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<110> ONCOTHERAPY SCIENCE,INC.

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<150> JP 2015-200220
<151> 2015-10-08

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1 5 10

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<400> 115

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1 5

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<400> 148

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                                    Met Glu Ser Asn Phe Asn Gln
                                    1               5

gag gga gta cct cga cca tct tat gtt ttt agt gct gac cca att gca      161
Glu Gly Val Pro Arg Pro Ser Tyr Val Phe Ser Ala Asp Pro Ile Ala
        10                  15                  20

agg cct tca gaa ata aat ttc gat ggc att aag ctt gat ctg tct cat      209
Arg Pro Ser Glu Ile Asn Phe Asp Gly Ile Lys Leu Asp Leu Ser His
    25                  30                  35

gaa ttt tcc tta gtt gct cca aat act gag gca aac agt ttc gaa tct      257
Glu Phe Ser Leu Val Ala Pro Asn Thr Glu Ala Asn Ser Phe Glu Ser
40                  45                  50                  55

aaa gat tat ctc cag gtt tgt ctt cga ata aga cca ttt aca cag tca      305
Lys Asp Tyr Leu Gln Val Cys Leu Arg Ile Arg Pro Phe Thr Gln Ser
                60                  65                  70

gaa aaa gaa ctt gag tct gag ggc tgt gtg cat att ctg gat tca cag      353
Glu Lys Glu Leu Glu Ser Glu Gly Cys Val His Ile Leu Asp Ser Gln
            75                  80                  85

act gtt gtg ctg aaa gag cct caa tgc atc ctt ggt cgg tta agt gaa      401
Thr Val Val Leu Lys Glu Pro Gln Cys Ile Leu Gly Arg Leu Ser Glu
        90                  95                  100

aaa agc tca ggg cag atg gca cag aaa ttc agt ttt tcc aag gtt ttt      449
Lys Ser Ser Gly Gln Met Ala Gln Lys Phe Ser Phe Ser Lys Val Phe
    105                 110                 115
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ggc cca gca act aca cag aag gaa ttc ttt cag ggt tgc att atg caa      497
Gly Pro Ala Thr Thr Gln Lys Glu Phe Phe Gln Gly Cys Ile Met Gln
120                 125                 130                 135

cca gta aaa gac ctc ttg aaa gga cag agt cgt ctg att ttt act tac      545
Pro Val Lys Asp Leu Leu Lys Gly Gln Ser Arg Leu Ile Phe Thr Tyr
                140                 145                 150

ggg cta acc aat tca gga aaa aca tat aca ttt caa ggg aca gaa gaa      593
Gly Leu Thr Asn Ser Gly Lys Thr Tyr Thr Phe Gln Gly Thr Glu Glu
            155                 160                 165

aat att ggc att ctg cct cga act ttg aat gta tta ttt gat agt ctt      641
Asn Ile Gly Ile Leu Pro Arg Thr Leu Asn Val Leu Phe Asp Ser Leu
        170                 175                 180

caa gaa aga ctg tat aca aag atg aac ctt aaa cca cat aga tcc aga      689
Gln Glu Arg Leu Tyr Thr Lys Met Asn Leu Lys Pro His Arg Ser Arg
    185                 190                 195

gaa tac tta agg tta tca tca gaa caa gag aaa gaa gaa att gct agc      737
Glu Tyr Leu Arg Leu Ser Ser Glu Gln Glu Lys Glu Glu Ile Ala Ser
200                 205                 210                 215

aaa agt gca ttg ctt cgg caa att aaa gag gtt act gtg cat aat gat      785
Lys Ser Ala Leu Leu Arg Gln Ile Lys Glu Val Thr Val His Asn Asp
                220                 225                 230

agt gat gat act ctt tat gga agt tta act aac tct ttg aat atc tca      833
Ser Asp Asp Thr Leu Tyr Gly Ser Leu Thr Asn Ser Leu Asn Ile Ser
            235                 240                 245

gag ttt gaa gaa tcc ata aaa gat tat gaa caa gcc aac ttg aat atg      881
Glu Phe Glu Glu Ser Ile Lys Asp Tyr Glu Gln Ala Asn Leu Asn Met
        250                 255                 260
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gct aat agt ata aaa ttt tct gtg tgg gtt tct ttc ttt gaa att tac      929
Ala Asn Ser Ile Lys Phe Ser Val Trp Val Ser Phe Phe Glu Ile Tyr
    265                 270                 275

aat gaa tat att tat gac tta ttt gtt cct gta tca tct aaa ttc caa      977
Asn Glu Tyr Ile Tyr Asp Leu Phe Val Pro Val Ser Ser Lys Phe Gln
280                 285                 290                 295

aag aga aag atg ctg cgc ctt tcc caa gac gta aag ggc tat tct ttt     1025
Lys Arg Lys Met Leu Arg Leu Ser Gln Asp Val Lys Gly Tyr Ser Phe
                300                 305                 310

ata aaa gat cta caa tgg att caa gta tct gat tcc aaa gaa gcc tat     1073
Ile Lys Asp Leu Gln Trp Ile Gln Val Ser Asp Ser Lys Glu Ala Tyr
            315                 320                 325

aga ctt tta aaa cta gga ata aag cac cag agt gtt gcc ttc aca aaa     1121
Arg Leu Leu Lys Leu Gly Ile Lys His Gln Ser Val Ala Phe Thr Lys
        330                 335                 340

ttg aat aat gct tcc agt aga agt cac agc ata ttc act gtt aaa ata     1169
Leu Asn Asn Ala Ser Ser Arg Ser His Ser Ile Phe Thr Val Lys Ile
    345                 350                 355

tta cag att gaa gat tct gaa atg tct cgt gta att cga gtc agt gaa     1217
Leu Gln Ile Glu Asp Ser Glu Met Ser Arg Val Ile Arg Val Ser Glu
360                 365                 370                 375

tta tct tta tgt gat ctt gct ggt tca gaa cga act atg aag aca cag     1265
Leu Ser Leu Cys Asp Leu Ala Gly Ser Glu Arg Thr Met Lys Thr Gln
                380                 385                 390

aat gaa ggt gaa agg tta aga gag act ggg aat atc aac act tct tta     1313
Asn Glu Gly Glu Arg Leu Arg Glu Thr Gly Asn Ile Asn Thr Ser Leu
            395                 400                 405
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ttg act ctg gga aag tgt att aac gtc ttg aag aat agt gaa aag tca     1361
Leu Thr Leu Gly Lys Cys Ile Asn Val Leu Lys Asn Ser Glu Lys Ser
        410                 415                 420

