SEQUENCE LISTING

<110> The Procter & Gamble Company
Rotello, Rocco J
Peters, Kevin G
Davis, Michael G

<120> Antibodies That Bind Human ProteinTyrosine Phosphatase beta (HPTPbeta) and Uses Thereof

<130> 10365P2

<140> Not Yet Assigned
<141> 2006-05-09

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<170> PatentIn version 3.3

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ctg cag act gga ctg gcg gag cca gag aga tgt aac ttc acc ctg gcg       96
Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
            20                  25                  30

gag tcc aag gcc tcc agc cat tct gtg tct atc cag tgg aga att ttg      144
Glu Ser Lys Ala Ser Ser His Ser Val Ser Ile Gln Trp Arg Ile Leu
        35                  40                  45

ggc tca ccc tgt aac ttt agc ctc atc tat agc agt gac acc ctg ggg      192
Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
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gcc gcg ttg tgc cct acc ttt cgg ata gac aac acc aca tac gga tgt      240
Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65                  70                  75                  80

aac ctt caa gat tta caa gca gga acc atc tat aac ttc aag att att      288
Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
                85                  90                  95

tct ctg gat gaa gag aga act gtg gtc ttg caa aca gat cct tta cct      336
Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
            100                 105                 110

cct gct agg ttt gga gtc agt aaa gag aag acg act tca acc ggc ttg      384
Pro Ala Arg Phe Gly Val Ser Lys Glu Lys Thr Thr Ser Thr Gly Leu
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caa tta ttt gat gaa aat aac caa aag ata cag ggg gtt caa att caa      480
Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
145                 150                 155                 160

gaa agt act tca tgg aat gaa tac act ttt ttc aat ctc act gct ggt      528
Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
                165                 170                 175

agt aaa tac aat att gcc atc aca gct gtt tct gga gga aaa cgt tct      576
Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
            180                 185                 190

ttt tca gtt tat acc aat gga tca aca gtg cca tct cca gtg aaa gat      624
Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp
        195                 200                 205

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Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His
    210                 215                 220

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Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly
225                 230                 235                 240

atc cta gtt cat ggc ggt gtt gtg gac aaa cat gct act tcc tat gct      768
Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala
                245                 250                 255

ttt cac ggg ctg acc cct ggc tac ctc tac aac ctc act gtt atg act      816
Phe His Gly Leu Thr Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr
            260                 265                 270

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Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala
        275                 280                 285

ccc atg gaa gtc tca aat ctg aag gtg aca aat gat ggc agt ttg acc      912
Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr
    290                 295                 300

tct cta aaa gtc aaa tgg caa aga cct cct gga aat gtg gat tct tac      960
Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr
305                 310                 315                 320

aat atc acc ctg tct cac aaa ggg acc atc aag gaa tcc aga gta tta     1008
Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu
                325                 330                 335

gca cct tgg att act gaa act cac ttt aaa gag tta gtc ccc ggt cga     1056
Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg
            340                 345                 350

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Val Lys His Ala Asn Glu Thr Ser Leu Ser Ile Met Trp Gln Thr Pro
385                 390                 395                 400

gta gca gaa tgg gag aaa tac atc att tcc cta gct gac aga gac ctc     1248
Val Ala Glu Trp Glu Lys Tyr Ile Ile Ser Leu Ala Asp Arg Asp Leu
                405                 410                 415

tta ctg atc cac aag tca ctc tcc aaa gat gcc aaa gaa ttc act ttt     1296
Leu Leu Ile His Lys Ser Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe
            420                 425                 430

act gac ctg gtg cct gga cga aaa tac atg gct aca gtc acc agt att     1344
Thr Asp Leu Val Pro Gly Arg Lys Tyr Met Ala Thr Val Thr Ser Ile
        435                 440                 445

agt gga gac tta aaa aat tcc tct tca gta aaa gga aga aca gtg cct     1392
Ser Gly Asp Leu Lys Asn Ser Ser Ser Val Lys Gly Arg Thr Val Pro
    450                 455                 460

gcc caa gtg act gac ttg cat gtg gcc aac caa gga atg acc agt agt     1440
Ala Gln Val Thr Asp Leu His Val Ala Asn Gln Gly Met Thr Ser Ser
465                 470                 475                 480

ctg ttt act aac tgg acc cag gca caa gga gac gta gaa ttt tac caa     1488
Leu Phe Thr Asn Trp Thr Gln Ala Gln Gly Asp Val Glu Phe Tyr Gln
                485                 490                 495

gtc tta ctg atc cat gaa aat gtg gtc att aaa aat gaa agc atc tcc     1536
Val Leu Leu Ile His Glu Asn Val Val Ile Lys Asn Glu Ser Ile Ser
            500                 505                 510

agt gag acc agc aga tac agc ttc cac tct ctc aag tcc ggc agc ctg     1584
Ser Glu Thr Ser Arg Tyr Ser Phe His Ser Leu Lys Ser Gly Ser Leu
        515                 520                 525

tac tcc gtg gtg gta aca aca gtg agt gga ggg atc tct tcc cga caa     1632
Tyr Ser Val Val Val Thr Thr Val Ser Gly Gly Ile Ser Ser Arg Gln
    530                 535                 540

gtg gtt gtg gag gga aga aca gtc cct tcc agt gtg agt gga gta acg     1680
Val Val Val Glu Gly Arg Thr Val Pro Ser Ser Val Ser Gly Val Thr
545                 550                 555                 560

gtg aac aat tcc ggt cgt aat gac tac ctc agc gtt tcc tgg ctg ctg     1728
Val Asn Asn Ser Gly Arg Asn Asp Tyr Leu Ser Val Ser Trp Leu Leu
                565                 570                 575

gcg ccc gga gat gtg gat aac tat gag gta aca ttg tct cat gac ggc     1776
Ala Pro Gly Asp Val Asp Asn Tyr Glu Val Thr Leu Ser His Asp Gly
            580                 585                 590

aag gtg gtt cag tcc ctt gtc att gcc aag tct gtc aga gaa tgt tcc     1824
Lys Val Val Gln Ser Leu Val Ile Ala Lys Ser Val Arg Glu Cys Ser
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ttc agc tcc ctc acc cca ggc cgc ctc tac acc gtg acc ata act aca     1872
Phe Ser Ser Leu Thr Pro Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr
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agg agt ggc aag tat gaa aat cac tcc ttc agc caa gag cgg aca gtg     1920
Arg Ser Gly Lys Tyr Glu Asn His Ser Phe Ser Gln Glu Arg Thr Val
625                 630                 635                 640

cct gac aaa gtc cag gga gtc agt gtt agc aac tca gcc agg agt gac     1968
Pro Asp Lys Val Gln Gly Val Ser Val Ser Asn Ser Ala Arg Ser Asp
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tat tta agg gta tcc tgg gtg cat gcc act gga gac ttt gat cac tat     2016
Tyr Leu Arg Val Ser Trp Val His Ala Thr Gly Asp Phe Asp His Tyr
            660                 665                 670

gaa gtc acc att aaa aac aaa aac aac ttc att caa act aaa agc att     2064
Glu Val Thr Ile Lys Asn Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile
        675                 680                 685

ccc aag tca gaa aac gaa tgt gta ttt gtt cag cta gtc cct gga cgg     2112
Pro Lys Ser Glu Asn Glu Cys Val Phe Val Gln Leu Val Pro Gly Arg
    690                 695                 700

ttg tac agt gtc act gtt act aca aaa agt gga caa tat gaa gcc aat     2160
Leu Tyr Ser Val Thr Val Thr Thr Lys Ser Gly Gln Tyr Glu Ala Asn
705                 710                 715                 720

gaa caa ggg aat ggg aga aca att cca gag cct gtt aag gat cta aca     2208
Glu Gln Gly Asn Gly Arg Thr Ile Pro Glu Pro Val Lys Asp Leu Thr
                725                 730                 735

ttg cgc aac agg agc act gag gac ttg cat gtg act tgg tca gga gct     2256
Leu Arg Asn Arg Ser Thr Glu Asp Leu His Val Thr Trp Ser Gly Ala
            740                 745                 750

aat ggg gat gtc gac caa tat gag atc cag ctg ctc ttc aat gac atg     2304
Asn Gly Asp Val Asp Gln Tyr Glu Ile Gln Leu Leu Phe Asn Asp Met
        755                 760                 765

aaa gta ttt cct cct ttt cac ctt gta aat acc gca acc gag tat cga     2352
Lys Val Phe Pro Pro Phe His Leu Val Asn Thr Ala Thr Glu Tyr Arg
    770                 775                 780

ttt act tcc cta aca cca ggc cgc caa tac aaa att ctt gtc ttg acg     2400
Phe Thr Ser Leu Thr Pro Gly Arg Gln Tyr Lys Ile Leu Val Leu Thr
785                 790                 795                 800

att agc ggg gat gta cag cag tca gcc ttc att gag ggc ttc aca gtt     2448
Ile Ser Gly Asp Val Gln Gln Ser Ala Phe Ile Glu Gly Phe Thr Val
                805                 810                 815

cct agt gct gtc aaa aat att cac att tct ccc aat gga gca aca gat     2496
Pro Ser Ala Val Lys Asn Ile His Ile Ser Pro Asn Gly Ala Thr Asp
            820                 825                 830

agc ctg acg gtg aac tgg act cct ggt ggg gga gac gtt gat tcc tac     2544
Ser Leu Thr Val Asn Trp Thr Pro Gly Gly Gly Asp Val Asp Ser Tyr
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acg gtg tcg gca ttc agg cac agt caa aag gtt gac tct cag act att     2592
Thr Val Ser Ala Phe Arg His Ser Gln Lys Val Asp Ser Gln Thr Ile
    850                 855                 860

ccc aag cac gtc ttt gag cac acg ttc cac aga ctg gag gcc ggg gag     2640
Pro Lys His Val Phe Glu His Thr Phe His Arg Leu Glu Ala Gly Glu
865                 870                 875                 880

