Ala Glu
            420                 425                 430

Glu Asp Leu Ala Pro Gly Lys Ser Ser Val Ala Val Asn Asn Cys Ile
        435                 440                 445

Arg Gln Leu Ser Tyr Cys Lys Asn Asp Ile Arg Asp Thr Val Gly Ile
    450                 455                 460

Trp Gly Glu Gly Lys Asp Met Tyr Leu Ile Leu Glu Asn Asp Met Leu
465                 470                 475                 480

Ser Leu Val Asp Pro Met Asp Arg Ser Val Leu His Ser Gln Pro Ile
                485                 490                 495

Val Ser Ile Arg Val Trp Gly Val Gly Arg Asp Asn Gly Arg Asp Phe
            500                 505                 510

Ala Tyr Val Ala Arg Asp Lys Asp Thr Arg Ile Leu Lys Cys His Val
        515                 520                 525

Phe Arg Cys Asp Thr Pro Ala Lys Ala Ile Ala Thr Ser Leu His Glu
    530                 535                 540

Ile Cys Ser Lys Ile Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala
545                 550                 555                 560

Cys Ser Ser Leu Gln Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu
                565                 570                 575

Gln Val Asp Phe Pro Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His
            580                 585                 590

Val Gln Tyr Leu Gly Met Leu Pro Val Asp Lys Pro Val Gly Met Asp
        595                 600                 605

Ile Leu Asn Ser Ala Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu
    610                 615                 620

Asp Trp Leu Ser Val Asn Met Asn Val Ala Asp Ala Thr Val Thr Val
625                 630                 635                 640

Ile Ser Glu Lys Asn Glu Glu Glu Val Leu Val Glu Cys Arg Val Arg
```

645 650 655

Phe Leu Ser Phe Met Gly Val Gly Lys Asp Val His Thr Phe Ala Phe
660 665 670

Ile Met Asp Thr Gly Asn Gln Arg Phe Glu Cys His Val Phe Trp Cys
675 680 685

Glu Pro Asn Ala Gly Asn Val Ser Glu Ala Val Gln Ala Ala Cys Met
690 695 700

Leu Arg Tyr Gln Lys Cys Leu Val Ala Arg Pro Pro Ser Gln Lys Val
705 710 715 720

Arg Pro Pro Pro Pro Pro Ala Asp Ser Val Thr Arg Arg Val Thr Thr
725 730 735

Asn Val Lys Arg Gly Val Leu Ser Leu Ile Asp Thr Leu Lys Gln Lys
740 745 750

Arg Pro Val Thr Glu Met Pro
755

<210> 4570
<211> 728
<212> PRT
<213> Homo sapiens

<220>
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<220>
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amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 4570
Xaa Asp Thr Leu Ala Val Phe Met Ala Ser Ser Gly Thr Thr Asp Val
1 5 10 15

Thr Asn Arg Asn Ser Pro Ala Thr Pro Pro Asn Thr Leu Asn Leu Arg
20 25 30

Ser Ser His Asn Glu Leu Leu Asn Ala Glu Ile Lys His Thr Glu Thr
35 40 45

Lys Asn Ser Thr Pro Pro Lys Cys Arg Lys Lys Tyr Ala Leu Thr Asn
50 55 60

Ile Gln Ala Ala Met Gly Leu Ser Asp Pro Ala Ala Gln Pro Leu Leu
65 70 75 80

Gly Asn Gly Ser Ala Asn Ile Lys Leu Val Lys Asn Gly Glu Asn Gln
85 90 95

Leu Arg Lys Ala Ala Glu Gln Gly Gln Gln Asp Pro Asn Lys Asn Leu
100 105 110

Ser Pro Thr Ala Val Ile Asn Ile Thr Ser Glu Lys Leu Glu Gly Lys
115 120 125

Glu Pro His Pro Gln Asp Ser Ser Ser Cys Glu Ile Leu Pro Ser Gln
130 135 140

Pro Arg Arg Thr Lys Ser Phe Leu Asn Tyr Tyr Ala Asp Leu Glu Thr
145 150 155 160

Ser Ala Arg Glu Leu Glu Gln Asn Arg Gly Asn His His Gly Thr Ala
165 170 175

Glu Glu Lys Ser Gln Pro Val Gln Gly Gln Ala Ser Thr Ile Ile Gly
180 185 190

Asn Gly Asp Leu Leu Leu Gln Lys Pro Asn Arg Pro Gln Ser Ser Pro
195 200 205

Glu Asp Gly Gln Val Ala Thr Val Ser Ser Ser Pro Glu Thr Lys Lys

```
    210                 215                 220

Asp His Pro Lys Thr Gly Ala Lys Thr Asp Cys Ala Leu His Arg Ile
225                 230                 235                 240

Gln Asn Leu Ala Pro Ser Asp Glu Glu Ser Ser Trp Thr Thr Leu Ser
                245                 250                 255

Gln Asp Ser Ala Ser Pro Ser Ser Pro Asp Glu Thr Ala Asp Ile Trp
            260                 265                 270

Ser Asp His Ser Phe Gln Thr Asp Pro Asp Leu Pro Pro Gly Trp Lys
        275                 280                 285

Arg Val Ser Asp Ile Ala Gly Thr Tyr Tyr Trp His Ile Pro Thr Gly
    290                 295                 300

Thr Thr Gln Trp Glu Arg Pro Val Ser Ile Pro Ala Asp Leu Gln Gly
305                 310                 315                 320

Ser Arg Lys Gly Ser Leu Ser Ser Val Thr Pro Ser Pro Thr Pro Glu
                325                 330                 335

Asn Glu Asp Leu His Ala Ala Thr Val Asn Pro Asp Pro Ser Leu Lys
            340                 345                 350

Glu Phe Glu Gly Ala Thr Leu Arg Tyr Ala Ser Leu Lys Leu Arg Asn
        355                 360                 365

Ala Pro His Pro Asp Asp Asp Asp Ser Cys Ser Ile Asn Ser Asp Pro
    370                 375                 380

Glu Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu Met Ala
385                 390                 395                 400

Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Val Ala Val Asn Asn Cys
                405                 410                 415

Ile Arg Gln Leu Ser Tyr Cys Lys Asn Asp Ile Arg Asp Thr Val Gly
            420                 425                 430

Ile Trp Gly Glu Gly Lys Asp Met Tyr Leu Ile Leu Glu Asn Asp Met
        435                 440                 445
```

```
Leu Ser Leu Val Asp Pro Met Asp Arg Ser Val Leu His Ser Gln Pro
    450                 455                 460

Ile Val Ser Ile Arg Val Trp Gly Val Gly Arg Asp Asn Gly Arg Asp
465                 470                 475                 480

Phe Ala Tyr Val Ala Arg Asp Lys Asp Thr Arg Ile Leu Lys Cys His
                485                 490                 495

Val Phe Arg Cys Asp Thr Pro Ala Lys Ala Ile Ala Thr Ser Leu His
            500                 505                 510

Glu Ile Cys Ser Lys Ile Met Ala Glu Arg Lys Asn Ala Lys Ala Leu
        515                 520                 525

Ala Cys Ser Ser Leu Gln Glu Arg Ala Asn Val Asn Leu Asp Val Pro
    530                 535                 540

Leu Gln Val Asp Phe Pro Thr Pro Lys Thr Glu Leu Val Gln Lys Phe
545                 550                 555                 560

His Val Gln Tyr Leu Gly Met Leu Pro Val Asp Lys Pro Val Gly Met
                565                 570                 575

Asp Ile Leu Asn Ser Ala Ile Glu Asn Leu Met Thr Ser Ser Asn Lys
            580                 585                 590

Glu Asp Trp Leu Ser Val Asn Met Asn Val Ala Asp Ala Thr Val Thr
        595                 600                 605

Val Ile Ser Glu Lys Asn Glu Glu Glu Val Leu Val Glu Cys Arg Val
    610                 615                 620

Arg Phe Leu Ser Phe Met Gly Val Gly Lys Asp Val His Thr Phe Ala
625                 630                 635                 640

Phe Ile Met Asp Thr Gly Asn Gln Arg Phe Glu Cys His Val Phe Trp
                645                 650                 655

Cys Glu Pro Asn Ala Gly Asn Val Ser Glu Ala Val Gln Ala Ala Cys
            660                 665                 670
```

Met Leu Arg Tyr Gln Lys Cys Leu Val Ala Arg Pro Pro Ser Gln Lys
675 680 685

Val Arg Pro Pro Pro Pro Pro Ala Asp Ser Val Thr Arg Arg Val Thr
690 695 700

Thr Asn Val Lys Arg Gly Val Leu Ser Leu Ile Asp Thr Leu Lys Gln
705 710 715 720

Lys Arg Pro Val Thr Glu Met Pro
725

<210> 4571
<211> 210
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q92870; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439357"

<400> 4571
Met Ala Glu Arg Lys Asn Ala Lys Ala Leu Ala Cys Ser Ser Leu Gln
1 5 10 15

Glu Arg Ala Asn Val Asn Leu Asp Val Pro Leu Gln Val Asp Phe Pro
20 25 30

Thr Pro Lys Thr Glu Leu Val Gln Lys Phe His Val Gln Tyr Leu Gly
35 40 45

```
Met Leu Pro Val Asp Lys Pro Val Gly Met Asp Ile Leu Asn Ser Ala
    50                  55                  60

Ile Glu Asn Leu Met Thr Ser Ser Asn Lys Glu Asp Trp Leu Ser Val
65                  70                  75                  80

Asn Met Asn Val Ala Asp Ala Thr Val Thr Val Ile Ser Glu Lys Asn
                85                  90                  95

Glu Glu Glu Val Leu Val Glu Cys Arg Val Arg Phe Leu Ser Phe Met
            100                 105                 110

Gly Val Gly Lys Asp Val His Thr Phe Ala Phe Ile Met Asp Thr Gly
        115                 120                 125

Asn Gln Arg Phe Glu Cys His Val Phe Trp Cys Glu Pro Asn Ala Gly
    130                 135                 140

Asn Val Ser Glu Ala Val Gln Ala Ala Cys Met Leu Arg Tyr Gln Lys
145                 150                 155                 160

Cys Leu Val Ala Arg Pro Pro Ser Gln Lys Val Arg Pro Pro Pro Pro
                165                 170                 175

Pro Ala Asp Ser Val Thr Arg Arg Val Thr Thr Asn Val Lys Arg Gly
            180                 185                 190

Val Leu Ser Leu Ile Asp Thr Leu Lys Gln Lys Arg Pro Val Thr Glu
        195                 200                 205

Met Pro
    210


<210> 4572
<211> 493
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1014; "

<220>
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<223> /note="Gene Symbol: APBB3; "
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<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
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<220>
<221> source
<223> /note="Uniprot ID: O95704; "

<220>
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<223> /note="ENSP ID: ENSP00000346378"

<400> 4572

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Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1               5                   10                  15


Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
            20                  25                  30


Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
        35                  40                  45


Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
    50                  55                  60


Asp Ala Glu Asp Pro Gly Thr Gly Thr Glu Gly Ile Trp Gly Leu Arg
65                  70                  75                  80


Pro Pro Lys Gly Arg Ser Phe Ser Ser Leu Glu Ser Ser Leu Asp Arg
                85                  90                  95


Ser Asn Ser Leu Ser Trp Tyr Gly Gly Glu Ser Tyr Ile Gln Ser Met
            100                 105                 110


Glu Pro Gly Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
        115                 120                 125


Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
    130                 135                 140


Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145                 150                 155                 160


Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
                165                 170                 175
```

```
Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
            180                 185                 190

Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser Lys Gly
        195                 200                 205

Arg Asp Ser Pro Ile Ser Ala Pro Ala Arg Asp Phe Ala Phe Val Ala
    210                 215                 220

Ser Asp Lys Asp Ser Cys Met Leu Lys Cys His Val Phe Cys Cys Asp
225                 230                 235                 240

Val Pro Ala Lys Ala Ile Ala Ser Ala Leu His Gly Leu Cys Ala Gln
                245                 250                 255

Ile Leu Ser Glu Arg Val Glu Val Ser Gly Asp Ala Ser Cys Cys Ser
            260                 265                 270

Pro Asp Pro Ile Ser Pro Glu Asp Leu Pro Arg Gln Val Glu Leu Leu
        275                 280                 285

Asp Ala Val Ser Gln Ala Ala Gln Lys Tyr Glu Ala Leu Tyr Met Gly
    290                 295                 300

Thr Leu Pro Val Thr Lys Ala Met Gly Met Asp Val Leu Asn Glu Ala
305                 310                 315                 320

Ile Gly Thr Leu Thr Ala Arg Gly Asp Arg Asn Ala Trp Val Pro Thr
                325                 330                 335

Met Leu Ser Val Ser Asp Ser Leu Met Thr Ala His Pro Ile Gln Ala
            340                 345                 350

Glu Ala Ser Thr Glu Glu Glu Pro Leu Trp Gln Cys Pro Val Arg Leu
        355                 360                 365

Val Thr Phe Ile Gly Val Gly Arg Asp Pro His Thr Phe Gly Leu Ile
    370                 375                 380

Ala Asp Leu Gly Arg Gln Ser Phe Gln Cys Ala Ala Phe Trp Cys Gln
385                 390                 395                 400
```

```
Pro His Ala Gly Gly Leu Ser Glu Ala Val Gln Ala Ala Cys Met Val
                405                 410                 415

Gln Tyr Gln Lys Cys Leu Val Ala Ser Ala Ala Arg Gly Lys Ala Trp
            420                 425                 430

Gly Ala Gln Ala Arg Ala Arg Leu Arg Leu Lys Arg Thr Ser Ser Met
        435                 440                 445

Asp Ser Pro Gly Gly Pro Leu Pro Leu Pro Leu Leu Lys Gly Gly Val
    450                 455                 460

Gly Gly Ala Gly Ala Thr Pro Arg Lys Arg Gly Val Phe Ser Phe Leu
465                 470                 475                 480

Asp Ala Phe Arg Leu Lys Pro Ser Leu Leu His Met Pro
                485                 490


<210> 4573
<211> 491
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: APBB3; "

<220>
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<223> /note="Gene Name:
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      member 3; "

<220>
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<223> /note="Uniprot ID:  O95704; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349177"

<400> 4573
Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1               5                   10                  15
```

```
Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
            20                  25                  30

Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
        35                  40                  45

Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
    50                  55                  60

Asp Ala Glu Asp Pro Gly Thr Gly Thr Glu Gly Ile Trp Gly Leu Arg
65                  70                  75                  80

Pro Pro Lys Gly Arg Ser Phe Ser Ser Leu Glu Ser Ser Leu Asp Arg
                85                  90                  95

Ser Asn Ser Leu Ser Trp Tyr Gly Gly Glu Ser Tyr Ile Gln Ser Met
            100                 105                 110

Glu Pro Gly Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
        115                 120                 125

Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
    130                 135                 140

Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145                 150                 155                 160

Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
                165                 170                 175

Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
            180                 185                 190

Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser Lys Gly
        195                 200                 205

Arg Pro Ile Ser Ala Pro Ala Arg Asp Phe Ala Phe Val Ala Ser Asp
    210                 215                 220

Lys Asp Ser Cys Met Leu Lys Cys His Val Phe Cys Cys Asp Val Pro
225                 230                 235                 240

Ala Lys Ala Ile Ala Ser Ala Leu His Gly Leu Cys Ala Gln Ile Leu
```

```
                245                 250                 255

Ser Glu Arg Val Glu Val Ser Gly Asp Ala Ser Cys Cys Ser Pro Asp
            260                 265                 270

Pro Ile Ser Pro Glu Asp Leu Pro Arg Gln Val Glu Leu Leu Asp Ala
        275                 280                 285

Val Ser Gln Ala Ala Gln Lys Tyr Glu Ala Leu Tyr Met Gly Thr Leu
    290                 295                 300

Pro Val Thr Lys Ala Met Gly Met Asp Val Leu Asn Glu Ala Ile Gly
305                 310                 315                 320

Thr Leu Thr Ala Arg Gly Asp Arg Asn Ala Trp Val Pro Thr Met Leu
                325                 330                 335

Ser Val Ser Asp Ser Leu Met Thr Ala His Pro Ile Gln Ala Glu Ala
            340                 345                 350

Ser Thr Glu Glu Glu Pro Leu Trp Gln Cys Pro Val Arg Leu Val Thr
        355                 360                 365

Phe Ile Gly Val Gly Arg Asp Pro His Thr Phe Gly Leu Ile Ala Asp
    370                 375                 380

Leu Gly Arg Gln Ser Phe Gln Cys Ala Ala Phe Trp Cys Gln Pro His
385                 390                 395                 400

Ala Gly Gly Leu Ser Glu Ala Val Gln Ala Ala Cys Met Val Gln Tyr
                405                 410                 415

Gln Lys Cys Leu Val Ala Ser Ala Ala Arg Gly Lys Ala Trp Gly Ala
            420                 425                 430

Gln Ala Arg Ala Arg Leu Arg Leu Lys Arg Thr Ser Ser Met Asp Ser
        435                 440                 445

Pro Gly Gly Pro Leu Pro Leu Pro Leu Leu Lys Gly Gly Val Gly Gly
    450                 455                 460

Ala Gly Ala Thr Pro Arg Lys Arg Gly Val Phe Ser Phe Leu Asp Ala
465                 470                 475                 480
```

```
Phe Arg Leu Lys Pro Ser Leu Leu His Met Pro
                485                 490


<210> 4574
<211> 486
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APBB3; "

<220>
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<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 3; "

<220>
<221> source
<223> /note="Uniprot ID:  O95704; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000350171"

<400> 4574
Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1               5                   10                  15


Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
            20                  25                  30


Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
        35                  40                  45


Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
    50                  55                  60


Asp Ala Glu Asp Pro Gly Thr Gly Thr Glu Gly Ile Trp Gly Leu Arg
65                  70                  75                  80


Pro Pro Lys Gly Arg Ser Phe Ser Ser Leu Glu Ser Ser Leu Asp Arg
                85                  90                  95
```

```
Ser Asn Ser Leu Ser Trp Tyr Gly Gly Glu Ser Tyr Ile Gln Ser Met
            100                 105                 110

Glu Pro Gly Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
        115                 120                 125

Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
    130                 135                 140

Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145                 150                 155                 160

Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
                165                 170                 175

Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
            180                 185                 190

Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser Lys Gly
        195                 200                 205

Arg Asp Arg Asp Phe Ala Phe Val Ala Ser Asp Lys Asp Ser Cys Met
    210                 215                 220

Leu Lys Cys His Val Phe Cys Cys Asp Val Pro Ala Lys Ala Ile Ala
225                 230                 235                 240

Ser Ala Leu His Gly Leu Cys Ala Gln Ile Leu Ser Glu Arg Val Glu
                245                 250                 255

Val Ser Gly Asp Ala Ser Cys Cys Ser Pro Asp Pro Ile Ser Pro Glu
            260                 265                 270

Asp Leu Pro Arg Gln Val Glu Leu Leu Asp Ala Val Ser Gln Ala Ala
        275                 280                 285

Gln Lys Tyr Glu Ala Leu Tyr Met Gly Thr Leu Pro Val Thr Lys Ala
    290                 295                 300

Met Gly Met Asp Val Leu Asn Glu Ala Ile Gly Thr Leu Thr Ala Arg
305                 310                 315                 320
```

```
Gly Asp Arg Asn Ala Trp Val Pro Thr Met Leu Ser Val Ser Asp Ser
                325                 330                 335

Leu Met Thr Ala His Pro Ile Gln Ala Glu Ala Ser Thr Glu Glu Glu
            340                 345                 350

Pro Leu Trp Gln Cys Pro Val Arg Leu Val Thr Phe Ile Gly Val Gly
        355                 360                 365

Arg Asp Pro His Thr Phe Gly Leu Ile Ala Asp Leu Gly Arg Gln Ser
    370                 375                 380

Phe Gln Cys Ala Ala Phe Trp Cys Gln Pro His Ala Gly Gly Leu Ser
385                 390                 395                 400

Glu Ala Val Gln Ala Ala Cys Met Val Gln Tyr Gln Lys Cys Leu Val
                405                 410                 415

Ala Ser Ala Ala Arg Gly Lys Ala Trp Gly Ala Gln Ala Arg Ala Arg
            420                 425                 430

Leu Arg Leu Lys Arg Thr Ser Ser Met Asp Ser Pro Gly Gly Pro Leu
        435                 440                 445

Pro Leu Pro Leu Leu Lys Gly Gly Val Gly Gly Ala Gly Ala Thr Pro
    450                 455                 460

Arg Lys Arg Gly Val Phe Ser Phe Leu Asp Ala Phe Arg Leu Lys Pro
465                 470                 475                 480

Ser Leu Leu His Met Pro
                485


<210> 4575
<211> 339
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APBB3; "
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<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000351389"

<400> 4575
Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1 5 10 15

Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
20 25 30

Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
35 40 45

Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
50 55 60

Asp Ala Glu Asp Pro Gly Thr Gly Thr Glu Gly Ile Trp Gly Leu Arg
65 70 75 80

Pro Pro Lys Gly Arg Ser Phe Ser Ser Leu Glu Ser Ser Leu Asp Arg
85 90 95

Ser Asn Ser Leu Ser Trp Tyr Gly Gly Glu Ser Tyr Ile Gln Ser Met
100 105 110

Glu Pro Gly Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
115 120 125

Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
130 135 140

Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145 150 155 160

Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
165 170 175

Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
180 185 190

```
Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser Lys Gly
        195                 200                 205

Arg Asp Arg Asp Phe Ala Phe Val Ala Ser Asp Lys Asp Ser Cys Met
    210                 215                 220

Leu Lys Cys His Val Phe Cys Cys Asp Val Pro Ala Lys Ala Ile Ala
225                 230                 235                 240

Ser Ala Leu His Gly Leu Cys Ala Gln Ile Leu Ser Glu Arg Val Glu
                245                 250                 255

Val Ser Gly Asp Ala Ser Cys Cys Ser Pro Asp Pro Ile Ser Pro Glu
            260                 265                 270

Asp Leu Pro Arg Gln Val Glu Leu Leu Asp Ala Val Ser Gln Ala Ala
        275                 280                 285

Gln Lys Tyr Glu Ala Leu Tyr Met Gly Thr Leu Pro Val Thr Lys Ala
    290                 295                 300

Met Gly Arg Gly Gln Tyr Arg Gly Gly Ala Ile Val Ala Val Pro Cys
305                 310                 315                 320

Ala Pro Cys Asp Ile Tyr Trp Cys Trp Pro Arg Pro Thr His Leu Trp
                325                 330                 335

Pro His Arg
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<210> 4576
<211> 484
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1014; "

<220>
<221> source
<223> /note="Gene Symbol: APBB3; "

<220>
<221> source

<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 3; "

<220>
<221> source
<223> /note="Uniprot ID: O95704; "

<220>
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<223> /note="ENSP ID: ENSP00000402591"

<400> 4576

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Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1               5                  10                  15

Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
            20                  25                  30

Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
        35                  40                  45

Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
    50                  55                  60

Asp Ala Glu Asp Pro Gly Thr Gly Thr Glu Gly Ile Trp Gly Leu Arg
65                  70                  75                  80

Pro Pro Lys Gly Arg Ser Phe Ser Ser Leu Glu Ser Ser Leu Asp Arg
                85                  90                  95

Ser Asn Ser Leu Ser Trp Tyr Gly Gly Glu Ser Tyr Ile Gln Ser Met
            100                 105                 110

Glu Pro Gly Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
        115                 120                 125

Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
    130                 135                 140

Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145                 150                 155                 160

Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
                165                 170                 175
```

```
Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
            180                 185                 190

Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser Lys Gly
        195                 200                 205

Arg Asp Phe Ala Phe Val Ala Ser Asp Lys Asp Ser Cys Met Leu Lys
    210                 215                 220

Cys His Val Phe Cys Cys Asp Val Pro Ala Lys Ala Ile Ala Ser Ala
225                 230                 235                 240

Leu His Gly Leu Cys Ala Gln Ile Leu Ser Glu Arg Val Glu Val Ser
                245                 250                 255

Gly Asp Ala Ser Cys Cys Ser Pro Asp Pro Ile Ser Pro Glu Asp Leu
            260                 265                 270

Pro Arg Gln Val Glu Leu Leu Asp Ala Val Ser Gln Ala Ala Gln Lys
        275                 280                 285

Tyr Glu Ala Leu Tyr Met Gly Thr Leu Pro Val Thr Lys Ala Met Gly
    290                 295                 300

Met Asp Val Leu Asn Glu Ala Ile Gly Thr Leu Thr Ala Arg Gly Asp
305                 310                 315                 320

Arg Asn Ala Trp Val Pro Thr Met Leu Ser Val Ser Asp Ser Leu Met
                325                 330                 335

Thr Ala His Pro Ile Gln Ala Glu Ala Ser Thr Glu Glu Glu Pro Leu
            340                 345                 350

Trp Gln Cys Pro Val Arg Leu Val Thr Phe Ile Gly Val Gly Arg Asp
        355                 360                 365

Pro His Thr Phe Gly Leu Ile Ala Asp Leu Gly Arg Gln Ser Phe Gln
    370                 375                 380

Cys Ala Ala Phe Trp Cys Gln Pro His Ala Gly Gly Leu Ser Glu Ala
385                 390                 395                 400

Val Gln Ala Ala Cys Met Val Gln Tyr Gln Lys Cys Leu Val Ala Ser
```

405 410 415

Ala Ala Arg Gly Lys Ala Trp Gly Ala Gln Ala Arg Ala Arg Leu Arg
420 425 430

Leu Lys Arg Thr Ser Ser Met Asp Ser Pro Gly Gly Pro Leu Pro Leu
435 440 445

Pro Leu Leu Lys Gly Gly Val Gly Gly Ala Gly Ala Thr Pro Arg Lys
450 455 460

Arg Gly Val Phe Ser Phe Leu Asp Ala Phe Arg Leu Lys Pro Ser Leu
465 470 475 480

Leu His Met Pro

<210> 4577
<211> 245
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1014; "

<220>
<221> source
<223> /note="Gene Symbol: APBB3; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 3; "

<220>
<221> source
<223> /note="Uniprot ID: O95704; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422718"

<400> 4577
Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1 5 10 15

Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
20 25 30

```
Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
        35                  40                  45

Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
    50                  55                  60

Asp Ala Glu Asp Pro Gly Thr Gly Thr Glu Gly Ile Trp Gly Leu Arg
65                  70                  75                  80

Pro Pro Lys Gly Arg Ser Phe Ser Ser Leu Glu Ser Ser Leu Asp Arg
                85                  90                  95

Ser Asn Ser Leu Ser Trp Tyr Gly Gly Glu Ser Tyr Ile Gln Ser Met
            100                 105                 110

Glu Pro Gly Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
        115                 120                 125

Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
    130                 135                 140

Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145                 150                 155                 160

Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
                165                 170                 175

Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
            180                 185                 190

Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser Lys Gly
        195                 200                 205

Arg Ser Ser Asp Val Asp Pro Gly Leu Leu Pro Leu Pro Gly Pro Ala
    210                 215                 220

Leu Val Gly Glu Gly Gly Pro Ser Ser Ala Gly Thr Val Trp Gly Glu
225                 230                 235                 240

Ser Glu Arg Leu Gly
                245
```

<210> 4578
<211> 337
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1014; "

<220>
<221> source
<223> /note="Gene Symbol: APBB3; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424317"

<400> 4578
Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1 5 10 15

Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
20 25 30

Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
35 40 45

Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
50 55 60

Asp Ala Glu Asp Pro Gly Thr Gly Thr Glu Gly Ile Trp Gly Leu Arg
65 70 75 80

Pro Pro Lys Gly Arg Ser Phe Ser Ser Leu Glu Ser Ser Leu Asp Arg
85 90 95

Ser Asn Ser Leu Ser Trp Tyr Gly Gly Glu Ser Tyr Ile Gln Ser Met
100 105 110

Glu Pro Gly Ala Lys Cys Phe Ala Val Arg Ser Leu Gly Trp Val Glu
115 120 125

Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
130 135 140

Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145 150 155 160

Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
165 170 175

Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
180 185 190

Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser Lys Gly
195 200 205

Arg Asp Phe Ala Phe Val Ala Ser Asp Lys Asp Ser Cys Met Leu Lys
210 215 220

Cys His Val Phe Cys Cys Asp Val Pro Ala Lys Ala Ile Ala Ser Ala
225 230 235 240

Leu His Gly Leu Cys Ala Gln Ile Leu Ser Glu Arg Val Glu Val Ser
245 250 255

Gly Asp Ala Ser Cys Cys Ser Pro Asp Pro Ile Ser Pro Glu Asp Leu
260 265 270

Pro Arg Gln Val Glu Leu Leu Asp Ala Val Ser Gln Ala Ala Gln Lys
275 280 285

Tyr Glu Ala Leu Tyr Met Gly Thr Leu Pro Val Thr Lys Ala Met Gly
290 295 300

Arg Gly Gln Tyr Arg Gly Gly Ala Ile Val Ala Val Pro Cys Ala Pro
305 310 315 320

Cys Asp Ile Tyr Trp Cys Trp Pro Arg Pro Thr His Leu Trp Pro His
325 330 335

Arg

<210> 4579

<211> 214
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1014; "

<220>
<221> source
<223> /note="Gene Symbol: APBB3; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor prt-binding, family B,
member 3; "

<220>
<221> source
<223> /note="Uniprot ID: O95704; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426107"

<400> 4579

Met	Leu	Gly	Lys	Asp	Tyr	Met	Leu	Ala	Ile	Ile	Leu	Val	Asn	Cys	Asp
1				5				10						15	

Asp	Asp	Leu	Trp	Gly	Asp	His	Ser	Leu	Glu	Val	Glu	Ala	Gly	Leu	Pro
		20					25					30			

Pro	Gly	Trp	Arg	Lys	Ile	His	Asp	Ala	Ala	Gly	Thr	Tyr	Tyr	Trp	His
	35					40					45				

Val	Pro	Ser	Gly	Ser	Thr	Gln	Trp	Gln	Arg	Pro	Thr	Trp	Glu	Leu	Gly
	50					55					60				

Asp	Ala	Glu	Asp	Pro	Gly	Thr	Gly	Thr	Glu	Gly	Ile	Trp	Gly	Leu	Arg
65					70					75					80

Pro	Pro	Lys	Gly	Arg	Ser	Phe	Ser	Ser	Leu	Glu	Ser	Ser	Leu	Asp	Arg
				85					90					95	

Ser	Asn	Ser	Leu	Ser	Trp	Tyr	Gly	Gly	Glu	Ser	Tyr	Ile	Gln	Ser	Met
		100					105					110			

Glu	Pro	Gly	Ala	Lys	Cys	Phe	Ala	Val	Arg	Ser	Leu	Gly	Trp	Val	Glu
	115					120					125				

```
Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala Val Asn
    130                 135                 140

Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln Pro Pro
145                 150                 155                 160

Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu Lys Lys
                165                 170                 175

Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile His Cys
            180                 185                 190

Gln Pro Leu Ala Val Ile Pro Thr Asp Ala Asp Pro Gln Tyr Leu Asn
        195                 200                 205

Pro Trp Thr Gln Ile Leu
    210


<210> 4580
<211> 163
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1014; "

<220>
<221> source
<223> /note="Gene Symbol: APBB3; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor prt-binding, family B,
      member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427272"

<400> 4580
Met Leu Gly Lys Asp Tyr Met Leu Ala Ile Ile Leu Val Asn Cys Asp
1               5                   10                  15

Asp Asp Leu Trp Gly Asp His Ser Leu Glu Val Glu Ala Gly Leu Pro
            20                  25                  30
```

```
Pro Gly Trp Arg Lys Ile His Asp Ala Ala Gly Thr Tyr Tyr Trp His
        35                  40                  45

Val Pro Ser Gly Ser Thr Gln Trp Gln Arg Pro Thr Trp Glu Leu Gly
    50                  55                  60

Asp Ala Glu Asp Pro Gly Thr Cys Phe Ala Val Arg Ser Leu Gly Trp
65                  70                  75                  80

Val Glu Val Pro Glu Glu Asp Leu Ala Pro Gly Lys Ser Ser Ile Ala
                85                  90                  95

Val Asn Asn Cys Ile Gln Gln Leu Ala Gln Thr Arg Ser Arg Ser Gln
            100                 105                 110

Pro Pro Asp Gly Ala Trp Gly Glu Gly Gln Asn Met Leu Met Ile Leu
        115                 120                 125

Lys Lys Asp Ala Met Ser Leu Val Asn Pro Leu Asp His Ser Leu Ile
    130                 135                 140

His Cys Gln Pro Leu Val His Ile Arg Val Trp Gly Val Gly Ser Ser
145                 150                 155                 160

Lys Gly Arg
```

<210> 4581
<211> 651
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1015; "

<220>
<221> source
<223> /note="Gene Symbol: APLP1; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor-like prt 1; "

<220>
<221> source

<223> /note="Uniprot ID: P51693; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000221891"

<400> 4581
Met Gly Pro Ala Ser Pro Ala Ala Arg Gly Leu Ser Arg Arg Pro Gly
1   5   10   15

Gln Pro Pro Leu Pro Leu Leu Leu Pro Leu Leu Leu Leu Leu Leu Arg
            20   25   30

Ala Gln Pro Ala Ile Gly Ser Leu Ala Gly Gly Ser Pro Gly Ala Ala
        35   40   45

Glu Ala Pro Gly Ser Ala Gln Val Ala Gly Leu Cys Gly Arg Leu Thr
    50   55   60

Leu His Arg Asp Leu Arg Thr Gly Arg Trp Glu Pro Asp Pro Gln Arg
65   70   75   80

Ser Arg Arg Cys Leu Arg Asp Pro Gln Arg Val Leu Glu Tyr Cys Arg
                85   90   95

Gln Met Tyr Pro Glu Leu Gln Ile Ala Arg Val Glu Gln Ala Thr Gln
            100   105   110

Ala Ile Pro Met Glu Arg Trp Cys Gly Gly Ser Arg Ser Gly Ser Cys
        115   120   125

Ala His Pro His His Gln Val Val Pro Phe Arg Cys Leu Pro Gly Glu
    130   135   140

Phe Val Ser Glu Ala Leu Leu Val Pro Glu Gly Cys Arg Phe Leu His
145   150   155   160

Gln Glu Arg Met Asp Gln Cys Glu Ser Ser Thr Arg Arg His Gln Glu
                165   170   175

Ala Gln Glu Ala Cys Ser Ser Gln Gly Leu Ile Leu His Gly Ser Gly
            180   185   190

Met Leu Leu Pro Cys Gly Ser Asp Arg Phe Arg Gly Val Glu Tyr Val
        195   200   205

```
Cys Cys Pro Pro Pro Gly Thr Pro Asp Pro Ser Gly Thr Ala Val Gly
    210                 215                 220

Asp Pro Ser Thr Arg Ser Trp Pro Pro Gly Ser Arg Val Glu Gly Ala
225                 230                 235                 240

Glu Asp Glu Glu Glu Glu Glu Ser Phe Pro Gln Pro Val Asp Asp Tyr
                245                 250                 255

Phe Val Glu Pro Pro Gln Ala Glu Glu Glu Glu Glu Thr Val Pro Pro
            260                 265                 270

Pro Ser Ser His Thr Leu Ala Val Val Gly Lys Val Thr Pro Thr Pro
        275                 280                 285

Arg Pro Thr Asp Gly Val Asp Ile Tyr Phe Gly Met Pro Gly Glu Ile
    290                 295                 300

Ser Glu His Glu Gly Phe Leu Arg Ala Lys Met Asp Leu Glu Glu Arg
305                 310                 315                 320

Arg Met Arg Gln Ile Asn Glu Val Met Arg Glu Trp Ala Met Ala Asp
                325                 330                 335

Asn Gln Ser Lys Asn Leu Pro Lys Ala Asp Arg Gln Ala Leu Asn Glu
            340                 345                 350

His Phe Gln Ser Ile Leu Gln Thr Leu Glu Glu Gln Val Ser Gly Glu
        355                 360                 365

Arg Gln Arg Leu Val Glu Thr His Ala Thr Arg Val Ile Ala Leu Ile
    370                 375                 380

Asn Asp Gln Arg Arg Ala Ala Leu Glu Gly Phe Leu Ala Ala Leu Gln
385                 390                 395                 400

Ala Asp Pro Pro Gln Ala Glu Arg Val Leu Leu Ala Leu Arg Arg Tyr
                405                 410                 415

Leu Arg Ala Glu Gln Lys Glu Gln Arg His Thr Leu Arg His Tyr Gln
            420                 425                 430
```

```
His Val Ala Ala Val Asp Pro Glu Lys Ala Gln Gln Met Arg Phe Gln
        435                 440                 445

Val His Thr His Leu Gln Val Ile Glu Glu Arg Val Asn Gln Ser Leu
    450                 455                 460

Gly Leu Leu Asp Gln Asn Pro His Leu Ala Gln Glu Leu Arg Pro Gln
465                 470                 475                 480

Ile Gln Glu Leu Leu His Ser Glu His Leu Gly Pro Ser Glu Leu Glu
                485                 490                 495

Ala Pro Ala Pro Gly Gly Ser Ser Glu Asp Lys Gly Gly Leu Gln Pro
            500                 505                 510

Pro Asp Ser Lys Asp Ala Asp Thr Pro Met Thr Leu Pro Lys Gly Ser
        515                 520                 525

Thr Glu Gln Asp Ala Ala Ser Pro Glu Lys Glu Lys Met Asn Pro Leu
    530                 535                 540

Glu Gln Tyr Glu Arg Lys Val Asn Ala Ser Val Pro Arg Gly Phe Pro
545                 550                 555                 560

Phe His Ser Ser Glu Ile Gln Arg Asp Glu Leu Ala Pro Ala Gly Thr
                565                 570                 575

Gly Val Ser Arg Glu Ala Val Ser Gly Leu Leu Ile Met Gly Ala Gly
            580                 585                 590

Gly Gly Ser Leu Ile Val Leu Ser Met Leu Leu Leu Arg Arg Lys Lys
        595                 600                 605

Pro Tyr Gly Ala Ile Ser His Gly Val Val Glu Val Asp Pro Met Leu
    610                 615                 620

Thr Leu Glu Glu Gln Gln Leu Arg Glu Leu Gln Arg His Gly Tyr Glu
625                 630                 635                 640

Asn Pro Thr Tyr Arg Phe Leu Glu Glu Arg Pro
                645                 650
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<210> 4582
<211> 611
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1015; "

<220>
<221> source
<223> /note="Gene Symbol: APLP1; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor-like prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441501"

<400> 4582

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Met Leu Ala Ser Leu Glu Lys Asp Lys Thr Ala Pro Gly Ser Ala Gln
1               5                  10                  15

Val Ala Gly Leu Cys Gly Arg Leu Thr Leu His Arg Asp Leu Arg Thr
            20                  25                  30

Gly Arg Trp Glu Pro Asp Pro Gln Arg Ser Arg Arg Cys Leu Arg Asp
        35                  40                  45

Pro Gln Arg Val Leu Glu Tyr Cys Arg Gln Met Tyr Pro Glu Leu Gln
    50                  55                  60

Ile Ala Arg Val Glu Gln Ala Thr Gln Ala Ile Pro Met Glu Arg Trp
65                  70                  75                  80

Cys Gly Gly Ser Arg Ser Gly Ser Cys Ala His Pro His His Gln Val
                85                  90                  95

Val Pro Phe Arg Cys Leu Pro Gly Glu Phe Val Ser Glu Ala Leu Leu
            100                 105                 110

Val Pro Glu Gly Cys Arg Phe Leu His Gln Glu Arg Met Asp Gln Cys
        115                 120                 125

Glu Ser Ser Thr Arg Arg His Gln Glu Ala Gln Glu Ala Cys Ser Ser
    130                 135                 140
```

```
Gln Gly Leu Ile Leu His Gly Ser Gly Met Leu Leu Pro Cys Gly Ser
145                 150                 155                 160

Asp Arg Phe Arg Gly Val Glu Tyr Val Cys Cys Pro Pro Pro Gly Thr
                165                 170                 175

Pro Asp Pro Ser Gly Thr Ala Val Gly Asp Pro Ser Thr Arg Ser Trp
            180                 185                 190

Pro Pro Gly Ser Arg Val Glu Gly Ala Glu Asp Glu Glu Glu Glu Glu
        195                 200                 205

Ser Phe Pro Gln Pro Val Asp Asp Tyr Phe Val Glu Pro Pro Gln Ala
    210                 215                 220

Glu Glu Glu Glu Glu Thr Val Pro Pro Pro Ser Ser His Thr Leu Ala
225                 230                 235                 240

Val Val Gly Lys Val Thr Pro Thr Pro Arg Pro Thr Asp Gly Val Asp
                245                 250                 255

Ile Tyr Phe Gly Met Pro Gly Glu Ile Ser Glu His Glu Gly Phe Leu
            260                 265                 270

Arg Ala Lys Met Asp Leu Glu Glu Arg Arg Met Arg Gln Ile Asn Glu
        275                 280                 285

Val Met Arg Glu Trp Ala Met Ala Asp Asn Gln Ser Lys Asn Leu Pro
    290                 295                 300

Lys Ala Asp Arg Gln Ala Leu Asn Glu His Phe Gln Ser Ile Leu Gln
305                 310                 315                 320

Thr Leu Glu Glu Gln Val Ser Gly Glu Arg Gln Arg Leu Val Glu Thr
                325                 330                 335

His Ala Thr Arg Val Ile Ala Leu Ile Asn Asp Gln Arg Arg Ala Ala
            340                 345                 350

Leu Glu Gly Phe Leu Ala Ala Leu Gln Ala Asp Pro Pro Gln Ala Glu
        355                 360                 365
```

```
Arg Val Leu Leu Ala Leu Arg Arg Tyr Leu Arg Ala Glu Gln Lys Glu
    370                 375                 380

Gln Arg His Thr Leu Arg His Tyr Gln His Val Ala Ala Val Asp Pro
385                 390                 395                 400

Glu Lys Ala Gln Gln Met Arg Phe Gln Val His Thr His Leu Gln Val
                405                 410                 415

Ile Glu Glu Arg Val Asn Gln Ser Leu Gly Leu Leu Asp Gln Asn Pro
            420                 425                 430

His Leu Ala Gln Glu Leu Arg Pro Gln Ile Gln Glu Leu Leu His Ser
        435                 440                 445

Glu His Leu Gly Pro Ser Glu Leu Glu Ala Pro Ala Pro Gly Gly Ser
    450                 455                 460

Ser Glu Asp Lys Gly Gly Leu Gln Pro Pro Asp Ser Lys Asp Asp Thr
465                 470                 475                 480

Pro Met Thr Leu Pro Lys Gly Ser Thr Glu Gln Asp Ala Ala Ser Pro
                485                 490                 495

Glu Lys Glu Lys Met Asn Pro Leu Glu Gln Tyr Glu Arg Lys Val Asn
            500                 505                 510

Ala Ser Val Pro Arg Gly Phe Pro Phe His Ser Ser Glu Ile Gln Arg
        515                 520                 525

Asp Glu Leu Ala Pro Ala Gly Thr Gly Val Ser Arg Glu Ala Val Ser
    530                 535                 540

Gly Leu Leu Ile Met Gly Ala Gly Gly Gly Ser Leu Ile Val Leu Ser
545                 550                 555                 560

Met Leu Leu Leu Arg Arg Lys Lys Pro Tyr Gly Ala Ile Ser His Gly
                565                 570                 575

Val Val Glu Val Asp Pro Met Leu Thr Leu Glu Glu Gln Gln Leu Arg
            580                 585                 590
```

Glu Leu Gln Arg His Gly Tyr Glu Asn Pro Thr Tyr Arg Phe Leu Glu
595 600 605

Glu Arg Pro
610

<210> 4583
<211> 644
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1015; "

<220>
<221> source
<223> /note="Gene Symbol: APLP1; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor-like prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465694"

<400> 4583
Met Glu Ala Val Cys Gly Ala Trp Gly Arg Gly Leu Val Leu Gly Val
1 5 10 15

Ser Val Leu Gly Ser Lys Glu Pro Gly Asp Pro His Ala Asn Ala Pro
20 25 30

Arg Ala Leu Thr Val Leu Ser Thr Ser Ile Gln Ala Pro Gly Ser Ala
35 40 45

Gln Val Ala Gly Leu Cys Gly Arg Leu Thr Leu His Arg Asp Leu Arg
50 55 60

Thr Gly Arg Trp Glu Pro Asp Pro Gln Arg Ser Arg Arg Cys Leu Arg
65 70 75 80

Asp Pro Gln Arg Val Leu Glu Tyr Cys Arg Gln Met Tyr Pro Glu Leu
85 90 95

Gln Ile Ala Arg Val Glu Gln Ala Thr Gln Ala Ile Pro Met Glu Arg
100 105 110

```
Trp Cys Gly Gly Ser Arg Ser Gly Ser Cys Ala His Pro His His Gln
        115                 120                 125

Val Val Pro Phe Arg Cys Leu Pro Gly Glu Phe Val Ser Glu Ala Leu
    130                 135                 140

Leu Val Pro Glu Gly Cys Arg Phe Leu His Gln Glu Arg Met Asp Gln
145                 150                 155                 160

Cys Glu Ser Ser Thr Arg Arg His Gln Glu Ala Gln Glu Ala Cys Ser
                165                 170                 175

Ser Gln Gly Leu Ile Leu His Gly Ser Gly Met Leu Leu Pro Cys Gly
            180                 185                 190

Ser Asp Arg Phe Arg Gly Val Glu Tyr Val Cys Cys Pro Pro Pro Gly
        195                 200                 205

Thr Pro Asp Pro Ser Gly Thr Ala Val Gly Asp Pro Ser Thr Arg Ser
    210                 215                 220

Trp Pro Pro Gly Ser Arg Val Glu Gly Ala Glu Asp Glu Glu Glu Glu
225                 230                 235                 240

Glu Ser Phe Pro Gln Pro Val Asp Asp Tyr Phe Val Glu Pro Pro Gln
                245                 250                 255

Ala Glu Glu Glu Glu Glu Thr Val Pro Pro Pro Ser Ser His Thr Leu
            260                 265                 270

Ala Val Val Gly Lys Val Thr Pro Thr Pro Arg Pro Thr Asp Gly Val
        275                 280                 285

Asp Ile Tyr Phe Gly Met Pro Gly Glu Ile Ser Glu His Glu Gly Phe
    290                 295                 300

Leu Arg Ala Lys Met Asp Leu Glu Glu Arg Arg Met Arg Gln Ile Asn
305                 310                 315                 320

Glu Val Met Arg Glu Trp Ala Met Ala Asp Asn Gln Ser Lys Asn Leu
                325                 330                 335
```

```
Pro Lys Ala Asp Arg Gln Ala Leu Asn Glu His Phe Gln Ser Ile Leu
            340                 345                 350

Gln Thr Leu Glu Glu Gln Val Ser Gly Glu Arg Gln Arg Leu Val Glu
        355                 360                 365

Thr His Ala Thr Arg Val Ile Ala Leu Ile Asn Asp Gln Arg Arg Ala
    370                 375                 380

Ala Leu Glu Gly Phe Leu Ala Ala Leu Gln Ala Asp Pro Pro Gln Ala
385                 390                 395                 400

Glu Arg Val Leu Leu Ala Leu Arg Arg Tyr Leu Arg Ala Glu Gln Lys
                405                 410                 415

Glu Gln Arg His Thr Leu Arg His Tyr Gln His Val Ala Ala Val Asp
            420                 425                 430

Pro Glu Lys Ala Gln Gln Met Arg Phe Gln Val His Thr His Leu Gln
        435                 440                 445

Val Ile Glu Glu Arg Val Asn Gln Ser Leu Gly Leu Leu Asp Gln Asn
    450                 455                 460

Pro His Leu Ala Gln Glu Leu Arg Pro Gln Ile Gln Glu Leu Leu His
465                 470                 475                 480

Ser Glu His Leu Gly Pro Ser Glu Leu Glu Ala Pro Ala Pro Gly Gly
                485                 490                 495

Ser Ser Glu Asp Lys Gly Gly Leu Gln Pro Pro Asp Ser Lys Asp Asp
            500                 505                 510

Thr Pro Met Thr Leu Pro Lys Gly Ser Thr Glu Gln Asp Ala Ala Ser
        515                 520                 525

Pro Glu Lys Glu Lys Met Asn Pro Leu Glu Gln Tyr Glu Arg Lys Val
    530                 535                 540

Asn Ala Ser Val Pro Arg Gly Phe Pro Phe His Ser Ser Glu Ile Gln
545                 550                 555                 560
```

```
Arg Asp Glu Leu Ala Pro Ala Gly Thr Gly Val Ser Arg Glu Ala Val
                565                 570                 575

Ser Gly Leu Leu Ile Met Gly Ala Gly Gly Gly Ser Leu Ile Val Leu
            580                 585                 590

Ser Met Leu Leu Leu Arg Arg Lys Lys Pro Tyr Gly Ala Ile Ser His
        595                 600                 605

Gly Val Val Glu Val Asp Pro Met Leu Thr Leu Glu Glu Gln Gln Leu
    610                 615                 620

Arg Glu Leu Gln Arg His Gly Tyr Glu Asn Pro Thr Tyr Arg Phe Leu
625                 630                 635                 640

Glu Glu Arg Pro
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<210> 4584
<211> 173
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1015; "

<220>
<221> source
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<220>
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amyloid beta (A4) precursor-like prt 1; "

<220>
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<400> 4584

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Met Tyr Pro Glu Leu Gln Ile Ala Arg Val Glu Gln Ala Thr Gln Ala
1               5                   10                  15

Ile Pro Met Glu Arg Trp Cys Gly Gly Ser Arg Ser Gly Ser Cys Ala
            20                  25                  30

His Pro His His Gln Val Val Pro Phe Arg Cys Leu Pro Gly Glu Phe
        35                  40                  45
```

```
Val Ser Glu Ala Leu Leu Val Pro Glu Gly Cys Arg Phe Leu His Gln
    50                  55                  60

Glu Arg Met Asp Gln Cys Glu Ser Ser Thr Arg Arg His Gln Glu Ala
65                  70                  75                  80

Gln Glu Ala Cys Ser Ser Gln Gly Leu Ile Leu His Gly Ser Gly Met
                85                  90                  95

Leu Leu Pro Cys Gly Ser Asp Arg Phe Arg Gly Val Glu Tyr Val Cys
            100                 105                 110

Cys Pro Pro Pro Gly Thr Pro Asp Pro Ser Gly Thr Ala Val Gly Asp
        115                 120                 125

Pro Ser Thr Arg Ser Trp Pro Pro Gly Ser Arg Val Glu Gly Ala Glu
    130                 135                 140

Asp Glu Glu Glu Glu Glu Ser Phe Pro Gln Pro Val Asp Asp Tyr Phe
145                 150                 155                 160

Val Glu Pro Pro Gln Ala Glu Glu Glu Glu Glu Thr Val
                165                 170


<210> 4585
<211> 221
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<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> 4585
Xaa Glu Trp Ala Met Ala Asp Asn Gln Ser Lys Asn Leu Pro Lys Ala
1 5 10 15

Asp Arg Gln Ala Leu Asn Glu Ala Glu Arg Val Leu Leu Ala Leu Arg
20 25 30

Arg Tyr Leu Arg Ala Glu Gln Lys Glu Gln Arg His Thr Leu Arg His
35 40 45

Tyr Gln His Val Ala Ala Val Asp Pro Glu Lys Ala Gln Gln Met Arg
50 55 60

Phe Gln Val His Thr His Leu Gln Val Ile Glu Glu Arg Val Asn Gln
65 70 75 80

Ser Leu Gly Leu Leu Asp Gln Asn Pro His Leu Ala Gln Glu Leu Arg
85 90 95

Pro Gln Ile Gln Glu Leu Leu His Ser Glu His Leu Gly Pro Ser Glu
100 105 110

Leu Glu Ala Pro Ala Pro Gly Gly Ser Ser Glu Asp Lys Gly Gly Leu
115 120 125

Gln Pro Pro Asp Ser Lys Asp Asp Thr Pro Met Thr Leu Pro Lys Gly
130 135 140

Ser Thr Glu Gln Asp Ala Ala Ser Pro Glu Lys Glu Lys Met Asn Pro
145 150 155 160

Leu Glu Gln Tyr Glu Arg Lys Val Asn Ala Ser Val Pro Arg Gly Phe
165 170 175

Pro Phe His Ser Ser Glu Ile Gln Arg Asp Glu Leu Ala Pro Ala Gly
180 185 190

Thr Gly Val Ser Arg Glu Ala Val Ser Gly Leu Leu Ile Met Gly Ala
195 200 205

```
Gly Gly Gly Ser Leu Ile Val Leu Ser Met Leu Leu Leu
    210                 215                 220


<210> 4586
<211> 118
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1015; "

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000466623"

<400> 4586
Met Gly Pro Ala Ser Pro Ala Ala Arg Gly Leu Ser Arg Arg Pro Gly
1               5                   10                  15


Gln Pro Pro Leu Pro Leu Leu Leu Pro Leu Leu Leu Leu Leu Leu Arg
            20                  25                  30


Ala Gln Pro Ala Ile Gly Ser Leu Ala Gly Gly Ser Pro Gly Ala Ala
        35                  40                  45


Glu Thr His Ser Ala Leu Asp Ala Val Ser Gly Thr Arg Ser Ala Cys
    50                  55                  60


Trp Ser Thr Ala Asp Arg Cys Thr Arg Ser Cys Arg Leu His Val Trp
65                  70                  75                  80


Ser Arg Leu Arg Arg Pro Ser Pro Trp Ser Ala Gly Ala Gly Val Pro
                85                  90                  95


Gly Ala Ala Ala Ala Pro Thr Pro Thr Thr Arg Leu Cys Pro Ser Ala
            100                 105                 110


Ala Cys Leu Val Asn Leu
```

115

<210> 4587
<211> 294
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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amyloid beta (A4) precursor-like prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467854"

<400> 4587
Met Tyr Pro Glu Leu Gln Ile Ala Arg Val Glu Gln Ala Thr Gln Ala
1 5 10 15

Ile Pro Met Glu Arg Trp Cys Gly Gly Ser Arg Ser Gly Ser Cys Ala
20 25 30

His Pro His His Gln Val Val Pro Phe Arg Cys Leu Pro Gly Glu Phe
35 40 45

Val Ser Glu Ala Leu Leu Val Pro Glu Gly Cys Arg Phe Leu His Gln
50 55 60

Glu Arg Met Asp Gln Cys Glu Ser Ser Thr Arg Arg His Gln Glu Ala
65 70 75 80

Gln Glu Ala Cys Ser Ser Gln Gly Leu Ile Leu His Gly Ser Gly Met
85 90 95

Leu Leu Pro Cys Gly Ser Asp Arg Phe Arg Gly Val Glu Tyr Val Cys
100 105 110

Cys Pro Pro Pro Gly Thr Pro Asp Pro Ser Gly Thr Ala Val Gly Asp
115 120 125

```
Pro Ser Thr Arg Ser Trp Pro Pro Gly Ser Arg Val Glu Gly Ala Glu
    130                 135                 140

Asp Glu Glu Glu Glu Glu Ser Phe Pro Gln Pro Val Asp Asp Tyr Phe
145                 150                 155                 160

Val Glu Pro Pro Gln Ala Glu Glu Glu Glu Glu Thr Val Pro Pro Pro
                165                 170                 175

Ser Ser His Thr Leu Ala Val Val Gly Lys Val Thr Pro Thr Pro Arg
            180                 185                 190

Pro Thr Asp Gly Val Asp Ile Tyr Phe Gly Met Pro Gly Glu Ile Ser
        195                 200                 205

Glu His Glu Gly Phe Leu Arg Ala Lys Met Asp Leu Glu Glu Arg Arg
    210                 215                 220

Met Arg Gln Ile Asn Glu Val Met Arg Glu Trp Ala Met Ala Asp Asn
225                 230                 235                 240

Gln Ser Lys Asn Leu Pro Lys Ala Asp Arg Gln Ala Leu Asn Glu His
                245                 250                 255

Phe Gln Ser Ile Leu Gln Thr Leu Glu Glu Gln Val Ser Gly Glu Arg
            260                 265                 270

Gln Arg Leu Val Glu Thr His Ala Thr Arg Val Ile Ala Leu Ile Asn
        275                 280                 285

Asp Gln Arg Arg Ala Ala
    290


<210> 4588
<211> 289
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Symbol: APLP1; "
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<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000474762"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 4588
Xaa Gln Ser Ile Leu Gln Thr Leu Glu Glu Gln Val Ser Gly Glu Arg
1 5 10 15

Gln Arg Leu Val Glu Thr His Ala Thr Arg Val Ile Ala Leu Ile Asn
20 25 30

Asp Gln Arg Arg Ala Ala Leu Glu Gly Phe Leu Ala Ala Leu Gln Ala
35 40 45

Asp Pro Pro Gln Ala Glu Arg Val Leu Leu Ala Leu Arg Arg Tyr Leu
50 55 60

Arg Ala Glu Gln Lys Glu Gln Arg His Thr Leu Arg His Tyr Gln His
65 70 75 80

Val Ala Ala Val Asp Pro Glu Lys Ala Gln Gln Met Arg Phe Gln Val
85 90 95

His Thr His Leu Gln Val Ile Glu Glu Arg Val Asn Gln Ser Leu Gly
100 105 110

Leu Leu Asp Gln Asn Pro His Leu Ala Gln Glu Leu Arg Pro Gln Ile
115 120 125

Gln Glu Leu Leu His Ser Glu His Leu Gly Pro Ser Glu Leu Glu Ala
130 135 140

Pro Ala Pro Gly Gly Ser Ser Glu Asp Lys Gly Gly Leu Gln Pro Pro
145 150 155 160

```
Asp Ser Lys Asp Gly Ser Thr Glu Gln Asp Ala Ala Ser Pro Glu Lys
                165                 170                 175

Glu Lys Met Asn Pro Leu Glu Gln Tyr Glu Arg Lys Val Asn Ala Ser
            180                 185                 190

Val Pro Arg Gly Phe Pro Phe His Ser Ser Glu Ile Gln Arg Asp Glu
        195                 200                 205

Leu Ala Pro Ala Gly Thr Gly Val Ser Arg Glu Ala Val Ser Gly Leu
    210                 215                 220

Leu Ile Met Gly Ala Gly Gly Gly Ser Leu Ile Val Leu Ser Met Leu
225                 230                 235                 240

Leu Leu Arg Arg Lys Lys Pro Tyr Gly Ala Ile Ser His Gly Val Val
                245                 250                 255

Glu Val Asp Pro Met Leu Thr Leu Glu Glu Gln Gln Leu Arg Glu Leu
            260                 265                 270

Gln Arg His Gly Tyr Glu Asn Pro Thr Tyr Arg Phe Leu Glu Glu Arg
        275                 280                 285

Pro
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<210> 4589
<211> 763
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1016; "

<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
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<223> /note="Gene Name:
amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q06481; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263574"

<400> 4589
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1   5   10   15

Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
            20   25   30

Tyr Ile Glu Ala Leu Ala Ala Asn Ala Gly Thr Gly Phe Ala Val Ala
        35   40   45

Glu Pro Gln Ile Ala Met Phe Cys Gly Lys Leu Asn Met His Val Asn
    50   55   60

Ile Gln Thr Gly Lys Trp Glu Pro Asp Pro Thr Gly Thr Lys Ser Cys
65   70   75   80

Phe Glu Thr Lys Glu Glu Val Leu Gln Tyr Cys Gln Glu Met Tyr Pro
                85   90   95

Glu Leu Gln Ile Thr Asn Val Met Glu Ala Asn Gln Arg Val Ser Ile
            100   105   110

Asp Asn Trp Cys Arg Arg Asp Lys Lys Gln Cys Lys Ser Arg Phe Val
        115   120   125

Thr Pro Phe Lys Cys Leu Val Gly Glu Phe Val Ser Asp Val Leu Leu
    130   135   140

Val Pro Glu Lys Cys Gln Phe Phe His Lys Glu Arg Met Glu Val Cys
145   150   155   160

Glu Asn His Gln His Trp His Thr Val Val Lys Glu Ala Cys Leu Thr
                165   170   175

Gln Gly Met Thr Leu Tyr Ser Tyr Gly Met Leu Leu Pro Cys Gly Val
            180   185   190

Asp Gln Phe His Gly Thr Glu Tyr Val Cys Cys Pro Gln Thr Lys Ile
        195   200   205

```
Ile Gly Ser Val Ser Lys Glu Glu Glu Glu Glu Asp Glu Glu Glu Glu
    210                 215                 220

Glu Glu Glu Asp Glu Glu Glu Asp Tyr Asp Val Tyr Lys Ser Glu Phe
225                 230                 235                 240

Pro Thr Glu Ala Asp Leu Glu Asp Phe Thr Glu Ala Ala Val Asp Glu
                245                 250                 255

Asp Asp Glu Asp Glu Glu Glu Gly Glu Glu Val Val Glu Asp Arg Asp
            260                 265                 270

Tyr Tyr Tyr Asp Thr Phe Lys Gly Asp Asp Tyr Asn Glu Glu Asn Pro
        275                 280                 285

Thr Glu Pro Gly Ser Asp Gly Thr Met Ser Asp Lys Glu Ile Thr His
    290                 295                 300

Asp Val Lys Ala Val Cys Ser Gln Glu Ala Met Thr Gly Pro Cys Arg
305                 310                 315                 320

Ala Val Met Pro Arg Trp Tyr Phe Asp Leu Ser Lys Gly Lys Cys Val
                325                 330                 335

Arg Phe Ile Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Glu Ser
            340                 345                 350

Glu Asp Tyr Cys Met Ala Val Cys Lys Ala Met Ile Pro Pro Thr Pro
        355                 360                 365

Leu Pro Thr Asn Asp Val Asp Val Tyr Phe Glu Thr Ser Ala Asp Asp
    370                 375                 380

Asn Glu His Ala Arg Phe Gln Lys Ala Lys Glu Gln Leu Glu Ile Arg
385                 390                 395                 400

His Arg Asn Arg Met Asp Arg Val Lys Lys Glu Trp Glu Glu Ala Glu
                405                 410                 415

Leu Gln Ala Lys Asn Leu Pro Lys Ala Glu Arg Gln Thr Leu Ile Gln
            420                 425                 430
```

```
His Phe Gln Ala Met Val Lys Ala Leu Glu Lys Glu Ala Ala Ser Glu
        435                 440                 445

Lys Gln Gln Leu Val Glu Thr His Leu Ala Arg Val Glu Ala Met Leu
    450                 455                 460

Asn Asp Arg Arg Arg Met Ala Leu Glu Asn Tyr Leu Ala Ala Leu Gln
465                 470                 475                 480

Ser Asp Pro Pro Arg Pro His Arg Ile Leu Gln Ala Leu Arg Arg Tyr
                485                 490                 495

Val Arg Ala Glu Asn Lys Asp Arg Leu His Thr Ile Arg His Tyr Gln
            500                 505                 510

His Val Leu Ala Val Asp Pro Glu Lys Ala Ala Gln Met Lys Ser Gln
        515                 520                 525

Val Met Thr His Leu His Val Ile Glu Glu Arg Arg Asn Gln Ser Leu
    530                 535                 540

Ser Leu Leu Tyr Lys Val Pro Tyr Val Ala Gln Glu Ile Gln Glu Glu
545                 550                 555                 560

Ile Asp Glu Leu Leu Gln Glu Gln Arg Ala Asp Met Asp Gln Phe Thr
                565                 570                 575

Ala Ser Ile Ser Glu Thr Pro Val Asp Val Arg Val Ser Ser Glu Glu
            580                 585                 590

Ser Glu Glu Ile Pro Pro Phe His Pro Phe His Pro Phe Pro Ala Leu
        595                 600                 605

Pro Glu Asn Glu Asp Thr Gln Pro Glu Leu Tyr His Pro Met Lys Lys
    610                 615                 620

Gly Ser Gly Val Gly Glu Gln Asp Gly Gly Leu Ile Gly Ala Glu Glu
625                 630                 635                 640

Lys Val Ile Asn Ser Lys Asn Lys Val Asp Glu Asn Met Val Ile Asp
                645                 650                 655

Glu Thr Leu Asp Val Lys Glu Met Ile Phe Asn Ala Glu Arg Val Gly
```

```
            660                 665                 670

Gly Leu Glu Glu Glu Arg Glu Ser Val Gly Pro Leu Arg Glu Asp Phe
        675                 680                 685

Ser Leu Ser Ser Ser Ala Leu Ile Gly Leu Leu Val Ile Ala Val Ala
    690                 695                 700

Ile Ala Thr Val Ile Val Ile Ser Leu Val Met Leu Arg Lys Arg Gln
705                 710                 715                 720

Tyr Gly Thr Ile Ser His Gly Ile Val Glu Val Asp Pro Met Leu Thr
                725                 730                 735

Pro Glu Glu Arg His Leu Asn Lys Met Gln Asn His Gly Tyr Glu Asn
            740                 745                 750

Pro Thr Tyr Lys Tyr Leu Glu Gln Met Gln Ile
        755                 760


<210> 4590
<211> 522
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1016; "

<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q06481; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263575"

<400> 4590
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1               5                   10                  15
```

```
Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
            20                  25                  30

Tyr Ile Glu Ala Leu Ala Ala Asn Ala Gly Thr Gly Phe Ala Val Ala
        35                  40                  45

Glu Pro Gln Ile Ala Met Phe Cys Gly Lys Leu Asn Met His Val Asn
    50                  55                  60

Ile Gln Thr Gly Lys Trp Glu Pro Asp Pro Thr Gly Thr Lys Ser Cys
65                  70                  75                  80

Phe Glu Thr Lys Glu Glu Val Leu Gln Tyr Cys Gln Glu Met Tyr Pro
                85                  90                  95

Glu Leu Gln Ile Thr Asn Val Met Glu Ala Asn Gln Arg Val Ser Ile
            100                 105                 110

Asp Asn Trp Cys Arg Arg Asp Lys Lys Gln Cys Lys Ser Arg Phe Val
        115                 120                 125

Thr Pro Phe Lys Cys Leu Val Pro Pro Thr Pro Leu Pro Thr Asn Asp
    130                 135                 140

Val Asp Val Tyr Phe Glu Thr Ser Ala Asp Asp Asn Glu His Ala Arg
145                 150                 155                 160

Phe Gln Lys Ala Lys Glu Gln Leu Glu Ile Arg His Arg Asn Arg Met
                165                 170                 175

Asp Arg Val Lys Lys Glu Trp Glu Glu Ala Glu Leu Gln Ala Lys Asn
            180                 185                 190

Leu Pro Lys Ala Glu Arg Gln Thr Leu Ile Gln His Phe Gln Ala Met
        195                 200                 205

Val Lys Ala Leu Glu Lys Glu Ala Ala Ser Glu Lys Gln Gln Leu Val
    210                 215                 220

Glu Thr His Leu Ala Arg Val Glu Ala Met Leu Asn Asp Arg Arg Arg
225                 230                 235                 240
```

```
Met Ala Leu Glu Asn Tyr Leu Ala Ala Leu Gln Ser Asp Pro Pro Arg
                245                 250                 255

Pro His Arg Ile Leu Gln Ala Leu Arg Arg Tyr Val Arg Ala Glu Asn
            260                 265                 270

Lys Asp Arg Leu His Thr Ile Arg His Tyr Gln His Val Leu Ala Val
        275                 280                 285

Asp Pro Glu Lys Ala Ala Gln Met Lys Ser Gln Val Met Thr His Leu
    290                 295                 300

His Val Ile Glu Glu Arg Arg Asn Gln Ser Leu Ser Leu Leu Tyr Lys
305                 310                 315                 320

Val Pro Tyr Val Ala Gln Glu Ile Gln Glu Glu Ile Asp Glu Leu Leu
                325                 330                 335

Gln Glu Gln Arg Ala Asp Met Asp Gln Phe Thr Ala Ser Ile Ser Glu
            340                 345                 350

Thr Pro Val Asp Val Arg Val Ser Ser Glu Glu Ser Glu Glu Ile Pro
        355                 360                 365

Pro Phe His Pro Phe His Pro Phe Pro Ala Leu Pro Glu Asn Glu Gly
    370                 375                 380

Ser Gly Val Gly Glu Gln Asp Gly Gly Leu Ile Gly Ala Glu Glu Lys
385                 390                 395                 400

Val Ile Asn Ser Lys Asn Lys Val Asp Glu Asn Met Val Ile Asp Glu
                405                 410                 415

Thr Leu Asp Val Lys Glu Met Ile Phe Asn Ala Glu Arg Val Gly Gly
            420                 425                 430

Leu Glu Glu Glu Arg Glu Ser Val Gly Pro Leu Arg Glu Asp Phe Ser
        435                 440                 445

Leu Ser Ser Ser Ala Leu Ile Gly Leu Leu Val Ile Ala Val Ala Ile
    450                 455                 460

Ala Thr Val Ile Val Ile Ser Leu Val Met Leu Arg Lys Arg Gln Tyr
```

```
465                 470                 475                 480

Gly Thr Ile Ser His Gly Ile Val Glu Val Asp Pro Met Leu Thr Pro
                485                 490                 495

Glu Glu Arg His Leu Asn Lys Met Gln Asn His Gly Tyr Glu Asn Pro
            500                 505                 510

Thr Tyr Lys Tyr Leu Glu Gln Met Gln Ile
        515                 520


<210> 4591
<211> 761
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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      amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q06481; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000278756"

<400> 4591
Met Leu Arg Ala Pro Gly Glu Leu Pro Arg Gln Ala Ala Arg Cys Ser
1               5                   10                  15

Leu Cys Arg Leu Gly Pro Gly Arg Gly Arg Ala Phe Phe Lys Trp Arg
            20                  25                  30

Cys Leu Pro Ala Ser Val Asp Arg Gly Asn Pro Leu Trp Ala Leu Ala
        35                  40                  45

Ala Asn Ala Gly Thr Gly Phe Ala Val Ala Glu Pro Gln Ile Ala Met
    50                  55                  60
```

```
Phe Cys Gly Lys Leu Asn Met His Val Asn Ile Gln Thr Gly Lys Trp
65                  70                  75                  80

Glu Pro Asp Pro Thr Gly Thr Lys Ser Cys Phe Glu Thr Lys Glu Glu
                85                  90                  95

Val Leu Gln Tyr Cys Gln Glu Met Tyr Pro Glu Leu Gln Ile Thr Asn
            100                 105                 110

Val Met Glu Ala Asn Gln Arg Val Ser Ile Asp Asn Trp Cys Arg Arg
        115                 120                 125

Asp Lys Lys Gln Cys Lys Ser Arg Phe Val Thr Pro Phe Lys Cys Leu
    130                 135                 140

Val Gly Glu Phe Val Ser Asp Val Leu Leu Val Pro Glu Lys Cys Gln
145                 150                 155                 160

Phe Phe His Lys Glu Arg Met Glu Val Cys Glu Asn His Gln His Trp
                165                 170                 175

His Thr Val Val Lys Glu Ala Cys Leu Thr Gln Gly Met Thr Leu Tyr
            180                 185                 190

Ser Tyr Gly Met Leu Leu Pro Cys Gly Val Asp Gln Phe His Gly Thr
        195                 200                 205

Glu Tyr Val Cys Cys Pro Gln Thr Lys Ile Ile Gly Ser Val Ser Lys
    210                 215                 220

Glu Glu Glu Glu Glu Asp Glu Glu Glu Glu Glu Glu Glu Asp Glu Glu
225                 230                 235                 240

Glu Asp Tyr Asp Val Tyr Lys Ser Glu Phe Pro Thr Glu Ala Asp Leu
                245                 250                 255

Glu Asp Phe Thr Glu Ala Ala Val Asp Glu Asp Asp Glu Asp Glu Glu
            260                 265                 270

Glu Gly Glu Glu Val Val Glu Asp Arg Asp Tyr Tyr Tyr Asp Thr Phe
        275                 280                 285
```

```
Lys Gly Asp Asp Tyr Asn Glu Glu Asn Pro Thr Glu Pro Gly Ser Asp
    290                 295                 300

Gly Thr Met Ser Asp Lys Glu Ile Thr His Asp Val Lys Ala Val Cys
305                 310                 315                 320

Ser Gln Glu Ala Met Thr Gly Pro Cys Arg Ala Val Met Pro Arg Trp
                325                 330                 335

Tyr Phe Asp Leu Ser Lys Gly Lys Cys Val Arg Phe Ile Tyr Gly Gly
            340                 345                 350

Cys Gly Gly Asn Arg Asn Asn Phe Glu Ser Glu Asp Tyr Cys Met Ala
        355                 360                 365

Val Cys Lys Ala Met Ile Pro Pro Thr Pro Leu Pro Thr Asn Asp Val
    370                 375                 380

Asp Val Tyr Phe Glu Thr Ser Ala Asp Asp Asn Glu His Ala Arg Phe
385                 390                 395                 400

Gln Lys Ala Lys Glu Gln Leu Glu Ile Arg His Arg Asn Arg Met Asp
                405                 410                 415

Arg Val Lys Lys Glu Trp Glu Glu Ala Glu Leu Gln Ala Lys Asn Leu
            420                 425                 430

Pro Lys Ala Glu Arg Gln Thr Leu Ile Gln His Phe Gln Ala Met Val
        435                 440                 445

Lys Ala Leu Glu Lys Glu Ala Ala Ser Glu Lys Gln Gln Leu Val Glu
    450                 455                 460

Thr His Leu Ala Arg Val Glu Ala Met Leu Asn Asp Arg Arg Arg Met
465                 470                 475                 480

Ala Leu Glu Asn Tyr Leu Ala Ala Leu Gln Ser Asp Pro Pro Arg Pro
                485                 490                 495

His Arg Ile Leu Gln Ala Leu Arg Arg Tyr Val Arg Ala Glu Asn Lys
            500                 505                 510

Asp Arg Leu His Thr Ile Arg His Tyr Gln His Val Leu Ala Val Asp
```

```
        515                 520                 525

Pro Glu Lys Ala Ala Gln Met Lys Ser Gln Val Met Thr His Leu His
    530                 535                 540

Val Ile Glu Glu Arg Arg Asn Gln Ser Leu Ser Leu Leu Tyr Lys Val
545                 550                 555                 560

Pro Tyr Val Ala Gln Glu Ile Gln Glu Glu Ile Asp Glu Leu Leu Gln
                565                 570                 575

Glu Gln Arg Ala Asp Met Asp Gln Phe Thr Ala Ser Ile Ser Glu Thr
            580                 585                 590

Pro Val Asp Val Arg Val Ser Ser Glu Glu Ser Glu Glu Ile Pro Pro
        595                 600                 605

Phe His Pro Phe His Pro Phe Pro Ala Leu Pro Glu Asn Glu Gly Ser
    610                 615                 620

Gly Val Gly Glu Gln Asp Gly Gly Leu Ile Gly Ala Glu Glu Lys Val
625                 630                 635                 640

Ile Asn Ser Lys Asn Lys Val Asp Glu Asn Met Val Ile Asp Glu Thr
                645                 650                 655

Leu Asp Val Lys Glu Met Ile Phe Asn Ala Glu Arg Val Gly Gly Leu
            660                 665                 670

Glu Glu Glu Arg Glu Ser Val Gly Pro Leu Arg Glu Asp Phe Ser Leu
        675                 680                 685

Ser Ser Ser Ala Leu Ile Gly Leu Leu Val Ile Ala Val Ala Ile Ala
    690                 695                 700

Thr Val Ile Val Ile Ser Leu Val Met Leu Arg Lys Arg Gln Tyr Gly
705                 710                 715                 720

Thr Ile Ser His Gly Ile Val Glu Val Asp Pro Met Leu Thr Pro Glu
                725                 730                 735

Glu Arg His Leu Asn Lys Met Gln Asn His Gly Tyr Glu Asn Pro Thr
            740                 745                 750
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Tyr Lys Tyr Leu Glu Gln Met Gln Ile
755 760

<210> 4592
<211> 751
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1016; "

<220>
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<220>
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amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q06481; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000345444"

<400> 4592
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1 5 10 15

Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
20 25 30

Tyr Ile Glu Ala Leu Ala Ala Asn Ala Gly Thr Gly Phe Ala Val Ala
35 40 45

Glu Pro Gln Ile Ala Met Phe Cys Gly Lys Leu Asn Met His Val Asn
50 55 60

Ile Gln Thr Gly Lys Trp Glu Pro Asp Pro Thr Gly Thr Lys Ser Cys
65 70 75 80

Phe Glu Thr Lys Glu Glu Val Leu Gln Tyr Cys Gln Glu Met Tyr Pro
85 90 95

```
Glu Leu Gln Ile Thr Asn Val Met Glu Ala Asn Gln Arg Val Ser Ile
            100                 105                 110

Asp Asn Trp Cys Arg Arg Asp Lys Lys Gln Cys Lys Ser Arg Phe Val
        115                 120                 125

Thr Pro Phe Lys Cys Leu Val Gly Glu Phe Val Ser Asp Val Leu Leu
    130                 135                 140

Val Pro Glu Lys Cys Gln Phe Phe His Lys Glu Arg Met Glu Val Cys
145                 150                 155                 160

Glu Asn His Gln His Trp His Thr Val Val Lys Glu Ala Cys Leu Thr
                165                 170                 175

Gln Gly Met Thr Leu Tyr Ser Tyr Gly Met Leu Leu Pro Cys Gly Val
            180                 185                 190

Asp Gln Phe His Gly Thr Glu Tyr Val Cys Cys Pro Gln Thr Lys Ile
        195                 200                 205

Ile Gly Ser Val Ser Lys Glu Glu Glu Glu Glu Asp Glu Glu Glu Glu
    210                 215                 220

Glu Glu Glu Asp Glu Glu Glu Asp Tyr Asp Val Tyr Lys Ser Glu Phe
225                 230                 235                 240

Pro Thr Glu Ala Asp Leu Glu Asp Phe Thr Glu Ala Ala Val Asp Glu
                245                 250                 255

Asp Asp Glu Asp Glu Glu Glu Gly Glu Glu Val Val Glu Asp Arg Asp
            260                 265                 270

Tyr Tyr Tyr Asp Thr Phe Lys Gly Asp Asp Tyr Asn Glu Glu Asn Pro
        275                 280                 285

Thr Glu Pro Gly Ser Asp Gly Thr Met Ser Asp Lys Glu Ile Thr His
    290                 295                 300

Asp Val Lys Ala Val Cys Ser Gln Glu Ala Met Thr Gly Pro Cys Arg
305                 310                 315                 320

Ala Val Met Pro Arg Trp Tyr Phe Asp Leu Ser Lys Gly Lys Cys Val
```

```
                325                 330                 335

Arg Phe Ile Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Glu Ser
            340                 345                 350

Glu Asp Tyr Cys Met Ala Val Cys Lys Ala Met Ile Pro Pro Thr Pro
        355                 360                 365

Leu Pro Thr Asn Asp Val Asp Val Tyr Phe Glu Thr Ser Ala Asp Asp
    370                 375                 380

Asn Glu His Ala Arg Phe Gln Lys Ala Lys Glu Gln Leu Glu Ile Arg
385                 390                 395                 400

His Arg Asn Arg Met Asp Arg Val Lys Lys Glu Trp Glu Glu Ala Glu
                405                 410                 415

Leu Gln Ala Lys Asn Leu Pro Lys Ala Glu Arg Gln Thr Leu Ile Gln
            420                 425                 430

His Phe Gln Ala Met Val Lys Ala Leu Glu Lys Glu Ala Ala Ser Glu
        435                 440                 445

Lys Gln Gln Leu Val Glu Thr His Leu Ala Arg Val Glu Ala Met Leu
    450                 455                 460

Asn Asp Arg Arg Arg Met Ala Leu Glu Asn Tyr Leu Ala Ala Leu Gln
465                 470                 475                 480

Ser Asp Pro Pro Arg Pro His Arg Ile Leu Gln Ala Leu Arg Arg Tyr
                485                 490                 495

Val Arg Ala Glu Asn Lys Asp Arg Leu His Thr Ile Arg His Tyr Gln
            500                 505                 510

His Val Leu Ala Val Asp Pro Glu Lys Ala Ala Gln Met Lys Ser Gln
        515                 520                 525

Val Met Thr His Leu His Val Ile Glu Glu Arg Arg Asn Gln Ser Leu
    530                 535                 540

Ser Leu Leu Tyr Lys Val Pro Tyr Val Ala Gln Glu Ile Gln Glu Glu
545                 550                 555                 560
```

```
Ile Asp Glu Leu Leu Gln Glu Gln Arg Ala Asp Met Asp Gln Phe Thr
                565                 570                 575

Ala Ser Ile Ser Glu Thr Pro Val Asp Val Arg Val Ser Ser Glu Glu
            580                 585                 590

Ser Glu Glu Ile Pro Pro Phe His Pro Phe His Pro Phe Pro Ala Leu
        595                 600                 605

Pro Glu Asn Glu Gly Ser Gly Val Gly Glu Gln Asp Gly Gly Leu Ile
    610                 615                 620

Gly Ala Glu Glu Lys Val Ile Asn Ser Lys Asn Lys Val Asp Glu Asn
625                 630                 635                 640

Met Val Ile Asp Glu Thr Leu Asp Val Lys Glu Met Ile Phe Asn Ala
                645                 650                 655

Glu Arg Val Gly Gly Leu Glu Glu Glu Arg Glu Ser Val Gly Pro Leu
            660                 665                 670

Arg Glu Asp Phe Ser Leu Ser Ser Ser Ala Leu Ile Gly Leu Leu Val
        675                 680                 685

Ile Ala Val Ala Ile Ala Thr Val Ile Val Ile Ser Leu Val Met Leu
    690                 695                 700

Arg Lys Arg Gln Tyr Gly Thr Ile Ser His Gly Ile Val Glu Val Asp
705                 710                 715                 720

Pro Met Leu Thr Pro Glu Glu Arg His Leu Asn Lys Met Gln Asn His
                725                 730                 735

Gly Tyr Glu Asn Pro Thr Tyr Lys Tyr Leu Glu Gln Met Gln Ile
            740                 745                 750
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<210> 4593
<211> 35
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1016; "

<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433582"

<400> 4593
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1 5 10 15

Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
20 25 30

Tyr Ile Glu
35

<210> 4594
<211> 158
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434059"

<400> 4594
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1 5 10 15

Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
20 25 30

```
Tyr Ile Glu Ser Ser Gln Ile Cys Cys Ser Pro Arg Ser Phe Leu Ile
        35                  40                  45

Ser Thr Leu Lys Cys Leu Ile Val Asp Glu Ile Asn Ala Leu Ala Ala
    50                  55                  60

Asn Ala Gly Thr Gly Phe Ala Val Ala Glu Pro Gln Ile Ala Met Phe
65                  70                  75                  80

Cys Gly Lys Leu Asn Met His Val Asn Ile Gln Thr Gly Lys Trp Glu
                85                  90                  95

Pro Asp Pro Thr Gly Thr Lys Ser Cys Phe Glu Thr Lys Glu Glu Val
            100                 105                 110

Leu Gln Tyr Cys Gln Glu Met Tyr Pro Glu Leu Gln Ile Thr Asn Val
        115                 120                 125

Met Glu Ala Asn Gln Arg Val Ser Ile Asp Asn Trp Cys Arg Arg Asp
    130                 135                 140

Lys Lys Gln Cys Lys Ser Arg Phe Val Thr Pro Phe Lys Cys
145                 150                 155


<210> 4595
<211> 158
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434379"

<400> 4595
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```
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1               5                   10                  15

Leu Leu Leu Leu Ala Leu Ala Ala Asn Ala Gly Thr Gly Phe Ala Val
            20                  25                  30

Ala Glu Pro Gln Ile Ala Met Phe Cys Gly Lys Leu Asn Met His Val
        35                  40                  45

Asn Ile Gln Thr Gly Lys Trp Glu Pro Asp Pro Thr Gly Thr Lys Ser
    50                  55                  60

Cys Phe Glu Thr Lys Glu Glu Val Leu Gln Tyr Cys Gln Glu Met Tyr
65                  70                  75                  80

Pro Glu Leu Gln Ile Thr Asn Val Met Glu Ala Asn Gln Arg Val Ser
                85                  90                  95