aag ttt caa cag cat gtg cct ttc cgg gaa agt aaa ctg act cac tat     1409
Lys Phe Gln Gln His Val Pro Phe Arg Glu Ser Lys Leu Thr His Tyr
    425                 430                 435

ttt caa agt ttt ttt aat ggt aaa ggg aaa att tgt atg att gtc aat     1457
Phe Gln Ser Phe Phe Asn Gly Lys Gly Lys Ile Cys Met Ile Val Asn
440                 445                 450                 455

atc agc caa tgt tat tta gcc tat gat gaa aca ctc aat gta ttg aag     1505
Ile Ser Gln Cys Tyr Leu Ala Tyr Asp Glu Thr Leu Asn Val Leu Lys
                460                 465                 470

ttc tcc gcc att gca caa aaa gtt tgt gtc cca gac act tta aat tcc     1553
Phe Ser Ala Ile Ala Gln Lys Val Cys Val Pro Asp Thr Leu Asn Ser
            475                 480                 485

tct caa gag aaa tta ttt gga cct gtc aaa tct tct caa gat gta tca     1601
Ser Gln Glu Lys Leu Phe Gly Pro Val Lys Ser Ser Gln Asp Val Ser
        490                 495                 500

cta gac agt aat tca aac agt aaa ata tta aat gta aaa aga gcc acc     1649
Leu Asp Ser Asn Ser Asn Ser Lys Ile Leu Asn Val Lys Arg Ala Thr
    505                 510                 515

att tca tgg gaa aat agt cta gaa gat ttg atg gaa gac gag gat ttg     1697
Ile Ser Trp Glu Asn Ser Leu Glu Asp Leu Met Glu Asp Glu Asp Leu
520                 525                 530                 535

gtt gag gag cta gaa aac gct gaa gaa act caa aat gtg gaa act aaa     1745
Val Glu Glu Leu Glu Asn Ala Glu Glu Thr Gln Asn Val Glu Thr Lys
                540                 545                 550
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ctt ctt gat gaa gat cta gat aaa aca tta gag gaa aat aag gct ttc     1793
Leu Leu Asp Glu Asp Leu Asp Lys Thr Leu Glu Glu Asn Lys Ala Phe
            555                 560                 565

att agc cac gag gag aaa aga aaa ctg ttg gac tta ata gaa gac ttg     1841
Ile Ser His Glu Glu Lys Arg Lys Leu Leu Asp Leu Ile Glu Asp Leu
        570                 575                 580

aaa aaa aaa ctg ata aat gaa aaa aag gaa aaa tta acc ttg gaa ttt     1889
Lys Lys Lys Leu Ile Asn Glu Lys Lys Glu Lys Leu Thr Leu Glu Phe
    585                 590                 595

aaa att cga gaa gaa gtt aca cag gag ttt act cag tat tgg gct caa     1937
Lys Ile Arg Glu Glu Val Thr Gln Glu Phe Thr Gln Tyr Trp Ala Gln
600                 605                 610                 615

cgg gaa gct gac ttt aag gag act ctg ctt caa gaa cga gag ata tta     1985
Arg Glu Ala Asp Phe Lys Glu Thr Leu Leu Gln Glu Arg Glu Ile Leu
                620                 625                 630

gaa gaa aat gct gaa cgt cgt ttg gct atc ttc aag gat ttg gtt ggt     2033
Glu Glu Asn Ala Glu Arg Arg Leu Ala Ile Phe Lys Asp Leu Val Gly
            635                 640                 645

aaa tgt gac act cga gaa gaa gca gcg aaa gac att tgt gcc aca aaa     2081
Lys Cys Asp Thr Arg Glu Glu Ala Ala Lys Asp Ile Cys Ala Thr Lys
        650                 655                 660

gtt gaa act gaa gaa gct act gct tgt tta gaa cta aag ttt aat caa     2129
Val Glu Thr Glu Glu Ala Thr Ala Cys Leu Glu Leu Lys Phe Asn Gln
    665                 670                 675

att aaa gct gaa tta gct aaa acc aaa gga gaa tta atc aaa acc aaa     2177
Ile Lys Ala Glu Leu Ala Lys Thr Lys Gly Glu Leu Ile Lys Thr Lys
680                 685                 690                 695
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gaa gag tta aaa aag aga gaa aat gaa tca gat tca ttg att caa gag     2225
Glu Glu Leu Lys Lys Arg Glu Asn Glu Ser Asp Ser Leu Ile Gln Glu
                700                 705                 710

ctt gag aca tct aat aag aaa ata att aca cag aat caa aga att aaa     2273
Leu Glu Thr Ser Asn Lys Lys Ile Ile Thr Gln Asn Gln Arg Ile Lys
            715                 720                 725

gaa ttg ata aat ata att gat caa aaa gaa gat act atc aac gaa ttt     2321
Glu Leu Ile Asn Ile Ile Asp Gln Lys Glu Asp Thr Ile Asn Glu Phe
        730                 735                 740

cag aac cta aag tct cat atg gaa aac aca ttt aaa tgc aat gac aag     2369
Gln Asn Leu Lys Ser His Met Glu Asn Thr Phe Lys Cys Asn Asp Lys
    745                 750                 755

gct gat aca tct tct tta ata ata aac aat aaa ttg att tgt aat gaa     2417
Ala Asp Thr Ser Ser Leu Ile Ile Asn Asn Lys Leu Ile Cys Asn Glu
760                 765                 770                 775

aca gtt gaa gta cct aag gac agc aaa tct aaa atc tgt tca gaa aga     2465
Thr Val Glu Val Pro Lys Asp Ser Lys Ser Lys Ile Cys Ser Glu Arg
                780                 785                 790

aaa aga gta aat gaa aat gaa ctt cag caa gat gaa cca cca gca aag     2513
Lys Arg Val Asn Glu Asn Glu Leu Gln Gln Asp Glu Pro Pro Ala Lys
            795                 800                 805

aaa ggg tct atc cat gtt agt tca gct atc act gaa gac caa aag aaa     2561
Lys Gly Ser Ile His Val Ser Ser Ala Ile Thr Glu Asp Gln Lys Lys
        810                 815                 820