cag tac cag atc atg att gcc tca gtc agc ggg tcc ctg aag aat cag     2688
Gln Tyr Gln Ile Met Ile Ala Ser Val Ser Gly Ser Leu Lys Asn Gln
                885                 890                 895

ata aat gtg gtt ggg cgg aca gtt cca gca tct gtc caa gga gta att     2736
Ile Asn Val Val Gly Arg Thr Val Pro Ala Ser Val Gln Gly Val Ile
            900                 905                 910

gca gac aat gca tac agc agt tat tcc tta ata gta agt tgg caa aaa     2784
Ala Asp Asn Ala Tyr Ser Ser Tyr Ser Leu Ile Val Ser Trp Gln Lys
        915                 920                 925

gct gct ggt gtg gca gaa aga tat gat atc ctg ctt cta act gaa aat     2832
Ala Ala Gly Val Ala Glu Arg Tyr Asp Ile Leu Leu Leu Thr Glu Asn
    930                 935                 940

gga atc ctt ctg cgc aac aca tca gag cca gcc acc act aag caa cac     2880
Gly Ile Leu Leu Arg Asn Thr Ser Glu Pro Ala Thr Thr Lys Gln His
945                 950                 955                 960

aaa ttt gaa gat cta aca cca ggc aag aaa tac aag ata cag atc cta     2928
Lys Phe Glu Asp Leu Thr Pro Gly Lys Lys Tyr Lys Ile Gln Ile Leu
                965                 970                 975

act gtc agt gga ggc ctc ttt agc aag gaa gcc cag act gaa ggc cga     2976
Thr Val Ser Gly Gly Leu Phe Ser Lys Glu Ala Gln Thr Glu Gly Arg
            980                 985                 990

aca gtc cca gca gct gtc acc gac  ctg agg atc aca gag  aac tcc acc   3024
Thr Val Pro Ala Ala Val Thr Asp  Leu Arg Ile Thr Glu  Asn Ser Thr
        995                 1000                1005

agg cac  ctg tcc ttc cgc tgg  acc gcc tca gag ggg  gag ctc agc      3069
Arg His  Leu Ser Phe Arg Trp  Thr Ala Ser Glu Gly  Glu Leu Ser
    1010                1015                1020

tgg tac  aac atc ttt ttg tac  aac cca gat ggg aat  ctc cag gag      3114
Trp Tyr  Asn Ile Phe Leu Tyr  Asn Pro Asp Gly Asn  Leu Gln Glu
    1025                1030                1035

aga gct  caa gtt gac cca cta  gtc cag agc ttc tct  ttc cag aac      3159
Arg Ala  Gln Val Asp Pro Leu  Val Gln Ser Phe Ser  Phe Gln Asn
    1040                1045                1050

ttg cta  caa ggc aga atg tac  aag atg gtg att gta  act cac agt      3204
Leu Leu  Gln Gly Arg Met Tyr  Lys Met Val Ile Val  Thr His Ser
    1055                1060                1065

ggg gag  ctg tct aat gag tct  ttc ata ttt ggt aga  aca gtc cca      3249
Gly Glu  Leu Ser Asn Glu Ser  Phe Ile Phe Gly Arg  Thr Val Pro
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    1070                1075                1080

gcc tct  gtg agt cat ctc agg  ggg tcc aat cgg aac  acg aca gac      3294
Ala Ser  Val Ser His Leu Arg  Gly Ser Asn Arg Asn  Thr Thr Asp
    1085                1090                1095

agc ctt  tgg ttc aac tgg agt  cca gcc tct ggg gac  ttt gac ttt      3339
Ser Leu  Trp Phe Asn Trp Ser  Pro Ala Ser Gly Asp  Phe Asp Phe
    1100                1105                1110

tat gag  ctg att ctc tat aat  ccc aat ggc aca aag  aag gaa aac      3384
Tyr Glu  Leu Ile Leu Tyr Asn  Pro Asn Gly Thr Lys  Lys Glu Asn
    1115                1120                1125

tgg aaa  gac aag gac ctg acg  gag tgg cgg ttt caa  ggc ctt gtt      3429
Trp Lys  Asp Lys Asp Leu Thr  Glu Trp Arg Phe Gln  Gly Leu Val
    1130                1135                1140

cct gga  agg aag tac gtg ctg  tgg gtg gta act cac  agt gga gat      3474
Pro Gly  Arg Lys Tyr Val Leu  Trp Val Val Thr His  Ser Gly Asp
    1145                1150                1155

ctc agc  aat aaa gtc aca gcg  gag agc aga aca gct  cca agt cct      3519
Leu Ser  Asn Lys Val Thr Ala  Glu Ser Arg Thr Ala  Pro Ser Pro
    1160                1165                1170

ccc agt  ctt atg tca ttt gct  gac att gca aac aca  tcc ttg gcc      3564
Pro Ser  Leu Met Ser Phe Ala  Asp Ile Ala Asn Thr  Ser Leu Ala
    1175                1180                1185

atc acg  tgg aaa ggg ccc cca  gac tgg aca gac tac  aac gac ttt      3609
Ile Thr  Trp Lys Gly Pro Pro  Asp Trp Thr Asp Tyr  Asn Asp Phe
    1190                1195                1200

gag ctg  cag tgg ttg ccc aga  gat gca ctt act gtc  ttc aac ccc      3654
Glu Leu  Gln Trp Leu Pro Arg  Asp Ala Leu Thr Val  Phe Asn Pro
    1205                1210                1215

tac aac  aac aga aaa tca gaa  gga cgc att gtg tat  ggt ctt cgt      3699
Tyr Asn  Asn Arg Lys Ser Glu  Gly Arg Ile Val Tyr  Gly Leu Arg
    1220                1225                1230

cca ggg  aga tcc tat caa ttc  aac gtc aag act gtc  agt ggt gat      3744
Pro Gly  Arg Ser Tyr Gln Phe  Asn Val Lys Thr Val  Ser Gly Asp
    1235                1240                1245

tcc tgg  aaa act tac agc aaa  cca att ttt gga tct  gtg agg aca      3789
Ser Trp  Lys Thr Tyr Ser Lys  Pro Ile Phe Gly Ser  Val Arg Thr
    1250                1255                1260

aag cct  gac aag ata caa aac  ctg cat tgc cgg cct  cag aac tcc      3834
Lys Pro  Asp Lys Ile Gln Asn  Leu His Cys Arg Pro  Gln Asn Ser
    1265                1270                1275

acg gcc  att gcc tgt tct tgg  atc cct cct gat tct  gac ttt gat      3879
Thr Ala  Ile Ala Cys Ser Trp  Ile Pro Pro Asp Ser  Asp Phe Asp
    1280                1285                1290

ggt tat  agt att gaa tgc cgg  aaa atg gac acc caa  gaa gtt gag      3924
Gly Tyr  Ser Ile Glu Cys Arg  Lys Met Asp Thr Gln  Glu Val Glu
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    1295                1300                1305

ttt tcc  aga aag ctg gag aaa  gaa aaa tct ctg ctc  aac atc atg      3969
Phe Ser  Arg Lys Leu Glu Lys  Glu Lys Ser Leu Leu  Asn Ile Met
    1310                1315                1320

atg cta  gtg ccc cat aag agg  tac ctg gtg tcc atc  aaa gtg cag      4014
Met Leu  Val Pro His Lys Arg  Tyr Leu Val Ser Ile  Lys Val Gln
    1325                1330                1335

tcg gcc  ggc atg acc agc gag  gtg gtt gaa gac agc  act atc aca      4059
Ser Ala  Gly Met Thr Ser Glu  Val Val Glu Asp Ser  Thr Ile Thr
    1340                1345                1350

atg ata  gac cgc ccc cct cct  cca ccc cca cac att  cgt gtg aat      4104
Met Ile  Asp Arg Pro Pro Pro  Pro Pro Pro His Ile  Arg Val Asn
    1355                1360                1365

gaa aag  gat gtg cta att agc  aag tct tcc atc aac  ttt act gtc      4149
Glu Lys  Asp Val Leu Ile Ser  Lys Ser Ser Ile Asn  Phe Thr Val
    1370                1375                1380

aac tgc  agc tgg ttc agc gac  acc aat gga gct gtg  aaa tac ttc      4194
Asn Cys  Ser Trp Phe Ser Asp  Thr Asn Gly Ala Val  Lys Tyr Phe
    1385                1390                1395

aca gtg  gtg gtg aga gag gct  gat ggc agt gat gag  ctg aag cca      4239
Thr Val  Val Val Arg Glu Ala  Asp Gly Ser Asp Glu  Leu Lys Pro
    1400                1405                1410

gaa cag  cag cac cct ctc cct  tcc tac ctg gag tac  agg cac aat      4284
Glu Gln  Gln His Pro Leu Pro  Ser Tyr Leu Glu Tyr  Arg His Asn
    1415                1420                1425

gcc tcc  att cgg gtg tat cag  act aat tat ttt gcc  agc aaa tgt      4329
Ala Ser  Ile Arg Val Tyr Gln  Thr Asn Tyr Phe Ala  Ser Lys Cys
    1430                1435                1440

gcc gaa  aat cct aac agc aac  tcc aag agt ttt aac  att aag ctt      4374
Ala Glu  Asn Pro Asn Ser Asn  Ser Lys Ser Phe Asn  Ile Lys Leu
    1445                1450                1455

gga gca  gag atg gag agc cta  ggt gga aaa tgc gat  ccc act cag      4419
Gly Ala  Glu Met Glu Ser Leu  Gly Gly Lys Cys Asp  Pro Thr Gln
    1460                1465                1470

caa aaa  ttc tgt gat gga cca  ctg aag cca cac act  gcc tac aga      4464
Gln Lys  Phe Cys Asp Gly Pro  Leu Lys Pro His Thr  Ala Tyr Arg
    1475                1480                1485

atc agc  att cga gct ttt aca  cag ctc ttt gat gag  gac ctg aag      4509
Ile Ser  Ile Arg Ala Phe Thr  Gln Leu Phe Asp Glu  Asp Leu Lys
    1490                1495                1500

gaa ttc  aca aag cca ctc tat  tca gac aca ttt ttt  tct tta ccc      4554
Glu Phe  Thr Lys Pro Leu Tyr  Ser Asp Thr Phe Phe  Ser Leu Pro
    1505                1510                1515

atc act  act gaa tca gag ccc  ttg ttt gga gct att  gaa cgc ggc      4599
Ile Thr  Thr Glu Ser Glu Pro  Leu Phe Gly Ala Ile  Glu Arg Gly
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<213>  Homo sapiens