Ile Asp Asn Trp Cys Arg Arg Asp Lys Lys Gln Cys Lys Ser Arg Phe
            100                 105                 110

Val Thr Pro Phe Lys Cys Leu Val Gly Glu Phe Val Ser Asp Val Leu
        115                 120                 125

Leu Val Pro Glu Lys Cys Gln Phe Phe His Lys Glu Arg Met Glu Val
    130                 135                 140

Cys Glu Asn His Gln His Trp His Thr Val Val Lys Glu Val
145                 150                 155


<210> 4596
<211> 39
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor-like prt 2; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000434592"

<400> 4596
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1   5   10   15

Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
            20   25   30

Tyr Ile Glu Trp Val Asn Leu
        35

<210> 4597
<211> 116
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1016; "

<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435470"

<400> 4597
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1   5   10   15

Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
            20   25   30

Tyr Ile Glu Ala Leu Ala Ala Asn Ala Gly Thr Gly Phe Ala Val Ala
        35   40   45

Glu Pro Gln Ile Ala Met Phe Cys Gly Lys Leu Asn Met His Val Asn
    50   55   60

```
Ile Gln Thr Gly Lys Trp Glu Pro Asp Pro Thr Gly Thr Lys Ser Cys
65                  70                  75                  80


Phe Glu Thr Lys Glu Glu Val Leu Gln Tyr Cys Gln Glu Met Tyr Pro
                85                  90                  95


Glu Leu Gln Ile Thr Asn Ser Gly Trp Arg Cys Val Arg Ile Thr Ser
            100                 105                 110


Thr Gly Thr Arg
        115


<210> 4598
<211> 695
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1016; "

<220>
<221> source
<223> /note="Gene Symbol: APLP2; "

<220>
<221> source
<223> /note="Gene Name:
      amyloid beta (A4) precursor-like prt 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q06481; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435914"

<400> 4598
Met Ala Ala Thr Gly Thr Ala Ala Ala Ala Ala Thr Gly Arg Leu Leu
1               5                   10                  15


Leu Leu Leu Leu Val Gly Leu Thr Ala Pro Ala Leu Ala Leu Ala Gly
            20                  25                  30


Tyr Ile Glu Ala Leu Ala Ala Asn Ala Gly Thr Gly Phe Ala Val Ala
        35                  40                  45


Glu Pro Gln Ile Ala Met Phe Cys Gly Lys Leu Asn Met His Val Asn
    50                  55                  60
```

```
Ile Gln Thr Gly Lys Trp Glu Pro Asp Pro Thr Gly Thr Lys Ser Cys
65                  70                  75                  80

Phe Glu Thr Lys Glu Glu Val Leu Gln Tyr Cys Gln Glu Met Tyr Pro
                85                  90                  95

Glu Leu Gln Ile Thr Asn Val Met Glu Ala Asn Gln Arg Val Ser Ile
            100                 105                 110

Asp Asn Trp Cys Arg Arg Asp Lys Lys Gln Cys Lys Ser Arg Phe Val
        115                 120                 125

Thr Pro Phe Lys Cys Leu Val Gly Glu Phe Val Ser Asp Val Leu Leu
    130                 135                 140

Val Pro Glu Lys Cys Gln Phe Phe His Lys Glu Arg Met Glu Val Cys
145                 150                 155                 160

Glu Asn His Gln His Trp His Thr Val Val Lys Glu Ala Cys Leu Thr
                165                 170                 175

Gln Gly Met Thr Leu Tyr Ser Tyr Gly Met Leu Leu Pro Cys Gly Val
            180                 185                 190

Asp Gln Phe His Gly Thr Glu Tyr Val Cys Cys Pro Gln Thr Lys Ile
        195                 200                 205

Ile Gly Ser Val Ser Lys Glu Glu Glu Glu Glu Asp Glu Glu Glu Glu
    210                 215                 220

Glu Glu Glu Asp Glu Glu Glu Asp Tyr Asp Val Tyr Lys Ser Glu Phe
225                 230                 235                 240

Pro Thr Glu Ala Asp Leu Glu Asp Phe Thr Glu Ala Ala Val Asp Glu
                245                 250                 255

Asp Asp Glu Asp Glu Glu Glu Gly Glu Glu Val Val Glu Asp Arg Asp
            260                 265                 270

Tyr Tyr Tyr Asp Thr Phe Lys Gly Asp Asp Tyr Asn Glu Glu Asn Pro
        275                 280                 285
```

```
Thr Glu Pro Gly Ser Asp Gly Thr Met Ser Asp Lys Glu Ile Thr His
    290                 295                 300

Asp Val Lys Val Pro Pro Thr Pro Leu Pro Thr Asn Asp Val Asp Val
305                 310                 315                 320

Tyr Phe Glu Thr Ser Ala Asp Asp Asn Glu His Ala Arg Phe Gln Lys
                325                 330                 335

Ala Lys Glu Gln Leu Glu Ile Arg His Arg Asn Arg Met Asp Arg Val
            340                 345                 350

Lys Lys Glu Trp Glu Glu Ala Glu Leu Gln Ala Lys Asn Leu Pro Lys
        355                 360                 365

Ala Glu Arg Gln Thr Leu Ile Gln His Phe Gln Ala Met Val Lys Ala
    370                 375                 380

Leu Glu Lys Glu Ala Ala Ser Glu Lys Gln Gln Leu Val Glu Thr His
385                 390                 395                 400

Leu Ala Arg Val Glu Ala Met Leu Asn Asp Arg Arg Arg Met Ala Leu
                405                 410                 415

Glu Asn Tyr Leu Ala Ala Leu Gln Ser Asp Pro Pro Arg Pro His Arg
            420                 425                 430

Ile Leu Gln Ala Leu Arg Arg Tyr Val Arg Ala Glu Asn Lys Asp Arg
        435                 440                 445

Leu His Thr Ile Arg His Tyr Gln His Val Leu Ala Val Asp Pro Glu
    450                 455                 460

Lys Ala Ala Gln Met Lys Ser Gln Val Met Thr His Leu His Val Ile
465                 470                 475                 480

Glu Glu Arg Arg Asn Gln Ser Leu Ser Leu Leu Tyr Lys Val Pro Tyr
                485                 490                 495

Val Ala Gln Glu Ile Gln Glu Glu Ile Asp Glu Leu Leu Gln Glu Gln
            500                 505                 510
```

```
Arg Ala Asp Met Asp Gln Phe Thr Ala Ser Ile Ser Glu Thr Pro Val
        515                 520                 525

Asp Val Arg Val Ser Ser Glu Glu Ser Glu Glu Ile Pro Pro Phe His
    530                 535                 540

Pro Phe His Pro Phe Pro Ala Leu Pro Glu Asn Glu Gly Ser Gly Val
545                 550                 555                 560

Gly Glu Gln Asp Gly Gly Leu Ile Gly Ala Glu Glu Lys Val Ile Asn
                565                 570                 575

Ser Lys Asn Lys Val Asp Glu Asn Met Val Ile Asp Glu Thr Leu Asp
            580                 585                 590

Val Lys Glu Met Ile Phe Asn Ala Glu Arg Val Gly Gly Leu Glu Glu
        595                 600                 605

Glu Arg Glu Ser Val Gly Pro Leu Arg Glu Asp Phe Ser Leu Ser Ser
    610                 615                 620

Ser Ala Leu Ile Gly Leu Leu Val Ile Ala Val Ala Ile Ala Thr Val
625                 630                 635                 640

Ile Val Ile Ser Leu Val Met Leu Arg Lys Arg Gln Tyr Gly Thr Ile
                645                 650                 655

Ser His Gly Ile Val Glu Val Asp Pro Met Leu Thr Pro Glu Glu Arg
            660                 665                 670

His Leu Asn Lys Met Gln Asn His Gly Tyr Glu Asn Pro Thr Tyr Lys
        675                 680                 685

Tyr Leu Glu Gln Met Gln Ile
    690                 695


<210> 4599
<211> 585
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1017; "
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<220>
<221> source
<223> /note="Gene Symbol: APPBP2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta precursor prt (cytoplasmic tail) binding
prt 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q92624; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000083182"

<400> 4599

```
Met Ala Ala Val Glu Leu Glu Trp Ile Pro Glu Thr Leu Tyr Asn Thr
1               5                  10                  15

Ala Ile Ser Ala Val Val Asp Asn Tyr Ile Arg Ser Arg Arg Asp Ile
            20                  25                  30

Arg Ser Leu Pro Glu Asn Ile Gln Phe Asp Val Tyr Tyr Lys Leu Tyr
        35                  40                  45

Gln Gln Gly Arg Leu Cys Gln Leu Gly Ser Glu Phe Cys Glu Leu Glu
    50                  55                  60

Val Phe Ala Lys Val Leu Arg Ala Leu Asp Lys Arg His Leu Leu His
65                  70                  75                  80

His Cys Phe Gln Ala Leu Met Asp His Gly Val Lys Val Ala Ser Val
                85                  90                  95

Leu Ala Tyr Ser Phe Ser Arg Arg Cys Ser Tyr Ile Ala Glu Ser Asp
            100                 105                 110

Ala Ala Val Lys Glu Lys Ala Ile Gln Val Gly Phe Val Leu Gly Gly
        115                 120                 125

Phe Leu Ser Asp Ala Gly Trp Tyr Ser Asp Ala Glu Lys Val Phe Leu
    130                 135                 140

Ser Cys Leu Gln Leu Cys Thr Leu His Asp Glu Met Leu His Trp Phe
145                 150                 155                 160
```

```
Arg Ala Val Glu Cys Cys Val Arg Leu Leu His Val Arg Asn Gly Asn
                165                 170                 175

Cys Lys Tyr His Leu Gly Glu Glu Thr Phe Lys Leu Ala Gln Thr Tyr
            180                 185                 190

Met Asp Lys Leu Ser Lys His Gly Gln Gln Ala Asn Lys Ala Ala Leu
        195                 200                 205

Tyr Gly Glu Leu Cys Ala Leu Leu Phe Ala Lys Ser His Tyr Asp Glu
    210                 215                 220

Ala Tyr Lys Trp Cys Ile Glu Ala Met Lys Glu Ile Thr Ala Gly Leu
225                 230                 235                 240

Pro Val Lys Val Val Val Asp Val Leu Arg Gln Ala Ser Lys Ala Cys
                245                 250                 255

Val Val Lys Arg Glu Phe Lys Lys Ala Glu Gln Leu Ile Lys His Ala
            260                 265                 270

Val Tyr Leu Ala Arg Asp His Phe Gly Ser Lys His Pro Lys Tyr Ser
        275                 280                 285

Asp Thr Leu Leu Asp Tyr Gly Phe Tyr Leu Leu Asn Val Asp Asn Ile
    290                 295                 300

Cys Gln Ser Val Ala Ile Tyr Gln Ala Ala Leu Asp Ile Arg Gln Ser
305                 310                 315                 320

Val Phe Gly Gly Lys Asn Ile His Val Ala Thr Ala His Glu Asp Leu
                325                 330                 335

Ala Tyr Ser Ser Tyr Val His Gln Tyr Ser Ser Gly Lys Phe Asp Asn
            340                 345                 350

Ala Leu Phe His Ala Glu Arg Ala Ile Gly Ile Ile Thr His Ile Leu
        355                 360                 365

Pro Glu Asp His Leu Leu Leu Ala Ser Ser Lys Arg Val Lys Ala Leu
    370                 375                 380
```

```
Ile Leu Glu Glu Ile Ala Ile Asp Cys His Asn Lys Glu Thr Glu Gln
385                 390                 395                 400

Arg Leu Leu Gln Glu Ala His Asp Leu His Leu Ser Ser Leu Gln Leu
                405                 410                 415

Ala Lys Lys Ala Phe Gly Glu Phe Asn Val Gln Thr Ala Lys His Tyr
            420                 425                 430

Gly Asn Leu Gly Arg Leu Tyr Gln Ser Met Arg Lys Phe Lys Glu Ala
        435                 440                 445

Glu Glu Met His Ile Lys Ala Ile Gln Ile Lys Glu Gln Leu Leu Gly
    450                 455                 460

Gln Glu Asp Tyr Glu Val Ala Leu Ser Val Gly His Leu Ala Ser Leu
465                 470                 475                 480

Tyr Asn Tyr Asp Met Asn Gln Tyr Glu Asn Ala Glu Lys Leu Tyr Leu
                485                 490                 495

Arg Ser Ile Ala Ile Gly Lys Lys Leu Phe Gly Glu Gly Tyr Ser Gly
            500                 505                 510

Leu Glu Tyr Asp Tyr Arg Gly Leu Ile Lys Leu Tyr Asn Ser Ile Gly
        515                 520                 525

Asn Tyr Glu Lys Val Phe Glu Tyr His Asn Val Leu Ser Asn Trp Asn
    530                 535                 540

Arg Leu Arg Asp Arg Gln Tyr Ser Val Thr Asp Ala Leu Glu Asp Val
545                 550                 555                 560

Ser Thr Ser Pro Gln Ser Thr Glu Glu Val Val Gln Ser Phe Leu Ile
                565                 570                 575

Ser Gln Asn Val Glu Gly Pro Ser Cys
            580                 585
```

<210> 4600
<211> 123
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1017; "

<220>
<221> source
<223> /note="Gene Symbol: APPBP2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta precursor prt (cytoplasmic tail) binding
prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464962"

<400> 4600
Met Ala Ala Val Glu Leu Glu Trp Ile Pro Glu Thr Leu Tyr Asn Thr
1 5 10 15

Ala Ile Ser Ala Val Val Asp Asn Tyr Ile Arg Ser Arg Arg Asp Ile
20 25 30

Arg Ser Leu Pro Glu Asn Ile Gln Phe Asp Val Tyr Tyr Lys Leu Tyr
35 40 45

Gln Gln Gly Arg Leu Cys Gln Leu Gly Ser Glu Phe Cys Glu Leu Glu
50 55 60

Val Phe Ala Lys Val Leu Arg Ala Leu Asp Lys Arg His Leu Leu His
65 70 75 80

His Cys Phe Gln Ala Leu Met Asp His Gly Val Lys Val Ala Ser Val
85 90 95

Leu Ala Tyr Ser Phe Ser Arg Arg Cys Ser Tyr Ile Ala Glu Ser Asp
100 105 110

Ala Ala Val Lys Glu Lys Ala Ile Gln Val Gly
115 120

<210> 4601
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1017; "

<220>
<221> source
<223> /note="Gene Symbol: APPBP2; "

<220>
<221> source
<223> /note="Gene Name:
amyloid beta precursor prt (cytoplasmic tail) binding
prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466802"

<400> 4601
Met Ala Ala Val Glu Leu Glu Trp Ile Pro Glu Thr Leu Tyr Asn Thr
1 5 10 15

Ala Ile Ser Ala Val Val Asp Asn Tyr Ile Arg Ser Arg Arg Asp Ile
20 25 30

Arg Ser Leu Pro Glu Asn Ile Gln Phe Asp Val Tyr Tyr Lys Leu Tyr
35 40 45

Gln Gln Gly Arg Leu Cys Gln Leu Gly Ser Glu Phe Cys Glu Leu Glu
50 55 60

Val Phe Ala Lys Val Leu Arg Ala Leu Asp Lys Arg Leu Ser Phe Thr
65 70 75 80

Lys Ser Lys Ser Phe Asp Ile Cys Phe Ile Ile Val Phe Arg Leu
85 90 95

<210> 4602
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1017; "

<220>
<221> source
<223> /note="Gene Symbol: APPBP2; "

<220>

<221> source
<223> /note="Gene Name:
amyloid beta precursor prt (cytoplasmic tail) binding
prt 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467025"

<400> 4602
Met Ala Ala Val Glu Leu Glu Trp Ile Pro Glu Thr Leu Tyr Asn Thr
1 5 10 15

Ala Ile Ser Ala Val Val Asp Asn Tyr Ile Arg Ser Arg Arg Asp Ile
20 25 30

Arg Ser Leu Pro Glu Asn Ile Gln Phe Asp Val Tyr Tyr Lys Thr Phe
35 40 45

Ala Ser Ser Leu Phe Ser Gly Phe Asp Gly Ser Trp Cys
50 55 60

<210> 4603
<211> 223
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1018; "

<220>
<221> source
<223> /note="Gene Symbol: APCS; "

<220>
<221> source
<223> /note="Gene Name:
amyloid P component, serum; "

<220>
<221> source
<223> /note="Uniprot ID: P02743; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000255040"

<400> 4603
Met Asn Lys Pro Leu Leu Trp Ile Ser Val Leu Thr Ser Leu Leu Glu
1 5 10 15

```
Ala Phe Ala His Thr Asp Leu Ser Gly Lys Val Phe Val Phe Pro Arg
            20                  25                  30

Glu Ser Val Thr Asp His Val Asn Leu Ile Thr Pro Leu Glu Lys Pro
        35                  40                  45

Leu Gln Asn Phe Thr Leu Cys Phe Arg Ala Tyr Ser Asp Leu Ser Arg
    50                  55                  60

Ala Tyr Ser Leu Phe Ser Tyr Asn Thr Gln Gly Arg Asp Asn Glu Leu
65                  70                  75                  80

Leu Val Tyr Lys Glu Arg Val Gly Glu Tyr Ser Leu Tyr Ile Gly Arg
                85                  90                  95

His Lys Val Thr Ser Lys Val Ile Glu Lys Phe Pro Ala Pro Val His
            100                 105                 110

Ile Cys Val Ser Trp Glu Ser Ser Ser Gly Ile Ala Glu Phe Trp Ile
        115                 120                 125

Asn Gly Thr Pro Leu Val Lys Lys Gly Leu Arg Gln Gly Tyr Phe Val
    130                 135                 140

Glu Ala Gln Pro Lys Ile Val Leu Gly Gln Glu Gln Asp Ser Tyr Gly
145                 150                 155                 160

Gly Lys Phe Asp Arg Ser Gln Ser Phe Val Gly Glu Ile Gly Asp Leu
                165                 170                 175

Tyr Met Trp Asp Ser Val Leu Pro Pro Glu Asn Ile Leu Ser Ala Tyr
            180                 185                 190

Gln Gly Thr Pro Leu Pro Ala Asn Ile Leu Asp Trp Gln Ala Leu Asn
        195                 200                 205

Tyr Glu Ile Arg Gly Tyr Val Ile Ile Lys Pro Leu Val Trp Val
    210                 215                 220
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<210> 4604
<211> 1657
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1019; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2; "

<220>
<221> source
<223> /note="Gene Name:
amyotrophic lateral sclerosis 2 (juvenile); "

<220>
<221> source
<223> /note="Uniprot ID: Q96Q42; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000264276"

<400> 4604
Met Asp Ser Lys Lys Arg Ser Ser Thr Glu Ala Glu Gly Ser Lys Glu
1   5   10   15

Arg Gly Leu Val His Ile Trp Gln Ala Gly Ser Phe Pro Ile Thr Pro
            20   25   30

Glu Arg Leu Pro Gly Trp Gly Gly Lys Thr Val Leu Gln Ala Ala Leu
        35   40   45

Gly Val Lys His Gly Val Leu Leu Thr Glu Asp Gly Glu Val Tyr Ser
    50   55   60

Phe Gly Thr Leu Pro Trp Arg Ser Gly Pro Val Glu Ile Cys Pro Ser
65   70   75   80

Ser Pro Ile Leu Glu Asn Ala Leu Val Gly Gln Tyr Val Ile Thr Val
                85   90   95

Ala Thr Gly Ser Phe His Ser Gly Ala Val Thr Asp Asn Gly Val Ala
            100   105   110

Tyr Met Trp Gly Glu Asn Ser Ala Gly Gln Cys Ala Val Ala Asn Gln
        115   120   125

Gln Tyr Val Pro Glu Pro Asn Pro Val Ser Ile Ala Asp Ser Glu Ala
    130   135   140

```
Ser Pro Leu Leu Ala Val Arg Ile Leu Gln Leu Ala Cys Gly Glu Glu
145                 150                 155                 160

His Thr Leu Ala Leu Ser Ile Ser Arg Glu Ile Trp Ala Trp Gly Thr
                165                 170                 175

Gly Cys Gln Leu Gly Leu Ile Thr Thr Ala Phe Pro Val Thr Lys Pro
            180                 185                 190

Gln Lys Val Glu His Leu Ala Gly Arg Val Val Leu Gln Val Ala Cys
        195                 200                 205

Gly Ala Phe His Ser Leu Ala Leu Val Gln Cys Leu Pro Ser Gln Asp
    210                 215                 220

Leu Lys Pro Val Pro Glu Arg Cys Asn Gln Cys Ser Gln Leu Leu Ile
225                 230                 235                 240

Thr Met Thr Asp Lys Glu Asp His Val Ile Ile Ser Asp Ser His Cys
                245                 250                 255

Cys Pro Leu Gly Val Thr Leu Thr Glu Ser Gln Ala Glu Asn His Ala
            260                 265                 270

Ser Thr Ala Leu Ser Pro Ser Thr Glu Thr Leu Asp Arg Gln Glu Glu
        275                 280                 285

Val Phe Glu Asn Thr Leu Val Ala Asn Asp Gln Ser Val Ala Thr Glu
    290                 295                 300

Leu Asn Ala Val Ser Ala Gln Ile Thr Ser Ser Asp Ala Met Ser Ser
305                 310                 315                 320

Gln Gln Asn Val Met Gly Thr Thr Glu Ile Ser Ser Ala Arg Asn Ile
                325                 330                 335

Pro Ser Tyr Pro Asp Thr Gln Ala Val Asn Glu Tyr Leu Arg Lys Leu
            340                 345                 350

Ser Asp His Ser Val Arg Glu Asp Ser Glu His Gly Glu Lys Pro Val
        355                 360                 365
```

```
Pro Ser Gln Pro Leu Leu Glu Glu Ala Ile Pro Asn Leu His Ser Pro
    370                 375                 380

Pro Thr Thr Ser Thr Ser Ala Leu Asn Ser Leu Val Val Ser Cys Ala
385                 390                 395                 400

Ser Ala Val Gly Val Arg Val Ala Ala Thr Tyr Glu Ala Gly Ala Leu
                405                 410                 415

Ser Leu Lys Lys Val Met Asn Phe Tyr Ser Thr Thr Pro Cys Glu Thr
            420                 425                 430

Gly Ala Gln Ala Gly Ser Ser Ala Ile Gly Pro Glu Gly Leu Lys Asp
        435                 440                 445

Ser Arg Glu Glu Gln Val Lys Gln Glu Ser Met Gln Gly Lys Lys Ser
    450                 455                 460

Ser Ser Leu Val Asp Ile Arg Glu Glu Glu Thr Glu Gly Gly Ser Arg
465                 470                 475                 480

Arg Leu Ser Leu Pro Gly Leu Leu Ser Gln Val Ser Pro Arg Leu Leu
                485                 490                 495

Arg Lys Ala Ala Arg Val Lys Thr Arg Thr Val Val Leu Thr Pro Thr
            500                 505                 510

Tyr Ser Gly Glu Ala Asp Ala Leu Leu Pro Ser Leu Arg Thr Glu Val
        515                 520                 525

Trp Thr Trp Gly Lys Gly Lys Glu Gly Gln Leu Gly His Gly Asp Val
    530                 535                 540

Leu Pro Arg Leu Gln Pro Leu Cys Val Lys Cys Leu Asp Gly Lys Glu
545                 550                 555                 560

Val Ile His Leu Glu Ala Gly Gly Tyr His Ser Leu Ala Leu Thr Ala
                565                 570                 575

Lys Ser Gln Val Tyr Ser Trp Gly Ser Asn Thr Phe Gly Gln Leu Gly
            580                 585                 590

His Ser Asp Phe Pro Thr Thr Val Pro Arg Leu Ala Lys Ile Ser Ser
```

595 600 605

Glu Asn Gly Val Trp Ser Ile Ala Ala Gly Arg Asp Tyr Ser Leu Phe
610 615 620

Leu Val Asp Thr Glu Asp Phe Gln Pro Gly Leu Tyr Tyr Ser Gly Arg
625 630 635 640

Gln Asp Pro Thr Glu Gly Asp Asn Leu Pro Glu Asn His Ser Gly Ser
645 650 655

Lys Thr Pro Val Leu Leu Ser Cys Ser Lys Leu Gly Tyr Ile Ser Arg
660 665 670

Val Thr Ala Gly Lys Asp Ser Tyr Leu Ala Leu Val Asp Lys Asn Ile
675 680 685

Met Gly Tyr Ile Ala Ser Leu His Glu Leu Ala Thr Thr Glu Arg Arg
690 695 700

Phe Tyr Ser Lys Leu Ser Asp Ile Lys Ser Gln Ile Leu Arg Pro Leu
705 710 715 720

Leu Ser Leu Glu Asn Leu Gly Thr Thr Thr Thr Val Gln Leu Leu Gln
725 730 735

Glu Val Ala Ser Arg Phe Ser Lys Leu Cys Tyr Leu Ile Gly Gln His
740 745 750

Gly Ala Ser Leu Ser Ser Phe Leu His Gly Val Lys Glu Ala Arg Ser
755 760 765

Leu Val Ile Leu Lys His Ser Ser Leu Phe Leu Asp Ser Tyr Thr Glu
770 775 780

Tyr Cys Thr Ser Ile Thr Asn Phe Leu Val Met Gly Gly Phe Gln Leu
785 790 795 800

Leu Ala Lys Pro Ala Ile Asp Phe Leu Asn Lys Asn Gln Glu Leu Leu
805 810 815

Gln Asp Leu Ser Glu Val Asn Asp Glu Asn Thr Gln Leu Met Glu Ile
820 825 830

```
Leu Asn Thr Leu Phe Phe Leu Pro Ile Arg Arg Leu His Asn Tyr Ala
        835                 840                 845

Lys Val Leu Leu Lys Leu Ala Thr Cys Phe Glu Val Ala Ser Pro Glu
    850                 855                 860

Tyr Gln Lys Leu Gln Asp Ser Ser Ser Cys Tyr Glu Cys Leu Ala Leu
865                 870                 875                 880

His Leu Gly Arg Lys Arg Lys Glu Ala Glu Tyr Thr Leu Gly Phe Trp
                885                 890                 895

Lys Thr Phe Pro Gly Lys Met Thr Asp Ser Leu Arg Lys Pro Glu Arg
            900                 905                 910

Arg Leu Leu Cys Glu Ser Ser Asn Arg Ala Leu Ser Leu Gln His Ala
        915                 920                 925

Gly Arg Phe Ser Val Asn Trp Phe Ile Leu Phe Asn Asp Ala Leu Val
    930                 935                 940

His Ala Gln Phe Ser Thr His His Val Phe Pro Leu Ala Thr Leu Trp
945                 950                 955                 960

Ala Glu Pro Leu Ser Glu Glu Ala Gly Gly Val Asn Gly Leu Lys Ile
                965                 970                 975

Thr Thr Pro Glu Glu Gln Phe Thr Leu Ile Ser Ser Thr Pro Gln Glu
            980                 985                 990

Lys Thr Lys Trp Leu Arg Ala Ile  Ser Gln Ala Val Asp  Gln Ala
Leu
        995                 1000                1005

Arg Gly  Met Ser Asp Leu Pro  Pro Tyr Gly Ser Gly  Ser Ser Val
    1010                1015                1020

Gln Arg  Gln Glu Pro Pro Ile  Ser Arg Ser Ala Lys  Tyr Thr Phe
    1025                1030                1035

Tyr Lys  Asp Pro Arg Leu Lys  Asp Ala Thr Tyr Asp  Gly Arg Trp
    1040                1045                1050
```

```
Leu Ser  Gly Lys Pro His Gly  Arg Gly Val Leu Lys  Trp Pro Asp
    1055                1060                1065

Gly Lys  Met Tyr Ser Gly Met  Phe Arg Asn Gly Leu  Glu Asp Gly
    1070                1075                1080

Tyr Gly  Glu Tyr Arg Ile Pro  Asn Lys Ala Met Asn  Lys Glu Asp
    1085                1090                1095

His Tyr  Val Gly His Trp Lys  Glu Gly Lys Met Cys  Gly Gln Gly
    1100                1105                1110

Val Tyr  Ser Tyr Ala Ser Gly  Glu Val Phe Glu Gly  Cys Phe Gln
    1115                1120                1125

Asp Asn  Met Arg His Gly His  Gly Leu Leu Arg Ser  Gly Lys Leu
    1130                1135                1140

Thr Ser  Ser Ser Pro Ser Met  Phe Ile Gly Gln Trp  Val Met Asp
    1145                1150                1155

Lys Lys  Ala Gly Tyr Gly Val  Phe Asp Asp Ile Thr  Arg Gly Glu
    1160                1165                1170

Lys Tyr  Met Gly Met Trp Gln  Asp Asp Val Cys Gln  Gly Asn Gly
    1175                1180                1185

Val Val  Val Thr Gln Phe Gly  Leu Tyr Tyr Glu Gly  Asn Phe His
    1190                1195                1200

Leu Asn  Lys Met Met Gly Asn  Gly Val Leu Leu Ser  Glu Asp Asp
    1205                1210                1215

Thr Ile  Tyr Glu Gly Glu Phe  Ser Asp Asp Trp Thr  Leu Ser Gly
    1220                1225                1230

Lys Gly  Thr Leu Thr Met Pro  Asn Gly Asp Tyr Ile  Glu Gly Tyr
    1235                1240                1245

Phe Ser  Gly Glu Trp Gly Ser  Gly Ile Lys Ile Thr  Gly Thr Tyr
    1250                1255                1260
```

```
Phe Lys  Pro Ser Leu Tyr Glu  Ser Asp Lys Asp Arg  Pro Lys Val
    1265                1270                1275

Phe Arg  Lys Leu Gly Asn Leu  Ala Val Pro Ala Asp  Glu Lys Trp
    1280                1285                1290

Lys Ala  Val Phe Asp Glu Cys  Trp Arg Gln Leu Gly  Cys Glu Gly
    1295                1300                1305

Pro Gly  Gln Gly Glu Val Trp  Lys Ala Trp Asp Asn  Ile Ala Val
    1310                1315                1320

Ala Leu  Thr Thr Ser Arg Arg  Gln His Arg Asp Ser  Pro Glu Ile
    1325                1330                1335

Leu Ser  Arg Ser Gln Thr Gln  Thr Leu Glu Ser Leu  Glu Phe Ile
    1340                1345                1350

Pro Gln  His Val Gly Ala Phe  Ser Val Glu Lys Tyr  Asp Asp Ile
    1355                1360                1365

Arg Lys  Tyr Leu Ile Lys Ala  Cys Asp Thr Pro Leu  His Pro Leu
    1370                1375                1380

Gly Arg  Leu Val Glu Thr Leu  Val Ala Val Tyr Arg  Met Thr Tyr
    1385                1390                1395

Val Gly  Val Gly Ala Asn Arg  Arg Leu Leu Gln Glu  Ala Val Lys
    1400                1405                1410

Glu Ile  Lys Ser Tyr Leu Lys  Arg Ile Phe Gln Leu  Val Arg Phe
    1415                1420                1425

Leu Phe  Pro Glu Leu Pro Glu  Glu Gly Ser Thr Ile  Pro Leu Ser
    1430                1435                1440

Ala Pro  Leu Pro Thr Glu Arg  Lys Ser Phe Cys Thr  Gly Lys Ser
    1445                1450                1455

Asp Ser  Arg Ser Glu Ser Pro  Glu Pro Gly Tyr Val  Val Thr Ser
    1460                1465                1470
```

```
Ser Gly  Leu Leu Leu Pro Val  Leu Leu Pro Arg Leu  Tyr Pro Pro
    1475                 1480                 1485

Leu Phe  Met Leu Tyr Ala Leu  Asp Asn Asp Arg Glu  Glu Asp Ile
    1490                 1495                 1500

Tyr Trp  Glu Cys Val Leu Arg  Leu Asn Lys Gln Pro  Asp Ile Ala
    1505                 1510                 1515

Leu Leu  Gly Phe Leu Gly Val  Gln Arg Lys Phe Trp  Pro Ala Thr
    1520                 1525                 1530

Leu Ser  Ile Leu Gly Glu Ser  Lys Lys Val Leu Pro  Thr Thr Lys
    1535                 1540                 1545

Asp Ala  Cys Phe Ala Ser Ala  Val Glu Cys Leu Gln  Gln Ile Ser
    1550                 1555                 1560

Thr Thr  Phe Thr Pro Ser Asp  Lys Leu Lys Val Ile  Gln Gln Thr
    1565                 1570                 1575

Phe Glu  Glu Ile Ser Gln Ser  Val Leu Ala Ser Leu  His Glu Asp
    1580                 1585                 1590

Phe Leu  Trp Ser Met Asp Asp  Leu Phe Pro Val Phe  Leu Tyr Val
    1595                 1600                 1605

Val Leu  Arg Ala Arg Ile Arg  Asn Leu Gly Ser Glu  Val His Leu
    1610                 1615                 1620

Ile Glu  Asp Leu Met Asp Pro  Tyr Leu Gln His Gly  Glu Gln Gly
    1625                 1630                 1635

Ile Met  Phe Thr Thr Leu Lys  Ala Cys Tyr Tyr Gln  Ile Gln Arg
    1640                 1645                 1650

Glu Lys  Leu Asn
    1655
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<210> 4605
<211> 139
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1019; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2; "

<220>
<221> source
<223> /note="Gene Name:
amyotrophic lateral sclerosis 2 (juvenile); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386384"

<400> 4605
Met Asp Ser Lys Lys Arg Ser Ser Thr Glu Ala Glu Gly Ser Lys Glu
1 5 10 15

Arg Gly Leu Val His Ile Trp Gln Ala Gly Ser Phe Pro Ile Thr Pro
20 25 30

Glu Arg Leu Pro Gly Trp Gly Gly Lys Thr Val Leu Gln Ala Ala Leu
35 40 45

Gly Val Lys His Gly Val Leu Leu Thr Glu Asp Gly Glu Val Tyr Ser
50 55 60

Phe Gly Thr Leu Pro Trp Arg Ser Gly Pro Val Glu Ile Cys Pro Ser
65 70 75 80

Ser Pro Ile Leu Glu Asn Ala Leu Val Gly Gln Tyr Val Ile Thr Val
85 90 95

Ala Thr Gly Ser Phe His Ser Gly Ala Val Thr Asp Asn Gly Val Ala
100 105 110

Tyr Met Trp Gly Glu Asn Ser Ala Gly Gln Cys Ala Val Ala Asn Gln
115 120 125

Gln Tyr Val Pro Glu Pro Asn Pro Val Ser Ile
130 135

<210> 4606
<211> 106
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1019; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
amyotrophic lateral sclerosis 2 (juvenile); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386948"

<400> 4606
Met Asp Ser Lys Lys Arg Ser Ser Thr Glu Ala Glu Gly Ser Lys Glu
1 5 10 15

Arg Gly Leu Val His Ile Trp Gln Ala Gly Ser Phe Pro Ile Thr Pro
20 25 30

Glu Arg Leu Pro Gly Trp Gly Gly Lys Thr Val Leu Gln Ala Ala Leu
35 40 45

Gly Val Lys His Gly Val Leu Leu Thr Glu Asp Gly Glu Val Tyr Ser
50 55 60

Phe Gly Thr Leu Pro Trp Arg Ser Gly Pro Val Glu Ile Cys Pro Ser
65 70 75 80

Ser Pro Ile Leu Glu Asn Ala Leu Val Gly Gln Tyr Val Ile Thr Val
85 90 95

Ala Thr Gly Ser Phe His Ser Gly Ala Val
100 105

<210> 4607
<211> 585
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1019; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2; "

<220>
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<223> /note="Gene Name:
amyotrophic lateral sclerosis 2 (juvenile); "

<220>
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<223> /note="ENSP ID: ENSP00000403832"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4607
Xaa Leu Ala Leu Val Asp Lys Asn Ile Met Gly Tyr Ile Ala Ser Leu
1 5 10 15

His Glu Leu Ala Thr Thr Glu Arg Arg Phe Tyr Ser Lys Leu Ser Asp
20 25 30

Ile Lys Ser Gln Ile Leu Arg Pro Leu Leu Ser Leu Glu Asn Leu Gly
35 40 45

Thr Thr Thr Thr Val Gln Leu Leu Gln Glu Val Ala Ser Arg Phe Ser
50 55 60

Lys Leu Cys Tyr Leu Ile Gly Gln His Gly Ala Ser Leu Ser Ser Phe
65 70 75 80

Leu His Gly Val Lys Glu Ala Arg Ser Leu Val Ile Leu Lys His Ser
85 90 95

Ser Leu Phe Leu Asp Ser Tyr Thr Glu Tyr Cys Thr Ser Ile Thr Asn
100 105 110

Phe Leu Val Met Gly Gly Phe Gln Leu Leu Ala Lys Pro Ala Ile Asp
115 120 125

Phe Leu Asn Lys Asn Gln Glu Leu Leu Gln Asp Leu Ser Glu Val Asn
130 135 140

Asp Glu Asn Thr Gln Leu Met Glu Ile Leu Asn Thr Leu Phe Phe Leu

145 150 155 160

Pro Ile Arg Arg Leu His Asn Tyr Ala Lys Val Leu Leu Lys Leu Ala
165 170 175

Thr Cys Phe Glu Val Ala Ser Pro Glu Tyr Gln Lys Leu Gln Asp Ser
180 185 190

Ser Ser Cys Tyr Glu Cys Leu Ala Leu His Leu Gly Arg Lys Arg Lys
195 200 205

Glu Ala Glu Tyr Thr Leu Gly Phe Trp Lys Thr Phe Pro Gly Lys Met
210 215 220

Thr Asp Ser Leu Arg Lys Pro Glu Arg Arg Leu Leu Cys Glu Ser Ser
225 230 235 240

Asn Arg Ala Leu Ser Leu Gln His Ala Gly Arg Phe Ser Val Asn Trp
245 250 255

Phe Ile Leu Phe Asn Asp Ala Leu Val His Ala Gln Phe Ser Thr His
260 265 270

His Val Phe Pro Leu Ala Thr Leu Trp Ala Glu Pro Leu Ser Glu Glu
275 280 285

Ala Gly Gly Val Asn Gly Leu Lys Ile Thr Thr Pro Glu Glu Gln Phe
290 295 300

Thr Leu Ile Ser Ser Thr Pro Gln Glu Lys Thr Lys Trp Leu Arg Ala
305 310 315 320

Ile Ser Gln Ala Val Asp Gln Ala Leu Arg Gly Met Ser Asp Leu Pro
325 330 335

Pro Tyr Gly Ser Gly Ser Ser Val Gln Arg Gln Glu Pro Pro Ile Ser
340 345 350

Arg Ser Ala Lys Tyr Thr Phe Tyr Lys Asp Pro Arg Leu Lys Asp Ala
355 360 365

Thr Tyr Asp Gly Arg Trp Leu Ser Gly Lys Pro His Gly Arg Gly Val
370 375 380

```
Leu Lys Trp Pro Asp Gly Lys Met Tyr Ser Gly Met Phe Arg Asn Gly
385                 390                 395                 400

Leu Glu Asp Gly Tyr Gly Glu Tyr Arg Ile Pro Asn Lys Ala Met Asn
                405                 410                 415

Lys Glu Asp His Tyr Val Gly His Trp Lys Glu Gly Lys Met Cys Gly
            420                 425                 430

Gln Gly Val Tyr Ser Tyr Ala Ser Gly Glu Val Phe Glu Gly Cys Phe
        435                 440                 445

Gln Asp Asn Met Arg His Gly His Gly Leu Leu Arg Ser Gly Lys Leu
    450                 455                 460

Thr Ser Ser Ser Pro Ser Met Phe Ile Gly Gln Trp Val Met Asp Lys
465                 470                 475                 480

Lys Ala Gly Tyr Gly Val Phe Asp Asp Ile Thr Arg Gly Glu Lys Tyr
                485                 490                 495

Met Gly Met Trp Gln Asp Asp Val Cys Gln Gly Asn Gly Val Val Val
            500                 505                 510

Thr Gln Phe Gly Leu Tyr Tyr Glu Gly Asn Phe His Leu Asn Lys Met
        515                 520                 525

Met Gly Asn Gly Val Leu Leu Ser Glu Asp Asp Thr Ile Tyr Glu Gly
    530                 535                 540

Glu Phe Ser Asp Asp Trp Thr Leu Ser Gly Lys Asp Asn Ser Gly Leu
545                 550                 555                 560

Ile Glu Gln Val Gly Lys Cys Ser Leu Leu Pro Tyr Phe Leu Lys Val
                565                 570                 575

Cys Glu Ala Leu Val Leu Phe Leu Leu
            580                 585
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<210> 4608
<211> 396
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1019; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2; "

<220>
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<223> /note="Gene Name:
amyotrophic lateral sclerosis 2 (juvenile); "

<220>
<221> source
<223> /note="Uniprot ID: Q96Q42; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429223"

<400> 4608
Met Asp Ser Lys Lys Arg Ser Ser Thr Glu Ala Glu Gly Ser Lys Glu
1 5 10 15

Arg Gly Leu Val His Ile Trp Gln Ala Gly Ser Phe Pro Ile Thr Pro
20 25 30

Glu Arg Leu Pro Gly Trp Gly Gly Lys Thr Val Leu Gln Ala Ala Leu
35 40 45

Gly Val Lys His Gly Val Leu Leu Thr Glu Asp Gly Glu Val Tyr Ser
50 55 60

Phe Gly Thr Leu Pro Trp Arg Ser Gly Pro Val Glu Ile Cys Pro Ser
65 70 75 80

Ser Pro Ile Leu Glu Asn Ala Leu Val Gly Gln Tyr Val Ile Thr Val
85 90 95

Ala Thr Gly Ser Phe His Ser Gly Ala Val Thr Asp Asn Gly Val Ala
100 105 110

Tyr Met Trp Gly Glu Asn Ser Ala Gly Gln Cys Ala Val Ala Asn Gln
115 120 125

Gln Tyr Val Pro Glu Pro Asn Pro Val Ser Ile Ala Asp Ser Glu Ala

```
    130                 135                 140

Ser Pro Leu Leu Ala Val Arg Ile Leu Gln Leu Ala Cys Gly Glu Glu
145                 150                 155                 160

His Thr Leu Ala Leu Ser Ile Ser Arg Glu Ile Trp Ala Trp Gly Thr
                165                 170                 175

Gly Cys Gln Leu Gly Leu Ile Thr Thr Ala Phe Pro Val Thr Lys Pro
            180                 185                 190

Gln Lys Val Glu His Leu Ala Gly Arg Val Val Leu Gln Val Ala Cys
        195                 200                 205

Gly Ala Phe His Ser Leu Ala Leu Val Gln Cys Leu Pro Ser Gln Asp
    210                 215                 220

Leu Lys Pro Val Pro Glu Arg Cys Asn Gln Cys Ser Gln Leu Leu Ile
225                 230                 235                 240

Thr Met Thr Asp Lys Glu Asp His Val Ile Ile Ser Asp Ser His Cys
                245                 250                 255

Cys Pro Leu Gly Val Thr Leu Thr Glu Ser Gln Ala Glu Asn His Ala
            260                 265                 270

Ser Thr Ala Leu Ser Pro Ser Thr Glu Thr Leu Asp Arg Gln Glu Glu
        275                 280                 285

Val Phe Glu Asn Thr Leu Val Ala Asn Asp Gln Ser Val Ala Thr Glu
    290                 295                 300

Leu Asn Ala Val Ser Ala Gln Ile Thr Ser Ser Asp Ala Met Ser Ser
305                 310                 315                 320

Gln Gln Asn Val Met Gly Thr Thr Glu Ile Ser Ser Ala Arg Asn Ile
                325                 330                 335

Pro Ser Tyr Pro Asp Thr Gln Ala Val Asn Glu Tyr Leu Arg Lys Leu
            340                 345                 350

Ser Asp His Ser Val Arg Glu Asp Ser Glu His Gly Glu Lys Pro Val
        355                 360                 365
```

```
Pro Ser Gln Val Pro Ala Gln Phe Tyr Lys Ile Lys Val Cys Leu Glu
    370                 375                 380

Leu Asn Cys Met Gly Phe Ser Leu Glu Thr Leu Lys
385                 390                 395


<210> 4609
<211> 623
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1020; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CR11; "

<220>
<221> source
<223> /note="Gene Name:
      amyotrophic lateral sclerosis 2 (juvenile) chromosome
      region, candidate 11; "

<220>
<221> source
<223> /note="Uniprot ID:  Q53TS8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000286195"

<400> 4609
Met Glu Pro Pro Gln Glu Thr Asn Arg Pro Phe Ser Thr Leu Asp Asn
1               5                   10                  15

Arg Ser Gly Gln Val Gln Val Leu Ser Ala Thr Pro Leu Leu Gln Arg
            20                  25                  30

Asn Pro Tyr Ser Ser Pro Asp Ile Met His Ile Lys Gly Ser Glu Ala
        35                  40                  45

Ser Ser Val Pro Tyr Ala Leu Asn Gln Gly Thr Thr Ala Leu Pro Lys
    50                  55                  60

Asn Lys Asn Gln Glu Gly Thr Gly His Arg Leu Leu Asn Met Leu Arg
65                  70                  75                  80
```

```
Lys Thr Leu Lys Glu Ser Asp Ser Glu Glu Leu Glu Ile Thr Gln Glu
                85                  90                  95

Thr Pro Asn Leu Val Pro Phe Gly Asp Val Val Gly Cys Leu Gly Ile
            100                 105                 110

His Ile Lys Asn Cys Arg His Phe Met Pro Lys Ile Ser Leu Gln His
        115                 120                 125

Tyr Ala Asn Leu Phe Ile Arg Ile Ser Ile Asn Lys Ala Val Lys Cys
    130                 135                 140

Thr Lys Met Cys Ser Leu Leu Ser Lys Asn Asp Glu Lys Asn Thr Val
145                 150                 155                 160

Ile Lys Phe Asp Glu Val Lys Tyr Phe Ser Val Gln Val Pro Arg Arg
                165                 170                 175

Tyr Asp Asp Lys Arg Asn Asn Ile Leu Leu Glu Leu Ile Gln Tyr Asp
            180                 185                 190

Asn Arg Glu Lys Arg Ala Phe Leu Leu Gly Ser Val Gln Ile His Leu
        195                 200                 205

Tyr Glu Val Ile Gln Lys Gly Cys Phe Ile Glu Glu Val Gln Val Leu
    210                 215                 220

His Gly Asn Ile Phe Val Cys Arg Leu Glu Val Glu Phe Met Phe Ser
225                 230                 235                 240

Tyr Gly Asn Phe Gly Tyr Gly Phe Ser His Gln Leu Lys Pro Leu Gln
                245                 250                 255

Lys Ile Thr Glu Pro Ser Met Phe Met Asn Leu Ala Pro Pro Pro Glu
            260                 265                 270

Arg Thr Asp Pro Val Thr Lys Val Ile Thr Pro Gln Thr Val Glu Tyr
        275                 280                 285

Pro Ala Phe Leu Ser Pro Asp Leu Asn Val Thr Val Gly Thr Pro Ala
    290                 295                 300
```

```
Val Gln Ser Ser Asn Gln Pro Ser Val Val Arg Leu Glu Lys Leu Gln
305                 310                 315                 320

Gln Gln Pro Arg Glu Arg Leu Glu Lys Met Lys Lys Glu Tyr Arg Asn
                325                 330                 335

Leu Asn Thr Trp Ile Asp Lys Ala Asn Tyr Leu Glu Ser Ile Leu Met
            340                 345                 350

Pro Lys Leu Glu His Lys Asp Ser Glu Glu Thr Asn Ile Asp Glu Ala
        355                 360                 365

Ser Glu Asn Thr Lys Ser Asn His Pro Glu Glu Glu Leu Glu Asn Ile
    370                 375                 380

Val Gly Val Asp Ile Pro Leu Val Asn Glu Glu Ala Glu Thr Thr Ala
385                 390                 395                 400

Asn Glu Leu Leu Asp Asn Asp Ser Glu Lys Gly Leu Thr Ile Pro Thr
                405                 410                 415

Leu Asn Gln Ser Asp Gln Asp Asn Ser Thr Ala Asp Ala Ser Lys Asn
            420                 425                 430

Asp Glu Ser Thr Pro Ser Pro Thr Glu Val His Ser Leu Cys Thr Ile
        435                 440                 445

Ser Asn Gln Glu Thr Ile Lys Ala Gly Arg Ile Pro Pro Leu Gly Glu
    450                 455                 460

Arg Gln Ser Glu Ser Met Pro Asp Arg Lys Met Lys Asn Val Phe Phe
465                 470                 475                 480

Pro Leu Glu Val Lys Leu Lys Asp Asn Tyr Pro Ser Ile Leu Lys Ala
                485                 490                 495

Asp Ser Ser Leu Ser Glu Val Ala Phe Ser Pro Lys Glu Tyr Asn Ser
            500                 505                 510

Pro Ser Phe Arg Pro Glu Tyr Ile Glu Phe Lys Pro Lys Phe Gln Asp
        515                 520                 525

Cys Ser Asp Lys Phe Glu Asp Leu His Asp Met Thr Ser Phe Thr His
```

```
    530                 535                 540

Leu Lys Lys Val Lys Ser Arg Ser Arg Leu Leu Gly Lys Ser Ser Asp
545                 550                 555                 560

Asp Ile His Asn His Ala Arg His Ser Ala Arg Pro Tyr Thr Ala Pro
                565                 570                 575

Glu Val Asn Lys Gln Arg Glu Ser Tyr Ser Gly Lys Phe Thr Ser Arg
            580                 585                 590

Arg Met Val Ser Ser Gly Leu Val His Ile Asn Asp Lys Thr Ser Asp
        595                 600                 605

Tyr Glu Met His Lys Met Arg Pro Lys Lys Ile Lys Arg Gly Tyr
    610                 615                 620


<210> 4610
<211> 550
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1020; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CR11; "

<220>
<221> source
<223> /note="Gene Name:
      amyotrophic lateral sclerosis 2 (juvenile) chromosome
      region, candidate 11; "

<220>
<221> source
<223> /note="Uniprot ID:  Q53TS8; "

<220>
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<223> /note="ENSP ID: ENSP00000399016"

<400> 4610
Met Glu Pro Pro Gln Glu Thr Asn Arg Pro Phe Ser Thr Leu Asp Asn
1               5                   10                  15

Arg Ser Gly Gln Val Gln Val Leu Ser Ala Thr Pro Leu Leu Gln Arg
            20                  25                  30
```

```
Asn Pro Tyr Ser Ser Pro Asp Ile Met His Ile Lys Gly Ser Glu Ala
        35                  40                  45

Ser Ser Val Pro Tyr Ala Leu Asn Gln Gly Thr Thr Ala Leu Pro Lys
    50                  55                  60

Asn Lys Asn Gln Glu Gly Thr Gly His Arg Leu Leu Asn Met Leu Arg
65                  70                  75                  80

Lys Thr Leu Lys Glu Ser Asp Ser Glu Glu Leu Glu Ile Thr Gln Glu
                85                  90                  95

Thr Pro Asn Leu Val Pro Phe Gly Asp Val Val Gly Cys Leu Gly Ile
            100                 105                 110

His Ile Lys Asn Cys Arg His Phe Met Pro Lys Ile Ser Leu Gln His
        115                 120                 125

Tyr Ala Asn Leu Phe Ile Arg Ile Ser Ile Asn Lys Ala Val Lys Cys
    130                 135                 140

Thr Lys Met Cys Ser Leu Leu Ser Lys Asn Asp Glu Lys Asn Thr Val
145                 150                 155                 160

Ile Lys Phe Asp Glu Val Lys Tyr Phe Ser Val Gln Val Pro Arg Arg
                165                 170                 175

Tyr Asp Asp Lys Arg Asn Asn Ile Leu Leu Glu Leu Ile Gln Tyr Asp
            180                 185                 190

Asn Arg Glu Lys Arg Ala Phe Leu Leu Gly Ser Val Gln Ile His Leu
        195                 200                 205

Tyr Glu Val Ile Gln Lys Gly Cys Phe Ile Glu Glu Val Gln Val Leu
    210                 215                 220

His Gly Asn Ile Phe Val Cys Arg Leu Glu Val Glu Phe Met Phe Ser
225                 230                 235                 240

Tyr Gly Asn Phe Gly Tyr Gly Phe Ser His Gln Leu Lys Pro Leu Gln
                245                 250                 255
```

```
Lys Ile Thr Glu Pro Ser Met Phe Met Asn Leu Ala Pro Pro Pro Glu
            260                 265                 270

Arg Thr Asp Pro Val Thr Lys Val Ile Thr Pro Gln Thr Val Glu Tyr
        275                 280                 285

Pro Ala Phe Leu Ser Pro Asp Leu Asn Val Thr Val Gly Thr Pro Ala
    290                 295                 300

Val Gln Ser Ser Asn Gln Pro Ser Val Val Arg Leu Glu Lys Leu Gln
305                 310                 315                 320

Gln Gln Pro Arg Glu Arg Leu Glu Lys Met Lys Lys Glu Tyr Arg Asn
                325                 330                 335

Leu Asn Thr Trp Ile Asp Lys Ala Asn Tyr Leu Glu Ser Ile Leu Met
            340                 345                 350

Pro Lys Leu Glu His Lys Asp Ser Glu Glu Thr Asn Ile Asp Glu Ala
        355                 360                 365

Ser Glu Asn Thr Lys Ser Asn His Pro Glu Glu Glu Leu Glu Asn Ile
    370                 375                 380

Val Gly Val Asp Ile Pro Leu Val Asn Glu Glu Ala Glu Thr Thr Ala
385                 390                 395                 400

Asn Glu Leu Leu Asp Asn Asp Ser Glu Lys Gly Leu Thr Ile Pro Thr
                405                 410                 415

Leu Asn Gln Ser Asp Gln Asp Asn Ser Thr Ala Asp Ala Ser Lys Asn
            420                 425                 430

Asp Glu Ser Thr Pro Ser Pro Thr Glu Val His Ser Leu Cys Thr Ile
        435                 440                 445

Ser Asn Gln Glu Thr Ile Lys Ala Gly Arg Ile Pro Pro Leu Gly Glu
    450                 455                 460

Arg Gln Ser Glu Ser Met Pro Asp Arg Lys Met Lys Asn Val Phe Phe
465                 470                 475                 480
```

```
Pro Leu Glu Val Lys Leu Lys Asp Asn Tyr Pro Ser Ile Leu Lys Ala
                485                 490                 495

Asp Ser Ser Leu Ser Glu Val Asn Leu Arg Ser Ile Cys Ile Asn Pro
            500                 505                 510

Lys Ser Arg Asn Leu Asp Ser Ser Pro Thr Glu Ile Ser Trp Gln Asn
        515                 520                 525

Asn Asn Leu Asn Leu Ala Glu Arg Glu Asn Thr Gly Leu Val Ser Thr
    530                 535                 540

Arg Leu Lys Ile Lys Arg
545                 550


<210> 4611
<211> 395
<212> PRT
<213> Homo sapiens

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Met Glu Pro Pro Gln Glu Thr Asn Arg Pro Phe Ser Thr Leu Asp Asn
1               5                   10                  15

Arg Ser Gly Gln Val Gln Val Leu Ser Ala Thr Pro Leu Leu Gln Arg
            20                  25                  30

Asn Pro Tyr Ser Ser Pro Asp Ile Met His Ile Lys Gly Ser Glu Ala
```

```
        35                  40                  45

Ser Ser Val Pro Tyr Ala Leu Asn Gln Gly Thr Thr Ala Leu Pro Lys
    50                  55                  60

Asn Lys Asn Gln Glu Gly Thr Gly His Arg Leu Leu Asn Met Leu Arg
65                  70                  75                  80

Lys Thr Leu Lys Glu Ser Asp Ser Glu Glu Leu Glu Ile Thr Gln Glu
                85                  90                  95

Thr Pro Asn Leu Val Pro Phe Gly Asp Val Val Gly Cys Leu Gly Ile
            100                 105                 110

His Ile Lys Asn Cys Arg His Phe Met Pro Lys Ile Ser Leu Gln His
        115                 120                 125

Tyr Ala Asn Leu Phe Ile Arg Ile Ser Ile Asn Lys Ala Val Lys Cys
    130                 135                 140

Thr Lys Met Cys Ser Leu Leu Ser Lys Asn Asp Glu Lys Asn Thr Val
145                 150                 155                 160

Ile Lys Phe Asp Glu Val Lys Tyr Phe Ser Val Gln Val Pro Arg Arg
                165                 170                 175

Tyr Asp Asp Lys Arg Asn Asn Ile Leu Leu Glu Leu Ile Gln Tyr Asp
            180                 185                 190

Asn Arg Glu Lys Arg Ala Phe Leu Leu Gly Ser Val Gln Ile His Leu
        195                 200                 205

Tyr Glu Val Ile Gln Lys Gly Cys Phe Ile Glu Glu Val Gln Val Leu
    210                 215                 220

His Gly Asn Ile Phe Val Cys Arg Leu Glu Val Glu Phe Met Phe Ser
225                 230                 235                 240

Tyr Gly Asn Phe Gly Tyr Gly Phe Ser His Gln Leu Lys Pro Leu Gln
                245                 250                 255

Lys Ile Thr Glu Pro Ser Met Phe Met Asn Leu Ala Pro Pro Pro Glu
            260                 265                 270
```

```
Arg Thr Asp Pro Val Thr Lys Val Ile Thr Pro Gln Thr Val Glu Tyr
        275                 280                 285

Pro Ala Phe Leu Ser Pro Asp Leu Asn Val Thr Val Gly Thr Pro Ala
    290                 295                 300

Val Gln Ser Ser Asn Gln Pro Ser Val Val Arg Leu Glu Lys Leu Gln
305                 310                 315                 320

Gln Gln Pro Arg Glu Arg Leu Glu Lys Met Lys Lys Glu Tyr Arg Asn
                325                 330                 335

Leu Asn Thr Trp Ile Asp Lys Ala Asn Tyr Leu Glu Ser Ile Leu Met
            340                 345                 350

Pro Lys Leu Glu His Lys Asp Ser Glu Glu Thr Asn Ile Asp Glu Ala
        355                 360                 365

Ser Glu Asn Thr Lys Ser Asn His Pro Glu Glu Glu Leu Glu Asn Ile
    370                 375                 380

Val Gly Val Gly Gly Phe Phe Thr Lys Arg Ile
385                 390                 395


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<213> Homo sapiens

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Met Glu Pro Pro Gln Glu Thr Asn Arg Pro Phe Ser Thr Leu Asp Asn
1   5   10   15

Arg Ser Gly Gln Val Gln Val Leu Ser Ala Thr Pro Leu Leu Gln Arg
            20   25   30

Asn Pro Tyr Ser Ser Pro Asp Ile Met His Ile Lys Gly Ser Glu Ala
        35   40   45

Ser Ser Val Pro Tyr Ala Leu Asn Gln Gly Thr Thr Ala Leu Pro Lys
    50   55   60

Asn Lys Asn Gln Glu Gly Thr Gly His Arg Leu Leu Asn Met Leu Arg
65   70   75   80

Lys Thr Leu Lys Glu Ser Asp Ser Glu Glu Leu Glu Ile Thr Gln Glu
                85   90   95

Thr Pro Asn Leu Val Pro Phe Gly Asp Val Val Gly Cys Leu Gly Ile
            100   105   110

His Ile Lys Asn Cys Arg His Phe Met Pro Lys Ile Ser Leu Gln His
        115   120   125

Tyr Ala Asn Leu Phe Ile Arg Ile Ser Ile Asn Lys Ala Val Lys Cys
    130   135   140

Thr Lys Met Cys Ser Leu Leu Ser Lys Asn Asp Glu Lys Asn Thr Val
145   150   155   160

Ile Lys Phe Asp Glu Val Lys Tyr Phe Ser Val Gln Val Pro Arg Arg
                165   170   175

Tyr Asp Asp Lys Arg Asn Asn Ile Leu Leu Glu Leu Ile Gln Tyr Asp
            180   185   190

Asn Arg Glu Lys Arg Ala Phe Leu Leu Gly Ser Val Gln Ile His Leu
        195   200   205

```
Tyr Glu Val Ile Gln Lys Gly Cys Phe Ile Glu Glu Val Gln Val Leu
    210                 215                 220

His Gly Asn Ile Phe Val Cys Arg Leu Glu Val Glu Phe Met Phe Ser
225                 230                 235                 240

Tyr Gly Asn Phe Gly Tyr Gly Phe Ser His Gln Leu Lys Pro Leu Gln
                245                 250                 255

Lys Ile Thr Glu Pro Ser Met Phe Met Asn Leu Ala Pro Pro Pro Glu
            260                 265                 270

Arg Thr Asp Pro Val Thr Lys Val Ile Thr Pro Gln Thr Val Glu Tyr
        275                 280                 285

Pro Ala Phe Leu Ser Pro Asp Leu Asn Val Thr Val Gly Thr Pro Ala
    290                 295                 300

Val Gln Ser Ser Asn Gln Pro Ser Val Val Arg Leu Glu Lys Leu Gln
305                 310                 315                 320

Gln Gln Pro Arg Glu Arg Leu Glu Lys Met Lys Lys Glu Tyr Arg Asn
                325                 330                 335

Leu Asn Thr Trp Ile Asp Lys Ala Asn Tyr Leu Glu Ser Ile Leu Met
            340                 345                 350

Pro Lys Leu Glu His Lys Asp Ser Glu Glu Thr Asn Ile Asp Glu Ala
        355                 360                 365

Ser Glu Asn Thr Lys Ser Asn His Pro Glu Glu Glu Leu Glu Asn Ile
    370                 375                 380

Val Gly Val Asp Ile Pro Leu Val Asn Glu Glu Ala Glu Thr Thr Ala
385                 390                 395                 400

Asn Glu Leu Leu Asp Asn Asp Ser Glu Lys Gly Leu Thr Ile Pro Thr
                405                 410                 415

Leu Asn Gln Ser Asp Gln Asp Asn Ser Thr Ala Asp Ala Ser Lys Asn
            420                 425                 430

Asp Glu Ser Thr Pro Ser Pro Thr Glu Val His Ser Leu Cys Thr Ile
```

```
        435                 440                 445

Ser Asn Gln Glu Thr Ile Lys Ala Gly Arg Ile Pro Pro Leu Gly Glu
    450                 455                 460

Arg Gln Ser Glu Ser Met Pro Asp Arg Lys Met Lys Asn Val Phe Phe
465                 470                 475                 480

Pro Leu Glu Val Lys Leu Lys Asp Asn Tyr Pro Ser Ile Leu Lys Ala
                485                 490                 495

Asp Ser Ser Leu Ser Glu Val Ala Phe Ser Pro Lys Glu Tyr Asn Ser
            500                 505                 510

Pro Ser Phe Arg Pro Glu Tyr Ile Glu Phe Lys Pro Lys Phe Gln Phe
        515                 520                 525

Gln Lys Phe Asn Lys Asn Gly Phe Asp Pro Phe Leu Arg Asn Ile Asn
    530                 535                 540

Lys Met Ser Val Arg Lys Arg Lys Asp Gln Asp Ile Tyr Lys Tyr Arg
545                 550                 555                 560

Asn Ile Leu Gly Ala Glu Val Ile Glu His Glu Asp Gln Asp Pro Pro
                565                 570                 575

Tyr Pro Ala Gln Ser Lys Thr Ala Gly Pro Ala Asn Thr Thr Trp Ala
            580                 585                 590

His Asp Pro Asn Ile Phe Thr Thr Lys Met Leu Glu Thr Glu Asn Lys
        595                 600                 605

Leu Ala Pro Asp Pro Thr Ile Asn Thr Ile Lys Gly Leu Asp Thr Lys
    610                 615                 620

Asn Ser Leu Lys Glu Asn Leu Pro Asn Val Ser Leu Pro Ser Ile Lys
625                 630                 635                 640

Gly Glu Ser Ser Arg Ala Gly Asn Val Gln Ala Asn Thr Cys His Leu
                645                 650                 655

Ser Lys Ser Leu Asn Phe Thr Pro His Ile Glu Tyr Leu Lys Gln Ser
            660                 665                 670
```

```
Met Ile Leu Lys Ser Ile Leu Ser Glu Asn Leu Gln Asp Leu Ser Asp
        675                 680                 685

Lys Leu Phe Ser Lys Pro Glu Val Ser Met Asn Ser Glu Ala Arg Glu
    690                 695                 700

Lys Ser Ser Ser Pro Leu Leu Ser Ile His Asp Lys Ser Ser Ser Ser
705                 710                 715                 720

Met Glu Asp Asn Val Leu Glu Lys Lys Gln Asp Leu Asn Asn Trp Leu
                725                 730                 735

Ser Glu Lys Asp Ile Leu Asn Ser Lys Thr Thr Leu Ser Gln Ile Ile
            740                 745                 750

Lys Asn Ile Pro Ala Asp Ser Phe Ser Glu Gly Ser Gln Ile Ile Glu
        755                 760                 765

Asn Ile Pro Ala Asp Ser Leu Leu Glu Gly Gly Gln Val Ile Lys Asn
    770                 775                 780

Ile Pro Glu Tyr Ser Leu Ser Glu Gly Gly Gln Ile Ile Lys Asn Ile
785                 790                 795                 800

Pro Ala Asp Ser Phe Leu Glu Ser Gly Pro Gly Gln Ser Pro Glu Val
                805                 810                 815

Glu Glu His Val Ser Lys Lys His Phe Glu Ala Asp Glu Arg Asp Phe
            820                 825                 830

Pro Ile Lys Lys Asn Ser Ser Thr Lys Lys Lys His Leu Ile Ser Glu
        835                 840                 845

Val Pro Asn Ser Lys Ser Gly Ser Ser Gly Thr Val His Asp Tyr Ile
    850                 855                 860

Met Arg Gln Ile Phe Thr Ala Pro Ile Phe Ser Glu Leu Glu Ile Glu
865                 870                 875                 880

Val Lys Glu Pro Ser Glu Thr Pro Met Asn Leu Glu Asn Gln Leu Pro
                885                 890                 895
```

```
Thr Pro Trp Lys Arg Ser Leu Ser Ser His Ile Leu Phe His Glu Glu
            900                 905                 910

Asn Ala Asp Glu Ile Glu Leu Pro Gln Pro Arg Ser Ala Thr Ser Gln
        915                 920                 925

Ile Ile Gln Ala Phe Pro Ile Asp Thr Leu Leu Glu Ser Gly Ile Ile
    930                 935                 940

Lys Val Ile Glu Leu Asp Lys Glu His His Lys Ser Ser Leu Leu Gly
945                 950                 955                 960

Thr Gly Ile Thr Ser Pro Lys Gly Asn Leu Lys Asp Ser Gln Glu Tyr
                965                 970                 975

Tyr Ser Glu Ile Arg Ser Glu Thr Glu Pro Leu Ser Glu Gln Ser Ile
            980                 985                 990

Pro Ile Ile Pro Lys Asp Thr Thr  Ser Val Ser Arg Ala  Glu Phe
Ile
        995                 1000                1005

Gln Glu  Asp Gln Asn Met Phe  Pro Gln Asp Ser Ser  Tyr Tyr Ser
    1010                1015                1020

Ile Ala  Asn Lys Glu Leu Tyr  Leu Pro Arg Asn Gly  Gln Arg Leu
    1025                1030                1035

Cys Lys  Asp Lys Asn Asp Leu  Ser Ser Thr Leu Glu  Ser Leu Thr
    1040                1045                1050

Asn Ser  Leu Met Asp Lys Leu  Ser Glu Ser Asp Glu  Ile Met Leu
    1055                1060                1065

Lys Ser  Phe Leu Lys Asn Ile  Phe Asn Val Phe Phe  Lys Tyr Asn
    1070                1075                1080

His Ser  Glu Arg Arg Gly Gln  Pro Glu Lys Glu Leu  Glu Arg Leu
    1085                1090                1095

Ile Gln  Pro Ser Phe Thr Ser  Asp Thr Glu His Leu  Glu Glu Leu
    1100                1105                1110
```

```
Gln Glu  Asp Phe Asp Lys Ala  Asp Lys Leu Asp Arg  Lys Pro Ile
    1115                1120                1125

Leu Ser  Pro Lys Leu Arg Val  Phe Leu Glu Glu Leu  Ser Glu Ser
    1130                1135                1140

Glu Val  Lys His Leu Lys Ser  Glu Leu Ser Lys Gln  Ile Gln His
    1145                1150                1155

Tyr Leu  Val Glu Arg Leu Ser  Glu Ser Gly His Ile  Thr Lys Glu
    1160                1165                1170

Asp Leu  Pro Lys Ile Tyr Gln  Asn Leu Tyr Leu Met  Asn Glu Lys
    1175                1180                1185

Ala Glu  Gln Lys Gly Pro Asn  Ser Phe Gln Gly Lys  Tyr Ser Glu
    1190                1195                1200

Thr Val  Lys Glu Ile Met Ser  Phe Val Asn Asn Phe  Asn His His
    1205                1210                1215

Phe Ile  Asp Lys His Leu Glu  Ile Lys Leu Arg Ser  Phe Leu Lys
    1220                1225                1230

Glu Ile  Leu Gln Asn Tyr Phe  Leu Lys Asn Ile Ser  Glu Ser Ser
    1235                1240                1245

Leu Phe  Asn Glu Thr Ala Ser  Glu Thr Ile Tyr Pro  Asn Ile Ser
    1250                1255                1260

Ser Leu  Arg Thr Lys Ser Val  Ser Ile Ser Phe His  Glu Leu Glu
    1265                1270                1275

Gln Asp  Ile Ser Lys Gly Ser  Phe Gly Arg Arg Phe  Glu Ile Asn
    1280                1285                1290

Met Lys  Tyr Pro Leu Ser Lys  Ser Leu Gln Asn Tyr  Leu Ile Ala
    1295                1300                1305

Leu Ser  Glu Asn Glu Leu Leu  His Leu Lys Ala Asp  Leu Ser Lys
    1310                1315                1320
```

```
His Leu  Gln Ser Leu Phe Ile  Glu Lys Leu Ser Lys  Ser Gly Leu
    1325                1330                1335

Met Thr  Lys Lys Gln Leu Glu  Gly Ile Asn Gln His  Ile Asn Leu
    1340                1345                1350

Leu Asn  Ser Ser Ser Ile Pro  Leu Lys Tyr Ile Lys  Thr His Leu
    1355                1360                1365

Pro Phe  Arg Asp Asp Cys His  Phe Val Glu Lys His  Ser Glu Lys
    1370                1375                1380

Gln Asn  Lys Tyr Ser Arg Ile  Val Gln Gln Thr Thr  Leu Gln Thr
    1385                1390                1395

Val Ser  Glu Asp Lys Leu Arg  Glu Ala Glu Leu Ile  Arg Glu Lys
    1400                1405                1410

Glu Lys  Lys Tyr Phe Pro Leu  Gln Asn Leu Lys Gly  Asn Ser Ser
    1415                1420                1425

Leu Ile  Lys Glu Gln Lys Ser  Tyr Tyr Thr Lys Glu  Glu Ala Lys
    1430                1435                1440

Thr Pro  Ser Leu Ile Lys Val  Gln Pro Ser Ser Asn  Glu Asn Ile
    1445                1450                1455

Gln Ala  Ser Pro Leu Ser Lys  Ser Ser Glu Ile Leu  Thr Asp Ile
    1460                1465                1470

Leu Leu  Lys Lys Leu Arg Lys  Glu His Val Phe Thr  Gln Leu Pro
    1475                1480                1485

Gln Ala  Glu Asn Ser Val His  Lys Thr Glu Ile Gln  Asp Pro Tyr
    1490                1495                1500

Ser Trp  Gly Gly Lys Ser Lys  Ile Thr Gln Ser Lys  Ala Trp Cys
    1505                1510                1515

Glu Lys  Thr Leu Lys Met Lys  Ser Leu Asp Arg Lys  Glu His Val
    1520                1525                1530

Asn Ile  Tyr Lys Trp Thr Val  Gln Glu Lys Pro Glu  Ala Val Leu
```

1535 1540 1545

Thr Ser Tyr Pro Arg Ile Pro Asn Ala Arg Met Pro Arg Glu Asp
1550 1555 1560

Glu Tyr Leu Asn Arg Ile Thr Phe Pro Ser Trp Gln Ser Ser Thr
1565 1570 1575

Leu Thr His Phe Asn Thr Glu Thr Gly Glu Lys Ser Lys Leu Glu
1580 1585 1590

Asp Gln Tyr Cys Gln Thr Leu Lys Gly Asn Asn Asn Asn Asn Lys
1595 1600 1605

Lys His Leu Val Thr Phe Ala Gln Tyr Lys Lys Glu Ile Gln Thr
1610 1615 1620

Leu Tyr Ile Lys Pro Asp Glu Ile Cys Ser Glu Lys Cys Ala Lys
1625 1630 1635

Phe Pro Glu Ile Gln Ser Phe Gln Tyr Lys Val Val Glu Asp Glu
1640 1645 1650

Lys Asn Leu Lys Pro His Leu Phe Pro Glu Leu Phe Lys Ile Glu
1655 1660 1665

Asp Leu Lys Pro Lys Val Arg Lys Glu Arg Asp Arg Val Ala Gln
1670 1675 1680

Pro Lys Lys Ser Phe Asn Lys Ile Val Arg Ile Leu Pro Thr Thr
1685 1690 1695

Leu Pro Thr Thr Arg Ile His Leu Lys Lys Ser Val Pro Arg Thr
1700 1705 1710

Leu Leu His Trp Thr Ala Arg Arg Thr Ile His Asp Cys Ser Asp
1715 1720 1725

Lys Phe Glu Asp Leu His Asp Met Thr Ser Phe Thr His Leu Lys
1730 1735 1740

Lys Val Lys Ser Arg Ser Arg Leu Leu Gly Lys Ser Ser Asp Asp
1745 1750 1755

```
Ile His  Asn His Ala Arg His  Ser Ala Arg Pro Tyr  Thr Ala Pro
    1760                1765                1770

Glu Val  Asn Lys Gln Arg Glu  Ser Tyr Ser Gly Lys  Phe Thr Ser
    1775                1780                1785

Arg Arg  Met Val Ser Ser Gly  Leu Val His Ile Asn  Asp Lys Thr
    1790                1795                1800

Ser Asp  Tyr Glu Met His Lys  Met Arg Pro Lys Lys  Ile Lys Arg
    1805                1810                1815

Gly Tyr
    1820
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<210> 4613
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Met Tyr Pro Asn Pro Leu Ile Tyr Cys Thr Cys Trp Asp Pro Trp Asn
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Leu Gly Pro Arg Lys Leu Ile Lys Thr Pro Gln Leu Pro Arg Lys Asn
            20                  25                  30
```

```
Ser Thr Gly Ser Ser Lys Leu Thr Pro Leu Val Pro Ala Pro Lys Asn
        35                  40                  45

His Asn Tyr Leu Gln Pro Thr Lys Pro Val Val Ser Pro Lys Met Lys
    50                  55                  60

Ile His Ser Ala Arg Gln Glu Glu Thr Asn Lys Ser Phe Tyr Glu Val
65                  70                  75                  80

Ile Asn Val Ser Pro Gly Tyr Gln Leu Val Arg Asn Arg Glu Gln Ile
                85                  90                  95

Ser Val Thr Leu Gly Asp Glu Met Phe Asp Arg Lys Lys Arg Trp Glu
            100                 105                 110

Ser Glu Ile Pro Asp Lys Gly Arg Phe Ser Arg Thr Asn Ile Ile Ser
        115                 120                 125

Asp Leu Glu Glu Gln Ile Ser Glu Leu Thr Ala Ile Ile Glu Gln Met
    130                 135                 140

Asn Arg Asp His Gln Ser Ala Gln Lys Leu Leu Ser Ser Glu Met Asp
145                 150                 155                 160

Leu Arg Cys Ala Glu Met Lys Gln Asn Phe Glu Asn Lys Asn Arg Glu
                165                 170                 175

Leu Lys Glu Ala His Glu Ala Glu Leu Ser Glu Leu Glu Asn Asn Tyr
            180                 185                 190

Lys Ala Ala Leu Lys Ala Glu Lys Leu Ala Ala Gln Glu Lys Leu Glu
        195                 200                 205

Glu Met Gly Lys Glu Tyr Lys Tyr Leu Lys Asn Met Phe Arg Thr Tyr
    210                 215                 220

Gln Asp Ser Ile Tyr Asp Glu Met Glu Glu Lys Trp Ser Lys Gln Lys
225                 230                 235                 240

Ala Lys Trp Lys Lys Asp Glu Lys Phe Glu Arg Glu Asn Ile Leu Leu
                245                 250                 255
```

```
Gln Gln Lys Lys Lys Met Thr Lys Lys Phe Glu Met Glu Ser Gly Glu
            260                 265                 270

Glu Asp Lys Lys Ile Asn Glu Ser Cys Ser Ala Val Phe Glu Asn Phe
        275                 280                 285

Ile Gln Glu Lys Glu Glu Leu Leu Lys Gln His Gln Ser Asp Thr Leu
    290                 295                 300

Gln Leu Glu Glu Leu Arg Lys Thr Lys Glu Val Pro Trp Arg Arg Asp
305                 310                 315                 320

Gln Ile Asn Arg His Trp His Asp Val Leu Gln Gln Leu Leu Leu Met
                325                 330                 335

Gln Val Met Gln Glu Glu Leu His Ala Gln Ala Leu Ile Leu Glu Ser
            340                 345                 350

Leu Asn Thr Asn Leu Tyr Tyr Thr Gln Leu Glu Leu Gln Lys Glu Lys
        355                 360                 365

Ala Ile Val Gly Asn Leu Glu Lys Met Leu Gln Thr Lys Phe Ala Glu
    370                 375                 380

Thr Glu Glu Lys Tyr Lys His Thr Ile Gln Ile Leu Thr Glu Glu Asn
385                 390                 395                 400

Ile His Leu Lys Gln Lys Ile Ile Ser Lys Asn Glu Glu Ile Cys Glu
                405                 410                 415

Gly Cys Ser Gly Arg Leu Ala Ser Ile Thr Val Ser Lys Asp Asp Ser
            420                 425                 430

Asp Thr Val Gln Asp Gly Ser Lys Lys Gly Gln Glu Ser
        435                 440                 445


<210> 4614
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<212> PRT
<213> Homo sapiens

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<220>
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amyotrophic lateral sclerosis 2 (juvenile) chromosome region, candidate 12; "

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<220>
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Met Tyr Pro Asn Pro Leu Ile Tyr Cys Thr Cys Trp Asp Pro Trp Asn
1 5 10 15

Leu Gly Pro Arg Lys Leu Ile Lys Thr Pro Gln Leu Pro Arg Lys Asn
20 25 30

Ser Thr Gly Ser Ser Lys Leu Thr Pro Leu Val Pro Ala Pro Lys Asn
35 40 45

His Asn Tyr Leu Gln Pro Thr Lys Pro Val Val Ser Pro Lys Met Lys
50 55 60

Ile His Ser Ala Arg Gln Glu Glu Thr Asn Lys Ser Phe Tyr Glu Val
65 70 75 80

Ile Asn Val Ser Pro Gly Tyr Gln Leu Val Arg Asn Arg Glu Gln Ile
85 90 95

Ser Val Thr Leu Gly Asp Glu Met Phe Asp Arg Lys Lys Arg Trp Glu
100 105 110

Ser Glu Ile Pro Asp Lys Gly Arg Phe Ser Arg Thr Asn Ile Ile Ser
115 120 125

Asp Leu Glu Glu Gln Ile Ser Glu Leu Thr Ala Ile Ile Glu Gln Met
130 135 140

Asn Arg Asp His Gln Ser Ala Gln Lys Leu Leu Ser Ser Glu Met Asp
145 150 155 160

```
Leu Arg Cys Ala Glu Met Lys Gln Asn Phe Glu Asn Lys Asn Arg Glu
                165                 170                 175

Leu Lys Glu Ala His Glu Ala Glu Leu Ser Glu Leu Glu Asn Asn Tyr
            180                 185                 190

Lys Ala Ala Leu Lys Ala Glu Lys Leu Ala Ala Gln Glu Lys Leu Glu
        195                 200                 205

Glu Met Gly Lys Glu Tyr Lys Tyr Leu Lys Asn Met Phe Arg Thr Tyr
    210                 215                 220

Gln Asp Ser Ile Tyr Asp Glu Met Glu Glu Lys Trp Ser Lys Gln Lys
225                 230                 235                 240

Ala Lys Trp Lys Lys Asp Glu Lys Phe Glu Arg Glu Asn Ile Leu Leu
                245                 250                 255

Gln Gln Lys Lys Lys Met Thr Lys Lys Phe Glu Met Glu Ser Gly Glu
            260                 265                 270

Glu Asp Lys Lys Ile Asn Glu Ser Cys Ser Ala Val Phe Glu Asn Phe
        275                 280                 285

Ile Gln Glu Lys Glu Glu Leu Leu Lys Gln His Gln Ser Asp Thr Leu
    290                 295                 300

Gln Leu Glu Glu Leu Arg Lys Thr Lys Glu Val Met Gln Glu Glu Leu
305                 310                 315                 320

His Ala Gln Ala Leu Ile Leu Glu Ser Leu Asn Thr Asn Leu Tyr Tyr
                325                 330                 335

Thr Gln Leu Glu Leu Gln Lys Glu Lys Ala Ile Val Gly Asn Leu Glu
            340                 345                 350

Lys Met Leu Gln Thr Lys Phe Ala Glu Thr Glu Glu Lys Tyr Lys His
        355                 360                 365

Thr Ile Gln Ile Leu Thr Glu Glu Asn Ile His Leu Lys Gln Lys Ile
    370                 375                 380
```

```
Ile Ser Lys Asn Glu Glu Ile Cys Glu Gly Cys Ser Gly Arg Leu Ala
385                 390                 395                 400


Ser Ile Thr Val Ser Lys Asp Asp Ser Asp Thr Val Gln Asp Gly Ser
                405                 410                 415


Lys Lys Gly Gln Glu Ser
            420


<210> 4615
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<220>
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<220>
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Met Tyr Pro Asn Pro Leu Ile Tyr Cys Thr Cys Trp Asp Pro Trp Asn
1               5                   10                  15


Leu Gly Pro Arg Lys Leu Ile Lys Thr Pro Gln Leu Pro Arg Lys Asn
            20                  25                  30


Ser Thr Gly Ser Ser Lys Leu Thr Pro Leu Val Pro Ala Pro Lys Asn
        35                  40                  45


His Asn Tyr Leu Gln Pro Thr Lys Pro Val Val Ser Pro Lys Met Lys
    50                  55                  60
```

```
Ile His Ser Ala Arg Gln Glu Glu Thr Asn Lys Ser Phe Tyr Glu Val
65                  70                  75                  80

Ile Asn Val Ser Pro Gly Tyr Gln Leu Val Arg Asn Arg Glu Gln Ile
                85                  90                  95

Ser Val Thr Leu Gly Asp Glu Met Phe Asp Arg Lys Lys Arg Trp Glu
            100                 105                 110

Ser Glu Ile Pro Asp Lys Gly Arg Phe Ser Arg Thr Asn Ile Ile Ser
        115                 120                 125

Asp Leu Glu Glu Gln Ile Ser Glu Leu Thr Ala Ile Ile Glu Gln Met
    130                 135                 140

Asn Arg Asp His Gln Ser Ala Gln Lys Leu Leu Ser Ser Glu Met Asp
145                 150                 155                 160

Leu Arg Cys Ala Glu Met Lys Gln Asn Phe Glu Asn Lys Asn Arg Glu
                165                 170                 175

Leu Lys Glu Ala His Glu Ala Glu Leu Ser Glu Leu Glu Asn Asn Tyr
            180                 185                 190

Lys Ala Ala Leu Lys Ala Glu Lys Leu Ala Ala Gln Glu Lys Leu Glu
        195                 200                 205

Glu Met Gly Lys Glu Tyr Lys Tyr Leu Lys Asn Met Phe Arg Thr Tyr
    210                 215                 220

Gln Asp Ser Ile Tyr Asp Glu Met Glu Glu Lys Trp Ser Lys Gln Lys
225                 230                 235                 240

Ala Lys Trp Lys Lys Asp Glu Lys Phe Glu Arg Glu Asn Ile Leu Leu
                245                 250                 255

Gln Gln Lys Lys Lys Met Thr Lys Lys Phe Glu Met Glu Ser Gly Glu
            260                 265                 270

Glu Asp Lys Lys Ile Asn Glu Ser Cys Ser Ala Val Phe Glu Asn Phe
        275                 280                 285

Ile Gln Glu Lys Glu Glu Leu Leu Lys Gln His Gln Ser Asp Thr Leu
```