agt gaa gaa gtg cga ccg aac att gca gaa att gaa gac atc aga gtt     2609
Ser Glu Glu Val Arg Pro Asn Ile Ala Glu Ile Glu Asp Ile Arg Val
    825                 830                 835
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tta caa gaa aat aat gaa gga ctg aga gca ttt tta ctc act att gag     2657
Leu Gln Glu Asn Asn Glu Gly Leu Arg Ala Phe Leu Leu Thr Ile Glu
840                 845                 850                 855

aat gaa ctt aaa aat gaa aag gaa gaa aaa gca gaa tta aat aaa cag     2705
Asn Glu Leu Lys Asn Glu Lys Glu Glu Lys Ala Glu Leu Asn Lys Gln
                860                 865                 870

att gtt cat ttt cag cag gaa ctt tct ctt tct gaa aaa aag aat tta     2753
Ile Val His Phe Gln Gln Glu Leu Ser Leu Ser Glu Lys Lys Asn Leu
            875                 880                 885

act tta agt aaa gag gtc caa caa att cag tca aat tat gat att gca     2801
Thr Leu Ser Lys Glu Val Gln Gln Ile Gln Ser Asn Tyr Asp Ile Ala
        890                 895                 900

att gct gaa tta cat gtg cag aaa agt aaa aat caa gaa cag gag gaa     2849
Ile Ala Glu Leu His Val Gln Lys Ser Lys Asn Gln Glu Gln Glu Glu
    905                 910                 915

aag atc atg aaa ttg tca aat gag ata gaa act gct aca aga agc att     2897
Lys Ile Met Lys Leu Ser Asn Glu Ile Glu Thr Ala Thr Arg Ser Ile
920                 925                 930                 935

aca aat aat gtt tca caa ata aaa tta atg cac acg aaa ata gac gaa     2945
Thr Asn Asn Val Ser Gln Ile Lys Leu Met His Thr Lys Ile Asp Glu
                940                 945                 950

cta cgt act ctt gat tca gtt tct cag att tca aac ata gat ttg ctc     2993
Leu Arg Thr Leu Asp Ser Val Ser Gln Ile Ser Asn Ile Asp Leu Leu
            955                 960                 965

aat ctc agg gat ctg tca aat ggt tct gag gag gat aat ttg cca aat     3041
Asn Leu Arg Asp Leu Ser Asn Gly Ser Glu Glu Asp Asn Leu Pro Asn
        970                 975                 980
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aca cag tta gac ctt tta ggt aat gat tat ttg gta agt aag caa gtt     3089
Thr Gln Leu Asp Leu Leu Gly Asn Asp Tyr Leu Val Ser Lys Gln Val
    985                 990                 995

aaa  gaa tat cga att caa  gaa ccc aat agg gaa  aat tct ttc cac     3134
Lys  Glu Tyr Arg Ile Gln  Glu Pro Asn Arg Glu  Asn Ser Phe His
1000                1005                1010

tct  agt att gaa gct att  tgg gaa gaa tgt aaa  gag att gtg aag     3179
Ser  Ser Ile Glu Ala Ile  Trp Glu Glu Cys Lys  Glu Ile Val Lys
1015                1020                1025

gcc  tct tcc aaa aaa agt  cat cag att gag gaa  ctg gaa caa caa     3224
Ala  Ser Ser Lys Lys Ser  His Gln Ile Glu Glu  Leu Glu Gln Gln
1030                1035                1040

att  gaa aaa ttg cag gca  gaa gta aaa ggc tat  aag gat gaa aac     3269
Ile  Glu Lys Leu Gln Ala  Glu Val Lys Gly Tyr  Lys Asp Glu Asn
1045                1050                1055

aat  aga cta aag gag aag  gag cat aaa aac caa  gat gac cta cta     3314
Asn  Arg Leu Lys Glu Lys  Glu His Lys Asn Gln  Asp Asp Leu Leu
1060                1065                1070

aaa  gaa aaa gaa act ctt  ata cag cag ctg aaa  gaa gaa ttg caa     3359
Lys  Glu Lys Glu Thr Leu  Ile Gln Gln Leu Lys  Glu Glu Leu Gln
1075                1080                1085

gaa  aaa aat gtt act ctt  gat gtt caa ata cag  cat gta gtt gaa     3404
Glu  Lys Asn Val Thr Leu  Asp Val Gln Ile Gln  His Val Val Glu
1090                1095                1100

gga  aag aga gcg ctt tca  gaa ctt aca caa ggt  gtt act tgc tat     3449
Gly  Lys Arg Ala Leu Ser  Glu Leu Thr Gln Gly  Val Thr Cys Tyr
1105                1110                1115
```

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aag  gca aaa ata aag gaa  ctt gaa aca att tta  gag act cag aaa      3494
Lys  Ala Lys Ile Lys Glu  Leu Glu Thr Ile Leu  Glu Thr Gln Lys
1120                1125                1130

gtt  gaa tgt agt cat tca  gcc aag tta gaa caa  gac att ttg gaa      3539
Val  Glu Cys Ser His Ser  Ala Lys Leu Glu Gln  Asp Ile Leu Glu
1135                1140                1145

aag  gaa tct atc atc tta  aag cta gaa aga aat  ttg aag gaa ttt      3584
Lys  Glu Ser Ile Ile Leu  Lys Leu Glu Arg Asn  Leu Lys Glu Phe
1150                1155                1160

caa  gaa cat ctt cag gat  tct gtc aaa aac acc  aaa gat tta aat      3629
Gln  Glu His Leu Gln Asp  Ser Val Lys Asn Thr  Lys Asp Leu Asn
1165                1170                1175

gta  aag gaa ctc aag ctg  aaa gaa gaa atc aca  cag tta aca aat      3674
Val  Lys Glu Leu Lys Leu  Lys Glu Glu Ile Thr  Gln Leu Thr Asn
1180                1185                1190

aat  ttg caa gat atg aaa  cat tta ctt caa tta  aaa gaa gaa gaa      3719
Asn  Leu Gln Asp Met Lys  His Leu Leu Gln Leu  Lys Glu Glu Glu
1195                1200                1205

gaa  gaa acc aac agg caa  gaa aca gaa aaa ttg  aaa gag gaa ctc      3764
Glu  Glu Thr Asn Arg Gln  Glu Thr Glu Lys Leu  Lys Glu Glu Leu
1210                1215                1220

tct  gca agc tct gct cgt  acc cag aat ctg aaa  gca gat ctt cag      3809
Ser  Ala Ser Ser Ala Arg  Thr Gln Asn Leu Lys  Ala Asp Leu Gln
1225                1230                1235

agg  aag gaa gaa gat tat  gct gac ctg aaa gag  aaa ctg act gat      3854
Arg  Lys Glu Glu Asp Tyr  Ala Asp Leu Lys Glu  Lys Leu Thr Asp
1240                1245                1250
```