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Met Leu Ser His Gly Ala Gly Leu Ala Leu Trp Ile Thr Leu Ser Leu
1               5                  10                  15


Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
            20                  25                  30


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


Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
    50                  55                  60


Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65                  70                  75                  80


Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
                85                  90                  95


Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
            100                 105                 110


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


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


Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
145                 150                 155                 160


Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
                165                 170                 175


Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
            180                 185                 190
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Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp
        195                 200                 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His
    210                 215                 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly
225                 230                 235                 240

Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala
                245                 250                 255

Phe His Gly Leu Thr Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr
            260                 265                 270

Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala
        275                 280                 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr
    290                 295                 300

Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr
305                 310                 315                 320

Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu
                325                 330                 335

Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg
            340                 345                 350

Leu Tyr Gln Val Thr Val Ser Cys Val Ser Gly Glu Leu Ser Ala Gln
        355                 360                 365

Lys Met Ala Val Gly Arg Thr Phe Pro Leu Ala Val Leu Gln Leu Arg
    370                 375                 380

Val Lys His Ala Asn Glu Thr Ser Leu Ser Ile Met Trp Gln Thr Pro
385                 390                 395                 400

Val Ala Glu Trp Glu Lys Tyr Ile Ile Ser Leu Ala Asp Arg Asp Leu
                405                 410                 415

Leu Leu Ile His Lys Ser Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe
            420                 425                 430
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Thr Asp Leu Val Pro Gly Arg Lys Tyr Met Ala Thr Val Thr Ser Ile
        435                 440                 445

Ser Gly Asp Leu Lys Asn Ser Ser Ser Val Lys Gly Arg Thr Val Pro
    450                 455                 460

Ala Gln Val Thr Asp Leu His Val Ala Asn Gln Gly Met Thr Ser Ser
465                 470                 475                 480

Leu Phe Thr Asn Trp Thr Gln Ala Gln Gly Asp Val Glu Phe Tyr Gln
                485                 490                 495

Val Leu Leu Ile His Glu Asn Val Val Ile Lys Asn Glu Ser Ile Ser
            500                 505                 510

Ser Glu Thr Ser Arg Tyr Ser Phe His Ser Leu Lys Ser Gly Ser Leu
        515                 520                 525

Tyr Ser Val Val Val Thr Thr Val Ser Gly Gly Ile Ser Ser Arg Gln
    530                 535                 540

Val Val Val Glu Gly Arg Thr Val Pro Ser Ser Val Ser Gly Val Thr
545                 550                 555                 560

Val Asn Asn Ser Gly Arg Asn Asp Tyr Leu Ser Val Ser Trp Leu Leu
                565                 570                 575

Ala Pro Gly Asp Val Asp Asn Tyr Glu Val Thr Leu Ser His Asp Gly
            580                 585                 590

Lys Val Val Gln Ser Leu Val Ile Ala Lys Ser Val Arg Glu Cys Ser
        595                 600                 605

Phe Ser Ser Leu Thr Pro Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr
    610                 615                 620

Arg Ser Gly Lys Tyr Glu Asn His Ser Phe Ser Gln Glu Arg Thr Val
625                 630                 635                 640

Pro Asp Lys Val Gln Gly Val Ser Val Ser Asn Ser Ala Arg Ser Asp
                645                 650                 655

Tyr Leu Arg Val Ser Trp Val His Ala Thr Gly Asp Phe Asp His Tyr
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Glu Val Thr Ile Lys Asn Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile
        675                 680                 685

Pro Lys Ser Glu Asn Glu Cys Val Phe Val Gln Leu Val Pro Gly Arg
    690                 695                 700

Leu Tyr Ser Val Thr Val Thr Thr Lys Ser Gly Gln Tyr Glu Ala Asn
705                 710                 715                 720

Glu Gln Gly Asn Gly Arg Thr Ile Pro Glu Pro Val Lys Asp Leu Thr
                725                 730                 735

Leu Arg Asn Arg Ser Thr Glu Asp Leu His Val Thr Trp Ser Gly Ala
            740                 745                 750

Asn Gly Asp Val Asp Gln Tyr Glu Ile Gln Leu Leu Phe Asn Asp Met
        755                 760                 765

Lys Val Phe Pro Pro Phe His Leu Val Asn Thr Ala Thr Glu Tyr Arg
    770                 775                 780

Phe Thr Ser Leu Thr Pro Gly Arg Gln Tyr Lys Ile Leu Val Leu Thr
785                 790                 795                 800

Ile Ser Gly Asp Val Gln Gln Ser Ala Phe Ile Glu Gly Phe Thr Val
                805                 810                 815

Pro Ser Ala Val Lys Asn Ile His Ile Ser Pro Asn Gly Ala Thr Asp
            820                 825                 830

Ser Leu Thr Val Asn Trp Thr Pro Gly Gly Gly Asp Val Asp Ser Tyr
        835                 840                 845

Thr Val Ser Ala Phe Arg His Ser Gln Lys Val Asp Ser Gln Thr Ile
    850                 855                 860

Pro Lys His Val Phe Glu His Thr Phe His Arg Leu Glu Ala Gly Glu
865                 870                 875                 880

Gln Tyr Gln Ile Met Ile Ala Ser Val Ser Gly Ser Leu Lys Asn Gln
                885                 890                 895

Ile Asn Val Val Gly Arg Thr Val Pro Ala Ser Val Gln Gly Val Ile
            900                 905                 910
```

```
Ala Asp Asn Ala Tyr Ser Ser Tyr Ser Leu Ile Val Ser Trp Gln Lys
        915                 920                 925

Ala Ala Gly Val Ala Glu Arg Tyr Asp Ile Leu Leu Leu Thr Glu Asn
    930                 935                 940

Gly Ile Leu Leu Arg Asn Thr Ser Glu Pro Ala Thr Thr Lys Gln His
945                 950                 955                 960

Lys Phe Glu Asp Leu Thr Pro Gly Lys Lys Tyr Lys Ile Gln Ile Leu
                965                 970                 975

Thr Val Ser Gly Gly Leu Phe Ser Lys Glu Ala Gln Thr Glu Gly Arg
            980                 985                 990

Thr Val Pro Ala Ala Val Thr Asp  Leu Arg Ile Thr Glu  Asn Ser Thr
        995                 1000                1005

Arg His  Leu Ser Phe Arg Trp  Thr Ala Ser Glu Gly  Glu Leu Ser
    1010                1015                1020

Trp Tyr  Asn Ile Phe Leu Tyr  Asn Pro Asp Gly Asn  Leu Gln Glu
    1025                1030                1035

Arg Ala  Gln Val Asp Pro Leu  Val Gln Ser Phe Ser  Phe Gln Asn
    1040                1045                1050

Leu Leu  Gln Gly Arg Met Tyr  Lys Met Val Ile Val  Thr His Ser
    1055                1060                1065

Gly Glu  Leu Ser Asn Glu Ser  Phe Ile Phe Gly Arg  Thr Val Pro
    1070                1075                1080

Ala Ser  Val Ser His Leu Arg  Gly Ser Asn Arg Asn  Thr Thr Asp
    1085                1090                1095

Ser Leu  Trp Phe Asn Trp Ser  Pro Ala Ser Gly Asp  Phe Asp Phe
    1100                1105                1110

Tyr Glu  Leu Ile Leu Tyr Asn  Pro Asn Gly Thr Lys  Lys Glu Asn
    1115                1120                1125

Trp Lys  Asp Lys Asp Leu Thr  Glu Trp Arg Phe Gln  Gly Leu Val
    1130                1135                1140
```

```
Pro Gly  Arg Lys Tyr Val Leu  Trp Val Val Thr His  Ser Gly Asp
    1145                1150                1155

Leu Ser  Asn Lys Val Thr Ala  Glu Ser Arg Thr Ala  Pro Ser Pro
    1160                1165                1170

Pro Ser  Leu Met Ser Phe Ala  Asp Ile Ala Asn Thr  Ser Leu Ala
    1175                1180                1185

Ile Thr  Trp Lys Gly Pro Pro  Asp Trp Thr Asp Tyr  Asn Asp Phe
    1190                1195                1200

Glu Leu  Gln Trp Leu Pro Arg  Asp Ala Leu Thr Val  Phe Asn Pro
    1205                1210                1215

Tyr Asn  Asn Arg Lys Ser Glu  Gly Arg Ile Val Tyr  Gly Leu Arg
    1220                1225                1230

Pro Gly  Arg Ser Tyr Gln Phe  Asn Val Lys Thr Val  Ser Gly Asp
    1235                1240                1245

Ser Trp  Lys Thr Tyr Ser Lys  Pro Ile Phe Gly Ser  Val Arg Thr
    1250                1255                1260

Lys Pro  Asp Lys Ile Gln Asn  Leu His Cys Arg Pro  Gln Asn Ser
    1265                1270                1275

Thr Ala  Ile Ala Cys Ser Trp  Ile Pro Pro Asp Ser  Asp Phe Asp
    1280                1285                1290

Gly Tyr  Ser Ile Glu Cys Arg  Lys Met Asp Thr Gln  Glu Val Glu
    1295                1300                1305