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    290                 295                 300

Gln Leu Glu Glu Leu Arg Lys Thr Lys Glu Val Pro Trp Arg Arg Asp
305                 310                 315                 320

Gln Ile Asn Arg His Trp His Asp Val Leu Gln Gln Leu Leu Leu Met
                325                 330                 335

Gln Val Met Gln Glu Glu Leu His Ala Gln Ala Leu Ile Leu Glu Ser
            340                 345                 350

Leu Asn Thr Asn Leu Tyr Tyr Thr Gln Leu Glu Leu Gln Lys Glu Lys
        355                 360                 365

Ala Ile Val Gly Asn Leu Glu Lys Met Leu Gln Thr Lys Phe Ala Glu
    370                 375                 380

Thr Glu Glu Lys Tyr Lys His Thr Ile Gln Ile Leu Thr Glu Glu Asn
385                 390                 395                 400

Ile His Leu Lys Gln Lys Ile Ile Ser Lys Asn Glu Glu Ile Cys Glu
                405                 410                 415

Gly Cys Ser Gly Arg Leu Ala Ser Ile Thr Val Ser Lys Asp Asp Ser
            420                 425                 430

Asp Thr Val Gln Asp Gly Ser Lys Lys Gly Gln Glu Ser
        435                 440                 445


<210> 4616
<211> 143
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1021; "

<220>
<221> source
<223> /note="Gene Symbol: ALS2CR12; "

<220>
<221> source
<223> /note="Gene Name:
      amyotrophic lateral sclerosis 2 (juvenile) chromosome
      region, candidate 12; "
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<220>
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<400> 4616
Met Lys Ile His Ser Ala Arg Gln Glu Glu Thr Asn Lys Ser Phe Tyr
1   5   10   15

Glu Val Ile Asn Val Ser Pro Gly Tyr Gln Leu Val Arg Asn Arg Glu
            20   25   30

Gln Ile Ser Val Thr Leu Gly Asp Glu Met Phe Asp Arg Lys Lys Arg
        35   40   45

Trp Glu Ser Glu Ile Pro Asp Lys Gly Arg Phe Ser Arg Glu Leu Lys
    50   55   60

Glu Ala His Glu Ala Glu Leu Ser Glu Leu Glu Asn Asn Tyr Lys Ala
65   70   75   80

Ala Leu Lys Ala Glu Lys Leu Ala Ala Gln Glu Lys Leu Glu Glu Met
                85   90   95

Gly Lys Glu Tyr Lys Tyr Leu Lys Asn Met Phe Arg Thr Tyr Gln Asp
            100   105   110

Ser Ile Tyr Asp Glu Met Glu Glu Lys Trp Ser Lys Gln Lys Ala Lys
        115   120   125

Trp Lys Lys Asp Glu Lys Phe Glu Arg Glu Asn Ile Leu Leu Gln
    130   135   140

<210> 4617
<211> 124
<212> PRT
<213> Homo sapiens

<220>
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<220>
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region, candidate 12; "

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 4617
Xaa Ser Ile Tyr Asp Glu Met Glu Glu Lys Trp Ser Lys Gln Lys Ala
1 5 10 15

Lys Trp Lys Lys Asp Glu Lys Phe Glu Arg Glu Asn Ile Leu Leu Gln
20 25 30

Gln Lys Lys Lys Met Thr Lys Lys Phe Glu Met Glu Ser Gly Glu Glu
35 40 45

Asp Lys Lys Ile Asn Glu Ser Cys Ser Ala Val Phe Glu Asn Phe Ile
50 55 60

Gln Glu Lys Glu Glu Leu Leu Lys Gln His Gln Ser Asp Thr Leu Gln
65 70 75 80

Leu Glu Glu Leu Arg Lys Thr Lys Glu Val Met Gln Glu Glu Leu His
85 90 95

Ala Gln Ala Leu Ile Leu Glu Ser Leu Asn Thr Asn Leu Tyr Tyr Thr
100 105 110

Gln Leu Glu Leu Gln Lys Glu Ala Lys Asp Asn Phe
115 120

<210> 4618
<211> 49
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ALS2CR12; "

<220>
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region, candidate 12; "

<220>
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<223> /note="ENSP ID: ENSP00000407585"

<400> 4618
Met Tyr Pro Asn Pro Leu Ile Tyr Cys Thr Cys Trp Asp Pro Trp Asn
1 5 10 15

Leu Gly Pro Arg Lys Leu Ile Lys Thr Pro Gln Leu Pro Arg Lys Asn
20 25 30

Ser Thr Gly Ser Ser Lys Leu Thr Pro Leu Val Pro Ala Pro Lys Asn
35 40 45

His

<210> 4619
<211> 422
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ALS2CR12; "

<220>
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region, candidate 12; "

<220>
<221> source
<223> /note="Uniprot ID: Q96Q35; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412073"

<400> 4619
Met Tyr Pro Asn Pro Leu Ile Tyr Cys Thr Cys Trp Asp Pro Trp Asn
1 5 10 15

Leu Gly Pro Arg Lys Leu Ile Lys Thr Pro Gln Leu Pro Arg Lys Asn
20 25 30

Ser Thr Gly Ser Ser Lys Leu Thr Pro Leu Val Pro Ala Pro Lys Asn
35 40 45

His Asn Tyr Leu Gln Pro Thr Lys Pro Val Val Ser Pro Lys Met Lys
50 55 60

Ile His Ser Ala Arg Gln Glu Glu Thr Asn Lys Ser Phe Tyr Glu Val
65 70 75 80

Ile Asn Val Ser Pro Gly Tyr Gln Leu Val Arg Asn Arg Glu Gln Ile
85 90 95

Ser Val Thr Leu Gly Asp Glu Met Phe Asp Arg Lys Lys Arg Trp Glu
100 105 110

Ser Glu Ile Pro Asp Lys Gly Arg Phe Ser Arg Thr Asn Ile Ile Ser
115 120 125

Asp Leu Glu Glu Gln Ile Ser Glu Leu Thr Ala Ile Ile Glu Gln Met
130 135 140

Asn Arg Asp His Gln Ser Ala Gln Lys Leu Leu Ser Ser Glu Met Asp
145 150 155 160

Leu Arg Cys Ala Glu Met Lys Gln Asn Phe Glu Asn Lys Asn Arg Glu
165 170 175

Leu Lys Glu Ala His Glu Ala Glu Leu Ser Glu Leu Glu Asn Asn Tyr
180 185 190

Lys Ala Ala Leu Lys Ala Glu Lys Leu Ala Ala Gln Glu Lys Leu Glu
195 200 205

Glu Met Gly Lys Glu Tyr Lys Tyr Leu Lys Asn Met Phe Arg Thr Tyr
210 215 220

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Gln Asp Ser Ile Tyr Asp Glu Met Glu Glu Lys Trp Ser Lys Gln Lys
225                 230                 235                 240

Ala Lys Trp Lys Lys Asp Glu Lys Phe Glu Arg Glu Asn Ile Leu Leu
                245                 250                 255

Gln Gln Lys Lys Lys Met Thr Lys Lys Phe Glu Met Glu Ser Gly Glu
            260                 265                 270

Glu Asp Lys Lys Ile Asn Glu Ser Cys Ser Ala Val Phe Glu Asn Phe
        275                 280                 285

Ile Gln Glu Lys Glu Glu Leu Leu Lys Gln His Gln Ser Asp Thr Leu
    290                 295                 300

Gln Leu Glu Glu Leu Arg Lys Thr Lys Glu Val Met Gln Glu Glu Leu
305                 310                 315                 320

His Ala Gln Ala Leu Ile Leu Glu Ser Leu Asn Thr Asn Leu Tyr Tyr
                325                 330                 335

Thr Gln Leu Glu Leu Gln Lys Glu Lys Ala Ile Val Gly Asn Leu Glu
            340                 345                 350

Lys Met Leu Gln Thr Lys Phe Ala Glu Thr Glu Glu Lys Tyr Lys His
        355                 360                 365

Thr Ile Gln Ile Leu Thr Glu Glu Asn Ile His Leu Lys Gln Lys Ile
    370                 375                 380

Ile Ser Lys Asn Glu Glu Ile Cys Glu Gly Cys Ser Gly Arg Leu Ala
385                 390                 395                 400

Ser Ile Thr Val Ser Lys Asp Asp Ser Asp Thr Val Gln Asp Gly Ser
                405                 410                 415

Lys Lys Gly Gln Glu Ser
            420
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<210> 4620
<211> 1944
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
anaphase promoting complex
subunit 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H1A4; "

<220>
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<223> /note="ENSP ID: ENSP00000339109"

<400> 4620
Met Ser Asn Phe Tyr Glu Glu Arg Thr Thr Met Ile Ala Ala Arg Asp
1   5   10   15

Leu Gln Glu Phe Val Pro Phe Gly Arg Asp His Cys Lys His His Pro
            20   25   30

Asn Ala Leu Asn Leu Gln Leu Arg Gln Leu Gln Pro Ala Ser Glu Leu
        35   40   45

Trp Ser Ser Asp Gly Ala Ala Gly Leu Val Gly Ser Leu Gln Glu Val
    50   55   60

Thr Ile His Glu Lys Gln Lys Glu Ser Trp Gln Leu Arg Lys Gly Val
65   70   75   80

Ser Glu Ile Gly Glu Asp Val Asp Tyr Asp Glu Glu Leu Tyr Val Ala
                85   90   95

Gly Asn Met Val Ile Trp Ser Lys Gly Ser Lys Ser Gln Ala Leu Ala
            100   105   110

Val Tyr Lys Ala Phe Thr Val Asp Ser Pro Val Gln Gln Ala Leu Trp
        115   120   125

Cys Asp Phe Ile Ile Ser Gln Asp Lys Ser Glu Lys Ala Tyr Ser Ser
    130   135   140

```
Asn Glu Val Glu Lys Cys Ile Cys Ile Leu Gln Ser Ser Cys Ile Asn
145                 150                 155                 160

Met His Ser Ile Glu Gly Lys Asp Tyr Ile Ala Ser Leu Pro Phe Gln
                165                 170                 175

Val Ala Asn Val Trp Pro Thr Lys Tyr Gly Leu Leu Phe Glu Arg Ser
            180                 185                 190

Ala Ser Ser His Glu Val Pro Pro Gly Ser Pro Arg Glu Pro Leu Pro
        195                 200                 205

Thr Met Phe Ser Met Leu His Pro Leu Asp Glu Ile Thr Pro Leu Val
    210                 215                 220

Cys Lys Ser Gly Ser Leu Phe Gly Ser Ser Arg Val Gln Tyr Val Val
225                 230                 235                 240

Asp His Ala Met Lys Ile Val Phe Leu Asn Thr Asp Pro Ser Ile Val
                245                 250                 255

Met Thr Tyr Asp Ala Val Gln Asn Val His Ser Val Trp Thr Leu Arg
            260                 265                 270

Arg Val Lys Ser Glu Glu Glu Asn Val Val Leu Lys Phe Ser Glu Gln
        275                 280                 285

Gly Gly Thr Pro Gln Asn Val Ala Thr Ser Ser Ser Leu Thr Ala His
    290                 295                 300

Leu Arg Ser Leu Ser Lys Gly Asp Ser Pro Val Thr Ser Pro Phe Gln
305                 310                 315                 320

Asn Tyr Ser Ser Ile His Ser Gln Ser Arg Ser Thr Ser Ser Pro Ser
                325                 330                 335

Leu His Ser Arg Ser Pro Ser Ile Ser Asn Met Ala Ala Leu Ser Arg
            340                 345                 350

Ala His Ser Pro Ala Leu Gly Val His Ser Phe Ser Gly Val Gln Arg
        355                 360                 365
```

```
Phe Asn Ile Ser Ser His Asn Gln Ser Pro Lys Arg His Ser Ile Ser
    370                 375                 380

His Ser Pro Asn Ser Asn Ser Asn Gly Ser Phe Leu Ala Pro Glu Thr
385                 390                 395                 400

Glu Pro Ile Val Pro Glu Leu Cys Ile Asp His Leu Trp Thr Glu Thr
                405                 410                 415

Ile Thr Asn Ile Arg Glu Lys Asn Ser Gln Ala Ser Lys Val Phe Ile
            420                 425                 430

Thr Ser Asp Leu Cys Gly Gln Lys Phe Leu Cys Phe Leu Val Glu Ser
        435                 440                 445

Gln Leu Gln Leu Arg Cys Val Lys Phe Gln Glu Ser Asn Asp Lys Thr
    450                 455                 460

Gln Leu Ile Phe Gly Ser Val Thr Asn Ile Pro Ala Lys Asp Ala Ala
465                 470                 475                 480

Pro Val Glu Lys Ile Asp Thr Met Leu Val Leu Glu Gly Ser Gly Asn
                485                 490                 495

Leu Val Leu Tyr Thr Gly Val Val Arg Val Gly Lys Val Phe Ile Pro
            500                 505                 510

Gly Leu Pro Ala Pro Ser Leu Thr Met Ser Asn Thr Met Pro Arg Pro
        515                 520                 525

Ser Thr Pro Leu Asp Gly Val Ser Thr Pro Lys Pro Leu Ser Lys Leu
    530                 535                 540

Leu Gly Ser Leu Asp Glu Val Val Leu Leu Ser Pro Val Pro Glu Leu
545                 550                 555                 560

Arg Asp Ser Ser Lys Leu His Asp Ser Leu Tyr Asn Glu Asp Cys Thr
                565                 570                 575

Phe Gln Gln Leu Gly Thr Tyr Ile His Ser Ile Arg Asp Pro Val His
            580                 585                 590
```

```
Asn Arg Val Thr Leu Glu Leu Ser Asn Gly Ser Met Val Arg Ile Thr
        595                 600                 605

Ile Pro Glu Ile Ala Thr Ser Glu Leu Val Gln Thr Cys Leu Gln Ala
    610                 615                 620

Ile Lys Phe Ile Leu Pro Lys Glu Ile Ala Val Gln Met Leu Val Lys
625                 630                 635                 640

Trp Tyr Asn Val His Ser Ala Pro Gly Gly Pro Ser Tyr His Ser Glu
                645                 650                 655

Trp Asn Leu Phe Val Thr Cys Leu Met Asn Met Met Gly Tyr Asn Thr
            660                 665                 670

Asp Arg Leu Ala Trp Thr Arg Asn Phe Asp Phe Glu Gly Ser Leu Ser
        675                 680                 685

Pro Val Ile Ala Pro Lys Lys Ala Arg Pro Ser Glu Thr Gly Ser Asp
    690                 695                 700

Asp Asp Trp Glu Tyr Leu Leu Asn Ser Asp Tyr His Gln Asn Val Glu
705                 710                 715                 720

Ser His Leu Leu Asn Arg Ser Leu Cys Leu Ser Pro Ser Glu Ala Ser
                725                 730                 735

Gln Met Lys Asp Glu Asp Phe Ser Gln Asn Leu Ser Leu Asp Ser Ser
            740                 745                 750

Thr Leu Leu Phe Thr His Ile Pro Ala Ile Phe Phe Val Leu His Leu
        755                 760                 765

Val Tyr Glu Glu Leu Lys Leu Asn Thr Leu Met Gly Glu Gly Ile Cys
    770                 775                 780

Ser Leu Val Glu Leu Leu Val Gln Leu Ala Arg Asp Leu Lys Leu Gly
785                 790                 795                 800

Pro Tyr Val Asp His Tyr Tyr Arg Asp Tyr Pro Thr Leu Val Arg Thr
                805                 810                 815

Thr Gly Gln Val Cys Thr Ile Asp Pro Gly Gln Thr Gly Phe Met His
```

820 825 830

His Pro Ser Phe Phe Thr Ser Glu Pro Pro Ser Ile Tyr Gln Trp Val
835 840 845

Ser Ser Cys Leu Lys Gly Glu Gly Met Pro Pro Tyr Pro Tyr Leu Pro
850 855 860

Gly Ile Cys Glu Arg Ser Arg Leu Val Val Leu Ser Ile Ala Leu Tyr
865 870 875 880

Ile Leu Gly Asp Glu Ser Leu Val Ser Asp Glu Ser Ser Gln Tyr Leu
885 890 895

Thr Arg Ile Thr Ile Ala Pro Gln Lys Leu Gln Val Glu Gln Glu Glu
900 905 910

Asn Arg Phe Ser Phe Arg His Ser Thr Ser Val Ser Ser Leu Ala Glu
915 920 925

Arg Leu Val Val Trp Met Thr Asn Val Gly Phe Thr Leu Arg Asp Leu
930 935 940

Glu Thr Leu Pro Phe Gly Ile Ala Leu Pro Ile Arg Asp Ala Ile Tyr
945 950 955 960

His Cys Arg Glu Gln Pro Ala Ser Asp Trp Pro Glu Ala Val Cys Leu
965 970 975

Leu Ile Gly Arg Gln Asp Leu Ser Lys Gln Ala Cys Glu Gly Asn Leu
980 985 990

Pro Lys Gly Lys Ser Val Leu Ser Ser Asp Val Pro Ser Gly Thr
Glu
995 1000 1005

Thr Glu Glu Glu Asp Asp Gly Met Asn Asp Met Asn His Glu Val
1010 1015 1020

Met Ser Leu Ile Trp Ser Glu Asp Leu Arg Val Gln Asp Val Arg
1025 1030 1035

Arg Leu Leu Gln Ser Ala His Pro Val Arg Val Asn Val Val Gln

```
    1040                1045                1050

Tyr Pro  Glu Leu Ser Asp His  Glu Phe Ile Glu Glu  Lys Glu Asn
    1055                1060                1065

Arg Leu  Leu Gln Leu Cys Gln  Arg Thr Met Ala Leu  Pro Val Gly
    1070                1075                1080

Arg Gly  Met Phe Thr Leu Phe  Ser Tyr His Pro Val  Pro Thr Glu
    1085                1090                1095

Pro Leu  Pro Ile Pro Lys Leu  Asn Leu Thr Gly Arg  Ala Pro Pro
    1100                1105                1110

Arg Asn  Thr Thr Val Asp Leu  Asn Ser Gly Asn Ile  Asp Val Pro
    1115                1120                1125

Pro Asn  Met Thr Ser Trp Ala  Ser Phe His Asn Gly  Val Ala Ala
    1130                1135                1140

Gly Leu  Lys Ile Ala Pro Ala  Ser Gln Ile Asp Ser  Ala Trp Ile
    1145                1150                1155

Val Tyr  Asn Lys Pro Lys His  Ala Glu Leu Ala Asn  Glu Tyr Ala
    1160                1165                1170

Gly Phe  Leu Met Ala Leu Gly  Leu Asn Gly His Leu  Thr Lys Leu
    1175                1180                1185

Ala Thr  Leu Asn Ile His Asp  Tyr Leu Thr Lys Gly  His Glu Met
    1190                1195                1200

Thr Ser  Ile Gly Leu Leu Leu  Gly Val Ser Ala Ala  Lys Leu Gly
    1205                1210                1215

Thr Met  Asp Met Ser Ile Thr  Arg Leu Leu Ser Ile  His Ile Pro
    1220                1225                1230

Ala Leu  Leu Pro Pro Thr Ser  Thr Glu Leu Asp Val  Pro His Asn
    1235                1240                1245

Val Gln  Val Ala Ala Val Val  Gly Ile Gly Leu Val  Tyr Gln Gly
    1250                1255                1260
```

```
Thr Ala  His Arg His Thr Ala  Glu Val Leu Leu Ala  Glu Ile Gly
    1265                1270                1275

Arg Pro  Pro Gly Pro Glu Met  Glu Tyr Cys Thr Asp  Arg Glu Ser
    1280                1285                1290

Tyr Ser  Leu Ala Ala Gly Leu  Ala Leu Gly Met Val  Cys Leu Gly
    1295                1300                1305

His Gly  Ser Asn Leu Ile Gly  Met Ser Asp Leu Asn  Val Pro Glu
    1310                1315                1320

Gln Leu  Tyr Gln Tyr Met Val  Gly Gly His Arg Arg  Phe Gln Thr
    1325                1330                1335

Gly Met  His Arg Glu Lys His  Lys Ser Pro Ser Tyr  Gln Ile Lys
    1340                1345                1350

Glu Gly  Asp Thr Ile Asn Val  Asp Val Thr Cys Pro  Gly Ala Thr
    1355                1360                1365

Leu Ala  Leu Ala Met Ile Tyr  Leu Lys Thr Asn Asn  Arg Ser Ile
    1370                1375                1380

Ala Asp  Trp Leu Arg Ala Pro  Asp Thr Met Tyr Leu  Leu Asp Phe
    1385                1390                1395

Val Lys  Pro Glu Phe Leu Leu  Leu Arg Thr Leu Ala  Arg Cys Leu
    1400                1405                1410

Ile Leu  Trp Asp Asp Ile Leu  Pro Asn Ser Lys Trp  Val Asp Ser
    1415                1420                1425

Asn Val  Pro Gln Ile Ile Arg  Glu Asn Ser Ile Ser  Leu Ser Glu
    1430                1435                1440

Ile Glu  Leu Pro Cys Ser Glu  Asp Leu Asn Leu Glu  Thr Leu Ser
    1445                1450                1455

Gln Ala  His Val Tyr Ile Ile  Ala Gly Ala Cys Leu  Ser Leu Gly
    1460                1465                1470
```

```
Phe Arg  Phe Ala Gly Ser Glu  Asn Leu Ser Ala Phe  Asn Cys Leu
    1475                1480                1485

His Lys  Phe Ala Lys Asp Phe  Met Thr Tyr Leu Ser  Ala Pro Asn
    1490                1495                1500

Ala Ser  Val Thr Gly Pro His  Asn Leu Glu Thr Cys  Leu Ser Val
    1505                1510                1515

Val Leu  Leu Ser Leu Ala Met  Val Met Ala Gly Ser  Gly Asn Leu
    1520                1525                1530

Lys Val  Leu Gln Leu Cys Arg  Phe Leu His Met Lys  Thr Gly Gly
    1535                1540                1545

Glu Met  Asn Tyr Gly Phe His  Leu Ala His His Met  Ala Leu Gly
    1550                1555                1560

Leu Leu  Phe Leu Gly Gly Gly  Arg Tyr Ser Leu Ser  Thr Ser Asn
    1565                1570                1575

Ser Ser  Ile Ala Ala Leu Leu  Cys Ala Leu Tyr Pro  His Phe Pro
    1580                1585                1590

Ala His  Ser Thr Asp Asn Arg  Tyr His Leu Gln Ala  Leu Arg His
    1595                1600                1605

Leu Tyr  Val Leu Ala Ala Glu  Pro Arg Leu Leu Val  Pro Val Asp
    1610                1615                1620

Val Asp  Thr Asn Thr Pro Cys  Tyr Ala Leu Leu Glu  Val Thr Tyr
    1625                1630                1635

Lys Gly  Thr Gln Trp Tyr Glu  Gln Thr Lys Glu Glu  Leu Met Ala
    1640                1645                1650

Pro Thr  Leu Leu Pro Glu Leu  His Leu Leu Lys Gln  Ile Lys Val
    1655                1660                1665

Lys Gly  Pro Arg Tyr Trp Glu  Leu Leu Ile Asp Leu  Ser Lys Gly
    1670                1675                1680
```

```
Thr Gln  His Leu Lys Ser Ile  Leu Ser Lys Asp Gly  Val Leu Tyr
    1685                1690                1695

Val Lys  Leu Arg Ala Gly Gln  Leu Ser Tyr Lys Glu  Asp Pro Met
    1700                1705                1710

Gly Trp  Gln Ser Leu Leu Ala  Gln Thr Val Ala Asn  Arg Asn Ser
    1715                1720                1725

Glu Ala  Arg Ala Phe Lys Pro  Glu Thr Ile Ser Ala  Phe Thr Ser
    1730                1735                1740

Asp Pro  Ala Leu Leu Ser Phe  Ala Glu Tyr Phe Cys  Lys Pro Thr
    1745                1750                1755

Val Asn  Met Gly Gln Lys Gln  Glu Ile Leu Asp Leu  Phe Ser Ser
    1760                1765                1770

Val Leu  Tyr Glu Cys Val Thr  Gln Glu Thr Pro Glu  Met Leu Pro
    1775                1780                1785

Ala Tyr  Ile Ala Met Asp Gln  Ala Ile Arg Arg Leu  Gly Arg Arg
    1790                1795                1800

Glu Met  Ser Glu Thr Ser Glu  Leu Trp Gln Ile Lys  Leu Val Leu
    1805                1810                1815

Glu Phe  Phe Ser Ser Arg Ser  His Gln Glu Arg Leu  Gln Asn His
    1820                1825                1830

Pro Lys  Arg Gly Leu Phe Met  Asn Ser Glu Phe Leu  Pro Val Val
    1835                1840                1845

Lys Cys  Thr Ile Asp Asn Thr  Leu Asp Gln Trp Leu  Gln Val Gly
    1850                1855                1860

Gly Asp  Met Cys Val His Ala  Tyr Leu Ser Gly Gln  Pro Leu Glu
    1865                1870                1875

Glu Ser  Gln Leu Ser Met Leu  Ala Cys Phe Leu Val  Tyr His Ser
    1880                1885                1890

Val Pro  Ala Pro Gln His Leu  Pro Pro Ile Gly Leu  Glu Gly Ser
```

```
    1895                1900                1905

Thr Ser  Phe Ala Glu Leu Leu  Phe Lys Phe Lys Gln  Leu Lys Met
    1910                1915                1920

Pro Val  Arg Ala Leu Leu Arg  Leu Ala Pro Leu Leu  Leu Gly Asn
    1925                1930                1935

Pro Gln  Pro Met Val Met
    1940


<210> 4621
<211> 1452
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1022; "

<220>
<221> source
<223> /note="Gene Symbol: ANAPC1; "

<220>
<221> source
<223> /note="Gene Name:
      anaphase promoting complex
      subunit 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396695"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4621
Xaa Ile Phe Gly Ser Val Thr Asn Ile Pro Ala Lys Asp Ala Ala Pro
1               5                   10                  15

Val Glu Lys Ile Asp Thr Met Leu Val Leu Glu Gly Ser Gly Asn Leu
            20                  25                  30

Val Leu Tyr Thr Gly Val Val Arg Val Gly Lys Val Phe Ile Pro Gly
        35                  40                  45
```

```
Leu Pro Ala Pro Ser Leu Thr Met Ser Asn Thr Met Pro Arg Pro Ser
    50                  55                  60

Thr Pro Leu Asp Gly Val Ser Thr Pro Lys Pro Leu Ser Lys Leu Leu
65                  70                  75                  80

Gly Ser Leu Asp Glu Val Val Leu Leu Ser Pro Val Pro Glu Leu Arg
                85                  90                  95

Asp Ser Ser Lys Leu His Asp Ser Leu Tyr Asn Glu Asp Cys Thr Phe
            100                 105                 110

Gln Gln Leu Gly Thr Tyr Ile His Ser Ile Arg Asp Pro Val His Asn
        115                 120                 125

Arg Val Thr Leu Glu Leu Ser Asn Gly Ser Met Val Arg Ile Thr Ile
    130                 135                 140

Pro Glu Ile Ala Thr Ser Glu Leu Val Gln Thr Cys Leu Gln Ala Ile
145                 150                 155                 160

Lys Phe Ile Leu Pro Lys Glu Ile Ala Val Gln Met Leu Val Lys Trp
                165                 170                 175

Tyr Asn Val His Ser Ala Pro Gly Gly Pro Ser Tyr His Ser Glu Trp
            180                 185                 190

Asn Leu Phe Val Thr Cys Leu Met Asn Met Met Gly Tyr Asn Thr Asp
        195                 200                 205

Arg Leu Ala Trp Thr Arg Asn Phe Asp Phe Glu Gly Ser Leu Ser Pro
    210                 215                 220

Val Ile Ala Pro Lys Lys Ala Arg Pro Ser Glu Thr Gly Ser Asp Asp
225                 230                 235                 240

Asp Trp Glu Tyr Leu Leu Asn Ser Asp Tyr His Gln Asn Val Glu Ser
                245                 250                 255

His Leu Leu Asn Arg Ser Leu Cys Leu Ser Pro Ser Glu Ala Ser Gln
            260                 265                 270

Met Lys Asp Glu Asp Phe Ser Gln Asn Leu Ser Leu Asp Ser Ser Thr
```

```
        275                 280                 285

Leu Leu Phe Thr His Ile Pro Ala Ile Phe Phe Val Leu His Leu Val
    290                 295                 300

Tyr Glu Glu Leu Lys Leu Asn Thr Leu Met Gly Glu Gly Ile Cys Ser
305                 310                 315                 320

Leu Val Glu Leu Leu Val Gln Leu Ala Arg Asp Leu Lys Leu Gly Pro
                325                 330                 335

Tyr Val Asp His Tyr Tyr Arg Asp Tyr Pro Thr Leu Val Arg Thr Thr
            340                 345                 350

Gly Gln Val Cys Thr Ile Asp Pro Gly Gln Thr Gly Phe Met His His
        355                 360                 365

Pro Ser Phe Phe Thr Ser Glu Pro Pro Ser Ile Tyr Gln Trp Val Ser
    370                 375                 380

Ser Cys Leu Lys Gly Glu Gly Met Pro Pro Tyr Pro Tyr Leu Pro Gly
385                 390                 395                 400

Ile Cys Glu Arg Ser Arg Leu Val Val Leu Ser Ile Ala Leu Tyr Ile
                405                 410                 415

Leu Gly Asp Glu Ser Leu Val Ser Asp Glu Ser Ser Gln Tyr Leu Thr
            420                 425                 430

Arg Ile Thr Ile Ala Pro Gln Lys Leu Gln Val Glu Gln Glu Glu Asn
        435                 440                 445

Arg Phe Ser Phe Arg His Ser Thr Ser Val Ser Ser Leu Ala Glu Arg
    450                 455                 460

Leu Val Val Trp Met Thr Asn Val Gly Phe Thr Leu Arg Asp Leu Glu
465                 470                 475                 480

Thr Leu Pro Phe Gly Ile Ala Leu Pro Ile Arg Asp Ala Ile Tyr His
                485                 490                 495

Cys Arg Glu Gln Pro Ala Ser Asp Trp Pro Glu Ala Val Cys Leu Leu
            500                 505                 510
```

```
Ile Gly Arg Gln Asp Leu Ser Lys Gln Ala Cys Glu Gly Asn Leu Pro
        515                 520                 525

Lys Gly Lys Ser Val Leu Ser Ser Asp Val Pro Ser Gly Thr Glu Thr
    530                 535                 540

Glu Glu Glu Asp Asp Gly Met Asn Asp Met Asn His Glu Val Met Ser
545                 550                 555                 560

Leu Ile Trp Ser Glu Asp Leu Arg Val Gln Asp Val Arg Arg Leu Leu
                565                 570                 575

Gln Ser Ala His Pro Val Arg Val Asn Val Val Gln Tyr Pro Glu Leu
            580                 585                 590

Ser Asp His Glu Phe Ile Glu Glu Lys Glu Asn Arg Leu Leu Gln Leu
        595                 600                 605

Cys Gln Arg Thr Met Ala Leu Pro Val Gly Arg Gly Met Phe Thr Leu
    610                 615                 620

Phe Ser Tyr His Pro Val Pro Thr Glu Pro Leu Pro Ile Pro Lys Leu
625                 630                 635                 640

Asn Leu Thr Gly Arg Ala Pro Pro Arg Asn Thr Thr Val Asp Leu Asn
                645                 650                 655

Ser Gly Asn Ile Asp Val Pro Pro Asn Met Thr Ser Trp Ala Ser Phe
            660                 665                 670

His Asn Gly Val Ala Ala Gly Leu Lys Ile Ala Pro Ala Ser Gln Ile
        675                 680                 685

Asp Ser Ala Trp Ile Val Tyr Asn Lys Pro Lys His Ala Glu Leu Ala
    690                 695                 700

Asn Glu Tyr Ala Gly Phe Leu Met Ala Leu Gly Leu Asn Gly His Leu
705                 710                 715                 720

Thr Lys Leu Ala Thr Leu Asn Ile His Asp Tyr Leu Thr Lys Gly His
                725                 730                 735
```

```
Glu Met Thr Ser Ile Gly Leu Leu Leu Gly Val Ser Ala Ala Lys Leu
            740                 745                 750

Gly Thr Met Asp Met Ser Ile Thr Arg Leu Leu Ser Ile His Ile Pro
        755                 760                 765

Ala Leu Leu Pro Pro Thr Ser Thr Glu Leu Asp Val Pro His Asn Val
    770                 775                 780

Gln Val Ala Ala Val Val Gly Ile Gly Leu Val Tyr Gln Gly Thr Ala
785                 790                 795                 800

His Arg His Thr Ala Glu Val Leu Leu Ala Glu Ile Gly Arg Pro Pro
                805                 810                 815

Gly Pro Glu Met Glu Tyr Cys Thr Asp Arg Glu Ser Tyr Ser Leu Ala
            820                 825                 830

Ala Gly Leu Ala Leu Gly Met Val Cys Leu Gly His Gly Ser Asn Leu
        835                 840                 845

Ile Gly Met Ser Asp Leu Asn Val Pro Glu Gln Leu Tyr Gln Tyr Met
    850                 855                 860

Val Gly Gly His Arg Arg Phe Gln Thr Gly Met His Arg Glu Lys His
865                 870                 875                 880

Lys Ser Pro Ser Tyr Gln Ile Lys Glu Gly Asp Thr Ile Asn Val Asp
                885                 890                 895

Val Thr Cys Pro Gly Ala Thr Leu Ala Leu Ala Met Ile Tyr Leu Lys
            900                 905                 910

Thr Asn Asn Arg Ser Ile Ala Asp Trp Leu Arg Ala Pro Asp Thr Met
        915                 920                 925

Tyr Leu Leu Asp Phe Val Lys Pro Glu Phe Leu Leu Leu Arg Thr Leu
    930                 935                 940

Ala Arg Cys Leu Ile Leu Trp Asp Asp Ile Leu Pro Asn Ser Lys Trp
945                 950                 955                 960
```

Val Asp Ser Asn Val Pro Gln Ile Ile Arg Glu Asn Ser Ile Ser Leu
965 970 975

Ser Glu Ile Glu Leu Pro Cys Ser Glu Asp Leu Asn Leu Glu Thr Leu
980 985 990

Ser Gln Ala His Val Tyr Ile Ile Ala Gly Ala Cys Leu Ser Leu
Gly
995 1000 1005

Phe Arg Phe Ala Gly Ser Glu Asn Leu Ser Ala Phe Asn Cys Leu
1010 1015 1020

His Lys Phe Ala Lys Asp Phe Met Thr Tyr Leu Ser Ala Pro Asn
1025 1030 1035

Ala Ser Val Thr Gly Pro His Asn Leu Glu Thr Cys Leu Ser Val
1040 1045 1050

Val Leu Leu Ser Leu Ala Met Val Met Ala Gly Ser Gly Asn Leu
1055 1060 1065

Lys Val Leu Gln Leu Cys Arg Phe Leu His Met Lys Thr Gly Gly
1070 1075 1080

Glu Met Asn Tyr Gly Phe His Leu Ala His His Met Ala Leu Gly
1085 1090 1095

Leu Leu Phe Leu Gly Gly Gly Arg Tyr Ser Leu Ser Thr Ser Asn
1100 1105 1110

Ser Ser Ile Ala Ala Leu Leu Cys Ala Leu Tyr Pro His Phe Pro
1115 1120 1125

Ala His Ser Thr Asp Asn Arg Tyr His Leu Gln Ala Leu Arg His
1130 1135 1140

Leu Tyr Val Leu Ala Ala Glu Pro Arg Leu Leu Val Pro Val Asp
1145 1150 1155

Val Asp Thr Asn Thr Pro Cys Tyr Ala Leu Leu Glu Val Thr Tyr
1160 1165 1170

```
Lys Gly  Thr Gln Trp Tyr Glu  Gln Thr Lys Glu Glu  Leu Met Ala
    1175                1180                1185

Pro Thr  Leu Leu Pro Glu Leu  His Leu Leu Lys Gln  Ile Lys Val
    1190                1195                1200

Lys Gly  Pro Arg Tyr Trp Glu  Leu Leu Ile Asp Leu  Ser Lys Gly
    1205                1210                1215

Thr Gln  His Leu Lys Ser Ile  Leu Ser Lys Asp Gly  Val Leu Tyr
    1220                1225                1230

Val Lys  Leu Arg Ala Gly Gln  Leu Ser Tyr Lys Glu  Asp Pro Met
    1235                1240                1245

Gly Trp  Gln Ser Leu Leu Ala  Gln Thr Val Ala Asn  Arg Asn Ser
    1250                1255                1260

Glu Ala  Arg Ala Phe Lys Pro  Glu Thr Ile Ser Ala  Phe Thr Ser
    1265                1270                1275

Asp Pro  Ala Leu Leu Ser Phe  Ala Glu Tyr Phe Cys  Lys Pro Thr
    1280                1285                1290

Val Asn  Met Gly Gln Lys Gln  Glu Ile Leu Asp Leu  Phe Ser Ser
    1295                1300                1305

Val Leu  Tyr Glu Cys Val Thr  Gln Glu Thr Pro Glu  Met Leu Pro
    1310                1315                1320

Ala Tyr  Ile Ala Met Asp Gln  Ala Ile Arg Arg Leu  Gly Arg Arg
    1325                1330                1335

Glu Met  Ser Glu Thr Ser Glu  Leu Trp Gln Ile Lys  Leu Val Leu
    1340                1345                1350

Glu Phe  Phe Ser Ser Arg Ser  His Gln Glu Arg Leu  Gln Asn His
    1355                1360                1365

Pro Lys  Arg Gly Leu Phe Met  Asn Ser Glu Phe Leu  Pro Val Val
    1370                1375                1380

Lys Cys  Thr Ile Asp Asn Thr  Leu Asp Gln Trp Leu  Gln Val Gly
```

```
    1385                1390                1395

Gly Asp  Met Cys Val His Ala  Tyr Leu Ser Gly Gln  Pro Leu Glu
    1400                1405                1410

Glu Ser  Gln Leu Ser Met Leu  Ala Cys Phe Leu Val  Tyr His Ser
    1415                1420                1425

Val Pro  Ala Pro Gln His Leu  Pro Pro Ile Gly Leu  Glu Gly Leu
    1430                1435                1440

Leu Lys  Asp Leu Ala Gly Asp  Ser Gly
    1445                1450


<210> 4622
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1022; "

<220>
<221> source
<223> /note="Gene Symbol: ANAPC1; "

<220>
<221> source
<223> /note="Gene Name:
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      subunit 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405375"

<400> 4622
Met Ser Asn Phe Tyr Glu Glu Arg Thr Thr Met Ile Ala Ala Arg Asp
1               5                  10                  15

Leu Gln Glu Phe Val Pro Phe Gly Arg Asp His Cys Lys His His Pro
            20                  25                  30

Asn Ala Leu Asn Leu Gln Leu Arg Gln Leu Gln Pro Ala Ser Glu Leu
        35                  40                  45

Trp Ser Ser Asp Gly Ala Ala Gly Leu Val Gly Ser Leu Gln Glu Val
    50                  55                  60
```

```
Thr Ile His Glu Lys Gln Lys Glu Ser Trp Gln Leu Arg Lys Gly Val
65                  70                  75                  80


Ser Glu Ile Gly Glu Asp Val Asp Tyr Asp Glu Glu Leu Tyr Val Ala
                85                  90                  95


Gly Asn Met Val Ile Trp Ser Lys Gly Ser Lys Ser Gln Ala Leu Ala
            100                 105                 110


Val Tyr Lys Ala Phe Thr Val Asp Ser Pro Val Gln Gln Ala Leu Trp
        115                 120                 125


Cys Asp Phe Ile Ile Ser Gln Asp Lys Ser Glu Lys Ala Tyr Ser Cys
    130                 135                 140


Lys Cys Leu Ala His
145


<210> 4623
<211> 149
<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: ENSP00000486322"

<400> 4623
Met Ser Asn Phe Tyr Glu Glu Arg Thr Thr Met Ile Ala Ala Arg Asp
1               5                   10                  15


Leu Gln Glu Phe Val Pro Phe Gly Arg Asp His Cys Lys His His Pro
            20                  25                  30
```

```
Asn Ala Leu Asn Leu Gln Leu Arg Gln Leu Gln Pro Ala Ser Glu Leu
        35                  40                  45

Trp Ser Ser Asp Gly Ala Ala Gly Leu Val Gly Ser Leu Gln Glu Val
    50                  55                  60

Thr Ile His Glu Lys Gln Lys Glu Ser Trp Gln Leu Arg Lys Gly Val
65                  70                  75                  80

Ser Glu Ile Gly Glu Asp Val Asp Tyr Asp Glu Glu Leu Tyr Val Ala
                85                  90                  95

Gly Asn Met Val Ile Trp Ser Lys Gly Ser Lys Ser Gln Ala Leu Ala
            100                 105                 110

Val Tyr Lys Ala Phe Thr Val Asp Ser Pro Val Gln Gln Ala Leu Trp
        115                 120                 125

Cys Asp Phe Ile Ile Ser Gln Asp Lys Ser Glu Lys Ala Tyr Ser Cys
    130                 135                 140

Lys Cys Leu Ala His
145
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<210> 4624
<211> 185
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<220>
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<220>
<221> source
<223> /note="Gene Symbol: ANAPC10; "

<220>
<221> source
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subunit 10; "

<220>
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<223> /note="Uniprot ID: Q9UM13; "

<220>

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<223> /note="ENSP ID: ENSP00000310071"

<400> 4624
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1 5 10 15

Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
20 25 30

Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
35 40 45

Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
50 55 60

Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65 70 75 80

Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
85 90 95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg Gln Leu Glu
100 105 110

Leu Val Glu Pro Ser Gly Trp Ile His Val Pro Leu Thr Asp Asn His
115 120 125

Lys Lys Pro Thr Arg Thr Phe Met Ile Gln Ile Ala Val Leu Ala Asn
130 135 140

His Gln Asn Gly Arg Asp Thr His Met Arg Gln Ile Lys Ile Tyr Thr
145 150 155 160

Pro Val Glu Glu Ser Ser Ile Gly Lys Phe Pro Arg Cys Thr Thr Ile
165 170 175

Asp Phe Met Met Tyr Arg Ser Ile Arg
180 185

<210> 4625
<211> 185
<212> PRT
<213> Homo sapiens

<220>
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<220>
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subunit 10; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000403891"

<400> 4625
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1   5   10   15

Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
            20   25   30

Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
        35   40   45

Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
    50   55   60

Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65   70   75   80

Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
                85   90   95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg Gln Leu Glu
            100   105   110

Leu Val Glu Pro Ser Gly Trp Ile His Val Pro Leu Thr Asp Asn His
        115   120   125

Lys Lys Pro Thr Arg Thr Phe Met Ile Gln Ile Ala Val Leu Ala Asn
    130   135   140

```
His Gln Asn Gly Arg Asp Thr His Met Arg Gln Ile Lys Ile Tyr Thr
145                 150                 155                 160


Pro Val Glu Glu Ser Ser Ile Gly Lys Phe Pro Arg Cys Thr Thr Ile
                165                 170                 175


Asp Phe Met Met Tyr Arg Ser Ile Arg
            180                 185


<210> 4626
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1023; "

<220>
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<220>
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<223> /note="Gene Name:
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      subunit 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421609"

<400> 4626
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1               5                   10                  15


Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
            20                  25                  30


Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
        35                  40                  45


Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
    50                  55                  60


Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65                  70                  75                  80
```

```
Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
                85                  90                  95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg Gln Leu Glu
            100                 105                 110

Leu Val Glu Pro Ser Gly Trp Ile His Val Pro Leu Thr Asp Asn His
        115                 120                 125

Lys Lys Pro Thr Arg Thr Phe Met Ile Gln Ile Ala Val Leu Ala Asn
    130                 135                 140

His Gln Asn Gly Arg Asp Thr His Met Arg Gln Ile Lys Ile
145                 150                 155


<210> 4627
<211> 158
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1023; "

<220>
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<220>
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      subunit 10; "

<220>
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<223> /note="ENSP ID: ENSP00000423043"

<400> 4627
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1               5                   10                  15

Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
            20                  25                  30

Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
        35                  40                  45
```

```
Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
    50                  55                  60

Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65                  70                  75                  80

Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
                85                  90                  95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg Gln Leu Glu
            100                 105                 110

Leu Val Glu Pro Ser Gly Trp Ile His Val Pro Leu Thr Asp Asn His
        115                 120                 125

Lys Lys Pro Thr Arg Thr Phe Met Ile Gln Ile Ala Val Leu Ala Asn
    130                 135                 140

His Gln Asn Gly Arg Asp Thr His Met Arg Gln Ile Lys Ile
145                 150                 155


<210> 4628
<211> 109
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1023; "

<220>
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<223> /note="Gene Name:
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      subunit 10; "

<220>
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<223> /note="ENSP ID: ENSP00000423223"

<400> 4628
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1               5                   10                  15

Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
```

```
            20                  25                  30

Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
        35                  40                  45

Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
    50                  55                  60

Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65                  70                  75                  80

Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
                85                  90                  95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg
            100                 105


<210> 4629
<211> 185
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1023; "

<220>
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<220>
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      subunit 10; "

<220>
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<223> /note="Uniprot ID:  Q9UM13; "

<220>
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<223> /note="ENSP ID: ENSP00000423995"

<400> 4629
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1               5                   10                  15

Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
            20                  25                  30
```

```
Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
        35                  40                  45

Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
    50                  55                  60

Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65                  70                  75                  80

Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
                85                  90                  95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg Gln Leu Glu
            100                 105                 110

Leu Val Glu Pro Ser Gly Trp Ile His Val Pro Leu Thr Asp Asn His
        115                 120                 125

Lys Lys Pro Thr Arg Thr Phe Met Ile Gln Ile Ala Val Leu Ala Asn
    130                 135                 140

His Gln Asn Gly Arg Asp Thr His Met Arg Gln Ile Lys Ile Tyr Thr
145                 150                 155                 160

Pro Val Glu Glu Ser Ser Ile Gly Lys Phe Pro Arg Cys Thr Thr Ile
                165                 170                 175

Asp Phe Met Met Tyr Arg Ser Ile Arg
            180                 185


<210> 4630
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: ANAPC10; "

<220>
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<223> /note="Gene Name:
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subunit 10; "

<220>
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<223> /note="ENSP ID: ENSP00000424463"

<400> 4630
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1 5 10 15

Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
20 25 30

Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
35 40 45

Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
50 55 60

Asn Ile Gln Phe
65

<210> 4631
<211> 126
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1023; "

<220>
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<223> /note="Gene Symbol: ANAPC10; "

<220>
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<223> /note="Gene Name:
anaphase promoting complex
subunit 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425459"

<400> 4631
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
1 5 10 15

```
Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
            20                  25                  30

Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
        35                  40                  45

Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
    50                  55                  60

Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65                  70                  75                  80

Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
                85                  90                  95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg Pro His Val
            100                 105                 110

Leu His Val Asn Glu Glu Ser Met Asn Leu Gln Val Ser Gly
        115                 120                 125


<210> 4632
<211> 185
<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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      subunit 10; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UM13; "

<220>
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<223> /note="ENSP ID: ENSP00000478501"

<400> 4632
Met Thr Thr Pro Asn Lys Thr Pro Pro Gly Ala Asp Pro Lys Gln Leu
```

```
1               5                   10                  15

Glu Arg Thr Gly Thr Val Arg Glu Ile Gly Ser Gln Ala Val Trp Ser
            20                  25                  30

Leu Ser Ser Cys Lys Pro Gly Phe Gly Val Asp Gln Leu Arg Asp Asp
        35                  40                  45

Asn Leu Glu Thr Tyr Trp Gln Ser Asp Gly Ser Gln Pro His Leu Val
    50                  55                  60

Asn Ile Gln Phe Arg Arg Lys Thr Thr Val Lys Thr Leu Cys Ile Tyr
65                  70                  75                  80

Ala Asp Tyr Lys Ser Asp Glu Ser Tyr Thr Pro Ser Lys Ile Ser Val
                85                  90                  95

Arg Val Gly Asn Asn Phe His Asn Leu Gln Glu Ile Arg Gln Leu Glu
            100                 105                 110

Leu Val Glu Pro Ser Gly Trp Ile His Val Pro Leu Thr Asp Asn His
        115                 120                 125

Lys Lys Pro Thr Arg Thr Phe Met Ile Gln Ile Ala Val Leu Ala Asn
    130                 135                 140

His Gln Asn Gly Arg Asp Thr His Met Arg Gln Ile Lys Ile Tyr Thr
145                 150                 155                 160

Pro Val Glu Glu Ser Ser Ile Gly Lys Phe Pro Arg Cys Thr Thr Ile
                165                 170                 175

Asp Phe Met Met Tyr Arg Ser Ile Arg
            180                 185


<210> 4633
<211> 84
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<221> source
<223> /note="Gene Symbol: ANAPC11; "

<220>
<221> source
<223> /note="Gene Name:
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subunit 11; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NYG5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000339695"

<400> 4633
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1 5 10 15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
20 25 30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
35 40 45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
50 55 60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65 70 75 80

Lys Phe Lys Glu

<210> 4634
<211> 196
<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: Q9NYG5; "

<220>
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<223> /note="ENSP ID: ENSP00000349957"

<400> 4634

```
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1               5                  10                  15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20                  25                  30

Cys Cys Pro Asp Cys Pro Leu His Gly Glu Ser Ile Ser Arg Cys Leu
        35                  40                  45

Gly Trp Cys Pro Gln Pro Val Pro Val Leu Gly Gly Arg Ala His Pro
    50                  55                  60

Gln Val Pro Ile Asn Thr Ala Ser Pro Thr Pro Gly Gln His Thr Gly
65                  70                  75                  80

Ser Leu Met Ser Arg Glu Glu Ser Ser Arg Ser Pro Asp Pro Thr Pro
                85                  90                  95

Pro Ala Leu Asp Gln Glu Thr Ser Ser Leu Leu Arg Cys Thr Ser Pro
            100                 105                 110

Trp Cys Leu Asp His Ser Cys Asp Leu Phe Gly Ile Thr Asp Gln Val
        115                 120                 125

Ser Ala Asp Gly Pro Arg Ala Cys Arg Gln Gly Ala Arg Arg Arg Leu
    130                 135                 140

Pro Ala Gly Val Gly Pro Val Leu Pro Leu Leu Pro His Ala Leu His
145                 150                 155                 160

Pro Gln Val Ala Ala Arg Thr Ala Gly Ala Ala Ala Leu Pro His Val
                165                 170                 175
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Pro Pro Gly Met Glu Val Gln Gly Val Arg Pro Asp Leu Ala Leu Ala
            180                 185                 190


Gly Gly Ala Ser
        195


<210> 4635
<211> 84
<212> PRT
<213> Homo sapiens

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<400> 4635
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1               5                  10                  15


Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20                  25                  30


Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35                  40                  45


Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50                  55                  60


His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65                  70                  75                  80


Lys Phe Lys Glu
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<210> 4636
<211> 84
<212> PRT
<213> Homo sapiens

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<220>
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<400> 4636
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65   70   75   80

Lys Phe Lys Glu

<210> 4637
<211> 84

<212> PRT
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<400> 4637
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65   70   75   80

Lys Phe Lys Glu

<210> 4638
<211> 84
<212> PRT
<213> Homo sapiens

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<400> 4638
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65   70   75   80

Lys Phe Lys Glu

<210> 4639
<211> 84
<212> PRT
<213> Homo sapiens

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<400> 4639
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1 5 10 15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
20 25 30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
35 40 45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
50 55 60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65 70 75 80

Lys Phe Lys Glu

<210> 4640
<211> 84
<212> PRT
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subunit 11; "

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<400> 4640
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65   70   75   80

Lys Phe Lys Glu

<210> 4641
<211> 84
<212> PRT
<213> Homo sapiens

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<220>
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subunit 11; "

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<220>
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<223> /note="ENSP ID: ENSP00000460678"

<400> 4641
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65   70   75   80

Lys Phe Lys Glu

<210> 4642
<211> 84
<212> PRT
<213> Homo sapiens

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<220>
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<400> 4642
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1 5 10 15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
20 25 30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
35 40 45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
50 55 60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65 70 75 80

Lys Phe Lys Glu

<210> 4643
<211> 44
<212> PRT
<213> Homo sapiens

<220>
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<400> 4643
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1 5 10 15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
20 25 30

Cys Cys Pro Asp Cys Glu Cys Pro Leu His Ala Val
35 40

<210> 4644
<211> 111
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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subunit 11; "

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<223> /note="ENSP ID: ENSP00000462527"

<400> 4644
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1 5 10 15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
20 25 30

Cys Cys Pro Asp Cys Trp Ser Ala Met Ala Arg Ser Arg Leu Ala Ala
35 40 45

Thr Ser Ala Ser Arg Val Gln Thr Val Leu Leu Pro Gln Pro Ser Lys
50 55 60

Gln Leu Gly Leu Gln Ala Cys Ala Arg Arg Arg Leu Pro Ala Gly Val
65 70 75 80

Gly Pro Val Leu Pro Leu Leu Pro His Ala Leu His Pro Gln Val Ala
85 90 95

Ala Arg Thr Ala Gly Ala Ala Ala Leu Pro His Val Pro Pro Gly
100 105 110

<210> 4645

<211> 44
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000462691"

<400> 4645
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1 5 10 15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
20 25 30

Cys Cys Pro Asp Cys Glu Cys Pro Leu His Ala Val
35 40

<210> 4646
<211> 44
<212> PRT
<213> Homo sapiens

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<220>
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subunit 11; "

<220>
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<223> /note="ENSP ID: ENSP00000463357"

<400> 4646
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Glu Cys Pro Leu His Ala Val
        35   40

<210> 4647
<211> 84
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1024; "

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<223> /note="ENSP ID: ENSP00000463567"

<400> 4647
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

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His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65                  70                  75                  80


Lys Phe Lys Glu



<210> 4648
<211> 84
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      subunit 11; "

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<223> /note="Uniprot ID:  Q9NYG5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463598"

<400> 4648
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1               5                   10                  15


Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20                  25                  30


Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35                  40                  45


Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50                  55                  60


His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65                  70                  75                  80
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Lys Phe Lys Glu

<210> 4649
<211> 84
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000463640"

<400> 4649
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65   70   75   80

Lys Phe Lys Glu

<210> 4650

<211> 44
<212> PRT
<213> Homo sapiens

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<220>
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<400> 4650
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1 5 10 15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
20 25 30

Cys Cys Pro Asp Cys Glu Cys Pro Leu His Ala Val
35 40

<210> 4651
<211> 44
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000464403"

<400> 4651
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Glu Cys Pro Leu His Ala Val
        35   40

<210> 4652
<211> 72
<212> PRT
<213> Homo sapiens

<220>
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subunit 11; "

<220>
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<223> /note="ENSP ID: ENSP00000464519"

<400> 4652
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Pro Leu His Gly Glu Ser Ile Ser Arg Cys Leu
        35   40   45

Gly Trp Cys Pro Gln Pro Val Pro Val Leu Gly Gly Arg Ala His Pro
    50   55   60

Gln Ala Arg Cys Pro Ala Thr Thr
65   70

<210> 4653
<211> 84
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q9NYG5; "

<220>
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<223> /note="ENSP ID: ENSP00000464615"

<400> 4653
Met Lys Val Lys Ile Lys Cys Trp Asn Gly Val Ala Thr Trp Leu Trp
1   5   10   15

Val Ala Asn Asp Glu Asn Cys Gly Ile Cys Arg Met Ala Phe Asn Gly
            20   25   30

Cys Cys Pro Asp Cys Lys Val Pro Gly Asp Asp Cys Pro Leu Val Trp
        35   40   45

Gly Gln Cys Ser His Cys Phe His Met His Cys Ile Leu Lys Trp Leu
    50   55   60

His Ala Gln Gln Val Gln Gln His Cys Pro Met Cys Arg Gln Glu Trp
65   70   75   80

Lys Phe Lys Glu

<210> 4654
<211> 89
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000484031"

<400> 4654
Met Arg Thr Val Ala Ser Ala Gly Trp His Leu Thr Asp Ala Ala Leu
1 5 10 15

Thr Val Ser Val Pro Ser Met Leu Ser Glu Arg Pro Arg Leu Gln Gly
20 25 30

Ala Arg Arg Arg Leu Pro Ala Gly Val Gly Pro Val Leu Pro Leu Leu
35 40 45

Pro His Ala Leu His Pro Gln Val Ala Ala Arg Thr Ala Gly Ala Ala
50 55 60

Ala Leu Pro His Val Pro Pro Gly Met Glu Val Gln Gly Val Arg Pro
65 70 75 80

Asp Leu Ala Leu Ala Gly Gly Ala Ser
85

<210> 4655
<211> 74
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ANAPC13; "

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subunit 13; "

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<220>
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<400> 4655
Met Asp Ser Glu Val Gln Arg Asp Gly Arg Ile Leu Asp Leu Ile Asp
1   5   10   15

Asp Ala Trp Arg Glu Asp Lys Leu Pro Tyr Glu Asp Val Ala Ile Pro
            20   25   30

Leu Asn Glu Leu Pro Glu Pro Glu Gln Asp Asn Gly Gly Thr Thr Glu
        35   40   45

Ser Val Lys Glu Gln Glu Met Lys Trp Thr Asp Leu Ala Leu Gln Tyr
    50   55   60

Leu His Glu Asn Val Pro Pro Ile Gly Asn
65   70

<210> 4656
<211> 74
<212> PRT
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<220>
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<220>
<221> source
<223> /note="Gene Symbol: ANAPC13; "

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<220>
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<220>
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<400> 4656
Met Asp Ser Glu Val Gln Arg Asp Gly Arg Ile Leu Asp Leu Ile Asp
1   5   10   15

Asp Ala Trp Arg Glu Asp Lys Leu Pro Tyr Glu Asp Val Ala Ile Pro
            20   25   30

Leu Asn Glu Leu Pro Glu Pro Glu Gln Asp Asn Gly Gly Thr Thr Glu
        35   40   45

Ser Val Lys Glu Gln Glu Met Lys Trp Thr Asp Leu Ala Leu Gln Tyr
    50   55   60

Leu His Glu Asn Val Pro Pro Ile Gly Asn
65   70

<210> 4657
<211> 74
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: ANAPC13; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q9BS18; "

<220>
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<223> /note="ENSP ID: ENSP00000421842"

<400> 4657
Met Asp Ser Glu Val Gln Arg Asp Gly Arg Ile Leu Asp Leu Ile Asp
1   5   10   15

Asp Ala Trp Arg Glu Asp Lys Leu Pro Tyr Glu Asp Val Ala Ile Pro
            20   25   30

Leu Asn Glu Leu Pro Glu Pro Glu Gln Asp Asn Gly Gly Thr Thr Glu
        35   40   45

Ser Val Lys Glu Gln Glu Met Lys Trp Thr Asp Leu Ala Leu Gln Tyr
    50   55   60

Leu His Glu Asn Val Pro Pro Ile Gly Asn
65   70

<210> 4658
<211> 74
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ANAPC13; "

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      subunit 13; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BS18; "

<220>
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<223> /note="ENSP ID: ENSP00000427327"

<400> 4658
Met Asp Ser Glu Val Gln Arg Asp Gly Arg Ile Leu Asp Leu Ile Asp
1   5   10   15

Asp Ala Trp Arg Glu Asp Lys Leu Pro Tyr Glu Asp Val Ala Ile Pro
            20   25   30

Leu Asn Glu Leu Pro Glu Pro Glu Gln Asp Asn Gly Gly Thr Thr Glu
        35   40   45

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Ser Val Lys Glu Gln Glu Met Lys Trp Thr Asp Leu Ala Leu Gln Tyr
    50                  55                  60

Leu His Glu Asn Val Pro Pro Ile Gly Asn
65                  70

<210> 4659
<211> 121
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Symbol: ANAPC15; "

<220>
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<223> /note="Gene Name:
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      subunit 15; "

<220>
<221> source
<223> /note="Uniprot ID:  P60006; "

<220>
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<223> /note="ENSP ID: ENSP00000227618"

<400> 4659
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1               5                  10                  15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20                  25                  30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35                  40                  45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50                  55                  60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65                  70                  75                  80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
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                85                  90                  95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val Asp Met Glu Gly Asn
            100                 105                 110

Glu Gln Asp Gln Asp Gln Trp Met Ile
        115                 120


<210> 4660
<211> 92
<212> PRT
<213> Homo sapiens

<220>
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      subunit 15; "

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<400> 4660
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1               5                   10                  15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20                  25                  30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35                  40                  45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu Ala Cys Arg Ala
    50                  55                  60

Tyr Arg Leu Cys Pro Ala His Gln His Tyr Asp Asp Glu Glu Glu Glu
65                  70                  75                  80

Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
                85                  90
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<210> 4661
<211> 190
<212> PRT
<213> Homo sapiens

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<220>
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<400> 4661
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1 5 10 15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
20 25 30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
35 40 45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
50 55 60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65 70 75 80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
85 90 95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val His Leu Ser Val Leu
100 105 110

Pro Thr Cys Gly Leu Tyr His Ser His Pro Lys Gln Leu Cys Pro Glu
115 120 125

Ser Ile Lys Leu Ser His Ser Phe Met Pro His Val Tyr Met Trp Leu
130 135 140

Ala Leu Pro Phe Pro Pro Pro Ser Pro Ser Ala Trp Pro Thr Gln Asn
145 150 155 160

Phe Gln Ile Gln Phe Lys Cys Cys Ser Phe Ser Met Lys Ser Gln Ala
165 170 175

Glu Thr Thr Thr Leu Ser Phe Arg Phe Met Lys Gly Leu Cys
180 185 190

<210> 4662
<211> 123
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000437683"

<400> 4662
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1 5 10 15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
20 25 30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
35 40 45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu Ala Cys Arg Ala
50 55 60

```
Tyr Arg Leu Cys Pro Ala His Gln His Tyr Asp Asp Glu Glu Glu Glu
65                  70                  75                  80


Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser Glu Asp Asp Glu
                85                  90                  95


Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn Glu Ser Pro Asp
            100                 105                 110


Asp Gly Glu Val Asn Glu Val Gly Lys Gly Tyr
        115                 120


<210> 4663
<211> 65
<212> PRT
<213> Homo sapiens

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      subunit 15; "

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<223> /note="ENSP ID: ENSP00000439362"

<400> 4663
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1               5                   10                  15


Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20                  25                  30


Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35                  40                  45


Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50                  55                  60


Glu
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65

<210> 4664
<211> 125
<212> PRT
<213> Homo sapiens

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<400> 4664
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1   5   10   15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20   25   30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35   40   45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50   55   60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65   70   75   80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
                85   90   95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Pro Pro Leu Gln Val Asp
            100   105   110

Met Glu Gly Asn Glu Gln Asp Gln Asp Gln Trp Met Ile
115 120 125

<210> 4665
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: P60006; "

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<223> /note="ENSP ID: ENSP00000440002"

<400> 4665
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1 5 10 15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
20 25 30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
35 40 45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
50 55 60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65 70 75 80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
85 90 95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val Asp Met Glu Gly Asn
100 105 110

Glu Gln Asp Gln Asp Gln Trp Met Ile
115 120

<210> 4666
<211> 44
<212> PRT
<213> Homo sapiens

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<400> 4666
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1 5 10 15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
20 25 30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile
35 40

<210> 4667
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<400> 4667
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1   5   10   15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20   25   30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35   40   45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50   55   60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65   70   75   80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
                85   90   95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val Asp Met Glu Gly Asn
            100   105   110

Glu Gln Asp Gln Asp Gln Trp Met Ile
        115   120

<210> 4668
<211> 105
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1026; "

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<223> /note="Gene Symbol: ANAPC15; "

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<223> /note="ENSP ID: ENSP00000441774"

<400> 4668
Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn Glu Ser Pro Asp Asp
1 5 10 15

Gly Glu Val Asn Glu Val His Leu Ser Val Leu Pro Thr Cys Gly Leu
20 25 30

Tyr His Ser His Pro Lys Gln Leu Cys Pro Glu Ser Ile Lys Leu Ser
35 40 45

His Ser Phe Met Pro His Val Tyr Met Trp Leu Ala Leu Pro Phe Pro
50 55 60

Pro Pro Ser Pro Ser Ala Trp Pro Thr Gln Asn Phe Gln Ile Gln Phe
65 70 75 80

Lys Cys Cys Ser Phe Ser Met Lys Ser Gln Ala Glu Thr Thr Thr Leu
85 90 95

Ser Phe Arg Phe Met Lys Gly Leu Cys
100 105

<210> 4669
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<400> 4669
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1   5   10   15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20   25   30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35   40   45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50   55   60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65   70   75   80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
                85   90   95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val Asp Met Glu Gly Asn
            100   105   110

Glu Gln Asp Gln Asp Gln Trp Met Ile
        115   120

<210> 4670
<211> 125
<212> PRT
<213> Homo sapiens

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<223> /note="Uniprot ID: P60006; "

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<400> 4670
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1   5   10   15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20   25   30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35   40   45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50   55   60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65   70   75   80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
                85   90   95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Pro Pro Leu Gln Val Asp
            100   105   110

Met Glu Gly Asn Glu Gln Asp Gln Asp Gln Trp Met Ile
        115   120   125

<210> 4671
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000443911"

<400> 4671
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1   5   10   15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20   25   30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35   40   45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50   55   60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65   70   75   80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
                85   90   95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val Asp Met Glu Gly Asn
            100   105   110

Glu Gln Asp Gln Asp Gln Trp Met Ile
        115   120

<210> 4672
<211> 110
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000445212"

<400> 4672
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1 5 10 15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
20 25 30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
35 40 45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
50 55 60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65 70 75 80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
85 90 95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Asn Gly Met Gly
100 105 110

<210> 4673
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<400> 4673
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1   5   10   15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20   25   30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35   40   45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50   55   60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65   70   75   80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
                85   90   95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val Asp Met Glu Gly Asn
            100   105   110

Glu Gln Asp Gln Asp Gln Trp Met Ile
        115   120

<210> 4674
<211> 121
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1026; "

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<223> /note="ENSP ID: ENSP00000446412"

<400> 4674
Met Ser Thr Leu Phe Pro Ser Leu Phe Pro Arg Val Thr Glu Thr Leu
1   5   10   15

Trp Phe Asn Leu Asp Arg Pro Cys Val Glu Glu Thr Glu Leu Gln Gln
            20   25   30

Gln Glu Gln Gln His Gln Ala Trp Leu Gln Ser Ile Ala Glu Lys Asp
        35   40   45

Asn Asn Leu Val Pro Ile Gly Lys Pro Ala Ser Glu His Tyr Asp Asp
    50   55   60

Glu Glu Glu Glu Asp Asp Glu Asp Asp Glu Asp Ser Glu Glu Asp Ser
65   70   75   80

Glu Asp Asp Glu Asp Met Gln Asp Met Asp Glu Met Asn Asp Tyr Asn
                85   90   95

Glu Ser Pro Asp Asp Gly Glu Val Asn Glu Val Asp Met Glu Gly Asn
            100   105   110

Glu Gln Asp Gln Asp Gln Trp Met Ile
        115   120

<210> 4675
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<220>
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<223> /note="Uniprot ID: Q96DE5; "

<220>
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<223> /note="ENSP ID: ENSP00000299381"

<400> 4675
Met Ala Ala Ser Ser Ser Ser Ser Ser Ala Gly Gly Val Ser Gly Ser
1   5   10   15

Ser Val Thr Gly Ser Gly Phe Ser Val Ser Asp Leu Ala Pro Pro Arg
            20   25   30

Lys Ala Leu Phe Thr Tyr Pro Lys Gly Ala Gly Glu Met Leu Glu Asp
        35   40   45

Gly Ser Glu Arg Phe Leu Cys Glu Ser Val Phe Ser Tyr Gln Val Ala
    50   55   60

Ser Thr Leu Lys Gln Val Lys His Asp Gln Gln Val Ala Arg Met Glu
65   70   75   80

Lys Leu Ala Gly Leu Val Glu Glu Leu Glu Ala Asp Glu Trp Arg Phe
                85   90   95

Lys Pro Ile Glu Gln Leu Leu Gly Phe Thr Pro Ser Ser Gly
            100   105   110

<210> 4676
<211> 110
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 4676
Met Ala Ala Ser Ser Ser Ser Ser Ser Ala Gly Gly Val Ser Gly Ser
1   5   10   15

Ser Val Thr Gly Ser Gly Phe Ser Val Ser Asp Leu Ala Pro Pro Arg
            20   25   30

Lys Ala Leu Phe Thr Tyr Pro Lys Gly Ala Gly Glu Met Leu Glu Asp
        35   40   45

Gly Ser Glu Arg Phe Leu Cys Glu Ser Val Phe Ser Tyr Gln Val Ala
    50   55   60

Ser Thr Leu Lys Gln Val Lys His Asp Gln Gln Val Ala Arg Met Glu
65   70   75   80

Lys Leu Ala Gly Leu Val Glu Glu Leu Glu Ala Asp Glu Trp Arg Phe
                85   90   95

Lys Pro Ile Glu Gln Leu Leu Gly Phe Thr Pro Ser Ser Gly
            100   105   110

<210> 4677
<211> 85
<212> PRT
<213> Homo sapiens

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<221> source
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subunit 16; "

<220>
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<223> /note="ENSP ID: ENSP00000478792"

<400> 4677
Met Ala Ala Ser Ser Ser Ser Ser Ser Ala Gly Gly Val Ser Gly Ser
1 5 10 15

Ser Val Thr Gly Ser Gly Phe Ser Val Ser Asp Leu Ala Pro Pro Arg
20 25 30

Lys Ala Leu Phe Thr Tyr Pro Lys Gly Ala Gly Glu Met Leu Glu Asp
35 40 45

Gln Gln Val Ala Arg Met Glu Lys Leu Ala Gly Leu Val Glu Glu Leu
50 55 60

Glu Ala Asp Glu Trp Arg Phe Lys Pro Ile Glu Gln Leu Leu Gly Phe
65 70 75 80

Thr Pro Ser Ser Gly
85

<210> 4678
<211> 822
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ANAPC2; "

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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q9UJX6; "

<220>
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<223> /note="ENSP ID: ENSP00000314004"

<400> 4678

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Met Ala Ala Ala Val Val Val Ala Glu Gly Asp Ser Asp Ser Arg Pro
1               5                  10                  15

Gly Gln Glu Leu Leu Val Ala Trp Asn Thr Val Ser Thr Gly Leu Val
            20                  25                  30

Pro Pro Ala Ala Leu Gly Leu Val Ser Ser Arg Thr Ser Gly Ala Val
        35                  40                  45

Pro Pro Lys Glu Glu Glu Leu Arg Ala Ala Val Glu Val Leu Arg Gly
    50                  55                  60

His Gly Leu His Ser Val Leu Glu Glu Trp Phe Val Glu Val Leu Gln
65                  70                  75                  80

Asn Asp Leu Gln Ala Asn Ile Ser Pro Glu Phe Trp Asn Ala Ile Ser
                85                  90                  95

Gln Cys Glu Asn Ser Ala Asp Glu Pro Gln Cys Leu Leu Leu Leu Leu
            100                 105                 110

Asp Ala Phe Gly Leu Leu Glu Ser Arg Leu Asp Pro Tyr Leu Arg Ser
        115                 120                 125

Leu Glu Leu Leu Glu Lys Trp Thr Arg Leu Gly Leu Leu Met Gly Thr
    130                 135                 140

Gly Ala Gln Gly Leu Arg Glu Glu Val His Thr Met Leu Arg Gly Val
145                 150                 155                 160

Leu Phe Phe Ser Thr Pro Arg Thr Phe Gln Glu Met Ile Gln Arg Leu
                165                 170                 175
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Tyr Gly Cys Phe Leu Arg Val Tyr Met Gln Ser Lys Arg Lys Gly Glu
            180                 185                 190

Gly Gly Thr Asp Pro Glu Leu Glu Gly Glu Leu Asp Ser Arg Tyr Ala
        195                 200                 205

Arg Arg Arg Tyr Tyr Arg Leu Leu Gln Ser Pro Leu Cys Ala Gly Cys
    210                 215                 220

Ser Ser Asp Lys Gln Gln Cys Trp Cys Arg Gln Ala Leu Glu Gln Phe
225                 230                 235                 240

His Gln Leu Ser Gln Val Leu His Arg Leu Ser Leu Leu Glu Arg Val
                245                 250                 255

Ser Ala Glu Ala Val Thr Thr Thr Leu His Gln Val Thr Arg Glu Arg
            260                 265                 270

Met Glu Asp Arg Cys Arg Gly Glu Tyr Glu Arg Ser Phe Leu Arg Glu
        275                 280                 285

Phe His Lys Trp Ile Glu Arg Val Val Gly Trp Leu Gly Lys Val Phe
    290                 295                 300

Leu Gln Asp Gly Pro Ala Arg Pro Ala Ser Pro Glu Ala Gly Asn Thr
305                 310                 315                 320

Leu Arg Arg Trp Arg Cys His Val Gln Arg Phe Phe Tyr Arg Ile Tyr
                325                 330                 335

Ala Ser Leu Arg Ile Glu Glu Leu Phe Ser Ile Val Arg Asp Phe Pro
            340                 345                 350

Asp Ser Arg Pro Ala Ile Glu Asp Leu Lys Tyr Cys Leu Glu Arg Thr
        355                 360                 365

Asp Gln Arg Gln Gln Leu Leu Val Ser Leu Lys Ala Ala Leu Glu Thr
    370                 375                 380

Arg Leu Leu His Pro Gly Val Asn Thr Cys Asp Ile Ile Thr Leu Tyr
385                 390                 395                 400

Ile Ser Ala Ile Lys Ala Leu Arg Val Leu Asp Pro Ser Met Val Ile
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405 410 415

Leu Glu Val Ala Cys Glu Pro Ile Arg Arg Tyr Leu Arg Thr Arg Glu
420 425 430

Asp Thr Val Arg Gln Ile Val Ala Gly Leu Thr Gly Asp Ser Asp Gly
435 440 445

Thr Gly Asp Leu Ala Val Glu Leu Ser Lys Thr Asp Pro Ala Ser Leu
450 455 460

Glu Thr Gly Gln Asp Ser Glu Asp Asp Ser Gly Glu Pro Glu Asp Trp
465 470 475 480

Val Pro Asp Pro Val Asp Ala Asp Pro Gly Lys Ser Ser Ser Lys Arg
485 490 495

Arg Ser Ser Asp Ile Ile Ser Leu Leu Val Ser Ile Tyr Gly Ser Lys
500 505 510

Asp Leu Phe Ile Asn Glu Tyr Arg Ser Leu Leu Ala Asp Arg Leu Leu
515 520 525

His Gln Phe Ser Phe Ser Pro Glu Arg Glu Ile Arg Asn Val Glu Leu
530 535 540

Leu Lys Leu Arg Phe Gly Glu Ala Pro Met His Phe Cys Glu Val Met
545 550 555 560

Leu Lys Asp Met Ala Asp Ser Arg Arg Ile Asn Ala Asn Ile Arg Glu
565 570 575

Glu Asp Glu Lys Arg Pro Ala Glu Glu Gln Pro Pro Phe Gly Val Tyr
580 585 590

Ala Val Ile Leu Ser Ser Glu Phe Trp Pro Pro Phe Lys Asp Glu Lys
595 600 605

Leu Glu Val Pro Glu Asp Ile Arg Ala Ala Leu Glu Ala Tyr Cys Lys
610 615 620

Lys Tyr Glu Gln Leu Lys Ala Met Arg Thr Leu Ser Trp Lys His Thr
625 630 635 640

```
Leu Gly Leu Val Thr Met Asp Val Glu Leu Ala Asp Arg Thr Leu Ser
                645                 650                 655

Val Ala Val Thr Pro Val Gln Ala Val Ile Leu Leu Tyr Phe Gln Asp
            660                 665                 670

Gln Ala Ser Trp Thr Leu Glu Glu Leu Ser Lys Ala Val Lys Met Pro
        675                 680                 685

Val Ala Leu Leu Arg Arg Arg Met Ser Val Trp Leu Gln Gln Gly Val
    690                 695                 700

Leu Arg Glu Glu Pro Pro Gly Thr Phe Ser Val Ile Glu Glu Glu Arg
705                 710                 715                 720

Pro Gln Asp Arg Asp Asn Met Val Leu Ile Asp Ser Asp Asp Glu Ser
                725                 730                 735

Asp Ser Gly Met Ala Ser Gln Ala Asp Gln Lys Glu Glu Glu Leu Leu
            740                 745                 750

Leu Phe Trp Thr Tyr Ile Gln Ala Met Leu Thr Asn Leu Glu Ser Leu
        755                 760                 765

Ser Leu Asp Arg Ile Tyr Asn Met Leu Arg Met Phe Val Val Thr Gly
    770                 775                 780

Pro Ala Leu Ala Glu Ile Asp Leu Gln Glu Leu Gln Gly Tyr Leu Gln
785                 790                 795                 800

Lys Lys Val Arg Asp Gln Gln Leu Val Tyr Ser Ala Gly Val Tyr Arg
                805                 810                 815

Leu Pro Lys Asn Cys Ser
            820
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<210> 4679
<211> 808
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1029; "

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anaphase promoting complex
subunit 4; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000318775"

<400> 4679

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Met Leu Arg Phe Pro Thr Cys Phe Pro Ser Phe Arg Val Val Gly Glu
1               5                  10                  15

Lys Gln Leu Pro Gln Glu Ile Ile Phe Leu Val Trp Ser Pro Lys Arg
            20                  25                  30

Asp Leu Ile Ala Leu Ala Asn Thr Ala Gly Glu Val Leu Leu His Arg
        35                  40                  45

Leu Ala Ser Phe His Arg Val Trp Ser Phe Pro Pro Asn Glu Asn Thr
    50                  55                  60

Gly Lys Glu Val Thr Cys Leu Ala Trp Arg Pro Asp Gly Lys Leu Leu
65                  70                  75                  80

Ala Phe Ala Leu Ala Asp Thr Lys Lys Ile Val Leu Cys Asp Val Glu
                85                  90                  95

Lys Pro Glu Ser Leu His Ser Phe Ser Val Glu Ala Pro Val Ser Cys
            100                 105                 110

Met His Trp Met Glu Val Thr Val Glu Ser Ser Val Leu Thr Ser Phe
        115                 120                 125

Tyr Asn Ala Glu Asp Glu Ser Asn Leu Leu Leu Pro Lys Leu Pro Thr
    130                 135                 140
```

```
Leu Pro Lys Asn Tyr Ser Asn Thr Ser Lys Ile Phe Ser Glu Glu Asn
145                 150                 155                 160

Ser Asp Glu Ile Ile Lys Leu Leu Gly Asp Val Arg Leu Asn Ile Leu
                165                 170                 175

Val Leu Gly Gly Ser Ser Gly Phe Ile Glu Leu Tyr Ala Tyr Gly Met
            180                 185                 190

Phe Lys Ile Ala Arg Val Thr Gly Ile Ala Gly Thr Cys Leu Ala Leu
        195                 200                 205

Cys Leu Ser Ser Asp Leu Lys Ser Leu Ser Val Val Thr Glu Val Ser
    210                 215                 220

Thr Asn Gly Ala Ser Glu Val Ser Tyr Phe Gln Leu Glu Thr Asn Leu
225                 230                 235                 240

Leu Tyr Ser Phe Leu Pro Glu Val Thr Arg Met Ala Arg Lys Phe Thr
                245                 250                 255

His Ile Ser Ala Leu Leu Gln Tyr Ile Asn Leu Ser Leu Thr Cys Met
            260                 265                 270

Cys Glu Ala Trp Glu Glu Ile Leu Met Gln Met Asp Ser Arg Leu Thr
        275                 280                 285

Lys Phe Val Gln Glu Lys Asn Thr Thr Thr Ser Val Gln Asp Glu Phe
    290                 295                 300

Met His Leu Leu Leu Trp Gly Lys Ala Ser Ala Glu Leu Gln Thr Leu
305                 310                 315                 320

Leu Met Asn Gln Leu Thr Val Lys Gly Leu Lys Lys Leu Gly Gln Ser
                325                 330                 335

Ile Glu Ser Ser Tyr Ser Ser Ile Gln Lys Leu Val Ile Ser His Leu
            340                 345                 350

Gln Ser Gly Ser Glu Ser Leu Leu Tyr His Leu Ser Glu Leu Lys Gly
        355                 360                 365

Met Ala Ser Trp Lys Gln Lys Tyr Glu Pro Leu Gly Leu Asp Ala Ala
```

370 375 380

Gly Ile Glu Glu Ala Ile Thr Ala Val Gly Ser Phe Ile Leu Lys Ala
385 390 395 400

Asn Glu Leu Leu Gln Val Ile Asp Ser Ser Met Lys Asn Phe Lys Ala
405 410 415

Phe Phe Arg Trp Leu Tyr Val Ala Met Leu Arg Met Thr Glu Asp His
420 425 430

Val Leu Pro Glu Leu Asn Lys Met Thr Gln Lys Asp Ile Thr Phe Val
435 440 445

Ala Glu Phe Leu Thr Glu His Phe Asn Glu Ala Pro Asp Leu Tyr Asn
450 455 460

Arg Lys Gly Lys Tyr Phe Asn Val Glu Arg Val Gly Gln Tyr Leu Lys
465 470 475 480

Asp Glu Asp Asp Asp Leu Val Ser Pro Pro Asn Thr Glu Gly Asn Gln
485 490 495

Trp Tyr Asp Phe Leu Gln Asn Ser Ser His Leu Lys Glu Ser Pro Leu
500 505 510

Leu Phe Pro Tyr Tyr Pro Arg Lys Ser Leu His Phe Val Lys Arg Arg
515 520 525

Met Glu Asn Ile Ile Asp Gln Cys Leu Gln Lys Pro Ala Asp Val Ile
530 535 540

Gly Lys Ser Met Asn Gln Ala Ile Cys Ile Pro Leu Tyr Arg Asp Thr
545 550 555 560

Arg Ser Glu Asp Ser Thr Arg Arg Leu Phe Lys Phe Pro Phe Leu Trp
565 570 575

Asn Asn Lys Thr Ser Asn Leu His Tyr Leu Leu Phe Thr Ile Leu Glu
580 585 590

Asp Ser Leu Tyr Lys Met Cys Ile Leu Arg Arg His Thr Asp Ile Ser
595 600 605

```
Gln Ser Val Ser Asn Gly Leu Ile Ala Ile Lys Phe Gly Ser Phe Thr
    610                 615                 620

Tyr Ala Thr Thr Glu Lys Val Arg Arg Ser Ile Tyr Ser Cys Leu Asp
625                 630                 635                 640

Ala Gln Phe Tyr Asp Asp Glu Thr Val Thr Val Val Leu Lys Asp Thr
                645                 650                 655

Val Gly Arg Glu Gly Arg Asp Arg Leu Leu Val Gln Leu Pro Leu Ser
            660                 665                 670

Leu Val Tyr Asn Ser Glu Asp Ser Ala Glu Tyr Gln Phe Thr Gly Thr
        675                 680                 685

Tyr Ser Thr Arg Leu Asp Glu Gln Cys Ser Ala Ile Pro Thr Arg Thr
    690                 695                 700

Met His Phe Glu Lys His Trp Arg Leu Leu Glu Ser Met Lys Ala Gln
705                 710                 715                 720

Tyr Val Ala Gly Asn Gly Phe Arg Lys Val Ser Cys Val Leu Ser Ser
                725                 730                 735

Asn Leu Arg His Val Arg Val Phe Glu Met Asp Ile Asp Asp Glu Trp
            740                 745                 750

Glu Leu Asp Glu Ser Ser Asp Glu Glu Glu Glu Ala Ser Asn Lys Pro
        755                 760                 765