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gcc  aaa aag cag att aag  caa gta cag aaa gag  gta tct gta atg      3899
Ala  Lys Lys Gln Ile Lys  Gln Val Gln Lys Glu  Val Ser Val Met
1255                1260                1265

cgt  gat gag gat aaa tta  ctg agg att aaa att  aat gaa ctg gag      3944
Arg  Asp Glu Asp Lys Leu  Leu Arg Ile Lys Ile  Asn Glu Leu Glu
1270                1275                1280

aaa  aag aaa aac cag tgt  tct cag gaa tta gat  atg aaa cag cga      3989
Lys  Lys Lys Asn Gln Cys  Ser Gln Glu Leu Asp  Met Lys Gln Arg
1285                1290                1295

acc  att cag caa ctc aag  gag cag tta aat aat  cag aaa gtg gaa      4034
Thr  Ile Gln Gln Leu Lys  Glu Gln Leu Asn Asn  Gln Lys Val Glu
1300                1305                1310

gaa  gct ata caa cag tat  gag aga gca tgc aaa  gat cta aat gtt      4079
Glu  Ala Ile Gln Gln Tyr  Glu Arg Ala Cys Lys  Asp Leu Asn Val
1315                1320                1325

aaa  gag aaa ata att gaa  gac atg cga atg aca  cta gaa gaa cag      4124
Lys  Glu Lys Ile Ile Glu  Asp Met Arg Met Thr  Leu Glu Glu Gln
1330                1335                1340

gaa  caa act cag gta gaa  cag gat caa gtg ctt  gag gct aaa tta      4169
Glu  Gln Thr Gln Val Glu  Gln Asp Gln Val Leu  Glu Ala Lys Leu
1345                1350                1355

gag  gaa gtt gaa agg ctg  gcc aca gaa ttg gaa  aaa tgg aag gaa      4214
Glu  Glu Val Glu Arg Leu  Ala Thr Glu Leu Glu  Lys Trp Lys Glu
1360                1365                1370

aaa  tgc aat gat ttg gaa  acc aaa aac aat caa  agg tca aat aaa      4259
Lys  Cys Asn Asp Leu Glu  Thr Lys Asn Asn Gln  Arg Ser Asn Lys
1375                1380                1385
```

```
gaa  cat gag aac aac aca  gat gtg ctt gga aag  ctc act aat ctt      4304
Glu  His Glu Asn Asn Thr  Asp Val Leu Gly Lys  Leu Thr Asn Leu
1390                1395                1400

caa  gat gag tta cag gag  tct gaa cag aaa tat  aat gct gat aga      4349
Gln  Asp Glu Leu Gln Glu  Ser Glu Gln Lys Tyr  Asn Ala Asp Arg
1405                1410                1415

aag  aaa tgg tta gaa gaa  aaa atg atg ctt atc  act caa gcg aaa      4394
Lys  Lys Trp Leu Glu Glu  Lys Met Met Leu Ile  Thr Gln Ala Lys
1420                1425                1430

gaa  gca gag aat ata cga  aat aaa gag atg aaa  aaa tat gct gag      4439
Glu  Ala Glu Asn Ile Arg  Asn Lys Glu Met Lys  Lys Tyr Ala Glu
1435                1440                1445

gac  agg gag cgt ttt ttt  aag caa cag aat gaa  atg gaa ata ctg      4484
Asp  Arg Glu Arg Phe Phe  Lys Gln Gln Asn Glu  Met Glu Ile Leu
1450                1455                1460

aca  gcc cag ctg aca gag  aaa gat agt gac ctt  caa aag tgg cga      4529
Thr  Ala Gln Leu Thr Glu  Lys Asp Ser Asp Leu  Gln Lys Trp Arg
1465                1470                1475

gaa  gaa cga gat caa ctg  gtt gca gct tta gaa  ata cag cta aaa      4574
Glu  Glu Arg Asp Gln Leu  Val Ala Ala Leu Glu  Ile Gln Leu Lys
1480                1485                1490

gca  ctg ata tcc agt aat  gta cag aaa gat aat  gaa att gaa caa      4619
Ala  Leu Ile Ser Ser Asn  Val Gln Lys Asp Asn  Glu Ile Glu Gln
1495                1500                1505

cta  aaa agg atc ata tca  gag act tct aaa ata  gaa aca caa atc      4664
Leu  Lys Arg Ile Ile Ser  Glu Thr Ser Lys Ile  Glu Thr Gln Ile
1510                1515                1520
```

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atg  gat atc aag ccc aaa  cgt att agt tca gca  gat cct gac aaa      4709
Met  Asp Ile Lys Pro Lys  Arg Ile Ser Ser Ala  Asp Pro Asp Lys
1525                1530                1535

ctt  caa act gaa cct cta  tcg aca agt ttt gaa  att tcc aga aat      4754
Leu  Gln Thr Glu Pro Leu  Ser Thr Ser Phe Glu  Ile Ser Arg Asn
1540                1545                1550

aaa  ata gag gat gga tct  gta gtc ctt gac tct  tgt gaa gtg tca      4799
Lys  Ile Glu Asp Gly Ser  Val Val Leu Asp Ser  Cys Glu Val Ser
1555                1560                1565

aca  gaa aat gat caa agc  act cga ttt cca aaa  cct gag tta gag      4844
Thr  Glu Asn Asp Gln Ser  Thr Arg Phe Pro Lys  Pro Glu Leu Glu
1570                1575                1580

att  caa ttt aca cct tta  cag cca aac aaa atg  gca gtg aaa cac      4889
Ile  Gln Phe Thr Pro Leu  Gln Pro Asn Lys Met  Ala Val Lys His
1585                1590                1595

cct  ggt tgt acc aca cca  gtg aca gtt aag att  ccc aag gct cgg      4934
Pro  Gly Cys Thr Thr Pro  Val Thr Val Lys Ile  Pro Lys Ala Arg
1600                1605                1610

aag  agg aag agt aat gaa  atg gag gag gac ttg  gtg aaa tgt gaa      4979
Lys  Arg Lys Ser Asn Glu  Met Glu Glu Asp Leu  Val Lys Cys Glu
1615                1620                1625

aat  aag aag aat gct aca  ccc aga act aat ttg  aaa ttt cct att      5024
Asn  Lys Lys Asn Ala Thr  Pro Arg Thr Asn Leu  Lys Phe Pro Ile
1630                1635                1640

tca  gat gat aga aat tct  tct gtc aaa aag gaa  caa aag gtt gcc      5069
Ser  Asp Asp Arg Asn Ser  Ser Val Lys Lys Glu  Gln Lys Val Ala
1645                1650                1655
```