Phe Ser  Arg Lys Leu Glu Lys  Glu Lys Ser Leu Leu  Asn Ile Met
    1310                1315                1320

Met Leu  Val Pro His Lys Arg  Tyr Leu Val Ser Ile  Lys Val Gln
    1325                1330                1335

Ser Ala  Gly Met Thr Ser Glu  Val Val Glu Asp Ser  Thr Ile Thr
    1340                1345                1350

Met Ile  Asp Arg Pro Pro Pro  Pro Pro Pro His Ile  Arg Val Asn
    1355                1360                1365
```

```
Glu Lys  Asp Val Leu Ile Ser  Lys Ser Ser Ile Asn  Phe Thr Val
    1370                 1375                 1380

Asn Cys  Ser Trp Phe Ser Asp  Thr Asn Gly Ala Val  Lys Tyr Phe
    1385                 1390                 1395

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

Glu Gln  Gln His Pro Leu Pro  Ser Tyr Leu Glu Tyr  Arg His Asn
    1415                 1420                 1425

Ala Ser  Ile Arg Val Tyr Gln  Thr Asn Tyr Phe Ala  Ser Lys Cys
    1430                 1435                 1440

Ala Glu  Asn Pro Asn Ser Asn  Ser Lys Ser Phe Asn  Ile Lys Leu
    1445                 1450                 1455

Gly Ala  Glu Met Glu Ser Leu  Gly Gly Lys Cys Asp  Pro Thr Gln
    1460                 1465                 1470

Gln Lys  Phe Cys Asp Gly Pro  Leu Lys Pro His Thr  Ala Tyr Arg
    1475                 1480                 1485

Ile Ser  Ile Arg Ala Phe Thr  Gln Leu Phe Asp Glu  Asp Leu Lys
    1490                 1495                 1500

Glu Phe  Thr Lys Pro Leu Tyr  Ser Asp Thr Phe Phe  Ser Leu Pro
    1505                 1510                 1515

Ile Thr  Thr Glu Ser Glu Pro  Leu Phe Gly Ala Ile  Glu Arg Gly
    1520                 1525                 1530

Arg His  His His His His His  Gly
    1535                 1540
```

<210> 3
<211> 1621
<212> PRT
<213> Homo sapiens

<400> 3

```
Met Leu Ser His Gly Ala Gly Leu Ala Leu Trp Ile Thr Leu Ser Leu
1               5                  10                  15
```

```
Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
            20                  25                  30

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

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
    50                  55                  60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65                  70                  75                  80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
                85                  90                  95

Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
            100                 105                 110

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

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

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
145                 150                 155                 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
                165                 170                 175

Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
            180                 185                 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp
        195                 200                 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His
    210                 215                 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly
225                 230                 235                 240

Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala
                245                 250                 255
```

```
Phe His Gly Leu Ser Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr
            260                 265                 270

Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala
        275                 280                 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr
    290                 295                 300

Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr
305                 310                 315                 320

Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu
                325                 330                 335

Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg
            340                 345                 350

Leu Tyr Gln Val Thr Val Ser Cys Val Ser Gly Glu Leu Ser Ala Gln
        355                 360                 365

Lys Met Ala Val Gly Arg Thr Phe Pro Asp Lys Val Ala Asn Leu Glu
    370                 375                 380

Ala Asn Asn Asn Gly Arg Met Arg Ser Leu Val Val Ser Trp Ser Pro
385                 390                 395                 400

Pro Ala Gly Asp Trp Glu Gln Tyr Arg Ile Leu Leu Phe Asn Asp Ser
                405                 410                 415

Val Val Leu Leu Asn Ile Thr Val Gly Lys Glu Glu Thr Gln Tyr Val
            420                 425                 430

Met Asp Asp Thr Gly Leu Val Pro Gly Arg Gln Tyr Glu Val Glu Val
        435                 440                 445

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

Thr Val Pro Leu Ala Val Leu Gln Leu Arg Val Lys His Ala Asn Glu
465                 470                 475                 480

Thr Ser Leu Ser Ile Met Trp Gln Thr Pro Val Ala Glu Trp Glu Lys
                485                 490                 495
```

```
Tyr Ile Ile Ser Leu Ala Asp Arg Asp Leu Leu Leu Ile His Lys Ser
            500                 505                 510

Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe Thr Asp Leu Val Pro Gly
        515                 520                 525

Arg Lys Tyr Met Ala Thr Val Thr Ser Ile Ser Gly Asp Leu Lys Asn
    530                 535                 540

Ser Ser Ser Val Lys Gly Arg Thr Val Pro Ala Gln Val Thr Asp Leu
545                 550                 555                 560

His Val Ala Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp Thr
                565                 570                 575

Gln Ala Gln Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His Glu
            580                 585                 590

Asn Val Val Ile Lys Asn Glu Ser Ile Ser Ser Glu Thr Ser Arg Tyr
        595                 600                 605

Ser Phe His Ser Leu Lys Ser Gly Ser Leu Tyr Ser Val Val Val Thr
    610                 615                 620

Thr Val Ser Gly Gly Ile Ser Ser Arg Gln Val Val Val Glu Gly Arg
625                 630                 635                 640

Thr Val Pro Ser Ser Val Ser Gly Val Thr Val Asn Asn Ser Gly Arg
                645                 650                 655

Asn Asp Tyr Leu Ser Val Ser Trp Leu Leu Ala Pro Gly Asp Val Asp
            660                 665                 670

Asn Tyr Glu Val Thr Leu Ser His Asp Gly Lys Val Val Gln Ser Leu
        675                 680                 685

Val Ile Ala Lys Ser Val Arg Glu Cys Ser Phe Ser Ser Leu Thr Pro
    690                 695                 700

Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr Arg Ser Gly Lys Tyr Glu
705                 710                 715                 720

Asn His Ser Phe Ser Gln Glu Arg Thr Val Pro Asp Lys Val Gln Gly
                725                 730                 735
```

```
Val Ser Val Ser Asn Ser Ala Arg Ser Asp Tyr Leu Arg Val Ser Trp
            740                 745                 750

Val His Ala Thr Gly Asp Phe Asp His Tyr Glu Val Thr Ile Lys Asn
        755                 760                 765

Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile Pro Lys Ser Glu Asn Glu
    770                 775                 780

Cys Val Phe Val Gln Leu Val Pro Gly Arg Leu Tyr Ser Val Thr Val
785                 790                 795                 800

Thr Thr Lys Ser Gly Gln Tyr Glu Ala Asn Glu Gln Gly Asn Gly Arg
                805                 810                 815

Thr Ile Pro Glu Pro Val Lys Asp Leu Thr Leu Arg Asn Arg Ser Thr
            820                 825                 830

Glu Asp Leu His Val Thr Trp Ser Gly Ala Asn Gly Asp Val Asp Gln
        835                 840                 845

Tyr Glu Ile Gln Leu Leu Phe Asn Asp Met Lys Val Phe Pro Pro Phe
    850                 855                 860

His Leu Val Asn Thr Ala Thr Glu Tyr Arg Phe Thr Ser Leu Thr Pro
865                 870                 875                 880

Gly Arg Gln Tyr Lys Ile Leu Val Leu Thr Ile Ser Gly Asp Val Gln
                885                 890                 895

Gln Ser Ala Phe Ile Glu Gly Phe Thr Val Pro Ser Ala Val Lys Asn
            900                 905                 910

Ile His Ile Ser Pro Asn Gly Ala Thr Asp Ser Leu Thr Val Asn Trp
        915                 920                 925

Thr Pro Gly Gly Gly Asp Val Asp Ser Tyr Thr Val Ser Ala Phe Arg
    930                 935                 940

His Ser Gln Lys Val Asp Ser Gln Thr Ile Pro Lys His Val Phe Glu
945                 950                 955                 960

His Thr Phe His Arg Leu Glu Ala Gly Glu Gln Tyr Gln Ile Met Ile
                965                 970                 975
```

```
Ala Ser Val Ser Gly Ser Leu Lys Asn Gln Ile Asn Val Val Gly Arg
            980                 985                 990

Thr Val Pro Ala Ser Val Gln Gly  Val Ile Ala Asp Asn  Ala Tyr Ser
        995                 1000                1005

Ser Tyr  Ser Leu Ile Val Ser  Trp Gln Lys Ala Ala  Gly Val Ala
    1010                1015                1020

Glu Arg  Tyr Asp Ile Leu Leu  Leu Thr Glu Asn Gly  Ile Leu Leu
    1025                1030                1035

Arg Asn  Thr Ser Glu Pro Ala  Thr Thr Lys Gln His  Lys Phe Glu
    1040                1045                1050

Asp Leu  Thr Pro Gly Lys Lys  Tyr Lys Ile Gln Ile  Leu Thr Val
    1055                1060                1065

Ser Gly  Gly Leu Phe Ser Lys  Glu Ala Gln Thr Glu  Gly Arg Thr
    1070                1075                1080

Val Pro  Ala Ala Val Thr Asp  Leu Arg Ile Thr Glu  Asn Ser Thr
    1085                1090                1095

Arg His  Leu Ser Phe Arg Trp  Thr Ala Ser Glu Gly  Glu Leu Ser
    1100                1105                1110

Trp Tyr  Asn Ile Phe Leu Tyr  Asn Pro Asp Gly Asn  Leu Gln Glu
    1115                1120                1125

Arg Ala  Gln Val Asp Pro Leu  Val Gln Ser Phe Ser  Phe Gln Asn
    1130                1135                1140

Leu Leu  Gln Gly Arg Met Tyr  Lys Met Val Ile Val  Thr His Ser
    1145                1150                1155

Gly Glu  Leu Ser Asn Glu Ser  Phe Ile Phe Gly Arg  Thr Val Pro
    1160                1165                1170

Ala Ser  Val Ser His Leu Arg  Gly Ser Asn Arg Asn  Thr Thr Asp
    1175                1180                1185