Val Lys Ile Lys Glu Glu Val Leu Ser Glu Ser Glu Ala Glu Asn Gln
    770                 775                 780

Gln Ala Gly Ala Ala Ala Leu Ala Pro Glu Ile Val Ile Lys Val Glu
785                 790                 795                 800

Lys Leu Asp Pro Glu Leu Asp Ser
                805
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<210> 4680
<211> 162
<212> PRT

<213> Homo sapiens

<220>
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<220>
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anaphase promoting complex
subunit 4; "

<220>
<221> source
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<400> 4680
Met Leu Arg Phe Pro Thr Cys Phe Pro Ser Phe Arg Val Val Gly Glu
1 5 10 15

Lys Gln Leu Pro Gln Glu Ile Ile Phe Leu Val Trp Ser Pro Lys Arg
20 25 30

Asp Leu Ile Ala Leu Ala Asn Thr Ala Gly Glu Val Leu Leu His Arg
35 40 45

Leu Ala Ser Phe His Arg Val Trp Ser Phe Pro Pro Asn Glu Asn Thr
50 55 60

Gly Lys Glu Val Thr Cys Leu Ala Trp Arg Pro Asp Gly Lys Leu Leu
65 70 75 80

Ala Phe Ala Leu Ala Asp Thr Lys Lys Ile Val Leu Cys Asp Val Glu
85 90 95

Lys Pro Glu Ser Leu His Ser Phe Ser Val Glu Ala Pro Val Ser Cys
100 105 110

Met His Trp Met Glu Val Thr Val Glu Ser Ser Val Leu Thr Ser Phe
115 120 125

Tyr Asn Ala Glu Asp Glu Ser Asn Leu Leu Leu Pro Lys Leu Pro Thr
130 135 140

Leu Pro Lys Asn Tyr Ser Asn Thr Ser Lys Ile Phe Ser Glu Glu Asn
145 150 155 160

Ser Asp

<210> 4681
<211> 83
<212> PRT
<213> Homo sapiens

<220>
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subunit 4; "

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<400> 4681
Met Leu Arg Phe Pro Thr Cys Phe Pro Ser Phe Arg Val Val Gly Glu
1 5 10 15

Lys Gln Leu Pro Gln Glu Ile Ile Phe Leu Val Trp Ser Pro Lys Arg
20 25 30

Asp Leu Ile Ala Leu Ala Asn Thr Ala Gly Glu Val Leu Leu His Arg
35 40 45

Leu Ala Ser Phe His Arg Val Trp Ser Phe Pro Pro Asn Glu Asn Thr
50 55 60

Gly Lys Glu Phe Trp Pro Leu Leu Leu Leu Ile Pro Arg Lys Leu Phe
65 70 75 80

Cys Val Met

<210> 4682

<211> 809
<212> PRT
<213> Homo sapiens

<220>
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subunit 4; "

<220>
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<223> /note="Uniprot ID: Q9UJX5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426654"

<400> 4682
Met Leu Arg Phe Pro Thr Cys Phe Pro Ser Phe Arg Val Val Gly Glu
1   5   10   15

Lys Gln Leu Pro Gln Glu Ile Ile Phe Leu Val Trp Ser Pro Lys Arg
            20   25   30

Asp Leu Ile Ala Leu Ala Asn Thr Ala Gly Glu Val Leu Leu His Arg
        35   40   45

Leu Ala Ser Phe His Arg Val Trp Ser Phe Pro Pro Asn Glu Asn Thr
    50   55   60

Gly Lys Glu Val Thr Cys Leu Ala Trp Arg Pro Asp Gly Lys Leu Leu
65   70   75   80

Ala Phe Ala Leu Ala Asp Thr Lys Lys Ile Val Leu Cys Asp Val Glu
                85   90   95

Lys Pro Glu Ser Leu His Ser Phe Ser Val Glu Ala Pro Val Ser Cys
            100   105   110

Met His Trp Met Glu Val Thr Val Glu Ser Ser Val Leu Thr Ser Phe
        115   120   125

```
Tyr Asn Ala Glu Asp Glu Ser Asn Leu Leu Leu Pro Lys Leu Pro Thr
    130                 135                 140

Leu Pro Lys Asn Tyr Ser Asn Thr Ser Lys Ile Phe Ser Glu Glu Asn
145                 150                 155                 160

Ser Asp Glu Ile Ile Lys Leu Leu Gly Asp Val Arg Leu Asn Ile Leu
                165                 170                 175

Val Leu Gly Gly Ser Ser Gly Phe Ile Glu Leu Tyr Ala Tyr Gly Met
            180                 185                 190

Phe Lys Ile Ala Arg Val Thr Gly Ile Ala Gly Thr Cys Leu Ala Leu
        195                 200                 205

Cys Leu Ser Ser Asp Leu Lys Ser Leu Ser Val Val Thr Glu Val Ser
    210                 215                 220

Thr Asn Gly Ala Ser Glu Val Ser Tyr Phe Gln Leu Glu Thr Asn Leu
225                 230                 235                 240

Leu Tyr Ser Phe Leu Pro Glu Val Thr Arg Met Ala Arg Lys Phe Thr
                245                 250                 255

His Ile Ser Ala Leu Leu Gln Tyr Ile Asn Leu Ser Leu Thr Cys Met
            260                 265                 270

Cys Glu Ala Trp Glu Glu Ile Leu Met Gln Met Asp Ser Arg Leu Thr
        275                 280                 285

Lys Phe Val Gln Glu Lys Asn Thr Thr Thr Ser Val Gln Asp Glu Phe
    290                 295                 300

Met His Leu Leu Leu Trp Gly Lys Ala Ser Ala Glu Leu Gln Thr Leu
305                 310                 315                 320

Leu Met Asn Gln Leu Thr Val Lys Gly Leu Lys Lys Leu Gly Gln Ser
                325                 330                 335

Ile Glu Ser Ser Tyr Ser Ser Ile Gln Lys Leu Val Ile Ser His Leu
            340                 345                 350
```

```
Gln Ser Gly Ser Glu Ser Leu Leu Tyr His Leu Ser Glu Leu Lys Gly
        355                 360                 365

Met Ala Ser Trp Lys Gln Lys Tyr Glu Pro Leu Gly Leu Asp Ala Ala
    370                 375                 380

Gly Ile Glu Glu Ala Ile Thr Ala Val Gly Ser Phe Ile Leu Lys Ala
385                 390                 395                 400

Asn Glu Leu Leu Gln Val Ile Asp Ser Ser Met Lys Asn Phe Lys Ala
                405                 410                 415

Phe Phe Arg Trp Leu Tyr Val Ala Met Leu Arg Met Thr Glu Asp His
            420                 425                 430

Val Leu Pro Glu Leu Asn Lys Val Met Thr Gln Lys Asp Ile Thr Phe
        435                 440                 445

Val Ala Glu Phe Leu Thr Glu His Phe Asn Glu Ala Pro Asp Leu Tyr
    450                 455                 460

Asn Arg Lys Gly Lys Tyr Phe Asn Val Glu Arg Val Gly Gln Tyr Leu
465                 470                 475                 480

Lys Asp Glu Asp Asp Asp Leu Val Ser Pro Pro Asn Thr Glu Gly Asn
                485                 490                 495

Gln Trp Tyr Asp Phe Leu Gln Asn Ser Ser His Leu Lys Glu Ser Pro
            500                 505                 510

Leu Leu Phe Pro Tyr Tyr Pro Arg Lys Ser Leu His Phe Val Lys Arg
        515                 520                 525

Arg Met Glu Asn Ile Ile Asp Gln Cys Leu Gln Lys Pro Ala Asp Val
    530                 535                 540

Ile Gly Lys Ser Met Asn Gln Ala Ile Cys Ile Pro Leu Tyr Arg Asp
545                 550                 555                 560

Thr Arg Ser Glu Asp Ser Thr Arg Arg Leu Phe Lys Phe Pro Phe Leu
                565                 570                 575
```

```
Trp Asn Asn Lys Thr Ser Asn Leu His Tyr Leu Leu Phe Thr Ile Leu
            580                 585                 590

Glu Asp Ser Leu Tyr Lys Met Cys Ile Leu Arg Arg His Thr Asp Ile
        595                 600                 605

Ser Gln Ser Val Ser Asn Gly Leu Ile Ala Ile Lys Phe Gly Ser Phe
    610                 615                 620

Thr Tyr Ala Thr Thr Glu Lys Val Arg Arg Ser Ile Tyr Ser Cys Leu
625                 630                 635                 640

Asp Ala Gln Phe Tyr Asp Asp Glu Thr Val Thr Val Val Leu Lys Asp
                645                 650                 655

Thr Val Gly Arg Glu Gly Arg Asp Arg Leu Leu Val Gln Leu Pro Leu
            660                 665                 670

Ser Leu Val Tyr Asn Ser Glu Asp Ser Ala Glu Tyr Gln Phe Thr Gly
        675                 680                 685

Thr Tyr Ser Thr Arg Leu Asp Glu Gln Cys Ser Ala Ile Pro Thr Arg
    690                 695                 700

Thr Met His Phe Glu Lys His Trp Arg Leu Leu Glu Ser Met Lys Ala
705                 710                 715                 720

Gln Tyr Val Ala Gly Asn Gly Phe Arg Lys Val Ser Cys Val Leu Ser
                725                 730                 735

Ser Asn Leu Arg His Val Arg Val Phe Glu Met Asp Ile Asp Asp Glu
            740                 745                 750

Trp Glu Leu Asp Glu Ser Ser Asp Glu Glu Glu Glu Ala Ser Asn Lys
        755                 760                 765

Pro Val Lys Ile Lys Glu Glu Val Leu Ser Glu Ser Glu Ala Glu Asn
    770                 775                 780

Gln Gln Ala Gly Ala Ala Ala Leu Ala Pro Glu Ile Val Ile Lys Val
785                 790                 795                 800

Glu Lys Leu Asp Pro Glu Leu Asp Ser
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805

<210> 4683
<211> 755
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1030; "

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<223> /note="Gene Symbol: ANAPC5; "

<220>
<221> source
<223> /note="Gene Name:
anaphase promoting complex
subunit 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UJX4; "

<220>
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<223> /note="ENSP ID: ENSP00000261819"

<400> 4683
Met Ala Ser Val His Glu Ser Leu Tyr Phe Asn Pro Met Met Thr Asn
1   5   10   15

Gly Val Val His Ala Asn Val Phe Gly Ile Lys Asp Trp Val Thr Pro
            20   25   30

Tyr Lys Ile Ala Val Leu Val Leu Leu Asn Glu Met Ser Arg Thr Gly
        35   40   45

Glu Gly Ala Val Ser Leu Met Glu Arg Arg Arg Leu Asn Gln Leu Leu
    50   55   60

Leu Pro Leu Leu Gln Gly Pro Asp Ile Thr Leu Ser Lys Leu Tyr Lys
65   70   75   80

Leu Ile Glu Glu Ser Cys Pro Gln Leu Ala Asn Ser Val Gln Ile Arg
                85   90   95

Ile Lys Leu Met Ala Glu Gly Glu Leu Lys Asp Met Glu Gln Phe Phe
            100   105   110

```
Asp Asp Leu Ser Asp Ser Phe Ser Gly Thr Glu Pro Glu Val His Lys
        115                 120                 125

Thr Ser Val Val Gly Leu Phe Leu Arg His Met Ile Leu Ala Tyr Ser
    130                 135                 140

Lys Leu Ser Phe Ser Gln Val Phe Lys Leu Tyr Thr Ala Leu Gln Gln
145                 150                 155                 160

Tyr Phe Gln Asn Gly Glu Lys Lys Thr Val Glu Asp Ala Asp Met Glu
                165                 170                 175

Leu Thr Ser Arg Asp Glu Gly Glu Arg Lys Met Glu Lys Glu Glu Leu
            180                 185                 190

Asp Val Ser Val Arg Glu Glu Glu Val Ser Cys Ser Gly Pro Leu Ser
        195                 200                 205

Gln Lys Gln Ala Glu Phe Phe Leu Ser Gln Gln Ala Ser Leu Leu Lys
    210                 215                 220

Asn Asp Glu Thr Lys Ala Leu Thr Pro Ala Ser Leu Gln Lys Glu Leu
225                 230                 235                 240

Asn Asn Leu Leu Lys Phe Asn Pro Asp Phe Ala Glu Ala His Tyr Leu
                245                 250                 255

Ser Tyr Leu Asn Asn Leu Arg Val Gln Asp Val Phe Ser Ser Thr His
            260                 265                 270

Ser Leu Leu His Tyr Phe Asp Arg Leu Ile Leu Thr Gly Ala Glu Ser
        275                 280                 285

Lys Ser Asn Gly Glu Glu Gly Tyr Gly Arg Ser Leu Arg Tyr Ala Ala
    290                 295                 300

Leu Asn Leu Ala Ala Leu His Cys Arg Phe Gly His Tyr Gln Gln Ala
305                 310                 315                 320

Glu Leu Ala Leu Gln Glu Ala Ile Arg Ile Ala Gln Glu Ser Asn Asp
                325                 330                 335
```

```
His Val Cys Leu Gln His Cys Leu Ser Trp Leu Tyr Val Leu Gly Gln
            340                 345                 350

Lys Arg Ser Asp Ser Tyr Val Leu Leu Glu His Ser Val Lys Lys Ala
        355                 360                 365

Val His Phe Gly Leu Pro Tyr Leu Ala Ser Leu Gly Ile Gln Ser Leu
    370                 375                 380

Val Gln Gln Arg Ala Phe Ala Gly Lys Thr Ala Asn Lys Leu Met Asp
385                 390                 395                 400

Ala Leu Lys Asp Ser Asp Leu Leu His Trp Lys His Ser Leu Ser Glu
                405                 410                 415

Leu Ile Asp Ile Ser Ile Ala Gln Lys Thr Ala Ile Trp Arg Leu Tyr
            420                 425                 430

Gly Arg Ser Thr Met Ala Leu Gln Gln Ala Gln Met Leu Leu Ser Met
        435                 440                 445

Asn Ser Leu Glu Ala Val Asn Ala Gly Val Gln Gln Asn Asn Thr Glu
    450                 455                 460

Ser Phe Ala Val Ala Leu Cys His Leu Ala Glu Leu His Ala Glu Gln
465                 470                 475                 480

Gly Cys Phe Ala Ala Ala Ser Glu Val Leu Lys His Leu Lys Glu Arg
                485                 490                 495

Phe Pro Pro Asn Ser Gln His Ala Gln Leu Trp Met Leu Cys Asp Gln
            500                 505                 510

Lys Ile Gln Phe Asp Arg Ala Met Asn Asp Gly Lys Tyr His Leu Ala
        515                 520                 525

Asp Ser Leu Val Thr Gly Ile Thr Ala Leu Asn Ser Ile Glu Gly Val
    530                 535                 540

Tyr Arg Lys Ala Val Val Leu Gln Ala Gln Asn Gln Met Ser Glu Ala
545                 550                 555                 560
```

```
His Lys Leu Leu Gln Lys Leu Leu Val His Cys Gln Lys Leu Lys Asn
                565                 570                 575

Thr Glu Met Val Ile Ser Val Leu Leu Ser Val Ala Glu Leu Tyr Trp
            580                 585                 590

Arg Ser Ser Ser Pro Thr Ile Ala Leu Pro Met Leu Leu Gln Ala Leu
        595                 600                 605

Ala Leu Ser Lys Glu Tyr Arg Leu Gln Tyr Leu Ala Ser Glu Thr Val
    610                 615                 620

Leu Asn Leu Ala Phe Ala Gln Leu Ile Leu Gly Ile Pro Glu Gln Ala
625                 630                 635                 640

Leu Ser Leu Leu His Met Ala Ile Glu Pro Ile Leu Ala Asp Gly Ala
                645                 650                 655

Ile Leu Asp Lys Gly Arg Ala Met Phe Leu Val Ala Lys Cys Gln Val
            660                 665                 670

Ala Ser Ala Ala Ser Tyr Asp Gln Pro Lys Lys Ala Glu Ala Leu Glu
        675                 680                 685

Ala Ala Ile Glu Asn Leu Asn Glu Ala Lys Asn Tyr Phe Ala Lys Val
    690                 695                 700

Asp Cys Lys Glu Arg Ile Arg Asp Val Val Tyr Phe Gln Ala Arg Leu
705                 710                 715                 720

Tyr His Thr Leu Gly Lys Thr Gln Glu Arg Asn Arg Cys Ala Met Leu
                725                 730                 735

Phe Arg Gln Leu His Gln Glu Leu Pro Ser His Gly Val Pro Leu Ile
            740                 745                 750

Asn His Leu
        755
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<210> 4684
<211> 643
<212> PRT
<213> Homo sapiens

<220>
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subunit 5; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000415061"

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Met Ala Glu Gly Glu Leu Lys Asp Met Glu Gln Phe Phe Asp Asp Leu
1   5   10   15

Ser Asp Ser Phe Ser Gly Thr Glu Pro Glu Val His Lys Thr Ser Val
            20   25   30

Val Gly Leu Phe Leu Arg His Met Ile Leu Ala Tyr Ser Lys Leu Ser
        35   40   45

Phe Ser Gln Val Phe Lys Leu Tyr Thr Ala Leu Gln Gln Tyr Phe Gln
    50   55   60

Asn Gly Glu Lys Lys Thr Val Glu Asp Ala Asp Met Glu Leu Thr Ser
65   70   75   80

Arg Asp Glu Gly Glu Arg Lys Met Glu Lys Glu Glu Leu Asp Val Ser
                85   90   95

Val Arg Glu Glu Glu Val Ser Cys Ser Gly Pro Leu Ser Gln Lys Gln
            100   105   110

Ala Glu Phe Phe Leu Ser Gln Gln Ala Ser Leu Leu Lys Asn Asp Glu
        115   120   125

Thr Lys Ala Leu Thr Pro Ala Ser Leu Gln Lys Glu Leu Asn Asn Leu
    130   135   140

```
Leu Lys Phe Asn Pro Asp Phe Ala Glu Ala His Tyr Leu Ser Tyr Leu
145                 150                 155                 160

Asn Asn Leu Arg Val Gln Asp Val Phe Ser Ser Thr His Ser Leu Leu
                165                 170                 175

His Tyr Phe Asp Arg Leu Ile Leu Thr Gly Ala Glu Ser Lys Ser Asn
            180                 185                 190

Gly Glu Glu Gly Tyr Gly Arg Ser Leu Arg Tyr Ala Ala Leu Asn Leu
        195                 200                 205

Ala Ala Leu His Cys Arg Phe Gly His Tyr Gln Gln Ala Glu Leu Ala
    210                 215                 220

Leu Gln Glu Ala Ile Arg Ile Ala Gln Glu Ser Asn Asp His Val Cys
225                 230                 235                 240

Leu Gln His Cys Leu Ser Trp Leu Tyr Val Leu Gly Gln Lys Arg Ser
                245                 250                 255

Asp Ser Tyr Val Leu Leu Glu His Ser Val Lys Lys Ala Val His Phe
            260                 265                 270

Gly Leu Pro Arg Ala Phe Ala Gly Lys Thr Ala Asn Lys Leu Met Asp
        275                 280                 285

Ala Leu Lys Asp Ser Asp Leu Leu His Trp Lys His Ser Leu Ser Glu
    290                 295                 300

Leu Ile Asp Ile Ser Ile Ala Gln Lys Thr Ala Ile Trp Arg Leu Tyr
305                 310                 315                 320

Gly Arg Ser Thr Met Ala Leu Gln Gln Ala Gln Met Leu Leu Ser Met
                325                 330                 335

Asn Ser Leu Glu Ala Val Asn Ala Gly Val Gln Gln Asn Asn Thr Glu
            340                 345                 350

Ser Phe Ala Val Ala Leu Cys His Leu Ala Glu Leu His Ala Glu Gln
        355                 360                 365
```

```
Gly Cys Phe Ala Ala Ala Ser Glu Val Leu Lys His Leu Lys Glu Arg
    370                 375                 380

Phe Pro Pro Asn Ser Gln His Ala Gln Leu Trp Met Leu Cys Asp Gln
385                 390                 395                 400

Lys Ile Gln Phe Asp Arg Ala Met Asn Asp Gly Lys Tyr His Leu Ala
                405                 410                 415

Asp Ser Leu Val Thr Gly Ile Thr Ala Leu Asn Ser Ile Glu Gly Val
            420                 425                 430

Tyr Arg Lys Ala Val Val Leu Gln Ala Gln Asn Gln Met Ser Glu Ala
        435                 440                 445

His Lys Leu Leu Gln Lys Leu Leu Val His Cys Gln Lys Leu Lys Asn
    450                 455                 460

Thr Glu Met Val Ile Ser Val Leu Leu Ser Val Ala Glu Leu Tyr Trp
465                 470                 475                 480

Arg Ser Ser Ser Pro Thr Ile Ala Leu Pro Met Leu Leu Gln Ala Leu
                485                 490                 495

Ala Leu Ser Lys Glu Tyr Arg Leu Gln Tyr Leu Ala Ser Glu Thr Val
            500                 505                 510

Leu Asn Leu Ala Phe Ala Gln Leu Ile Leu Gly Ile Pro Glu Gln Ala
        515                 520                 525

Leu Ser Leu Leu His Met Ala Ile Glu Pro Ile Leu Ala Asp Gly Ala
    530                 535                 540

Ile Leu Asp Lys Gly Arg Ala Met Phe Leu Val Ala Lys Cys Gln Val
545                 550                 555                 560

Ala Ser Ala Ala Ser Tyr Asp Gln Pro Lys Lys Ala Glu Ala Leu Glu
                565                 570                 575

Ala Ala Ile Glu Asn Leu Asn Glu Ala Lys Asn Tyr Phe Ala Lys Val
            580                 585                 590
```

```
Asp Cys Lys Glu Arg Ile Arg Asp Val Val Tyr Phe Gln Ala Arg Leu
        595                 600                 605

Tyr His Thr Leu Gly Lys Thr Gln Glu Arg Asn Arg Cys Ala Met Leu
    610                 615                 620

Phe Arg Gln Leu His Gln Glu Leu Pro Ser His Gly Val Pro Leu Ile
625                 630                 635                 640

Asn His Leu
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<210> 4685
<211> 396
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1030; "

<220>
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<223> /note="Gene Symbol: ANAPC5; "

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anaphase promoting complex
subunit 5; "

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 4685

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Xaa Ala Ser Leu Leu Lys Asn Asp Glu Thr Lys Ala Leu Thr Pro Ala
1               5                  10                  15

Ser Leu Gln Lys Glu Leu Asn Asn Leu Leu Lys Phe Asn Pro Asp Phe
            20                  25                  30

Ala Glu Ala His Tyr Leu Ser Tyr Leu Asn Asn Leu Arg Val Gln Asp
        35                  40                  45
```

```
Val Phe Ser Ser Thr His Ser Leu Leu His Tyr Phe Asp Arg Leu Ile
    50                  55                  60

Leu Thr Gly Ala Glu Ser Lys Ser Asn Gly Glu Glu Gly Tyr Gly Arg
65                  70                  75                  80

Ser Leu Arg Tyr Ala Ala Leu Asn Leu Ala Ala Leu His Cys Arg Phe
                85                  90                  95

Gly His Tyr Gln Gln Ala Glu Leu Ala Leu Gln Glu Ala Ile Arg Ile
            100                 105                 110

Ala Gln Glu Ser Asn Asp His Val Cys Leu Gln His Cys Leu Ser Trp
        115                 120                 125

Leu Tyr Val Leu Gly Gln Lys Arg Ser Asp Ser Tyr Val Leu Leu Glu
    130                 135                 140

His Ser Val Lys Lys Ala Val His Phe Gly Leu Pro Tyr Leu Ala Ser
145                 150                 155                 160

Leu Gly Ile Gln Ser Leu Val Gln Gln Arg Ala Phe Ala Gly Lys Thr
                165                 170                 175

Ala Asn Lys Leu Met Asp Ala Leu Lys Asp Ser Asp Leu Leu His Trp
            180                 185                 190

Lys His Ser Leu Ser Glu Leu Ile Asp Ile Ser Ile Ala Gln Lys Thr
        195                 200                 205

Ala Ile Trp Arg Leu Tyr Gly Arg Ser Thr Met Ala Leu Gln Gln Ala
    210                 215                 220

Gln Met Leu Leu Ser Met Asn Ser Leu Glu Ala Val Asn Ala Gly Val
225                 230                 235                 240

Gln Gln Asn Asn Thr Glu Ser Phe Ala Val Ala Leu Cys His Leu Ala
                245                 250                 255

Glu Leu His Ala Glu Gln Gly Cys Phe Ala Ala Ala Ser Glu Val Leu
            260                 265                 270
```

```
Lys His Leu Lys Glu Arg Phe Pro Pro Asn Ser Gln His Ala Gln Leu
        275                 280                 285

Trp Met Leu Cys Asp Gln Lys Ile Gln Phe Asp Arg Ala Met Asn Asp
    290                 295                 300

Gly Lys Tyr His Leu Ala Asp Ser Leu Val Thr Gly Ile Thr Ala Leu
305                 310                 315                 320

Asn Ser Ile Glu Gly Val Tyr Arg Lys Ala Val Val Leu Gln Ala Gln
                325                 330                 335

Asn Gln Met Ser Glu Ala His Lys Leu Leu Gln Lys Leu Leu Val His
            340                 345                 350

Cys Gln Lys Leu Lys Asn Thr Glu Met Val Ile Arg Ala Val Leu Ala
        355                 360                 365

Ile Phe Leu Pro Tyr His Arg Ala Ala His Ala Pro Ala Gly Ser Gly
    370                 375                 380

Pro Leu Gln Gly Val Pro Val Thr Val Leu Gly Leu
385                 390                 395


<210> 4686
<211> 421
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ANAPC5; "

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      subunit 5; "

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<400> 4686
Met Ile Tyr Phe Asp Asp Phe Ser Cys Gln Ser Trp Leu Tyr Val Leu
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```
1               5                   10                  15

Gly Gln Lys Arg Ser Asp Ser Tyr Val Leu Leu Glu His Ser Val Lys
            20                  25                  30

Lys Ala Val His Phe Gly Leu Pro Tyr Leu Ala Ser Leu Gly Ile Gln
        35                  40                  45

Ser Leu Val Gln Gln Arg Ala Phe Ala Gly Lys Thr Ala Asn Lys Leu
    50                  55                  60

Met Asp Ala Leu Lys Asp Ser Asp Leu Leu His Trp Lys His Ser Leu
65                  70                  75                  80

Ser Glu Leu Ile Asp Ile Ser Ile Ala Gln Lys Thr Ala Ile Trp Arg
                85                  90                  95

Leu Tyr Gly Arg Ser Thr Met Ala Leu Gln Gln Ala Gln Met Leu Leu
            100                 105                 110

Ser Met Asn Ser Leu Glu Ala Val Asn Ala Gly Val Gln Gln Asn Asn
        115                 120                 125

Thr Glu Ser Phe Ala Val Ala Leu Cys His Leu Ala Glu Leu His Ala
    130                 135                 140

Glu Gln Gly Cys Phe Ala Ala Ala Ser Glu Val Leu Lys His Leu Lys
145                 150                 155                 160

Glu Arg Phe Pro Pro Asn Ser Gln His Ala Gln Leu Trp Met Leu Cys
                165                 170                 175

Asp Gln Lys Ile Gln Phe Asp Arg Ala Met Asn Asp Gly Lys Tyr His
            180                 185                 190

Leu Ala Asp Ser Leu Val Thr Gly Ile Thr Ala Leu Asn Ser Ile Glu
        195                 200                 205

Gly Val Tyr Arg Lys Ala Val Val Leu Gln Ala Gln Asn Gln Met Ser
    210                 215                 220

Glu Ala His Lys Leu Leu Gln Lys Leu Leu Val His Cys Gln Lys Leu
225                 230                 235                 240
```

```
Lys Asn Thr Glu Met Val Ile Ser Val Leu Leu Ser Val Ala Glu Leu
                245                 250                 255

Tyr Trp Arg Ser Ser Ser Pro Thr Ile Ala Leu Pro Met Leu Leu Gln
            260                 265                 270

Ala Leu Ala Leu Ser Lys Glu Tyr Arg Leu Gln Tyr Leu Ala Ser Glu
        275                 280                 285

Thr Val Leu Asn Leu Ala Phe Ala Gln Leu Ile Leu Gly Ile Pro Glu
    290                 295                 300

Gln Ala Leu Ser Leu Leu His Met Ala Ile Glu Pro Ile Leu Ala Asp
305                 310                 315                 320

Gly Ala Ile Leu Asp Lys Gly Arg Ala Met Phe Leu Val Ala Lys Cys
                325                 330                 335

Gln Val Ala Ser Ala Ala Ser Tyr Asp Gln Pro Lys Lys Ala Glu Ala
            340                 345                 350

Leu Glu Ala Ala Ile Glu Asn Leu Asn Glu Ala Lys Asn Tyr Phe Ala
        355                 360                 365

Lys Val Asp Cys Lys Glu Arg Ile Arg Asp Val Val Tyr Phe Gln Ala
    370                 375                 380

Arg Leu Tyr His Thr Leu Gly Lys Thr Gln Glu Arg Asn Arg Cys Ala
385                 390                 395                 400

Met Leu Phe Arg Gln Leu His Gln Glu Leu Pro Ser His Gly Val Pro
                405                 410                 415

Leu Ile Asn His Leu
            420
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<210> 4687
<211> 742
<212> PRT
<213> Homo sapiens

<220>
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anaphase promoting complex
subunit 5; "

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<400> 4687

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Met Ala Ser Val His Glu Ser Leu Tyr Phe Asn Pro Met Met Thr Asn
1               5                  10                  15

Gly Val Val His Ala Asn Val Phe Gly Ile Lys Asp Trp Val Thr Pro
            20                  25                  30

Tyr Lys Ile Ala Val Leu Val Leu Leu Asn Glu Met Ser Arg Thr Gly
        35                  40                  45

Glu Gly Ala Val Ser Leu Met Glu Arg Arg Arg Leu Asn Gln Leu Leu
    50                  55                  60

Leu Pro Leu Leu Gln Gly Pro Asp Ile Thr Leu Ser Lys Leu Tyr Lys
65                  70                  75                  80

Leu Ile Glu Glu Ser Cys Pro Gln Leu Ala Asn Ser Val Gln Ile Arg
                85                  90                  95

Ile Lys Leu Met Ala Glu Gly Glu Leu Lys Asp Met Glu Gln Phe Phe
            100                 105                 110

Asp Asp Leu Ser Asp Ser Phe Ser Gly Thr Glu Pro Glu Val His Lys
        115                 120                 125

Thr Ser Val Val Gly Leu Phe Leu Arg His Met Ile Leu Ala Tyr Ser
    130                 135                 140

Lys Leu Ser Phe Ser Gln Val Phe Lys Leu Tyr Thr Ala Leu Gln Gln
145                 150                 155                 160
```

```
Tyr Phe Gln Asn Gly Glu Lys Lys Thr Val Glu Asp Ala Asp Met Glu
                165                 170                 175

Leu Thr Ser Arg Asp Glu Gly Glu Arg Lys Met Glu Lys Glu Glu Leu
            180                 185                 190

Asp Val Ser Val Arg Glu Glu Glu Val Ser Cys Ser Gly Pro Leu Ser
        195                 200                 205

Gln Lys Gln Ala Glu Phe Phe Leu Ser Gln Gln Ala Ser Leu Leu Lys
    210                 215                 220

Asn Asp Glu Thr Lys Ala Leu Thr Pro Ala Ser Leu Gln Lys Glu Leu
225                 230                 235                 240

Asn Asn Leu Leu Lys Phe Asn Pro Asp Phe Ala Glu Ala His Tyr Leu
                245                 250                 255

Ser Tyr Leu Asn Asn Leu Arg Val Gln Asp Val Phe Ser Ser Thr His
            260                 265                 270

Ser Leu Leu His Tyr Phe Asp Arg Leu Ile Leu Thr Gly Ala Glu Ser
        275                 280                 285

Lys Ser Asn Gly Glu Glu Gly Tyr Gly Arg Ser Leu Arg Tyr Ala Ala
    290                 295                 300

Leu Asn Leu Ala Ala Leu His Cys Arg Phe Gly His Tyr Gln Gln Ala
305                 310                 315                 320

Glu Leu Ala Leu Gln Glu Ala Ile Arg Ile Ala Gln Glu Ser Asn Asp
                325                 330                 335

His Val Cys Leu Gln His Cys Leu Ser Trp Leu Tyr Val Leu Gly Gln
            340                 345                 350

Lys Arg Ser Asp Ser Tyr Val Leu Leu Glu His Ser Val Lys Lys Ala
        355                 360                 365

Val His Phe Gly Leu Pro Arg Ala Phe Ala Gly Lys Thr Ala Asn Lys
    370                 375                 380

Leu Met Asp Ala Leu Lys Asp Ser Asp Leu Leu His Trp Lys His Ser
```

385 390 395 400

Leu Ser Glu Leu Ile Asp Ile Ser Ile Ala Gln Lys Thr Ala Ile Trp
405 410 415

Arg Leu Tyr Gly Arg Ser Thr Met Ala Leu Gln Gln Ala Gln Met Leu
420 425 430

Leu Ser Met Asn Ser Leu Glu Ala Val Asn Ala Gly Val Gln Gln Asn
435 440 445

Asn Thr Glu Ser Phe Ala Val Ala Leu Cys His Leu Ala Glu Leu His
450 455 460

Ala Glu Gln Gly Cys Phe Ala Ala Ala Ser Glu Val Leu Lys His Leu
465 470 475 480

Lys Glu Arg Phe Pro Pro Asn Ser Gln His Ala Gln Leu Trp Met Leu
485 490 495

Cys Asp Gln Lys Ile Gln Phe Asp Arg Ala Met Asn Asp Gly Lys Tyr
500 505 510

His Leu Ala Asp Ser Leu Val Thr Gly Ile Thr Ala Leu Asn Ser Ile
515 520 525

Glu Gly Val Tyr Arg Lys Ala Val Val Leu Gln Ala Gln Asn Gln Met
530 535 540

Ser Glu Ala His Lys Leu Leu Gln Lys Leu Leu Val His Cys Gln Lys
545 550 555 560

Leu Lys Asn Thr Glu Met Val Ile Ser Val Leu Leu Ser Val Ala Glu
565 570 575

Leu Tyr Trp Arg Ser Ser Ser Pro Thr Ile Ala Leu Pro Met Leu Leu
580 585 590

Gln Ala Leu Ala Leu Ser Lys Glu Tyr Arg Leu Gln Tyr Leu Ala Ser
595 600 605

Glu Thr Val Leu Asn Leu Ala Phe Ala Gln Leu Ile Leu Gly Ile Pro
610 615 620

```
Glu Gln Ala Leu Ser Leu Leu His Met Ala Ile Glu Pro Ile Leu Ala
625                 630                 635                 640

Asp Gly Ala Ile Leu Asp Lys Gly Arg Ala Met Phe Leu Val Ala Lys
                645                 650                 655

Cys Gln Val Ala Ser Ala Ala Ser Tyr Asp Gln Pro Lys Lys Ala Glu
            660                 665                 670

Ala Leu Glu Ala Ala Ile Glu Asn Leu Asn Glu Ala Lys Asn Tyr Phe
        675                 680                 685

Ala Lys Val Asp Cys Lys Glu Arg Ile Arg Asp Val Val Tyr Phe Gln
    690                 695                 700

Ala Arg Leu Tyr His Thr Leu Gly Lys Thr Gln Glu Arg Asn Arg Cys
705                 710                 715                 720

Ala Met Leu Phe Arg Gln Leu His Gln Glu Leu Pro Ser His Gly Val
                725                 730                 735

Pro Leu Ile Asn His Leu
            740
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<210> 4688
<211> 217
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
anaphase promoting complex
subunit 5; "

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<221> source
<223> /note="ENSP ID: ENSP00000440800"

<400> 4688
Met Ala Glu Gly Glu Leu Lys Asp Met Glu Gln Phe Phe Asp Asp Leu
1 5 10 15

Ser Asp Ser Phe Ser Gly Thr Glu Pro Glu Val His Lys Thr Ser Val
20 25 30

Val Gly Leu Phe Leu Arg His Met Ile Leu Ala Tyr Ser Lys Leu Ser
35 40 45

Phe Ser Gln Val Phe Lys Leu Tyr Thr Ala Leu Gln Gln Tyr Phe Gln
50 55 60

Asn Gly Glu Lys Lys Thr Val Glu Asp Ala Asp Met Glu Leu Thr Ser
65 70 75 80

Arg Asp Glu Gly Glu Arg Lys Met Glu Lys Glu Glu Leu Asp Val Ser
85 90 95

Val Arg Glu Glu Glu Val Ser Cys Ser Gly Pro Leu Ser Gln Lys Gln
100 105 110

Ala Glu Phe Phe Leu Ser Gln Gln Ala Ser Leu Leu Lys Asn Asp Glu
115 120 125

Thr Lys Ala Leu Thr Pro Ala Ser Leu Gln Lys Glu Leu Asn Asn Leu
130 135 140

Leu Lys Phe Asn Pro Asp Phe Ala Glu Ala His Tyr Leu Ser Tyr Leu
145 150 155 160

Asn Asn Leu Arg Val Gln Asp Val Phe Ser Ser Thr His Ser Leu Leu
165 170 175

His Tyr Phe Asp Arg Leu Ile Leu Thr Gly Ala Glu Ser Lys Ser Asn
180 185 190

Gly Glu Glu Gly Tyr Gly Arg Ser Leu Arg Tyr Ala Ala Leu Asn Leu
195 200 205

Ala Ala Leu His Cys Arg Phe Gly His
210 215

<210> 4689
<211> 44
<212> PRT
<213> Homo sapiens

<220>
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subunit 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441508"

<400> 4689
Met Ala Glu Gly Glu Leu Lys Asp Met Glu Gln Phe Phe Asp Asp Leu
1 5 10 15

Ser Asp Ser Phe Ser Gly Thr Glu Pro Glu Val His Lys Thr Ser Val
20 25 30

Val Gly Leu Phe Leu Arg His Met Ile Leu Ala Tyr
35 40

<210> 4690
<211> 216
<212> PRT
<213> Homo sapiens

<220>
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<220>
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subunit 5; "

<220>
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<223> /note="ENSP ID: ENSP00000445191"

<400> 4690

```
Met Ala Ser Val His Glu Ser Leu Tyr Phe Asn Pro Met Met Thr Asn
1               5                  10                  15

Gly Val Val His Ala Asn Val Phe Gly Ile Lys Asp Trp Val Thr Pro
            20                  25                  30

Tyr Lys Ile Ala Val Leu Val Leu Leu Asn Glu Met Ser Arg Thr Gly
        35                  40                  45

Glu Gly Ala Val Ser Leu Met Glu Arg Arg Arg Leu Asn Gln Leu Leu
    50                  55                  60

Leu Pro Leu Leu Gln Arg Arg Asp Phe Ala Met Leu Pro Arg Leu Ala
65                  70                  75                  80

Gly Asn Ser Trp Thr Gln Ala Ile Leu Pro Ser Gly Leu Pro Glu Tyr
                85                  90                  95

Trp Asp Tyr Arg Ser Glu Pro Leu Arg Pro Ala Val Met Cys Tyr Phe
            100                 105                 110

Ile Leu Gln Thr Gln Gly Pro Asp Ile Thr Leu Ser Lys Leu Tyr Lys
        115                 120                 125

Leu Ile Glu Glu Ser Cys Pro Gln Leu Ala Asn Ser Val Gln Ile Arg
    130                 135                 140

Ile Lys Leu Met Ala Glu Gly Glu Leu Lys Asp Met Glu Gln Phe Phe
145                 150                 155                 160

Asp Asp Leu Ser Asp Ser Phe Ser Gly Thr Glu Pro Glu Val His Lys
                165                 170                 175

Thr Ser Val Val Gly Leu Phe Leu Arg His Met Ile Leu Ala Tyr Ser
            180                 185                 190

Lys Leu Ser Phe Ser Gln Val Phe Lys Leu Tyr Thr Ala Leu Gln Gln
        195                 200                 205

Tyr Phe Gln Asn Gly Glu Lys Lys
    210                 215
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<210> 4691
<211> 599
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: ANAPC7; "

<220>
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anaphase promoting complex
subunit 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UJX3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394394"

<400> 4691
Met Asp Pro Gly Asp Ala Ala Ile Leu Glu Ser Ser Leu Arg Ile Leu
1   5   10   15

Tyr Arg Leu Phe Glu Ser Val Leu Pro Pro Leu Pro Ala Ala Leu Gln
            20   25   30

Ser Arg Met Asn Val Ile Asp His Val Arg Asp Met Ala Ala Ala Gly
        35   40   45

Leu His Ser Asn Val Arg Leu Leu Ser Ser Leu Leu Leu Thr Met Ser
    50   55   60

Asn Asn Asn Pro Glu Leu Phe Ser Pro Pro Gln Lys Tyr Gln Leu Leu
65   70   75   80

Val Tyr His Ala Asp Ser Leu Phe His Asp Lys Glu Tyr Arg Asn Ala
                85   90   95

Val Ser Lys Tyr Thr Met Ala Leu Gln Gln Lys Lys Ala Leu Ser Lys
            100   105   110

```
Thr Ser Lys Val Arg Pro Ser Thr Gly Asn Ser Ala Ser Thr Pro Gln
        115                 120                 125

Ser Gln Cys Leu Pro Ser Glu Ile Glu Val Lys Tyr Lys Met Ala Glu
    130                 135                 140

Cys Tyr Thr Met Leu Lys Gln Asp Lys Asp Ala Ile Ala Ile Leu Asp
145                 150                 155                 160

Gly Ile Pro Ser Arg Gln Arg Thr Pro Lys Ile Asn Met Met Leu Ala
                165                 170                 175

Asn Leu Tyr Lys Lys Ala Gly Gln Glu Arg Pro Ser Val Thr Ser Tyr
            180                 185                 190

Lys Glu Val Leu Arg Gln Cys Pro Leu Ala Leu Asp Ala Ile Leu Gly
        195                 200                 205

Leu Leu Ser Leu Ser Val Lys Gly Ala Glu Val Ala Ser Met Thr Met
    210                 215                 220

Asn Val Ile Gln Thr Val Pro Asn Leu Asp Trp Leu Ser Val Trp Ile
225                 230                 235                 240

Lys Ala Tyr Ala Phe Val His Thr Gly Asp Asn Ser Arg Ala Ile Ser
                245                 250                 255

Thr Ile Cys Ser Leu Glu Lys Lys Ser Leu Leu Arg Asp Asn Val Asp
            260                 265                 270

Leu Leu Gly Ser Leu Ala Asp Leu Tyr Phe Arg Ala Gly Asp Asn Lys
        275                 280                 285

Asn Ser Val Leu Lys Phe Glu Gln Ala Gln Met Leu Asp Pro Tyr Leu
    290                 295                 300

Ile Lys Gly Met Asp Val Tyr Gly Tyr Leu Leu Ala Arg Glu Gly Arg
305                 310                 315                 320

Leu Glu Asp Val Glu Asn Leu Gly Cys Arg Leu Phe Asn Ile Ser Asp
                325                 330                 335
```

```
Gln His Ala Glu Pro Trp Val Val Ser Gly Cys His Ser Phe Tyr Ser
            340                 345                 350

Lys Arg Tyr Ser Arg Ala Leu Tyr Leu Gly Ala Lys Ala Ile Gln Leu
        355                 360                 365

Asn Ser Asn Ser Val Gln Ala Leu Leu Leu Lys Gly Ala Ala Leu Arg
    370                 375                 380

Asn Met Gly Arg Val Gln Glu Ala Ile Ile His Phe Arg Glu Ala Ile
385                 390                 395                 400

Arg Leu Ala Pro Cys Arg Leu Asp Cys Tyr Glu Gly Leu Ile Glu Cys
                405                 410                 415

Tyr Leu Ala Ser Asn Ser Ile Arg Glu Ala Met Val Met Ala Asn Asn
            420                 425                 430

Val Tyr Lys Thr Leu Gly Ala Asn Ala Gln Thr Leu Thr Leu Leu Ala
        435                 440                 445

Thr Val Cys Leu Glu Asp Pro Val Thr Gln Glu Lys Ala Lys Thr Leu
    450                 455                 460

Leu Asp Lys Ala Leu Thr Gln Arg Pro Asp Tyr Ile Lys Ala Val Val
465                 470                 475                 480

Lys Lys Ala Glu Leu Leu Ser Arg Glu Gln Lys Tyr Glu Asp Gly Ile
                485                 490                 495

Ala Leu Leu Arg Asn Ala Leu Ala Asn Gln Ser Asp Cys Val Leu His
            500                 505                 510

Arg Ile Leu Gly Asp Phe Leu Val Ala Val Asn Glu Tyr Gln Glu Ala
        515                 520                 525

Met Asp Gln Tyr Ser Ile Ala Leu Ser Leu Asp Pro Asn Asp Gln Lys
    530                 535                 540

Ser Leu Glu Gly Met Gln Lys Met Glu Lys Glu Glu Ser Pro Thr Asp
545                 550                 555                 560

Ala Thr Gln Glu Glu Asp Val Asp Asp Met Glu Gly Ser Gly Glu Glu
```

565 570 575

Gly Asp Leu Glu Gly Ser Asp Ser Glu Ala Ala Gln Trp Ala Asp Gln
580 585 590

Glu Gln Trp Phe Gly Met Gln
595

<210> 4692
<211> 537
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ANAPC7; "

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anaphase promoting complex
subunit 7; "

<220>
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<223> /note="Uniprot ID: Q9UJX3; "

<220>
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<400> 4692
Met Asp Pro Gly Asp Ala Ala Ile Leu Glu Ser Ser Leu Arg Ile Leu
1 5 10 15

Tyr Arg Leu Phe Glu Ser Val Leu Pro Pro Leu Pro Ala Ala Leu Gln
20 25 30

Ser Arg Met Asn Val Ile Asp His Val Arg Asp Met Ala Ala Ala Gly
35 40 45

Leu His Ser Asn Val Arg Leu Leu Ser Ser Leu Leu Leu Thr Met Ser
50 55 60

Asn Asn Asn Pro Glu Leu Phe Ser Pro Pro Gln Lys Tyr Gln Leu Leu
65 70 75 80

```
Val Tyr His Ala Asp Ser Leu Phe His Asp Lys Glu Tyr Arg Asn Ala
                85                  90                  95

Val Ser Lys Tyr Thr Met Ala Leu Gln Gln Lys Lys Ala Leu Ser Lys
            100                 105                 110

Thr Ser Lys Val Arg Pro Ser Thr Gly Asn Ser Ala Ser Thr Pro Gln
        115                 120                 125

Ser Gln Cys Leu Pro Ser Glu Ile Glu Val Lys Tyr Lys Met Ala Glu
    130                 135                 140

Cys Tyr Thr Met Leu Lys Gln Asp Lys Asp Ala Ile Ala Ile Leu Asp
145                 150                 155                 160

Gly Ile Pro Ser Arg Gln Arg Thr Pro Lys Ile Asn Met Met Leu Ala
                165                 170                 175

Asn Leu Tyr Lys Lys Ala Gly Gln Glu Arg Pro Ser Val Thr Ser Tyr
            180                 185                 190

Lys Glu Val Leu Arg Gln Cys Pro Leu Ala Leu Asp Ala Ile Leu Gly
        195                 200                 205

Leu Leu Ser Leu Ser Val Lys Gly Ala Glu Val Ala Ser Met Thr Met
    210                 215                 220

Asn Val Ile Gln Thr Val Pro Asn Leu Asp Trp Leu Ser Val Trp Ile
225                 230                 235                 240

Lys Ala Tyr Ala Phe Val His Thr Gly Asp Asn Ser Arg Ala Ile Ser
                245                 250                 255

Thr Ile Cys Ser Leu Glu Lys Lys Ser Leu Leu Arg Asp Asn Val Asp
            260                 265                 270

Leu Leu Gly Ser Leu Ala Asp Leu Tyr Phe Arg Ala Gly Asp Asn Lys
        275                 280                 285

Asn Ser Val Leu Lys Phe Glu Gln Ala Gln Met Leu Asp Pro Tyr Leu
    290                 295                 300
```

Ile Lys Gly Met Asp Val Tyr Gly Tyr Leu Leu Ala Arg Glu Gly Arg
305 310 315 320

Leu Glu Asp Val Glu Asn Leu Gly Cys Arg Leu Phe Asn Ile Ser Asp
325 330 335

Gln His Ala Glu Pro Trp Val Val Ser Gly Cys His Ser Phe Tyr Ser
340 345 350

Lys Arg Tyr Ser Arg Ala Leu Tyr Leu Gly Ala Lys Ala Ile Gln Leu
355 360 365

Asn Ser Asn Ser Val Gln Ala Leu Leu Leu Lys Gly Ala Ala Leu Arg
370 375 380

Asn Met Gly Arg Val Gln Glu Ala Ile Ile His Phe Arg Glu Ala Ile
385 390 395 400

Arg Leu Ala Pro Cys Arg Leu Asp Cys Tyr Glu Gly Leu Ile Glu Cys
405 410 415

Tyr Leu Ala Ser Asn Ser Ile Arg Glu Ala Met Val Met Ala Asn Asn
420 425 430

Val Tyr Lys Thr Leu Gly Ala Asn Ala Gln Thr Leu Thr Leu Leu Ala
435 440 445

Thr Val Cys Leu Glu Asp Pro Val Thr Gln Glu Lys Ala Lys Thr Leu
450 455 460

Leu Asp Lys Ala Leu Thr Gln Arg Pro Asp Tyr Ile Lys Ala Val Val
465 470 475 480

Lys Lys Ala Glu Leu Leu Ser Arg Glu Gln Lys Tyr Glu Asp Gly Ile
485 490 495

Ala Leu Leu Arg Asn Ala Leu Ala Asn Gln Ser Asp Cys Val Leu His
500 505 510

Arg Ile Leu Gly Asp Phe Leu Val Ala Val Asn Glu Tyr Gln Glu Ala
515 520 525

```
Met Asp Gln Tyr Ser Ile Ala Leu Arg
    530                 535


<210> 4693
<211> 149
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000450293"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4693
Xaa Leu Leu Lys Gly Ala Ala Leu Arg Asn Met Gly Arg Val Gln Glu
1               5                  10                  15


Ala Ile Ile His Phe Arg Glu Ala Ile Arg Leu Ala Pro Cys Arg Leu
            20                  25                  30


Asp Cys Tyr Glu Gly Arg Glu Gln Lys Tyr Glu Asp Gly Ile Ala Leu
        35                  40                  45


Leu Arg Asn Ala Leu Ala Asn Gln Ser Asp Cys Val Leu His Arg Ile
    50                  55                  60


Leu Gly Asp Phe Leu Val Ala Val Asn Glu Tyr Gln Glu Ala Met Asp
65                  70                  75                  80


Gln Tyr Ser Ile Ala Leu Ser Leu Asp Pro Asn Asp Gln Lys Ser Leu
                85                  90                  95
```

```
Glu Gly Met Gln Lys Met Glu Lys Glu Glu Ser Pro Thr Asp Ala Thr
            100                 105                 110

Gln Glu Glu Asp Val Asp Asp Met Glu Gly Ser Gly Glu Glu Gly Asp
        115                 120                 125

Leu Glu Gly Ser Asp Ser Glu Ala Ala Gln Trp Ala Asp Gln Glu Gln
    130                 135                 140

Trp Phe Gly Met Gln
145
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<210> 4694
<211> 54
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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subunit 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450405"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4694

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Xaa Val Leu Pro Pro Leu Pro Ala Ala Leu Gln Ser Arg Met Asn Val
1               5                   10                  15

Ile Asp His Val Arg Asp Met Ala Ala Ala Gly Leu His Ser Asn Val
            20                  25                  30

Arg Leu Leu Ser Ser Leu Leu Leu Thr Met Ser Asn Asn Asn Pro Val
        35                  40                  45
```

```
Phe His Leu Lys Leu Lys
    50


<210> 4695
<211> 1620
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name:
      anaplastic lymphoma receptor tyr kinase; "

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<400> 4695
Met Gly Ala Ile Gly Leu Leu Trp Leu Leu Pro Leu Leu Leu Ser Thr
1               5                  10                  15


Ala Ala Val Gly Ser Gly Met Gly Thr Gly Gln Arg Ala Gly Ser Pro
            20                  25                  30


Ala Ala Gly Pro Pro Leu Gln Pro Arg Glu Pro Leu Ser Tyr Ser Arg
        35                  40                  45


Leu Gln Arg Lys Ser Leu Ala Val Asp Phe Val Val Pro Ser Leu Phe
    50                  55                  60


Arg Val Tyr Ala Arg Asp Leu Leu Leu Pro Pro Ser Ser Ser Glu Leu
65                  70                  75                  80


Lys Ala Gly Arg Pro Glu Ala Arg Gly Ser Leu Ala Leu Asp Cys Ala
                85                  90                  95
```

```
Pro Leu Leu Arg Leu Leu Gly Pro Ala Pro Gly Val Ser Trp Thr Ala
            100                 105                 110

Gly Ser Pro Ala Pro Ala Glu Ala Arg Thr Leu Ser Arg Val Leu Lys
        115                 120                 125

Gly Gly Ser Val Arg Lys Leu Arg Arg Ala Lys Gln Leu Val Leu Glu
    130                 135                 140

Leu Gly Glu Glu Ala Ile Leu Glu Gly Cys Val Gly Pro Pro Gly Glu
145                 150                 155                 160

Ala Ala Val Gly Leu Leu Gln Phe Asn Leu Ser Glu Leu Phe Ser Trp
                165                 170                 175

Trp Ile Arg Gln Gly Glu Gly Arg Leu Arg Ile Arg Leu Met Pro Glu
            180                 185                 190

Lys Lys Ala Ser Glu Val Gly Arg Glu Gly Arg Leu Ser Ala Ala Ile
        195                 200                 205

Arg Ala Ser Gln Pro Arg Leu Leu Phe Gln Ile Phe Gly Thr Gly His
    210                 215                 220

Ser Ser Leu Glu Ser Pro Thr Asn Met Pro Ser Pro Ser Pro Asp Tyr
225                 230                 235                 240

Phe Thr Trp Asn Leu Thr Trp Ile Met Lys Asp Ser Phe Pro Phe Leu
                245                 250                 255

Ser His Arg Ser Arg Tyr Gly Leu Glu Cys Ser Phe Asp Phe Pro Cys
            260                 265                 270

Glu Leu Glu Tyr Ser Pro Pro Leu His Asp Leu Arg Asn Gln Ser Trp
        275                 280                 285

Ser Trp Arg Arg Ile Pro Ser Glu Glu Ala Ser Gln Met Asp Leu Leu
    290                 295                 300

Asp Gly Pro Gly Ala Glu Arg Ser Lys Glu Met Pro Arg Gly Ser Phe
305                 310                 315                 320

Leu Leu Leu Asn Thr Ser Ala Asp Ser Lys His Thr Ile Leu Ser Pro
```

```
                325                 330                 335

Trp Met Arg Ser Ser Ser Glu His Cys Thr Leu Ala Val Ser Val His
            340                 345                 350

Arg His Leu Gln Pro Ser Gly Arg Tyr Ile Ala Gln Leu Leu Pro His
        355                 360                 365

Asn Glu Ala Ala Arg Glu Ile Leu Leu Met Pro Thr Pro Gly Lys His
    370                 375                 380

Gly Trp Thr Val Leu Gln Gly Arg Ile Gly Arg Pro Asp Asn Pro Phe
385                 390                 395                 400

Arg Val Ala Leu Glu Tyr Ile Ser Ser Gly Asn Arg Ser Leu Ser Ala
                405                 410                 415

Val Asp Phe Phe Ala Leu Lys Asn Cys Ser Glu Gly Thr Ser Pro Gly
            420                 425                 430

Ser Lys Met Ala Leu Gln Ser Ser Phe Thr Cys Trp Asn Gly Thr Val
        435                 440                 445

Leu Gln Leu Gly Gln Ala Cys Asp Phe His Gln Asp Cys Ala Gln Gly
    450                 455                 460

Glu Asp Glu Ser Gln Met Cys Arg Lys Leu Pro Val Gly Phe Tyr Cys
465                 470                 475                 480

Asn Phe Glu Asp Gly Phe Cys Gly Trp Thr Gln Gly Thr Leu Ser Pro
                485                 490                 495

His Thr Pro Gln Trp Gln Val Arg Thr Leu Lys Asp Ala Arg Phe Gln
            500                 505                 510

Asp His Gln Asp His Ala Leu Leu Leu Ser Thr Thr Asp Val Pro Ala
        515                 520                 525

Ser Glu Ser Ala Thr Val Thr Ser Ala Thr Phe Pro Ala Pro Ile Lys
    530                 535                 540

Ser Ser Pro Cys Glu Leu Arg Met Ser Trp Leu Ile Arg Gly Val Leu
545                 550                 555                 560
```

```
Arg Gly Asn Val Ser Leu Val Leu Val Glu Asn Lys Thr Gly Lys Glu
                565                 570                 575

Gln Gly Arg Met Val Trp His Val Ala Ala Tyr Glu Gly Leu Ser Leu
            580                 585                 590

Trp Gln Trp Met Val Leu Pro Leu Leu Asp Val Ser Asp Arg Phe Trp
        595                 600                 605

Leu Gln Met Val Ala Trp Trp Gly Gln Gly Ser Arg Ala Ile Val Ala
    610                 615                 620

Phe Asp Asn Ile Ser Ile Ser Leu Asp Cys Tyr Leu Thr Ile Ser Gly
625                 630                 635                 640

Glu Asp Lys Ile Leu Gln Asn Thr Ala Pro Lys Ser Arg Asn Leu Phe
                645                 650                 655

Glu Arg Asn Pro Asn Lys Glu Leu Lys Pro Gly Glu Asn Ser Pro Arg
            660                 665                 670

Gln Thr Pro Ile Phe Asp Pro Thr Val His Trp Leu Phe Thr Thr Cys
        675                 680                 685

Gly Ala Ser Gly Pro His Gly Pro Thr Gln Ala Gln Cys Asn Asn Ala
    690                 695                 700

Tyr Gln Asn Ser Asn Leu Ser Val Glu Val Gly Ser Glu Gly Pro Leu
705                 710                 715                 720

Lys Gly Ile Gln Ile Trp Lys Val Pro Ala Thr Asp Thr Tyr Ser Ile
                725                 730                 735

Ser Gly Tyr Gly Ala Ala Gly Gly Lys Gly Gly Lys Asn Thr Met Met
            740                 745                 750

Arg Ser His Gly Val Ser Val Leu Gly Ile Phe Asn Leu Glu Lys Asp
        755                 760                 765

Asp Met Leu Tyr Ile Leu Val Gly Gln Gln Gly Glu Asp Ala Cys Pro
    770                 775                 780
```

```
Ser Thr Asn Gln Leu Ile Gln Lys Val Cys Ile Gly Glu Asn Asn Val
785                 790                 795                 800

Ile Glu Glu Glu Ile Arg Val Asn Arg Ser Val His Glu Trp Ala Gly
                805                 810                 815

Gly Gly Gly Gly Gly Gly Gly Ala Thr Tyr Val Phe Lys Met Lys Asp
            820                 825                 830

Gly Val Pro Val Pro Leu Ile Ile Ala Ala Gly Gly Gly Gly Arg Ala
        835                 840                 845

Tyr Gly Ala Lys Thr Asp Thr Phe His Pro Glu Arg Leu Glu Asn Asn
    850                 855                 860

Ser Ser Val Leu Gly Leu Asn Gly Asn Ser Gly Ala Ala Gly Gly Gly
865                 870                 875                 880

Gly Gly Trp Asn Asp Asn Thr Ser Leu Leu Trp Ala Gly Lys Ser Leu
                885                 890                 895

Gln Glu Gly Ala Thr Gly Gly His Ser Cys Pro Gln Ala Met Lys Lys
            900                 905                 910

Trp Gly Trp Glu Thr Arg Gly Gly Phe Gly Gly Gly Gly Gly Gly Cys
        915                 920                 925

Ser Ser Gly Gly Gly Gly Gly Gly Tyr Ile Gly Gly Asn Ala Ala Ser
    930                 935                 940

Asn Asn Asp Pro Glu Met Asp Gly Glu Asp Gly Val Ser Phe Ile Ser
945                 950                 955                 960

Pro Leu Gly Ile Leu Tyr Thr Pro Ala Leu Lys Val Met Glu Gly His
                965                 970                 975

Gly Glu Val Asn Ile Lys His Tyr Leu Asn Cys Ser His Cys Glu Val
            980                 985                 990

Asp Glu Cys His Met Asp Pro Glu  Ser His Lys Val Ile  Cys Phe
Cys
        995                 1000                1005
```

```
Asp His  Gly Thr Val Leu Ala  Glu Asp Gly Val Ser  Cys Ile Val
    1010                1015                1020

Ser Pro  Thr Pro Glu Pro His  Leu Pro Leu Ser Leu  Ile Leu Ser
    1025                1030                1035

Val Val  Thr Ser Ala Leu Val  Ala Ala Leu Val Leu  Ala Phe Ser
    1040                1045                1050

Gly Ile  Met Ile Val Tyr Arg  Arg Lys His Gln Glu  Leu Gln Ala
    1055                1060                1065

Met Gln  Met Glu Leu Gln Ser  Pro Glu Tyr Lys Leu  Ser Lys Leu
    1070                1075                1080

Arg Thr  Ser Thr Ile Met Thr  Asp Tyr Asn Pro Asn  Tyr Cys Phe
    1085                1090                1095

Ala Gly  Lys Thr Ser Ser Ile  Ser Asp Leu Lys Glu  Val Pro Arg
    1100                1105                1110

Lys Asn  Ile Thr Leu Ile Arg  Gly Leu Gly His Gly  Ala Phe Gly
    1115                1120                1125

Glu Val  Tyr Glu Gly Gln Val  Ser Gly Met Pro Asn  Asp Pro Ser
    1130                1135                1140

Pro Leu  Gln Val Ala Val Lys  Thr Leu Pro Glu Val  Cys Ser Glu
    1145                1150                1155

Gln Asp  Glu Leu Asp Phe Leu  Met Glu Ala Leu Ile  Ile Ser Lys
    1160                1165                1170

Phe Asn  His Gln Asn Ile Val  Arg Cys Ile Gly Val  Ser Leu Gln
    1175                1180                1185

Ser Leu  Pro Arg Phe Ile Leu  Leu Glu Leu Met Ala  Gly Gly Asp
    1190                1195                1200

Leu Lys  Ser Phe Leu Arg Glu  Thr Arg Pro Arg Pro  Ser Gln Pro
    1205                1210                1215
```

```
Ser Ser  Leu Ala Met Leu Asp  Leu Leu His Val Ala  Arg Asp Ile
    1220                 1225                 1230

Ala Cys  Gly Cys Gln Tyr Leu  Glu Glu Asn His Phe  Ile His Arg
    1235                 1240                 1245

Asp Ile  Ala Ala Arg Asn Cys  Leu Leu Thr Cys Pro  Gly Pro Gly
    1250                 1255                 1260

Arg Val  Ala Lys Ile Gly Asp  Phe Gly Met Ala Arg  Asp Ile Tyr
    1265                 1270                 1275

Arg Ala  Ser Tyr Tyr Arg Lys  Gly Gly Cys Ala Met  Leu Pro Val
    1280                 1285                 1290

Lys Trp  Met Pro Pro Glu Ala  Phe Met Glu Gly Ile  Phe Thr Ser
    1295                 1300                 1305

Lys Thr  Asp Thr Trp Ser Phe  Gly Val Leu Leu Trp  Glu Ile Phe
    1310                 1315                 1320

Ser Leu  Gly Tyr Met Pro Tyr  Pro Ser Lys Ser Asn  Gln Glu Val
    1325                 1330                 1335

Leu Glu  Phe Val Thr Ser Gly  Gly Arg Met Asp Pro  Pro Lys Asn
    1340                 1345                 1350

Cys Pro  Gly Pro Val Tyr Arg  Ile Met Thr Gln Cys  Trp Gln His
    1355                 1360                 1365

Gln Pro  Glu Asp Arg Pro Asn  Phe Ala Ile Ile Leu  Glu Arg Ile
    1370                 1375                 1380

Glu Tyr  Cys Thr Gln Asp Pro  Asp Val Ile Asn Thr  Ala Leu Pro
    1385                 1390                 1395

Ile Glu  Tyr Gly Pro Leu Val  Glu Glu Glu Glu Lys  Val Pro Val
    1400                 1405                 1410

Arg Pro  Lys Asp Pro Glu Gly  Val Pro Pro Leu Leu  Val Ser Gln
    1415                 1420                 1425

Gln Ala  Lys Arg Glu Glu Glu  Arg Ser Pro Ala Ala  Pro Pro Pro
```

1430 1435 1440

Leu Pro Thr Thr Ser Ser Gly Lys Ala Ala Lys Lys Pro Thr Ala
1445 1450 1455

Ala Glu Ile Ser Val Arg Val Pro Arg Gly Pro Ala Val Glu Gly
1460 1465 1470

Gly His Val Asn Met Ala Phe Ser Gln Ser Asn Pro Pro Ser Glu
1475 1480 1485

Leu His Lys Val His Gly Ser Arg Asn Lys Pro Thr Ser Leu Trp
1490 1495 1500

Asn Pro Thr Tyr Gly Ser Trp Phe Thr Glu Lys Pro Thr Lys Lys
1505 1510 1515

Asn Asn Pro Ile Ala Lys Lys Glu Pro His Asp Arg Gly Asn Leu
1520 1525 1530

Gly Leu Glu Gly Ser Cys Thr Val Pro Pro Asn Val Ala Thr Gly
1535 1540 1545

Arg Leu Pro Gly Ala Ser Leu Leu Leu Glu Pro Ser Ser Leu Thr
1550 1555 1560

Ala Asn Met Lys Glu Val Pro Leu Phe Arg Leu Arg His Phe Pro
1565 1570 1575

Cys Gly Asn Val Asn Tyr Gly Tyr Gln Gln Gln Gly Leu Pro Leu
1580 1585 1590

Glu Ala Ala Thr Ala Pro Gly Ala Gly His Tyr Glu Asp Thr Ile
1595 1600 1605

Leu Lys Ser Lys Asn Ser Met Asn Gln Pro Gly Pro
1610 1615 1620

<210> 4696
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anaplastic lymphoma receptor tyr kinase; "

<220>
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Ser Ser Ile Ser Asp Leu Lys Glu Val Pro Arg Lys Asn Ile Thr Leu
1 5 10 15

Ile Arg Gly Leu Gly His Gly Ala Phe Gly Glu Val Tyr Glu Gly Gln
20 25 30

Val Ser Gly Met Pro Asn Asp Pro Ser Pro Leu Gln Val Ala Val Lys
35 40 45

Thr Leu Pro Glu Val Cys Ser Glu Gln Asp Glu Leu Asp Phe Leu Met
50 55 60

Glu Ala Leu Ile Ile Ser Leu Ser Trp Lys Gln Leu Phe Cys Phe Thr
65 70 75 80

Phe Cys Leu Arg Pro Ser Trp Glu Lys Ser Thr Met Asn Ser Ser Thr
85 90 95

Gln Ser Thr His Gln Tyr Leu Arg Lys Thr Leu Ser Cys Pro Leu Arg
100 105 110

His Phe Leu Thr Gln Val Pro Glu Gln His Pro His Ser Ser Ser His
115 120 125

Ser Pro Ala Asn Gly Thr Pro Val Glu Pro Ala Val Val Leu Pro Thr
130 135 140

Cys Ser Pro Ala Arg Phe Trp Val
145 150

<210> 4697
<211> 580
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Name:
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<220>
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<400> 4697
Met Val Thr Thr Cys Ser Ala Ile Tyr Thr Phe Gln Phe Ile Arg Ser
1 5 10 15

Ser Val Tyr Arg Arg Lys His Gln Glu Leu Gln Ala Met Gln Met Glu
20 25 30

Leu Gln Ser Pro Glu Tyr Lys Leu Ser Lys Leu Arg Thr Ser Thr Ile
35 40 45

Met Thr Asp Tyr Asn Pro Asn Tyr Cys Phe Ala Gly Lys Thr Ser Ser
50 55 60

Ile Ser Asp Leu Lys Glu Val Pro Arg Lys Asn Ile Thr Leu Ile Arg
65 70 75 80

Gly Leu Gly His Gly Ala Phe Gly Glu Val Tyr Glu Gly Gln Val Ser
85 90 95

Gly Met Pro Asn Asp Pro Ser Pro Leu Gln Val Ala Val Lys Thr Leu
100 105 110

Pro Glu Val Cys Ser Glu Gln Asp Glu Leu Asp Phe Leu Met Glu Ala
115 120 125

Leu Ile Ile Ser Lys Phe Asn His Gln Asn Ile Val Arg Cys Ile Gly
130 135 140

```
Val Ser Leu Gln Ser Leu Pro Arg Phe Ile Leu Leu Glu Leu Met Ala
145                 150                 155                 160

Gly Gly Asp Leu Lys Ser Phe Leu Arg Glu Thr Arg Pro Arg Pro Ser
                165                 170                 175

Gln Pro Ser Ser Leu Ala Met Leu Asp Leu Leu His Val Ala Arg Asp
            180                 185                 190

Ile Ala Cys Gly Cys Gln Tyr Leu Glu Glu Asn His Phe Ile His Arg
        195                 200                 205

Asp Ile Ala Ala Arg Asn Cys Leu Leu Thr Cys Pro Gly Pro Gly Arg
    210                 215                 220

Val Ala Lys Ile Gly Asp Phe Gly Met Ala Arg Asp Ile Tyr Arg Ala
225                 230                 235                 240

Ser Tyr Tyr Arg Lys Gly Gly Cys Ala Met Leu Pro Val Lys Trp Met
                245                 250                 255

Pro Pro Glu Ala Phe Met Glu Gly Ile Phe Thr Ser Lys Thr Asp Thr
            260                 265                 270

Trp Ser Phe Gly Val Leu Leu Trp Glu Ile Phe Ser Leu Gly Tyr Met
        275                 280                 285

Pro Tyr Pro Ser Lys Ser Asn Gln Glu Val Leu Glu Phe Val Thr Ser
    290                 295                 300

Gly Gly Arg Met Asp Pro Pro Lys Asn Cys Pro Gly Pro Val Tyr Arg
305                 310                 315                 320

Ile Met Thr Gln Cys Trp Gln His Gln Pro Glu Asp Arg Pro Asn Phe
                325                 330                 335

Ala Ile Ile Leu Glu Arg Ile Glu Tyr Cys Thr Gln Asp Pro Asp Val
            340                 345                 350

Ile Asn Thr Ala Leu Pro Ile Glu Tyr Gly Pro Leu Val Glu Glu Glu
        355                 360                 365
```

```
Glu Lys Val Pro Val Arg Pro Lys Asp Pro Glu Gly Val Pro Pro Leu
    370                 375                 380

Leu Val Ser Gln Gln Ala Lys Arg Glu Glu Glu Arg Ser Pro Ala Ala
385                 390                 395                 400

Pro Pro Pro Leu Pro Thr Thr Ser Ser Gly Lys Ala Ala Lys Lys Pro
                405                 410                 415

Thr Ala Ala Glu Ile Ser Val Arg Val Pro Arg Gly Pro Ala Val Glu
            420                 425                 430

Gly Gly His Val Asn Met Ala Phe Ser Gln Ser Asn Pro Pro Ser Glu
        435                 440                 445

Leu His Lys Val His Gly Ser Arg Asn Lys Pro Thr Ser Leu Trp Asn
    450                 455                 460

Pro Thr Tyr Gly Ser Trp Phe Thr Glu Lys Pro Thr Lys Lys Asn Asn
465                 470                 475                 480

Pro Ile Ala Lys Lys Glu Pro His Asp Arg Gly Asn Leu Gly Leu Glu
                485                 490                 495

Gly Ser Cys Thr Val Pro Pro Asn Val Ala Thr Gly Arg Leu Pro Gly
            500                 505                 510

Ala Ser Leu Leu Leu Glu Pro Ser Ser Leu Thr Ala Asn Met Lys Glu
        515                 520                 525

Val Pro Leu Phe Arg Leu Arg His Phe Pro Cys Gly Asn Val Asn Tyr
    530                 535                 540

Gly Tyr Gln Gln Gln Gly Leu Pro Leu Glu Ala Ala Thr Ala Pro Gly
545                 550                 555                 560

Ala Gly His Tyr Glu Asp Thr Ile Leu Lys Ser Lys Asn Ser Met Asn
                565                 570                 575

Gln Pro Gly Pro
            580
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<210> 4698
<211> 1243
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<220>
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Met Pro Thr Pro Gly Lys His Gly Trp Thr Val Leu Gln Gly Arg Ile
1 5 10 15

Gly Arg Pro Asp Asn Pro Phe Arg Val Ala Leu Glu Tyr Ile Ser Ser
20 25 30

Gly Asn Arg Ser Leu Ser Ala Val Asp Phe Phe Ala Leu Lys Asn Cys
35 40 45

Ser Glu Gly Thr Ser Pro Gly Ser Lys Met Ala Leu Gln Ser Ser Phe
50 55 60

Thr Cys Trp Asn Gly Thr Val Leu Gln Leu Gly Gln Ala Cys Asp Phe
65 70 75 80

His Gln Asp Cys Ala Gln Gly Glu Asp Glu Ser Gln Met Cys Arg Lys
85 90 95

Leu Pro Val Gly Phe Tyr Cys Asn Phe Glu Asp Gly Phe Cys Gly Trp
100 105 110

Thr Gln Gly Thr Leu Ser Pro His Thr Pro Gln Trp Gln Val Arg Thr
115 120 125

Leu Lys Asp Ala Arg Phe Gln Asp His Gln Asp His Ala Leu Leu Leu
130 135 140

```
Ser Thr Thr Asp Val Pro Ala Ser Glu Ser Ala Thr Val Thr Ser Ala
145                 150                 155                 160

Thr Phe Pro Ala Pro Ile Lys Ser Ser Pro Cys Glu Leu Arg Met Ser
                165                 170                 175

Trp Leu Ile Arg Gly Val Leu Arg Gly Asn Val Ser Leu Val Leu Val
            180                 185                 190

Glu Asn Lys Thr Gly Lys Glu Gln Gly Arg Met Val Trp His Val Ala
        195                 200                 205

Ala Tyr Glu Gly Leu Ser Leu Trp Gln Trp Met Val Leu Pro Leu Leu
    210                 215                 220

Asp Val Ser Asp Arg Phe Trp Leu Gln Met Val Ala Trp Trp Gly Gln
225                 230                 235                 240

Gly Ser Arg Ala Ile Val Ala Phe Asp Asn Ile Ser Ile Ser Leu Asp
                245                 250                 255

Cys Tyr Leu Thr Ile Ser Gly Glu Asp Lys Ile Leu Gln Asn Thr Ala
            260                 265                 270

Pro Lys Ser Arg Asn Leu Phe Glu Arg Asn Pro Asn Lys Glu Leu Lys
        275                 280                 285

Pro Gly Glu Asn Ser Pro Arg Gln Thr Pro Ile Phe Asp Pro Thr Val
    290                 295                 300

His Trp Leu Phe Thr Thr Cys Gly Ala Ser Gly Pro His Gly Pro Thr
305                 310                 315                 320

Gln Ala Gln Cys Asn Asn Ala Tyr Gln Asn Ser Asn Leu Ser Val Glu
                325                 330                 335

Val Gly Ser Glu Gly Pro Leu Lys Gly Ile Gln Ile Trp Lys Val Pro
            340                 345                 350

Ala Thr Asp Thr Tyr Ser Ile Ser Gly Tyr Gly Ala Ala Gly Gly Lys
        355                 360                 365
```

```
Gly Gly Lys Asn Thr Met Met Arg Ser His Gly Val Ser Val Leu Gly
    370                 375                 380

Ile Phe Asn Leu Glu Lys Asp Asp Met Leu Tyr Ile Leu Val Gly Gln
385                 390                 395                 400

Gln Gly Glu Asp Ala Cys Pro Ser Thr Asn Gln Leu Ile Gln Lys Val
                405                 410                 415

Cys Ile Gly Glu Asn Asn Val Ile Glu Glu Glu Ile Arg Val Asn Arg
            420                 425                 430

Ser Val His Glu Trp Ala Gly Gly Gly Gly Gly Gly Gly Gly Ala Thr
        435                 440                 445

Tyr Val Phe Lys Met Lys Asp Gly Val Pro Val Pro Leu Ile Ile Ala
    450                 455                 460

Ala Gly Gly Gly Gly Arg Ala Tyr Gly Ala Lys Thr Asp Thr Phe His
465                 470                 475                 480

Pro Glu Arg Leu Glu Asn Asn Ser Ser Val Leu Gly Leu Asn Gly Asn
                485                 490                 495

Ser Gly Ala Ala Gly Gly Gly Gly Gly Trp Asn Asp Asn Thr Ser Leu
            500                 505                 510

Leu Trp Ala Gly Lys Ser Leu Gln Glu Gly Ala Thr Gly Gly His Ser
        515                 520                 525

Cys Pro Gln Ala Met Lys Lys Trp Gly Trp Glu Thr Arg Gly Gly Phe
    530                 535                 540

Gly Gly Gly Gly Gly Gly Cys Ser Ser Gly Gly Gly Gly Gly Gly Tyr
545                 550                 555                 560

Ile Gly Gly Asn Ala Ala Ser Asn Asn Asp Pro Glu Met Asp Gly Glu
                565                 570                 575

Asp Gly Val Ser Phe Ile Ser Pro Leu Gly Ile Leu Tyr Thr Pro Ala
            580                 585                 590
```

Leu Lys Val Met Glu Gly His Gly Glu Val Asn Ile Lys His Tyr Leu
595 600 605

Asn Cys Ser His Cys Glu Val Asp Glu Cys His Met Asp Pro Glu Ser
610 615 620

His Lys Val Ile Cys Phe Cys Asp His Gly Thr Val Leu Ala Glu Asp
625 630 635 640

Gly Val Ser Cys Ile Val Ser Pro Thr Pro Glu Pro His Leu Pro Leu
645 650 655

Ser Leu Ile Leu Ser Val Val Thr Ser Ala Leu Val Ala Ala Leu Val
660 665 670

Leu Ala Phe Ser Gly Ile Met Ile Val Tyr Arg Arg Lys His Gln Glu
675 680 685

Leu Gln Ala Met Gln Met Glu Leu Gln Ser Pro Glu Tyr Lys Leu Ser
690 695 700

Lys Leu Arg Thr Ser Thr Ile Met Thr Asp Tyr Asn Pro Asn Tyr Cys
705 710 715 720

Phe Ala Gly Lys Thr Ser Ser Ile Ser Asp Leu Lys Glu Val Pro Arg
725 730 735

Lys Asn Ile Thr Leu Ile Arg Gly Leu Gly His Gly Ala Phe Gly Glu
740 745 750

Val Tyr Glu Gly Gln Val Ser Gly Met Pro Asn Asp Pro Ser Pro Leu
755 760 765

Gln Val Ala Val Lys Thr Leu Pro Glu Val Cys Ser Glu Gln Asp Glu
770 775 780

Leu Asp Phe Leu Met Glu Ala Leu Ile Ile Ser Lys Phe Asn His Gln
785 790 795 800

Asn Ile Val Arg Cys Ile Gly Val Ser Leu Gln Ser Leu Pro Arg Phe
805 810 815

Ile Leu Leu Glu Leu Met Ala Gly Gly Asp Leu Lys Ser Phe Leu Arg

```
            820                 825                 830

Glu Thr Arg Pro Arg Pro Ser Gln Pro Ser Ser Leu Ala Met Leu Asp
        835                 840                 845

Leu Leu His Val Ala Arg Asp Ile Ala Cys Gly Cys Gln Tyr Leu Glu
    850                 855                 860

Glu Asn His Phe Ile His Arg Asp Ile Ala Ala Arg Asn Cys Leu Leu
865                 870                 875                 880

Thr Cys Pro Gly Pro Gly Arg Val Ala Lys Ile Gly Asp Phe Gly Met
                885                 890                 895

Ala Arg Asp Ile Tyr Arg Ala Ser Tyr Tyr Arg Lys Gly Gly Cys Ala
            900                 905                 910

Met Leu Pro Val Lys Trp Met Pro Pro Glu Ala Phe Met Glu Gly Ile
        915                 920                 925

Phe Thr Ser Lys Thr Asp Thr Trp Ser Phe Gly Val Leu Leu Trp Glu
    930                 935                 940

Ile Phe Ser Leu Gly Tyr Met Pro Tyr Pro Ser Lys Ser Asn Gln Glu
945                 950                 955                 960

Val Leu Glu Phe Val Thr Ser Gly Gly Arg Met Asp Pro Pro Lys Asn
                965                 970                 975

Cys Pro Gly Pro Val Tyr Arg Ile Met Thr Gln Cys Trp Gln His Gln
            980                 985                 990

Pro Glu Asp Arg Pro Asn Phe Ala  Ile Ile Leu Glu Arg  Ile Glu
Tyr
        995                 1000                1005

Cys Thr  Gln Asp Pro Asp Val  Ile Asn Thr Ala Leu  Pro Ile Glu
    1010                1015                1020

Tyr Gly  Pro Leu Val Glu Glu  Glu Glu Lys Val Pro  Val Arg Pro
    1025                1030                1035

Lys Asp  Pro Glu Gly Val Pro  Pro Leu Leu Val Ser  Gln Gln Ala
```

```
    1040                1045                1050

Lys Arg  Glu Glu Glu Arg Ser  Pro Ala Ala Pro Pro  Pro Leu Pro
    1055                1060                1065

Thr Thr  Ser Ser Gly Lys Ala  Ala Lys Lys Pro Thr  Ala Ala Glu
    1070                1075                1080

Ile Ser  Val Arg Val Pro Arg  Gly Pro Ala Val Glu  Gly Gly His
    1085                1090                1095

Val Asn  Met Ala Phe Ser Gln  Ser Asn Pro Pro Ser  Glu Leu His
    1100                1105                1110

Lys Val  His Gly Ser Arg Asn  Lys Pro Thr Ser Leu  Trp Asn Pro
    1115                1120                1125

Thr Tyr  Gly Ser Trp Phe Thr  Glu Lys Pro Thr Lys  Lys Asn Asn
    1130                1135                1140

Pro Ile  Ala Lys Lys Glu Pro  His Asp Arg Gly Asn  Leu Gly Leu
    1145                1150                1155

Glu Gly  Ser Cys Thr Val Pro  Pro Asn Val Ala Thr  Gly Arg Leu
    1160                1165                1170

Pro Gly  Ala Ser Leu Leu Leu  Glu Pro Ser Ser Leu  Thr Ala Asn
    1175                1180                1185

Met Lys  Glu Val Pro Leu Phe  Arg Leu Arg His Phe  Pro Cys Gly
    1190                1195                1200

Asn Val  Asn Tyr Gly Tyr Gln  Gln Gln Gly Leu Pro  Leu Glu Ala
    1205                1210                1215

Ala Thr  Ala Pro Gly Ala Gly  His Tyr Glu Asp Thr  Ile Leu Lys
    1220                1225                1230

Ser Lys  Asn Ser Met Asn Gln  Pro Gly Pro
    1235                1240
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<210> 4699
<211> 410

<212> PRT
<213> Homo sapiens

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ancient ubiquitous prt 1; "

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<223> /note="Uniprot ID: Q9Y679; "