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ata  cgt cca tca tct aag  aaa aca tat tct tta  cgg agt cag gca      5114
Ile  Arg Pro Ser Ser Lys  Lys Thr Tyr Ser Leu  Arg Ser Gln Ala
1660                1665                1670

tcc  ata att ggt gta aac  ctg gcc act aag aaa  aaa gaa gga aca      5159
Ser  Ile Ile Gly Val Asn  Leu Ala Thr Lys Lys  Lys Glu Gly Thr
1675                1680                1685

cta  cag aaa ttt gga gac  ttc tta caa cat tct  ccc tca att ctt      5204
Leu  Gln Lys Phe Gly Asp  Phe Leu Gln His Ser  Pro Ser Ile Leu
1690                1695                1700

caa  tca aaa gca aag aag  ata att gaa aca atg  agc tct tca aag      5249
Gln  Ser Lys Ala Lys Lys  Ile Ile Glu Thr Met  Ser Ser Ser Lys
1705                1710                1715

ctc  tca aat gta gaa gca  agt aaa gaa aat gtg  tct caa cca aaa      5294
Leu  Ser Asn Val Glu Ala  Ser Lys Glu Asn Val  Ser Gln Pro Lys
1720                1725                1730

cga  gcc aaa cgg aaa tta  tac aca agt gaa att  tca tct cct att      5339
Arg  Ala Lys Arg Lys Leu  Tyr Thr Ser Glu Ile  Ser Ser Pro Ile
1735                1740                1745

gat  ata tca ggc caa gtg  att tta atg gac cag  aaa atg aag gag      5384
Asp  Ile Ser Gly Gln Val  Ile Leu Met Asp Gln  Lys Met Lys Glu
1750                1755                1760

agt  gat cac cag att atc  aaa cga cga ctt cga  aca aaa aca gcc      5429
Ser  Asp His Gln Ile Ile  Lys Arg Arg Leu Arg  Thr Lys Thr Ala
1765                1770                1775

aaa  taa atcacttatg gaaatgttta atataaattt tatagtcata gtcattggaa     5485
Lys
1780
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cttgcatcct gtattgtaaa tataaatgta tatattatgc attaaatcac tctgcatata 5545

gattgctgtt ttatacatag tataatttta attcaataaa tgagtcaaaa tttgtatatt 5605

tttataaggc ttttttataa tagcttcttt caaactgtat ttccctatta tctcagacat 5665

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gtaataggtc aggtatttgg tttacttata tttaacaatg tcttatgaat tttttttact 5785

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attagaatgt ctcacttatt ttgtaaacat tttgtgggta catagtacat gtatatattt 5965

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<210> 186
<211> 1780
<212> PRT
<213> Homo sapiens

<400> 186

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Met Glu Ser Asn Phe Asn Gln Glu Gly Val Pro Arg Pro Ser Tyr Val
1               5                  10                  15

Phe Ser Ala Asp Pro Ile Ala Arg Pro Ser Glu Ile Asn Phe Asp Gly
            20                  25                  30

Ile Lys Leu Asp Leu Ser His Glu Phe Ser Leu Val Ala Pro Asn Thr
        35                  40                  45

Glu Ala Asn Ser Phe Glu Ser Lys Asp Tyr Leu Gln Val Cys Leu Arg
    50                  55                  60

Ile Arg Pro Phe Thr Gln Ser Glu Lys Glu Leu Glu Ser Glu Gly Cys
65                  70                  75                  80

Val His Ile Leu Asp Ser Gln Thr Val Val Leu Lys Glu Pro Gln Cys
                85                  90                  95

Ile Leu Gly Arg Leu Ser Glu Lys Ser Ser Gly Gln Met Ala Gln Lys
            100                 105                 110

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

Phe Gln Gly Cys Ile Met Gln Pro Val Lys Asp Leu Leu Lys Gly Gln
    130                 135                 140
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Ser Arg Leu Ile Phe Thr Tyr Gly Leu Thr Asn Ser Gly Lys Thr Tyr
145 150 155 160