Ser Leu  Trp Phe Asn Trp Ser  Pro Ala Ser Gly Asp  Phe Asp Phe
    1190                1195                1200
```

Tyr Glu Leu Ile Leu Tyr Asn Pro Asn Gly Thr Lys Lys Glu Asn
1205 1210 1215

Trp Lys Asp Lys Asp Leu Thr Glu Trp Arg Phe Gln Gly Leu Val
1220 1225 1230

Pro Gly Arg Lys Tyr Val Leu Trp Val Val Thr His Ser Gly Asp
1235 1240 1245

Leu Ser Asn Lys Val Thr Ala Glu Ser Arg Thr Ala Pro Ser Pro
1250 1255 1260

Pro Ser Leu Met Ser Phe Ala Asp Ile Ala Asn Thr Ser Leu Ala
1265 1270 1275

Ile Thr Trp Lys Gly Pro Pro Asp Trp Thr Asp Tyr Asn Asp Phe
1280 1285 1290

Glu Leu Gln Trp Leu Pro Arg Asp Ala Leu Thr Val Phe Asn Pro
1295 1300 1305

Tyr Asn Asn Arg Lys Ser Glu Gly Arg Ile Val Tyr Gly Leu Arg
1310 1315 1320

Pro Gly Arg Ser Tyr Gln Phe Asn Val Lys Thr Val Ser Gly Asp
1325 1330 1335

Ser Trp Lys Thr Tyr Ser Lys Pro Ile Phe Gly Ser Val Arg Thr
1340 1345 1350

Lys Pro Asp Lys Ile Gln Asn Leu His Cys Arg Pro Gln Asn Ser
1355 1360 1365

Thr Ala Ile Ala Cys Ser Trp Ile Pro Pro Asp Ser Asp Phe Asp
1370 1375 1380

Gly Tyr Ser Ile Glu Cys Arg Lys Met Asp Thr Gln Glu Val Glu
1385 1390 1395

Phe Ser Arg Lys Leu Glu Lys Glu Lys Ser Leu Leu Asn Ile Met
1400 1405 1410

Met Leu Val Pro His Lys Arg Tyr Leu Val Ser Ile Lys Val Gln
1415 1420 1425

```
Ser Ala Gly Met Thr Ser Glu Val Val Glu Asp Ser Thr Ile Thr
    1430                1435                1440

Met Ile Asp Arg Pro Pro Pro Pro Pro Pro His Ile Arg Val Asn
    1445                1450                1455

Glu Lys Asp Val Leu Ile Ser Lys Ser Ser Ile Asn Phe Thr Val
    1460                1465                1470

Asn Cys Ser Trp Phe Ser Asp Thr Asn Gly Ala Val Lys Tyr Phe
    1475                1480                1485

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

Glu Gln Gln His Pro Leu Pro Ser Tyr Leu Glu Tyr Arg His Asn
    1505                1510                1515

Ala Ser Ile Arg Val Tyr Gln Thr Asn Tyr Phe Ala Ser Lys Cys
    1520                1525                1530

Ala Glu Asn Pro Asn Ser Asn Ser Lys Ser Phe Asn Ile Lys Leu
    1535                1540                1545

Gly Ala Glu Met Glu Ser Leu Gly Gly Lys Arg Asp Pro Thr Gln
    1550                1555                1560

Gln Lys Phe Cys Asp Gly Pro Leu Lys Pro His Thr Ala Tyr Arg
    1565                1570                1575

Ile Ser Ile Arg Ala Phe Thr Gln Leu Phe Asp Glu Asp Leu Lys
    1580                1585                1590

Glu Phe Thr Lys Pro Leu Tyr Ser Asp Thr Phe Phe Ser Leu Pro
    1595                1600                1605

Ile Thr Thr Glu Ser Glu Pro Leu Phe Gly Ala Ile Glu
    1610                1615                1620
```

<210> 4
<211> 775
<212> PRT
<213> Homo sapiens

<400> 4

```
Met Leu Ser His Gly Ala Gly Leu Ala Leu Trp Ile Thr Leu Ser Leu
1               5                  10                  15

Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
            20                  25                  30

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

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
    50                  55                  60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65                  70                  75                  80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
                85                  90                  95

Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
            100                 105                 110

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

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

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
145                 150                 155                 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
                165                 170                 175

Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
            180                 185                 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp
        195                 200                 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His
    210                 215                 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly
225                 230                 235                 240
```

```
Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala
                245                 250                 255

Phe His Gly Leu Thr Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr
            260                 265                 270

Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala
        275                 280                 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr
    290                 295                 300

Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr
305                 310                 315                 320

Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu
                325                 330                 335

Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg
            340                 345                 350

Leu Tyr Gln Val Thr Val Ser Cys Val Ser Gly Glu Leu Ser Ala Gln
        355                 360                 365

Lys Met Ala Val Gly Arg Thr Phe Pro Leu Ala Val Leu Gln Leu Arg
    370                 375                 380

Val Lys His Ala Asn Glu Thr Ser Leu Ser Ile Met Trp Gln Thr Pro
385                 390                 395                 400

Val Ala Glu Trp Glu Lys Tyr Ile Ile Ser Leu Ala Asp Arg Asp Leu
                405                 410                 415

Leu Leu Ile His Lys Ser Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe
            420                 425                 430

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

Ser Gly Asp Leu Lys Asn Ser Ser Ser Val Lys Gly Arg Thr Val Pro
    450                 455                 460

Ala Gln Val Thr Asp Leu His Val Ala Asn Gln Gly Met Thr Ser Ser
465                 470                 475                 480
```

```
Leu Phe Thr Asn Trp Thr Gln Ala Gln Gly Asp Val Glu Phe Tyr Gln
                485                 490                 495

Val Leu Leu Ile His Glu Asn Val Val Ile Lys Asn Glu Ser Ile Ser
            500                 505                 510

Ser Glu Thr Ser Arg Tyr Ser Phe His Ser Leu Lys Ser Gly Ser Leu
        515                 520                 525

Tyr Ser Val Val Val Thr Thr Val Ser Gly Gly Ile Ser Ser Arg Gln
    530                 535                 540

Val Val Val Glu Gly Arg Thr Val Pro Ser Ser Val Ser Gly Val Thr
545                 550                 555                 560

Val Asn Asn Ser Gly Arg Asn Asp Tyr Leu Ser Val Ser Trp Leu Leu
                565                 570                 575

Ala Pro Gly Asp Val Asp Asn Tyr Glu Val Thr Leu Ser His Asp Gly
            580                 585                 590

Lys Val Val Gln Ser Leu Val Ile Ala Lys Ser Val Arg Glu Cys Ser
        595                 600                 605

Phe Ser Ser Leu Thr Pro Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr
    610                 615                 620

Arg Ser Gly Lys Tyr Glu Asn His Ser Phe Ser Gln Glu Arg Thr Val
625                 630                 635                 640

Pro Asp Lys Val Gln Gly Val Ser Val Ser Asn Ser Ala Arg Ser Asp
                645                 650                 655

Tyr Leu Arg Val Ser Trp Val His Ala Thr Gly Asp Phe Asp His Tyr
            660                 665                 670

Glu Val Thr Ile Lys Asn Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile
        675                 680                 685

Pro Lys Ser Glu Asn Glu Cys Val Phe Val Gln Leu Val Pro Gly Arg
    690                 695                 700

Leu Tyr Ser Val Thr Val Thr Thr Lys Ser Gly Gln Tyr Glu Ala Asn
705                 710                 715                 720
```

```
Glu Gln Gly Asn Gly Arg Thr Ile Pro Glu Lys Gly Asn Ser Ala Asp
                725                 730                 735

Ile Gln His Ser Gly Gly Arg Ser Ser Leu Glu Gly Pro Arg Phe Glu
            740                 745                 750

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

Gly His His His His His His
    770                 775


<210>  5
<211>  421
<212>  PRT
<213>  Homo sapiens

<400>  5

Met Leu Ser His Gly Ala Gly Leu Ala Leu Trp Ile Thr Leu Ser Leu
1               5                   10                  15

Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
            20                  25                  30

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

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
    50                  55                  60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65                  70                  75                  80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
                85                  90                  95

Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
            100                 105                 110

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

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

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
```

145 150 155 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
165 170 175

Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
180 185 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp
195 200 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His
210 215 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly
225 230 235 240

Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala
245 250 255

Phe His Gly Leu Thr Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr
260 265 270

Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala
275 280 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr
290 295 300

Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr
305 310 315 320

Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu
325 330 335

Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg
340 345 350

Leu Tyr Gln Val Thr Val Ser Cys Val Ser Gly Glu Leu Ser Ala Gln
355 360 365

Lys Met Ala Val Gly Arg Thr Phe Lys Gly Asn Ser Ala Asp Ile Gln
370 375 380

His Ser Gly Gly Arg Ser Ser Leu Glu Gly Pro Arg Phe Glu Gly Lys

385 390 395 400

Pro Ile Pro Asn Pro Leu Leu Gly Leu Asp Ser Thr Arg Thr Gly His
405 410 415

His His His His His
420

<210> 6
<211> 247
<212> PRT
<213> Homo sapiens

<400> 6

Met Leu Ser His Gly Ala Gly Leu Ala Leu Trp Ile Thr Leu Ser Leu
1 5 10 15

Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
20 25 30

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

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
50 55 60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65 70 75 80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
85 90 95

Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
100 105 110

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

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

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
145 150 155 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
165 170 175

```
Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
            180                 185                 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Lys Gly Asn Ser Ala Asp
        195                 200                 205

Ile Gln His Ser Gly Gly Arg Ser Ser Leu Glu Gly Pro Arg Phe Glu
    210                 215                 220

Gly Lys Pro Ile Pro Asn Pro Leu Leu Gly Leu Asp Ser Thr Arg Thr
225                 230                 235                 240

Gly His His His His His His
                245
```

<210> 7
<211> 1632
<212> PRT
<213> Mus musculus

<400> 7