<220>
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<400> 4699

Met	Glu	Leu	Pro	Ser	Gly	Pro	Gly	Pro	Glu	Arg	Leu	Phe	Asp	Ser	His
1				5				10						15	
Arg	Leu	Pro	Gly	Asp	Cys	Phe	Leu	Leu	Leu	Val	Leu	Leu	Leu	Tyr	Ala
			20					25					30		
Pro	Val	Gly	Phe	Cys	Leu	Leu	Val	Leu	Arg	Leu	Phe	Leu	Gly	Ile	His
		35					40					45			
Val	Phe	Leu	Val	Ser	Cys	Ala	Leu	Pro	Asp	Ser	Val	Leu	Arg	Arg	Phe
	50					55					60				
Val	Val	Arg	Thr	Met	Cys	Ala	Val	Leu	Gly	Leu	Val	Ala	Arg	Gln	Glu
65					70					75					80
Asp	Ser	Gly	Leu	Arg	Asp	His	Ser	Val	Arg	Val	Leu	Ile	Ser	Asn	His
				85					90					95	
Val	Thr	Pro	Phe	Asp	His	Asn	Ile	Val	Asn	Leu	Leu	Thr	Thr	Cys	Ser
			100					105					110		
Thr	Pro	Leu	Leu	Asn	Ser	Pro	Pro	Ser	Phe	Val	Cys	Trp	Ser	Arg	Gly
		115					120					125			

```
Phe Met Glu Met Asn Gly Arg Gly Glu Leu Val Glu Ser Leu Lys Arg
    130                 135                 140

Phe Cys Ala Ser Thr Arg Leu Pro Pro Thr Pro Leu Leu Leu Phe Pro
145                 150                 155                 160

Glu Glu Glu Ala Thr Asn Gly Arg Glu Gly Leu Leu Arg Phe Ser Ser
                165                 170                 175

Trp Pro Phe Ser Ile Gln Asp Val Val Gln Pro Leu Thr Leu Gln Val
            180                 185                 190

Gln Arg Pro Leu Val Ser Val Thr Val Ser Asp Ala Ser Trp Val Ser
        195                 200                 205

Glu Leu Leu Trp Ser Leu Phe Val Pro Phe Thr Val Tyr Gln Val Arg
    210                 215                 220

Trp Leu Arg Pro Val His Arg Gln Leu Gly Glu Ala Asn Glu Glu Phe
225                 230                 235                 240

Ala Leu Arg Val Gln Gln Leu Val Ala Lys Glu Leu Gly Gln Thr Gly
                245                 250                 255

Thr Arg Leu Thr Pro Ala Asp Lys Ala Glu His Met Lys Arg Gln Arg
            260                 265                 270

His Pro Arg Leu Arg Pro Gln Ser Ala Gln Ser Ser Phe Pro Pro Ser
        275                 280                 285

Pro Gly Pro Ser Pro Asp Val Gln Leu Ala Thr Leu Ala Gln Arg Val
    290                 295                 300

Lys Glu Val Leu Pro His Val Pro Leu Gly Val Ile Gln Arg Asp Leu
305                 310                 315                 320

Ala Lys Thr Gly Cys Val Asp Leu Thr Ile Thr Asn Leu Leu Glu Gly
                325                 330                 335

Ala Val Ala Phe Met Pro Glu Asp Ile Thr Lys Gly Thr Gln Ser Leu
            340                 345                 350

Pro Thr Ala Ser Ala Ser Lys Phe Pro Ser Ser Gly Pro Val Thr Pro
```

```
        355                 360                 365

Gln Pro Thr Ala Leu Thr Phe Ala Lys Ser Ser Trp Ala Arg Gln Glu
    370                 375                 380

Ser Leu Gln Glu Arg Lys Gln Ala Leu Tyr Glu Tyr Ala Arg Arg Arg
385                 390                 395                 400

Phe Thr Glu Arg Arg Ala Gln Glu Ala Asp
                405                 410
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<210> 4700
<211> 373
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AUP1; "

<220>
<221> source
<223> /note="Gene Name:
ancient ubiquitous prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y679; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403430"

<400> 4700

```
Met Glu Leu Pro Ser Gly Pro Gly Pro Glu Arg Leu Phe Asp Ser His
1               5                   10                  15

Arg Leu Pro Gly Asp Cys Phe Leu Leu Leu Val Leu Leu Leu Tyr Ala
            20                  25                  30

Pro Val Gly Phe Cys Leu Leu Val Leu Arg Leu Phe Leu Gly Ile His
        35                  40                  45

Val Phe Leu Val Ser Cys Ala Leu Pro Asp Ser Val Leu Arg Arg Phe
    50                  55                  60
```

```
Val Val Arg Thr Met Cys Ala Val Leu Gly Leu Val Ala Arg Gln Glu
65                  70                  75                  80

Asp Ser Gly Leu Arg Asp His Ser Val Arg Val Leu Ile Ser Asn His
                85                  90                  95

Val Thr Pro Phe Asp His Asn Ile Val Asn Leu Leu Thr Thr Cys Ser
            100                 105                 110

Thr Pro Leu Leu Asn Ser Pro Pro Ser Phe Val Cys Trp Ser Arg Gly
        115                 120                 125

Phe Met Glu Met Asn Gly Arg Gly Glu Leu Val Glu Ser Leu Lys Arg
    130                 135                 140

Phe Cys Ala Ser Thr Arg Leu Pro Pro Thr Pro Leu Leu Leu Phe Pro
145                 150                 155                 160

Glu Glu Glu Ala Thr Asn Gly Arg Glu Gly Leu Leu Arg Phe Ser Ser
                165                 170                 175

Trp Pro Phe Ser Ile Gln Asp Val Val Gln Pro Leu Thr Leu Gln Val
            180                 185                 190

Gln Arg Pro Leu Val Ser Val Thr Val Ser Asp Ala Ser Trp Val Ser
        195                 200                 205

Glu Leu Leu Trp Ser Leu Phe Val Pro Phe Thr Val Tyr Gln Val Arg
    210                 215                 220

Trp Leu Arg Pro Val His Arg Gln Leu Gly Glu Ala Asn Glu Glu Phe
225                 230                 235                 240

Ala Leu Arg Val Gln Gln Leu Val Ala Lys Glu Leu Gly Gln Thr Gly
                245                 250                 255

Thr Arg Leu Thr Pro Ala Asp Lys Ala Glu His Met Lys Arg Gln Arg
            260                 265                 270

His Pro Arg Leu Arg Pro Gln Ser Ala Gln Ser Ser Phe Pro Pro Ser
        275                 280                 285
```

```
Pro Gly Pro Ser Pro Asp Val Gln Leu Ala Thr Leu Ala Gln Arg Val
    290                 295                 300

Lys Glu Val Leu Pro His Val Pro Leu Gly Val Ile Gln Arg Asp Leu
305                 310                 315                 320

Ala Lys Thr Gly Cys Val Asp Leu Thr Ile Thr Asn Leu Leu Glu Gly
                325                 330                 335

Ala Val Ala Phe Met Pro Glu Asp Ile Thr Lys Gly Thr Gln Ser Leu
            340                 345                 350

Pro Thr Ala Ser Ala Ser Lys Ala Phe Asp Ala Cys Leu Met Met Met
        355                 360                 365

Thr Pro Gln Ala Leu
    370


<210> 4701
<211> 920
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Symbol: AR; "

<220>
<221> source
<223> /note="Gene Name:
      androgen receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000363822"

<400> 4701
Met Glu Val Gln Leu Gly Leu Gly Arg Val Tyr Pro Arg Pro Pro Ser
1               5                   10                  15

Lys Thr Tyr Arg Gly Ala Phe Gln Asn Leu Phe Gln Ser Val Arg Glu
            20                  25                  30

Val Ile Gln Asn Pro Gly Pro Arg His Pro Glu Ala Ala Ser Ala Ala
        35                  40                  45
```

```
Pro Pro Gly Ala Ser Leu Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln
    50                  55                  60

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
65                  70                  75                  80

Glu Thr Ser Pro Arg Gln Gln Gln Gln Gln Gln Gly Glu Asp Gly Ser
                85                  90                  95

Pro Gln Ala His Arg Arg Gly Pro Thr Gly Tyr Leu Val Leu Asp Glu
            100                 105                 110

Glu Gln Gln Pro Ser Gln Pro Gln Ser Ala Leu Glu Cys His Pro Glu
        115                 120                 125

Arg Gly Cys Val Pro Glu Pro Gly Ala Ala Val Ala Ala Ser Lys Gly
    130                 135                 140

Leu Pro Gln Gln Leu Pro Ala Pro Pro Asp Glu Asp Asp Ser Ala Ala
145                 150                 155                 160

Pro Ser Thr Leu Ser Leu Leu Gly Pro Thr Phe Pro Gly Leu Ser Ser
                165                 170                 175

Cys Ser Ala Asp Leu Lys Asp Ile Leu Ser Glu Ala Ser Thr Met Gln
            180                 185                 190

Leu Leu Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser Ser Ser
        195                 200                 205

Gly Arg Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys Asp Asn
    210                 215                 220

Tyr Leu Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu Leu Cys
225                 230                 235                 240

Lys Ala Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu Glu His
                245                 250                 255

Leu Ser Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala Pro Leu
            260                 265                 270
```

```
Leu Gly Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro Leu Ala
        275                 280                 285

Glu Cys Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser Thr Glu
    290                 295                 300

Asp Thr Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys Gly Leu
305                 310                 315                 320

Glu Gly Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly Ser Ser
                325                 330                 335

Gly Thr Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser Gly Ala
            340                 345                 350

Leu Asp Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn Phe Pro
        355                 360                 365

Leu Ala Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro Pro His Pro His
    370                 375                 380

Ala Arg Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala Trp Ala
385                 390                 395                 400

Ala Ala Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu His Gly
                405                 410                 415

Ala Gly Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala Ala Ser
            420                 425                 430

Ser Ser Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu Tyr Gly
        435                 440                 445

Pro Cys Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
    450                 455                 460

Gly Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val Ala Pro
465                 470                 475                 480

Tyr Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu Ser Asp
                485                 490                 495
```

```
Phe Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser Arg Val
            500                 505                 510

Pro Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro Trp Met
        515                 520                 525

Asp Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Leu Glu Thr Ala Arg
    530                 535                 540

Asp His Val Leu Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys Thr Cys
545                 550                 555                 560

Leu Ile Cys Gly Asp Glu Ala Ser Gly Cys His Tyr Gly Ala Leu Thr
                565                 570                 575

Cys Gly Ser Cys Lys Val Phe Phe Lys Arg Ala Ala Glu Gly Lys Gln
            580                 585                 590

Lys Tyr Leu Cys Ala Ser Arg Asn Asp Cys Thr Ile Asp Lys Phe Arg
        595                 600                 605

Arg Lys Asn Cys Pro Ser Cys Arg Leu Arg Lys Cys Tyr Glu Ala Gly
    610                 615                 620

Met Thr Leu Gly Ala Arg Lys Leu Lys Lys Leu Gly Asn Leu Lys Leu
625                 630                 635                 640

Gln Glu Glu Gly Glu Ala Ser Ser Thr Thr Ser Pro Thr Glu Glu Thr
                645                 650                 655

Thr Gln Lys Leu Thr Val Ser His Ile Glu Gly Tyr Glu Cys Gln Pro
            660                 665                 670

Ile Phe Leu Asn Val Leu Glu Ala Ile Glu Pro Gly Val Val Cys Ala
        675                 680                 685

Gly His Asp Asn Asn Gln Pro Asp Ser Phe Ala Ala Leu Leu Ser Ser
    690                 695                 700

Leu Asn Glu Leu Gly Glu Arg Gln Leu Val His Val Val Lys Trp Ala
705                 710                 715                 720

Lys Ala Leu Pro Gly Phe Arg Asn Leu His Val Asp Asp Gln Met Ala
```

```
                725                 730                 735

Val Ile Gln Tyr Ser Trp Met Gly Leu Met Val Phe Ala Met Gly Trp
            740                 745                 750

Arg Ser Phe Thr Asn Val Asn Ser Arg Met Leu Tyr Phe Ala Pro Asp
        755                 760                 765

Leu Val Phe Asn Glu Tyr Arg Met His Lys Ser Arg Met Tyr Ser Gln
    770                 775                 780

Cys Val Arg Met Arg His Leu Ser Gln Glu Phe Gly Trp Leu Gln Ile
785                 790                 795                 800

Thr Pro Gln Glu Phe Leu Cys Met Lys Ala Leu Leu Leu Phe Ser Ile
                805                 810                 815

Ile Pro Val Asp Gly Leu Lys Asn Gln Lys Phe Phe Asp Glu Leu Arg
            820                 825                 830

Met Asn Tyr Ile Lys Glu Leu Asp Arg Ile Ile Ala Cys Lys Arg Lys
        835                 840                 845

Asn Pro Thr Ser Cys Ser Arg Arg Phe Tyr Gln Leu Thr Lys Leu Leu
    850                 855                 860

Asp Ser Val Gln Pro Ile Ala Arg Glu Leu His Gln Phe Thr Phe Asp
865                 870                 875                 880

Leu Leu Ile Lys Ser His Met Val Ser Val Asp Phe Pro Glu Met Met
                885                 890                 895

Ala Glu Ile Ile Ser Val Gln Val Pro Lys Ile Leu Ser Gly Lys Val
            900                 905                 910

Lys Pro Ile Tyr Phe His Thr Gln
        915                 920
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<210> 4702
<211> 388
<212> PRT
<213> Homo sapiens

<220>

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<223> /note="Payload ID: 1034; "

<220>
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<223> /note="Gene Symbol: AR; "

<220>
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<223> /note="Gene Name:
androgen receptor; "

<220>
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<223> /note="Uniprot ID: P10275; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379358"

<400> 4702

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Met Ile Leu Trp Leu His Ser Leu Glu Thr Ala Arg Asp His Val Leu
1               5                  10                  15

Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys Thr Cys Leu Ile Cys Gly
            20                  25                  30

Asp Glu Ala Ser Gly Cys His Tyr Gly Ala Leu Thr Cys Gly Ser Cys
        35                  40                  45

Lys Val Phe Phe Lys Arg Ala Ala Glu Gly Lys Gln Lys Tyr Leu Cys
    50                  55                  60

Ala Ser Arg Asn Asp Cys Thr Ile Asp Lys Phe Arg Arg Lys Asn Cys
65                  70                  75                  80

Pro Ser Cys Arg Leu Arg Lys Cys Tyr Glu Ala Gly Met Thr Leu Gly
                85                  90                  95

Ala Arg Lys Leu Lys Lys Leu Gly Asn Leu Lys Leu Gln Glu Glu Gly
            100                 105                 110

Glu Ala Ser Ser Thr Thr Ser Pro Thr Glu Glu Thr Thr Gln Lys Leu
        115                 120                 125

Thr Val Ser His Ile Glu Gly Tyr Glu Cys Gln Pro Ile Phe Leu Asn
    130                 135                 140
```

```
Val Leu Glu Ala Ile Glu Pro Gly Val Val Cys Ala Gly His Asp Asn
145                 150                 155                 160

Asn Gln Pro Asp Ser Phe Ala Ala Leu Leu Ser Ser Leu Asn Glu Leu
                165                 170                 175

Gly Glu Arg Gln Leu Val His Val Val Lys Trp Ala Lys Ala Leu Pro
            180                 185                 190

Gly Phe Arg Asn Leu His Val Asp Asp Gln Met Ala Val Ile Gln Tyr
        195                 200                 205

Ser Trp Met Gly Leu Met Val Phe Ala Met Gly Trp Arg Ser Phe Thr
    210                 215                 220

Asn Val Asn Ser Arg Met Leu Tyr Phe Ala Pro Asp Leu Val Phe Asn
225                 230                 235                 240

Glu Tyr Arg Met His Lys Ser Arg Met Tyr Ser Gln Cys Val Arg Met
                245                 250                 255

Arg His Leu Ser Gln Glu Phe Gly Trp Leu Gln Ile Thr Pro Gln Glu
            260                 265                 270

Phe Leu Cys Met Lys Ala Leu Leu Leu Phe Ser Ile Ile Pro Val Asp
        275                 280                 285

Gly Leu Lys Asn Gln Lys Phe Phe Asp Glu Leu Arg Met Asn Tyr Ile
    290                 295                 300

Lys Glu Leu Asp Arg Ile Ile Ala Cys Lys Arg Lys Asn Pro Thr Ser
305                 310                 315                 320

Cys Ser Arg Arg Phe Tyr Gln Leu Thr Lys Leu Leu Asp Ser Val Gln
                325                 330                 335

Pro Ile Ala Arg Glu Leu His Gln Phe Thr Phe Asp Leu Leu Ile Lys
            340                 345                 350

Ser His Met Val Ser Val Asp Phe Pro Glu Met Met Ala Glu Ile Ile
        355                 360                 365

Ser Val Gln Val Pro Lys Ile Leu Ser Gly Lys Val Lys Pro Ile Tyr
```

370 375 380

Phe His Thr Gln
385

<210> 4703
<211> 734
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AR; "

<220>
<221> source
<223> /note="Gene Name:
androgen receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000379359"

<400> 4703
Met Glu Val Gln Leu Gly Leu Gly Arg Val Tyr Pro Arg Pro Pro Ser
1 5 10 15

Lys Thr Tyr Arg Gly Ala Phe Gln Asn Leu Phe Gln Ser Val Arg Glu
20 25 30

Val Ile Gln Asn Pro Gly Pro Arg His Pro Glu Ala Ala Ser Ala Ala
35 40 45

Pro Pro Gly Ala Ser Leu Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln
50 55 60

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
65 70 75 80

Glu Thr Ser Pro Arg Gln Gln Gln Gln Gln Gln Gly Glu Asp Gly Ser
85 90 95

Pro Gln Ala His Arg Arg Gly Pro Thr Gly Tyr Leu Val Leu Asp Glu
100 105 110

```
Glu Gln Gln Pro Ser Gln Pro Gln Ser Ala Leu Glu Cys His Pro Glu
        115                 120                 125

Arg Gly Cys Val Pro Glu Pro Gly Ala Ala Val Ala Ala Ser Lys Gly
    130                 135                 140

Leu Pro Gln Gln Leu Pro Ala Pro Pro Asp Glu Asp Asp Ser Ala Ala
145                 150                 155                 160

Pro Ser Thr Leu Ser Leu Leu Gly Pro Thr Phe Pro Gly Leu Ser Ser
                165                 170                 175

Cys Ser Ala Asp Leu Lys Asp Ile Leu Ser Glu Ala Ser Thr Met Gln
            180                 185                 190

Leu Leu Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser Ser Ser
        195                 200                 205

Gly Arg Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys Asp Asn
    210                 215                 220

Tyr Leu Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu Leu Cys
225                 230                 235                 240

Lys Ala Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu Glu His
                245                 250                 255

Leu Ser Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala Pro Leu
            260                 265                 270

Leu Gly Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro Leu Ala
        275                 280                 285

Glu Cys Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser Thr Glu
    290                 295                 300

Asp Thr Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys Gly Leu
305                 310                 315                 320

Glu Gly Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly Ser Ser
                325                 330                 335
```

```
Gly Thr Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser Gly Ala
            340                 345                 350

Leu Asp Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn Phe Pro
        355                 360                 365

Leu Ala Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro Pro His Pro His
    370                 375                 380

Ala Arg Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala Trp Ala
385                 390                 395                 400

Ala Ala Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu His Gly
                405                 410                 415

Ala Gly Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala Ala Ser
            420                 425                 430

Ser Ser Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu Tyr Gly
        435                 440                 445

Pro Cys Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
    450                 455                 460

Gly Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val Ala Pro
465                 470                 475                 480

Tyr Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu Ser Asp
                485                 490                 495

Phe Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser Arg Val
            500                 505                 510

Pro Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro Trp Met
        515                 520                 525

Asp Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Leu Glu Thr Ala Arg
    530                 535                 540

Asp His Val Leu Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys Thr Cys
545                 550                 555                 560

Leu Ile Cys Gly Asp Glu Ala Ser Gly Cys His Tyr Gly Ala Leu Thr
```

565 570 575

Cys Gly Ser Cys Lys Val Phe Phe Lys Arg Ala Ala Glu Gly Lys Gln
580 585 590

Lys Tyr Leu Cys Ala Ser Arg Asn Asp Cys Thr Ile Asp Lys Phe Arg
595 600 605

Arg Lys Asn Cys Pro Ser Cys Arg Leu Arg Lys Cys Tyr Glu Ala Gly
610 615 620

Met Thr Leu Gly Ala Arg Lys Leu Lys Lys Leu Gly Asn Leu Lys Leu
625 630 635 640

Gln Glu Glu Gly Glu Ala Ser Ser Thr Thr Ser Pro Thr Glu Glu Thr
645 650 655

Thr Gln Lys Leu Thr Val Ser His Ile Glu Gly Tyr Glu Cys Gln Pro
660 665 670

Ile Phe Leu Asn Val Leu Glu Ala Ile Glu Pro Gly Val Val Cys Ala
675 680 685

Gly His Asp Asn Asn Gln Pro Asp Ser Phe Ala Ala Leu Leu Ser Ser
690 695 700

Leu Asn Glu Leu Gly Glu Arg Gln Leu Val His Val Val Lys Trp Ala
705 710 715 720

Lys Ala Leu Pro Asp Cys Glu Arg Ala Ala Ser Val His Phe
725 730

<210> 4704
<211> 644
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1034; "

<220>
<221> source
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<221> source
<223> /note="Gene Name:
androgen receptor; "

<220>
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<400> 4704

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Met Glu Val Gln Leu Gly Leu Gly Arg Val Tyr Pro Arg Pro Pro Ser
1               5                  10                  15

Lys Thr Tyr Arg Gly Ala Phe Gln Asn Leu Phe Gln Ser Val Arg Glu
            20                  25                  30

Val Ile Gln Asn Pro Gly Pro Arg His Pro Glu Ala Ala Ser Ala Ala
        35                  40                  45

Pro Pro Gly Ala Ser Leu Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln
    50                  55                  60

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
65                  70                  75                  80

Glu Thr Ser Pro Arg Gln Gln Gln Gln Gln Gln Gly Glu Asp Gly Ser
                85                  90                  95

Pro Gln Ala His Arg Arg Gly Pro Thr Gly Tyr Leu Val Leu Asp Glu
            100                 105                 110

Glu Gln Gln Pro Ser Gln Pro Gln Ser Ala Leu Glu Cys His Pro Glu
        115                 120                 125

Arg Gly Cys Val Pro Glu Pro Gly Ala Ala Val Ala Ala Ser Lys Gly
    130                 135                 140

Leu Pro Gln Gln Leu Pro Ala Pro Pro Asp Glu Asp Asp Ser Ala Ala
145                 150                 155                 160

Pro Ser Thr Leu Ser Leu Leu Gly Pro Thr Phe Pro Gly Leu Ser Ser
                165                 170                 175

Cys Ser Ala Asp Leu Lys Asp Ile Leu Ser Glu Ala Ser Thr Met Gln
            180                 185                 190
```

```
Leu Leu Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser Ser Ser
        195                 200                 205

Gly Arg Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys Asp Asn
    210                 215                 220

Tyr Leu Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu Leu Cys
225                 230                 235                 240

Lys Ala Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu Glu His
                245                 250                 255

Leu Ser Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala Pro Leu
            260                 265                 270

Leu Gly Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro Leu Ala
        275                 280                 285

Glu Cys Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser Thr Glu
    290                 295                 300

Asp Thr Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys Gly Leu
305                 310                 315                 320

Glu Gly Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly Ser Ser
                325                 330                 335

Gly Thr Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser Gly Ala
            340                 345                 350

Leu Asp Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn Phe Pro
        355                 360                 365

Leu Ala Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro Pro His Pro His
    370                 375                 380

Ala Arg Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala Trp Ala
385                 390                 395                 400

Ala Ala Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu His Gly
                405                 410                 415

Ala Gly Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala Ala Ser
```

420 425 430

Ser Ser Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu Tyr Gly
435 440 445

Pro Cys Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
450 455 460

Gly Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val Ala Pro
465 470 475 480

Tyr Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu Ser Asp
485 490 495

Phe Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser Arg Val
500 505 510

Pro Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro Trp Met
515 520 525

Asp Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Leu Glu Thr Ala Arg
530 535 540

Asp His Val Leu Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys Thr Cys
545 550 555 560

Leu Ile Cys Gly Asp Glu Ala Ser Gly Cys His Tyr Gly Ala Leu Thr
565 570 575

Cys Gly Ser Cys Lys Val Phe Phe Lys Arg Ala Ala Glu Gly Lys Gln
580 585 590

Lys Tyr Leu Cys Ala Ser Arg Asn Asp Cys Thr Ile Asp Lys Phe Arg
595 600 605

Arg Lys Asn Cys Pro Ser Cys Arg Leu Arg Lys Cys Tyr Glu Ala Gly
610 615 620

Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys
625 630 635 640

Met Thr Arg Pro

<210> 4705
<211> 600
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1034; "

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<223> /note="Gene Symbol: AR; "

<220>
<221> source
<223> /note="Gene Name:
androgen receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000425199"

<400> 4705
Met Glu Val Gln Leu Gly Leu Gly Arg Val Tyr Pro Arg Pro Pro Ser
1 5 10 15

Lys Thr Tyr Arg Gly Ala Phe Gln Asn Leu Phe Gln Ser Val Arg Glu
20 25 30

Val Ile Gln Asn Pro Gly Pro Arg His Pro Glu Ala Ala Ser Ala Ala
35 40 45

Pro Pro Gly Ala Ser Leu Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln
50 55 60

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
65 70 75 80

Glu Thr Ser Pro Arg Gln Gln Gln Gln Gln Gln Gly Glu Asp Gly Ser
85 90 95

Pro Gln Ala His Arg Arg Gly Pro Thr Gly Tyr Leu Val Leu Asp Glu
100 105 110

Glu Gln Gln Pro Ser Gln Pro Gln Ser Ala Leu Glu Cys His Pro Glu
115 120 125

```
Arg Gly Cys Val Pro Glu Pro Gly Ala Ala Val Ala Ala Ser Lys Gly
    130                 135                 140

Leu Pro Gln Gln Leu Pro Ala Pro Pro Asp Glu Asp Asp Ser Ala Ala
145                 150                 155                 160

Pro Ser Thr Leu Ser Leu Leu Gly Pro Thr Phe Pro Gly Leu Ser Ser
                165                 170                 175

Cys Ser Ala Asp Leu Lys Asp Ile Leu Ser Glu Ala Ser Thr Met Gln
            180                 185                 190

Leu Leu Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser Ser Ser
        195                 200                 205

Gly Arg Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys Asp Asn
    210                 215                 220

Tyr Leu Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu Leu Cys
225                 230                 235                 240

Lys Ala Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu Glu His
                245                 250                 255

Leu Ser Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala Pro Leu
            260                 265                 270

Leu Gly Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro Leu Ala
        275                 280                 285

Glu Cys Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser Thr Glu
    290                 295                 300

Asp Thr Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys Gly Leu
305                 310                 315                 320

Glu Gly Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly Ser Ser
                325                 330                 335

Gly Thr Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser Gly Ala
            340                 345                 350

Leu Asp Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn Phe Pro
```

355 360 365

Leu Ala Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro His Pro His
370 375 380

Ala Arg Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala Trp Ala
385 390 395 400

Ala Ala Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu His Gly
405 410 415

Ala Gly Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala Ala Ser
420 425 430

Ser Ser Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu Tyr Gly
435 440 445

Pro Cys Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
450 455 460

Gly Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val Ala Pro
465 470 475 480

Tyr Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu Ser Asp
485 490 495

Phe Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser Arg Val
500 505 510

Pro Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro Trp Met
515 520 525

Asp Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Leu Glu Thr Ala Arg
530 535 540

Asp His Val Leu Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys Thr Cys
545 550 555 560

Leu Ile Cys Gly Asp Glu Ala Ser Gly Cys His Tyr Gly Ala Leu Thr
565 570 575

Cys Gly Ser Cys Lys Val Phe Phe Lys Arg Ala Ala Glu Gly Phe Phe
580 585 590

```
Arg Met Asn Lys Leu Lys Glu Ser
        595                 600


<210> 4706
<211> 572
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1034; "

<220>
<221> source
<223> /note="Gene Symbol: AR; "

<220>
<221> source
<223> /note="Gene Name:
      androgen receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479013"

<400> 4706
Met Glu Val Gln Leu Gly Leu Gly Arg Val Tyr Pro Arg Pro Pro Ser
1               5                   10                  15


Lys Thr Tyr Arg Gly Ala Phe Gln Asn Leu Phe Gln Ser Val Arg Glu
            20                  25                  30


Val Ile Gln Asn Pro Gly Pro Arg His Pro Glu Ala Ala Ser Ala Ala
        35                  40                  45


Pro Pro Gly Ala Ser Leu Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln
    50                  55                  60


Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
65                  70                  75                  80


Glu Thr Ser Pro Arg Gln Gln Gln Gln Gln Gln Gly Glu Asp Gly Ser
                85                  90                  95


Pro Gln Ala His Arg Arg Gly Pro Thr Gly Tyr Leu Val Leu Asp Glu
            100                 105                 110
```

```
Glu Gln Gln Pro Ser Gln Pro Gln Ser Ala Leu Glu Cys His Pro Glu
        115                 120                 125

Arg Gly Cys Val Pro Glu Pro Gly Ala Ala Val Ala Ala Ser Lys Gly
    130                 135                 140

Leu Pro Gln Gln Leu Pro Ala Pro Pro Asp Glu Asp Asp Ser Ala Ala
145                 150                 155                 160

Pro Ser Thr Leu Ser Leu Leu Gly Pro Thr Phe Pro Gly Leu Ser Ser
                165                 170                 175

Cys Ser Ala Asp Leu Lys Asp Ile Leu Ser Glu Ala Ser Thr Met Gln
            180                 185                 190

Leu Leu Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser Ser Ser
        195                 200                 205

Gly Arg Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys Asp Asn
    210                 215                 220

Tyr Leu Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu Leu Cys
225                 230                 235                 240

Lys Ala Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu Glu His
                245                 250                 255

Leu Ser Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala Pro Leu
            260                 265                 270

Leu Gly Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro Leu Ala
        275                 280                 285

Glu Cys Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser Thr Glu
    290                 295                 300

Asp Thr Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys Gly Leu
305                 310                 315                 320

Glu Gly Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly Ser Ser
                325                 330                 335

Gly Thr Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser Gly Ala
```

```
            340                 345                 350

Leu Asp Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn Phe Pro
        355                 360                 365

Leu Ala Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro Pro His Pro His
    370                 375                 380

Ala Arg Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala Trp Ala
385                 390                 395                 400

Ala Ala Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu His Gly
                405                 410                 415

Ala Gly Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala Ala Ser
            420                 425                 430

Ser Ser Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu Tyr Gly
        435                 440                 445

Pro Cys Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
    450                 455                 460

Gly Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val Ala Pro
465                 470                 475                 480

Tyr Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu Ser Asp
                485                 490                 495

Phe Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser Arg Val
            500                 505                 510

Pro Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro Trp Met
        515                 520                 525

Asp Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Asn Thr Arg Arg Lys
    530                 535                 540

Arg Leu Trp Lys Leu Ile Ile Arg Ser Ile Asn Ser Cys Ile Cys Ser
545                 550                 555                 560

Pro Arg Glu Thr Glu Val Pro Val Arg Gln Gln Lys
                565                 570
```

<210> 4707
<211> 642
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1034; "

<220>
<221> source
<223> /note="Gene Symbol: AR; "

<220>
<221> source
<223> /note="Gene Name:
androgen receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482407"

<400> 4707
Met Glu Val Gln Leu Gly Leu Gly Arg Val Tyr Pro Arg Pro Pro Ser
1 5 10 15

Lys Thr Tyr Arg Gly Ala Phe Gln Asn Leu Phe Gln Ser Val Arg Glu
20 25 30

Val Ile Gln Asn Pro Gly Pro Arg His Pro Glu Ala Ala Ser Ala Ala
35 40 45

Pro Pro Gly Ala Ser Leu Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln
50 55 60

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
65 70 75 80

Glu Thr Ser Pro Arg Gln Gln Gln Gln Gln Gln Gly Glu Asp Gly Ser
85 90 95

Pro Gln Ala His Arg Arg Gly Pro Thr Gly Tyr Leu Val Leu Asp Glu
100 105 110

Glu Gln Gln Pro Ser Gln Pro Gln Ser Ala Leu Glu Cys His Pro Glu
115 120 125

```
Arg Gly Cys Val Pro Glu Pro Gly Ala Ala Val Ala Ala Ser Lys Gly
    130                 135                 140

Leu Pro Gln Gln Leu Pro Ala Pro Pro Asp Glu Asp Asp Ser Ala Ala
145                 150                 155                 160

Pro Ser Thr Leu Ser Leu Leu Gly Pro Thr Phe Pro Gly Leu Ser Ser
                165                 170                 175

Cys Ser Ala Asp Leu Lys Asp Ile Leu Ser Glu Ala Ser Thr Met Gln
            180                 185                 190

Leu Leu Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser Ser Ser
        195                 200                 205

Gly Arg Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys Asp Asn
    210                 215                 220

Tyr Leu Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu Leu Cys
225                 230                 235                 240

Lys Ala Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu Glu His
                245                 250                 255

Leu Ser Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala Pro Leu
            260                 265                 270

Leu Gly Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro Leu Ala
        275                 280                 285

Glu Cys Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser Thr Glu
    290                 295                 300

Asp Thr Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys Gly Leu
305                 310                 315                 320

Glu Gly Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly Ser Ser
                325                 330                 335

Gly Thr Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser Gly Ala
            340                 345                 350

Leu Asp Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn Phe Pro
```

355 360 365

Leu Ala Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro His Pro His
370 375 380

Ala Arg Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala Trp Ala
385 390 395 400

Ala Ala Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu His Gly
405 410 415

Ala Gly Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala Ala Ser
420 425 430

Ser Ser Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu Tyr Gly
435 440 445

Pro Cys Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
450 455 460

Gly Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val Ala Pro
465 470 475 480

Tyr Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu Ser Asp
485 490 495

Phe Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser Arg Val
500 505 510

Pro Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro Trp Met
515 520 525

Asp Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Leu Glu Thr Ala Arg
530 535 540

Asp His Val Leu Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys Thr Cys
545 550 555 560

Leu Ile Cys Gly Asp Glu Ala Ser Gly Cys His Tyr Gly Ala Leu Thr
565 570 575

Cys Gly Ser Cys Lys Val Phe Phe Lys Arg Ala Ala Glu Gly Phe Phe
580 585 590

```
Arg Met Asn Lys Leu Lys Glu Ser Ser Asp Thr Asn Pro Lys Pro Tyr
        595                 600                 605

Cys Met Ala Ala Pro Met Gly Leu Thr Glu Asn Asn Arg Asn Arg Lys
    610                 615                 620

Lys Ser Tyr Arg Glu Thr Asn Leu Lys Ala Val Ser Trp Pro Leu Asn
625                 630                 635                 640

His Thr
```

<210> 4708
<211> 737
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1034; "

<220>
<221> source
<223> /note="Gene Symbol: AR; "

<220>
<221> source
<223> /note="Gene Name:
androgen receptor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484033"

<400> 4708

```
Met Gln Leu Leu Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser
1               5                  10                  15

Ser Ser Gly Arg Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys
            20                  25                  30

Asp Asn Tyr Leu Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu
        35                  40                  45

Leu Cys Lys Ala Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu
    50                  55                  60
```

```
Glu His Leu Ser Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala
65                  70                  75                  80

Pro Leu Leu Gly Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro
                85                  90                  95

Leu Ala Glu Cys Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser
            100                 105                 110

Thr Glu Asp Thr Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys
        115                 120                 125

Gly Leu Glu Gly Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly
    130                 135                 140

Ser Ser Gly Thr Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser
145                 150                 155                 160

Gly Ala Leu Asp Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn
                165                 170                 175

Phe Pro Leu Ala Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro Pro His
            180                 185                 190

Pro His Ala Arg Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala
        195                 200                 205

Trp Ala Ala Ala Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu
    210                 215                 220

His Gly Ala Gly Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala
225                 230                 235                 240

Ala Ser Ser Ser Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu
                245                 250                 255

Tyr Gly Pro Cys Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
            260                 265                 270

Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val
        275                 280                 285

Ala Pro Tyr Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu
```

290 295 300

Ser Asp Phe Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser
305 310 315 320

Arg Val Pro Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro
325 330 335

Trp Met Asp Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Leu Glu Thr
340 345 350

Ala Arg Asp His Val Leu Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys
355 360 365

Thr Cys Leu Ile Cys Gly Asp Glu Ala Ser Gly Cys His Tyr Gly Ala
370 375 380

Leu Thr Cys Gly Ser Cys Lys Val Phe Phe Lys Arg Ala Ala Glu Gly
385 390 395 400

Lys Gln Lys Tyr Leu Cys Ala Ser Arg Asn Asp Cys Thr Ile Asp Lys
405 410 415

Phe Arg Arg Lys Asn Cys Pro Ser Cys Arg Leu Arg Lys Cys Tyr Glu
420 425 430

Ala Gly Met Thr Leu Gly Ala Arg Lys Leu Lys Lys Leu Gly Asn Leu
435 440 445

Lys Leu Gln Glu Glu Gly Glu Ala Ser Ser Thr Thr Ser Pro Thr Glu
450 455 460

Glu Thr Thr Gln Lys Leu Thr Val Ser His Ile Glu Gly Tyr Glu Cys
465 470 475 480

Gln Pro Ile Phe Leu Asn Val Leu Glu Ala Ile Glu Pro Gly Val Val
485 490 495

Cys Ala Gly His Asp Asn Asn Gln Pro Asp Ser Phe Ala Ala Leu Leu
500 505 510

Ser Ser Leu Asn Glu Leu Gly Glu Arg Gln Leu Val His Val Val Lys
515 520 525

```
Trp Ala Lys Ala Leu Pro Gly Phe Arg Asn Leu His Val Asp Asp Gln
    530                 535                 540

Met Ala Val Ile Gln Tyr Ser Trp Met Gly Leu Met Val Phe Ala Met
545                 550                 555                 560

Gly Trp Arg Ser Phe Thr Asn Val Asn Ser Arg Met Leu Tyr Phe Ala
                565                 570                 575

Pro Asp Leu Val Phe Asn Glu Tyr Arg Met His Lys Ser Arg Met Tyr
            580                 585                 590

Ser Gln Cys Val Arg Met Arg His Leu Ser Gln Glu Phe Gly Trp Leu
        595                 600                 605

Gln Ile Thr Pro Gln Glu Phe Leu Cys Met Lys Ala Leu Leu Leu Phe
    610                 615                 620

Ser Ile Lys Ala Asn Leu Phe Ala Arg Ile Pro Val Asp Gly Leu Lys
625                 630                 635                 640

Asn Gln Lys Phe Phe Asp Glu Leu Arg Met Asn Tyr Ile Lys Glu Leu
                645                 650                 655

Asp Arg Ile Ile Ala Cys Lys Arg Lys Asn Pro Thr Ser Cys Ser Arg
            660                 665                 670

Arg Phe Tyr Gln Leu Thr Lys Leu Leu Asp Ser Val Gln Pro Ile Ala
        675                 680                 685

Arg Glu Leu His Gln Phe Thr Phe Asp Leu Leu Ile Lys Ser His Met
    690                 695                 700

Val Ser Val Asp Phe Pro Glu Met Met Ala Glu Ile Ile Ser Val Gln
705                 710                 715                 720

Val Pro Lys Ile Leu Ser Gly Lys Val Lys Pro Ile Tyr Phe His Thr
                725                 730                 735

Gln
```

<210> 4709
<211> 248
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1035; "

<220>
<221> source
<223> /note="Gene Symbol: ADTRP; "

<220>
<221> source
<223> /note="Gene Name:
androgen-dependent TFPI-regulating prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q96IZ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000229583"

<400> 4709
Met Thr Lys Thr Ser Thr Cys Ile Tyr His Phe Leu Val Leu Ser Trp
1   5   10   15

Tyr Thr Phe Leu Asn Tyr Tyr Ile Ser Gln Glu Gly Lys Asp Glu Val
            20   25   30

Lys Pro Lys Ile Leu Ala Asn Gly Ala Arg Trp Lys Tyr Met Thr Leu
        35   40   45

Leu Asn Leu Leu Lys Asn Arg Thr Ala Gly Phe Asp Ile Tyr Gln Pro
    50   55   60

Gly Ser Phe Arg Gln Leu Leu Gln Thr Ile Phe Tyr Gly Val Thr Cys
65   70   75   80

Leu Asp Asp Val Leu Lys Arg Thr Lys Gly Gly Lys Asp Ile Lys Phe
                85   90   95

Leu Thr Ala Phe Arg Asp Leu Leu Phe Thr Thr Leu Ala Phe Pro Val
            100   105   110

Ser Thr Phe Val Phe Leu Ala Phe Trp Ile Leu Phe Leu Tyr Asn Arg

```
        115                 120                 125

Asp Leu Ile Tyr Pro Lys Val Leu Asp Thr Val Ile Pro Val Trp Leu
    130                 135                 140

Asn His Ala Met His Thr Phe Ile Phe Pro Ile Thr Leu Ala Glu Val
145                 150                 155                 160

Val Leu Arg Pro His Ser Tyr Pro Ser Lys Lys Thr Gly Leu Thr Leu
                165                 170                 175

Leu Ala Ala Ala Ser Ile Ala Tyr Ile Ser Arg Ile Leu Trp Leu Tyr
            180                 185                 190

Phe Glu Thr Gly Thr Trp Val Tyr Pro Val Phe Ala Lys Leu Ser Leu
        195                 200                 205

Leu Gly Leu Ala Ala Phe Phe Ser Leu Ser Tyr Val Phe Ile Ala Ser
    210                 215                 220

Ile Tyr Leu Leu Gly Glu Lys Leu Asn His Trp Lys Trp Gly Asp Met
225                 230                 235                 240

Arg Gln Pro Arg Lys Lys Arg Lys
                245


<210> 4710
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1035; "

<220>
<221> source
<223> /note="Gene Symbol: ADTRP; "

<220>
<221> source
<223> /note="Gene Name:
      androgen-dependent TFPI-regulating prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368726"
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<400> 4710
Met Thr Lys Thr Ser Thr Cys Ile Tyr His Phe Leu Val Leu Ser Trp
1 5 10 15

Tyr Thr Phe Leu Asn Tyr Tyr Ile Ser Gln Glu Gly Lys Asp Glu Val
20 25 30

Lys Pro Lys Ile Leu Ala Asn Gly Ala Arg Trp Lys Tyr Met Thr Leu
35 40 45

Leu Asn Leu Leu Leu Gln Thr Ile Phe Tyr Gly Val Thr Cys Leu Asp
50 55 60

Asp Val Leu Lys Arg Thr Lys Gly Gly Lys Asp Ile Lys Phe Leu Thr
65 70 75 80

Ala Phe Arg Asp Leu Leu Phe Thr Thr Leu Ala Phe Pro Val Ser Thr
85 90 95

Phe Val Phe Leu Ala Phe Trp Ile Leu Phe Leu Tyr Asn Arg Asp Leu
100 105 110

Ile Tyr Pro Lys Val Leu Asp Thr Val Ile Pro Val Trp Leu Asn His
115 120 125

Ala Met His Thr Phe Ile Phe Pro Ile Thr Leu Ala Glu Val Val Leu
130 135 140

Arg Pro His Ser Tyr Pro Ser Lys Lys Thr Gly Leu Thr Leu Leu Ala
145 150 155 160

Ala Ala Ser Ile Ala Tyr Ile Ser
165

<210> 4711
<211> 230
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1035; "

<220>
<221> source
<223> /note="Gene Symbol: ADTRP; "

<220>
<221> source
<223> /note="Gene Name:
androgen-dependent TFPI-regulating prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q96IZ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404416"

<400> 4711
Met Thr Lys Thr Ser Thr Cys Ile Tyr His Phe Leu Val Leu Ser Trp
1 5 10 15

Tyr Thr Phe Leu Asn Tyr Tyr Ile Ser Gln Glu Gly Lys Asp Glu Val
20 25 30

Lys Pro Lys Ile Leu Ala Asn Gly Ala Arg Trp Lys Tyr Met Thr Leu
35 40 45

Leu Asn Leu Leu Leu Gln Thr Ile Phe Tyr Gly Val Thr Cys Leu Asp
50 55 60

Asp Val Leu Lys Arg Thr Lys Gly Gly Lys Asp Ile Lys Phe Leu Thr
65 70 75 80

Ala Phe Arg Asp Leu Leu Phe Thr Thr Leu Ala Phe Pro Val Ser Thr
85 90 95

Phe Val Phe Leu Ala Phe Trp Ile Leu Phe Leu Tyr Asn Arg Asp Leu
100 105 110

Ile Tyr Pro Lys Val Leu Asp Thr Val Ile Pro Val Trp Leu Asn His
115 120 125

Ala Met His Thr Phe Ile Phe Pro Ile Thr Leu Ala Glu Val Val Leu
130 135 140

Arg Pro His Ser Tyr Pro Ser Lys Lys Thr Gly Leu Thr Leu Leu Ala
145 150 155 160

Ala Ala Ser Ile Ala Tyr Ile Ser Arg Ile Leu Trp Leu Tyr Phe Glu
165 170 175

```
Thr Gly Thr Trp Val Tyr Pro Val Phe Ala Lys Leu Ser Leu Leu Gly
            180                 185                 190

Leu Ala Ala Phe Phe Ser Leu Ser Tyr Val Phe Ile Ala Ser Ile Tyr
        195                 200                 205

Leu Leu Gly Glu Lys Leu Asn His Trp Lys Trp Gly Asp Met Arg Gln
    210                 215                 220

Pro Arg Lys Lys Arg Lys
225                 230


<210> 4712
<211> 86
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1035; "

<220>
<221> source
<223> /note="Gene Symbol: ADTRP; "

<220>
<221> source
<223> /note="Gene Name:
      androgen-dependent TFPI-regulating prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420956"

<400> 4712
Met Thr Lys Thr Ser Thr Cys Ile Tyr His Phe Leu Val Leu Ser Trp
1               5                  10                  15

Tyr Thr Phe Leu Asn Tyr Tyr Ile Ser Gln Glu Gly Lys Asp Glu Val
            20                  25                  30

Lys Pro Lys Ile Leu Ala Asn Gly Ala Arg Trp Lys Tyr Met Thr Leu
        35                  40                  45

Leu Asn Leu Ser Ser Ser Arg Thr Gly Leu Leu Gly Leu Thr Ser Thr
    50                  55                  60
```

Ser Gln Glu Ala Leu Gly Ser Ser Cys Arg Pro Phe Ser Thr Gly Ser
65 70 75 80

Pro Ala Trp Met Met Cys
85

<210> 4713
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1035; "

<220>
<221> source
<223> /note="Gene Symbol: ADTRP; "

<220>
<221> source
<223> /note="Gene Name:
androgen-dependent TFPI-regulating prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422927"

<400> 4713
Met Thr Lys Thr Ser Thr Cys Ile Tyr His Phe Leu Val Leu Ser Trp
1 5 10 15

Tyr Thr Phe Leu Asn Tyr Tyr Ile Ser Gln Glu Gly Lys Asp Glu Val
20 25 30

Lys Pro Lys Ile Leu Ala Asn Gly Ala Arg Trp Lys Tyr Met Thr Leu
35 40 45

Leu Asn Leu Leu Leu Gln Thr Ile Phe Tyr Gly Val Thr Cys Leu Asp
50 55 60

Asp Val Leu Lys Arg Thr Lys Gly Gly Lys Asp Ile Lys Phe Leu Thr
65 70 75 80

Ala Phe Arg Asp Leu Leu Phe Thr Thr Leu Ala Phe Pro Val Ser Thr
85 90 95

Phe Val Phe Leu Ala Phe Trp Ile Leu Phe Leu Tyr Asn Arg Asp Leu
100 105 110

```
Ile Tyr Pro Lys Val Leu Asp Thr Val Ile Pro Val Trp Leu Asn His
        115                 120                 125

Ala Met His Thr Phe Ile Phe Pro Ile Thr Leu Ala Glu Val Val Leu
    130                 135                 140

Arg Pro His Ser Tyr Pro Ser Lys Lys Thr Gly Leu Thr Leu Leu Ala
145                 150                 155                 160

Ala Ala Ser Ile Ala Tyr Ile Ser
                165
```

<210> 4714
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1035; "

<220>
<221> source
<223> /note="Gene Symbol: ADTRP; "

<220>
<221> source
<223> /note="Gene Name:
androgen-dependent TFPI-regulating prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424680"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4714

```
Xaa Leu Ile Tyr Pro Lys Val Leu Asp Thr Val Ile Pro Val Trp Leu
1               5                   10                  15

Asn His Ala Met His Thr Phe Ile Phe Pro Ile Thr Leu Ala Glu Val
            20                  25                  30

Val Leu Arg Pro His Ser Tyr Pro Ser Lys Lys Thr Gly Leu Thr Leu
        35                  40                  45
```

```
Leu Ala Ala Ala Ser Ile Ala Tyr Ile Ser Arg Ile Leu Trp Leu Tyr
    50                  55                  60

Phe Glu Thr Gly Thr Trp Val Tyr Pro Val Phe Ala Lys Leu Ser Leu
65                  70                  75                  80

Leu Gly Leu Ala Ala Phe Phe Ser Leu Ser Tyr Val Phe Ile Ala Ser
                85                  90                  95

Ile Tyr Leu Leu Gly Glu Lys Leu Asn His Trp Lys Trp Gly Asp Met
            100                 105                 110

Arg Gln Pro Arg Lys Lys Arg Lys
        115                 120
```

<210> 4715
<211> 116
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1035; "

<220>
<221> source
<223> /note="Gene Symbol: ADTRP; "

<220>
<221> source
<223> /note="Gene Name:
androgen-dependent TFPI-regulating prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426507"

<400> 4715

```
Ala Glu Val Val Leu Arg Pro His Ser Tyr Pro Ser Lys Lys Thr Gly
1               5                   10                  15

Leu Thr Leu Leu Ala Ala Ala Ser Ile Ala Tyr Ile Ser Arg Ile Leu
            20                  25                  30

Trp Leu Tyr Phe Glu Thr Gly Thr Trp Val Tyr Pro Val Phe Ala Lys
        35                  40                  45
```

```
Leu Ser Leu Leu Gly Leu Ala Ala Phe Phe Ser Leu Ser Tyr Val Phe
    50                  55                  60

Ile Ala Ser Ile Tyr Leu Leu Gly Glu Lys Leu Asn His Trp Lys Trp
65                  70                  75                  80

Val Ser Val Gln Ile Leu Gln Arg Trp Arg Leu Glu Ser Val Gly Ile
                85                  90                  95

Cys Phe Gln Trp Pro Asp Trp Lys Ser Pro Ala Lys His Gln Leu Val
            100                 105                 110

Lys Asn Ile Arg
        115


<210> 4716
<211> 245
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1036; "

<220>
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<223> /note="Gene Symbol: AIG1; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  Q9NVV5; "

<220>
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<223> /note="ENSP ID: ENSP00000275235"

<400> 4716
Met Ala Leu Val Pro Cys Gln Val Leu Arg Met Ala Ile Leu Leu Ser
1               5                   10                  15

Tyr Cys Ser Ile Leu Cys Asn Tyr Lys Ala Ile Glu Met Pro Ser His
            20                  25                  30

Gln Thr Tyr Gly Gly Ser Trp Lys Phe Leu Thr Phe Ile Asp Leu Val
        35                  40                  45
```

```
Ile Gln Ala Val Phe Phe Gly Ile Cys Val Leu Thr Asp Leu Ser Ser
    50                  55                  60

Leu Leu Thr Arg Gly Ser Gly Asn Gln Glu Gln Glu Arg Gln Leu Lys
65                  70                  75                  80

Lys Leu Ile Ser Leu Arg Asp Trp Met Leu Ala Val Leu Ala Phe Pro
                85                  90                  95

Val Gly Val Phe Val Val Ala Val Phe Trp Ile Ile Tyr Ala Tyr Asp
            100                 105                 110

Arg Glu Met Ile Tyr Pro Lys Leu Leu Asp Asn Phe Ile Pro Gly Trp
        115                 120                 125

Leu Asn His Gly Met His Thr Thr Val Leu Pro Phe Ile Leu Ile Glu
    130                 135                 140

Met Arg Thr Ser His His Gln Tyr Pro Ser Arg Ser Ser Gly Leu Thr
145                 150                 155                 160

Ala Ile Cys Thr Phe Ser Val Gly Tyr Ile Leu Trp Val Cys Trp Val
                165                 170                 175

His His Val Thr Gly Met Trp Val Tyr Pro Phe Leu Glu His Ile Gly
            180                 185                 190

Pro Gly Ala Arg Ile Ile Phe Phe Gly Ser Thr Thr Ile Leu Met Asn
        195                 200                 205

Phe Leu Tyr Leu Leu Gly Glu Val Leu Asn Asn Tyr Ile Trp Asp Thr
    210                 215                 220

Gln Lys Lys Pro Pro Ser Trp Gln Asp Met Lys Ile Lys Phe Met Tyr
225                 230                 235                 240

Leu Gly Pro Ser Ser
                245
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<210> 4717
<211> 223
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1036; "

<220>
<221> source
<223> /note="Gene Symbol: AIG1; "

<220>
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<223> /note="Gene Name:
androgen-induced 1; "

<220>
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<223> /note="ENSP ID: ENSP00000340090"

<400> 4717

Met	Ala	Ile	Leu	Leu	Ser	Tyr	Cys	Ser	Ile	Leu	Cys	Asn	Tyr	Lys	Ala
1				5				10						15	
Ile	Glu	Met	Pro	Ser	His	Gln	Thr	Tyr	Gly	Gly	Ser	Trp	Lys	Phe	Leu
			20					25					30		
Thr	Phe	Ile	Asp	Leu	Val	Ile	Gln	Ala	Val	Phe	Phe	Gly	Ile	Cys	Val
		35					40					45			
Leu	Thr	Asp	Leu	Ser	Ser	Leu	Leu	Thr	Arg	Gly	Ser	Gly	Asn	Gln	Glu
	50					55					60				
Gln	Glu	Arg	Gln	Leu	Lys	Lys	Leu	Ile	Ser	Leu	Arg	Asp	Trp	Met	Leu
65					70					75					80
Ala	Val	Leu	Ala	Phe	Pro	Val	Gly	Val	Phe	Val	Val	Ala	Val	Phe	Trp
				85					90					95	
Ile	Ile	Tyr	Ala	Tyr	Asp	Arg	Glu	Met	Ile	Tyr	Pro	Lys	Leu	Leu	Asp
			100					105					110		
Asn	Phe	Ile	Pro	Gly	Trp	Leu	Asn	His	Gly	Met	His	Thr	Thr	Val	Leu
		115					120					125			
Pro	Phe	Ile	Leu	Ile	Glu	Met	Arg	Thr	Ser	His	His	Gln	Tyr	Pro	Ser
	130					135					140				
Arg	Ser	Ser	Gly	Leu	Thr	Ala	Ile	Cys	Thr	Phe	Ser	Val	Gly	Tyr	Ile

```
145                 150                 155                 160

Leu Trp Val Cys Trp Val His His Val Thr Gly Met Gly Val Pro Phe
                165                 170                 175

Pro Gly Thr Ile Gly Pro Gly Ala Arg Ile Ile Phe Phe Gly Ser Thr
            180                 185                 190

Thr Ile Leu Met Asn Phe Leu Tyr Leu Leu Gly Glu Val Leu Asn Asn
        195                 200                 205

Tyr Ile Trp Asp Thr Glu Lys Tyr Gly Arg Arg Glu Arg Lys Ala
    210                 215                 220


<210> 4718
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1036; "

<220>
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<223> /note="Gene Symbol: AIG1; "

<220>
<221> source
<223> /note="Gene Name:
      androgen-induced 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NVV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000350509"

<400> 4718
Met Ala Leu Val Pro Cys Gln Val Leu Arg Met Ala Ile Leu Leu Ser
1               5                   10                  15

Tyr Cys Ser Ile Leu Cys Asn Tyr Lys Ala Ile Glu Met Pro Ser His
            20                  25                  30

Gln Thr Tyr Gly Gly Ser Trp Lys Phe Leu Thr Phe Ile Asp Leu Val
        35                  40                  45
```

```
Ile Gln Ala Val Phe Phe Gly Ile Cys Val Leu Thr Asp Leu Ser Ser
    50                  55                  60

Leu Leu Thr Arg Gly Ser Gly Asn Gln Glu Gln Glu Arg Gln Leu Lys
65                  70                  75                  80

Lys Leu Ile Ser Leu Arg Asp Trp Met Leu Ala Val Leu Ala Phe Pro
                85                  90                  95

Val Gly Val Phe Val Val Ala Val Phe Trp Ile Ile Tyr Ala Tyr Asp
            100                 105                 110

Arg Glu Met Ile Tyr Pro Lys Leu Leu Asp Asn Phe Ile Pro Gly Trp
        115                 120                 125

Leu Asn His Gly Met His Thr Thr Val Leu Pro Phe Ile Leu Ile Glu
    130                 135                 140

Met Arg Thr Ser His His Gln Tyr Pro Ser Arg Ser Ser Gly Leu Thr
145                 150                 155                 160

Ala Ile Cys Thr Phe Ser Val Gly Tyr Ile Leu Trp Val Cys Trp Val
                165                 170                 175

His His Val Thr Gly Met Trp Val Tyr Pro Phe Leu Glu His Ile Gly
            180                 185                 190

Pro Gly Ala Arg Ile Ile Phe Phe Gly Ser Thr Thr Ile Leu Met Asn
        195                 200                 205

Phe Leu Tyr Leu Leu Gly Glu Val Leu Asn Asn Tyr Ile Trp Asp Thr
    210                 215                 220

Gln Lys Ser Met Glu Glu Glu Lys Glu Lys Pro Lys Leu Glu
225                 230                 235


<210> 4719
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1036; "
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<220>
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<223> /note="Gene Symbol: AIG1; "

<220>
<221> source
<223> /note="Gene Name:
androgen-induced 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356568"

<400> 4719
Met Ala Leu Val Pro Cys Gln Val Leu Arg Met Ala Ile Leu Leu Ser
1 5 10 15

Tyr Cys Ser Ile Leu Cys Asn Tyr Lys Ala Ile Glu Met Pro Ser His
20 25 30

Gln Thr Tyr Gly Gly Ser Trp Lys Phe Leu Thr Phe Ile Asp Leu
35 40 45

<210> 4720
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1036; "

<220>
<221> source
<223> /note="Gene Symbol: AIG1; "

<220>
<221> source
<223> /note="Gene Name:
androgen-induced 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356573"

<400> 4720
Met Thr Lys Val Leu Arg Met Ala Ile Leu Leu Ser Tyr Cys Ser Ile
1 5 10 15

Leu Cys Asn Tyr Lys Ala Ile Glu Met Pro Ser His Gln Thr Tyr Gly
20 25 30

```
Gly Ser Trp Lys Phe Leu Thr Phe Ile Asp Leu Val Ile Gln Ala Val
        35                  40                  45

Phe Phe Gly Ile Cys Val Leu Thr Asp Leu Ser Ser Leu Leu Thr Arg
    50                  55                  60

Gly Ser Gly Asn Gln Glu Gln Glu Arg Gln Leu Lys Lys Leu Ile Ser
65                  70                  75                  80

Leu Arg Asp Trp Met Leu Ala Val Leu Ala Phe Pro Val Gly Val Phe
                85                  90                  95

Val Val Ala Val Phe Trp Ile Ile Tyr Ala Tyr Asp Arg Glu Met Ile
            100                 105                 110

Tyr Pro Lys Leu Leu Asp Asn Phe Ile Pro Gly Trp Leu Asn His Gly
        115                 120                 125

Met His Thr Thr Val Leu Pro Phe Ile Leu Ile Glu Met Arg Thr Ser
    130                 135                 140

His His Gln Tyr Pro Ser Arg Ser Ser Gly Leu Thr Ala Ile Cys Thr
145                 150                 155                 160

Phe Ser Val Gly Tyr Ile Leu Trp Val Cys Trp Val His His Val Thr
                165                 170                 175

Gly Met Trp Val Tyr Pro Phe Leu Glu His Ile Gly Pro Gly Ala Arg
            180                 185                 190


<210> 4721
<211> 123
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1036; "

<220>
<221> source
<223> /note="Gene Symbol: AIG1; "

<220>
<221> source
<223> /note="Gene Name:
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androgen-induced 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405048"

<400> 4721
Met Ala Leu Val Pro Cys Gln Val Leu Arg Met Ala Ile Leu Leu Ser
1   5   10   15

Tyr Cys Ser Ile Leu Cys Asn Tyr Lys Ala Ile Glu Met Pro Ser His
            20   25   30

Gln Thr Tyr Gly Gly Ser Trp Lys Phe Leu Thr Phe Ile Asp Leu Phe
        35   40   45

Val Val Ala Val Phe Trp Ile Ile Tyr Ala Tyr Asp Arg Glu Met Ile
    50   55   60

Tyr Pro Lys Leu Leu Asp Asn Phe Ile Pro Gly Trp Leu Asn His Gly
65   70   75   80

Met His Thr Thr Val Leu Pro Phe Ile Leu Ile Glu Met Arg Thr Ser
                85   90   95

His His Gln Tyr Pro Ser Arg Ser Ser Gly Leu Thr Ala Ile Cys Thr
            100   105   110

Phe Ser Val Gly Tyr Ile Leu Trp Val Cys Trp
        115   120

<210> 4722
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1036; "

<220>
<221> source
<223> /note="Gene Symbol: AIG1; "

<220>
<221> source
<223> /note="Gene Name:
androgen-induced 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407817"

<400> 4722
Met Leu Ala Val Leu Ala Phe Pro Val Gly Val Phe Val Val Ala Val
1   5   10   15

Phe Trp Ile Ile Tyr Ala Tyr Asp Arg Glu Met Ile Tyr Pro Lys Leu
            20   25   30

Leu Asp Asn Phe Ile Pro Gly Trp Leu Asn His Gly Met His Thr Thr
        35   40   45

Val Leu Pro Phe Ile Leu Ile Glu Met Arg Thr Ser His His Gln Tyr
    50   55   60

Pro Ser Arg Ser Ser Gly Leu Thr Ala Ile Cys Thr Phe Ser Val Gly
65   70   75   80

Tyr Ile Leu Trp Val Cys Trp Val His His Val Thr Gly Met Trp Val
                85   90   95

Tyr Pro Phe Leu Glu His Ile Gly Pro Gly Ala Arg Ile Ile Phe Phe
            100   105   110

Gly Ser Thr Thr Ile Leu Met Asn Phe Leu Tyr Leu Leu Gly Glu Val
        115   120   125

Leu Asn Asn Tyr Ile Trp Asp Thr Gln Lys
    130   135

<210> 4723
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1036; "

<220>
<221> source
<223> /note="Gene Symbol: AIG1; "

<220>
<221> source
<223> /note="Gene Name:

androgen-induced 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NVV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473952"

<400> 4723
Met Ala Leu Val Pro Cys Gln Val Leu Arg Met Ala Ile Leu Leu Ser
1   5   10   15

Tyr Cys Ser Ile Leu Cys Asn Tyr Lys Ala Ile Glu Met Pro Ser His
            20   25   30

Gln Thr Tyr Gly Gly Ser Trp Lys Phe Leu Thr Phe Ile Asp Leu Val
        35   40   45

Ile Gln Ala Val Phe Phe Gly Ile Cys Val Leu Thr Asp Leu Ser Ser
    50   55   60

Leu Leu Thr Arg Gly Ser Gly Asn Gln Glu Gln Glu Arg Gln Leu Lys
65   70   75   80

Lys Leu Ile Ser Leu Arg Asp Trp Met Leu Ala Val Leu Ala Phe Pro
                85   90   95

Val Gly Val Phe Val Val Ala Val Phe Trp Ile Ile Tyr Ala Tyr Asp
            100   105   110

Arg Glu Met Ile Tyr Pro Lys Leu Leu Asp Asn Phe Ile Pro Gly Trp
        115   120   125

Leu Asn His Gly Met His Phe Lys Ala
    130   135

<210> 4724
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1036; "

<220>

<221> source
<223> /note="Gene Symbol: AIG1; "

<220>
<221> source
<223> /note="Gene Name:
androgen-induced 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NVV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485875"

<400> 4724
Met Ala Leu Val Pro Cys Gln Val Leu Arg Met Ala Ile Leu Leu Ser
1 5 10 15

Tyr Cys Ser Ile Leu Cys Asn Tyr Lys Ala Ile Glu Met Pro Ser His
20 25 30

Gln Thr Tyr Gly Gly Ser Trp Lys Phe Leu Thr Phe Ile Asp Leu Val
35 40 45

Ile Gln Ala Val Phe Phe Gly Ile Cys Val Leu Thr Asp Leu Ser Ser
50 55 60

Leu Leu Thr Arg Gly Ser Gly Asn Gln Glu Gln Glu Arg Gln Leu Lys
65 70 75 80

Lys Leu Ile Ser Leu Arg Asp Trp Met Leu Ala Val Leu Ala Phe Pro
85 90 95

Val Gly Val Phe Val Val Ala Val Phe Trp Ile Ile Tyr Ala Tyr Asp
100 105 110

Arg Glu Met Ile Tyr Pro Lys Leu Leu Asp Asn Phe Ile Pro Gly Trp
115 120 125

Leu Asn His Gly Met Leu
130

<210> 4725
<211> 259
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

<220>
<221> source
<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
androglobin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000323839"

<400> 4725
Met His Glu His Ala Thr Pro Val Thr Ser Ala Tyr Gly Glu Arg His
1 5 10 15

Glu Glu Leu Ile Asn Leu Gly Ser Pro Asp Ser His Thr Ile Ser Glu
20 25 30

Gly Gln Lys Ser Ser Val Thr Ser Lys Thr Thr Arg Lys Gly Lys Glu
35 40 45

Lys Ser Ser Glu Lys Glu Lys Thr Ala Lys Glu Lys Gln Ala Pro Arg
50 55 60

Phe Glu Pro Gln Ile Ser Thr Val His Pro Gln Gln Glu Asp Pro Asn
65 70 75 80

Lys Pro Tyr Trp Ile Leu Arg Leu Val Thr Glu His Asn Glu Ser Glu
85 90 95

Leu Phe Glu Val Lys Lys Asp Thr Glu Arg Ala Asp Glu Ile Arg Ala
100 105 110

Met Lys Gln Ala Trp Glu Thr Thr Glu Pro Gly Arg Ala Ile Lys Ala
115 120 125

Ser Gln Ala Arg Leu His Tyr Leu Ser Gly Phe Ile Lys Lys Thr Ser
130 135 140

Asp Ala Glu Ser Pro Pro Ile Ser Glu Ser Gln Thr Lys Pro Lys Glu
145 150 155 160

```
Glu Val Glu Thr Ala Ala Arg Gly Val Lys Glu Pro Asn Ser Lys Asn
                165                 170                 175

Ser Ala Gly Ser Glu Ser Lys Glu Met Thr Gln Thr Gly Ser Gly Ser
            180                 185                 190

Ala Val Trp Lys Lys Trp Gln Leu Thr Lys Gly Leu Arg Asp Val Ala
        195                 200                 205

Lys Ser Thr Ser Ser Glu Ser Gly Gly Val Ser Ser Pro Gly Lys Glu
    210                 215                 220

Glu Arg Glu Gln Ser Thr Arg Lys Glu Asn Ile Gln Thr Gly Pro Arg
225                 230                 235                 240

Thr Arg Ser Pro Thr Ile Leu Glu Thr Ser Pro Arg Leu Ile Arg Lys
                245                 250                 255

Ala Leu Glu
```

<210> 4726
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

<220>
<221> source
<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
androglobin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356459"

```
<400> 4726
Asp Glu Leu Asn Gln Gln Gln Ala Met Gln Lys Ala Glu Glu Ile His
1               5                   10                  15
```

```
Gln Phe Arg Gln His Arg Thr Arg Val Leu Ser Ile Arg Asn Ile Asp
            20                  25                  30

Gln Glu Glu Arg Leu Lys Leu Lys Asp Glu Val Leu Asp Met Tyr Lys
        35                  40                  45

Glu Met Gln Asp Ser Leu Asp Glu Ala Arg Gln Lys Ile Phe Asp Ile
    50                  55                  60

Arg Glu Glu Tyr Arg Asn Lys Leu Leu Glu Ala Glu His Leu Lys Leu
65                  70                  75                  80

Glu Ala Leu Ser Ala Gln Glu Ala Ala Met Lys Leu Glu Thr Glu Lys
                85                  90                  95

Met Thr Pro Ala Pro Asp Thr Gln Lys Lys Lys Lys Gly Lys Lys Lys
            100                 105                 110


<210> 4727
<211> 625
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

<220>
<221> source
<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
      androglobin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356460"

<400> 4727
Val Ala Asp Thr Leu Gln Lys Val Trp Ala Val Leu Glu Met Asn Leu
1               5                   10                  15

Glu Gln Tyr Ala Val Ser Leu Leu Arg Leu Met Phe Lys Ser Lys Cys
            20                  25                  30

Lys Ser Leu Glu Ser Tyr Pro Cys Tyr Gln Asp Glu Glu Thr Lys Ile
        35                  40                  45
```

```
Ala Phe Ala Asp Tyr Thr Val Thr Tyr Gln Glu Gln Pro Pro Asn Ser
    50                  55                  60

Trp Phe Ile Val Phe Arg Glu Thr Phe Leu Val His Gln Asp Met Ile
65                  70                  75                  80

Leu Val Pro Lys Val Tyr Thr Thr Leu Pro Ile Cys Ile Leu His Ile
                85                  90                  95

Val Asn Asn Asp Thr Met Glu Gln Val Pro Lys Val Phe Gln Lys Val
            100                 105                 110

Val Pro Tyr Leu Tyr Thr Lys Asn Lys Lys Gly Tyr Thr Phe Val Ala
        115                 120                 125

Glu Ala Phe Thr Gly Asp Thr Tyr Val Ala Ala Ser Arg Trp Lys Leu
    130                 135                 140

Arg Leu Ile Gly Ser Ser Ala Pro Leu Pro Cys Leu Ser Arg Asp Ser
145                 150                 155                 160

Pro Cys Asn Ser Phe Ala Ile Lys Glu Ile Arg Asp Tyr Tyr Ile Pro
                165                 170                 175

Asn Asp Lys Lys Ile Leu Phe Arg Tyr Ser Val Lys Val Leu Thr Pro
            180                 185                 190

Gln Pro Ala Thr Ile Gln Val Arg Thr Ser Lys Pro Asp Ala Phe Ile
        195                 200                 205

Lys Leu Gln Val Leu Glu Asn Glu Glu Thr Met Val Ser Ser Thr Gly
    210                 215                 220

Lys Gly Gln Ala Ile Ile Pro Ala Phe His Phe Leu Lys Ser Glu Lys
225                 230                 235                 240

Gly Leu Ser Ser Gln Ser Tyr Gly Glu Arg His Glu Glu Leu Ile Asn
                245                 250                 255

Leu Gly Ser Pro Asp Ser His Thr Ile Ser Glu Gly Gln Lys Ser Ser
            260                 265                 270
```

```
Val Thr Ser Lys Thr Thr Arg Lys Gly Lys Glu Lys Ser Ser Glu Lys
        275                 280                 285

Glu Lys Thr Ala Lys Glu Lys Gln Ala Pro Arg Phe Glu Pro Gln Ile
    290                 295                 300

Ser Thr Val His Pro Gln Gln Glu Asp Pro Asn Lys Pro Tyr Trp Ile
305                 310                 315                 320

Leu Arg Leu Val Thr Glu His Asn Glu Ser Glu Leu Phe Glu Val Lys
                325                 330                 335

Lys Asp Thr Glu Arg Ala Asp Glu Ile Arg Ala Met Lys Gln Ala Trp
            340                 345                 350

Glu Thr Thr Glu Pro Gly Arg Ala Ile Lys Ala Ser Gln Ala Arg Leu
        355                 360                 365

His Tyr Leu Ser Gly Phe Ile Lys Lys Thr Ser Asp Ala Glu Ser Pro
    370                 375                 380

Pro Ile Ser Glu Ser Gln Thr Lys Pro Lys Glu Glu Val Glu Thr Ala
385                 390                 395                 400

Ala Arg Gly Val Lys Glu Pro Asn Ser Lys Asn Ser Ala Gly Ser Glu
                405                 410                 415

Ser Lys Glu Met Thr Gln Thr Gly Ser Gly Ser Ala Val Trp Lys Lys
            420                 425                 430

Trp Gln Leu Thr Lys Gly Leu Arg Asp Val Ala Lys Ser Thr Ser Ser
        435                 440                 445

Glu Ser Gly Gly Val Ser Ser Pro Gly Lys Glu Glu Arg Glu Gln Ser
    450                 455                 460

Thr Arg Lys Glu Asn Ile Gln Thr Gly Pro Arg Thr Arg Ser Pro Thr
465                 470                 475                 480

Ile Leu Glu Thr Ser Pro Arg Leu Ile Arg Lys Ala Leu Glu Phe Met
                485                 490                 495
```

```
Asp Leu Ser Gln Tyr Val Arg Lys Thr Asp Thr Asp Pro Leu Leu Gln
            500                 505                 510

Thr Asp Glu Leu Asn Gln Gln Gln Ala Met Gln Lys Ala Glu Glu Ile
        515                 520                 525

His Gln Phe Arg Gln His Arg Thr Arg Val Leu Ser Ile Arg Asn Ile
    530                 535                 540

Asp Gln Glu Glu Arg Leu Lys Leu Lys Asp Glu Val Leu Asp Met Tyr
545                 550                 555                 560

Lys Glu Met Gln Asp Ser Leu Asp Glu Ala Arg Gln Lys Ile Phe Asp
                565                 570                 575

Ile Arg Glu Glu Tyr Arg Asn Lys Leu Leu Glu Ala Glu His Leu Lys
            580                 585                 590

Leu Glu Thr Leu Ala Ala Gln Glu Ala Ala Met Lys Leu Glu Thr Glu
        595                 600                 605

Lys Met Thr Pro Ala Pro Asp Thr Gln Lys Lys Lys Lys Gly Lys Lys
    610                 615                 620

Lys
625
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<210> 4728
<211> 1667
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

<220>
<221> source
<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
androglobin; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N7X0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381036"

<400> 4728
Met Ala Ser Lys Gln Thr Lys Lys Lys Glu Val His Arg Ile Asn Ser
1   5   10   15

Ala His Gly Ser Asp Lys Ser Lys Asp Phe Tyr Pro Phe Gly Ser Asn
            20   25   30

Val Gln Ser Gly Ser Thr Glu Gln Lys Lys Gly Lys Phe Pro Leu Trp
        35   40   45

Pro Glu Trp Ser Glu Ala Asp Ile Asn Ser Glu Lys Trp Asp Ala Gly
    50   55   60

Lys Gly Ala Lys Glu Lys Asp Lys Thr Gly Lys Ser Pro Val Phe His
65   70   75   80

Phe Phe Glu Asp Pro Glu Gly Lys Ile Glu Leu Pro Pro Ser Leu Lys
                85   90   95

Ile Tyr Ser Trp Lys Arg Pro Gln Asp Ile Leu Phe Ser Gln Thr Pro
            100   105   110

Val Val Val Lys Asn Glu Ile Thr Phe Asp Leu Phe Ser Ala Asn Glu
        115   120   125

His Leu Leu Cys Ser Glu Leu Met Arg Trp Ile Ile Ser Glu Ile Tyr
    130   135   140

Ala Val Trp Lys Ile Phe Asn Gly Gly Ile Leu Ser Asn Tyr Phe Lys
145   150   155   160

Gly Thr Ser Gly Glu Pro Pro Leu Leu Pro Trp Lys Pro Trp Glu His
                165   170   175

Ile Tyr Ser Leu Cys Lys Ala Val Lys Gly His Met Pro Leu Phe Asn
            180   185   190

Ser Tyr Gly Lys Tyr Val Val Lys Leu Tyr Trp Met Gly Cys Trp Arg
        195   200   205

```
Lys Ile Thr Ile Asp Asp Phe Leu Pro Phe Asp Glu Asp Asn Asn Leu
    210                 215                 220

Leu Leu Pro Ala Thr Thr Tyr Glu Phe Glu Leu Trp Pro Met Leu Leu
225                 230                 235                 240

Ser Lys Ala Ile Ile Lys Leu Ala Asn Ile Asp Ile His Val Ala Asp
                245                 250                 255

Arg Arg Glu Leu Gly Glu Phe Thr Val Ile His Ala Leu Thr Gly Trp
            260                 265                 270

Leu Pro Glu Val Ile Ser Leu His Pro Gly Tyr Met Asp Lys Val Trp
        275                 280                 285

Glu Leu Leu Lys Glu Ile Leu Pro Glu Phe Lys Leu Ser Asp Glu Ala
    290                 295                 300

Ser Ser Glu Ser Lys Ile Ala Val Leu Asp Ser Lys Leu Lys Glu Pro
305                 310                 315                 320

Gly Lys Glu Gly Lys Glu Gly Lys Glu Ile Lys Asp Gly Lys Glu Val
                325                 330                 335

Lys Asp Val Lys Glu Phe Lys Pro Glu Ser Ser Leu Thr Thr Leu Lys
            340                 345                 350

Ala Pro Glu Lys Ser Asp Lys Val Pro Lys Glu Lys Ala Asp Ala Arg
        355                 360                 365

Asp Ile Gly Lys Lys Arg Ser Lys Asp Gly Glu Lys Glu Lys Phe Lys
    370                 375                 380

Phe Ser Leu His Gly Ser Arg Pro Ser Ser Glu Val Gln Tyr Ser Val
385                 390                 395                 400

Gln Ser Leu Ser Asp Cys Ser Ser Ala Ile Gln Thr Ser His Met Val
                405                 410                 415

Val Tyr Ala Thr Phe Thr Pro Leu Tyr Leu Phe Glu Asn Lys Ile Phe
            420                 425                 430
```

```
Ser Leu Glu Lys Met Ala Asp Ser Ala Glu Lys Leu Arg Glu Tyr Gly
        435                 440                 445

Leu Ser His Ile Cys Ser His Pro Val Leu Val Thr Arg Ser Arg Ser
    450                 455                 460

Cys Pro Leu Val Ala Pro Pro Lys Pro Pro Pro Leu Pro Pro Trp Lys
465                 470                 475                 480

Leu Ile Arg Gln Lys Lys Glu Thr Val Ile Thr Asp Glu Ala Gln Glu
                485                 490                 495

Leu Ile Val Lys Lys Pro Glu Arg Phe Leu Glu Ile Ser Ser Pro Phe
            500                 505                 510

Leu Asn Tyr Arg Met Thr Pro Phe Thr Ile Pro Thr Glu Met His Phe
        515                 520                 525

Val Arg Ser Leu Ile Lys Lys Gly Ile Pro Pro Gly Ser Asp Leu Pro
    530                 535                 540

Ser Val Ser Glu Thr Asp Glu Thr Ala Thr His Ser Gln Thr Asp Leu
545                 550                 555                 560

Ser Gln Ile Thr Lys Ala Thr Ser Gln Gly Asn Thr Ala Ser Gln Val
                565                 570                 575

Ile Leu Gly Lys Gly Thr Asp Glu Gln Thr Asp Phe Gly Leu Gly Asp
            580                 585                 590

Ala His Gln Ser Asp Gly Leu Asn Leu Glu Arg Glu Ile Val Ser Gln
        595                 600                 605

Thr Thr Ala Thr Gln Glu Lys Ser Gln Glu Glu Leu Pro Thr Thr Asn
    610                 615                 620

Asn Ser Val Ser Lys Glu Ile Trp Leu Asp Phe Glu Asp Phe Cys Val
625                 630                 635                 640

Cys Phe Gln Asn Ile Tyr Ile Phe His Lys Pro Ser Ser Tyr Cys Leu
                645                 650                 655

Asn Phe Gln Lys Ser Glu Phe Lys Phe Ser Glu Glu Arg Val Ser Tyr
```

660 665 670

Tyr Leu Phe Val Asp Ser Leu Lys Pro Ile Glu Leu Leu Val Cys Phe
675 680 685

Ser Ala Leu Val Arg Trp Gly Glu Tyr Gly Ala Leu Thr Lys Asp Ser
690 695 700

Pro Pro Ile Glu Pro Gly Leu Leu Thr Ala Glu Thr Phe Ser Trp Lys
705 710 715 720

Ser Leu Lys Pro Gly Ser Leu Val Leu Lys Ile His Thr Tyr Ala Thr
725 730 735

Lys Ala Thr Val Val Arg Leu Pro Val Gly Arg His Met Leu Leu Phe
740 745 750

Asn Ala Tyr Ser Pro Val Gly His Ser Ile His Ile Cys Ser Met Val
755 760 765

Ser Phe Val Ile Gly Asp Glu His Val Val Leu Pro Asn Phe Glu Pro
770 775 780

Glu Ser Cys Arg Phe Thr Glu Gln Ser Leu Leu Ile Met Lys Ala Ile
785 790 795 800

Gly Asn Val Ile Ala Asn Phe Lys Asp Lys Gly Lys Leu Ser Ala Ala
805 810 815

Leu Lys Asp Leu Gln Thr Ala His Tyr Pro Val Pro Phe His Asp Lys
820 825 830

Glu Leu Thr Ala Gln His Phe Arg Val Phe His Leu Ser Leu Trp Arg
835 840 845

Leu Met Lys Lys Val Gln Ile Thr Lys Pro Pro Pro Asn Phe Lys Phe
850 855 860

Ala Phe Arg Ala Met Val Leu Asp Leu Glu Leu Leu Asn Ser Ser Leu
865 870 875 880

Glu Glu Val Ser Leu Val Glu Trp Leu Asp Val Lys Tyr Cys Met Pro
885 890 895

```
Thr Ser Asp Lys Glu Tyr Ser Ala Glu Glu Val Ala Ala Ala Ile Lys
            900                 905                 910

Ile Gln Ala Met Trp Arg Gly Thr Tyr Val Arg Leu Leu Met Lys Ala
        915                 920                 925

Arg Ile Pro Asp Thr Lys Glu Asn Ile Ser Val Ala Asp Thr Leu Gln
    930                 935                 940

Lys Val Trp Ala Val Leu Glu Met Asn Leu Glu Gln Tyr Ala Val Ser
945                 950                 955                 960

Leu Leu Arg Leu Met Phe Lys Ser Lys Cys Lys Ser Leu Glu Ser Tyr
                965                 970                 975

Pro Cys Tyr Gln Asp Glu Glu Thr Lys Ile Ala Phe Ala Asp Tyr Thr
            980                 985                 990

Val Thr Tyr Gln Glu Gln Pro Pro  Asn Ser Trp Phe Ile  Val Phe
Arg
        995                 1000                1005

Glu Thr  Phe Leu Val His Gln  Asp Met Ile Leu Val  Pro Lys Val
    1010                1015                1020

Tyr Thr  Thr Leu Pro Ile Cys  Ile Leu His Ile Val  Asn Asn Asp
    1025                1030                1035

Thr Met  Glu Gln Val Pro Lys  Val Phe Gln Lys Val  Val Pro Tyr
    1040                1045                1050

Leu Tyr  Thr Lys Asn Lys Lys  Gly Tyr Thr Phe Val  Ala Glu Ala
    1055                1060                1065

Phe Thr  Gly Asp Thr Tyr Val  Ala Ala Ser Arg Trp  Lys Leu Arg
    1070                1075                1080

Leu Ile  Gly Ser Ser Ala Pro  Leu Pro Cys Leu Ser  Arg Asp Ser
    1085                1090                1095

Pro Cys  Asn Ser Phe Ala Ile  Lys Glu Ile Arg Asp  Tyr Tyr Ile
    1100                1105                1110
```

```
Pro Asn  Asp Lys Lys Ile Leu  Phe Arg Tyr Ser Val  Lys Val Leu
    1115                1120                1125

Thr Pro  Gln Pro Ala Thr Ile  Gln Val Arg Thr Ser  Lys Pro Asp
    1130                1135                1140

Ala Phe  Ile Lys Leu Gln Val  Leu Glu Asn Glu Glu  Thr Met Val
    1145                1150                1155

Ser Ser  Thr Gly Lys Gly Gln  Ala Ile Ile Pro Ala  Phe His Phe
    1160                1165                1170

Leu Lys  Ser Glu Lys Gly Leu  Ser Ser Gln Ser Ser  Lys His Ile
    1175                1180                1185

Leu Ser  Phe His Ser Ala Ser  Lys Lys Glu Gln Glu  Val Tyr Val
    1190                1195                1200

Lys Lys  Lys Ala Ala Gln Gly  Ile Gln Lys Ser Pro  Lys Gly Arg
    1205                1210                1215