Thr Phe Gln Gly Thr Glu Glu Asn Ile Gly Ile Leu Pro Arg Thr Leu
165 170 175

Asn Val Leu Phe Asp Ser Leu Gln Glu Arg Leu Tyr Thr Lys Met Asn
180 185 190

Leu Lys Pro His Arg Ser Arg Glu Tyr Leu Arg Leu Ser Ser Glu Gln
195 200 205

Glu Lys Glu Glu Ile Ala Ser Lys Ser Ala Leu Leu Arg Gln Ile Lys
210 215 220

Glu Val Thr Val His Asn Asp Ser Asp Asp Thr Leu Tyr Gly Ser Leu
225 230 235 240

Thr Asn Ser Leu Asn Ile Ser Glu Phe Glu Glu Ser Ile Lys Asp Tyr
245 250 255

Glu Gln Ala Asn Leu Asn Met Ala Asn Ser Ile Lys Phe Ser Val Trp
260 265 270

Val Ser Phe Phe Glu Ile Tyr Asn Glu Tyr Ile Tyr Asp Leu Phe Val
275 280 285

Pro Val Ser Ser Lys Phe Gln Lys Arg Lys Met Leu Arg Leu Ser Gln
290 295 300

Asp Val Lys Gly Tyr Ser Phe Ile Lys Asp Leu Gln Trp Ile Gln Val
305 310 315 320

Ser Asp Ser Lys Glu Ala Tyr Arg Leu Leu Lys Leu Gly Ile Lys His
325 330 335

Gln Ser Val Ala Phe Thr Lys Leu Asn Asn Ala Ser Ser Arg Ser His
340 345 350

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

Arg Val Ile Arg Val Ser Glu Leu Ser Leu Cys Asp Leu Ala Gly Ser
370 375 380

Glu Arg Thr Met Lys Thr Gln Asn Glu Gly Glu Arg Leu Arg Glu Thr
385 390 395 400

Gly Asn Ile Asn Thr Ser Leu Leu Thr Leu Gly Lys Cys Ile Asn Val
405 410 415

Leu Lys Asn Ser Glu Lys Ser Lys Phe Gln Gln His Val Pro Phe Arg
420 425 430

Glu Ser Lys Leu Thr His Tyr Phe Gln Ser Phe Phe Asn Gly Lys Gly
435 440 445

Lys Ile Cys Met Ile Val Asn Ile Ser Gln Cys Tyr Leu Ala Tyr Asp
450 455 460

Glu Thr Leu Asn Val Leu Lys Phe Ser Ala Ile Ala Gln Lys Val Cys
465 470 475 480

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

Lys Ser Ser Gln Asp Val Ser Leu Asp Ser Asn Ser Asn Ser Lys Ile
500 505 510

Leu Asn Val Lys Arg Ala Thr Ile Ser Trp Glu Asn Ser Leu Glu Asp
515 520 525

Leu Met Glu Asp Glu Asp Leu Val Glu Glu Leu Glu Asn Ala Glu Glu
530 535 540

Thr Gln Asn Val Glu Thr Lys Leu Leu Asp Glu Asp Leu Asp Lys Thr
545 550 555 560

Leu Glu Glu Asn Lys Ala Phe Ile Ser His Glu Glu Lys Arg Lys Leu
565 570 575

Leu Asp Leu Ile Glu Asp Leu Lys Lys Lys Leu Ile Asn Glu Lys Lys
580 585 590

Glu Lys Leu Thr Leu Glu Phe Lys Ile Arg Glu Glu Val Thr Gln Glu
595 600 605

Phe Thr Gln Tyr Trp Ala Gln Arg Glu Ala Asp Phe Lys Glu Thr Leu
610 615 620

Leu Gln Glu Arg Glu Ile Leu Glu Glu Asn Ala Glu Arg Arg Leu Ala
625 630 635 640

Ile Phe Lys Asp Leu Val Gly Lys Cys Asp Thr Arg Glu Glu Ala Ala
645 650 655

Lys Asp Ile Cys Ala Thr Lys Val Glu Thr Glu Glu Ala Thr Ala Cys
660 665 670

Leu Glu Leu Lys Phe Asn Gln Ile Lys Ala Glu Leu Ala Lys Thr Lys
675 680 685

Gly Glu Leu Ile Lys Thr Lys Glu Glu Leu Lys Lys Arg Glu Asn Glu
690 695 700

Ser Asp Ser Leu Ile Gln Glu Leu Glu Thr Ser Asn Lys Lys Ile Ile
705 710 715 720

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

Glu Asp Thr Ile Asn Glu Phe Gln Asn Leu Lys Ser His Met Glu Asn
740 745 750

Thr Phe Lys Cys Asn Asp Lys Ala Asp Thr Ser Ser Leu Ile Ile Asn
755 760 765

Asn Lys Leu Ile Cys Asn Glu Thr Val Glu Val Pro Lys Asp Ser Lys
770 775 780

Ser Lys Ile Cys Ser Glu Arg Lys Arg Val Asn Glu Asn Glu Leu Gln
785 790 795 800

Gln Asp Glu Pro Pro Ala Lys Lys Gly Ser Ile His Val Ser Ser Ala
805 810 815

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

Glu Ile Glu Asp Ile Arg Val Leu Gln Glu Asn Asn Glu Gly Leu Arg
835 840 845

Ala Phe Leu Leu Thr Ile Glu Asn Glu Leu Lys Asn Glu Lys Glu Glu
850 855 860

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Lys Ala Glu Leu Asn Lys Gln Ile Val His Phe Gln Gln Glu Leu Ser
865                 870                 875                 880

Leu Ser Glu Lys Lys Asn Leu Thr Leu Ser Lys Glu Val Gln Gln Ile
                885                 890                 895

Gln Ser Asn Tyr Asp Ile Ala Ile Ala Glu Leu His Val Gln Lys Ser
            900                 905                 910

Lys Asn Gln Glu Gln Glu Glu Lys Ile Met Lys Leu Ser Asn Glu Ile
        915                 920                 925

Glu Thr Ala Thr Arg Ser Ile Thr Asn Asn Val Ser Gln Ile Lys Leu
    930                 935                 940

Met His Thr Lys Ile Asp Glu Leu Arg Thr Leu Asp Ser Val Ser Gln
945                 950                 955                 960

Ile Ser Asn Ile Asp Leu Leu Asn Leu Arg Asp Leu Ser Asn Gly Ser
                965                 970                 975

Glu Glu Asp Asn Leu Pro Asn Thr Gln Leu Asp Leu Leu Gly Asn Asp
            980                 985                 990

Tyr Leu Val Ser Lys Gln Val Lys  Glu Tyr Arg Ile Gln  Glu Pro Asn
        995                 1000                1005
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Arg Glu  Asn Ser Phe His Ser  Ser Ile Glu Ala Ile  Trp Glu Glu
    1010                1015                1020

Cys Lys  Glu Ile Val Lys Ala  Ser Ser Lys Lys Ser  His Gln Ile
    1025                1030                1035

Glu Glu  Leu Glu Gln Gln Ile  Glu Lys Leu Gln Ala  Glu Val Lys
    1040                1045                1050

Gly Tyr  Lys Asp Glu Asn Asn  Arg Leu Lys Glu Lys  Glu His Lys
    1055                1060                1065

Asn Gln  Asp Asp Leu Leu Lys  Glu Lys Glu Thr Leu  Ile Gln Gln
    1070                1075                1080

Leu Lys  Glu Glu Leu Gln Glu  Lys Asn Val Thr Leu  Asp Val Gln
    1085                1090                1095

Ile Gln  His Val Val Glu Gly  Lys Arg Ala Leu Ser  Glu Leu Thr
    1100                1105                1110

Gln Gly  Val Thr Cys Tyr Lys  Ala Lys Ile Lys Glu  Leu Glu Thr
    1115                1120                1125

Ile Leu  Glu Thr Gln Lys Val  Glu Cys Ser His Ser  Ala Lys Leu
    1130                1135                1140
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Glu Gln  Asp Ile Leu Glu Lys  Glu Ser Ile Ile Leu  Lys Leu Glu
    1145                1150                1155

Arg Asn  Leu Lys Glu Phe Gln  Glu His Leu Gln Asp  Ser Val Lys
    1160                1165                1170

Asn Thr  Lys Asp Leu Asn Val  Lys Glu Leu Lys Leu  Lys Glu Glu
    1175                1180                1185

Ile Thr  Gln Leu Thr Asn Asn  Leu Gln Asp Met Lys  His Leu Leu
    1190                1195                1200