```
Met Leu Arg His Gly Ala Leu Thr Ala Leu Trp Ile Thr Leu Ser Val
1               5                   10                  15

Val Gln Thr Gly Val Ala Glu Gln Val Lys Cys Asn Phe Thr Leu Leu
            20                  25                  30

Glu Ser Arg Val Ser Ser Leu Ser Ala Ser Ile Gln Trp Arg Thr Phe
        35                  40                  45

Ala Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Ser Gly
    50                  55                  60

Pro Met Trp Cys His Pro Ile Arg Ile Asp Asn Phe Thr Tyr Gly Cys
65                  70                  75                  80

Asn Pro Lys Asp Leu Gln Ala Gly Thr Val Tyr Asn Phe Arg Ile Val
                85                  90                  95

Ser Leu Asp Gly Glu Glu Ser Thr Leu Val Leu Gln Thr Asp Pro Leu
            100                 105                 110

Pro Pro Ala Arg Phe Glu Val Asn Arg Glu Lys Thr Ala Ser Thr Thr
        115                 120                 125
```

```
Leu Gln Val Arg Trp Thr Pro Ser Ser Gly Lys Val Ser Trp Tyr Glu
    130                 135                 140

Val Gln Leu Phe Asp His Asn Asn Gln Lys Ile Gln Glu Val Gln Val
145                 150                 155                 160

Gln Glu Ser Thr Thr Trp Ser Gln Tyr Thr Phe Leu Asn Leu Thr Glu
                165                 170                 175

Gly Asn Ser Tyr Lys Val Ala Ile Thr Ala Val Ser Gly Glu Lys Arg
            180                 185                 190

Ser Phe Pro Val Tyr Ile Asn Gly Ser Thr Val Pro Ser Pro Val Lys
        195                 200                 205

Asp Leu Gly Ile Ser Pro Asn Pro Asn Ser Leu Leu Ile Ser Trp Ser
    210                 215                 220

Arg Gly Ser Gly Asn Val Glu Gln Tyr Arg Leu Val Leu Met Asp Lys
225                 230                 235                 240

Gly Ala Ile Val Gln Asp Thr Asn Val Asp Arg Arg Asp Thr Ser Tyr
                245                 250                 255

Ala Phe His Glu Leu Thr Pro Gly His Leu Tyr Asn Leu Thr Ile Val
            260                 265                 270

Thr Met Ala Ser Gly Leu Gln Asn Ser Arg Trp Lys Leu Val Arg Thr
        275                 280                 285

Ala Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Arg Leu
    290                 295                 300

Thr Ser Leu Asn Val Lys Trp Gln Lys Pro Pro Gly Asp Val Asp Ser
305                 310                 315                 320

Tyr Ser Ile Thr Leu Ser His Gln Gly Thr Ile Lys Glu Ser Lys Thr
                325                 330                 335

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

Arg Leu Tyr Gln Val Thr Ile Ser Cys Ile Ser Gly Glu Leu Ser Ala
        355                 360                 365
```

```
Glu Lys Ser Ala Ala Gly Arg Thr Val Pro Glu Lys Val Arg Asn Leu
    370                 375                 380

Val Ser Tyr Asn Glu Ile Trp Met Lys Ser Phe Thr Val Asn Trp Thr
385                 390                 395                 400

Pro Pro Ala Gly Asp Trp Glu His Tyr Arg Ile Val Leu Phe Asn Glu
                405                 410                 415

Ser Leu Val Leu Leu Asn Thr Thr Val Gly Lys Glu Glu Thr His Tyr
            420                 425                 430

Ala Leu Asp Gly Leu Glu Leu Ile Pro Gly Arg Gln Tyr Glu Ile Glu
        435                 440                 445

Val Ile Val Glu Ser Gly Asn Leu Arg Asn Ser Glu Arg Cys Gln Gly
    450                 455                 460

Arg Thr Val Pro Leu Ala Val Leu Gln Leu Arg Val Lys His Ala Asn
465                 470                 475                 480

Glu Thr Ser Leu Gly Ile Thr Trp Arg Ala Pro Leu Gly Glu Trp Glu
                485                 490                 495

Lys Tyr Ile Ile Ser Leu Met Asp Arg Glu Leu Leu Val Ile His Lys
            500                 505                 510

Ser Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe Thr Asp Leu Met Pro
        515                 520                 525

Gly Arg Asn Tyr Lys Ala Thr Val Thr Ser Met Ser Gly Asp Leu Lys
    530                 535                 540

Gln Ser Ser Ser Ile Lys Gly Arg Thr Val Pro Ala Gln Val Thr Asp
545                 550                 555                 560

Leu His Val Asn Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp
                565                 570                 575

Thr Lys Ala Leu Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His
            580                 585                 590

Glu Asn Val Val Val Lys Asn Glu Ser Val Ser Ser Asp Thr Ser Arg
        595                 600                 605
```

```
Tyr Ser Phe Arg Ala Leu Lys Pro Gly Ser Leu Tyr Ser Val Val Val
    610                 615                 620

Thr Thr Val Ser Gly Gly Ile Ser Ser Arg Gln Val Val Ala Glu Gly
625                 630                 635                 640

Arg Thr Val Pro Ser Ser Val Ser Gly Val Thr Val Asn Asn Ser Gly
                645                 650                 655

Arg Asn Asp Tyr Leu Ser Val Ser Trp Leu Pro Ala Pro Gly Glu Val
            660                 665                 670

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

Leu Ile Ile Ala Lys Ser Val Ser Glu Cys Ser Phe Ser Ser Leu Thr
    690                 695                 700

Pro Gly Arg Leu Tyr Asn Val Thr Val Thr Thr Lys Ser Gly Asn Tyr
705                 710                 715                 720

Ala Ser His Ser Phe Thr Glu Glu Arg Thr Val Pro Asp Lys Val Gln
                725                 730                 735

Gly Ile Ser Val Ser Asn Ser Ala Arg Ser Asp Tyr Leu Lys Val Ser
            740                 745                 750

Trp Val His Ala Thr Gly Asp Phe Asp His Tyr Glu Val Thr Ile Lys
        755                 760                 765

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

Glu Cys Glu Phe Ile Glu Leu Val Pro Gly Arg Leu Tyr Ser Val Thr
785                 790                 795                 800

Val Ser Thr Lys Ser Gly Gln Tyr Glu Ala Ser Glu Gln Gly Thr Gly
                805                 810                 815

Arg Thr Ile Pro Glu Pro Val Lys Asp Leu Thr Leu Leu Asn Arg Ser
            820                 825                 830

Thr Glu Asp Leu His Val Thr Trp Ser Arg Ala Asn Gly Asp Val Asp
        835                 840                 845
```

```
Gln Tyr Glu Val Gln Leu Leu Phe Asn Asp Met Lys Val Phe Pro His
    850                 855                 860

Ile His Leu Val Asn Thr Ala Thr Glu Tyr Lys Phe Thr Ala Leu Thr
865                 870                 875                 880

Pro Gly Arg His Tyr Lys Ile Leu Val Leu Thr Ile Ser Gly Asp Val
                885                 890                 895

Gln Gln Ser Ala Phe Ile Glu Gly Leu Thr Val Pro Ser Thr Val Lys
            900                 905                 910

Asn Ile His Ile Ser Ala Asn Gly Ala Thr Asp Arg Leu Met Val Thr
        915                 920                 925

Trp Ser Pro Gly Gly Gly Asp Val Asp Ser Tyr Val Val Ser Ala Phe
    930                 935                 940

Arg Gln Asp Glu Lys Val Asp Ser Gln Thr Ile Pro Lys His Ala Ser
945                 950                 955                 960

Glu His Thr Phe His Arg Leu Glu Ala Gly Ala Lys Tyr Arg Ile Ala
                965                 970                 975

Ile Val Ser Val Ser Gly Ser Leu Arg Asn Gln Ile Asp Ala Leu Gly
            980                 985                 990

Gln Thr Val Pro Ala Ser Val Gln  Glu Val Val Ala Ala  Asn Ala Tyr
        995                 1000                1005

Ser Ser  Asn Ser Leu Thr Val  Ser Trp Gln Lys Ala  Leu Gly Val
    1010                1015                1020

Ala Glu  Arg Tyr Asp Ile Leu  Leu Leu Asn Glu Asn  Gly Leu Leu
    1025                1030                1035

Leu Ser  Asn Val Ser Glu Pro  Ala Thr Ala Arg Gln  His Lys Phe
    1040                1045                1050

Glu Asp  Leu Thr Pro Gly Lys  Lys Tyr Lys Met Gln  Ile Leu Thr
    1055                1060                1065

Val Ser  Gly Gly Leu Phe Ser  Lys Glu Ser Gln Ala  Glu Gly Arg
    1070                1075                1080
```

```
Thr Val  Pro Ala Ala Val Thr  Asn Leu Arg Ile Thr  Glu Asn Ser
    1085                1090                1095

Ser Arg  Tyr Leu Ser Phe Gly  Trp Thr Ala Ser Glu  Gly Glu Leu
    1100                1105                1110

Ser Trp  Tyr Asn Ile Phe Leu  Tyr Asn Pro Asp Arg  Thr Leu Gln
    1115                1120                1125

Glu Arg  Ala Gln Val Asp Pro  Leu Val Gln Ser Phe  Ser Phe Gln
    1130                1135                1140

Asn Leu  Leu Gln Gly Arg Met  Tyr Lys Met Val Ile  Val Thr His
    1145                1150                1155

Ser Gly  Glu Leu Ser Asn Glu  Ser Phe Ile Phe Gly  Arg Thr Val
    1160                1165                1170

Pro Ala  Ala Val Asn His Leu  Lys Gly Ser His Arg  Asn Thr Thr
    1175                1180                1185

Asp Ser  Leu Trp Phe Ser Trp  Ser Pro Ala Ser Gly  Asp Phe Asp
    1190                1195                1200