Ala Val  Ser Ala Ile Gln Asp  Ile Gly Leu Pro Leu  Val Glu Glu
    1220                1225                1230

Glu Thr  Thr Ser Thr Pro Thr  Arg Glu Asp Ser Ser  Ser Thr Pro
    1235                1240                1245

Leu Gln  Asn Tyr Lys Tyr Ile  Ile Gln Cys Ser Val  Leu Tyr Asn
    1250                1255                1260

Ser Trp  Pro Leu Thr Glu Ser  Gln Leu Thr Phe Val  Gln Ala Leu
    1265                1270                1275

Lys Asp  Leu Lys Lys Ser Asn  Thr Lys Ala Tyr Gly  Glu Arg His
    1280                1285                1290

Glu Glu  Leu Ile Asn Leu Gly  Ser Pro Asp Ser His  Thr Ile Ser
    1295                1300                1305

Glu Gly  Gln Lys Ser Ser Val  Thr Ser Lys Thr Thr  Arg Lys Gly
    1310                1315                1320
```

```
Lys Glu  Lys Ser Ser Glu Lys  Glu Lys Thr Ala Lys  Glu Lys Gln
    1325                1330                1335

Ala Pro  Arg Phe Glu Pro Gln  Ile Ser Thr Val His  Pro Gln Gln
    1340                1345                1350

Glu Asp  Pro Asn Lys Pro Tyr  Trp Ile Leu Arg Leu  Val Thr Glu
    1355                1360                1365

His Asn  Glu Ser Glu Leu Phe  Glu Val Lys Lys Asp  Thr Glu Arg
    1370                1375                1380

Ala Asp  Glu Ile Arg Ala Met  Lys Gln Ala Trp Glu  Thr Thr Glu
    1385                1390                1395

Pro Gly  Arg Ala Ile Lys Ala  Ser Gln Ala Arg Leu  His Tyr Leu
    1400                1405                1410

Ser Gly  Phe Ile Lys Lys Thr  Ser Asp Ala Glu Ser  Pro Pro Ile
    1415                1420                1425

Ser Glu  Ser Gln Thr Lys Pro  Lys Glu Glu Val Glu  Thr Ala Ala
    1430                1435                1440

Arg Gly  Val Lys Glu Pro Asn  Ser Lys Asn Ser Ala  Gly Ser Glu
    1445                1450                1455

Ser Lys  Glu Met Thr Gln Thr  Gly Ser Gly Ser Ala  Val Trp Lys
    1460                1465                1470

Lys Trp  Gln Leu Thr Lys Gly  Leu Arg Asp Val Ala  Lys Ser Thr
    1475                1480                1485

Ser Ser  Glu Ser Gly Gly Val  Ser Ser Pro Gly Lys  Glu Glu Arg
    1490                1495                1500

Glu Gln  Ser Thr Arg Lys Glu  Asn Ile Gln Thr Gly  Pro Arg Thr
    1505                1510                1515

Arg Ser  Pro Thr Ile Leu Glu  Thr Ser Pro Arg Leu  Ile Arg Lys
    1520                1525                1530
```

```
Ala Leu  Glu Phe Met Asp Leu  Ser Gln Tyr Val Arg  Lys Thr Asp
    1535                1540                1545

Thr Asp  Pro Leu Leu Gln Thr  Asp Glu Leu Asn Gln  Gln Gln Ala
    1550                1555                1560

Met Gln  Lys Ala Glu Glu Ile  His Gln Phe Arg Gln  His Arg Thr
    1565                1570                1575

Arg Val  Leu Ser Ile Arg Asn  Ile Asp Gln Glu Glu  Arg Leu Lys
    1580                1585                1590

Leu Lys  Asp Glu Val Leu Asp  Met Tyr Lys Glu Met  Gln Asp Ser
    1595                1600                1605

Leu Asp  Glu Ala Arg Gln Lys  Ile Phe Asp Ile Arg  Glu Glu Tyr
    1610                1615                1620

Arg Asn  Lys Leu Leu Glu Ala  Glu His Leu Lys Leu  Glu Thr Leu
    1625                1630                1635

Ala Ala  Gln Glu Ala Ala Met  Lys Leu Glu Thr Glu  Lys Met Thr
    1640                1645                1650

Pro Ala  Pro Asp Thr Gln Lys  Lys Lys Lys Gly Lys  Lys Lys
    1655                1660                1665


<210> 4729
<211> 141
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1037; "

<220>
<221> source
<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
      androglobin; "

<220>
<221> source
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<400> 4729
Met His Glu His Ala Thr Pro Val Thr Ser Ala Tyr Gly Glu Arg His
1   5   10   15

Glu Glu Leu Ile Asn Leu Gly Ser Pro Asp Ser His Thr Ile Ser Glu
            20   25   30

Gly Gln Lys Ser Ser Val Thr Ser Lys Thr Thr Arg Lys Gly Lys Glu
        35   40   45

Lys Ser Ser Glu Lys Glu Lys Thr Ala Lys Glu Lys Gln Ala Pro Arg
    50   55   60

Phe Glu Pro Gln Ala Ser Gln Ala Arg Leu His Tyr Leu Ser Gly Phe
65   70   75   80

Ile Lys Lys Thr Ser Asp Ala Glu Ser Pro Pro Ile Ser Glu Ser Gln
                85   90   95

Thr Lys Pro Lys Glu Glu Val Glu Thr Ala Ala Arg Gly Val Lys Glu
            100   105   110

Pro Asn Ser Lys Asn Ser Ala Gly Ser Glu Ser Lys Glu Met Thr Gln
        115   120   125

Thr Gly Ser Gly Ser Ala Val Trp Lys Lys Trp Gln Leu
    130   135   140

<210> 4730
<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
androglobin; "

<220>

<221> source
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<400> 4730
Met Ala Ser Lys Gln Thr Lys Lys Lys Glu Val His Arg Ile Asn Ser
1 5 10 15

Ala His Gly Ser Asp Lys Ser Lys Asp Asn Val Gln Ser Gly Ser Thr
20 25 30

Glu Gln Lys Lys Gly Lys Phe Pro Leu Trp Pro Glu Trp Ser Glu Ala
35 40 45

Asp Ile Asn Ser Glu Lys Trp Asp Ala Gly Lys Gly Ala Lys Glu Lys
50 55 60

Asp Lys Thr Gly Lys Ser Pro Val Phe His Phe Phe Glu Asp Pro Glu
65 70 75 80

Gly Lys Ile Glu Leu Pro Pro Ser Leu Lys Ile Tyr Ser Trp Lys Arg
85 90 95

Pro Gln Asp Ile Leu Phe Ser Gln Thr Pro Val Val Val Lys Asn Glu
100 105 110

Ile Thr Phe Asp Leu Phe Ser Ala Asn Glu His Leu Leu Cys Ser Glu
115 120 125

Leu Met Arg Trp Ile Ile Ser Glu Ile Tyr Ala Val Trp Lys Ile Phe
130 135 140

Asn Gly Gly Ile Leu Ser Asn Tyr Phe Lys Gly Thr Ser Gly Glu Pro
145 150 155 160

Pro Leu Leu Pro Trp Lys Pro Trp Glu His Ile Tyr Ser Leu Cys Lys
165 170 175

Ala Val

<210> 4731
<211> 714
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
androglobin; "

<220>
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<223> /note="ENSP ID: ENSP00000429315"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 4731
Xaa Thr Asp Glu Gln Thr Asp Phe Gly Leu Gly Asp Ala His Gln Ser
1 5 10 15

Asp Gly Leu Asn Leu Glu Arg Glu Ile Val Ser Gln Thr Thr Ala Thr
20 25 30

Gln Glu Lys Ser Gln Glu Glu Leu Pro Thr Thr Asn Asn Ser Val Ser
35 40 45

Lys Glu Ile Trp Leu Asp Phe Glu Asp Phe Cys Val Cys Phe Gln Asn
50 55 60

Ile Tyr Ile Phe His Lys Pro Ser Ser Tyr Cys Leu Asn Phe Gln Lys
65 70 75 80

Ser Glu Phe Lys Phe Ser Glu Glu Arg Val Ser Tyr Tyr Leu Phe Val
85 90 95

Asp Ser Leu Lys Pro Ile Glu Leu Leu Val Cys Phe Ser Ala Leu Val
100 105 110

Arg Trp Gly Glu Tyr Gly Ala Leu Thr Lys Asp Ser Pro Pro Ile Glu
115 120 125

Pro Gly Leu Leu Thr Ala Glu Thr Phe Ser Trp Lys Ser Leu Lys Pro

```
    130                 135                 140

Gly Ser Leu Val Leu Lys Ile His Thr Tyr Ala Thr Lys Ala Thr Val
145                 150                 155                 160

Val Arg Leu Pro Val Gly Arg His Met Leu Leu Phe Asn Ala Tyr Ser
                165                 170                 175

Pro Val Gly His Ser Ile His Ile Cys Ser Met Val Ser Phe Val Ile
            180                 185                 190

Gly Asp Glu His Val Val Leu Pro Asn Phe Glu Pro Glu Ser Cys Arg
        195                 200                 205

Phe Thr Glu Gln Ser Leu Leu Ile Met Lys Ala Ile Gly Asn Val Ile
    210                 215                 220

Ala Asn Phe Lys Asp Lys Gly Lys Leu Ser Ala Ala Leu Lys Asp Leu
225                 230                 235                 240

Gln Thr Ala His Tyr Pro Val Pro Phe His Asp Lys Glu Leu Thr Ala
                245                 250                 255

Gln His Phe Arg Val Phe His Leu Ser Leu Trp Arg Leu Met Lys Lys
            260                 265                 270

Val Gln Ile Thr Lys Pro Pro Pro Asn Phe Lys Phe Ala Phe Arg Ala
        275                 280                 285

Met Val Leu Asp Leu Glu Leu Leu Asn Ser Ser Leu Glu Glu Val Ser
    290                 295                 300

Leu Val Glu Trp Leu Asp Val Lys Tyr Cys Met Pro Thr Ser Asp Lys
305                 310                 315                 320

Glu Tyr Ser Ala Glu Glu Val Ala Ala Ala Ile Lys Ile Gln Ala Met
                325                 330                 335

Trp Arg Gly Thr Tyr Val Arg Leu Leu Met Lys Ala Arg Ile Pro Asp
            340                 345                 350

Thr Lys Glu Asn Ile Ser Val Ala Asp Thr Leu Gln Lys Val Trp Ala
        355                 360                 365
```

```
Val Leu Glu Met Asn Leu Glu Gln Tyr Ala Val Ser Leu Leu Arg Leu
    370                 375                 380

Met Phe Lys Ser Lys Cys Lys Ser Leu Glu Ser Tyr Pro Cys Tyr Gln
385                 390                 395                 400

Asp Glu Glu Thr Lys Ile Ala Phe Ala Asp Tyr Thr Val Thr Tyr Gln
                405                 410                 415

Glu Gln Pro Pro Asn Ser Trp Phe Ile Val Phe Arg Glu Thr Phe Leu
            420                 425                 430

Val His Gln Asp Met Ile Leu Val Pro Lys Val Tyr Thr Thr Leu Pro
        435                 440                 445

Ile Cys Ile Leu His Ile Val Asn Asn Asp Thr Met Glu Gln Val Pro
    450                 455                 460

Lys Val Phe Gln Lys Val Val Pro Tyr Leu Tyr Thr Lys Asn Lys Lys
465                 470                 475                 480

Gly Tyr Thr Phe Val Ala Glu Ala Phe Thr Gly Asp Thr Tyr Val Ala
                485                 490                 495

Ala Ser Arg Trp Lys Leu Arg Leu Ile Gly Ser Ser Ala Pro Leu Pro
            500                 505                 510

Cys Leu Ser Arg Asp Ser Pro Cys Asn Ser Phe Ala Ile Lys Glu Ile
        515                 520                 525

Arg Asp Tyr Tyr Ile Pro Asn Asp Lys Lys Ile Leu Phe Arg Tyr Ser
    530                 535                 540

Val Lys Val Leu Thr Pro Gln Pro Ala Thr Ile Gln Val Arg Thr Ser
545                 550                 555                 560

Lys Pro Asp Ala Phe Ile Lys Leu Gln Val Leu Glu Asn Glu Glu Thr
                565                 570                 575

Met Val Ser Ser Thr Gly Lys Gly Gln Ala Ile Ile Pro Ala Phe His
            580                 585                 590
```

```
Phe Leu Lys Ser Glu Lys Gly Leu Ser Ser Gln Ser Tyr Gly Glu Arg
        595                 600                 605

His Glu Glu Leu Ile Asn Leu Gly Ser Pro Asp Ser His Thr Ile Ser
    610                 615                 620

Glu Gly Gln Lys Ser Ser Val Thr Ser Lys Thr Thr Arg Lys Gly Lys
625                 630                 635                 640

Glu Lys Ser Ser Glu Lys Glu Lys Thr Ala Lys Glu Lys Gln Ala Pro
                645                 650                 655

Arg Phe Glu Pro Gln Ile Ser Thr Val His Pro Gln Gln Glu Asp Pro
            660                 665                 670

Asn Lys Pro Tyr Trp Ile Leu Arg Leu Leu Arg Leu Val Cys Ile Thr
        675                 680                 685

Leu Ala Gly Ser Leu Arg Lys His Leu Met Leu Arg Val Arg Leu Tyr
    690                 695                 700

Leu Lys Ala Lys Leu Asn Gln Lys Lys Lys
705                 710


<210> 4732
<211> 35
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

<220>
<221> source
<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
      androglobin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429365"

<400> 4732
Met Ala Ser Lys Gln Thr Lys Lys Lys Glu Val His Arg Ile Asn Ser
```

1 5 10 15

Ala His Gly Ser Asp Lys Ser Lys Glu Ser Lys Ala Glu Asp Ala Leu
20 25 30

Gln Asn Gln
35

<210> 4733
<211> 220
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

<220>
<221> source
<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
androglobin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430244"

<400> 4733
Met Ala Ser Lys Gln Thr Lys Lys Lys Glu Val His Arg Ile Asn Ser
1 5 10 15

Ala His Gly Ser Asp Lys Ser Lys Asp Phe Tyr Pro Phe Gly Ser Asn
20 25 30

Val Gln Ser Gly Ser Thr Glu Gln Lys Lys Gly Lys Phe Pro Leu Trp
35 40 45

Pro Glu Trp Ser Glu Ala Asp Ile Asn Ser Glu Lys Trp Asp Ala Gly
50 55 60

Lys Gly Ala Lys Glu Lys Asp Lys Thr Gly Lys Ser Pro Val Phe His
65 70 75 80

Phe Phe Glu Asp Pro Glu Gly Lys Ile Glu Leu Pro Pro Ser Leu Lys
85 90 95

```
Ile Tyr Ser Trp Lys Arg Pro Gln Asp Ile Leu Phe Ser Gln Thr Pro
            100                 105                 110

Val Val Val Lys Asn Glu Ile Thr Phe Asp Leu Phe Ser Ala Asn Glu
        115                 120                 125

His Leu Leu Cys Ser Glu Leu Met Arg Trp Ile Ile Ser Glu Ile Tyr
    130                 135                 140

Ala Val Trp Lys Ile Phe Asn Gly Gly Ile Leu Ser Asn Tyr Phe Lys
145                 150                 155                 160

Gly Thr Ser Gly Glu Pro Pro Leu Leu Pro Trp Lys Pro Trp Glu His
                165                 170                 175

Ile Tyr Ser Leu Cys Lys Ala Val Lys Gly His Met Pro Leu Phe Asn
            180                 185                 190

Ser Tyr Gly Lys Tyr Val Val Lys Leu Tyr Trp Met Pro Gly Ile Tyr
        195                 200                 205

Gly Gln Ser Leu Gly Ala Pro Glu Arg Asn Ile Ala
    210                 215                 220


<210> 4734
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1037; "

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<223> /note="Gene Symbol: ADGB; "

<220>
<221> source
<223> /note="Gene Name:
      androglobin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430834"

<400> 4734
Pro Leu Phe Asn Ser Tyr Gly Lys Tyr Val Val Lys Leu Tyr Trp Met
```

```
1               5                   10                  15

Gly Cys Trp Arg Lys Ile Thr Ile Asp Asp Phe Leu Pro Phe Asp Glu
            20                  25                  30

Asp Asn Asn Leu Leu Leu Pro Ala Thr Thr Tyr Glu Phe Glu Leu Trp
        35                  40                  45

Pro Met Leu Leu Ser Lys Ala Ile Ile Lys Leu Ala Asn Ile Glu Tyr
    50                  55                  60

Val Met Thr Leu Ser Leu Thr
65                  70


<210> 4735
<211> 670
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1038; "

<220>
<221> source
<223> /note="Gene Symbol: ANGEL1; "

<220>
<221> source
<223> /note="Gene Name:
      angel homolog 1 (Drosophila); "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UNK9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000251089"

<400> 4735
Met Ile Ala Ser Cys Leu Cys Tyr Leu Leu Leu Pro Ala Thr Arg Leu
1               5                   10                  15

Phe Arg Ala Leu Ser Asp Ala Phe Phe Thr Cys Arg Lys Asn Val Leu
            20                  25                  30

Leu Ala Asn Ser Ser Ser Pro Gln Val Glu Gly Asp Phe Ala Met Ala
        35                  40                  45
```

```
Pro Arg Gly Pro Glu Gln Glu Glu Cys Glu Gly Leu Leu Gln Gln Trp
    50                  55                  60

Arg Glu Glu Gly Leu Ser Gln Val Leu Ser Thr Ala Ser Glu Gly Pro
65                  70                  75                  80

Leu Ile Asp Lys Gly Leu Ala Gln Ser Ser Leu Ala Leu Leu Met Asp
                85                  90                  95

Asn Pro Gly Glu Glu Asn Ala Ala Ser Glu Asp Arg Trp Ser Ser Arg
            100                 105                 110

Gln Leu Ser Asp Leu Arg Ala Ala Glu Asn Leu Asp Glu Pro Phe Pro
        115                 120                 125

Glu Met Leu Gly Glu Glu Pro Leu Leu Glu Val Glu Gly Val Glu Gly
    130                 135                 140

Ser Met Trp Ala Ala Ile Pro Met Gln Ser Glu Pro Gln Tyr Ala Asp
145                 150                 155                 160

Cys Ala Ala Leu Pro Val Gly Ala Leu Ala Thr Glu Gln Trp Glu Glu
                165                 170                 175

Asp Pro Ala Val Leu Ala Trp Ser Ile Ala Pro Glu Pro Val Pro Gln
            180                 185                 190

Glu Glu Ala Ser Ile Trp Pro Phe Glu Gly Leu Gly Gln Leu Gln Pro
        195                 200                 205

Pro Ala Val Glu Ile Pro Tyr His Glu Ile Leu Trp Arg Glu Trp Glu
    210                 215                 220

Asp Phe Ser Thr Gln Pro Asp Ala Gln Gly Leu Lys Ala Gly Asp Gly
225                 230                 235                 240

Pro Gln Phe Gln Phe Thr Leu Met Ser Tyr Asn Ile Leu Ala Gln Asp
                245                 250                 255

Leu Met Gln Gln Ser Ser Glu Leu Tyr Leu His Cys His Pro Asp Ile
            260                 265                 270
```

```
Leu Asn Trp Asn Tyr Arg Phe Val Asn Leu Met Gln Glu Phe Gln His
        275                 280                 285

Trp Asp Pro Asp Ile Leu Cys Leu Gln Glu Val Gln Glu Asp His Tyr
    290                 295                 300

Trp Glu Gln Leu Glu Pro Ser Leu Arg Met Met Gly Phe Thr Cys Phe
305                 310                 315                 320

Tyr Lys Arg Arg Thr Gly Cys Lys Thr Asp Gly Cys Ala Val Cys Tyr
                325                 330                 335

Lys Pro Thr Arg Phe Arg Leu Leu Cys Ala Ser Pro Val Glu Tyr Phe
            340                 345                 350

Arg Pro Gly Leu Glu Leu Leu Asn Arg Asp Asn Val Gly Leu Val Leu
        355                 360                 365

Leu Leu Gln Pro Leu Val Pro Glu Gly Leu Gly Gln Val Ser Val Ala
    370                 375                 380

Pro Leu Cys Val Ala Asn Thr His Ile Leu Tyr Asn Pro Arg Arg Gly
385                 390                 395                 400

Asp Val Lys Leu Ala Gln Met Ala Ile Leu Leu Ala Glu Val Asp Lys
                405                 410                 415

Val Ala Arg Leu Ser Asp Gly Ser His Cys Pro Ile Ile Leu Cys Gly
            420                 425                 430

Asp Leu Asn Ser Val Pro Asp Ser Pro Leu Tyr Asn Phe Ile Arg Asp
        435                 440                 445

Gly Glu Leu Gln Tyr His Gly Met Pro Ala Trp Lys Val Ser Gly Gln
    450                 455                 460

Glu Asp Phe Ser His Gln Leu Tyr Gln Arg Lys Leu Gln Ala Pro Leu
465                 470                 475                 480

Trp Pro Ser Ser Leu Gly Ile Thr Asp Cys Cys Gln Tyr Val Thr Ser
                485                 490                 495

Cys His Pro Lys Arg Ser Glu Arg Arg Lys Tyr Gly Arg Asp Phe Leu
```

```
            500                 505                 510

Leu Arg Phe Arg Phe Cys Ser Ile Ala Cys Gln Arg Pro Val Gly Leu
        515                 520                 525

Val Leu Met Glu Gly Val Thr Asp Thr Lys Pro Glu Arg Pro Ala Gly
    530                 535                 540

Trp Ala Glu Ser Val Leu Glu Glu Asp Ala Ser Glu Leu Glu Pro Ala
545                 550                 555                 560

Phe Ser Arg Thr Val Gly Thr Ile Gln His Cys Leu His Leu Thr Ser
                565                 570                 575

Val Tyr Thr His Phe Leu Pro Gln Arg Gly Arg Pro Glu Val Thr Thr
            580                 585                 590

Met Pro Leu Gly Leu Gly Met Thr Val Asp Tyr Ile Phe Phe Ser Ala
        595                 600                 605

Glu Ser Cys Glu Asn Gly Asn Arg Thr Asp His Arg Leu Tyr Arg Asp
    610                 615                 620

Gly Thr Leu Lys Leu Leu Gly Arg Leu Ser Leu Leu Ser Glu Glu Ile
625                 630                 635                 640

Leu Trp Ala Ala Asn Gly Leu Pro Asn Pro Phe Cys Ser Ser Asp His
                645                 650                 655

Leu Cys Leu Leu Ala Ser Phe Gly Met Glu Val Thr Ala Pro
            660                 665                 670


<210> 4736
<211> 235
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1038; "

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<221> source
<223> /note="Gene Symbol: ANGEL1; "

<220>
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<221> source
<223> /note="Gene Name:
angel homolog 1 (Drosophila); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451534"

<400> 4736
Met Ser Gln Asn Met Gly Cys Tyr Phe Leu Phe Leu Ser Trp Phe Pro
1 5 10 15

Tyr Ser His Pro Ser Phe Ser Thr Gln Val Ser Gly Gln Glu Asp Phe
20 25 30

Ser His Gln Leu Tyr Gln Arg Lys Leu Gln Ala Pro Leu Trp Pro Ser
35 40 45

Ser Leu Gly Ile Thr Asp Cys Cys Gln Tyr Val Thr Ser Cys His Pro
50 55 60

Lys Arg Ser Glu Arg Arg Lys Tyr Gly Arg Asp Phe Leu Leu Arg Phe
65 70 75 80

Arg Phe Cys Ser Ile Ala Cys Gln Arg Pro Val Gly Leu Val Leu Met
85 90 95

Glu Gly Val Thr Asp Thr Lys Pro Glu Arg Pro Ala Gly Trp Ala Glu
100 105 110

Ser Val Leu Glu Glu Asp Ala Ser Glu Leu Glu Pro Ala Phe Ser Arg
115 120 125

Thr Val Gly Thr Ile Gln His Cys Leu His Leu Thr Ser Val Tyr Thr
130 135 140

His Phe Leu Pro Gln Arg Gly Arg Pro Glu Val Thr Thr Met Pro Leu
145 150 155 160

Gly Leu Gly Met Thr Val Asp Tyr Ile Phe Phe Ser Ala Glu Ser Cys
165 170 175

Glu Asn Gly Asn Arg Thr Asp His Arg Leu Tyr Arg Asp Gly Thr Leu
180 185 190

```
Lys Leu Leu Gly Arg Leu Ser Leu Leu Ser Glu Glu Ile Leu Trp Ala
        195                 200                 205

Ala Asn Gly Leu Pro Asn Pro Phe Cys Ser Ser Asp His Leu Cys Leu
    210                 215                 220

Leu Ala Ser Phe Gly Met Glu Val Thr Ala Pro
225                 230                 235


<210> 4737
<211> 129
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1038; "

<220>
<221> source
<223> /note="Gene Symbol: ANGEL1; "

<220>
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<223> /note="Gene Name:
      angel homolog 1 (Drosophila); "

<220>
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<223> /note="ENSP ID: ENSP00000451568"

<400> 4737
Met Ala Pro Arg Gly Pro Glu Gln Glu Glu Cys Glu Gly Leu Leu Gln
1               5                   10                  15

Gln Trp Arg Glu Glu Gly Leu Ser Gln Val Leu Ser Thr Ala Ser Glu
            20                  25                  30

Gly Pro Leu Ile Asp Lys Gly Leu Ala Gln Ser Ser Leu Ala Leu Leu
        35                  40                  45

Met Asp Asn Pro Gly Glu Glu Asn Ala Ala Ser Glu Asp Arg Trp Ser
    50                  55                  60

Ser Arg Gln Leu Ser Asp Leu Arg Ala Ala Glu Asn Leu Asp Glu Pro
65                  70                  75                  80

Phe Pro Glu Met Leu Gly Glu Glu Pro Leu Leu Glu Val Glu Gly Val
                85                  90                  95
```

Glu Gly Ser Met Trp Ala Ala Ile Pro Met Gln Ser Glu Pro Gln Tyr
100 105 110

Ala Asp Cys Ala Ala Leu Pro Val Gly Ala Leu Ala Thr Glu Gln Trp
115 120 125

Glu

<210> 4738
<211> 67
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1038; "

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<220>
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<223> /note="Gene Name:
angel homolog 1 (Drosophila); "

<220>
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<223> /note="ENSP ID: ENSP00000452287"

<400> 4738
Met Glu Gly Val Thr Asp Thr Lys Pro Glu Arg Pro Ala Gly Trp Ala
1 5 10 15

Glu Ser Val Leu Glu Glu Asp Ala Ser Glu Leu Glu Pro Ala Phe Ser
20 25 30

Arg Thr Val Gly Thr Ile Gln His Cys Leu His Leu Thr Ser Val Tyr
35 40 45

Thr His Phe Leu Pro Gln Arg Gly Arg Pro Glu Val Thr Thr Met Pro
50 55 60

Leu Gly Leu
65

<210> 4739
<211> 375
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ANGEL2; "

<220>
<221> source
<223> /note="Gene Name:
angel homolog 2 (Drosophila); "

<220>
<221> source
<223> /note="Uniprot ID: Q5VTE6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000353696"

<400> 4739
Met Ser Tyr Asn Ile Leu Ser Gln Asp Leu Leu Glu Asp Asn Ser His
1   5   10   15

Leu Tyr Arg His Cys Arg Arg Pro Val Leu His Trp Ser Phe Arg Phe
            20   25   30

Pro Asn Ile Leu Lys Glu Ile Lys His Phe Asp Ala Asp Val Leu Cys
        35   40   45

Leu Gln Glu Val Gln Glu Asp His Tyr Gly Ala Glu Ile Arg Pro Ser
    50   55   60

Leu Glu Ser Leu Gly Tyr His Cys Glu Tyr Lys Met Arg Thr Gly Arg
65   70   75   80

Lys Pro Asp Gly Cys Ala Ile Cys Phe Lys His Ser Lys Phe Ser Leu
                85   90   95

Leu Ser Val Asn Pro Val Glu Phe Phe Arg Pro Asp Ile Ser Leu Leu
            100   105   110

Asp Arg Asp Asn Val Gly Leu Val Leu Leu Leu Gln Pro Lys Ile Pro
        115   120   125

```
Tyr Ala Ala Cys Pro Ala Ile Cys Val Ala Asn Thr His Leu Leu Tyr
    130                 135                 140

Asn Pro Arg Arg Gly Asp Ile Lys Leu Thr Gln Leu Ala Met Leu Leu
145                 150                 155                 160

Ala Glu Ile Ser Ser Val Ala His Gln Lys Asp Gly Ser Phe Cys Pro
                165                 170                 175

Ile Val Met Cys Gly Asp Phe Asn Ser Val Pro Gly Ser Pro Leu Tyr
            180                 185                 190

Ser Phe Ile Lys Glu Gly Lys Leu Asn Tyr Glu Gly Leu Pro Ile Gly
        195                 200                 205

Lys Val Ser Gly Gln Glu Gln Ser Ser Arg Gly Gln Arg Ile Leu Ser
    210                 215                 220

Ile Pro Ile Trp Pro Pro Asn Leu Gly Ile Ser Gln Asn Cys Val Tyr
225                 230                 235                 240

Glu Val Gln Gln Val Pro Lys Val Glu Lys Thr Asp Ser Asp Leu Thr
                245                 250                 255

Gln Thr Gln Leu Lys Gln Thr Glu Val Leu Val Thr Ala Glu Lys Leu
            260                 265                 270

Ser Ser Asn Leu Gln His His Phe Ser Leu Ser Ser Val Tyr Ser His
        275                 280                 285

Tyr Phe Pro Asp Thr Gly Ile Pro Glu Val Thr Thr Cys His Ser Arg
    290                 295                 300

Ser Ala Ile Thr Val Asp Tyr Ile Phe Tyr Ser Ala Glu Lys Glu Asp
305                 310                 315                 320

Val Ala Gly His Pro Gly Ala Glu Val Ala Leu Val Gly Gly Leu Lys
                325                 330                 335

Leu Leu Ala Arg Leu Ser Leu Leu Thr Glu Gln Asp Leu Trp Thr Val
            340                 345                 350
```

Asn Gly Leu Pro Asn Glu Asn Asn Ser Ser Asp His Leu Pro Leu Leu
        355   360   365

Ala Lys Phe Arg Leu Glu Leu
    370   375

<210> 4740
<211> 544
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1039; "

<220>
<221> source
<223> /note="Gene Symbol: ANGEL2; "

<220>
<221> source
<223> /note="Gene Name:
      angel homolog 2 (Drosophila); "

<220>
<221> source
<223> /note="Uniprot ID: Q5VTE6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000355929"

<400> 4740
Met Glu Ala Trp Arg Cys Val Arg Lys Gly Tyr Gly His Cys Val Val
1   5   10   15

Gly Arg Gly Arg Tyr Pro Met Phe Pro His His Ser Arg Ser Leu Gly
            20   25   30

Arg Asp Trp Thr Thr Pro Trp Glu Asn Leu Gln Arg Cys Cys Trp Asn
        35   40   45

Arg His Ile Ser Ser Cys Met Arg Trp Pro Gly His Tyr Ser Arg Ala
    50   55   60

Pro Tyr Pro Tyr Phe Ser Ser Arg His Phe Ser Leu Asn Trp Arg Pro
65   70   75   80

Pro Cys Leu Phe Glu Ser Arg Thr Gln Phe Gln Tyr Cys Asn Trp Arg

```
                85                  90                  95

Pro Asp Asn Leu Ser Gln Thr Ser Leu Ile His Leu Ser Ser Tyr Val
            100                 105                 110

Met Asn Ala Glu Gly Asp Glu Pro Ser Ser Lys Arg Arg Lys His Gln
        115                 120                 125

Gly Val Ile Lys Arg Asn Trp Glu Tyr Ile Cys Ser His Asp Lys Glu
    130                 135                 140

Lys Thr Lys Ile Leu Gly Asp Lys Asn Val Asp Pro Lys Cys Glu Asp
145                 150                 155                 160

Ser Glu Asn Lys Phe Asp Phe Ser Val Met Ser Tyr Asn Ile Leu Ser
                165                 170                 175

Gln Asp Leu Leu Glu Asp Asn Ser His Leu Tyr Arg His Cys Arg Arg
            180                 185                 190

Pro Val Leu His Trp Ser Phe Arg Phe Pro Asn Ile Leu Lys Glu Ile
        195                 200                 205

Lys His Phe Asp Ala Asp Val Leu Cys Leu Gln Glu Val Gln Glu Asp
    210                 215                 220

His Tyr Gly Ala Glu Ile Arg Pro Ser Leu Glu Ser Leu Gly Tyr His
225                 230                 235                 240

Cys Glu Tyr Lys Met Arg Thr Gly Arg Lys Pro Asp Gly Cys Ala Ile
                245                 250                 255

Cys Phe Lys His Ser Lys Phe Ser Leu Leu Ser Val Asn Pro Val Glu
            260                 265                 270

Phe Phe Arg Pro Asp Ile Ser Leu Leu Asp Arg Asp Asn Val Gly Leu
        275                 280                 285

Val Leu Leu Leu Gln Pro Lys Ile Pro Tyr Ala Ala Cys Pro Ala Ile
    290                 295                 300

Cys Val Ala Asn Thr His Leu Leu Tyr Asn Pro Arg Arg Gly Asp Ile
305                 310                 315                 320
```

```
Lys Leu Thr Gln Leu Ala Met Leu Leu Ala Glu Ile Ser Ser Val Ala
                325                 330                 335

His Gln Lys Asp Gly Ser Phe Cys Pro Ile Val Met Cys Gly Asp Phe
            340                 345                 350

Asn Ser Val Pro Gly Ser Pro Leu Tyr Ser Phe Ile Lys Glu Gly Lys
        355                 360                 365

Leu Asn Tyr Glu Gly Leu Pro Ile Gly Lys Val Ser Gly Gln Glu Gln
    370                 375                 380

Ser Ser Arg Gly Gln Arg Ile Leu Ser Ile Pro Ile Trp Pro Pro Asn
385                 390                 395                 400

Leu Gly Ile Ser Gln Asn Cys Val Tyr Glu Val Gln Gln Val Pro Lys
                405                 410                 415

Val Glu Lys Thr Asp Ser Asp Leu Thr Gln Thr Gln Leu Lys Gln Thr
            420                 425                 430

Glu Val Leu Val Thr Ala Glu Lys Leu Ser Ser Asn Leu Gln His His
        435                 440                 445

Phe Ser Leu Ser Ser Val Tyr Ser His Tyr Phe Pro Asp Thr Gly Ile
    450                 455                 460

Pro Glu Val Thr Thr Cys His Ser Arg Ser Ala Ile Thr Val Asp Tyr
465                 470                 475                 480

Ile Phe Tyr Ser Ala Glu Lys Glu Asp Val Ala Gly His Pro Gly Ala
                485                 490                 495

Glu Val Ala Leu Val Gly Gly Leu Lys Leu Leu Ala Arg Leu Ser Leu
            500                 505                 510

Leu Thr Glu Gln Asp Leu Trp Thr Val Asn Gly Leu Pro Asn Glu Asn
        515                 520                 525

Asn Ser Ser Asp His Leu Pro Leu Leu Ala Lys Phe Arg Leu Glu Leu
    530                 535                 540
```

<210> 4741
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1039; "

<220>
<221> source
<223> /note="Gene Symbol: ANGEL2; "

<220>
<221> source
<223> /note="Gene Name:
angel homolog 2 (Drosophila); "

<220>
<221> source
<223> /note="Uniprot ID: Q5VTE6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438141"

<400> 4741
Met Ser Tyr Asn Ile Leu Ser Gln Asp Leu Leu Glu Asp Asn Ser His
1   5   10   15

Leu Tyr Arg His Cys Arg Arg Pro Val Leu His Trp Ser Phe Arg Phe
            20   25   30

Pro Asn Ile Leu Lys Glu Ile Lys His Phe Asp Ala Asp Val Leu Cys
        35   40   45

Leu Gln Glu Val Gln Glu Asp His Tyr Gly Ala Glu Ile Arg Pro Ser
    50   55   60

Leu Glu Ser Leu Gly Tyr His Cys Glu Tyr Lys Met Arg Thr Gly Arg
65   70   75   80

Lys Pro Asp Gly Cys Ala Ile Cys Phe Lys His Ser Lys Phe Ser Leu
                85   90   95

Leu Ser Val Asn Pro Val Glu Phe Phe Arg Pro Asp Ile Ser Leu Leu
            100   105   110

Asp Arg Asp Asn Val Gly Leu Val Leu Leu Leu Gln Pro Lys Ile Pro

```
        115                 120                 125

Tyr Ala Ala Cys Pro Ala Ile Cys Val Ala Asn Thr His Leu Leu Tyr
    130                 135                 140

Asn Pro Arg Arg Gly Asp Ile Lys Leu Thr Gln Leu Ala Met Leu Leu
145                 150                 155                 160

Ala Glu Ile Ser Ser Val Ala His Gln Lys Asp Gly Ser Phe Cys Pro
                165                 170                 175

Ile Val Met Cys Gly Asp Phe Asn Ser Val Pro Gly Ser Pro Leu Tyr
            180                 185                 190

Ser Phe Ile Lys Glu Gly Lys Leu Asn Tyr Glu Gly Leu Pro Ile Gly
        195                 200                 205

Lys Val Ser Gly Gln Glu Gln Ser Ser Arg Gly Gln Arg Ile Leu Ser
    210                 215                 220

Ile Pro Ile Trp Pro Pro Asn Leu Gly Ile Ser Gln Asn Cys Val Tyr
225                 230                 235                 240

Glu Val Gln Gln Val Pro Lys Val Glu Lys Thr Asp Ser Asp Leu Thr
                245                 250                 255

Gln Thr Gln Leu Lys Gln Thr Glu Val Leu Val Thr Ala Glu Lys Leu
            260                 265                 270

Ser Ser Asn Leu Gln His His Phe Ser Leu Ser Ser Val Tyr Ser His
        275                 280                 285

Tyr Phe Pro Asp Thr Gly Ile Pro Glu Val Thr Thr Cys His Ser Arg
    290                 295                 300

Ser Ala Ile Thr Val Asp Tyr Ile Phe Tyr Ser Ala Glu Lys Glu Asp
305                 310                 315                 320

Val Ala Gly His Pro Gly Ala Glu Val Ala Leu Val Gly Gly Leu Lys
                325                 330                 335

Leu Leu Ala Arg Leu Ser Leu Leu Thr Glu Gln Asp Leu Trp Thr Val
            340                 345                 350
```

Asn Gly Leu Pro Asn Glu Asn Asn Ser Ser Asp His Leu Pro Leu Leu
355 360 365

Ala Lys Phe Arg Leu Glu Leu
370 375

<210> 4742
<211> 262
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1039; "

<220>
<221> source
<223> /note="Gene Symbol: ANGEL2; "

<220>
<221> source
<223> /note="Gene Name:
angel homolog 2 (Drosophila); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484198"

<400> 4742
Met Phe Pro His His Ser Arg Ser Leu Gly Arg Asp Trp Thr Thr Pro
1 5 10 15

Trp Glu Asn Leu Gln Arg Cys Cys Trp Asn Arg His Ile Ser Ser Cys
20 25 30

Met Arg Trp Pro Gly His Tyr Ser Arg Ala Pro Tyr Pro Tyr Phe Ser
35 40 45

Ser Arg His Phe Ser Leu Asn Trp Arg Pro Pro Cys Leu Phe Glu Ser
50 55 60

Arg Thr Gln Phe Gln Tyr Cys Asn Trp Arg Pro Asp Asn Leu Ser Gln
65 70 75 80

Thr Ser Leu Ile His Leu Ser Ser Tyr Val Met Asn Ala Glu Gly Asp
85 90 95

```
Glu Pro Ser Ser Lys Arg Arg Lys His Gln Gly Val Ile Lys Arg Asn
            100                 105                 110

Trp Glu Tyr Ile Cys Ser His Asp Lys Glu Lys Thr Lys Ile Leu Gly
        115                 120                 125

Asp Lys Asn Val Asp Pro Lys Cys Glu Asp Ser Glu Asn Lys Phe Asp
    130                 135                 140

Phe Ser Val Met Ser Tyr Asn Ile Leu Ser Gln Asp Leu Leu Glu Asp
145                 150                 155                 160

Asn Ser His Leu Tyr Arg His Cys Arg Arg Pro Val Leu His Trp Ser
                165                 170                 175

Phe Arg Phe Pro Asn Ile Leu Lys Glu Ile Lys His Phe Asp Ala Asp
            180                 185                 190

Val Leu Cys Leu Gln Glu Val Gln Glu Asp His Tyr Gly Ala Glu Ile
        195                 200                 205

Arg Pro Ser Leu Glu Ser Leu Gly Thr Met Gln Leu Phe Phe Phe Phe
    210                 215                 220

Phe Phe Phe Glu Thr Gly Ser His Ser Val Ala Gln Leu Glu Cys Ser
225                 230                 235                 240

Gly Thr Ile Met Ala His Tyr Ser Leu Asn Leu Leu Gly Ser Ser Asn
                245                 250                 255

Pro Leu Ile Ser Ala Ser
            260


<210> 4743
<211> 434
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1040; "

<220>
<221> source
<223> /note="Gene Symbol: AAMP; "
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<220>
<221> source
<223> /note="Gene Name:
angio-associated, migratory cell prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q13685; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000248450"

<400> 4743
Met Glu Ser Glu Ser Glu Ser Gly Ala Ala Ala Asp Thr Pro Pro Leu
1 5 10 15

Glu Thr Leu Ser Phe His Gly Asp Glu Glu Ile Ile Glu Val Val Glu
20 25 30

Leu Asp Pro Gly Pro Pro Asp Pro Asp Asp Leu Ala Gln Glu Met Glu
35 40 45

Asp Val Asp Phe Glu Glu Glu Glu Glu Glu Glu Gly Asn Glu Glu Gly
50 55 60

Trp Val Leu Glu Pro Gln Glu Gly Val Val Gly Ser Met Glu Gly Pro
65 70 75 80

Asp Asp Ser Glu Val Thr Phe Ala Leu His Ser Ala Ser Val Phe Cys
85 90 95

Val Ser Leu Asp Pro Lys Thr Asn Thr Leu Ala Val Thr Gly Gly Glu
100 105 110

Asp Asp Lys Ala Phe Val Trp Arg Leu Ser Asp Gly Glu Leu Leu Phe
115 120 125

Glu Cys Ala Gly His Lys Asp Ser Val Thr Cys Ala Gly Phe Ser His
130 135 140

Asp Ser Thr Leu Val Ala Thr Gly Asp Met Ser Gly Leu Leu Lys Val
145 150 155 160

Trp Gln Val Asp Thr Lys Glu Glu Val Trp Ser Phe Glu Ala Gly Asp
165 170 175

```
Leu Glu Trp Met Glu Trp His Pro Arg Ala Pro Val Leu Leu Ala Gly
            180                 185                 190

Thr Ala Asp Gly Asn Thr Trp Met Trp Lys Val Pro Asn Gly Asp Cys
        195                 200                 205

Lys Thr Phe Gln Gly Pro Asn Cys Pro Ala Thr Cys Gly Arg Val Leu
    210                 215                 220

Pro Asp Gly Lys Arg Ala Val Val Gly Tyr Glu Asp Gly Thr Ile Arg
225                 230                 235                 240

Ile Trp Asp Leu Lys Gln Gly Ser Pro Ile His Val Leu Lys Gly Thr
                245                 250                 255

Glu Gly His Gln Gly Pro Leu Thr Cys Val Ala Ala Asn Gln Asp Gly
            260                 265                 270

Ser Leu Ile Leu Thr Gly Ser Val Asp Cys Gln Ala Lys Leu Val Ser
        275                 280                 285

Ala Thr Thr Gly Lys Val Val Gly Val Phe Arg Pro Glu Thr Val Ala
    290                 295                 300

Ser Gln Pro Ser Leu Gly Glu Gly Glu Glu Ser Glu Ser Asn Ser Val
305                 310                 315                 320

Glu Ser Leu Gly Phe Cys Ser Val Met Pro Leu Ala Ala Val Gly Tyr
                325                 330                 335

Leu Asp Gly Thr Leu Ala Ile Tyr Asp Leu Ala Thr Gln Thr Leu Arg
            340                 345                 350

His Gln Cys Gln His Gln Ser Gly Ile Val Gln Leu Leu Trp Glu Ala
        355                 360                 365

Gly Thr Ala Val Val Tyr Thr Cys Ser Leu Asp Gly Ile Val Arg Leu
    370                 375                 380

Trp Asp Ala Arg Thr Gly Arg Leu Leu Thr Asp Tyr Arg Gly His Thr
385                 390                 395                 400
```

Ala Glu Ile Leu Asp Phe Ala Leu Ser Lys Asp Ala Ser Leu Val Val
405 410 415

Thr Thr Ser Gly Asp His Lys Ala Lys Val Phe Cys Val Gln Arg Pro
420 425 430

Asp Arg

<210> 4744
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1040; "

<220>
<221> source
<223> /note="Gene Symbol: AAMP; "

<220>
<221> source
<223> /note="Gene Name:
angio-associated, migratory cell prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393818"

<400> 4744
Met Glu Asp Val Asp Phe Glu Glu Glu Glu Glu Glu Glu Gly Asn Glu
1 5 10 15

Glu Gly Trp Val Leu Glu Pro Gln Glu Gly Val Val Gly Ser Met Glu
20 25 30

Gly Pro Asp Asp Ser Glu Val Thr Phe Ala Leu His Ser Ala Ser Val
35 40 45

Phe Cys Val Ser Leu Asp Pro Lys Thr Asn Thr Leu Ala Val Thr Gly
50 55 60

Gly Glu Asp Asp Lys Ala Phe Val Trp Arg Leu Ser Asp Gly Glu Leu
65 70 75 80

Leu Phe Glu Cys Ala Gly His Lys Asp Ser Val Thr Cys Ala Gly Phe
85 90 95

```
Ser His Asp Ser Thr Leu Val Ala Thr Gly Asp Met Ser Gly Leu Leu
            100                 105                 110

Lys Val Trp Gln Val Asp Thr Lys Glu Glu Val Trp Ser Phe Glu Ala
        115                 120                 125

Gly Asp Leu Glu Trp Met Glu Trp His Pro Arg Ala Pro Val Leu Leu
    130                 135                 140

Ala Gly Thr Ala Asp Gly Asn Thr Trp Met Trp Lys Val Pro Asn Gly
145                 150                 155                 160

Asp Cys Lys Thr Phe Gln Gly Pro Asn Cys Pro Ala Thr Cys Gly Arg
                165                 170                 175

Val Leu Pro Asp Gly Lys Arg Ala Val Val Gly Tyr Glu Asp Gly Thr
            180                 185                 190

Ile Arg Ile Trp Asp Leu Lys Gln
        195                 200
```

<210> 4745
<211> 189
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1040; "

<220>
<221> source
<223> /note="Gene Symbol: AAMP; "

<220>
<221> source
<223> /note="Gene Name:
angio-associated, migratory cell prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396295"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4745
Xaa Ile His Val Leu Lys Gly Ile Arg Gly Thr Glu Gly His Gln Gly
1 5 10 15

Pro Leu Thr Cys Val Ala Ala Asn Gln Asp Gly Ser Leu Ile Leu Thr
20 25 30

Gly Ser Val Asp Cys Gln Ala Lys Leu Val Ser Ala Thr Thr Gly Lys
35 40 45

Val Val Gly Val Phe Arg Pro Glu Thr Val Ala Ser Gln Pro Ser Leu
50 55 60

Gly Glu Gly Glu Glu Ser Glu Ser Asn Ser Val Glu Ser Leu Gly Phe
65 70 75 80

Cys Ser Val Met Pro Leu Ala Ala Val Gly Tyr Leu Asp Gly Thr Leu
85 90 95

Ala Ile Tyr Asp Leu Ala Thr Gln Thr Leu Arg His Gln Cys Gln His
100 105 110

Gln Ser Gly Ile Val Gln Leu Leu Trp Glu Ala Gly Thr Ala Val Val
115 120 125

Tyr Thr Cys Ser Leu Asp Gly Ile Val Arg Leu Trp Asp Ala Arg Thr
130 135 140

Gly Arg Leu Leu Thr Asp Tyr Arg Gly His Thr Ala Glu Ile Leu Asp
145 150 155 160

Phe Ala Leu Ser Lys Asp Ala Ser Leu Val Val Thr Thr Ser Gly Asp
165 170 175

His Lys Ala Lys Val Phe Cys Val Gln Arg Pro Asp Arg
180 185

<210> 4746
<211> 435
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1040; "

<220>
<221> source
<223> /note="Gene Symbol: AAMP; "

<220>
<221> source
<223> /note="Gene Name:
angio-associated, migratory cell prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403343"

<400> 4746

```
Met Glu Ser Glu Ser Glu Ser Gly Ala Ala Ala Asp Thr Pro Pro Leu
1               5                  10                  15

Glu Thr Leu Ser Phe His Gly Asp Glu Glu Ile Ile Glu Val Val Glu
            20                  25                  30

Leu Asp Pro Gly Pro Pro Asp Pro Ala Asp Asp Leu Ala Gln Glu Met
        35                  40                  45

Glu Asp Val Asp Phe Glu Glu Glu Glu Glu Glu Glu Gly Asn Glu Glu
    50                  55                  60

Gly Trp Val Leu Glu Pro Gln Glu Gly Val Val Gly Ser Met Glu Gly
65                  70                  75                  80

Pro Asp Asp Ser Glu Val Thr Phe Ala Leu His Ser Ala Ser Val Phe
                85                  90                  95

Cys Val Ser Leu Asp Pro Lys Thr Asn Thr Leu Ala Val Thr Gly Gly
            100                 105                 110

Glu Asp Asp Lys Ala Phe Val Trp Arg Leu Ser Asp Gly Glu Leu Leu
        115                 120                 125

Phe Glu Cys Ala Gly His Lys Asp Ser Val Thr Cys Ala Gly Phe Ser
    130                 135                 140

His Asp Ser Thr Leu Val Ala Thr Gly Asp Met Ser Gly Leu Leu Lys
145                 150                 155                 160

Val Trp Gln Val Asp Thr Lys Glu Glu Val Trp Ser Phe Glu Ala Gly
```

```
                165                 170                 175

Asp Leu Glu Trp Met Glu Trp His Pro Arg Ala Pro Val Leu Leu Ala
            180                 185                 190

Gly Thr Ala Asp Gly Asn Thr Trp Met Trp Lys Val Pro Asn Gly Asp
        195                 200                 205

Cys Lys Thr Phe Gln Gly Pro Asn Cys Pro Ala Thr Cys Gly Arg Val
    210                 215                 220

Leu Pro Asp Gly Lys Arg Ala Val Val Gly Tyr Glu Asp Gly Thr Ile
225                 230                 235                 240

Arg Ile Trp Asp Leu Lys Gln Gly Ser Pro Ile His Val Leu Lys Gly
                245                 250                 255

Thr Glu Gly His Gln Gly Pro Leu Thr Cys Val Ala Ala Asn Gln Asp
            260                 265                 270

Gly Ser Leu Ile Leu Thr Gly Ser Val Asp Cys Gln Ala Lys Leu Val
        275                 280                 285

Ser Ala Thr Thr Gly Lys Val Val Gly Val Phe Arg Pro Glu Thr Val
    290                 295                 300

Ala Ser Gln Pro Ser Leu Gly Glu Gly Glu Glu Ser Glu Ser Asn Ser
305                 310                 315                 320

Val Glu Ser Leu Gly Phe Cys Ser Val Met Pro Leu Ala Ala Val Gly
                325                 330                 335

Tyr Leu Asp Gly Thr Leu Ala Ile Tyr Asp Leu Ala Thr Gln Thr Leu
            340                 345                 350

Arg His Gln Cys Gln His Gln Ser Gly Ile Val Gln Leu Leu Trp Glu
        355                 360                 365

Ala Gly Thr Ala Val Val Tyr Thr Cys Ser Leu Asp Gly Ile Val Arg
    370                 375                 380

Leu Trp Asp Ala Arg Thr Gly Arg Leu Leu Thr Asp Tyr Arg Gly His
385                 390                 395                 400
```

```
Thr Ala Glu Ile Leu Asp Phe Ala Leu Ser Lys Asp Ala Ser Leu Val
                405                 410                 415


Val Thr Thr Ser Gly Asp His Lys Ala Lys Val Phe Cys Val Gln Arg
            420                 425                 430


Pro Asp Arg
        435


<210> 4747
<211> 415
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1040; "

<220>
<221> source
<223> /note="Gene Symbol: AAMP; "

<220>
<221> source
<223> /note="Gene Name:
      angio-associated, migratory cell prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416394"

<400> 4747
Met Leu Leu Ser Val Pro Leu Thr Ala Ser Arg Ala Pro Ser Ser Asn
1               5                   10                  15


Pro Leu Pro Lys Ala Asp Asp Leu Ala Gln Glu Met Glu Asp Val Asp
            20                  25                  30


Phe Glu Glu Glu Glu Glu Glu Glu Gly Asn Glu Glu Gly Trp Val Leu
        35                  40                  45


Glu Pro Gln Glu Gly Val Val Gly Ser Met Glu Gly Pro Asp Asp Ser
    50                  55                  60


Glu Val Thr Phe Ala Leu His Ser Ala Ser Val Phe Cys Val Ser Leu
65                  70                  75                  80
```

```
Asp Pro Lys Thr Asn Thr Leu Ala Val Thr Gly Gly Glu Asp Asp Lys
                85                  90                  95

Ala Phe Val Trp Arg Leu Ser Asp Gly Glu Leu Leu Phe Glu Cys Ala
            100                 105                 110

Gly His Lys Asp Ser Val Thr Cys Ala Gly Phe Ser His Asp Ser Thr
        115                 120                 125

Leu Val Ala Thr Gly Asp Met Ser Gly Leu Leu Lys Val Trp Gln Val
    130                 135                 140

Asp Thr Lys Glu Glu Val Trp Ser Phe Glu Ala Gly Asp Leu Glu Trp
145                 150                 155                 160

Met Glu Trp His Pro Arg Ala Pro Val Leu Leu Ala Gly Thr Ala Asp
                165                 170                 175

Gly Asn Thr Trp Met Trp Lys Val Pro Asn Gly Asp Cys Lys Thr Phe
            180                 185                 190

Gln Gly Pro Asn Cys Pro Ala Thr Cys Gly Arg Val Leu Pro Asp Gly
        195                 200                 205

Lys Arg Ala Val Val Gly Tyr Glu Asp Gly Thr Ile Arg Ile Trp Asp
    210                 215                 220

Leu Lys Gln Gly Ser Pro Ile His Val Leu Lys Gly Thr Glu Gly His
225                 230                 235                 240

Gln Gly Pro Leu Thr Cys Val Ala Ala Asn Gln Asp Gly Ser Leu Ile
                245                 250                 255

Leu Thr Gly Ser Val Asp Cys Gln Ala Lys Leu Val Ser Ala Thr Thr
            260                 265                 270

Gly Lys Val Val Gly Val Phe Arg Pro Glu Thr Val Ala Ser Gln Pro
        275                 280                 285

Ser Leu Gly Glu Gly Glu Glu Ser Glu Ser Asn Ser Val Glu Ser Leu
    290                 295                 300

Gly Phe Cys Ser Val Met Pro Leu Ala Ala Val Gly Tyr Leu Asp Gly
```

```
305                 310                 315                 320

Thr Leu Ala Ile Tyr Asp Leu Ala Thr Gln Thr Leu Arg His Gln Cys
                325                 330                 335

Gln His Gln Ser Gly Ile Val Gln Leu Leu Trp Glu Ala Gly Thr Ala
            340                 345                 350

Val Val Tyr Thr Cys Ser Leu Asp Gly Ile Val Arg Leu Trp Asp Ala
        355                 360                 365

Arg Thr Gly Arg Leu Leu Thr Asp Tyr Arg Gly His Thr Ala Glu Ile
    370                 375                 380

Leu Asp Phe Ala Leu Ser Lys Asp Ala Ser Leu Val Val Thr Thr Ser
385                 390                 395                 400

Gly Asp His Lys Ala Lys Val Phe Cys Val Gln Arg Pro Asp Arg
                405                 410                 415


<210> 4748
<211> 714
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1041; "

<220>
<221> source
<223> /note="Gene Symbol: AGGF1; "

<220>
<221> source
<223> /note="Gene Name:
      angiogenic  factor
      with G patch and FHA domains 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N302; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000316109"

<400> 4748
Met Ala Ser Glu Ala Pro Ser Pro Pro Arg Ser Pro Pro Pro Pro Thr
1               5                   10                  15
```

```
Ser Pro Glu Pro Glu Leu Ala Gln Leu Arg Arg Lys Val Glu Lys Leu
            20                  25                  30

Glu Arg Glu Leu Arg Ser Cys Lys Arg Gln Val Arg Glu Ile Glu Lys
        35                  40                  45

Leu Leu His His Thr Glu Arg Leu Tyr Gln Asn Ala Glu Ser Asn Asn
    50                  55                  60

Gln Glu Leu Arg Thr Gln Val Glu Glu Leu Ser Lys Ile Leu Gln Arg
65                  70                  75                  80

Gly Arg Asn Glu Asp Asn Lys Lys Ser Asp Val Glu Val Gln Thr Glu
                85                  90                  95

Asn His Ala Pro Trp Ser Ile Ser Asp Tyr Phe Tyr Gln Thr Tyr Tyr
            100                 105                 110

Asn Asp Val Ser Leu Pro Asn Lys Val Thr Glu Leu Ser Asp Gln Gln
        115                 120                 125

Asp Gln Ala Ile Glu Thr Ser Ile Leu Asn Ser Lys Asp His Leu Gln
    130                 135                 140

Val Glu Asn Asp Ala Tyr Pro Gly Thr Asp Arg Thr Glu Asn Val Lys
145                 150                 155                 160

Tyr Arg Gln Val Asp His Phe Ala Ser Asn Ser Gln Glu Pro Ala Ser
                165                 170                 175

Ala Leu Ala Thr Glu Asp Thr Ser Leu Glu Gly Ser Ser Leu Ala Glu
            180                 185                 190

Ser Leu Arg Ala Ala Ala Glu Ala Ala Val Ser Gln Thr Gly Phe Ser
        195                 200                 205

Tyr Asp Glu Asn Thr Gly Leu Tyr Phe Asp His Ser Thr Gly Phe Tyr
    210                 215                 220

Tyr Asp Ser Glu Asn Gln Leu Tyr Tyr Asp Pro Ser Thr Gly Ile Tyr
225                 230                 235                 240
```

```
Tyr Tyr Cys Asp Val Glu Ser Gly Arg Tyr Gln Phe His Ser Arg Val
                245                 250                 255

Asp Leu Gln Pro Tyr Pro Thr Ser Ser Thr Lys Gln Ser Lys Asp Lys
            260                 265                 270

Lys Leu Lys Lys Lys Arg Lys Asp Pro Asp Ser Ser Ala Thr Asn Glu
        275                 280                 285

Glu Lys Asp Leu Asn Ser Glu Asp Gln Lys Ala Phe Ser Val Glu His
    290                 295                 300

Thr Ser Cys Asn Glu Glu Glu Asn Phe Ala Asn Met Lys Lys Lys Ala
305                 310                 315                 320

Lys Ile Gly Ile His His Lys Asn Ser Pro Pro Lys Val Thr Val Pro
                325                 330                 335

Thr Ser Gly Asn Thr Ile Glu Ser Pro Leu His Glu Asn Ile Ser Asn
            340                 345                 350

Ser Thr Ser Phe Lys Asp Glu Lys Ile Met Glu Thr Asp Ser Glu Pro
        355                 360                 365

Glu Glu Gly Glu Ile Thr Asp Ser Gln Thr Glu Asp Ser Tyr Asp Glu
    370                 375                 380

Ala Ile Thr Ser Glu Gly Asn Val Thr Ala Glu Asp Ser Glu Asp Glu
385                 390                 395                 400

Asp Glu Asp Lys Ile Trp Pro Pro Cys Ile Arg Val Ile Val Ile Arg
                405                 410                 415

Ser Pro Val Leu Gln Ile Gly Ser Leu Phe Ile Ile Thr Ala Val Asn
            420                 425                 430

Pro Ala Thr Ile Gly Arg Glu Lys Asp Met Glu His Thr Leu Arg Ile
        435                 440                 445

Pro Glu Val Gly Val Ser Lys Phe His Ala Glu Ile Tyr Phe Asp His
    450                 455                 460
```

```
Asp Leu Gln Ser Tyr Val Leu Val Asp Gln Gly Ser Gln Asn Gly Thr
465                 470                 475                 480

Ile Val Asn Gly Lys Gln Ile Leu Gln Pro Lys Thr Lys Cys Asp Pro
                485                 490                 495

Tyr Val Leu Glu His Gly Asp Glu Val Lys Ile Gly Glu Thr Val Leu
            500                 505                 510

Ser Phe His Ile His Pro Gly Ser Asp Thr Cys Asp Gly Cys Glu Pro
        515                 520                 525

Gly Gln Val Arg Ala His Leu Arg Leu Asp Lys Lys Asp Glu Ser Phe
    530                 535                 540

Val Gly Pro Thr Leu Ser Lys Glu Glu Lys Glu Leu Glu Arg Arg Lys
545                 550                 555                 560

Glu Leu Lys Lys Ile Arg Val Lys Tyr Gly Leu Gln Asn Thr Glu Tyr
                565                 570                 575

Glu Asp Glu Lys Thr Leu Lys Asn Pro Lys Tyr Lys Asp Arg Ala Gly
            580                 585                 590

Lys Arg Arg Glu Gln Val Gly Ser Glu Gly Thr Phe Gln Arg Asp Asp
        595                 600                 605

Ala Pro Ala Ser Val His Ser Glu Ile Thr Asp Ser Asn Lys Gly Arg
    610                 615                 620

Lys Met Leu Glu Lys Met Gly Trp Lys Lys Gly Glu Gly Leu Gly Lys
625                 630                 635                 640

Asp Gly Gly Gly Met Lys Thr Pro Ile Gln Leu Gln Leu Arg Arg Thr
                645                 650                 655

His Ala Gly Leu Gly Thr Gly Lys Pro Ser Ser Phe Glu Asp Val His
            660                 665                 670

Leu Leu Gln Asn Lys Asn Lys Lys Asn Trp Asp Lys Ala Arg Glu Arg
        675                 680                 685

Phe Thr Glu Asn Phe Pro Glu Thr Lys Pro Gln Lys Asp Asp Pro Gly
```

690 695 700

Thr Met Pro Trp Val Lys Gly Thr Leu Glu
705 710

<210> 4749
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1041; "

<220>
<221> source
<223> /note="Gene Symbol: AGGF1; "

<220>
<221> source
<223> /note="Gene Name:
angiogenic factor
with G patch and FHA domains 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420874"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4749
Xaa Phe Pro Ala Gln Leu Gly Ser Cys Trp Ser Ser Ser Gly Leu Trp
1 5 10 15

Phe Ser Asp Cys Leu Ser Asp Ala Pro Pro Ser Val Ser Val Ala Gly
20 25 30

Glu Gly Ser Phe Gln Glu Ser Phe Pro Val Cys Arg Pro Arg Thr Ser
35 40 45

Gly Arg Gly His Pro Arg Ser Pro Cys Ser Leu Leu Ala Ala Pro Phe
50 55 60

Gly Tyr Lys Trp Lys Asn Ser Val Lys Tyr Ser Asn Val Gly Glu Met
65 70 75 80

Lys Ile Ile Lys Ser Leu Met
85

<210> 4750
<211> 176
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1041; "

<220>
<221> source
<223> /note="Gene Symbol: AGGF1; "

<220>
<221> source
<223> /note="Gene Name:
angiogenic factor
with G patch and FHA domains 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N302; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424733"

<400> 4750
Met Ala Ser Glu Ala Pro Ser Pro Pro Arg Ser Pro Pro Pro Pro Thr
1 5 10 15

Ser Pro Glu Pro Glu Leu Ala Gln Leu Arg Arg Lys Val Glu Lys Leu
20 25 30

Glu Arg Glu Leu Arg Ser Cys Lys Arg Gln Val Arg Glu Ile Glu Lys
35 40 45

Leu Leu His His Thr Glu Arg Leu Tyr Gln Asn Ala Glu Ser Asn Asn
50 55 60

Gln Glu Leu Arg Thr Gln Val Glu Glu Leu Ser Lys Ile Leu Gln Arg
65 70 75 80

Gly Arg Asn Glu Asp Asn Lys Lys Ser Asp Val Glu Val Gln Thr Glu
85 90 95

Asn His Ala Pro Trp Ser Ile Ser Asp Tyr Phe Tyr Gln Thr Tyr Tyr

```
            100                 105                 110

Asn Asp Val Ser Leu Pro Asn Lys Val Thr Glu Leu Ser Asp Gln Gln
        115                 120                 125

Asp Gln Ala Ile Glu Thr Ser Ile Leu Asn Ser Lys Asp His Leu Gln
    130                 135                 140

Val Glu Asn Asp Ala Tyr Pro Gly Thr Asp Arg Thr Glu Asn Val Lys
145                 150                 155                 160

Tyr Arg Gln Val Asp His Phe Ala Ser Asn Ser Gln Val Ile Lys Cys
                165                 170                 175


<210> 4751
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1042; "

<220>
<221> source
<223> /note="Gene Symbol: ANG; "

<220>
<221> source
<223> /note="Gene Name:
      angiogenin, ribonuclease, RNase A family, 5; "

<220>
<221> source
<223> /note="Uniprot ID:  P03950; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000336762"

<400> 4751
Met Val Met Gly Leu Gly Val Leu Leu Leu Val Phe Val Leu Gly Leu
1               5                   10                  15

Gly Leu Thr Pro Pro Thr Leu Ala Gln Asp Asn Ser Arg Tyr Thr His
            20                  25                  30

Phe Leu Thr Gln His Tyr Asp Ala Lys Pro Gln Gly Arg Asp Asp Arg
        35                  40                  45
```

```
Tyr Cys Glu Ser Ile Met Arg Arg Arg Gly Leu Thr Ser Pro Cys Lys
    50                  55                  60

Asp Ile Asn Thr Phe Ile His Gly Asn Lys Arg Ser Ile Lys Ala Ile
65                  70                  75                  80

Cys Glu Asn Lys Asn Gly Asn Pro His Arg Glu Asn Leu Arg Ile Ser
                85                  90                  95

Lys Ser Ser Phe Gln Val Thr Thr Cys Lys Leu His Gly Gly Ser Pro
            100                 105                 110

Trp Pro Pro Cys Gln Tyr Arg Ala Thr Ala Gly Phe Arg Asn Val Val
        115                 120                 125

Val Ala Cys Glu Asn Gly Leu Pro Val His Leu Asp Gln Ser Ile Phe
    130                 135                 140

Arg Arg Pro
145
```

<210> 4752
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1042; "

<220>
<221> source
<223> /note="Gene Symbol: ANG; "

<220>
<221> source
<223> /note="Gene Name:
angiogenin, ribonuclease, RNase A family, 5; "

<220>
<221> source
<223> /note="Uniprot ID: P03950; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381077"

<400> 4752
Met Val Met Gly Leu Gly Val Leu Leu Leu Val Phe Val Leu Gly Leu

```
1               5                   10                  15

Gly Leu Thr Pro Pro Thr Leu Ala Gln Asp Asn Ser Arg Tyr Thr His
            20                  25                  30

Phe Leu Thr Gln His Tyr Asp Ala Lys Pro Gln Gly Arg Asp Asp Arg
        35                  40                  45

Tyr Cys Glu Ser Ile Met Arg Arg Arg Gly Leu Thr Ser Pro Cys Lys
    50                  55                  60

Asp Ile Asn Thr Phe Ile His Gly Asn Lys Arg Ser Ile Lys Ala Ile
65                  70                  75                  80

Cys Glu Asn Lys Asn Gly Asn Pro His Arg Glu Asn Leu Arg Ile Ser
                85                  90                  95

Lys Ser Ser Phe Gln Val Thr Thr Cys Lys Leu His Gly Gly Ser Pro
            100                 105                 110

Trp Pro Pro Cys Gln Tyr Arg Ala Thr Ala Gly Phe Arg Asn Val Val
        115                 120                 125

Val Ala Cys Glu Asn Gly Leu Pro Val His Leu Asp Gln Ser Ile Phe
    130                 135                 140

Arg Arg Pro
145
```

<210> 4753
<211> 675
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1043; "

<220>
<221> source
<223> /note="Gene Symbol: AMOT; "

<220>
<221> source
<223> /note="Gene Name:
angiomotin; "

<220>
<221> source
<223> /note="Uniprot ID: Q4VCS5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000305557"

<400> 4753
Met Pro Arg Ala Gln Pro Ser Ser Ala Ser Tyr Gln Pro Val Pro Ala
1   5   10   15

Asp Pro Phe Ala Ile Val Ser Arg Ala Gln Gln Met Val Glu Ile Leu
            20   25   30

Ser Asp Glu Asn Arg Asn Leu Arg Gln Glu Leu Glu Gly Cys Tyr Glu
        35   40   45

Lys Val Ala Arg Leu Gln Lys Val Glu Thr Glu Ile Gln Arg Val Ser
    50   55   60

Glu Ala Tyr Glu Asn Leu Val Lys Ser Ser Ser Lys Arg Glu Ala Leu
65   70   75   80

Glu Lys Ala Met Arg Asn Lys Leu Glu Gly Glu Ile Arg Arg Met His
                85   90   95

Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Thr Ala Asn Lys Gln
            100   105   110

Leu Ala Glu Lys Glu Tyr Glu Gly Ser Glu Asp Thr Arg Lys Thr Ile
        115   120   125

Ser Gln Leu Phe Ala Lys Asn Lys Glu Ser Gln Arg Glu Lys Glu Lys
    130   135   140

Leu Glu Ala Glu Leu Ala Thr Ala Arg Ser Thr Asn Glu Asp Gln Arg
145   150   155   160

Arg His Ile Glu Ile Arg Asp Gln Ala Leu Ser Asn Ala Gln Ala Lys
                165   170   175

Val Val Lys Leu Glu Glu Glu Leu Lys Lys Lys Gln Val Tyr Val Asp
            180   185   190

```
Lys Val Glu Lys Met Gln Gln Ala Leu Val Gln Leu Gln Ala Ala Cys
        195                 200                 205

Glu Lys Arg Glu Gln Leu Glu His Arg Leu Arg Thr Arg Leu Glu Arg
    210                 215                 220

Glu Leu Glu Ser Leu Arg Ile Gln Gln Arg Gln Gly Asn Cys Gln Pro
225                 230                 235                 240

Thr Asn Val Ser Glu Tyr Asn Ala Ala Ala Leu Met Glu Leu Leu Arg
                245                 250                 255

Glu Lys Glu Glu Arg Ile Leu Ala Leu Glu Ala Asp Met Thr Lys Trp
            260                 265                 270

Glu Gln Lys Tyr Leu Glu Glu Asn Val Met Arg His Phe Ala Leu Asp
        275                 280                 285

Ala Ala Ala Thr Val Ala Ala Gln Arg Asp Thr Thr Val Ile Ser His
    290                 295                 300

Ser Pro Asn Thr Ser Tyr Asp Thr Ala Leu Glu Ala Arg Ile Gln Lys
305                 310                 315                 320

Glu Glu Glu Glu Ile Leu Met Ala Asn Lys Arg Cys Leu Asp Met Glu
                325                 330                 335

Gly Arg Ile Lys Thr Leu His Ala Gln Ile Ile Glu Lys Asp Ala Met
            340                 345                 350

Ile Lys Val Leu Gln Gln Arg Ser Arg Lys Glu Pro Ser Lys Thr Glu
        355                 360                 365

Gln Leu Ser Cys Met Arg Pro Ala Lys Ser Leu Met Ser Ile Ser Asn
    370                 375                 380

Ala Gly Ser Gly Leu Leu Ser His Ser Ser Thr Leu Thr Gly Ser Pro
385                 390                 395                 400

Ile Met Glu Glu Lys Arg Asp Asp Lys Ser Trp Lys Gly Ser Leu Gly
                405                 410                 415

Ile Leu Leu Gly Gly Asp Tyr Arg Ala Glu Tyr Val Pro Ser Thr Pro
```

```
            420                 425                 430

Ser Pro Val Pro Pro Ser Thr Pro Leu Leu Ser Ala His Ser Lys Thr
        435                 440                 445

Gly Ser Arg Asp Cys Ser Thr Gln Thr Glu Arg Gly Thr Glu Ser Asn
    450                 455                 460

Lys Thr Ala Ala Val Ala Pro Ile Ser Val Pro Ala Pro Val Ala Ala
465                 470                 475                 480

Ala Ala Thr Ala Ala Ala Ile Thr Ala Thr Ala Ala Thr Ile Thr Thr
                485                 490                 495

Thr Met Val Ala Ala Ala Pro Val Ala Val Ala Ala Ala Ala Ala Pro
            500                 505                 510

Ala Ala Ala Ala Ala Pro Ser Pro Ala Thr Ala Ala Ala Thr Ala Ala
        515                 520                 525

Ala Val Ser Pro Ala Ala Ala Gly Gln Ile Pro Ala Ala Ala Ser Val
    530                 535                 540

Ala Ser Ala Ala Ala Val Ala Pro Ser Ala Ala Ala Ala Ala Ala Val
545                 550                 555                 560

Gln Val Ala Pro Ala Ala Pro Ala Pro Val Pro Ala Pro Ala Leu Val
                565                 570                 575

Pro Val Pro Ala Pro Ala Ala Ala Gln Ala Ser Ala Pro Ala Gln Thr
            580                 585                 590

Gln Ala Pro Thr Ser Ala Pro Ala Val Ala Pro Thr Pro Ala Pro Thr
        595                 600                 605

Pro Thr Pro Ala Val Ala Gln Ala Glu Val Pro Ala Ser Pro Ala Thr
    610                 615                 620

Gly Pro Gly Pro His Arg Leu Ser Ile Pro Ser Leu Thr Cys Asn Pro
625                 630                 635                 640

Asp Lys Thr Asp Gly Pro Val Phe His Ser Asn Thr Leu Glu Arg Lys
                645                 650                 655
```

Thr Pro Ile Gln Ile Leu Gly Gln Glu Pro Asp Ala Glu Met Val Glu
660 665 670

Tyr Leu Ile
675

<210> 4754
<211> 597
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1043; "

<220>
<221> source
<223> /note="Gene Symbol: AMOT; "

<220>
<221> source
<223> /note="Gene Name:
angiomotin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361026"

<400> 4754
Met Glu His Arg Gly Pro Pro Pro Glu Tyr Pro Phe Lys Gly Met Pro
1 5 10 15

Pro Gln Ser Val Val Cys Lys Pro Gln Glu Pro Gly His Phe Tyr Ser
20 25 30

Glu His Arg Leu Asn Gln Pro Gly Arg Thr Glu Gly Gln Leu Met Arg
35 40 45

Tyr Gln His Pro Pro Glu Tyr Gly Ala Ala Arg Pro Ala Gln Asp Ile
50 55 60

Ser Leu Pro Leu Ser Ala Arg Asn Ser Gln Pro His Ser Pro Thr Ser
65 70 75 80

Ser Leu Thr Ser Gly Gly Ser Leu Pro Leu Leu Gln Ser Pro Pro Ser
85 90 95

```
Thr Arg Leu Ser Pro Ala Arg His Pro Leu Val Pro Asn Gln Gly Asp
            100                 105                 110

His Ser Ala His Leu Pro Arg Pro Gln Gln His Phe Leu Pro Asn Gln
        115                 120                 125

Ala His Gln Gly Asp His Tyr Arg Leu Ser Gln Pro Gly Leu Ser Gln
    130                 135                 140

Gln Gln Gln Gln Gln Gln Gln Gln His His His His His His His Gln
145                 150                 155                 160

Gln Gln Gln Gln Gln Gln Pro Gln Gln Gln Pro Gly Glu Ala Tyr Ser
                165                 170                 175

Ala Met Pro Arg Ala Gln Pro Ser Ser Ala Ser Tyr Gln Pro Val Pro
            180                 185                 190

Ala Asp Pro Phe Ala Ile Val Ser Arg Ala Gln Gln Met Val Glu Ile
        195                 200                 205

Leu Ser Asp Glu Asn Arg Asn Leu Arg Gln Glu Leu Glu Gly Cys Tyr
    210                 215                 220

Glu Lys Val Ala Arg Leu Gln Lys Val Glu Thr Glu Ile Gln Arg Val
225                 230                 235                 240

Ser Glu Ala Tyr Glu Asn Leu Val Lys Ser Ser Ser Lys Arg Glu Ala
                245                 250                 255

Leu Glu Lys Ala Met Arg Asn Lys Leu Glu Gly Glu Ile Arg Arg Met
            260                 265                 270

His Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Thr Ala Asn Lys
        275                 280                 285

Gln Leu Ala Glu Lys Glu Tyr Glu Gly Ser Glu Asp Thr Arg Lys Thr
    290                 295                 300

Ile Ser Gln Leu Phe Ala Lys Asn Lys Glu Ser Gln Arg Glu Lys Glu
305                 310                 315                 320

Lys Leu Glu Ala Glu Leu Ala Thr Ala Arg Ser Thr Asn Glu Asp Gln
```

```
                325                 330                 335

Arg Arg His Ile Glu Ile Arg Asp Gln Ala Leu Ser Asn Ala Gln Ala
            340                 345                 350

Lys Val Val Lys Leu Glu Glu Glu Leu Lys Lys Lys Gln Val Tyr Val
        355                 360                 365

Asp Lys Val Glu Lys Met Gln Gln Ala Leu Val Gln Leu Gln Ala Ala
    370                 375                 380

Cys Glu Lys Arg Glu Gln Leu Glu His Arg Leu Arg Thr Arg Leu Glu
385                 390                 395                 400

Arg Glu Leu Glu Ser Leu Arg Ile Gln Gln Arg Gln Gly Asn Cys Gln
                405                 410                 415

Pro Thr Asn Val Ser Glu Tyr Asn Ala Ala Ala Leu Met Glu Leu Leu
            420                 425                 430

Arg Glu Lys Glu Glu Arg Ile Leu Ala Leu Glu Ala Asp Met Thr Lys
        435                 440                 445

Trp Glu Gln Lys Tyr Leu Glu Glu Asn Val Met Arg His Phe Ala Leu
    450                 455                 460

Asp Ala Ala Ala Thr Val Ala Ala Gln Arg Asp Thr Thr Val Ile Ser
465                 470                 475                 480

His Ser Pro Asn Thr Ser Tyr Asp Thr Ala Leu Glu Ala Arg Ile Gln
                485                 490                 495

Lys Glu Glu Glu Glu Ile Leu Met Ala Asn Lys Arg Cys Leu Asp Met
            500                 505                 510

Glu Gly Arg Ile Lys Thr Leu His Ala Gln Ile Ile Glu Lys Asp Ala
        515                 520                 525

Met Ile Lys Val Leu Gln Gln Arg Ser Arg Lys Glu Pro Ser Lys Thr
    530                 535                 540

Glu Gln Leu Ser Cys Met Arg Pro Ala Lys Ser Leu Met Ser Ile Ser
545                 550                 555                 560
```

```
Asn Ala Gly Ser Gly Leu Leu Ser His Ser Ser Thr Leu Thr Gly Ser
                565                 570                 575

Pro Ile Met Glu Glu Lys Arg Asp Asp Lys Ser Trp Lys Gly Ser Leu
            580                 585                 590

Gly Asn Asp Ser Lys
        595


<210> 4755
<211> 1084
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1043; "

<220>
<221> source
<223> /note="Gene Symbol: AMOT; "

<220>
<221> source
<223> /note="Gene Name:
      angiomotin; "

<220>
<221> source
<223> /note="Uniprot ID:  Q4VCS5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361027"

<400> 4755
Met Arg Asn Ser Glu Glu Gln Pro Ser Gly Gly Thr Thr Val Leu Gln
1               5                   10                  15

Arg Leu Leu Gln Glu Gln Leu Arg Tyr Gly Asn Pro Ser Glu Asn Arg
            20                  25                  30

Ser Leu Leu Ala Ile His Gln Gln Ala Thr Gly Asn Gly Pro Pro Phe
        35                  40                  45

Pro Ser Gly Ser Gly Asn Pro Gly Pro Gln Ser Asp Val Leu Ser Pro
    50                  55                  60
```

```
Gln Asp His His Gln Gln Leu Val Ala His Ala Ala Arg Gln Glu Pro
65                  70                  75                  80

Gln Gly Gln Glu Ile Gln Ser Glu Asn Leu Ile Met Glu Lys Gln Leu
                85                  90                  95

Ser Pro Arg Met Gln Asn Asn Glu Glu Leu Pro Thr Tyr Glu Glu Ala
            100                 105                 110

Lys Val Gln Ser Gln Tyr Phe Arg Gly Gln Gln His Ala Ser Val Gly
        115                 120                 125

Ala Ala Phe Tyr Val Thr Gly Val Thr Asn Gln Lys Met Arg Thr Glu
    130                 135                 140

Gly Arg Pro Ser Val Gln Arg Leu Asn Pro Gly Lys Met His Gln Asp
145                 150                 155                 160

Glu Gly Leu Arg Asp Leu Lys Gln Gly His Val Arg Ser Leu Ser Glu
                165                 170                 175

Arg Leu Met Gln Met Ser Leu Ala Thr Ser Gly Val Lys Ala His Pro
            180                 185                 190

Pro Val Thr Ser Ala Pro Leu Ser Pro Pro Gln Pro Asn Asp Leu Tyr
        195                 200                 205

Lys Asn Pro Thr Ser Ser Ser Glu Phe Tyr Lys Ala Gln Gly Pro Leu
    210                 215                 220

Pro Asn Gln His Ser Leu Lys Gly Met Glu His Arg Gly Pro Pro Pro
225                 230                 235                 240

Glu Tyr Pro Phe Lys Gly Met Pro Pro Gln Ser Val Val Cys Lys Pro
                245                 250                 255

Gln Glu Pro Gly His Phe Tyr Ser Glu His Arg Leu Asn Gln Pro Gly
            260                 265                 270

Arg Thr Glu Gly Gln Leu Met Arg Tyr Gln His Pro Pro Glu Tyr Gly
        275                 280                 285

Ala Ala Arg Pro Ala Gln Asp Ile Ser Leu Pro Leu Ser Ala Arg Asn
```

```
    290                 295                 300

Ser Gln Pro His Ser Pro Thr Ser Ser Leu Thr Ser Gly Gly Ser Leu
305                 310                 315                 320

Pro Leu Leu Gln Ser Pro Pro Ser Thr Arg Leu Ser Pro Ala Arg His
                325                 330                 335

Pro Leu Val Pro Asn Gln Gly Asp His Ser Ala His Leu Pro Arg Pro
            340                 345                 350

Gln Gln His Phe Leu Pro Asn Gln Ala His Gln Gly Asp His Tyr Arg
        355                 360                 365

Leu Ser Gln Pro Gly Leu Ser Gln Gln Gln Gln Gln Gln Gln Gln Gln
    370                 375                 380

His His His His His His His Gln Gln Gln Gln Gln Gln Gln Pro Gln
385                 390                 395                 400

Gln Gln Pro Gly Glu Ala Tyr Ser Ala Met Pro Arg Ala Gln Pro Ser
                405                 410                 415

Ser Ala Ser Tyr Gln Pro Val Pro Ala Asp Pro Phe Ala Ile Val Ser
            420                 425                 430

Arg Ala Gln Gln Met Val Glu Ile Leu Ser Asp Glu Asn Arg Asn Leu
        435                 440                 445

Arg Gln Glu Leu Glu Gly Cys Tyr Glu Lys Val Ala Arg Leu Gln Lys
    450                 455                 460

Val Glu Thr Glu Ile Gln Arg Val Ser Glu Ala Tyr Glu Asn Leu Val
465                 470                 475                 480

Lys Ser Ser Ser Lys Arg Glu Ala Leu Glu Lys Ala Met Arg Asn Lys
                485                 490                 495

Leu Glu Gly Glu Ile Arg Arg Met His Asp Phe Asn Arg Asp Leu Arg
            500                 505                 510

Glu Arg Leu Glu Thr Ala Asn Lys Gln Leu Ala Glu Lys Glu Tyr Glu
        515                 520                 525
```