Gln Leu  Lys Glu Glu Glu Glu  Glu Thr Asn Arg Gln  Glu Thr Glu
    1205                1210                1215

Lys Leu  Lys Glu Glu Leu Ser  Ala Ser Ser Ala Arg  Thr Gln Asn
    1220                1225                1230

Leu Lys  Ala Asp Leu Gln Arg  Lys Glu Glu Asp Tyr  Ala Asp Leu
    1235                1240                1245

Lys Glu  Lys Leu Thr Asp Ala  Lys Lys Gln Ile Lys  Gln Val Gln
    1250                1255                1260

Lys Glu  Val Ser Val Met Arg  Asp Glu Asp Lys Leu  Leu Arg Ile
    1265                1270                1275
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Lys Ile  Asn Glu Leu Glu Lys  Lys Lys Asn Gln Cys  Ser Gln Glu
    1280                1285                1290

Leu Asp  Met Lys Gln Arg Thr  Ile Gln Gln Leu Lys  Glu Gln Leu
    1295                1300                1305

Asn Asn  Gln Lys Val Glu Glu  Ala Ile Gln Gln Tyr  Glu Arg Ala
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Cys Lys  Asp Leu Asn Val Lys  Glu Lys Ile Ile Glu  Asp Met Arg
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Met Thr  Leu Glu Glu Gln Glu  Gln Thr Gln Val Glu  Gln Asp Gln
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Val Leu  Glu Ala Lys Leu Glu  Glu Val Glu Arg Leu  Ala Thr Glu
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Leu Glu  Lys Trp Lys Glu Lys  Cys Asn Asp Leu Glu  Thr Lys Asn
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Asn Gln  Arg Ser Asn Lys Glu  His Glu Asn Asn Thr  Asp Val Leu
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Gly Lys  Leu Thr Asn Leu Gln  Asp Glu Leu Gln Glu  Ser Glu Gln
    1400                1405                1410
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Lys Ile Glu Thr Gln Ile Met Asp Ile Lys Pro Lys Arg Ile Ser
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Ser Ala Asp Pro Asp Lys Leu Gln Thr Glu Pro Leu Ser Thr Ser
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Ser Leu Arg Ser Gln Ala Ser Ile Ile Gly Val Asn Leu Ala Thr
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Lys Lys Lys Glu Gly Thr Leu Gln Lys Phe Gly Asp Phe Leu Gln
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His Ser Pro Ser Ile Leu Gln Ser Lys Ala Lys Lys Ile Ile Glu
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Thr Met Ser Ser Ser Lys Leu Ser Asn Val Glu Ala Ser Lys Glu
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Asn Val Ser Gln Pro Lys Arg Ala Lys Arg Lys Leu Tyr Thr Ser
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Glu Ile Ser Ser Pro Ile Asp Ile Ser Gly Gln Val Ile Leu Met
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Met Glu Ser Asn Phe Asn Gln
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Glu Gly Val Pro Arg Pro Ser Tyr Val Phe Ser Ala Asp Pro Ile Ala
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Arg Pro Ser Glu Ile Asn Phe Asp Gly Ile Lys Leu Asp Leu Ser His
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gaa ttt tcc tta gtt gct cca aat act gag gca aac agt ttc gaa tct 257
Glu Phe Ser Leu Val Ala Pro Asn Thr Glu Ala Asn Ser Phe Glu Ser
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Lys Asp Tyr Leu Gln Val Cys Leu Arg Ile Arg Pro Phe Thr Gln Ser
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Glu Lys Glu Leu Glu Ser Glu Gly Cys Val His Ile Leu Asp Ser Gln
75 80 85

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Thr Val Val Leu Lys Glu Pro Gln Cys Ile Leu Gly Arg Leu Ser Glu
90 95 100

aaa agc tca ggg cag atg gca cag aaa ttc agt ttt tcc aag gtt ttt 449

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Lys Ser Ser Gly Gln Met Ala Gln Lys Phe Ser Phe Ser Lys Val Phe
    105                 110                 115

ggc cca gca act aca cag aag gaa ttc ttt cag ggt tgc att atg caa      497
Gly Pro Ala Thr Thr Gln Lys Glu Phe Phe Gln Gly Cys Ile Met Gln
120                 125                 130                 135

cca gta aaa gac ctc ttg aaa gga cag agt cgt ctg att ttt act tac      545
Pro Val Lys Asp Leu Leu Lys Gly Gln Ser Arg Leu Ile Phe Thr Tyr
                140                 145                 150

ggg cta acc aat tca gga aaa aca tat aca ttt caa ggg aca gaa gaa      593
Gly Leu Thr Asn Ser Gly Lys Thr Tyr Thr Phe Gln Gly Thr Glu Glu
            155                 160                 165

aat att ggc att ctg cct cga act ttg aat gta tta ttt gat agt ctt      641
Asn Ile Gly Ile Leu Pro Arg Thr Leu Asn Val Leu Phe Asp Ser Leu
        170                 175                 180

caa gaa aga ctg tat aca aag atg aac ctt aaa cca cat aga tcc aga      689
Gln Glu Arg Leu Tyr Thr Lys Met Asn Leu Lys Pro His Arg Ser Arg
    185                 190                 195

gaa tac tta agg tta tca tca gaa caa gag aaa gaa gaa att gct agc      737
Glu Tyr Leu Arg Leu Ser Ser Glu Gln Glu Lys Glu Glu Ile Ala Ser
200                 205                 210                 215

aaa agt gca ttg ctt cgg caa att aaa gag gtt act gtg cat aat gat      785
Lys Ser Ala Leu Leu Arg Gln Ile Lys Glu Val Thr Val His Asn Asp
                220                 225                 230

agt gat gat act ctt tat gga agt tta act aac tct ttg aat atc tca      833
Ser Asp Asp Thr Leu Tyr Gly Ser Leu Thr Asn Ser Leu Asn Ile Ser
            235                 240                 245

gag ttt gaa gaa tcc ata aaa gat tat gaa caa gcc aac ttg aat atg      881
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Glu Phe Glu Glu Ser Ile Lys Asp Tyr Glu Gln Ala Asn Leu Asn Met
        250                 255                 260

gct aat agt ata aaa ttt tct gtg tgg gtt tct ttc ttt gaa att tac      929
Ala Asn Ser Ile Lys Phe Ser Val Trp Val Ser Phe Phe Glu Ile Tyr
    265                 270                 275