Phe Tyr  Glu Leu Ile Leu Tyr  Asn Pro Asn Gly Thr  Lys Lys Glu
    1205                1210                1215

Asn Trp  Lys Glu Lys Asp Val  Thr Glu Trp Arg Phe  Gln Gly Leu
    1220                1225                1230

Val Pro  Gly Arg Lys Tyr Thr  Leu Tyr Val Val Thr  His Ser Gly
    1235                1240                1245

Asp Leu  Ser Asn Lys Val Thr  Gly Glu Gly Arg Thr  Ala Pro Ser
    1250                1255                1260

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

Ala Ile  Thr Trp Lys Gly Pro  Pro Asp Trp Thr Asp  Tyr Asn Asp
    1280                1285                1290

Phe Glu  Leu Gln Trp Phe Pro  Gly Asp Ala Leu Thr  Ile Phe Asn
    1295                1300                1305
```

```
Pro Tyr  Ser Ser Arg Lys Ser  Glu Gly Arg Ile Val  Tyr Gly Leu
    1310                 1315                 1320

His Pro  Gly Arg Ser Tyr Gln  Phe Ser Val Lys Thr  Val Ser Gly
    1325                 1330                 1335

Asp Ser  Trp Lys Thr Tyr Ser  Lys Pro Ile Ser Gly  Ser Val Arg
    1340                 1345                 1350

Thr Lys  Pro Asp Lys Ile Gln  Asn Leu His Cys Arg  Pro Gln Asn
    1355                 1360                 1365

Ser Thr  Ala Ile Ala Cys Ser  Trp Ile Pro Pro Asp  Ser Asp Phe
    1370                 1375                 1380

Asp Gly  Tyr Ser Ile Glu Cys  Arg Lys Met Asp Thr  Gln Glu Ile
    1385                 1390                 1395

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

Met Met  Leu Val Pro His Lys  Arg Tyr Leu Val Ser  Ile Lys Val
    1415                 1420                 1425

Gln Ser  Ala Gly Met Thr Ser  Glu Val Val Glu Asp  Ser Thr Ile
    1430                 1435                 1440

Thr Met  Ile Asp Arg Pro Pro  Gln Pro Pro Pro His  Ile Arg Val
    1445                 1450                 1455

Asn Glu  Lys Asp Val Leu Ile  Ser Lys Ser Ser Ile  Asn Phe Thr
    1460                 1465                 1470

Val Asn  Cys Ser Trp Phe Ser  Asp Thr Asn Gly Ala  Val Lys Tyr
    1475                 1480                 1485

Phe Ala  Val Val Val Arg Glu  Ala Asp Ser Met Asp  Glu Leu Lys
    1490                 1495                 1500

Pro Glu  Gln Gln His Pro Leu  Pro Ser Tyr Leu Glu  Tyr Arg His
    1505                 1510                 1515

Asn Ala  Ser Ile Arg Val Tyr  Gln Thr Asn Tyr Phe  Ala Ser Lys
    1520                 1525                 1530
```

```
Cys Ala  Glu Ser Pro Asp Ser  Ser Ser Lys Ser Phe  Asn Ile Lys
    1535                 1540                 1545

Leu Gly  Ala Glu Met Asp Ser  Leu Gly Gly Lys Cys  Asp Pro Ser
    1550                 1555                 1560

Gln Gln  Lys Phe Cys Asp Gly  Pro Leu Lys Pro His  Thr Ala Tyr
    1565                 1570                 1575

Arg Ile  Ser Ile Arg Ala Phe  Thr Gln Leu Phe Asp  Glu Asp Leu
    1580                 1585                 1590

Lys Glu  Phe Thr Lys Pro Leu  Tyr Ser Asp Thr Phe  Phe Ser Met
    1595                 1600                 1605

Pro Ile  Thr Thr Glu Ser Glu  Pro Leu Phe Gly Val  Ile Glu Arg
    1610                 1615                 1620

Gly Arg  His His His His His  His Gly
    1625                 1630
```

<210> 8
<211> 774
<212> PRT
<213> Artificial

<220>
<223> human-mouse chimeric molecule

<400> 8

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Met Leu Arg His Gly Ala Leu Thr Ala Leu Trp Ile Thr Leu Ser Val
1               5                  10                  15

Val Gln Thr Gly Val Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
            20                  25                  30

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

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
    50                  55                  60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65                  70                  75                  80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
```

```
                                                90                  95
Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro

            100                 105                 110

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

Gln Val Arg Trp Thr Pro Ser Ser Gly Lys Val Ser Trp Tyr Glu Val
    130                 135                 140

Gln Leu Phe Asp His Asn Asn Gln Lys Ile Gln Glu Val Gln Val Gln
145                 150                 155                 160

Glu Ser Thr Thr Trp Ser Gln Tyr Thr Phe Leu Asn Leu Thr Glu Gly
                165                 170                 175

Asn Ser Tyr Lys Val Ala Ile Thr Ala Val Ser Gly Glu Lys Arg Ser
180                             185                 190

Phe Pro Val Tyr Ile Asn Gly Ser Thr Val Pro Se Pro Val Lys Asp
        195                 200                 205

Leu Gly Ile Ser Pro Asn Pro Asn Ser Leu Leu Ile Ser Trp Ser Arg
    210                 215                 220

Gly Ser Gly Asn Val Glu Gln Tyr Arg Leu Val Leu Met Asp Lys Gly
225                 230                 235                 240

Ala Ile Val Gln Asp Thr Asn Val Asp Arg Arg Asp Thr Ser Tyr Ala
                245                 250                 255

Phe His Glu Leu Thr Pro Gly His Leu Tyr Asn Leu Thr Ile Val Thr
            260                 265                 270

Met Ala Ser Gly Leu Gln Asn Ser Arg Trp Lys Leu Val Arg Thr Ala
        275                 280                 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Arg Leu Thr
    290                 295                 300

Ser Leu Asn Val Lys Trp Gln Lys Pro Pro Gly Asp Val Asp Ser Tyr
305                 310                 315                 320

Ser Ile Thr Leu Ser His Gln Gly Thr Ile Lys Glu Ser Lys Thr Leu
```

```
                325                 330                 335

Ala Pro Pro Val Thr Glu Thr Gln Phe Lys Asp Leu Val Pro Gly Arg
            340                 345                 350

Leu Tyr Gln Val Thr Ile Ser Cys Ile Ser Gly Glu Leu Ser Ala Glu
        355                 360                 365

Lys Ser Ala Ala Gly Arg Thr Val Pro Glu Lys Val Arg Asn Leu Val
    370                 375                 380

Ser Tyr Asn Glu Ile Trp Met Lys Ser Phe Thr Val Asn Trp Thr Pro
385                 390                 395                 400

Pro Ala Gly Asp Trp Glu His Tyr Arg Ile Val Leu Phe Asn Glu Ser
                405                 410                 415

Leu Val Leu Leu Asn Thr Thr Val Gly Lys Glu Glu Thr His Tyr Ala
            420                 425                 430

Leu Asp Gly Leu Glu Leu Ile Pro Gly Arg Gln Tyr Glu Ile Glu Val
        435                 440                 445

Ile Val Glu Ser Gly Asn Leu Arg Asn Ser Glu Arg Cys Gln Gly Arg
    450                 455                 460

Thr Val Pro Leu Ala Val Leu Gln Leu Arg Val Lys His Ala Asn Glu
465                 470                 475                 480

Thr Ser Leu Gly Ile Thr Trp Arg Ala Pro Leu Gly Glu Trp Glu Lys
                485                 490                 495

Tyr Ile Ile Ser Leu Met Asp Arg Glu Leu Leu Val Ile His Lys Ser
            500                 505                 510

Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe Thr Asp Leu Met Pro Gly
        515                 520                 525

Arg Asn Tyr Lys Ala Thr Val Thr Ser Met Ser Gly Asp Leu Lys Gln
    530                 535                 540

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

His Val Asn Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp Thr
```

565 570 575

Lys Ala Leu Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His Glu
580 585 590