Gly Ser Glu Asp Thr Arg Lys Thr Ile Ser Gln Leu Phe Ala Lys Asn
530 535 540

Lys Glu Ser Gln Arg Glu Lys Glu Lys Leu Glu Ala Glu Leu Ala Thr
545 550 555 560

Ala Arg Ser Thr Asn Glu Asp Gln Arg Arg His Ile Glu Ile Arg Asp
565 570 575

Gln Ala Leu Ser Asn Ala Gln Ala Lys Val Val Lys Leu Glu Glu Glu
580 585 590

Leu Lys Lys Lys Gln Val Tyr Val Asp Lys Val Glu Lys Met Gln Gln
595 600 605

Ala Leu Val Gln Leu Gln Ala Ala Cys Glu Lys Arg Glu Gln Leu Glu
610 615 620

His Arg Leu Arg Thr Arg Leu Glu Arg Glu Leu Glu Ser Leu Arg Ile
625 630 635 640

Gln Gln Arg Gln Gly Asn Cys Gln Pro Thr Asn Val Ser Glu Tyr Asn
645 650 655

Ala Ala Ala Leu Met Glu Leu Leu Arg Glu Lys Glu Glu Arg Ile Leu
660 665 670

Ala Leu Glu Ala Asp Met Thr Lys Trp Glu Gln Lys Tyr Leu Glu Glu
675 680 685

Asn Val Met Arg His Phe Ala Leu Asp Ala Ala Ala Thr Val Ala Ala
690 695 700

Gln Arg Asp Thr Thr Val Ile Ser His Ser Pro Asn Thr Ser Tyr Asp
705 710 715 720

Thr Ala Leu Glu Ala Arg Ile Gln Lys Glu Glu Glu Glu Ile Leu Met
725 730 735

Ala Asn Lys Arg Cys Leu Asp Met Glu Gly Arg Ile Lys Thr Leu His
740 745 750

```
Ala Gln Ile Ile Glu Lys Asp Ala Met Ile Lys Val Leu Gln Gln Arg
        755                 760                 765

Ser Arg Lys Glu Pro Ser Lys Thr Glu Gln Leu Ser Cys Met Arg Pro
    770                 775                 780

Ala Lys Ser Leu Met Ser Ile Ser Asn Ala Gly Ser Gly Leu Leu Ser
785                 790                 795                 800

His Ser Ser Thr Leu Thr Gly Ser Pro Ile Met Glu Glu Lys Arg Asp
                805                 810                 815

Asp Lys Ser Trp Lys Gly Ser Leu Gly Ile Leu Leu Gly Gly Asp Tyr
            820                 825                 830

Arg Ala Glu Tyr Val Pro Ser Thr Pro Ser Pro Val Pro Pro Ser Thr
        835                 840                 845

Pro Leu Leu Ser Ala His Ser Lys Thr Gly Ser Arg Asp Cys Ser Thr
    850                 855                 860

Gln Thr Glu Arg Gly Thr Glu Ser Asn Lys Thr Ala Ala Val Ala Pro
865                 870                 875                 880

Ile Ser Val Pro Ala Pro Val Ala Ala Ala Ala Thr Ala Ala Ala Ile
                885                 890                 895

Thr Ala Thr Ala Ala Thr Ile Thr Thr Thr Met Val Ala Ala Ala Pro
            900                 905                 910

Val Ala Val Ala Ala Ala Ala Ala Pro Ala Ala Ala Ala Ala Pro Ser
        915                 920                 925

Pro Ala Thr Ala Ala Ala Thr Ala Ala Ala Val Ser Pro Ala Ala Ala
    930                 935                 940

Gly Gln Ile Pro Ala Ala Ala Ser Val Ala Ser Ala Ala Ala Val Ala
945                 950                 955                 960

Pro Ser Ala Ala Ala Ala Ala Ala Val Gln Val Ala Pro Ala Ala Pro
                965                 970                 975
```

Ala Pro Val Pro Ala Pro Ala Leu Val Pro Val Pro Ala Pro Ala Ala
980 985 990

Ala Gln Ala Ser Ala Pro Ala Gln Thr Gln Ala Pro Thr Ser Ala
Pro
995 1000 1005

Ala Val Ala Pro Thr Pro Ala Pro Thr Pro Thr Pro Ala Val Ala
1010 1015 1020

Gln Ala Glu Val Pro Ala Ser Pro Ala Thr Gly Pro Gly Pro His
1025 1030 1035

Arg Leu Ser Ile Pro Ser Leu Thr Cys Asn Pro Asp Lys Thr Asp
1040 1045 1050

Gly Pro Val Phe His Ser Asn Thr Leu Glu Arg Lys Thr Pro Ile
1055 1060 1065

Gln Ile Leu Gly Gln Glu Pro Asp Ala Glu Met Val Glu Tyr Leu
1070 1075 1080

Ile

<210> 4756
<211> 852
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1043; "

<220>
<221> source
<223> /note="Gene Symbol: AMOT; "

<220>
<221> source
<223> /note="Gene Name:
angiomotin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361030"

<400> 4756
Met Glu His Arg Gly Pro Pro Pro Glu Tyr Pro Phe Lys Gly Met Pro

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1               5                   10                  15

Pro Gln Ser Val Val Cys Lys Pro Gln Glu Pro Gly His Phe Tyr Ser
            20                  25                  30

Glu His Arg Leu Asn Gln Pro Gly Arg Thr Glu Gly Gln Leu Met Arg
        35                  40                  45

Tyr Gln His Pro Pro Glu Tyr Gly Ala Ala Arg Pro Ala Gln Asp Ile
    50                  55                  60

Ser Leu Pro Leu Ser Ala Arg Asn Ser Gln Pro His Ser Pro Thr Ser
65                  70                  75                  80

Ser Leu Thr Ser Gly Gly Ser Leu Pro Leu Leu Gln Ser Pro Pro Ser
                85                  90                  95

Thr Arg Leu Ser Pro Ala Arg His Pro Leu Val Pro Asn Gln Gly Asp
            100                 105                 110

His Ser Ala His Leu Pro Arg Pro Gln Gln His Phe Leu Pro Asn Gln
        115                 120                 125

Ala His Gln Gly Asp His Tyr Arg Leu Ser Gln Pro Gly Leu Ser Gln
    130                 135                 140

Gln Gln Gln Gln Gln Gln Gln Gln His His His His His His His Gln
145                 150                 155                 160

Gln Gln Gln Gln Gln Gln Pro Gln Gln Gln Pro Gly Glu Ala Tyr Ser
                165                 170                 175

Ala Met Pro Arg Ala Gln Pro Ser Ser Ala Ser Tyr Gln Pro Val Pro
            180                 185                 190

Ala Asp Pro Phe Ala Ile Val Ser Arg Ala Gln Gln Met Val Glu Ile
        195                 200                 205

Leu Ser Asp Glu Asn Arg Asn Leu Arg Gln Glu Leu Glu Gly Cys Tyr
    210                 215                 220

Glu Lys Val Ala Arg Leu Gln Lys Val Glu Thr Glu Ile Gln Arg Val
225                 230                 235                 240
```

```
Ser Glu Ala Tyr Glu Asn Leu Val Lys Ser Ser Ser Lys Arg Glu Ala
                245                 250                 255

Leu Glu Lys Ala Met Arg Asn Lys Leu Glu Gly Glu Ile Arg Arg Met
            260                 265                 270

His Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Thr Ala Asn Lys
        275                 280                 285

Gln Leu Ala Glu Lys Glu Tyr Glu Gly Ser Glu Asp Thr Arg Lys Thr
    290                 295                 300

Ile Ser Gln Leu Phe Ala Lys Asn Lys Glu Ser Gln Arg Glu Lys Glu
305                 310                 315                 320

Lys Leu Glu Ala Glu Leu Ala Thr Ala Arg Ser Thr Asn Glu Asp Gln
                325                 330                 335

Arg Arg His Ile Glu Ile Arg Asp Gln Ala Leu Ser Asn Ala Gln Ala
            340                 345                 350

Lys Val Val Lys Leu Glu Glu Glu Leu Lys Lys Lys Gln Val Tyr Val
        355                 360                 365

Asp Lys Val Glu Lys Met Gln Gln Ala Leu Val Gln Leu Gln Ala Ala
    370                 375                 380

Cys Glu Lys Arg Glu Gln Leu Glu His Arg Leu Arg Thr Arg Leu Glu
385                 390                 395                 400

Arg Glu Leu Glu Ser Leu Arg Ile Gln Gln Arg Gln Gly Asn Cys Gln
                405                 410                 415

Pro Thr Asn Val Ser Glu Tyr Asn Ala Ala Ala Leu Met Glu Leu Leu
            420                 425                 430

Arg Glu Lys Glu Glu Arg Ile Leu Ala Leu Glu Ala Asp Met Thr Lys
        435                 440                 445

Trp Glu Gln Lys Tyr Leu Glu Glu Asn Val Met Arg His Phe Ala Leu
    450                 455                 460
```

```
Asp Ala Ala Ala Thr Val Ala Ala Gln Arg Asp Thr Thr Val Ile Ser
465                 470                 475                 480

His Ser Pro Asn Thr Ser Tyr Asp Thr Ala Leu Glu Ala Arg Ile Gln
                485                 490                 495

Lys Glu Glu Glu Glu Ile Leu Met Ala Asn Lys Arg Cys Leu Asp Met
            500                 505                 510

Glu Gly Arg Ile Lys Thr Leu His Ala Gln Ile Ile Glu Lys Asp Ala
        515                 520                 525

Met Ile Lys Val Leu Gln Gln Arg Ser Arg Lys Glu Pro Ser Lys Thr
    530                 535                 540

Glu Gln Leu Ser Cys Met Arg Pro Ala Lys Ser Leu Met Ser Ile Ser
545                 550                 555                 560

Asn Ala Gly Ser Gly Leu Leu Ser His Ser Ser Thr Leu Thr Gly Ser
                565                 570                 575

Pro Ile Met Glu Glu Lys Arg Asp Asp Lys Ser Trp Lys Gly Ser Leu
            580                 585                 590

Gly Ile Leu Leu Gly Gly Asp Tyr Arg Ala Glu Tyr Val Pro Ser Thr
        595                 600                 605

Pro Ser Pro Val Pro Pro Ser Thr Pro Leu Leu Ser Ala His Ser Lys
    610                 615                 620

Thr Gly Ser Arg Asp Cys Ser Thr Gln Thr Glu Arg Gly Thr Glu Ser
625                 630                 635                 640

Asn Lys Thr Ala Ala Val Ala Pro Ile Ser Val Pro Ala Pro Val Ala
                645                 650                 655

Ala Ala Ala Thr Ala Ala Ala Ile Thr Ala Thr Ala Ala Thr Ile Thr
            660                 665                 670

Thr Thr Met Val Ala Ala Ala Pro Val Ala Val Ala Ala Ala Ala Ala
        675                 680                 685
```

```
Pro Ala Ala Ala Ala Ala Pro Ser Pro Ala Thr Ala Ala Ala Thr Ala
    690                 695                 700

Ala Ala Val Ser Pro Ala Ala Ala Gly Gln Ile Pro Ala Ala Ala Ser
705                 710                 715                 720

Val Ala Ser Ala Ala Ala Val Ala Pro Ser Ala Ala Ala Ala Ala Ala
                725                 730                 735

Val Gln Val Ala Pro Ala Ala Pro Ala Pro Val Pro Ala Pro Ala Leu
            740                 745                 750

Val Pro Val Pro Ala Pro Ala Ala Ala Gln Ala Ser Ala Pro Ala Gln
        755                 760                 765

Thr Gln Ala Pro Thr Ser Ala Pro Ala Val Ala Pro Thr Pro Ala Pro
    770                 775                 780

Thr Pro Thr Pro Ala Val Ala Gln Ala Glu Val Pro Ala Ser Pro Ala
785                 790                 795                 800

Thr Gly Pro Gly Pro His Arg Leu Ser Ile Pro Ser Leu Thr Cys Asn
                805                 810                 815

Pro Asp Lys Thr Asp Gly Pro Val Phe His Ser Asn Thr Leu Glu Arg
            820                 825                 830

Lys Thr Pro Ile Gln Ile Leu Gly Gln Glu Pro Asp Ala Glu Met Val
        835                 840                 845

Glu Tyr Leu Ile
    850


<210> 4757
<211> 1084
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1043; "

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<221> source
<223> /note="Gene Symbol: AMOT; "
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<220>
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<223> /note="Gene Name:
angiomotin; "

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<220>
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<223> /note="ENSP ID: ENSP00000429013"

<400> 4757
Met Arg Asn Ser Glu Glu Gln Pro Ser Gly Gly Thr Thr Val Leu Gln
1   5   10   15

Arg Leu Leu Gln Glu Gln Leu Arg Tyr Gly Asn Pro Ser Glu Asn Arg
            20   25   30

Ser Leu Leu Ala Ile His Gln Gln Ala Thr Gly Asn Gly Pro Pro Phe
        35   40   45

Pro Ser Gly Ser Gly Asn Pro Gly Pro Gln Ser Asp Val Leu Ser Pro
    50   55   60

Gln Asp His His Gln Gln Leu Val Ala His Ala Ala Arg Gln Glu Pro
65   70   75   80

Gln Gly Gln Glu Ile Gln Ser Glu Asn Leu Ile Met Glu Lys Gln Leu
                85   90   95

Ser Pro Arg Met Gln Asn Asn Glu Glu Leu Pro Thr Tyr Glu Glu Ala
            100   105   110

Lys Val Gln Ser Gln Tyr Phe Arg Gly Gln Gln His Ala Ser Val Gly
        115   120   125

Ala Ala Phe Tyr Val Thr Gly Val Thr Asn Gln Lys Met Arg Thr Glu
    130   135   140

Gly Arg Pro Ser Val Gln Arg Leu Asn Pro Gly Lys Met His Gln Asp
145   150   155   160

Glu Gly Leu Arg Asp Leu Lys Gln Gly His Val Arg Ser Leu Ser Glu
                165   170   175

```
Arg Leu Met Gln Met Ser Leu Ala Thr Ser Gly Val Lys Ala His Pro
            180                 185                 190

Pro Val Thr Ser Ala Pro Leu Ser Pro Pro Gln Pro Asn Asp Leu Tyr
        195                 200                 205

Lys Asn Pro Thr Ser Ser Ser Glu Phe Tyr Lys Ala Gln Gly Pro Leu
    210                 215                 220

Pro Asn Gln His Ser Leu Lys Gly Met Glu His Arg Gly Pro Pro Pro
225                 230                 235                 240

Glu Tyr Pro Phe Lys Gly Met Pro Pro Gln Ser Val Val Cys Lys Pro
                245                 250                 255

Gln Glu Pro Gly His Phe Tyr Ser Glu His Arg Leu Asn Gln Pro Gly
            260                 265                 270

Arg Thr Glu Gly Gln Leu Met Arg Tyr Gln His Pro Pro Glu Tyr Gly
        275                 280                 285

Ala Ala Arg Pro Ala Gln Asp Ile Ser Leu Pro Leu Ser Ala Arg Asn
    290                 295                 300

Ser Gln Pro His Ser Pro Thr Ser Ser Leu Thr Ser Gly Gly Ser Leu
305                 310                 315                 320

Pro Leu Leu Gln Ser Pro Pro Ser Thr Arg Leu Ser Pro Ala Arg His
                325                 330                 335

Pro Leu Val Pro Asn Gln Gly Asp His Ser Ala His Leu Pro Arg Pro
            340                 345                 350

Gln Gln His Phe Leu Pro Asn Gln Ala His Gln Gly Asp His Tyr Arg
        355                 360                 365

Leu Ser Gln Pro Gly Leu Ser Gln Gln Gln Gln Gln Gln Gln Gln Gln
    370                 375                 380

His His His His His His His Gln Gln Gln Gln Gln Gln Gln Pro Gln
385                 390                 395                 400
```

```
Gln Gln Pro Gly Glu Ala Tyr Ser Ala Met Pro Arg Ala Gln Pro Ser
                405                 410                 415

Ser Ala Ser Tyr Gln Pro Val Pro Ala Asp Pro Phe Ala Ile Val Ser
            420                 425                 430

Arg Ala Gln Gln Met Val Glu Ile Leu Ser Asp Glu Asn Arg Asn Leu
        435                 440                 445

Arg Gln Glu Leu Glu Gly Cys Tyr Glu Lys Val Ala Arg Leu Gln Lys
    450                 455                 460

Val Glu Thr Glu Ile Gln Arg Val Ser Glu Ala Tyr Glu Asn Leu Val
465                 470                 475                 480

Lys Ser Ser Ser Lys Arg Glu Ala Leu Glu Lys Ala Met Arg Asn Lys
                485                 490                 495

Leu Glu Gly Glu Ile Arg Arg Met His Asp Phe Asn Arg Asp Leu Arg
            500                 505                 510

Glu Arg Leu Glu Thr Ala Asn Lys Gln Leu Ala Glu Lys Glu Tyr Glu
        515                 520                 525

Gly Ser Glu Asp Thr Arg Lys Thr Ile Ser Gln Leu Phe Ala Lys Asn
    530                 535                 540

Lys Glu Ser Gln Arg Glu Lys Glu Lys Leu Glu Ala Glu Leu Ala Thr
545                 550                 555                 560

Ala Arg Ser Thr Asn Glu Asp Gln Arg Arg His Ile Glu Ile Arg Asp
                565                 570                 575

Gln Ala Leu Ser Asn Ala Gln Ala Lys Val Val Lys Leu Glu Glu Glu
            580                 585                 590

Leu Lys Lys Lys Gln Val Tyr Val Asp Lys Val Glu Lys Met Gln Gln
        595                 600                 605

Ala Leu Val Gln Leu Gln Ala Ala Cys Glu Lys Arg Glu Gln Leu Glu
    610                 615                 620

His Arg Leu Arg Thr Arg Leu Glu Arg Glu Leu Glu Ser Leu Arg Ile
```

625 630 635 640

Gln Gln Arg Gln Gly Asn Cys Gln Pro Thr Asn Val Ser Glu Tyr Asn
645 650 655

Ala Ala Ala Leu Met Glu Leu Leu Arg Glu Lys Glu Glu Arg Ile Leu
660 665 670

Ala Leu Glu Ala Asp Met Thr Lys Trp Glu Gln Lys Tyr Leu Glu Glu
675 680 685

Asn Val Met Arg His Phe Ala Leu Asp Ala Ala Ala Thr Val Ala Ala
690 695 700

Gln Arg Asp Thr Thr Val Ile Ser His Ser Pro Asn Thr Ser Tyr Asp
705 710 715 720

Thr Ala Leu Glu Ala Arg Ile Gln Lys Glu Glu Glu Glu Ile Leu Met
725 730 735

Ala Asn Lys Arg Cys Leu Asp Met Glu Gly Arg Ile Lys Thr Leu His
740 745 750

Ala Gln Ile Ile Glu Lys Asp Ala Met Ile Lys Val Leu Gln Gln Arg
755 760 765

Ser Arg Lys Glu Pro Ser Lys Thr Glu Gln Leu Ser Cys Met Arg Pro
770 775 780

Ala Lys Ser Leu Met Ser Ile Ser Asn Ala Gly Ser Gly Leu Leu Ser
785 790 795 800

His Ser Ser Thr Leu Thr Gly Ser Pro Ile Met Glu Glu Lys Arg Asp
805 810 815

Asp Lys Ser Trp Lys Gly Ser Leu Gly Ile Leu Leu Gly Gly Asp Tyr
820 825 830

Arg Ala Glu Tyr Val Pro Ser Thr Pro Ser Pro Val Pro Pro Ser Thr
835 840 845

Pro Leu Leu Ser Ala His Ser Lys Thr Gly Ser Arg Asp Cys Ser Thr
850 855 860

```
Gln Thr Glu Arg Gly Thr Glu Ser Asn Lys Thr Ala Ala Val Ala Pro
865                 870                 875                 880

Ile Ser Val Pro Ala Pro Val Ala Ala Ala Ala Thr Ala Ala Ala Ile
                885                 890                 895

Thr Ala Thr Ala Ala Thr Ile Thr Thr Thr Met Val Ala Ala Ala Pro
            900                 905                 910

Val Ala Val Ala Ala Ala Ala Ala Pro Ala Ala Ala Ala Ala Pro Ser
        915                 920                 925

Pro Ala Thr Ala Ala Ala Thr Ala Ala Ala Val Ser Pro Ala Ala Ala
    930                 935                 940

Gly Gln Ile Pro Ala Ala Ala Ser Val Ala Ser Ala Ala Ala Val Ala
945                 950                 955                 960

Pro Ser Ala Ala Ala Ala Ala Ala Val Gln Val Ala Pro Ala Ala Pro
                965                 970                 975

Ala Pro Val Pro Ala Pro Ala Leu Val Pro Val Pro Ala Pro Ala Ala
            980                 985                 990

Ala Gln Ala Ser Ala Pro Ala Gln  Thr Gln Ala Pro Thr  Ser Ala
Pro
        995                 1000                1005

Ala Val  Ala Pro Thr Pro Ala  Pro Thr Pro Thr Pro  Ala Val Ala
    1010                1015                1020

Gln Ala  Glu Val Pro Ala Ser  Pro Ala Thr Gly Pro  Gly Pro His
    1025                1030                1035

Arg Leu  Ser Ile Pro Ser Leu  Thr Cys Asn Pro Asp  Lys Thr Asp
    1040                1045                1050

Gly Pro  Val Phe His Ser Asn  Thr Leu Glu Arg Lys  Thr Pro Ile
    1055                1060                1065

Gln Ile  Leu Gly Gln Glu Pro  Asp Ala Glu Met Val  Glu Tyr Leu
    1070                1075                1080
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Ile

<210> 4758
<211> 145
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1044; "

<220>
<221> source
<223> /note="Gene Symbol: AMOTL1; "

<220>
<221> source
<223> /note="Gene Name:
angiomotin like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299004"

<400> 4758
Met Asp Leu Ser Glu Lys Trp Thr Leu Glu Glu Gly Ala Trp Leu Ser
1 5 10 15

His Ala Gly Ile His His Phe Ala Ser Thr Arg Ala Asp Ser Glu Phe
20 25 30

Val Glu Ala Ser Pro Ala Ser Tyr Ser Pro Asp Glu Leu Gly Ser Pro
35 40 45

Ser Ala Cys Tyr Ser Pro Ser Ser Pro Val Gln Val Leu Glu Asp Ser
50 55 60

Thr Tyr Phe Ser Pro Asp Phe Gln Leu Tyr Ser Gly Arg His Glu Thr
65 70 75 80

Ser Ala Leu Thr Val Glu Ala Thr Ser Ser Ile Arg Glu Lys Val Val
85 90 95

Glu Asp Pro Leu Cys Asn Phe His Ser Pro Asn Phe Leu Arg Ile Ser
100 105 110

Glu Val Glu Met Arg Gly Ser Glu Asp Ala Ala Ala Gly Thr Val Leu
        115   120   125

Gln Arg Leu Ile Gln Glu Gln Leu Arg Tyr Gly Thr Pro Thr Glu Asn
    130   135   140

Met
145

<210> 4759
<211> 906
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1044; "

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<221> source
<223> /note="Gene Symbol: AMOTL1; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q8IY63; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000320968"

<400> 4759
Met Trp Arg Ala Lys Leu Arg Arg Gly Thr Cys Glu Pro Ala Val Lys
1   5   10   15

Val Glu Asp Pro Leu Cys Asn Phe His Ser Pro Asn Phe Leu Arg Ile
            20   25   30

Ser Glu Val Glu Met Arg Gly Ser Glu Asp Ala Ala Ala Gly Thr Val
        35   40   45

Leu Gln Arg Leu Ile Gln Glu Gln Leu Arg Tyr Gly Thr Pro Thr Glu
    50   55   60

Asn Met Asn Leu Leu Ala Ile Gln His Gln Ala Thr Gly Ser Ala Gly
65   70   75   80

```
Pro Ala His Pro Thr Asn Asn Phe Ser Ser Thr Glu Asn Leu Thr Gln
                85                  90                  95

Glu Asp Pro Gln Met Val Tyr Gln Ser Ala Arg Gln Glu Pro Gln Gly
            100                 105                 110

Gln Glu His Gln Val Asp Asn Thr Val Met Glu Lys Gln Val Arg Ser
        115                 120                 125

Thr Gln Pro Gln Gln Asn Asn Glu Glu Leu Pro Thr Tyr Glu Glu Ala
    130                 135                 140

Lys Ala Gln Ser Gln Phe Phe Arg Gly Gln Gln Gln Gln Gln Gln Gln
145                 150                 155                 160

Gln Gly Ala Val Gly His Gly Tyr Tyr Met Ala Gly Gly Thr Ser Gln
                165                 170                 175

Lys Ser Arg Thr Glu Gly Arg Pro Thr Val Asn Arg Ala Asn Ser Gly
            180                 185                 190

Gln Ala His Lys Asp Glu Ala Leu Lys Glu Leu Lys Gln Gly His Val
        195                 200                 205

Arg Ser Leu Ser Glu Arg Ile Met Gln Leu Ser Leu Glu Arg Asn Gly
    210                 215                 220

Ala Lys Gln His Leu Pro Gly Ser Gly Asn Gly Lys Gly Phe Lys Val
225                 230                 235                 240

Gly Gly Gly Pro Ser Pro Ala Gln Pro Ala Gly Lys Val Leu Asp Pro
                245                 250                 255

Arg Gly Pro Pro Pro Glu Tyr Pro Phe Lys Thr Lys Gln Met Met Ser
            260                 265                 270

Pro Val Ser Lys Thr Gln Glu His Gly Leu Phe Tyr Gly Asp Gln His
        275                 280                 285

Pro Gly Met Leu His Glu Met Val Lys Pro Tyr Pro Ala Pro Gln Pro
    290                 295                 300
```

```
Val Arg Thr Asp Val Ala Val Leu Arg Tyr Gln Pro Pro Pro Glu Tyr
305                 310                 315                 320

Gly Val Thr Ser Arg Pro Cys Gln Leu Pro Phe Pro Ser Thr Met Gln
                325                 330                 335

Gln His Ser Pro Met Ser Ser Gln Thr Ser Ser Ala Ser Gly Pro Leu
            340                 345                 350

His Ser Val Ser Leu Pro Leu Pro Leu Pro Met Ala Leu Gly Ala Pro
        355                 360                 365

Gln Pro Pro Pro Ala Ala Ser Pro Ser Gln Gln Leu Gly Pro Asp Ala
    370                 375                 380

Phe Ala Ile Val Glu Arg Ala Gln Gln Met Val Glu Ile Leu Thr Glu
385                 390                 395                 400

Glu Asn Arg Val Leu His Gln Glu Leu Gln Gly Tyr Tyr Asp Asn Ala
                405                 410                 415

Asp Lys Leu His Lys Phe Glu Lys Glu Leu Gln Arg Ile Ser Glu Ala
            420                 425                 430

Tyr Glu Ser Leu Val Lys Ser Thr Thr Lys Arg Glu Ser Leu Asp Lys
        435                 440                 445

Ala Met Arg Asn Lys Leu Glu Gly Glu Ile Arg Arg Leu His Asp Phe
    450                 455                 460

Asn Arg Asp Leu Arg Asp Arg Leu Glu Thr Ala Asn Arg Gln Leu Ser
465                 470                 475                 480

Ser Arg Glu Tyr Glu Gly His Glu Asp Lys Ala Ala Glu Gly His Tyr
                485                 490                 495

Ala Ser Gln Asn Lys Glu Phe Leu Lys Glu Lys Glu Lys Leu Glu Met
            500                 505                 510

Glu Leu Ala Ala Val Arg Thr Ala Ser Glu Asp His Arg Arg His Ile
        515                 520                 525
```

```
Glu Ile Leu Asp Gln Ala Leu Ser Asn Ala Gln Ala Arg Val Ile Lys
    530                 535                 540

Leu Glu Glu Glu Leu Arg Glu Lys Gln Ala Tyr Val Glu Lys Val Glu
545                 550                 555                 560

Lys Leu Gln Gln Ala Leu Thr Gln Leu Gln Ser Ala Cys Glu Lys Arg
                565                 570                 575

Glu Gln Met Glu Arg Arg Leu Arg Thr Trp Leu Glu Arg Glu Leu Asp
            580                 585                 590

Ala Leu Arg Thr Gln Gln Lys His Gly Asn Gly Gln Pro Ala Asn Met
        595                 600                 605

Pro Glu Tyr Asn Ala Pro Ala Leu Leu Glu Leu Val Arg Glu Lys Glu
    610                 615                 620

Glu Arg Ile Leu Ala Leu Glu Ala Asp Met Thr Lys Trp Glu Gln Lys
625                 630                 635                 640

Tyr Leu Glu Glu Ser Thr Ile Arg His Phe Ala Met Asn Ala Ala Ala
                645                 650                 655

Thr Ala Ala Ala Glu Arg Asp Thr Thr Ile Ile Asn His Ser Arg Asn
            660                 665                 670

Gly Ser Tyr Gly Glu Ser Ser Leu Glu Ala His Ile Trp Gln Glu Glu
        675                 680                 685

Glu Glu Val Val Gln Ala Asn Arg Arg Cys Gln Asp Met Glu Tyr Thr
    690                 695                 700

Ile Lys Asn Leu His Ala Lys Ile Ile Glu Lys Asp Ala Met Ile Lys
705                 710                 715                 720

Val Leu Gln Gln Arg Ser Arg Lys Asp Ala Gly Lys Thr Asp Ser Ser
                725                 730                 735

Ser Leu Arg Pro Ala Arg Ser Val Pro Ser Ile Ala Ala Ala Thr Gly
            740                 745                 750

Thr His Ser Arg Gln Thr Ser Leu Thr Ser Ser Gln Leu Ala Glu Glu
```

```
        755                 760                 765

Lys Lys Glu Glu Lys Thr Trp Lys Gly Ser Ile Gly Leu Leu Leu Gly
    770                 775                 780

Lys Glu His His Glu His Ala Ser Ala Pro Leu Leu Pro Pro Pro Pro
785                 790                 795                 800

Thr Ser Ala Leu Ser Ser Ile Ala Ser Thr Thr Ala Ala Ser Ser Ala
                805                 810                 815

His Ala Lys Thr Gly Ser Lys Asp Ser Ser Thr Gln Thr Asp Lys Ser
            820                 825                 830

Ala Glu Leu Phe Trp Pro Ser Met Ala Ser Leu Pro Ser Arg Gly Arg
        835                 840                 845

Leu Ser Thr Thr Pro Ala His Ser Pro Val Leu Lys His Pro Ala Ala
    850                 855                 860

Lys Gly Thr Ala Glu Lys Leu Glu Asn Ser Pro Gly His Gly Lys Ser
865                 870                 875                 880

Pro Asp His Arg Gly Arg Val Ser Ser Leu Leu His Lys Pro Glu Phe
                885                 890                 895

Pro Asp Gly Glu Met Met Glu Val Leu Ile
            900                 905
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<210> 4760
<211> 956
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1044; "

<220>
<221> source
<223> /note="Gene Symbol: AMOTL1; "

<220>
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<223> /note="Gene Name:
angiomotin like 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IY63; "

<220>
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<223> /note="ENSP ID: ENSP00000387739"

<400> 4760
Met Trp Arg Ala Lys Leu Arg Arg Gly Thr Cys Glu Pro Ala Val Lys
1   5   10   15

Gly Ser Pro Ser Ala Cys Tyr Ser Pro Ser Ser Pro Val Gln Val Leu
            20   25   30

Glu Asp Ser Thr Tyr Phe Ser Pro Asp Phe Gln Leu Tyr Ser Gly Arg
        35   40   45

His Glu Thr Ser Ala Leu Thr Val Glu Ala Thr Ser Ser Ile Arg Glu
    50   55   60

Lys Val Val Glu Asp Pro Leu Cys Asn Phe His Ser Pro Asn Phe Leu
65   70   75   80

Arg Ile Ser Glu Val Glu Met Arg Gly Ser Glu Asp Ala Ala Ala Gly
                85   90   95

Thr Val Leu Gln Arg Leu Ile Gln Glu Gln Leu Arg Tyr Gly Thr Pro
            100   105   110

Thr Glu Asn Met Asn Leu Leu Ala Ile Gln His Gln Ala Thr Gly Ser
        115   120   125

Ala Gly Pro Ala His Pro Thr Asn Asn Phe Ser Ser Thr Glu Asn Leu
    130   135   140

Thr Gln Glu Asp Pro Gln Met Val Tyr Gln Ser Ala Arg Gln Glu Pro
145   150   155   160

Gln Gly Gln Glu His Gln Val Asp Asn Thr Val Met Glu Lys Gln Val
                165   170   175

Arg Ser Thr Gln Pro Gln Gln Asn Asn Glu Glu Leu Pro Thr Tyr Glu
            180   185   190

```
Glu Ala Lys Ala Gln Ser Gln Phe Phe Arg Gly Gln Gln Gln Gln Gln
        195                 200                 205

Gln Gln Gln Gly Ala Val Gly His Gly Tyr Tyr Met Ala Gly Gly Thr
    210                 215                 220

Ser Gln Lys Ser Arg Thr Glu Gly Arg Pro Thr Val Asn Arg Ala Asn
225                 230                 235                 240

Ser Gly Gln Ala His Lys Asp Glu Ala Leu Lys Glu Leu Lys Gln Gly
                245                 250                 255

His Val Arg Ser Leu Ser Glu Arg Ile Met Gln Leu Ser Leu Glu Arg
            260                 265                 270

Asn Gly Ala Lys Gln His Leu Pro Gly Ser Gly Asn Gly Lys Gly Phe
        275                 280                 285

Lys Val Gly Gly Gly Pro Ser Pro Ala Gln Pro Ala Gly Lys Val Leu
    290                 295                 300

Asp Pro Arg Gly Pro Pro Pro Glu Tyr Pro Phe Lys Thr Lys Gln Met
305                 310                 315                 320

Met Ser Pro Val Ser Lys Thr Gln Glu His Gly Leu Phe Tyr Gly Asp
                325                 330                 335

Gln His Pro Gly Met Leu His Glu Met Val Lys Pro Tyr Pro Ala Pro
            340                 345                 350

Gln Pro Val Arg Thr Asp Val Ala Val Leu Arg Tyr Gln Pro Pro Pro
        355                 360                 365

Glu Tyr Gly Val Thr Ser Arg Pro Cys Gln Leu Pro Phe Pro Ser Thr
    370                 375                 380

Met Gln Gln His Ser Pro Met Ser Ser Gln Thr Ser Ser Ala Ser Gly
385                 390                 395                 400

Pro Leu His Ser Val Ser Leu Pro Leu Pro Leu Pro Met Ala Leu Gly
                405                 410                 415

Ala Pro Gln Pro Pro Pro Ala Ala Ser Pro Ser Gln Gln Leu Gly Pro
```

```
            420                 425                 430

Asp Ala Phe Ala Ile Val Glu Arg Ala Gln Gln Met Val Glu Ile Leu
        435                 440                 445

Thr Glu Glu Asn Arg Val Leu His Gln Glu Leu Gln Gly Tyr Tyr Asp
    450                 455                 460

Asn Ala Asp Lys Leu His Lys Phe Glu Lys Glu Leu Gln Arg Ile Ser
465                 470                 475                 480

Glu Ala Tyr Glu Ser Leu Val Lys Ser Thr Thr Lys Arg Glu Ser Leu
                485                 490                 495

Asp Lys Ala Met Arg Asn Lys Leu Glu Gly Glu Ile Arg Arg Leu His
            500                 505                 510

Asp Phe Asn Arg Asp Leu Arg Asp Arg Leu Glu Thr Ala Asn Arg Gln
        515                 520                 525

Leu Ser Ser Arg Glu Tyr Glu Gly His Glu Asp Lys Ala Ala Glu Gly
    530                 535                 540

His Tyr Ala Ser Gln Asn Lys Glu Phe Leu Lys Glu Lys Glu Lys Leu
545                 550                 555                 560

Glu Met Glu Leu Ala Ala Val Arg Thr Ala Ser Glu Asp His Arg Arg
                565                 570                 575

His Ile Glu Ile Leu Asp Gln Ala Leu Ser Asn Ala Gln Ala Arg Val
            580                 585                 590

Ile Lys Leu Glu Glu Glu Leu Arg Glu Lys Gln Ala Tyr Val Glu Lys
        595                 600                 605

Val Glu Lys Leu Gln Gln Ala Leu Thr Gln Leu Gln Ser Ala Cys Glu
    610                 615                 620

Lys Arg Glu Gln Met Glu Arg Arg Leu Arg Thr Trp Leu Glu Arg Glu
625                 630                 635                 640

Leu Asp Ala Leu Arg Thr Gln Gln Lys His Gly Asn Gly Gln Pro Ala
                645                 650                 655
```

```
Asn Met Pro Glu Tyr Asn Ala Pro Ala Leu Leu Glu Leu Val Arg Glu
            660                 665                 670

Lys Glu Glu Arg Ile Leu Ala Leu Glu Ala Asp Met Thr Lys Trp Glu
        675                 680                 685

Gln Lys Tyr Leu Glu Glu Ser Thr Ile Arg His Phe Ala Met Asn Ala
    690                 695                 700

Ala Ala Thr Ala Ala Ala Glu Arg Asp Thr Thr Ile Ile Asn His Ser
705                 710                 715                 720

Arg Asn Gly Ser Tyr Gly Glu Ser Ser Leu Glu Ala His Ile Trp Gln
                725                 730                 735

Glu Glu Glu Glu Val Val Gln Ala Asn Arg Arg Cys Gln Asp Met Glu
            740                 745                 750

Tyr Thr Ile Lys Asn Leu His Ala Lys Ile Ile Glu Lys Asp Ala Met
        755                 760                 765

Ile Lys Val Leu Gln Gln Arg Ser Arg Lys Asp Ala Gly Lys Thr Asp
    770                 775                 780

Ser Ser Ser Leu Arg Pro Ala Arg Ser Val Pro Ser Ile Ala Ala Ala
785                 790                 795                 800

Thr Gly Thr His Ser Arg Gln Thr Ser Leu Thr Ser Ser Gln Leu Ala
                805                 810                 815

Glu Glu Lys Lys Glu Glu Lys Thr Trp Lys Gly Ser Ile Gly Leu Leu
            820                 825                 830

Leu Gly Lys Glu His His Glu His Ala Ser Ala Pro Leu Leu Pro Pro
        835                 840                 845

Pro Pro Thr Ser Ala Leu Ser Ser Ile Ala Ser Thr Thr Ala Ala Ser
    850                 855                 860

Ser Ala His Ala Lys Thr Gly Ser Lys Asp Ser Ser Thr Gln Thr Asp
865                 870                 875                 880
```

```
Lys Ser Ala Glu Leu Phe Trp Pro Ser Met Ala Ser Leu Pro Ser Arg
                885                 890                 895

Gly Arg Leu Ser Thr Thr Pro Ala His Ser Pro Val Leu Lys His Pro
            900                 905                 910

Ala Ala Lys Gly Thr Ala Glu Lys Leu Glu Asn Ser Pro Gly His Gly
        915                 920                 925

Lys Ser Pro Asp His Arg Gly Arg Val Ser Ser Leu Leu His Lys Pro
    930                 935                 940

Glu Phe Pro Asp Gly Glu Met Met Glu Val Leu Ile
945                 950                 955


<210> 4761
<211> 780
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1045; "

<220>
<221> source
<223> /note="Gene Symbol: AMOTL2; "

<220>
<221> source
<223> /note="Gene Name:
      angiomotin like 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2J4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000249883"

<400> 4761
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1               5                   10                  15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
            20                  25                  30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
```

```
        35                  40                  45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
    50                  55                  60

Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
65                  70                  75                  80

Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
                85                  90                  95

Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
            100                 105                 110

His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly Thr Arg Pro His Ala
        115                 120                 125

Gly Asp Arg Asp Pro Arg Gly Ala Pro Gly Gly Ser Arg Arg Gln Asp
    130                 135                 140

Glu Ala Leu Arg Glu Leu Arg His Gly His Val Arg Ser Leu Ser Glu
145                 150                 155                 160

Arg Leu Leu Gln Leu Ser Leu Glu Arg Asn Gly Ala Arg Ala Pro Ser
                165                 170                 175

His Met Ser Ser Ser His Ser Phe Pro Gln Leu Ala Arg Asn Gln Gln
            180                 185                 190

Gly Pro Pro Leu Arg Gly Pro Pro Ala Glu Gly Pro Glu Ser Arg Gly
        195                 200                 205

Pro Pro Pro Gln Tyr Pro His Val Val Leu Ala His Glu Thr Thr Thr
    210                 215                 220

Ala Val Thr Asp Pro Arg Tyr Arg Ala Arg Gly Ser Pro His Phe Gln
225                 230                 235                 240

His Ala Glu Val Arg Ile Leu Gln Ala Gln Val Pro Pro Val Phe Leu
                245                 250                 255

Gln Gln Gln Gln Gln Tyr Gln Tyr Leu Gln Gln Ser Gln Glu His Pro
            260                 265                 270
```

```
Pro Pro Pro His Pro Ala Ala Leu Gly His Gly Pro Leu Ser Ser Leu
        275                 280                 285

Ser Pro Pro Ala Val Glu Gly Pro Val Ser Ala Gln Ala Ser Ser Ala
    290                 295                 300

Thr Ser Gly Ser Ala His Leu Ala Gln Met Glu Ala Val Leu Arg Glu
305                 310                 315                 320

Asn Ala Arg Leu Gln Arg Asp Asn Glu Arg Leu Gln Arg Glu Leu Glu
                325                 330                 335

Ser Ser Ala Glu Lys Ala Gly Arg Ile Glu Lys Leu Glu Ser Glu Ile
            340                 345                 350

Gln Arg Leu Ser Glu Ala His Glu Ser Leu Thr Arg Ala Ser Ser Lys
        355                 360                 365

Arg Glu Ala Leu Glu Lys Thr Met Arg Asn Lys Met Asp Ser Glu Met
    370                 375                 380

Arg Arg Leu Gln Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Ser
385                 390                 395                 400

Ala Asn Arg Arg Leu Ala Ser Lys Thr Gln Glu Ala Gln Ala Gly Ser
                405                 410                 415

Gln Asp Met Val Ala Lys Leu Leu Ala Gln Ser Tyr Glu Gln Gln Gln
            420                 425                 430

Glu Gln Glu Lys Leu Glu Arg Glu Met Ala Leu Leu Arg Gly Ala Ile
        435                 440                 445

Glu Asp Gln Arg Arg Arg Ala Glu Leu Leu Glu Gln Ala Leu Gly Asn
    450                 455                 460

Ala Gln Gly Arg Ala Ala Arg Ala Glu Glu Glu Leu Arg Lys Lys Gln
465                 470                 475                 480

Ala Tyr Val Glu Lys Val Glu Arg Leu Gln Gln Ala Leu Gly Gln Leu
                485                 490                 495
```

```
Gln Ala Ala Cys Glu Lys Arg Glu Gln Leu Glu Leu Arg Leu Arg Thr
            500                 505                 510

Arg Leu Glu Gln Glu Leu Lys Ala Leu Arg Ala Gln Gln Arg Gln Ala
        515                 520                 525

Gly Ala Pro Gly Gly Ser Ser Gly Ser Gly Gly Ser Pro Glu Leu Ser
    530                 535                 540

Ala Leu Arg Leu Ser Glu Gln Leu Arg Glu Lys Glu Glu Gln Ile Leu
545                 550                 555                 560

Ala Leu Glu Ala Asp Met Thr Lys Trp Glu Gln Lys Tyr Leu Glu Glu
                565                 570                 575

Arg Ala Met Arg Gln Phe Ala Met Asp Ala Ala Ala Thr Ala Ala Ala
            580                 585                 590

Gln Arg Asp Thr Thr Leu Ile Arg His Ser Pro Gln Pro Ser Pro Ser
        595                 600                 605

Ser Ser Phe Asn Glu Gly Leu Leu Thr Gly Gly His Arg His Gln Glu
    610                 615                 620

Met Glu Ser Arg Leu Lys Val Leu His Ala Gln Ile Leu Glu Lys Asp
625                 630                 635                 640

Ala Val Ile Lys Val Leu Gln Gln Arg Ser Arg Arg Asp Pro Gly Lys
                645                 650                 655

Ala Ile Gln Gly Ser Leu Arg Pro Ala Lys Ser Val Pro Ser Val Phe
            660                 665                 670

Ala Ala Ala Ala Ala Gly Thr Gln Gly Trp Gln Gly Leu Ser Ser Ser
        675                 680                 685

Glu Arg Gln Thr Ala Asp Ala Pro Ala Arg Leu Thr Thr Ala Asp Arg
    690                 695                 700

Ala Pro Thr Glu Glu Pro Val Val Thr Ala Pro Pro Ala Ala His Ala
705                 710                 715                 720
```

```
Lys His Gly Ser Arg Asp Gly Ser Thr Gln Thr Glu Gly Pro Pro Asp
                725                 730                 735

Ser Thr Ser Thr Cys Leu Pro Pro Glu Pro Asp Ser Leu Leu Gly Cys
            740                 745                 750

Ser Ser Ser Gln Arg Ala Ala Ser Leu Asp Ser Val Ala Thr Ser Arg
        755                 760                 765

Val Gln Asp Leu Ser Asp Met Val Glu Ile Leu Ile
    770                 775                 780


<210> 4762
<211> 779
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1045; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
      angiomotin like 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2J4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409999"

<400> 4762
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1               5                   10                  15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
            20                  25                  30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
        35                  40                  45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
    50                  55                  60
```

```
Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
65                  70                  75                  80

Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
                85                  90                  95

Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
            100                 105                 110

His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly Thr Arg Pro His Ala
        115                 120                 125

Gly Asp Arg Asp Pro Arg Gly Ala Pro Gly Gly Ser Arg Arg Gln Asp
    130                 135                 140

Glu Ala Leu Arg Glu Leu Arg His Gly His Val Arg Ser Leu Ser Glu
145                 150                 155                 160

Arg Leu Leu Gln Leu Ser Leu Glu Arg Asn Gly Ala Arg Ala Pro Ser
                165                 170                 175

His Met Ser Ser Ser His Ser Phe Pro Gln Leu Ala Arg Asn Gln Gln
            180                 185                 190

Gly Pro Pro Leu Arg Gly Pro Pro Ala Glu Gly Pro Glu Ser Arg Gly
        195                 200                 205

Pro Pro Pro Gln Tyr Pro His Val Val Leu Ala His Glu Thr Thr Thr
    210                 215                 220

Ala Val Thr Asp Pro Arg Tyr Arg Ala Arg Gly Ser Pro His Phe Gln
225                 230                 235                 240

His Ala Glu Val Arg Ile Leu Gln Ala Gln Val Pro Pro Val Phe Leu
                245                 250                 255

Gln Gln Gln Gln Gln Tyr Gln Tyr Leu Gln Gln Ser Gln Glu His Pro
            260                 265                 270

Pro Pro Pro His Pro Ala Ala Leu Gly His Gly Pro Leu Ser Ser Leu
        275                 280                 285
```

```
Ser Pro Pro Ala Val Glu Gly Pro Val Ser Ala Gln Ala Ser Ser Ala
    290                 295                 300

Thr Ser Gly Ser Ala His Leu Ala Gln Met Glu Ala Val Leu Arg Glu
305                 310                 315                 320

Asn Ala Arg Leu Gln Arg Asp Asn Glu Arg Leu Gln Arg Glu Leu Glu
                325                 330                 335

Ser Ser Ala Glu Lys Ala Gly Arg Ile Glu Lys Leu Glu Ser Glu Ile
            340                 345                 350

Gln Arg Leu Ser Glu Ala His Glu Ser Leu Thr Arg Ala Ser Ser Lys
        355                 360                 365

Arg Glu Ala Leu Glu Lys Thr Met Arg Asn Lys Met Asp Ser Glu Met
    370                 375                 380

Arg Arg Leu Gln Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Ser
385                 390                 395                 400

Ala Asn Arg Arg Leu Ala Ser Lys Thr Gln Glu Ala Gln Ala Gly Ser
                405                 410                 415

Gln Asp Met Val Ala Lys Leu Leu Ala Gln Ser Tyr Glu Gln Gln Gln
            420                 425                 430

Glu Gln Glu Lys Leu Glu Arg Glu Met Ala Leu Leu Arg Gly Ala Ile
        435                 440                 445

Glu Asp Gln Arg Arg Arg Ala Glu Leu Leu Glu Gln Ala Leu Gly Asn
    450                 455                 460

Ala Gln Gly Arg Ala Ala Arg Ala Glu Glu Glu Leu Arg Lys Lys Gln
465                 470                 475                 480

Ala Tyr Val Glu Lys Val Glu Arg Leu Gln Gln Ala Leu Gly Gln Leu
                485                 490                 495

Gln Ala Ala Cys Glu Lys Arg Glu Gln Leu Glu Leu Arg Leu Arg Thr
            500                 505                 510
```

```
Arg Leu Glu Gln Glu Leu Lys Ala Leu Arg Ala Gln Gln Arg Gln Ala
        515                 520                 525

Gly Ala Pro Gly Gly Ser Ser Gly Ser Gly Gly Ser Pro Glu Leu Ser
    530                 535                 540

Ala Leu Arg Leu Ser Glu Gln Leu Arg Glu Lys Glu Glu Gln Ile Leu
545                 550                 555                 560

Ala Leu Glu Ala Asp Met Thr Lys Trp Glu Gln Lys Tyr Leu Glu Glu
                565                 570                 575

Arg Ala Met Arg Gln Phe Ala Met Asp Ala Ala Ala Thr Ala Ala Ala
            580                 585                 590

Gln Arg Asp Thr Thr Leu Ile Arg His Ser Pro Gln Pro Ser Pro Ser
        595                 600                 605

Ser Ser Phe Asn Glu Gly Leu Leu Thr Gly Gly His Arg His Gln Glu
    610                 615                 620

Met Glu Ser Arg Leu Lys Val Leu His Ala Gln Ile Leu Glu Lys Asp
625                 630                 635                 640

Ala Val Ile Lys Val Leu Gln Gln Arg Ser Arg Arg Asp Pro Gly Lys
                645                 650                 655

Ala Ile Gln Gly Ser Leu Arg Pro Ala Lys Ser Val Pro Ser Val Phe
            660                 665                 670

Ala Ala Ala Ala Ala Gly Thr Gln Gly Trp Gln Gly Leu Ser Ser Ser
        675                 680                 685

Glu Arg Gln Thr Ala Asp Ala Pro Ala Arg Leu Thr Thr Asp Arg Ala
    690                 695                 700

Pro Thr Glu Glu Pro Val Val Thr Ala Pro Pro Ala Ala His Ala Lys
705                 710                 715                 720

His Gly Ser Arg Asp Gly Ser Thr Gln Thr Glu Gly Pro Pro Asp Ser
                725                 730                 735

Thr Ser Thr Cys Leu Pro Pro Glu Pro Asp Ser Leu Leu Gly Cys Ser
```

740 745 750

Ser Ser Gln Arg Ala Ala Ser Leu Asp Ser Val Ala Thr Ser Arg Val
755 760 765

Gln Asp Leu Ser Asp Met Val Glu Ile Leu Ile
770 775

<210> 4763
<211> 33
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1045; "

<220>
<221> source
<223> /note="Gene Symbol: AMOTL2; "

<220>
<221> source
<223> /note="Gene Name:
angiomotin like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421521"

<400> 4763
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1 5 10 15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
20 25 30

Ala

<210> 4764
<211> 127
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: AMOTL2; "

<220>
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<223> /note="Gene Name:
angiomotin like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000422658"

<400> 4764
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1 5 10 15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
20 25 30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
35 40 45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
50 55 60

Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
65 70 75 80

Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
85 90 95

Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
100 105 110

His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly Thr Arg Pro His
115 120 125

<210> 4765
<211> 837
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
angiomotin like 2; "

<220>
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<223> /note="Uniprot ID: Q9Y2J4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424765"

<400> 4765

```
Met Thr Gly Arg Lys Ala Ser Gly Gly Thr Pro Cys Thr Leu Arg Lys
1               5                  10                  15

Gly Ala Pro Ile Ile Thr Leu Gly Lys Asn Trp Thr Glu Arg Leu Ala
            20                  25                  30

Ala Gly Asp Ser Val Gly Cys Ser Gly Ala Arg Cys His Arg Pro Leu
        35                  40                  45

Ser Arg Gln Leu Cys Ala Ser Gln Arg Ser Met Arg Thr Leu Glu Asp
    50                  55                  60

Ser Ser Gly Thr Val Leu His Arg Leu Ile Gln Glu Gln Leu Arg Tyr
65                  70                  75                  80

Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu Ala Ile Gln Gln Gln Ala
                85                  90                  95

Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr Gly Ser Pro Gln Ala Ser
            100                 105                 110

Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln Val Leu Gln Gln Ala Thr
        115                 120                 125

Arg Gln Glu Pro Gln Gly Gln Glu His Gln Gly Gly Glu Asn His Leu
    130                 135                 140

Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro Gln Pro Ser Lys Gly Glu
145                 150                 155                 160

Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala His Ser Gln Tyr Tyr Ala
                165                 170                 175
```

```
Ala Gln Gln Ala Gly Thr Arg Pro His Ala Gly Asp Arg Asp Pro Arg
            180                 185                 190

Gly Ala Pro Gly Gly Ser Arg Arg Gln Asp Glu Ala Leu Arg Glu Leu
        195                 200                 205

Arg His Gly His Val Arg Ser Leu Ser Glu Arg Leu Leu Gln Leu Ser
    210                 215                 220

Leu Glu Arg Asn Gly Ala Arg Ala Pro Ser His Met Ser Ser Ser His
225                 230                 235                 240

Ser Phe Pro Gln Leu Ala Arg Asn Gln Gln Gly Pro Pro Leu Arg Gly
                245                 250                 255

Pro Pro Ala Glu Gly Pro Glu Ser Arg Gly Pro Pro Pro Gln Tyr Pro
            260                 265                 270

His Val Val Leu Ala His Glu Thr Thr Thr Ala Val Thr Asp Pro Arg
        275                 280                 285

Tyr Arg Ala Arg Gly Ser Pro His Phe Gln His Ala Glu Val Arg Ile
    290                 295                 300

Leu Gln Ala Gln Val Pro Pro Val Phe Leu Gln Gln Gln Gln Gln Tyr
305                 310                 315                 320

Gln Tyr Leu Gln Gln Ser Gln Glu His Pro Pro Pro Pro His Pro Ala
                325                 330                 335

Ala Leu Gly His Gly Pro Leu Ser Ser Leu Ser Pro Pro Ala Val Glu
            340                 345                 350

Gly Pro Val Ser Ala Gln Ala Ser Ser Ala Thr Ser Gly Ser Ala His
        355                 360                 365

Leu Ala Gln Met Glu Ala Val Leu Arg Glu Asn Ala Arg Leu Gln Arg
    370                 375                 380

Asp Asn Glu Arg Leu Gln Arg Glu Leu Glu Ser Ser Ala Glu Lys Ala
385                 390                 395                 400
```

```
Gly Arg Ile Glu Lys Leu Glu Ser Glu Ile Gln Arg Leu Ser Glu Ala
                405                 410                 415

His Glu Ser Leu Thr Arg Ala Ser Ser Lys Arg Glu Ala Leu Glu Lys
            420                 425                 430

Thr Met Arg Asn Lys Met Asp Ser Glu Met Arg Arg Leu Gln Asp Phe
        435                 440                 445

Asn Arg Asp Leu Arg Glu Arg Leu Glu Ser Ala Asn Arg Arg Leu Ala
    450                 455                 460

Ser Lys Thr Gln Glu Ala Gln Ala Gly Ser Gln Asp Met Val Ala Lys
465                 470                 475                 480

Leu Leu Ala Gln Ser Tyr Glu Gln Gln Gln Glu Gln Glu Lys Leu Glu
                485                 490                 495

Arg Glu Met Ala Leu Leu Arg Gly Ala Ile Glu Asp Gln Arg Arg Arg
            500                 505                 510

Ala Glu Leu Leu Glu Gln Ala Leu Gly Asn Ala Gln Gly Arg Ala Ala
        515                 520                 525

Arg Ala Glu Glu Glu Leu Arg Lys Lys Gln Ala Tyr Val Glu Lys Val
    530                 535                 540

Glu Arg Leu Gln Gln Ala Leu Gly Gln Leu Gln Ala Ala Cys Glu Lys
545                 550                 555                 560

Arg Glu Gln Leu Glu Leu Arg Leu Arg Thr Arg Leu Glu Gln Glu Leu
                565                 570                 575

Lys Ala Leu Arg Ala Gln Gln Arg Gln Ala Gly Ala Pro Gly Gly Ser
            580                 585                 590

Ser Gly Ser Gly Gly Ser Pro Glu Leu Ser Ala Leu Arg Leu Ser Glu
        595                 600                 605

Gln Leu Arg Glu Lys Glu Glu Gln Ile Leu Ala Leu Glu Ala Asp Met
    610                 615                 620

Thr Lys Trp Glu Gln Lys Tyr Leu Glu Glu Arg Ala Met Arg Gln Phe
```

625 630 635 640

Ala Met Asp Ala Ala Ala Thr Ala Ala Ala Gln Arg Asp Thr Thr Leu
645 650 655

Ile Arg His Ser Pro Gln Pro Ser Pro Ser Ser Ser Phe Asn Glu Gly
660 665 670

Leu Leu Thr Gly Gly His Arg His Gln Glu Met Glu Ser Arg Leu Lys
675 680 685

Val Leu His Ala Gln Ile Leu Glu Lys Asp Ala Val Ile Lys Val Leu
690 695 700

Gln Gln Arg Ser Arg Arg Asp Pro Gly Lys Ala Ile Gln Gly Ser Leu
705 710 715 720

Arg Pro Ala Lys Ser Val Pro Ser Val Phe Ala Ala Ala Ala Ala Gly
725 730 735

Thr Gln Gly Trp Gln Gly Leu Ser Ser Ser Glu Arg Gln Thr Ala Asp
740 745 750

Ala Pro Ala Arg Leu Thr Thr Asp Arg Ala Pro Thr Glu Glu Pro Val
755 760 765

Val Thr Ala Pro Pro Ala Ala His Ala Lys His Gly Ser Arg Asp Gly
770 775 780

Ser Thr Gln Thr Glu Gly Pro Pro Asp Ser Thr Ser Thr Cys Leu Pro
785 790 795 800

Pro Glu Pro Asp Ser Leu Leu Gly Cys Ser Ser Ser Gln Arg Ala Ala
805 810 815

Ser Leu Asp Ser Val Ala Thr Ser Arg Val Gln Asp Leu Ser Asp Met
820 825 830

Val Glu Ile Leu Ile
835

<210> 4766
<211> 151

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1045; "

<220>
<221> source
<223> /note="Gene Symbol: AMOTL2; "

<220>
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<223> /note="Gene Name:
angiomotin like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424910"

<400> 4766

```
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1               5                  10                  15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
            20                  25                  30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
        35                  40                  45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
    50                  55                  60

Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
65                  70                  75                  80

Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
                85                  90                  95

Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
            100                 105                 110

His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly Thr Arg Pro His Ala
        115                 120                 125

Gly Asp Arg Asp Pro Arg Gly Ala Pro Gly Gly Ser Arg Arg Gln Asp
    130                 135                 140
```

Glu Ala Leu Arg Glu Leu Arg
145 150

<210> 4767
<211> 777
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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angiomotin like 2; "

<220>
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<223> /note="Uniprot ID: Q9Y2J4; "

<220>
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<223> /note="ENSP ID: ENSP00000425475"

<400> 4767
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1 5 10 15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
20 25 30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
35 40 45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
50 55 60

Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
65 70 75 80

Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
85 90 95

Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
100 105 110

```
His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly Thr Arg Pro His Ala
        115                 120                 125

Gly Asp Arg Asp Pro Arg Gly Ala Pro Gly Gly Ser Arg Arg Gln Asp
    130                 135                 140

Glu Ala Leu Arg Glu Leu Arg His Gly His Val Arg Ser Leu Ser Glu
145                 150                 155                 160

Arg Leu Leu Gln Leu Ser Leu Glu Arg Asn Gly Ala Arg Ala Pro Ser
                165                 170                 175

His Met Ser Ser Ser His Ser Phe Pro Gln Leu Ala Arg Asn Gln Gln
            180                 185                 190

Gly Pro Pro Leu Arg Gly Pro Pro Ala Glu Gly Pro Glu Ser Arg Gly
        195                 200                 205

Pro Pro Pro Gln Tyr Pro His Val Val Leu Ala His Glu Thr Thr Thr
    210                 215                 220

Ala Val Thr Asp Pro Arg Tyr Arg Ala Arg Gly Ser Pro His Phe Gln
225                 230                 235                 240

His Ala Glu Val Arg Ile Leu Gln Ala Gln Val Pro Pro Val Phe Leu
                245                 250                 255

Gln Gln Gln Gln Gln Tyr Gln Tyr Leu Gln Gln Ser Gln Glu His Pro
            260                 265                 270

Pro Pro Pro His Pro Ala Ala Leu Gly His Gly Pro Leu Ser Ser Leu
        275                 280                 285

Ser Pro Pro Ala Val Glu Gly Pro Val Ser Ala Gln Ala Ser Ser Ala
    290                 295                 300

Thr Ser Gly Ser Ala His Leu Ala Gln Met Glu Ala Val Leu Arg Glu
305                 310                 315                 320

Asn Ala Arg Leu Gln Arg Asp Asn Glu Arg Leu Gln Arg Glu Leu Glu
                325                 330                 335
```

Ser Ser Ala Glu Lys Ala Gly Arg Ile Glu Lys Leu Glu Ser Glu Ile
340 345 350

Gln Arg Leu Ser Glu Ala His Glu Ser Leu Thr Arg Ala Ser Ser Lys
355 360 365

Arg Glu Ala Leu Glu Lys Thr Met Arg Asn Lys Met Asp Ser Glu Met
370 375 380

Arg Arg Leu Gln Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Ser
385 390 395 400

Ala Asn Arg Arg Leu Ala Ser Lys Thr Gln Glu Ala Gln Ala Gly Ser
405 410 415

Gln Asp Met Val Ala Lys Leu Leu Ala Gln Ser Tyr Glu Gln Gln Gln
420 425 430

Glu Gln Glu Lys Leu Glu Arg Glu Met Ala Leu Leu Arg Gly Ala Ile
435 440 445

Glu Asp Gln Arg Arg Arg Ala Glu Leu Leu Glu Gln Ala Leu Gly Asn
450 455 460

Ala Gln Gly Arg Ala Ala Arg Ala Glu Glu Glu Leu Arg Lys Lys Gln
465 470 475 480

Ala Tyr Val Glu Lys Val Glu Arg Leu Gln Gln Ala Leu Gly Gln Leu
485 490 495

Gln Ala Ala Cys Glu Lys Arg Glu Gln Leu Glu Leu Arg Leu Arg Thr
500 505 510

Arg Leu Glu Gln Glu Leu Lys Ala Leu Arg Ala Gln Gln Ala Gly Ala
515 520 525

Pro Gly Gly Ser Ser Gly Ser Gly Gly Ser Pro Glu Leu Ser Ala Leu
530 535 540

Arg Leu Ser Glu Gln Leu Arg Glu Lys Glu Glu Gln Ile Leu Ala Leu
545 550 555 560

```
Glu Ala Asp Met Thr Lys Trp Glu Gln Lys Tyr Leu Glu Glu Arg Ala
                565                 570                 575

Met Arg Gln Phe Ala Met Asp Ala Ala Ala Thr Ala Ala Ala Gln Arg
            580                 585                 590

Asp Thr Thr Leu Ile Arg His Ser Pro Gln Pro Ser Pro Ser Ser Ser
        595                 600                 605

Phe Asn Glu Gly Leu Leu Thr Gly Gly His Arg His Gln Glu Met Glu
    610                 615                 620

Ser Arg Leu Lys Val Leu His Ala Gln Ile Leu Glu Lys Asp Ala Val
625                 630                 635                 640

Ile Lys Val Leu Gln Gln Arg Ser Arg Arg Asp Pro Gly Lys Ala Ile
                645                 650                 655

Gln Gly Ser Leu Arg Pro Ala Lys Ser Val Pro Ser Val Phe Ala Ala
            660                 665                 670

Ala Ala Ala Gly Thr Gln Gly Trp Gln Gly Leu Ser Ser Ser Glu Arg
        675                 680                 685

Gln Thr Ala Asp Ala Pro Ala Arg Leu Thr Thr Asp Arg Ala Pro Thr
    690                 695                 700

Glu Glu Pro Val Val Thr Ala Pro Pro Ala Ala His Ala Lys His Gly
705                 710                 715                 720

Ser Arg Asp Gly Ser Thr Gln Thr Glu Gly Pro Pro Asp Ser Thr Ser
                725                 730                 735

Thr Cys Leu Pro Pro Glu Pro Asp Ser Leu Leu Gly Cys Ser Ser Ser
            740                 745                 750

Gln Arg Ala Ala Ser Leu Asp Ser Val Ala Thr Ser Arg Val Gln Asp
        755                 760                 765

Leu Ser Asp Met Val Glu Ile Leu Ile
    770                 775
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<210> 4768

<211> 198
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1045; "

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<223> /note="Gene Symbol: AMOTL2; "

<220>
<221> source
<223> /note="Gene Name:
angiomotin like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427184"

<400> 4768
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1 5 10 15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
20 25 30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
35 40 45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
50 55 60

Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
65 70 75 80

Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
85 90 95

Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
100 105 110

His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly Thr Arg Pro His Ala
115 120 125

Gly Asp Arg Asp Pro Arg Gly Ala Pro Gly Gly Ser Arg Arg Gln Asp
130 135 140

```
Glu Ala Leu Arg Glu Leu Arg His Gly His Val Arg Ser Leu Ser Glu
145                 150                 155                 160

Arg Leu Leu Gln Leu Ser Leu Glu Arg Asn Gly Ala Arg Ala Pro Ser
                165                 170                 175

His Met Ser Ser Ser His Ser Phe Pro Gln Leu Ala Arg Asn Gln Gln
            180                 185                 190

Gly Pro Pro Leu Arg Gly
        195


<210> 4769
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1045; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
      angiomotin like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000427292"

<400> 4769
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1               5                   10                  15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
            20                  25                  30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
        35                  40                  45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
    50                  55                  60

Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
```

65 70 75 80

Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
85 90 95

Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
100 105 110

His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly Thr Arg Pro His Ala
115 120 125

Gly Asp Arg Asp Pro Arg Gly Ala Pro Gly Gly Ser Arg Arg Gln Asp
130 135 140

<210> 4770
<211> 123
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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angiomotin like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000427482"

<400> 4770
Met Arg Thr Leu Glu Asp Ser Ser Gly Thr Val Leu His Arg Leu Ile
1 5 10 15

Gln Glu Gln Leu Arg Tyr Gly Asn Leu Thr Glu Thr Arg Thr Leu Leu
20 25 30

Ala Ile Gln Gln Gln Ala Leu Arg Gly Gly Ala Gly Thr Gly Gly Thr
35 40 45

Gly Ser Pro Gln Ala Ser Leu Glu Ile Leu Ala Pro Glu Asp Ser Gln
50 55 60

```
Val Leu Gln Gln Ala Thr Arg Gln Glu Pro Gln Gly Gln Glu His Gln
65                  70                  75                  80


Gly Gly Glu Asn His Leu Ala Glu Asn Thr Leu Tyr Arg Leu Cys Pro
                85                  90                  95


Gln Pro Ser Lys Gly Glu Glu Leu Pro Thr Tyr Glu Glu Ala Lys Ala
            100                 105                 110


His Ser Gln Tyr Tyr Ala Ala Gln Gln Ala Gly
        115                 120


<210> 4771
<211> 497
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1046; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPT1; "

<220>
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<223> /note="Gene Name:
      angiopoietin 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q15389; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000297450"

<400> 4771
Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
1               5                   10                  15


Ile Gly Cys Ser Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg
            20                  25                  30


Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
        35                  40                  45


Glu His Asp Gly Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr Asn Thr
```

```
    50                  55                  60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
65                  70                  75                  80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
                85                  90                  95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
            100                 105                 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
        115                 120                 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
    130                 135                 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
145                 150                 155                 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
                165                 170                 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
            180                 185                 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
        195                 200                 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Thr
    210                 215                 220

Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu Lys Gln Leu Asn Arg Ala
225                 230                 235                 240

Thr Thr Asn Asn Ser Val Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
                245                 250                 255

Thr Val His Asn Leu Val Asn Leu Cys Thr Lys Glu Val Leu Leu Lys
            260                 265                 270

Gly Gly Lys Arg Glu Glu Glu Lys Pro Phe Arg Asp Cys Ala Asp Val
        275                 280                 285
```

```
Tyr Gln Ala Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Ile Asn
    290                 295                 300

Asn Met Pro Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn Gly
305                 310                 315                 320

Gly Gly Trp Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp Phe
                325                 330                 335

Gln Arg Gly Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly
            340                 345                 350

Glu Tyr Trp Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg
        355                 360                 365

Gln Tyr Met Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg Ala
    370                 375                 380

Tyr Ser Gln Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn Tyr
385                 390                 395                 400

Arg Leu Tyr Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser Ser
                405                 410                 415

Leu Ile Leu His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp
            420                 425                 430

Asn Cys Met Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp Phe
        435                 440                 445

Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly
    450                 455                 460

Gln Asn His Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys Gly
465                 470                 475                 480

Pro Ser Tyr Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu Asp
                485                 490                 495

Phe
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<210> 4772
<211> 498
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1046; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPT1; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q15389; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428340"

<400> 4772
Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
1   5   10   15

Ile Gly Cys Ser Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg
            20   25   30

Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
        35   40   45

Glu His Asp Gly Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr Asn Thr
    50   55   60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
65   70   75   80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
                85   90   95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
            100   105   110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu

```
        115                 120                 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
    130                 135                 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
145                 150                 155                 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
                165                 170                 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
            180                 185                 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
        195                 200                 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Thr
    210                 215                 220

Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu Lys Gln Leu Asn Arg Ala
225                 230                 235                 240

Thr Thr Asn Asn Ser Val Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
                245                 250                 255

Thr Val His Asn Leu Val Asn Leu Cys Thr Lys Glu Gly Val Leu Leu
            260                 265                 270

Lys Gly Gly Lys Arg Glu Glu Glu Lys Pro Phe Arg Asp Cys Ala Asp
        275                 280                 285

Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Ile
    290                 295                 300

Asn Asn Met Pro Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn
305                 310                 315                 320

Gly Gly Gly Trp Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp
                325                 330                 335

Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser
            340                 345                 350
```

```
Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln
        355                 360                 365

Arg Gln Tyr Met Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg
    370                 375                 380

Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn
385                 390                 395                 400

Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser
                405                 410                 415

Ser Leu Ile Leu His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn
            420                 425                 430

Asp Asn Cys Met Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp
        435                 440                 445

Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala
    450                 455                 460

Gly Gln Asn His Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys
465                 470                 475                 480

Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu
                485                 490                 495

Asp Phe
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<210> 4773
<211> 30
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1046; "

<220>
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<223> /note="Gene Symbol: ANGPT1; "

<220>
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<223> /note="Gene Name:
angiopoietin 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428908"

<400> 4773
Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His
1 5 10 15

Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln
20 25 30

<210> 4774
<211> 297
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1046; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPT1; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429349"

<400> 4774
Met Glu Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys
1 5 10 15

Glu Asn Leu Gln Gly Leu Val Thr Arg Gln Thr Tyr Ile Ile Gln Glu
20 25 30

Leu Glu Lys Gln Leu Asn Arg Ala Thr Thr Asn Asn Ser Val Leu Gln
35 40 45

Lys Gln Gln Leu Glu Leu Met Asp Thr Val His Asn Leu Val Asn Leu
50 55 60

Cys Thr Lys Glu Val Leu Leu Lys Gly Gly Lys Arg Glu Glu Glu Lys
65 70 75 80

```
Pro Phe Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser
                85                  90                  95

Gly Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro Glu Pro Lys Lys Val
            100                 105                 110

Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His
        115                 120                 125

Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys
    130                 135                 140

Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe
145                 150                 155                 160

Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu
                165                 170                 175

Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His
            180                 185                 190

Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr
        195                 200                 205

Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe
    210                 215                 220

Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu
225                 230                 235                 240

Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu
                245                 250                 255

Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly
            260                 265                 270

Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr
        275                 280                 285

Thr Met Met Ile Arg Pro Leu Asp Phe
    290                 295
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<210> 4775
<211> 298
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1046; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPT1; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430750"

<400> 4775
Met Glu Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys
1 5 10 15

Glu Asn Leu Gln Gly Leu Val Thr Arg Gln Thr Tyr Ile Ile Gln Glu
20 25 30

Leu Glu Lys Gln Leu Asn Arg Ala Thr Thr Asn Asn Ser Val Leu Gln
35 40 45

Lys Gln Gln Leu Glu Leu Met Asp Thr Val His Asn Leu Val Asn Leu
50 55 60

Cys Thr Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu Glu
65 70 75 80

Lys Pro Phe Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys
85 90 95

Ser Gly Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro Glu Pro Lys Lys
100 105 110

Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln
115 120 125

His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr

```
    130                 135                 140

Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu
145                 150                 155                 160

Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu
                165                 170                 175

Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe
            180                 185                 190

His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His
        195                 200                 205

Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp
    210                 215                 220

Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala
225                 230                 235                 240

Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn
                245                 250                 255

Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn
            260                 265                 270

Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser
        275                 280                 285

Thr Thr Met Met Ile Arg Pro Leu Asp Phe
    290                 295


<210> 4776
<211> 496
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1047; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPT2; "

<220>
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<221> source
<223> /note="Gene Name:
angiopoietin 2; "

<220>
<221> source
<223> /note="Uniprot ID: O15123; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000314897"

<400> 4776

```
Met Trp Gln Ile Val Phe Phe Thr Leu Ser Cys Asp Leu Val Leu Ala
1               5                  10                  15

Ala Ala Tyr Asn Asn Phe Arg Lys Ser Met Asp Ser Ile Gly Lys Lys
            20                  25                  30

Gln Tyr Gln Val Gln His Gly Ser Cys Ser Tyr Thr Phe Leu Leu Pro
        35                  40                  45

Glu Met Asp Asn Cys Arg Ser Ser Ser Ser Pro Tyr Val Ser Asn Ala
    50                  55                  60

Val Gln Arg Asp Ala Pro Leu Glu Tyr Asp Asp Ser Val Gln Arg Leu
65                  70                  75                  80

Gln Val Leu Glu Asn Ile Met Glu Asn Asn Thr Gln Trp Leu Met Lys
                85                  90                  95

Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile
            100                 105                 110

Gln Gln Asn Ala Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly
        115                 120                 125

Thr Asn Leu Leu Asn Gln Thr Ala Glu Gln Thr Arg Lys Leu Thr Asp
    130                 135                 140

Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu
145                 150                 155                 160

Leu Glu His Ser Leu Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp
                165                 170                 175
```

```
Gln Thr Ser Glu Ile Asn Lys Leu Gln Asp Lys Asn Ser Phe Leu Glu
            180                 185                 190

Lys Lys Val Leu Ala Met Glu Asp Lys His Ile Ile Gln Leu Gln Ser
        195                 200                 205

Ile Lys Glu Glu Lys Asp Gln Leu Gln Val Leu Val Ser Lys Gln Asn
    210                 215                 220

Ser Ile Ile Glu Glu Leu Glu Lys Lys Ile Val Thr Ala Thr Val Asn
225                 230                 235                 240

Asn Ser Val Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn
                245                 250                 255

Asn Leu Leu Thr Met Met Ser Thr Ser Asn Ser Ala Lys Asp Pro Thr
            260                 265                 270

Val Ala Lys Glu Glu Gln Ile Ser Phe Arg Asp Cys Ala Glu Val Phe
        275                 280                 285

Lys Ser Gly His Thr Thr Asn Gly Ile Tyr Thr Leu Thr Phe Pro Asn
    290                 295                 300

Ser Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Glu Ala Gly Gly Gly
305                 310                 315                 320

Gly Trp Thr Ile Ile Gln Arg Arg Glu Asp Gly Ser Val Asp Phe Gln
                325                 330                 335

Arg Thr Trp Lys Glu Tyr Lys Val Gly Phe Gly Asn Pro Ser Gly Glu
            340                 345                 350

Tyr Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Asn Gln Gln Arg
        355                 360                 365

Tyr Val Leu Lys Ile His Leu Lys Asp Trp Glu Gly Asn Glu Ala Tyr
    370                 375                 380

Ser Leu Tyr Glu His Phe Tyr Leu Ser Ser Glu Glu Leu Asn Tyr Arg
385                 390                 395                 400

Ile His Leu Lys Gly Leu Thr Gly Thr Ala Gly Lys Ile Ser Ser Ile
```

405 410 415

Ser Gln Pro Gly Asn Asp Phe Ser Thr Lys Asp Gly Asp Asn Asp Lys
420 425 430

Cys Ile Cys Lys Cys Ser Gln Met Leu Thr Gly Gly Trp Trp Phe Asp
435 440 445

Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Tyr Tyr Pro Gln Arg Gln
450 455 460

Asn Thr Asn Lys Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser
465 470 475 480

Gly Tyr Ser Leu Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe
485 490 495

<210> 4777
<211> 444
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1047; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPT2; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin 2; "

<220>
<221> source
<223> /note="Uniprot ID: O15123; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343517"

<400> 4777
Met Trp Gln Ile Val Phe Phe Thr Leu Ser Cys Asp Leu Val Leu Ala
1 5 10 15

Ala Ala Tyr Asn Asn Phe Arg Lys Ser Met Asp Ser Ile Gly Lys Lys
20 25 30

```
Gln Tyr Gln Val Gln His Gly Ser Cys Ser Tyr Thr Phe Leu Leu Pro
        35                  40                  45

Glu Met Asp Asn Cys Arg Ser Ser Ser Ser Pro Tyr Val Ser Asn Ala
    50                  55                  60

Val Gln Arg Asp Ala Pro Leu Glu Tyr Asp Asp Ser Val Gln Arg Leu
65                  70                  75                  80

Gln Val Leu Glu Asn Ile Met Glu Asn Asn Thr Gln Trp Leu Met Lys
                85                  90                  95

Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu Leu Glu His Ser
            100                 105                 110

Leu Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp Gln Thr Ser Glu
        115                 120                 125

Ile Asn Lys Leu Gln Asp Lys Asn Ser Phe Leu Glu Lys Lys Val Leu
    130                 135                 140

Ala Met Glu Asp Lys His Ile Ile Gln Leu Gln Ser Ile Lys Glu Glu
145                 150                 155                 160

Lys Asp Gln Leu Gln Val Leu Val Ser Lys Gln Asn Ser Ile Ile Glu
                165                 170                 175

Glu Leu Glu Lys Lys Ile Val Thr Ala Thr Val Asn Asn Ser Val Leu
            180                 185                 190

Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn Asn Leu Leu Thr
        195                 200                 205

Met Met Ser Thr Ser Asn Ser Ala Lys Asp Pro Thr Val Ala Lys Glu
    210                 215                 220

Glu Gln Ile Ser Phe Arg Asp Cys Ala Glu Val Phe Lys Ser Gly His
225                 230                 235                 240

Thr Thr Asn Gly Ile Tyr Thr Leu Thr Phe Pro Asn Ser Thr Glu Glu
                245                 250                 255
```

```
Ile Lys Ala Tyr Cys Asp Met Glu Ala Gly Gly Gly Gly Trp Thr Ile
            260                 265                 270

Ile Gln Arg Arg Glu Asp Gly Ser Val Asp Phe Gln Arg Thr Trp Lys
        275                 280                 285

Glu Tyr Lys Val Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly
    290                 295                 300

Asn Glu Phe Val Ser Gln Leu Thr Asn Gln Gln Arg Tyr Val Leu Lys
305                 310                 315                 320

Ile His Leu Lys Asp Trp Glu Gly Asn Glu Ala Tyr Ser Leu Tyr Glu
                325                 330                 335

His Phe Tyr Leu Ser Ser Glu Glu Leu Asn Tyr Arg Ile His Leu Lys
            340                 345                 350

Gly Leu Thr Gly Thr Ala Gly Lys Ile Ser Ser Ile Ser Gln Pro Gly
        355                 360                 365

Asn Asp Phe Ser Thr Lys Asp Gly Asp Asn Asp Lys Cys Ile Cys Lys
    370                 375                 380

Cys Ser Gln Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro
385                 390                 395                 400

Ser Asn Leu Asn Gly Met Tyr Tyr Pro Gln Arg Gln Asn Thr Asn Lys
                405                 410                 415

Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser Gly Tyr Ser Leu
            420                 425                 430

Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe
        435                 440


<210> 4778
<211> 459
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1047; "
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<220>
<221> source
<223> /note="Gene Symbol: ANGPT2; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428023"

<400> 4778
Met Trp Gln Ile Val Phe Phe Thr Leu Ser Cys Asp Leu Val Leu Ala
1 5 10 15

Ala Ala Tyr Asn Asn Phe Arg Lys Ser Met Asp Ser Ile Gly Lys Lys
20 25 30

Gln Tyr Gln Val Gln His Gly Ser Cys Ser Tyr Thr Phe Leu Leu Pro
35 40 45

Glu Met Asp Asn Cys Arg Ser Ser Ser Ser Pro Tyr Val Ser Asn Ala
50 55 60

Val Gln Arg Asp Ala Pro Leu Glu Tyr Asp Asp Ser Val Gln Arg Leu
65 70 75 80

Gln Val Leu Glu Asn Ile Met Glu Asn Asn Thr Gln Trp Leu Met Lys
85 90 95

Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile
100 105 110

Gln Gln Asn Ala Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly
115 120 125

Thr Asn Leu Leu Asn Gln Thr Ala Glu Gln Thr Arg Lys Leu Thr Asp
130 135 140

Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu
145 150 155 160

Leu Glu His Ser Leu Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp
165 170 175

```
Gln Thr Ser Glu Ile Asn Lys Leu Gln Asp Lys Asn Ser Phe Leu Glu
            180                 185                 190

Lys Lys Val Leu Ala Met Glu Asp Lys His Ile Ile Gln Leu Gln Ser
        195                 200                 205

Ile Lys Glu Glu Lys Asp Gln Leu Gln Val Leu Val Ser Lys Gln Asn
    210                 215                 220

Ser Ile Ile Glu Glu Leu Glu Lys Lys Ile Val Thr Ala Thr Val Asn
225                 230                 235                 240

Asn Ser Val Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn
                245                 250                 255

Asn Leu Leu Thr Met Met Ser Thr Ser Asn Ser Lys Asp Pro Thr Val
            260                 265                 270

Ala Lys Glu Glu Gln Ile Ser Phe Arg Asp Cys Ala Glu Val Phe Lys
        275                 280                 285

Ser Gly His Thr Thr Asn Gly Ile Tyr Thr Leu Thr Phe Pro Asn Ser
    290                 295                 300

Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Glu Ala Gly Gly Gly Gly
305                 310                 315                 320

Trp Thr Ile Ile Gln Arg Arg Glu Asp Gly Ser Val Asp Phe Gln Arg
                325                 330                 335

Thr Trp Lys Glu Tyr Lys Val Gly Phe Gly Asn Pro Ser Gly Glu Tyr
            340                 345                 350

Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Asn Gln Gln Arg Tyr
        355                 360                 365

Val Leu Lys Ile His Leu Lys Asp Trp Glu Gly Asn Glu Ala Tyr Ser
    370                 375                 380

Leu Tyr Glu His Phe Tyr Leu Ser Ser Glu Glu Leu Asn Tyr Arg Ile
385                 390                 395                 400
```

```
His Leu Lys Gly Leu Thr Gly Thr Ala Gly Lys Ile Ser Ser Ile Ser
                405                 410                 415

Gln Pro Gly Asn Asp Phe Ser Thr Lys Asp Gly Asp Asn Asp Lys Cys
            420                 425                 430

Ile Cys Lys Cys Ser Gln Met Leu Thr Gly Gly Arg Asp Asp Phe Leu
        435                 440                 445

Ser Ser Tyr Leu Tyr Trp Gln Gly Met Ile Ser
    450                 455
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<210> 4779
<211> 495
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1047; "

<220>
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<223> /note="Gene Symbol: ANGPT2; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin 2; "

<220>
<221> source
<223> /note="Uniprot ID: O15123; "

<220>
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<223> /note="ENSP ID: ENSP00000486858"

<400> 4779

```
Met Trp Gln Ile Val Phe Phe Thr Leu Ser Cys Asp Leu Val Leu Ala
1               5                   10                  15

Ala Ala Tyr Asn Asn Phe Arg Lys Ser Met Asp Ser Ile Gly Lys Lys
            20                  25                  30

Gln Tyr Gln Val Gln His Gly Ser Cys Ser Tyr Thr Phe Leu Leu Pro
        35                  40                  45

Glu Met Asp Asn Cys Arg Ser Ser Ser Ser Pro Tyr Val Ser Asn Ala
    50                  55                  60
```

```
Val Gln Arg Asp Ala Pro Leu Glu Tyr Asp Asp Ser Val Gln Arg Leu
65                  70                  75                  80

Gln Val Leu Glu Asn Ile Met Glu Asn Asn Thr Gln Trp Leu Met Lys
                85                  90                  95

Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile
            100                 105                 110

Gln Gln Asn Ala Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly
        115                 120                 125

Thr Asn Leu Leu Asn Gln Thr Ala Glu Gln Thr Arg Lys Leu Thr Asp
    130                 135                 140

Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu
145                 150                 155                 160

Leu Glu His Ser Leu Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp
                165                 170                 175

Gln Thr Ser Glu Ile Asn Lys Leu Gln Asp Lys Asn Ser Phe Leu Glu
            180                 185                 190

Lys Lys Val Leu Ala Met Glu Asp Lys His Ile Ile Gln Leu Gln Ser
        195                 200                 205

Ile Lys Glu Glu Lys Asp Gln Leu Gln Val Leu Val Ser Lys Gln Asn
    210                 215                 220

Ser Ile Ile Glu Glu Leu Glu Lys Lys Ile Val Thr Ala Thr Val Asn
225                 230                 235                 240

Asn Ser Val Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn
                245                 250                 255

Asn Leu Leu Thr Met Met Ser Thr Ser Asn Ser Lys Asp Pro Thr Val
            260                 265                 270

Ala Lys Glu Glu Gln Ile Ser Phe Arg Asp Cys Ala Glu Val Phe Lys
        275                 280                 285
```

```
Ser Gly His Thr Thr Asn Gly Ile Tyr Thr Leu Thr Phe Pro Asn Ser
    290                 295                 300

Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Glu Ala Gly Gly Gly Gly
305                 310                 315                 320

Trp Thr Ile Ile Gln Arg Arg Glu Asp Gly Ser Val Asp Phe Gln Arg
                325                 330                 335

Thr Trp Lys Glu Tyr Lys Val Gly Phe Gly Asn Pro Ser Gly Glu Tyr
            340                 345                 350

Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Asn Gln Gln Arg Tyr
        355                 360                 365

Val Leu Lys Ile His Leu Lys Asp Trp Glu Gly Asn Glu Ala Tyr Ser
    370                 375                 380

Leu Tyr Glu His Phe Tyr Leu Ser Ser Glu Glu Leu Asn Tyr Arg Ile
385                 390                 395                 400

His Leu Lys Gly Leu Thr Gly Thr Ala Gly Lys Ile Ser Ser Ile Ser
                405                 410                 415

Gln Pro Gly Asn Asp Phe Ser Thr Lys Asp Gly Asp Asn Asp Lys Cys
            420                 425                 430

Ile Cys Lys Cys Ser Gln Met Leu Thr Gly Gly Trp Trp Phe Asp Ala
        435                 440                 445

Cys Gly Pro Ser Asn Leu Asn Gly Met Tyr Tyr Pro Gln Arg Gln Asn
    450                 455                 460

Thr Asn Lys Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser Gly
465                 470                 475                 480

Tyr Ser Leu Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe
                485                 490                 495
```

<210> 4780
<211> 503
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1048; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPT4; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y264; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371347"

<400> 4780
Met Leu Ser Gln Leu Ala Met Leu Gln Gly Ser Leu Leu Leu Val Val
1   5   10   15

Ala Thr Met Ser Val Ala Gln Gln Thr Arg Gln Glu Ala Asp Arg Gly
            20   25   30

Cys Glu Thr Leu Val Val Gln His Gly His Cys Ser Tyr Thr Phe Leu
        35   40   45

Leu Pro Lys Ser Glu Pro Cys Pro Pro Gly Pro Glu Val Ser Arg Asp
    50   55   60

Ser Asn Thr Leu Gln Arg Glu Ser Leu Ala Asn Pro Leu His Leu Gly
65   70   75   80

Lys Leu Pro Thr Gln Gln Val Lys Gln Leu Glu Gln Ala Leu Gln Asn
                85   90   95

Asn Thr Gln Trp Leu Lys Lys Leu Glu Arg Ala Ile Lys Thr Ile Leu
            100   105   110

Arg Ser Lys Leu Glu Gln Val Gln Gln Gln Met Ala Gln Asn Gln Thr
        115   120   125

Ala Pro Met Leu Glu Leu Gly Thr Ser Leu Leu Asn Gln Thr Thr Ala
    130   135   140

```
Gln Ile Arg Lys Leu Thr Asp Met Glu Ala Gln Leu Leu Asn Gln Thr
145                 150                 155                 160

Ser Arg Met Asp Ala Gln Met Pro Glu Thr Phe Leu Ser Thr Asn Lys
                165                 170                 175

Leu Glu Asn Gln Leu Leu Leu Gln Arg Gln Lys Leu Gln Gln Leu Gln
            180                 185                 190

Gly Gln Asn Ser Ala Leu Glu Lys Arg Leu Gln Ala Leu Glu Thr Lys
        195                 200                 205

Gln Gln Glu Glu Leu Ala Ser Ile Leu Ser Lys Lys Ala Lys Leu Leu
    210                 215                 220

Asn Thr Leu Ser Arg Gln Ser Ala Ala Leu Thr Asn Ile Glu Arg Gly
225                 230                 235                 240

Leu Arg Gly Val Arg His Asn Ser Ser Leu Leu Gln Asp Gln Gln His
                245                 250                 255

Ser Leu Arg Gln Leu Leu Val Leu Leu Arg His Leu Val Gln Glu Arg
            260                 265                 270

Ala Asn Ala Ser Ala Pro Ala Phe Ile Met Ala Gly Glu Gln Val Phe
        275                 280                 285

Gln Asp Cys Ala Glu Ile Gln Arg Ser Gly Ala Ser Ala Ser Gly Val
    290                 295                 300

Tyr Thr Ile Gln Val Ser Asn Ala Thr Lys Pro Arg Lys Val Phe Cys
305                 310                 315                 320

Asp Leu Gln Ser Ser Gly Gly Arg Trp Thr Leu Ile Gln Arg Arg Glu
                325                 330                 335

Asn Gly Thr Val Asn Phe Gln Arg Asn Trp Lys Asp Tyr Lys Gln Gly
            340                 345                 350

Phe Gly Asp Pro Ala Gly Glu His Trp Leu Gly Asn Glu Val Val His
        355                 360                 365
```

```
Gln Leu Thr Arg Arg Ala Ala Tyr Ser Leu Arg Val Glu Leu Gln Asp
    370                 375                 380

Trp Glu Gly His Glu Ala Tyr Ala Gln Tyr Glu His Phe His Leu Gly
385                 390                 395                 400

Ser Glu Asn Gln Leu Tyr Arg Leu Ser Val Val Gly Tyr Ser Gly Ser
                405                 410                 415

Ala Gly Arg Gln Ser Ser Leu Val Leu Gln Asn Thr Ser Phe Ser Thr
            420                 425                 430

Leu Asp Ser Asp Asn Asp His Cys Leu Cys Lys Cys Ala Gln Val Met
        435                 440                 445

Ser Gly Gly Trp Trp Phe Asp Ala Cys Gly Leu Ser Asn Leu Asn Gly
    450                 455                 460

Val Tyr Tyr His Ala Pro Asp Asn Lys Tyr Lys Met Asp Gly Ile Arg
465                 470                 475                 480

Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ala Ser Arg Met
                485                 490                 495

Met Ile Arg Pro Leu Asp Ile
            500


<210> 4781
<211> 491
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1049; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL1; "

<220>
<221> source
<223> /note="Gene Name:
      angiopoietin-like 1; "

<220>
<221> source
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<223> /note="Uniprot ID: O95841; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000234816"

<400> 4781
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Met Lys Thr Phe Thr Trp Thr Leu Gly Val Leu Phe Phe Leu Leu Val
1               5                  10                  15

Asp Thr Gly His Cys Arg Gly Gly Gln Phe Lys Ile Lys Lys Ile Asn
            20                  25                  30

Gln Arg Arg Tyr Pro Arg Ala Thr Asp Gly Lys Glu Glu Ala Lys Lys
        35                  40                  45

Cys Ala Tyr Thr Phe Leu Val Pro Glu Gln Arg Ile Thr Gly Pro Ile
    50                  55                  60

Cys Val Asn Thr Lys Gly Gln Asp Ala Ser Thr Ile Lys Asp Met Ile
65                  70                  75                  80

Thr Arg Met Asp Leu Glu Asn Leu Lys Asp Val Leu Ser Arg Gln Lys
                85                  90                  95

Arg Glu Ile Asp Val Leu Gln Leu Val Val Asp Val Asp Gly Asn Ile
            100                 105                 110

Val Asn Glu Val Lys Leu Leu Arg Lys Glu Ser Arg Asn Met Asn Ser
        115                 120                 125

Arg Val Thr Gln Leu Tyr Met Gln Leu Leu His Glu Ile Ile Arg Lys
    130                 135                 140

Arg Asp Asn Ser Leu Glu Leu Ser Gln Leu Glu Asn Lys Ile Leu Asn
145                 150                 155                 160

Val Thr Thr Glu Met Leu Lys Met Ala Thr Arg Tyr Arg Glu Leu Glu
                165                 170                 175

Val Lys Tyr Ala Ser Leu Thr Asp Leu Val Asn Asn Gln Ser Val Met
            180                 185                 190

Ile Thr Leu Leu Glu Glu Gln Cys Leu Arg Ile Phe Ser Arg Gln Asp
        195                 200                 205
```

```
Thr His Val Ser Pro Pro Leu Val Gln Val Val Pro Gln His Ile Pro
    210                 215                 220

Asn Ser Gln Gln Tyr Thr Pro Gly Leu Leu Gly Gly Asn Glu Ile Gln
225                 230                 235                 240

Arg Asp Pro Gly Tyr Pro Arg Asp Leu Met Pro Pro Pro Asp Leu Ala
                245                 250                 255

Thr Ser Pro Thr Lys Ser Pro Phe Lys Ile Pro Pro Val Thr Phe Ile
            260                 265                 270

Asn Glu Gly Pro Phe Lys Asp Cys Gln Gln Ala Lys Glu Ala Gly His
        275                 280                 285

Ser Val Ser Gly Ile Tyr Met Ile Lys Pro Glu Asn Ser Asn Gly Pro
    290                 295                 300

Met Gln Leu Trp Cys Glu Asn Ser Leu Asp Pro Gly Gly Trp Thr Val
305                 310                 315                 320

Ile Gln Lys Arg Thr Asp Gly Ser Val Asn Phe Phe Arg Asn Trp Glu
                325                 330                 335

Asn Tyr Lys Lys Gly Phe Gly Asn Ile Asp Gly Glu Tyr Trp Leu Gly
            340                 345                 350

Leu Glu Asn Ile Tyr Met Leu Ser Asn Gln Asp Asn Tyr Lys Leu Leu
        355                 360                 365

Ile Glu Leu Glu Asp Trp Ser Asp Lys Lys Val Tyr Ala Glu Tyr Ser
    370                 375                 380

Ser Phe Arg Leu Glu Pro Glu Ser Glu Phe Tyr Arg Leu Arg Leu Gly
385                 390                 395                 400

Thr Tyr Gln Gly Asn Ala Gly Asp Ser Met Met Trp His Asn Gly Lys
                405                 410                 415

Gln Phe Thr Thr Leu Asp Arg Asp Lys Asp Met Tyr Ala Gly Asn Cys
            420                 425                 430
```

```
Ala His Phe His Lys Gly Gly Trp Trp Tyr Asn Ala Cys Ala His Ser
        435                 440                 445

Asn Leu Asn Gly Val Trp Tyr Arg Gly Gly His Tyr Arg Ser Lys His
    450                 455                 460

Gln Asp Gly Ile Phe Trp Ala Glu Tyr Arg Gly Gly Ser Tyr Ser Leu
465                 470                 475                 480

Arg Ala Val Gln Met Met Ile Lys Pro Ile Asp
                485                 490
```

<210> 4782
<211> 491
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1049; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL1; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 1; "

<220>
<221> source
<223> /note="Uniprot ID: O95841; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356601"

<400> 4782

```
Met Lys Thr Phe Thr Trp Thr Leu Gly Val Leu Phe Phe Leu Leu Val
1               5                   10                  15

Asp Thr Gly His Cys Arg Gly Gly Gln Phe Lys Ile Lys Lys Ile Asn
            20                  25                  30

Gln Arg Arg Tyr Pro Arg Ala Thr Asp Gly Lys Glu Glu Ala Lys Lys
        35                  40                  45

Cys Ala Tyr Thr Phe Leu Val Pro Glu Gln Arg Ile Thr Gly Pro Ile
```

50 55 60

Cys Val Asn Thr Lys Gly Gln Asp Ala Ser Thr Ile Lys Asp Met Ile
65 70 75 80

Thr Arg Met Asp Leu Glu Asn Leu Lys Asp Val Leu Ser Arg Gln Lys
85 90 95

Arg Glu Ile Asp Val Leu Gln Leu Val Val Asp Val Asp Gly Asn Ile
100 105 110

Val Asn Glu Val Lys Leu Leu Arg Lys Glu Ser Arg Asn Met Asn Ser
115 120 125

Arg Val Thr Gln Leu Tyr Met Gln Leu Leu His Glu Ile Ile Arg Lys
130 135 140

Arg Asp Asn Ser Leu Glu Leu Ser Gln Leu Glu Asn Lys Ile Leu Asn
145 150 155 160

Val Thr Thr Glu Met Leu Lys Met Ala Thr Arg Tyr Arg Glu Leu Glu
165 170 175

Val Lys Tyr Ala Ser Leu Thr Asp Leu Val Asn Asn Gln Ser Val Met
180 185 190

Ile Thr Leu Leu Glu Glu Gln Cys Leu Arg Ile Phe Ser Arg Gln Asp
195 200 205

Thr His Val Ser Pro Pro Leu Val Gln Val Val Pro Gln His Ile Pro
210 215 220

Asn Ser Gln Gln Tyr Thr Pro Gly Leu Leu Gly Gly Asn Glu Ile Gln
225 230 235 240

Arg Asp Pro Gly Tyr Pro Arg Asp Leu Met Pro Pro Pro Asp Leu Ala
245 250 255

Thr Ser Pro Thr Lys Ser Pro Phe Lys Ile Pro Pro Val Thr Phe Ile
260 265 270

Asn Glu Gly Pro Phe Lys Asp Cys Gln Gln Ala Lys Glu Ala Gly His
275 280 285

```
Ser Val Ser Gly Ile Tyr Met Ile Lys Pro Glu Asn Ser Asn Gly Pro
    290                 295                 300

Met Gln Leu Trp Cys Glu Asn Ser Leu Asp Pro Gly Gly Trp Thr Val
305                 310                 315                 320

Ile Gln Lys Arg Thr Asp Gly Ser Val Asn Phe Phe Arg Asn Trp Glu
                325                 330                 335

Asn Tyr Lys Lys Gly Phe Gly Asn Ile Asp Gly Glu Tyr Trp Leu Gly
            340                 345                 350

Leu Glu Asn Ile Tyr Met Leu Ser Asn Gln Asp Asn Tyr Lys Leu Leu
        355                 360                 365

Ile Glu Leu Glu Asp Trp Ser Asp Lys Lys Val Tyr Ala Glu Tyr Ser
    370                 375                 380

Ser Phe Arg Leu Glu Pro Glu Ser Glu Phe Tyr Arg Leu Arg Leu Gly
385                 390                 395                 400

Thr Tyr Gln Gly Asn Ala Gly Asp Ser Met Met Trp His Asn Gly Lys
                405                 410                 415

Gln Phe Thr Thr Leu Asp Arg Asp Lys Asp Met Tyr Ala Gly Asn Cys
            420                 425                 430

Ala His Phe His Lys Gly Gly Trp Trp Tyr Asn Ala Cys Ala His Ser
        435                 440                 445

Asn Leu Asn Gly Val Trp Tyr Arg Gly Gly His Tyr Arg Ser Lys His
    450                 455                 460

Gln Asp Gly Ile Phe Trp Ala Glu Tyr Arg Gly Gly Ser Tyr Ser Leu
465                 470                 475                 480

Arg Ala Val Gln Met Met Ile Lys Pro Ile Asp
                485                 490
```

<210> 4783
<211> 114
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1049; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL1; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392023"

<400> 4783
Met Lys Thr Phe Thr Trp Thr Leu Gly Val Leu Phe Phe Leu Leu Val
1 5 10 15

Asp Thr Gly His Cys Arg Gly Gly Gln Phe Lys Ile Lys Lys Ile Asn
20 25 30

Gln Arg Arg Tyr Pro Arg Ala Thr Asp Gly Lys Glu Glu Ala Lys Lys
35 40 45

Cys Ala Tyr Thr Phe Leu Val Pro Glu Gln Arg Ile Thr Gly Pro Ile
50 55 60

Cys Val Asn Thr Lys Gly Gln Asp Ala Ser Thr Ile Lys Asp Met Ile
65 70 75 80

Thr Arg Met Asp Leu Glu Asn Leu Lys Asp Val Leu Ser Arg Gln Lys
85 90 95

Arg Glu Ile Asp Val Leu Gln Leu Val Val Asp Val Asp Gly Asn Ile
100 105 110

Val Asn

<210> 4784
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1050; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL2; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UKU9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362516"

<400> 4784

```
Met Gln Val Trp Cys Asp Gln Arg His Asp Pro Gly Gly Trp Thr Val
1               5                  10                  15

Ile Gln Arg Arg Leu Asp Gly Ser Val Asn Phe Phe Arg Asn Trp Glu
            20                  25                  30

Thr Tyr Lys Gln Gly Phe Gly Asn Ile Asp Gly Glu Tyr Trp Leu Gly
        35                  40                  45

Leu Glu Asn Ile Tyr Trp Leu Thr Asn Gln Gly Asn Tyr Lys Leu Leu
    50                  55                  60

Val Thr Met Glu Asp Trp Ser Gly Arg Lys Val Phe Ala Glu Tyr Ala
65                  70                  75                  80

Ser Phe Arg Leu Glu Pro Glu Ser Glu Tyr Tyr Lys Leu Arg Leu Gly
                85                  90                  95

Arg Tyr His Gly Asn Ala Gly Asp Ser Phe Thr Trp His Asn Gly Lys
            100                 105                 110

Gln Phe Thr Thr Leu Asp Arg Asp His Asp Val Tyr Thr Gly Asn Cys
        115                 120                 125

Ala His Tyr Gln Lys Gly Gly Trp Trp Tyr Asn Ala Cys Ala His Ser
    130                 135                 140
```

```
Asn Leu Asn Gly Val Trp Tyr Arg Gly Gly His Tyr Arg Ser Arg Tyr
145                 150                 155                 160


Gln Asp Gly Val Tyr Trp Ala Glu Phe Arg Gly Gly Ser Tyr Ser Leu
                165                 170                 175


Lys Lys Val Val Met Met Ile Arg Pro Asn Pro Asn Thr Phe His
            180                 185                 190


<210> 4785
<211> 493
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1050; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL2; "

<220>
<221> source
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      angiopoietin-like 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UKU9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362524"

<400> 4785
Met Arg Pro Leu Cys Val Thr Cys Trp Trp Leu Gly Leu Leu Ala Ala
1               5                   10                  15


Met Gly Ala Val Ala Gly Gln Glu Asp Gly Phe Glu Gly Thr Glu Glu
            20                  25                  30


Gly Ser Pro Arg Glu Phe Ile Tyr Leu Asn Arg Tyr Lys Arg Ala Gly
        35                  40                  45


Glu Ser Gln Asp Lys Cys Thr Tyr Thr Phe Ile Val Pro Gln Gln Arg
    50                  55                  60


Val Thr Gly Ala Ile Cys Val Asn Ser Lys Glu Pro Glu Val Leu Leu
```

65 70 75 80

Glu Asn Arg Val His Lys Gln Glu Leu Glu Leu Leu Asn Asn Glu Leu
85 90 95

Leu Lys Gln Lys Arg Gln Ile Glu Thr Leu Gln Gln Leu Val Glu Val
100 105 110

Asp Gly Gly Ile Val Ser Glu Val Lys Leu Leu Arg Lys Glu Ser Arg
115 120 125

Asn Met Asn Ser Arg Val Thr Gln Leu Tyr Met Gln Leu Leu His Glu
130 135 140

Ile Ile Arg Lys Arg Asp Asn Ala Leu Glu Leu Ser Gln Leu Glu Asn
145 150 155 160

Arg Ile Leu Asn Gln Thr Ala Asp Met Leu Gln Leu Ala Ser Lys Tyr
165 170 175

Lys Asp Leu Glu His Lys Tyr Gln His Leu Ala Thr Leu Ala His Asn
180 185 190

Gln Ser Glu Ile Ile Ala Gln Leu Glu Glu His Cys Gln Arg Val Pro
195 200 205

Ser Ala Arg Pro Val Pro Gln Pro Pro Pro Ala Ala Pro Pro Arg Val
210 215 220

Tyr Gln Pro Pro Thr Tyr Asn Arg Ile Ile Asn Gln Ile Ser Thr Asn
225 230 235 240

Glu Ile Gln Ser Asp Gln Asn Leu Lys Val Leu Pro Pro Pro Leu Pro
245 250 255

Thr Met Pro Thr Leu Thr Ser Leu Pro Ser Ser Thr Asp Lys Pro Ser
260 265 270

Gly Pro Trp Arg Asp Cys Leu Gln Ala Leu Glu Asp Gly His Asp Thr
275 280 285

Ser Ser Ile Tyr Leu Val Lys Pro Glu Asn Thr Asn Arg Leu Met Gln
290 295 300

```
Val Trp Cys Asp Gln Arg His Asp Pro Gly Gly Trp Thr Val Ile Gln
305                 310                 315                 320

Arg Arg Leu Asp Gly Ser Val Asn Phe Phe Arg Asn Trp Glu Thr Tyr
                325                 330                 335

Lys Gln Gly Phe Gly Asn Ile Asp Gly Glu Tyr Trp Leu Gly Leu Glu
            340                 345                 350

Asn Ile Tyr Trp Leu Thr Asn Gln Gly Asn Tyr Lys Leu Leu Val Thr
        355                 360                 365

Met Glu Asp Trp Ser Gly Arg Lys Val Phe Ala Glu Tyr Ala Ser Phe
    370                 375                 380

Arg Leu Glu Pro Glu Ser Glu Tyr Tyr Lys Leu Arg Leu Gly Arg Tyr
385                 390                 395                 400

His Gly Asn Ala Gly Asp Ser Phe Thr Trp His Asn Gly Lys Gln Phe
                405                 410                 415

Thr Thr Leu Asp Arg Asp His Asp Val Tyr Thr Gly Asn Cys Ala His
            420                 425                 430

Tyr Gln Lys Gly Gly Trp Trp Tyr Asn Ala Cys Ala His Ser Asn Leu
        435                 440                 445

Asn Gly Val Trp Tyr Arg Gly Gly His Tyr Arg Ser Arg Tyr Gln Asp
    450                 455                 460

Gly Val Tyr Trp Ala Glu Phe Arg Gly Gly Ser Tyr Ser Leu Lys Lys
465                 470                 475                 480

Val Val Met Met Ile Arg Pro Asn Pro Asn Thr Phe His
                485                 490
```

<210> 4786
<211> 460
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1051; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL3; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y5C1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360170"

<400> 4786

```
Met Phe Thr Ile Lys Leu Leu Leu Phe Ile Val Pro Leu Val Ile Ser
1               5                  10                  15

Ser Arg Ile Asp Gln Asp Asn Ser Ser Phe Asp Ser Leu Ser Pro Glu
            20                  25                  30

Pro Lys Ser Arg Phe Ala Met Leu Asp Asp Val Lys Ile Leu Ala Asn
        35                  40                  45

Gly Leu Leu Gln Leu Gly His Gly Leu Lys Asp Phe Val His Lys Thr
    50                  55                  60

Lys Gly Gln Ile Asn Asp Ile Phe Gln Lys Leu Asn Ile Phe Asp Gln
65                  70                  75                  80

Ser Phe Tyr Asp Leu Ser Leu Gln Thr Ser Glu Ile Lys Glu Glu Glu
                85                  90                  95

Lys Glu Leu Arg Arg Thr Thr Tyr Lys Leu Gln Val Lys Asn Glu Glu
            100                 105                 110

Val Lys Asn Met Ser Leu Glu Leu Asn Ser Lys Leu Glu Ser Leu Leu
        115                 120                 125

Glu Glu Lys Ile Leu Leu Gln Gln Lys Val Lys Tyr Leu Glu Glu Gln
    130                 135                 140

Leu Thr Asn Leu Ile Gln Asn Gln Pro Glu Thr Pro Glu His Pro Glu
```

145 150 155 160

Val Thr Ser Leu Lys Thr Phe Val Glu Lys Gln Asp Asn Ser Ile Lys
165 170 175

Asp Leu Leu Gln Thr Val Glu Asp Gln Tyr Lys Gln Leu Asn Gln Gln
180 185 190

His Ser Gln Ile Lys Glu Ile Glu Asn Gln Leu Arg Arg Thr Ser Ile
195 200 205

Gln Glu Pro Thr Glu Ile Ser Leu Ser Ser Lys Pro Arg Ala Pro Arg
210 215 220

Thr Thr Pro Phe Leu Gln Leu Asn Glu Ile Arg Asn Val Lys His Asp
225 230 235 240

Gly Ile Pro Ala Glu Cys Thr Thr Ile Tyr Asn Arg Gly Glu His Thr
245 250 255

Ser Gly Met Tyr Ala Ile Arg Pro Ser Asn Ser Gln Val Phe His Val
260 265 270

Tyr Cys Asp Val Ile Ser Gly Ser Pro Trp Thr Leu Ile Gln His Arg
275 280 285

Ile Asp Gly Ser Gln Asn Phe Asn Glu Thr Trp Glu Asn Tyr Lys Tyr
290 295 300

Gly Phe Gly Arg Leu Asp Gly Glu Phe Trp Leu Gly Leu Glu Lys Ile
305 310 315 320

Tyr Ser Ile Val Lys Gln Ser Asn Tyr Val Leu Arg Ile Glu Leu Glu
325 330 335

Asp Trp Lys Asp Asn Lys His Tyr Ile Glu Tyr Ser Phe Tyr Leu Gly
340 345 350

Asn His Glu Thr Asn Tyr Thr Leu His Leu Val Ala Ile Thr Gly Asn
355 360 365

Val Pro Asn Ala Ile Pro Glu Asn Lys Asp Leu Val Phe Ser Thr Trp
370 375 380

```
Asp His Lys Ala Lys Gly His Phe Asn Cys Pro Glu Gly Tyr Ser Gly
385                 390                 395                 400


Gly Trp Trp Trp His Asp Glu Cys Gly Glu Asn Asn Leu Asn Gly Lys
                405                 410                 415


Tyr Asn Lys Pro Arg Ala Lys Ser Lys Pro Glu Arg Arg Arg Gly Leu
            420                 425                 430


Ser Trp Lys Ser Gln Asn Gly Arg Leu Tyr Ser Ile Lys Ser Thr Lys
        435                 440                 445


Met Leu Ile His Pro Thr Asp Ser Glu Ser Phe Glu
    450                 455                 460


<210> 4787
<211> 406
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1052; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL4; "

<220>
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<223> /note="Gene Name:
      angiopoietin-like 4; "

<220>
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<223> /note="Uniprot ID:  Q9BY76; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000301455"

<400> 4787
Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala
1               5                   10                  15


Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser
            20                  25                  30
```

```
Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu
        35                  40                  45

Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser
    50                  55                  60

Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Ala Cys
65                  70                  75                  80

Gln Gly Thr Glu Gly Ser Thr Asp Leu Pro Leu Ala Pro Glu Ser Arg
                85                  90                  95

Val Asp Pro Glu Val Leu His Ser Leu Gln Thr Gln Leu Lys Ala Gln
            100                 105                 110

Asn Ser Arg Ile Gln Gln Leu Phe His Lys Val Ala Gln Gln Gln Arg
        115                 120                 125

His Leu Glu Lys Gln His Leu Arg Ile Gln His Leu Gln Ser Gln Phe
    130                 135                 140

Gly Leu Leu Asp His Lys His Leu Asp His Glu Val Ala Lys Pro Ala
145                 150                 155                 160

Arg Arg Lys Arg Leu Pro Glu Met Ala Gln Pro Val Asp Pro Ala His
                165                 170                 175

Asn Val Ser Arg Leu His Arg Leu Pro Arg Asp Cys Gln Glu Leu Phe
            180                 185                 190

Gln Val Gly Glu Arg Gln Ser Gly Leu Phe Glu Ile Gln Pro Gln Gly
        195                 200                 205

Ser Pro Pro Phe Leu Val Asn Cys Lys Met Thr Ser Asp Gly Gly Trp
    210                 215                 220

Thr Val Ile Gln Arg Arg His Asp Gly Ser Val Asp Phe Asn Arg Pro
225                 230                 235                 240

Trp Glu Ala Tyr Lys Ala Gly Phe Gly Asp Pro His Gly Glu Phe Trp
                245                 250                 255

Leu Gly Leu Glu Lys Val His Ser Ile Thr Gly Asp Arg Asn Ser Arg
```

```
            260                 265                 270

Leu Ala Val Gln Leu Arg Asp Trp Asp Gly Asn Ala Glu Leu Leu Gln
        275                 280                 285

Phe Ser Val His Leu Gly Gly Glu Asp Thr Ala Tyr Ser Leu Gln Leu
    290                 295                 300

Thr Ala Pro Val Ala Gly Gln Leu Gly Ala Thr Thr Val Pro Pro Ser
305                 310                 315                 320

Gly Leu Ser Val Pro Phe Ser Thr Trp Asp Gln Asp His Asp Leu Arg
                325                 330                 335

Arg Asp Lys Asn Cys Ala Lys Ser Leu Ser Gly Gly Trp Trp Phe Gly
            340                 345                 350

Thr Cys Ser His Ser Asn Leu Asn Gly Gln Tyr Phe Arg Ser Ile Pro
        355                 360                 365

Gln Gln Arg Gln Lys Leu Lys Lys Gly Ile Phe Trp Lys Thr Trp Arg
    370                 375                 380

Gly Arg Tyr Tyr Pro Leu Gln Ala Thr Thr Met Leu Ile Gln Pro Met
385                 390                 395                 400

Ala Ala Glu Ala Ala Ser
                405
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<210> 4788
<211> 368
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1052; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL4; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BY76; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377534"

<400> 4788
Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala
1   5   10   15

Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser
            20   25   30

Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu
        35   40   45

Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser
    50   55   60

Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Ala Cys
65   70   75   80

Gln Gly Thr Glu Gly Ser Thr Asp Leu Pro Leu Ala Pro Glu Ser Arg
                85   90   95

Val Asp Pro Glu Val Leu His Ser Leu Gln Thr Gln Leu Lys Ala Gln
            100   105   110

Asn Ser Arg Ile Gln Gln Leu Phe His Lys Val Ala Gln Gln Gln Arg
        115   120   125

His Leu Glu Lys Gln His Leu Arg Ile Gln His Leu Gln Ser Gln Phe
    130   135   140

Gly Leu Leu Asp His Lys His Leu Asp His Glu Val Ala Lys Pro Ala
145   150   155   160

Arg Arg Lys Arg Leu Pro Glu Met Ala Gln Pro Val Asp Pro Ala His
                165   170   175

Asn Val Ser Arg Leu His His Gly Gly Trp Thr Val Ile Gln Arg Arg
            180   185   190

```
His Asp Gly Ser Val Asp Phe Asn Arg Pro Trp Glu Ala Tyr Lys Ala
        195                 200                 205

Gly Phe Gly Asp Pro His Gly Glu Phe Trp Leu Gly Leu Glu Lys Val
    210                 215                 220

His Ser Ile Thr Gly Asp Arg Asn Ser Arg Leu Ala Val Gln Leu Arg
225                 230                 235                 240

Asp Trp Asp Gly Asn Ala Glu Leu Leu Gln Phe Ser Val His Leu Gly
                245                 250                 255

Gly Glu Asp Thr Ala Tyr Ser Leu Gln Leu Thr Ala Pro Val Ala Gly
            260                 265                 270

Gln Leu Gly Ala Thr Thr Val Pro Pro Ser Gly Leu Ser Val Pro Phe
        275                 280                 285

Ser Thr Trp Asp Gln Asp His Asp Leu Arg Arg Asp Lys Asn Cys Ala
    290                 295                 300

Lys Ser Leu Ser Gly Gly Trp Trp Phe Gly Thr Cys Ser His Ser Asn
305                 310                 315                 320

Leu Asn Gly Gln Tyr Phe Arg Ser Ile Pro Gln Gln Arg Gln Lys Leu
                325                 330                 335

Lys Lys Gly Ile Phe Trp Lys Thr Trp Arg Gly Arg Tyr Tyr Pro Leu
            340                 345                 350

Gln Ala Thr Thr Met Leu Ile Gln Pro Met Ala Ala Glu Ala Ala Ser
        355                 360                 365
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<210> 4789
<211> 96
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1052; "

<220>
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<223> /note="Gene Symbol: ANGPTL4; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470307"

<400> 4789
Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala
1 5 10 15

Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser
20 25 30

Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu
35 40 45

Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser
50 55 60

Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Ala Cys
65 70 75 80

Gln Gly Thr Glu Gly Ser Thr Asp Leu Pro Leu Ala Pro Glu Ser Arg
85 90 95

<210> 4790
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1052; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL4; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000471345"

<400> 4790

```
Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala
1               5                   10                  15

Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser
            20                  25                  30

Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu
        35                  40                  45

Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser
    50                  55                  60

Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Ala Cys
65                  70                  75                  80

Gln Gly Thr Glu Gly
                85
```

<210> 4791
<211> 406
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1052; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL4; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BY76; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472551"

<400> 4791

```
Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala
1               5                   10                  15

Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser
            20                  25                  30
```

```
Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu
        35                  40                  45

Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser
    50                  55                  60

Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Ala Cys
65                  70                  75                  80

Gln Gly Thr Glu Gly Ser Thr Asp Leu Pro Leu Ala Pro Glu Ser Arg
                85                  90                  95

Val Asp Pro Glu Val Leu His Ser Leu Gln Thr Gln Leu Lys Ala Gln
            100                 105                 110

Asn Ser Arg Ile Gln Gln Leu Phe His Lys Val Ala Gln Gln Gln Arg
        115                 120                 125

His Leu Glu Lys Gln His Leu Arg Ile Gln His Leu Gln Ser Gln Phe
    130                 135                 140

Gly Leu Leu Asp His Lys His Leu Asp His Glu Val Ala Lys Pro Ala
145                 150                 155                 160

Arg Arg Lys Arg Leu Pro Glu Met Ala Gln Pro Val Asp Pro Ala His
                165                 170                 175

Asn Val Ser Arg Leu His Arg Leu Pro Arg Asp Cys Gln Glu Leu Phe
            180                 185                 190

Gln Val Gly Glu Arg Gln Ser Gly Leu Phe Glu Ile Gln Pro Gln Gly
        195                 200                 205

Ser Pro Pro Phe Leu Val Asn Cys Lys Met Thr Ser Asp Gly Gly Trp
    210                 215                 220

Thr Val Ile Gln Arg Arg His Asp Gly Ser Val Asp Phe Asn Arg Pro
225                 230                 235                 240

Trp Glu Ala Tyr Lys Ala Gly Phe Gly Asp Pro His Gly Glu Phe Trp
                245                 250                 255
```

```
Leu Gly Leu Glu Lys Val His Ser Ile Thr Gly Asp Arg Asn Ser Arg
            260                 265                 270

Leu Ala Val Gln Leu Arg Asp Trp Asp Gly Asn Ala Glu Leu Leu Gln
        275                 280                 285

Phe Ser Val His Leu Gly Gly Glu Asp Thr Ala Tyr Ser Leu Gln Leu
    290                 295                 300

Thr Ala Pro Val Ala Gly Gln Leu Gly Ala Thr Thr Val Pro Pro Ser
305                 310                 315                 320

Gly Leu Ser Val Pro Phe Ser Thr Trp Asp Gln Asp His Asp Leu Arg
                325                 330                 335

Arg Asp Lys Asn Cys Ala Lys Ser Leu Ser Gly Gly Trp Trp Phe Gly
            340                 345                 350

Thr Cys Ser His Ser Asn Leu Asn Gly Gln Tyr Phe Arg Ser Ile Pro
        355                 360                 365

Gln Gln Arg Gln Lys Leu Lys Lys Gly Ile Phe Trp Lys Thr Trp Arg
    370                 375                 380

Gly Arg Tyr Tyr Pro Leu Gln Ala Thr Thr Met Leu Ile Gln Pro Met
385                 390                 395                 400

Ala Ala Glu Ala Ala Ser
                405


<210> 4792
<211> 129
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1052; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL4; "

<220>
<221> source
<223> /note="Gene Name:
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angiopoietin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472869"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 4792
Xaa Pro Val Gln Ser Lys Ser Pro Arg Phe Ala Ser Trp Asp Glu Met
1 5 10 15

Asn Val Leu Ala His Gly Leu Leu Gln Leu Gly Gln Gly Leu Arg Glu
20 25 30

His Ala Glu Arg Thr Arg Ser Gln Leu Ser Ala Leu Glu Arg Arg Leu
35 40 45

Ser Ala Cys Gly Ser Ala Cys Gln Gly Thr Glu Gly Ser Thr Asp Leu
50 55 60

Pro Leu Ala Pro Glu Ser Arg Val Asp Pro Glu Val Leu His Ser Leu
65 70 75 80

Gln Thr Gln Leu Lys Ala Gln Asn Ser Arg Ile Gln Gln Leu Phe His
85 90 95

Lys Val Ala Gln Gln Gln Arg His Leu Glu Lys Gln His Leu Arg Ile
100 105 110

Gln His Leu Gln Ser Gln Thr Gly Leu Asn Gly Gly Leu Ser His Ile
115 120 125

Asp

<210> 4793
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1052; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL4; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473025"

<400> 4793
Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala
1 5 10 15

Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser
20 25 30

Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu
35 40 45

Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser
50 55 60

Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Phe Thr
65 70 75 80

Ala Cys Arg His Asn Ser Arg Leu Arg Thr Ala Gly Ser Ser Asn Ser
85 90 95

Ser Thr Arg Trp Pro Ser Ser Ser Gly Thr Trp Arg Ser Ser Thr Cys
100 105 110

Glu Phe Ser Ile Cys Lys Ala Ser Leu Ala Ser Trp Thr Thr Ser Thr
115 120 125

<210> 4794
<211> 104
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1052; "

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<221> source
<223> /note="Gene Symbol: ANGPTL4; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473090"

<400> 4794
Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala
1 5 10 15

Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser
20 25 30

Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu
35 40 45

Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser
50 55 60

Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Ala Cys
65 70 75 80

Gln Gly Thr Glu Gly Ser Thr Asp Leu Pro Leu Ala Pro Glu Ser Arg
85 90 95

Val Asp Pro Glu Val Leu His Ser
100

<210> 4795
<211> 388
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1053; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL5; "

<220>
<221> source
<223> /note="Gene Name:

angiopoietin-like 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q86XS5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000335255"

<400> 4795

```
Met Met Ser Pro Ser Gln Ala Ser Leu Leu Phe Leu Asn Val Cys Ile
1               5                  10                  15

Phe Ile Cys Gly Glu Ala Val Gln Gly Asn Cys Val His His Ser Thr
            20                  25                  30

Asp Ser Ser Val Val Asn Ile Val Glu Asp Gly Ser Asn Ala Lys Asp
        35                  40                  45

Glu Ser Lys Ser Asn Asp Thr Val Cys Lys Glu Asp Cys Glu Glu Ser
    50                  55                  60

Cys Asp Val Lys Thr Lys Ile Thr Arg Glu Glu Lys His Phe Met Cys
65                  70                  75                  80

Arg Asn Leu Gln Asn Ser Ile Val Ser Tyr Thr Arg Ser Thr Lys Lys
                85                  90                  95

Leu Leu Arg Asn Met Met Asp Glu Gln Gln Ala Ser Leu Asp Tyr Leu
            100                 105                 110

Ser Asn Gln Val Asn Glu Leu Met Asn Arg Val Leu Leu Leu Thr Thr
        115                 120                 125

Glu Val Phe Arg Lys Gln Leu Asp Pro Phe Pro His Arg Pro Val Gln
    130                 135                 140

Ser His Gly Leu Asp Cys Thr Asp Ile Lys Asp Thr Ile Gly Ser Val
145                 150                 155                 160

Thr Lys Thr Pro Ser Gly Leu Tyr Ile Ile His Pro Glu Gly Ser Ser
                165                 170                 175

Tyr Pro Phe Glu Val Met Cys Asp Met Asp Tyr Arg Gly Gly Gly Arg
            180                 185                 190
```

```
Thr Val Ile Gln Lys Arg Ile Asp Gly Ile Ile Asp Phe Gln Arg Leu
        195                 200                 205

Trp Cys Asp Tyr Leu Asp Gly Phe Gly Asp Leu Leu Gly Glu Phe Trp
    210                 215                 220

Leu Gly Leu Lys Lys Ile Phe Tyr Ile Val Asn Gln Lys Asn Thr Ser
225                 230                 235                 240

Phe Met Leu Tyr Val Ala Leu Glu Ser Glu Asp Asp Thr Leu Ala Tyr
                245                 250                 255

Ala Ser Tyr Asp Asn Phe Trp Leu Glu Asp Glu Thr Arg Phe Phe Lys
            260                 265                 270

Met His Leu Gly Arg Tyr Ser Gly Asn Ala Gly Asp Ala Phe Arg Gly
        275                 280                 285

Leu Lys Lys Glu Asp Asn Gln Asn Ala Met Pro Phe Ser Thr Ser Asp
    290                 295                 300

Val Asp Asn Asp Gly Cys Arg Pro Ala Cys Leu Val Asn Gly Gln Ser
305                 310                 315                 320

Val Lys Ser Cys Ser His Leu His Asn Lys Thr Gly Trp Trp Phe Asn
                325                 330                 335

Glu Cys Gly Leu Ala Asn Leu Asn Gly Ile His His Phe Ser Gly Lys
            340                 345                 350

Leu Leu Ala Thr Gly Ile Gln Trp Gly Thr Trp Thr Lys Asn Asn Ser
        355                 360                 365

Pro Val Lys Ile Lys Ser Val Ser Met Lys Ile Arg Arg Met Tyr Asn
    370                 375                 380

Pro Tyr Phe Lys
385
```

<210> 4796
<211> 192
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1053; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL5; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433562"

<400> 4796

```
Met Met Ser Pro Ser Gln Ala Ser Leu Leu Phe Leu Asn Val Cys Ile
1               5                  10                  15

Phe Ile Cys Gly Glu Ala Val Gln Gly Asn Cys Val His His Ser Thr
            20                  25                  30

Asp Ser Ser Val Val Asn Ile Val Glu Asp Gly Ser Asn Ala Lys Asp
        35                  40                  45

Glu Ser Lys Ser Asn Asp Thr Val Cys Lys Glu Asp Cys Glu Glu Ser
    50                  55                  60

Cys Asp Val Lys Thr Lys Ile Thr Arg Glu Glu Lys His Phe Met Cys
65                  70                  75                  80

Arg Asn Leu Gln Asn Ser Ile Val Ser Tyr Thr Arg Ser Thr Lys Lys
                85                  90                  95

Leu Leu Arg Asn Met Met Asp Glu Gln Gln Ala Ser Leu Asp Tyr Leu
            100                 105                 110

Ser Asn Gln Val Met Cys Asp Met Asp Tyr Arg Gly Gly Gly Arg Thr
        115                 120                 125

Val Ile Gln Lys Arg Ile Asp Gly Ile Ile Asp Phe Gln Arg Leu Trp
    130                 135                 140

Cys Asp Tyr Leu Asp Gly Phe Gly Asp Leu Leu Gly Glu Phe Trp Leu
```

```
145                 150                 155                 160

Gly Leu Lys Lys Ile Phe Tyr Ile Val Asn Gln Lys Asn Thr Ser Phe
                165                 170                 175

Met Leu Tyr Val Ala Leu Glu Ser Glu Asp Asp Thr Leu Ala Tyr Ala
            180                 185                 190


<210> 4797
<211> 470
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1054; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL6; "

<220>
<221> source
<223> /note="Gene Name:
      angiopoietin-like 6; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NI99; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000253109"

<400> 4797
Met Gly Lys Pro Trp Leu Arg Ala Leu Gln Leu Leu Leu Leu Leu Gly
1               5                   10                  15

Ala Ser Trp Ala Arg Ala Gly Ala Pro Arg Cys Thr Tyr Thr Phe Val
            20                  25                  30

Leu Pro Pro Gln Lys Phe Thr Gly Ala Val Cys Trp Ser Gly Pro Ala
        35                  40                  45

Ser Thr Arg Ala Thr Pro Glu Ala Ala Asn Ala Ser Glu Leu Ala Ala
    50                  55                  60

Leu Arg Met Arg Val Gly Arg His Glu Glu Leu Leu Arg Glu Leu Gln
65                  70                  75                  80
```

```
Arg Leu Ala Ala Ala Asp Gly Ala Val Ala Gly Glu Val Arg Ala Leu
                85                  90                  95

Arg Lys Glu Ser Arg Gly Leu Ser Ala Arg Leu Gly Gln Leu Arg Ala
            100                 105                 110

Gln Leu Gln His Glu Ala Gly Pro Gly Ala Gly Pro Gly Ala Asp Leu
        115                 120                 125

Gly Ala Glu Pro Ala Ala Ala Leu Ala Leu Leu Gly Glu Arg Val Leu
    130                 135                 140

Asn Ala Ser Ala Glu Ala Gln Arg Ala Ala Ala Arg Phe His Gln Leu
145                 150                 155                 160

Asp Val Lys Phe Arg Glu Leu Ala Gln Leu Val Thr Gln Gln Ser Ser
                165                 170                 175

Leu Ile Ala Arg Leu Glu Arg Leu Cys Pro Gly Gly Ala Gly Gly Gln
            180                 185                 190

Gln Gln Val Leu Pro Pro Pro Pro Leu Val Pro Val Val Pro Val Arg
        195                 200                 205

Leu Val Gly Ser Thr Ser Asp Thr Ser Arg Met Leu Asp Pro Ala Pro
    210                 215                 220

Glu Pro Gln Arg Asp Gln Thr Gln Arg Gln Gln Glu Pro Met Ala Ser
225                 230                 235                 240

Pro Met Pro Ala Gly His Pro Ala Val Pro Thr Lys Pro Val Gly Pro
                245                 250                 255

Trp Gln Asp Cys Ala Glu Ala Arg Gln Ala Gly His Glu Gln Ser Gly
            260                 265                 270

Val Tyr Glu Leu Arg Val Gly Arg His Val Val Ser Val Trp Cys Glu
        275                 280                 285

Gln Gln Leu Glu Gly Gly Gly Trp Thr Val Ile Gln Arg Arg Gln Asp
    290                 295                 300
```

```
Gly Ser Val Asn Phe Phe Thr Thr Trp Gln His Tyr Lys Ala Gly Phe
305                 310                 315                 320

Gly Arg Pro Asp Gly Glu Tyr Trp Leu Gly Leu Glu Pro Val Tyr Gln
                325                 330                 335

Leu Thr Ser Arg Gly Asp His Glu Leu Leu Val Leu Leu Glu Asp Trp
            340                 345                 350

Gly Gly Arg Gly Ala Arg Ala His Tyr Asp Gly Phe Ser Leu Glu Pro
        355                 360                 365

Glu Ser Asp His Tyr Arg Leu Arg Leu Gly Gln Tyr His Gly Asp Ala
    370                 375                 380

Gly Asp Ser Leu Ser Trp His Asn Asp Lys Pro Phe Ser Thr Val Asp
385                 390                 395                 400

Arg Asp Arg Asp Ser Tyr Ser Gly Asn Cys Ala Leu Tyr Gln Arg Gly
                405                 410                 415

Gly Trp Trp Tyr His Ala Cys Ala His Ser Asn Leu Asn Gly Val Trp
            420                 425                 430

His His Gly Gly His Tyr Arg Ser Arg Tyr Gln Asp Gly Val Tyr Trp
        435                 440                 445

Ala Glu Phe Arg Gly Gly Ala Tyr Ser Leu Arg Lys Ala Ala Met Leu
    450                 455                 460

Ile Arg Pro Leu Lys Leu
465                 470


<210> 4798
<211> 430
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1054; "

<220>
<221> source
<223> /note="Gene Symbol: ANGPTL6; "
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<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465597"

<400> 4798
Met Gly Lys Pro Trp Leu Arg Ala Leu Gln Leu Leu Leu Leu Leu Gly
1 5 10 15

Ala Ser Trp Ala Arg Ala Gly Ala Pro Arg Cys Thr Tyr Thr Phe Val
20 25 30

Leu Pro Pro Gln Lys Phe Thr Gly Ala Val Cys Trp Ser Gly Pro Ala
35 40 45

Ser Thr Arg Ala Thr Pro Glu Ala Ala Asn Ala Ser Glu Leu Ala Ala
50 55 60

Leu Arg Met Arg Val Gly Arg His Glu Glu Leu Leu Arg Glu Leu Gln
65 70 75 80

Arg Leu Ala Ala Ala Asp Gly Ala Val Ala Gly Glu Val Arg Ala Leu
85 90 95

Arg Lys Glu Ser Arg Gly Leu Ser Ala Arg Leu Gly Gln Leu Arg Ala
100 105 110

Gln Leu Gln His Glu Ala Gly Pro Gly Ala Gly Pro Gly Ala Asp Leu
115 120 125

Gly Ala Glu Pro Ala Ala Ala Leu Ala Leu Leu Gly Glu Arg Val Leu
130 135 140

Asn Ala Ser Ala Glu Ala Gln Arg Ala Ala Ala Arg Phe His Gln Leu
145 150 155 160

Asp Val Lys Phe Arg Glu Leu Ala Gln Leu Val Thr Gln Gln Ser Ser
165 170 175

Leu Ile Ala Arg Leu Glu Arg Leu Cys Pro Gly Gly Ala Gly Gly Gln
180 185 190

```
Gln Gln Val Leu Pro Pro Pro Pro Leu Val Pro Val Val Pro Val Arg
        195                 200                 205

Leu Val Gly Ser Thr Ser Asp Thr Ser Arg Met Leu Asp Pro Ala Pro
    210                 215                 220

Glu Pro Gln Arg Asp Gln Thr Gln Arg Gln Gln Glu Pro Met Ala Ser
225                 230                 235                 240

Pro Met Pro Ala Gly His Pro Ala Val Pro Thr Lys Pro Val Gly Pro
                245                 250                 255

Trp Gln Asp Cys Ala Glu Ala Arg Gln Ala Gly His Glu Gln Ser Gly
            260                 265                 270

Val Tyr Glu Leu Arg Ala Gly Phe Gly Arg Pro Asp Gly Glu Tyr Trp
        275                 280                 285

Leu Gly Leu Glu Pro Val Tyr Gln Leu Thr Ser Arg Gly Asp His Glu
    290                 295                 300

Leu Leu Val Leu Leu Glu Asp Trp Gly Gly Arg Gly Ala Arg Ala His
305                 310                 315                 320

Tyr Asp Gly Phe Ser Leu Glu Pro Glu Ser Asp His Tyr Arg Leu Arg
                325                 330                 335

Leu Gly Gln Tyr His Gly Asp Ala Gly Asp Ser Leu Ser Trp His Asn
            340                 345                 350

Asp Lys Pro Phe Ser Thr Val Asp Arg Asp Arg Asp Ser Tyr Ser Gly
        355                 360                 365

Asn Cys Ala Leu Tyr Gln Arg Gly Gly Trp Trp Tyr His Ala Cys Ala
    370                 375                 380

His Ser Asn Leu Asn Gly Val Trp His His Gly Gly His Tyr Arg Ser
385                 390                 395                 400

Arg Tyr Gln Asp Gly Val Tyr Trp Ala Glu Phe Arg Gly Gly Ala Tyr
                405                 410                 415
```

Ser Leu Arg Lys Ala Ala Met Leu Ile Arg Pro Leu Lys Leu
420 425 430

<210> 4799
<211> 470
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ANGPTL6; "

<220>
<221> source
<223> /note="Gene Name:
angiopoietin-like 6; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NI99; "

<220>
<221> source
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<400> 4799
Met Gly Lys Pro Trp Leu Arg Ala Leu Gln Leu Leu Leu Leu Leu Gly
1 5 10 15

Ala Ser Trp Ala Arg Ala Gly Ala Pro Arg Cys Thr Tyr Thr Phe Val
20 25 30

Leu Pro Pro Gln Lys Phe Thr Gly Ala Val Cys Trp Ser Gly Pro Ala
35 40 45

Ser Thr Arg Ala Thr Pro Glu Ala Ala Asn Ala Ser Glu Leu Ala Ala
50 55 60

Leu Arg Met Arg Val Gly Arg His Glu Glu Leu Leu Arg Glu Leu Gln
65 70 75 80

Arg Leu Ala Ala Ala Asp Gly Ala Val Ala Gly Glu Val Arg Ala Leu
85 90 95

Arg Lys Glu Ser Arg Gly Leu Ser Ala Arg Leu Gly Gln Leu Arg Ala
100 105 110

```
Gln Leu Gln His Glu Ala Gly Pro Gly Ala Gly Pro Gly Ala Asp Leu
        115                 120                 125

Gly Ala Glu Pro Ala Ala Ala Leu Ala Leu Leu Gly Glu Arg Val Leu
    130                 135                 140

Asn Ala Ser Ala Glu Ala Gln Arg Ala Ala Ala Arg Phe His Gln Leu
145                 150                 155                 160

Asp Val Lys Phe Arg Glu Leu Ala Gln Leu Val Thr Gln Gln Ser Ser
                165                 170                 175

Leu Ile Ala Arg Leu Glu Arg Leu Cys Pro Gly Gly Ala Gly Gly Gln
            180                 185                 190

Gln Gln Val Leu Pro Pro Pro Pro Leu Val Pro Val Val Pro Val Arg
        195                 200                 205

Leu Val Gly Ser Thr Ser Asp Thr Ser Arg Met Leu Asp Pro Ala Pro
    210                 215                 220

Glu Pro Gln Arg Asp Gln Thr Gln Arg Gln Gln Glu Pro Met Ala Ser
225                 230                 235                 240

Pro Met Pro Ala Gly His Pro Ala Val Pro Thr Lys Pro Val Gly Pro
                245                 250                 255

Trp Gln Asp Cys Ala Glu Ala Arg Gln Ala Gly His Glu Gln Ser Gly
            260                 265                 270

Val Tyr Glu Leu Arg Val Gly Arg His Val Val Ser Val Trp Cys Glu
        275                 280                 285

Gln Gln Leu Glu Gly Gly Gly Trp Thr Val Ile Gln Arg Arg Gln Asp
    290                 295                 300

Gly Ser Val Asn Phe Phe Thr Thr Trp Gln His Tyr Lys Ala Gly Phe
305                 310                 315                 320

Gly Arg Pro Asp Gly Glu Tyr Trp Leu Gly Leu Glu Pro Val Tyr Gln
                325                 330                 335
```

```
Leu Thr Ser Arg Gly Asp His Glu Leu Leu Val Leu Leu Glu Asp Trp
            340                 345                 350

Gly Gly Arg Gly Ala Arg Ala His Tyr Asp Gly Phe Ser Leu Glu Pro
        355                 360                 365

Glu Ser Asp His Tyr Arg Leu Arg Leu Gly Gln Tyr His Gly Asp Ala
    370                 375                 380

Gly Asp Ser Leu Ser Trp His Asn Asp Lys Pro Phe Ser Thr Val Asp
385                 390                 395                 400

Arg Asp Arg Asp Ser Tyr Ser Gly Asn Cys Ala Leu Tyr Gln Arg Gly
                405                 410                 415

Gly Trp Trp Tyr His Ala Cys Ala His Ser Asn Leu Asn Gly Val Trp
            420                 425                 430

His His Gly Gly His Tyr Arg Ser Arg Tyr Gln Asp Gly Val Tyr Trp
        435                 440                 445

Ala Glu Phe Arg Gly Gly Ala Tyr Ser Leu Arg Lys Ala Ala Met Leu
    450                 455                 460

Ile Arg Pro Leu Lys Leu
465                 470


<210> 4800
<211> 346
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: ANGPTL7; "

<220>
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<223> /note="Gene Name:
      angiopoietin-like 7; "

<220>
<221> source
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<223> /note="Uniprot ID: O43827; "

<220>
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<400> 4800
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Met Leu Lys Lys Pro Leu Ser Ala Val Thr Trp Leu Cys Ile Phe Ile
1               5                  10                  15

Val Ala Phe Val Ser His Pro Ala Trp Leu Gln Lys Leu Ser Lys His
            20                  25                  30

Lys Thr Pro Ala Gln Pro Gln Leu Lys Ala Ala Asn Cys Cys Glu Glu
        35                  40                  45

Val Lys Glu Leu Lys Ala Gln Val Ala Asn Leu Ser Ser Leu Leu Ser
    50                  55                  60

Glu Leu Asn Lys Lys Gln Glu Arg Asp Trp Val Ser Val Val Met Gln
65                  70                  75                  80

Val Met Glu Leu Glu Ser Asn Ser Lys Arg Met Glu Ser Arg Leu Thr
                85                  90                  95

Asp Ala Glu Ser Lys Tyr Ser Glu Met Asn Asn Gln Ile Asp Ile Met
            100                 105                 110

Gln Leu Gln Ala Ala Gln Thr Val Thr Gln Thr Ser Ala Asp Ala Ile
        115                 120                 125

Tyr Asp Cys Ser Ser Leu Tyr Gln Lys Asn Tyr Arg Ile Ser Gly Val
    130                 135                 140

Tyr Lys Leu Pro Pro Asp Asp Phe Leu Gly Ser Pro Glu Leu Glu Val
145                 150                 155                 160

Phe Cys Asp Met Glu Thr Ser Gly Gly Gly Trp Thr Ile Ile Gln Arg
                165                 170                 175

Arg Lys Ser Gly Leu Val Ser Phe Tyr Arg Asp Trp Lys Gln Tyr Lys
            180                 185                 190

Gln Gly Phe Gly Ser Ile Arg Gly Asp Phe Trp Leu Gly Asn Glu His
        195                 200                 205
```

```
Ile His Arg Leu Ser Arg Gln Pro Thr Arg Leu Arg Val Glu Met Glu
    210                 215                 220

Asp Trp Glu Gly Asn Leu Arg Tyr Ala Glu Tyr Ser His Phe Val Leu
225                 230                 235                 240

Gly Asn Glu Leu Asn Ser Tyr Arg Leu Phe Leu Gly Asn Tyr Thr Gly
                245                 250                 255

Asn Val Gly Asn Asp Ala Leu Gln Tyr His Asn Asn Thr Ala Phe Ser
            260                 265                 270

Thr Lys Asp Lys Asp Asn Asp Asn Cys Leu Asp Lys Cys Ala Gln Leu
        275                 280                 285

Arg Lys Gly Gly Tyr Trp Tyr Asn Cys Cys Thr Asp Ser Asn Leu Asn
    290                 295                 300

Gly Val Tyr Tyr Arg Leu Gly Glu His Asn Lys His Leu Asp Gly Ile
305                 310                 315                 320

Thr Trp Tyr Gly Trp His Gly Ser Thr Tyr Ser Leu Lys Arg Val Glu
                325                 330                 335

Met Lys Ile Arg Pro Glu Asp Phe Lys Pro
            340                 345


<210> 4801
<211> 732
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ACE; "

<220>
<221> source
<223> /note="Gene Name:
      angiotensin I converting enzyme; "

<220>
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<221> source
<223> /note="Uniprot ID: P12821; "

<220>
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<400> 4801
Met Gly Gln Gly Trp Ala Thr Ala Gly Leu Pro Ser Leu Leu Phe Leu
1   5   10   15

Leu Leu Cys Tyr Gly His Pro Leu Leu Val Pro Ser Gln Glu Ala Ser
            20   25   30

Gln Gln Val Thr Val Thr His Gly Thr Ser Ser Gln Ala Thr Thr Ser
        35   40   45

Ser Gln Thr Thr Thr His Gln Ala Thr Ala His Gln Thr Ser Ala Gln
    50   55   60

Ser Pro Asn Leu Val Thr Asp Glu Ala Glu Ala Ser Lys Phe Val Glu
65   70   75   80

Glu Tyr Asp Arg Thr Ser Gln Val Val Trp Asn Glu Tyr Ala Glu Ala
                85   90   95

Asn Trp Asn Tyr Asn Thr Asn Ile Thr Thr Glu Thr Ser Lys Ile Leu
            100   105   110

Leu Gln Lys Asn Met Gln Ile Ala Asn His Thr Leu Lys Tyr Gly Thr
        115   120   125

Gln Ala Arg Lys Phe Asp Val Asn Gln Leu Gln Asn Thr Thr Ile Lys
    130   135   140

Arg Ile Ile Lys Lys Val Gln Asp Leu Glu Arg Ala Ala Leu Pro Ala
145   150   155   160

Gln Glu Leu Glu Glu Tyr Asn Lys Ile Leu Leu Asp Met Glu Thr Thr
                165   170   175

Tyr Ser Val Ala Thr Val Cys His Pro Asn Gly Ser Cys Leu Gln Leu
            180   185   190

Glu Pro Asp Leu Thr Asn Val Met Ala Thr Ser Arg Lys Tyr Glu Asp

```
        195                 200                 205

Leu Leu Trp Ala Trp Glu Gly Trp Arg Asp Lys Ala Gly Arg Ala Ile
    210                 215                 220

Leu Gln Phe Tyr Pro Lys Tyr Val Glu Leu Ile Asn Gln Ala Ala Arg
225                 230                 235                 240

Leu Asn Gly Tyr Val Asp Ala Gly Asp Ser Trp Arg Ser Met Tyr Glu
                245                 250                 255

Thr Pro Ser Leu Glu Gln Asp Leu Glu Arg Leu Phe Gln Glu Leu Gln
            260                 265                 270

Pro Leu Tyr Leu Asn Leu His Ala Tyr Val Arg Arg Ala Leu His Arg
        275                 280                 285

His Tyr Gly Ala Gln His Ile Asn Leu Glu Gly Pro Ile Pro Ala His
    290                 295                 300

Leu Leu Gly Asn Met Trp Ala Gln Thr Trp Ser Asn Ile Tyr Asp Leu
305                 310                 315                 320

Val Val Pro Phe Pro Ser Ala Pro Ser Met Asp Thr Thr Glu Ala Met
                325                 330                 335

Leu Lys Gln Gly Trp Thr Pro Arg Arg Met Phe Lys Glu Ala Asp Asp
            340                 345                 350

Phe Phe Thr Ser Leu Gly Leu Leu Pro Val Pro Pro Glu Phe Trp Asn
        355                 360                 365

Lys Ser Met Leu Glu Lys Pro Thr Asp Gly Arg Glu Val Val Cys His
    370                 375                 380

Ala Ser Ala Trp Asp Phe Tyr Asn Gly Lys Asp Phe Arg Ile Lys Gln
385                 390                 395                 400

Cys Thr Thr Val Asn Leu Glu Asp Leu Val Val Ala His His Glu Met
                405                 410                 415

Gly His Ile Gln Tyr Phe Met Gln Tyr Lys Asp Leu Pro Val Ala Leu
            420                 425                 430
```

```
Arg Glu Gly Ala Asn Pro Gly Phe His Glu Ala Ile Gly Asp Val Leu
        435                 440                 445

Ala Leu Ser Val Ser Thr Pro Lys His Leu His Ser Leu Asn Leu Leu
    450                 455                 460

Ser Ser Glu Gly Gly Ser Asp Glu His Asp Ile Asn Phe Leu Met Lys
465                 470                 475                 480

Met Ala Leu Asp Lys Ile Ala Phe Ile Pro Phe Ser Tyr Leu Val Asp
                485                 490                 495

Gln Trp Arg Trp Arg Val Phe Asp Gly Ser Ile Thr Lys Glu Asn Tyr
            500                 505                 510

Asn Gln Glu Trp Trp Ser Leu Arg Leu Lys Tyr Gln Gly Leu Cys Pro
        515                 520                 525

Pro Val Pro Arg Thr Gln Gly Asp Phe Asp Pro Gly Ala Lys Phe His
    530                 535                 540

Ile Pro Ser Ser Val Pro Tyr Ile Arg Tyr Phe Val Ser Phe Ile Ile
545                 550                 555                 560

Gln Phe Gln Phe His Glu Ala Leu Cys Gln Ala Ala Gly His Thr Gly
                565                 570                 575

Pro Leu His Lys Cys Asp Ile Tyr Gln Ser Lys Glu Ala Gly Gln Arg
            580                 585                 590

Leu Ala Thr Ala Met Lys Leu Gly Phe Ser Arg Pro Trp Pro Glu Ala
        595                 600                 605

Met Gln Leu Ile Thr Gly Gln Pro Asn Met Ser Ala Ser Ala Met Leu
    610                 615                 620

Ser Tyr Phe Lys Pro Leu Leu Asp Trp Leu Arg Thr Glu Asn Glu Leu
625                 630                 635                 640

His Gly Glu Lys Leu Gly Trp Pro Gln Tyr Asn Trp Thr Pro Asn Ser
                645                 650                 655
```

```
Ala Arg Ser Glu Gly Pro Leu Pro Asp Ser Gly Arg Val Ser Phe Leu
            660                 665                 670

Gly Leu Asp Leu Asp Ala Gln Gln Ala Arg Val Gly Gln Trp Leu Leu
        675                 680                 685

Leu Phe Leu Gly Ile Ala Leu Leu Val Ala Thr Leu Gly Leu Ser Gln
    690                 695                 700

Arg Leu Phe Ser Ile Arg His Arg Ser Leu His Arg His Ser His Gly
705                 710                 715                 720

Pro Gln Phe Gly Ser Glu Val Glu Leu Arg His Ser
                725                 730


<210> 4802
<211> 1306
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1056; "

<220>
<221> source
<223> /note="Gene Symbol: ACE; "

<220>
<221> source
<223> /note="Gene Name:
      angiotensin I converting enzyme; "

<220>
<221> source
<223> /note="Uniprot ID:  P12821; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000290866"

<400> 4802
Met Gly Ala Ala Ser Gly Arg Arg Gly Pro Gly Leu Leu Leu Pro Leu
1               5                   10                  15

Pro Leu Leu Leu Leu Leu Pro Pro Gln Pro Ala Leu Ala Leu Asp Pro
            20                  25                  30

Gly Leu Gln Pro Gly Asn Phe Ser Ala Asp Glu Ala Gly Ala Gln Leu
```

```
        35                  40                  45

Phe Ala Gln Ser Tyr Asn Ser Ser Ala Glu Gln Val Leu Phe Gln Ser
    50                  55                  60

Val Ala Ala Ser Trp Ala His Asp Thr Asn Ile Thr Ala Glu Asn Ala
65                  70                  75                  80

Arg Arg Gln Glu Glu Ala Ala Leu Leu Ser Gln Glu Phe Ala Glu Ala
                85                  90                  95

Trp Gly Gln Lys Ala Lys Glu Leu Tyr Glu Pro Ile Trp Gln Asn Phe
            100                 105                 110

Thr Asp Pro Gln Leu Arg Arg Ile Ile Gly Ala Val Arg Thr Leu Gly
        115                 120                 125

Ser Ala Asn Leu Pro Leu Ala Lys Arg Gln Gln Tyr Asn Ala Leu Leu
    130                 135                 140

Ser Asn Met Ser Arg Ile Tyr Ser Thr Ala Lys Val Cys Leu Pro Asn
145                 150                 155                 160

Lys Thr Ala Thr Cys Trp Ser Leu Asp Pro Asp Leu Thr Asn Ile Leu
                165                 170                 175

Ala Ser Ser Arg Ser Tyr Ala Met Leu Leu Phe Ala Trp Glu Gly Trp
            180                 185                 190

His Asn Ala Ala Gly Ile Pro Leu Lys Pro Leu Tyr Glu Asp Phe Thr
        195                 200                 205

Ala Leu Ser Asn Glu Ala Tyr Lys Gln Asp Gly Phe Thr Asp Thr Gly
    210                 215                 220

Ala Tyr Trp Arg Ser Trp Tyr Asn Ser Pro Thr Phe Glu Asp Asp Leu
225                 230                 235                 240

Glu His Leu Tyr Gln Gln Leu Glu Pro Leu Tyr Leu Asn Leu His Ala
                245                 250                 255

Phe Val Arg Arg Ala Leu His Arg Arg Tyr Gly Asp Arg Tyr Ile Asn
            260                 265                 270
```

```
Leu Arg Gly Pro Ile Pro Ala His Leu Leu Gly Asp Met Trp Ala Gln
        275                 280                 285

Ser Trp Glu Asn Ile Tyr Asp Met Val Val Pro Phe Pro Asp Lys Pro
    290                 295                 300

Asn Leu Asp Val Thr Ser Thr Met Leu Gln Gln Gly Trp Asn Ala Thr
305                 310                 315                 320

His Met Phe Arg Val Ala Glu Glu Phe Phe Thr Ser Leu Glu Leu Ser
                325                 330                 335

Pro Met Pro Pro Glu Phe Trp Glu Gly Ser Met Leu Glu Lys Pro Ala
            340                 345                 350

Asp Gly Arg Glu Val Val Cys His Ala Ser Ala Trp Asp Phe Tyr Asn
        355                 360                 365

Arg Lys Asp Phe Arg Ile Lys Gln Cys Thr Arg Val Thr Met Asp Gln
    370                 375                 380

Leu Ser Thr Val His His Glu Met Gly His Ile Gln Tyr Tyr Leu Gln
385                 390                 395                 400

Tyr Lys Asp Leu Pro Val Ser Leu Arg Arg Gly Ala Asn Pro Gly Phe
                405                 410                 415

His Glu Ala Ile Gly Asp Val Leu Ala Leu Ser Val Ser Thr Pro Glu
            420                 425                 430

His Leu His Lys Ile Gly Leu Leu Asp Arg Val Thr Asn Asp Thr Glu
        435                 440                 445

Ser Asp Ile Asn Tyr Leu Leu Lys Met Ala Leu Glu Lys Ile Ala Phe
    450                 455                 460

Leu Pro Phe Gly Tyr Leu Val Asp Gln Trp Arg Trp Gly Val Phe Ser
465                 470                 475                 480

Gly Arg Thr Pro Pro Ser Arg Tyr Asn Phe Asp Trp Trp Tyr Leu Arg
                485                 490                 495
```

```
Thr Lys Tyr Gln Gly Ile Cys Pro Pro Val Thr Arg Asn Glu Thr His
            500                 505                 510

Phe Asp Ala Gly Ala Lys Phe His Val Pro Asn Val Thr Pro Tyr Ile
        515                 520                 525

Arg Tyr Phe Val Ser Phe Val Leu Gln Phe Gln Phe His Glu Ala Leu
    530                 535                 540

Cys Lys Glu Ala Gly Tyr Glu Gly Pro Leu His Gln Cys Asp Ile Tyr
545                 550                 555                 560

Arg Ser Thr Lys Ala Gly Ala Lys Leu Arg Lys Val Leu Gln Ala Gly
                565                 570                 575

Ser Ser Arg Pro Trp Gln Glu Val Leu Lys Asp Met Val Gly Leu Asp
            580                 585                 590

Ala Leu Asp Ala Gln Pro Leu Leu Lys Tyr Phe Gln Pro Val Thr Gln
        595                 600                 605

Trp Leu Gln Glu Gln Asn Gln Gln Asn Gly Glu Val Leu Gly Trp Pro
    610                 615                 620

Glu Tyr Gln Trp His Pro Pro Leu Pro Asp Asn Tyr Pro Glu Gly Ile
625                 630                 635                 640

Asp Leu Val Thr Asp Glu Ala Glu Ala Ser Lys Phe Val Glu Glu Tyr
                645                 650                 655

Asp Arg Thr Ser Gln Val Val Trp Asn Glu Tyr Ala Glu Ala Asn Trp
            660                 665                 670

Asn Tyr Asn Thr Asn Ile Thr Thr Glu Thr Ser Lys Ile Leu Leu Gln
        675                 680                 685

Lys Asn Met Gln Ile Ala Asn His Thr Leu Lys Tyr Gly Thr Gln Ala
    690                 695                 700

Arg Lys Phe Asp Val Asn Gln Leu Gln Asn Thr Thr Ile Lys Arg Ile
705                 710                 715                 720
```

```
Ile Lys Lys Val Gln Asp Leu Glu Arg Ala Ala Leu Pro Ala Gln Glu
                725                 730                 735

Leu Glu Glu Tyr Asn Lys Ile Leu Leu Asp Met Glu Thr Thr Tyr Ser
            740                 745                 750

Val Ala Thr Val Cys His Pro Asn Gly Ser Cys Leu Gln Leu Glu Pro
        755                 760                 765

Asp Leu Thr Asn Val Met Ala Thr Ser Arg Lys Tyr Glu Asp Leu Leu
    770                 775                 780

Trp Ala Trp Glu Gly Trp Arg Asp Lys Ala Gly Arg Ala Ile Leu Gln
785                 790                 795                 800

Phe Tyr Pro Lys Tyr Val Glu Leu Ile Asn Gln Ala Ala Arg Leu Asn
                805                 810                 815

Gly Tyr Val Asp Ala Gly Asp Ser Trp Arg Ser Met Tyr Glu Thr Pro
            820                 825                 830

Ser Leu Glu Gln Asp Leu Glu Arg Leu Phe Gln Glu Leu Gln Pro Leu
        835                 840                 845

Tyr Leu Asn Leu His Ala Tyr Val Arg Arg Ala Leu His Arg His Tyr
    850                 855                 860

Gly Ala Gln His Ile Asn Leu Glu Gly Pro Ile Pro Ala His Leu Leu
865                 870                 875                 880

Gly Asn Met Trp Ala Gln Thr Trp Ser Asn Ile Tyr Asp Leu Val Val
                885                 890                 895

Pro Phe Pro Ser Ala Pro Ser Met Asp Thr Thr Glu Ala Met Leu Lys
            900                 905                 910

Gln Gly Trp Thr Pro Arg Arg Met Phe Lys Glu Ala Asp Asp Phe Phe
        915                 920                 925

Thr Ser Leu Gly Leu Leu Pro Val Pro Pro Glu Phe Trp Asn Lys Ser
    930                 935                 940

Met Leu Glu Lys Pro Thr Asp Gly Arg Glu Val Val Cys His Ala Ser
```

945 950 955 960

Ala Trp Asp Phe Tyr Asn Gly Lys Asp Phe Arg Ile Lys Gln Cys Thr
965 970 975

Thr Val Asn Leu Glu Asp Leu Val Val Ala His His Glu Met Gly His
980 985 990

Ile Gln Tyr Phe Met Gln Tyr Lys Asp Leu Pro Val Ala Leu Arg Glu
995 1000 1005

Gly Ala Asn Pro Gly Phe His Glu Ala Ile Gly Asp Val Leu Ala
1010 1015 1020

Leu Ser Val Ser Thr Pro Lys His Leu His Ser Leu Asn Leu Leu
1025 1030 1035

Ser Ser Glu Gly Gly Ser Asp Glu His Asp Ile Asn Phe Leu Met
1040 1045 1050

Lys Met Ala Leu Asp Lys Ile Ala Phe Ile Pro Phe Ser Tyr Leu
1055 1060 1065

Val Asp Gln Trp Arg Trp Arg Val Phe Asp Gly Ser Ile Thr Lys
1070 1075 1080

Glu Asn Tyr Asn Gln Glu Trp Trp Ser Leu Arg Leu Lys Tyr Gln
1085 1090 1095

Gly Leu Cys Pro Pro Val Pro Arg Thr Gln Gly Asp Phe Asp Pro
1100 1105 1110

Gly Ala Lys Phe His Ile Pro Ser Ser Val Pro Tyr Ile Arg Tyr
1115 1120 1125

Phe Val Ser Phe Ile Ile Gln Phe Gln Phe His Glu Ala Leu Cys
1130 1135 1140

Gln Ala Ala Gly His Thr Gly Pro Leu His Lys Cys Asp Ile Tyr
1145 1150 1155

Gln Ser Lys Glu Ala Gly Gln Arg Leu Ala Thr Ala Met Lys Leu

```
    1160                1165                1170

Gly Phe  Ser Arg Pro Trp Pro  Glu Ala Met Gln Leu  Ile Thr Gly
    1175                1180                1185

Gln Pro  Asn Met Ser Ala Ser  Ala Met Leu Ser Tyr  Phe Lys Pro
    1190                1195                1200

Leu Leu  Asp Trp Leu Arg Thr  Glu Asn Glu Leu His  Gly Glu Lys
    1205                1210                1215

Leu Gly  Trp Pro Gln Tyr Asn  Trp Thr Pro Asn Ser  Ala Arg Ser
    1220                1225                1230

Glu Gly  Pro Leu Pro Asp Ser  Gly Arg Val Ser Phe  Leu Gly Leu
    1235                1240                1245

Asp Leu  Asp Ala Gln Gln Ala  Arg Val Gly Gln Trp  Leu Leu Leu
    1250                1255                1260

Phe Leu  Gly Ile Ala Leu Leu  Val Ala Thr Leu Gly  Leu Ser Gln
    1265                1270                1275

Arg Leu  Phe Ser Ile Arg His  Arg Ser Leu His Arg  His Ser His
    1280                1285                1290

Gly Pro  Gln Phe Gly Ser Glu  Val Glu Leu Arg His  Ser
    1295                1300                1305


<210> 4803
<211> 691
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: ACE; "

<220>
<221> source
<223> /note="Gene Name:
      angiotensin I converting enzyme; "
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<220>
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<223> /note="Uniprot ID: P12821; "

<220>
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<400> 4803
Met Gly Gln Gly Trp Ala Thr Ala Gly Leu Pro Ser Leu Leu Phe Leu
1   5   10   15

Leu Leu Cys Tyr Gly His Pro Leu Leu Val Pro Ser Gln Glu Ala Ser
            20   25   30

Gln Gln Val Thr Val Thr His Gly Thr Ser Ser Gln Ala Thr Thr Ser
        35   40   45

Ser Gln Thr Thr Thr His Gln Ala Thr Ala His Gln Thr Ser Ala Gln
    50   55   60

Ser Pro Asn Leu Val Thr Asp Glu Ala Glu Ala Ser Lys Phe Val Glu
65   70   75   80

Glu Tyr Asp Arg Thr Ser Gln Val Val Trp Asn Glu Tyr Ala Glu Ala
                85   90   95

Asn Trp Asn Tyr Asn Thr Asn Ile Thr Thr Glu Thr Ser Lys Ile Leu
            100   105   110

Leu Gln Lys Asn Met Gln Ile Ala Asn His Thr Leu Lys Tyr Gly Thr
        115   120   125

Gln Ala Arg Lys Phe Asp Val Asn Gln Leu Gln Asn Thr Thr Ile Lys
    130   135   140

Arg Ile Ile Lys Lys Val Gln Asp Leu Glu Arg Ala Ala Leu Pro Ala
145   150   155   160

Gln Glu Leu Glu Glu Tyr Asn Lys Ile Leu Leu Asp Met Glu Thr Thr
                165   170   175

Tyr Ser Val Ala Thr Val Cys His Pro Asn Gly Ser Cys Leu Gln Leu
            180   185   190

```
Glu Pro Asp Leu Thr Asn Val Met Ala Thr Ser Arg Lys Tyr Glu Asp
        195                 200                 205

Leu Leu Trp Ala Trp Glu Gly Trp Arg Asp Lys Ala Gly Arg Ala Ile
    210                 215                 220

Leu Gln Phe Tyr Pro Lys Tyr Val Glu Leu Ile Asn Gln Ala Ala Arg
225                 230                 235                 240

Leu Asn Gly Tyr Val Asp Ala Gly Asp Ser Trp Arg Ser Met Tyr Glu
                245                 250                 255

Thr Pro Ser Leu Glu Gln Asp Leu Glu Arg Leu Phe Gln Glu Leu Gln
            260                 265                 270

Pro Leu Tyr Leu Asn Leu His Ala Tyr Val Arg Arg Ala Leu His Arg
        275                 280                 285

His Tyr Gly Ala Gln His Ile Asn Leu Glu Gly Pro Ile Pro Ala His
    290                 295                 300

Leu Leu Gly Asn Met Trp Ala Gln Thr Trp Ser Asn Ile Tyr Asp Leu
305                 310                 315                 320

Val Val Pro Phe Pro Ser Ala Pro Ser Met Asp Thr Thr Glu Ala Met
                325                 330                 335

Leu Lys Gln Gly Trp Thr Pro Arg Arg Met Phe Lys Glu Ala Asp Asp
            340                 345                 350

Phe Phe Thr Ser Leu Gly Leu Leu Pro Val Pro Pro Glu Phe Trp Asn
        355                 360                 365

Lys Ser Met Leu Glu Lys Pro Thr Asp Gly Arg Glu Val Val Cys His
    370                 375                 380

Ala Ser Ala Trp Asp Phe Tyr Asn Gly Lys Asp Phe Arg Ile Lys Gln
385                 390                 395                 400

Cys Thr Thr Val Asn Leu Glu Asp Leu Val Val Ala His His Glu Met
                405                 410                 415

Gly His Ile Gln Tyr Phe Met Gln Tyr Lys Asp Leu Pro Val Ala Leu
```

420 425 430

Arg Glu Gly Ala Asn Pro Gly Phe His Glu Ala Ile Gly Asp Val Leu
435 440 445

Ala Leu Ser Val Ser Thr Pro Lys His Leu His Ser Leu Asn Leu Leu
450 455 460

Ser Ser Glu Gly Gly Ser Asp Glu His Asp Ile Asn Phe Leu Met Lys
465 470 475 480

Met Ala Leu Asp Lys Ile Ala Phe Ile Pro Phe Ser Tyr Leu Val Asp
485 490 495

Gln Trp Arg Trp Arg Val Phe Asp Gly Ser Ile Thr Lys Glu Asn Tyr
500 505 510

Asn Gln Glu Trp Trp Ser Leu Arg Leu Lys Tyr Gln Gly Leu Cys Pro
515 520 525

Pro Val Pro Arg Thr Gln Gly Asp Phe Asp Pro Gly Ala Lys Phe His
530 535 540

Ile Pro Ser Ser Val Pro Tyr Ile Arg Thr Ala Met Lys Leu Gly Phe
545 550 555 560

Ser Arg Pro Trp Pro Glu Ala Met Gln Leu Ile Thr Gly Gln Pro Asn
565 570 575

Met Ser Ala Ser Ala Met Leu Ser Tyr Phe Lys Pro Leu Leu Asp Trp
580 585 590

Leu Arg Thr Glu Asn Glu Leu His Gly Glu Lys Leu Gly Trp Pro Gln
595 600 605

Tyr Asn Trp Thr Pro Asn Ser Ala Arg Ser Glu Gly Pro Leu Pro Asp
610 615 620

Ser Gly Arg Val Ser Phe Leu Gly Leu Asp Leu Asp Ala Gln Gln Ala
625 630 635 640

Arg Val Gly Gln Trp Leu Leu Leu Phe Leu Gly Ile Ala Leu Leu Val
645 650 655