Asn Val Val Val Lys Asn Glu Ser Val Ser Ser Asp Thr Ser Arg Tyr
595 600 605

Ser Phe Arg Ala Leu Lys Pro Gly Ser Leu Tyr Ser Val Val Val Thr
610 615 620

Thr Val Ser Gly Gly Ile Ser Ser Arg Gln Val Val Ala Glu Gly Arg
625 630 635 640

Thr Val Pro Ser Ser Val Ser Gly Val Thr Val Asn Asn Ser Gly Arg
645 650 655

Asn Asp Tyr Leu Ser Val Ser Trp Leu Pro Ala Pro Gly Glu Val Asp
660 665 670

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

Ile Ile Ala Lys Ser Val Ser Glu Cys Ser Phe Ser Ser Leu Thr Pro
690 695 700

Gly Arg Leu Tyr Asn Val Thr Val Thr Thr Lys Ser Gly Asn Tyr Ala
705 710 715 720

Ser His Ser Phe Thr Glu Glu Arg Thr Lys Gly Asn Ser Ala Asp Ile
725 730 735

Gln His Ser Gly Gly Arg Ser Ser Leu Glu Gly Pro Arg Phe Glu Gly
740 745 750

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

His His His His His His
770

<210> 9
<211> 775
<212> PRT
<213> Artificial

<220>
<223> human-mouse chimeric molecule

<400> 9

Met Leu Arg His Gly Ala Leu Thr Ala Leu Trp Ile Thr Leu Ser Val
1 5 10 15

Val Gln Thr Gly Val Ala Glu Gln Val Lys Cys Asn Phe Thr Leu Leu
20 25 30

Glu Ser Arg Val Ser Ser Leu Ser Ala Ser Ile Gln Trp Arg Thr Phe
35 40 45

Ala Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Ser Gly
50 55 60

Pro Met Trp Cys His Pro Ile Arg Ile Asp Asn Phe Thr Tyr Gly Cys
65 70 75 80

Asn Pro Lys Asp Leu Gln Ala Gly Thr Val Tyr Asn Phe Arg Ile Val
85 90 95

Ser Leu Asp Gly Glu Glu Ser Thr Leu Val Leu Gln Thr Asp Pro Leu
100 105 110

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

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

Val Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile
145 150 155 160

Gln Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala
165 170 175

Gly Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg
180 185 190

Ser Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys
195 200 205

Asp Leu Gly Ile Ser Pro Asn Pro Asn Ser Leu Leu Ile Ser Trp Ser
210 215 220

```
Arg Gly Ser Gly Asn Val Glu Gln Tyr Arg Leu Val Leu Met Asp Lys
225                 230                 235                 240

Gly Ala Ile Val Gln Asp Thr Asn Val Asp Arg Arg Asp Thr Ser Tyr
                245                 250                 255

Ala Phe His Glu Leu Thr Pro Gly His Leu Tyr Asn Leu Thr Ile Val
            260                 265                 270

Thr Met Ala Ser Gly Leu Gln Asn Ser Arg Trp Lys Leu Val Arg Thr
        275                 280                 285

Ala Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Arg Leu
    290                 295                 300

Thr Ser Leu Asn Val Lys Trp Gln Lys Pro Pro Gly Asp Val Asp Ser
305                 310                 315                 320

Tyr Ser Ile Thr Leu Ser His Gln Gly Thr Ile Lys Glu Ser Lys Thr
                325                 330                 335

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

Arg Leu Tyr Gln Val Thr Ile Ser Cys Ile Ser Gly Glu Leu Ser Ala
        355                 360                 365

Glu Lys Ser Ala Ala Gly Arg Thr Val Pro Glu Lys Val Arg Asn Leu
    370                 375                 380

Val Ser Tyr Asn Glu Ile Trp Met Lys Ser Phe Thr Val Asn Trp Thr
385                 390                 395                 400

Pro Pro Ala Gly Asp Trp Glu His Tyr Arg Ile Val Leu Phe Asn Glu
                405                 410                 415

Ser Leu Val Leu Leu Asn Thr Thr Val Gly Lys Glu Glu Thr His Tyr
            420                 425                 430

Ala Leu Asp Gly Leu Glu Leu Ile Pro Gly Arg Gln Tyr Glu Ile Glu
        435                 440                 445

Val Ile Val Glu Ser Gly Asn Leu Arg Asn Ser Glu Arg Cys Gln Gly
    450                 455                 460
```

```
Arg Thr Val Pro Leu Ala Val Leu Gln Leu Arg Val Lys His Ala Asn
465                 470                 475                 480

Glu Thr Ser Leu Gly Ile Thr Trp Arg Ala Pro Leu Gly Glu Trp Glu
                485                 490                 495

Lys Tyr Ile Ile Ser Leu Met Asp Arg Glu Leu Leu Val Ile His Lys
            500                 505                 510

Ser Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe Thr Asp Leu Met Pro
        515                 520                 525

Gly Arg Asn Tyr Lys Ala Thr Val Thr Ser Met Ser Gly Asp Leu Lys
    530                 535                 540

Gln Ser Ser Ser Ile Lys Gly Arg Thr Val Pro Ala Gln Val Thr Asp
545                 550                 555                 560

Leu His Val Asn Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp
                565                 570                 575

Thr Lys Ala Leu Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His
            580                 585                 590

Glu Asn Val Val Val Lys Asn Glu Ser Val Ser Ser Asp Thr Ser Arg
        595                 600                 605

Tyr Ser Phe Arg Ala Leu Lys Pro Gly Ser Leu Tyr Ser Val Val Val
    610                 615                 620

Thr Thr Val Ser Gly Gly Ile Ser Ser Arg Gln Val Val Ala Glu Gly
625                 630                 635                 640

Arg Thr Val Pro Ser Ser Val Ser Gly Val Thr Val Asn Asn Ser Gly
                645                 650                 655

Arg Asn Asp Tyr Leu Ser Val Ser Trp Leu Pro Ala Pro Gly Glu Val
            660                 665                 670

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

Leu Ile Ile Ala Lys Ser Val Ser Glu Cys Ser Phe Ser Ser Leu Thr
    690                 695                 700
```

```
Pro Gly Arg Leu Tyr Asn Val Thr Val Thr Thr Lys Ser Gly Asn Tyr
705                 710                 715                 720

Ala Ser His Ser Phe Thr Glu Glu Arg Thr Lys Gly Asn Ser Ala Asp
                725                 730                 735

Ile Gln His Ser Gly Gly Arg Ser Ser Leu Glu Gly Pro Arg Phe Glu
            740                 745                 750

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

Gly His His His His His His
    770                 775


<210>  10
<211>  774
<212>  PRT
<213>  Artificial

<220>
<223>  human-mouse chimeric molecule

<400>  10

Met Leu Arg His Gly Ala Leu Thr Ala Leu Trp Ile Thr Leu Ser Val
1               5                   10                  15

Val Gln Thr Gly Val Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
            20                  25                  30

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

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
    50                  55                  60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
65                  70                  75                  80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile
                85                  90                  95

Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
            100                 105                 110

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

```
        115                 120                 125

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

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
145                 150                 155                 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
                165                 170                 175

Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
            180                 185                 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp
        195                 200                 205

Leu Gly Ile Ser Pro Asn Pro Asn Ser Leu Leu Ile Ser Trp Ser Arg
    210                 215                 220

Gly Ser Gly Asn Val Glu Gln Tyr Arg Leu Val Leu Met Asp Lys Gly
225                 230                 235                 240

Ala Ile Val Gln Asp Thr Asn Val Asp Arg Arg Asp Thr Ser Tyr Ala
                245                 250                 255

Phe His Glu Leu Thr Pro Gly His Leu Tyr Asn Leu Thr Ile Val Thr
            260                 265                 270

Met Ala Ser Gly Leu Gln Asn Ser Arg Trp Lys Leu Val Arg Thr Ala
        275                 280                 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Arg Leu Thr
    290                 295                 300

Ser Leu Asn Val Lys Trp Gln Lys Pro Pro Gly Asp Val Asp Ser Tyr
305                 310                 315                 320

Ser Ile Thr Leu Ser His Gln Gly Thr Ile Lys Glu Ser Lys Thr Leu
                325                 330                 335

Ala Pro Pro Val Thr Glu Thr Gln Phe Lys Asp Leu Val Pro Gly Arg
            340                 345                 350

Leu Tyr Gln Val Thr Ile Ser Cys Ile Ser Gly Glu Leu Ser Ala Glu
```

```
        355                 360                 365

Lys Ser Ala Ala Gly Arg Thr Val Pro Glu Lys Val Arg Asn Leu Val
    370                 375                 380

Ser Tyr Asn Glu Ile Trp Met Lys Ser Phe Thr Val Asn Trp Thr Pro
385                 390                 395                 400

Pro Ala Gly Asp Trp Glu His Tyr Arg Ile Val Leu Phe Asn Glu Ser
                405                 410                 415

Leu Val Leu Leu Asn Thr Thr Val Gly Lys Glu Glu Thr His Tyr Ala
            420                 425                 430

Leu Asp Gly Leu Glu Leu Ile Pro Gly Arg Gln Tyr Glu Ile Glu Val
        435                 440                 445

Ile Val Glu Ser Gly Asn Leu Arg Asn Ser Glu Arg Cys Gln Gly Arg
    450                 455                 460

Thr Val Pro Leu Ala Val Leu Gln Leu Arg Val Lys His Ala Asn Glu
465                 470                 475                 480

Thr Ser Leu Gly Ile Thr Trp Arg Ala Pro Leu Gly Glu Trp Glu Lys
                485                 490                 495

Tyr Ile Ile Ser Leu Met Asp Arg Glu Leu Leu Val Ile His Lys Ser
            500                 505                 510

Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe Thr Asp Leu Met Pro Gly
        515                 520                 525

Arg Asn Tyr Lys Ala Thr Val Thr Ser Met Ser Gly Asp Leu Lys Gln
    530                 535                 540

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

His Val Asn Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp Thr
                565                 570                 575

Lys Ala Leu Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His Glu
            580                 585                 590

Asn Val Val Val Lys Asn Glu Ser Val Ser Ser Asp Thr Ser Arg Tyr
```

595 600 605

Ser Phe Arg Ala Leu Lys Pro Gly Ser Leu Tyr Ser Val Val Val Thr
610 615 620

Thr Val Ser Gly Gly Ile Ser Ser Arg Gln Val Val Ala Glu Gly Arg
625 630 635 640

Thr Val Pro Ser Ser Val Ser Gly Val Thr Val Asn Asn Ser Gly Arg
645 650 655

Asn Asp Tyr Leu Ser Val Ser Trp Leu Pro Ala Pro Gly Glu Val Asp
660 665 670

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

Ile Ile Ala Lys Ser Val Ser Glu Cys Ser Phe Ser Ser Leu Thr Pro
690 695 700

Gly Arg Leu Tyr Asn Val Thr Val Thr Thr Lys Ser Gly Asn Tyr Ala
705 710 715 720

Ser His Ser Phe Thr Glu Glu Arg Thr Lys Gly Asn Ser Ala Asp Ile
725 730 735

Gln His Ser Gly Gly Arg Ser Ser Leu Glu Gly Pro Arg Phe Glu Gly
740 745 750

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

His His His His His His
770

<210> 11
<211> 89
<212> PRT
<213> Homo sapiens

<400> 11

Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala Glu Ser Lys Ala
1 5 10 15

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

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Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly Ala Ala Leu Cys
        35                  40                  45

Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys Asn Leu Gln Asp
    50                  55                  60

Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile Ser Leu Asp Glu
65                  70                  75                  80

Glu Arg Thr Val Val Leu Gln Thr Asp
                85
```