aat gaa tat att tat gac tta ttt gtt cct gta tca tct aaa ttc caa      977
Asn Glu Tyr Ile Tyr Asp Leu Phe Val Pro Val Ser Ser Lys Phe Gln
280                 285                 290                 295

aag aga aag atg ctg cgc ctt tcc caa gac gta aag ggc tat tct ttt     1025
Lys Arg Lys Met Leu Arg Leu Ser Gln Asp Val Lys Gly Tyr Ser Phe
                300                 305                 310

ata aaa gat cta caa tgg att caa gta tct gat tcc aaa gaa gcc tat     1073
Ile Lys Asp Leu Gln Trp Ile Gln Val Ser Asp Ser Lys Glu Ala Tyr
            315                 320                 325

aga ctt tta aaa cta gga ata aag cac cag agt gtt gcc ttc aca aaa     1121
Arg Leu Leu Lys Leu Gly Ile Lys His Gln Ser Val Ala Phe Thr Lys
        330                 335                 340

ttg aat aat gct tcc agt aga agt cac agc ata ttc act gtt aaa ata     1169
Leu Asn Asn Ala Ser Ser Arg Ser His Ser Ile Phe Thr Val Lys Ile
    345                 350                 355

tta cag att gaa gat tct gaa atg tct cgt gta att cga gtc agt gaa     1217
Leu Gln Ile Glu Asp Ser Glu Met Ser Arg Val Ile Arg Val Ser Glu
360                 365                 370                 375

tta tct tta tgt gat ctt gct ggt tca gaa cga act atg aag aca cag     1265
Leu Ser Leu Cys Asp Leu Ala Gly Ser Glu Arg Thr Met Lys Thr Gln
                380                 385                 390

aat gaa ggt gaa agg tta aga gag act ggg aat atc aac act tct tta     1313
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Asn Glu Gly Glu Arg Leu Arg Glu Thr Gly Asn Ile Asn Thr Ser Leu
            395                 400                 405

ttg act ctg gga aag tgt att aac gtc ttg aag aat agt gaa aag tca     1361
Leu Thr Leu Gly Lys Cys Ile Asn Val Leu Lys Asn Ser Glu Lys Ser
        410                 415                 420

aag ttt caa cag cat gtg cct ttc cgg gaa agt aaa ctg act cac tat     1409
Lys Phe Gln Gln His Val Pro Phe Arg Glu Ser Lys Leu Thr His Tyr
    425                 430                 435

ttt caa agt ttt ttt aat ggt aaa ggg aaa att tgt atg att gtc aat     1457
Phe Gln Ser Phe Phe Asn Gly Lys Gly Lys Ile Cys Met Ile Val Asn
440                 445                 450                 455

atc agc caa tgt tat tta gcc tat gat gaa aca ctc aat gta ttg aag     1505
Ile Ser Gln Cys Tyr Leu Ala Tyr Asp Glu Thr Leu Asn Val Leu Lys
                460                 465                 470

ttc tcc gcc att gca caa aaa gtt tgt gtc cca gac act tta aat tcc     1553
Phe Ser Ala Ile Ala Gln Lys Val Cys Val Pro Asp Thr Leu Asn Ser
            475                 480                 485

tct caa gag aaa tta ttt gga cct gtc aaa tct tct caa gat gta tca     1601
Ser Gln Glu Lys Leu Phe Gly Pro Val Lys Ser Ser Gln Asp Val Ser
        490                 495                 500

cta gac agt aat tca aac agt aaa ata tta aat gta aaa aga gcc acc     1649
Leu Asp Ser Asn Ser Asn Ser Lys Ile Leu Asn Val Lys Arg Ala Thr
    505                 510                 515

att tca tgg gaa aat agt cta gaa gat ttg atg gaa gac gag gat ttg     1697
Ile Ser Trp Glu Asn Ser Leu Glu Asp Leu Met Glu Asp Glu Asp Leu
520                 525                 530                 535

gtt gag gag cta gaa aac gct gaa gaa act caa aat gtg gaa act aaa     1745
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Val Glu Glu Leu Glu Asn Ala Glu Glu Thr Gln Asn Val Glu Thr Lys
                540                 545                 550

ctt ctt gat gaa gat cta gat aaa aca tta gag gaa aat aag gct ttc     1793
Leu Leu Asp Glu Asp Leu Asp Lys Thr Leu Glu Glu Asn Lys Ala Phe
            555                 560                 565

att agc cac gag gag aaa aga aaa ctg ttg gac tta ata gaa gac ttg     1841
Ile Ser His Glu Glu Lys Arg Lys Leu Leu Asp Leu Ile Glu Asp Leu
        570                 575                 580

aaa aaa aaa ctg ata aat gaa aaa aag gaa aaa tta acc ttg gaa ttt     1889
Lys Lys Lys Leu Ile Asn Glu Lys Lys Glu Lys Leu Thr Leu Glu Phe
    585                 590                 595

aaa att cga gaa gaa gtt aca cag gag ttt act cag tat tgg gct caa     1937
Lys Ile Arg Glu Glu Val Thr Gln Glu Phe Thr Gln Tyr Trp Ala Gln
600                 605                 610                 615

cgg gaa gct gac ttt aag gag act ctg ctt caa gaa cga gag ata tta     1985
Arg Glu Ala Asp Phe Lys Glu Thr Leu Leu Gln Glu Arg Glu Ile Leu
                620                 625                 630

gaa gaa aat gct gaa cgt cgt ttg gct atc ttc aag gat ttg gtt ggt     2033
Glu Glu Asn Ala Glu Arg Arg Leu Ala Ile Phe Lys Asp Leu Val Gly
            635                 640                 645

aaa tgt gac act cga gaa gaa gca gcg aaa gac att tgt gcc aca aaa     2081
Lys Cys Asp Thr Arg Glu Glu Ala Ala Lys Asp Ile Cys Ala Thr Lys
        650                 655                 660

gtt gaa act gaa gaa aca cat aat tat gta gga ttt gaa gat att att     2129
Val Glu Thr Glu Glu Thr His Asn Tyr Val Gly Phe Glu Asp Ile Ile
    665                 670                 675

gat tct ctt caa gat aat gtt gct gat att aag aaa cag gct gaa att     2177
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Asp Ser Leu Gln Asp Asn Val Ala Asp Ile Lys Lys Gln Ala Glu Ile
680                 685                 690                 695

gct cac tta tat att gca tct ctt cct gac ccc cag gaa gct act gct     2225
Ala His Leu Tyr Ile Ala Ser Leu Pro Asp Pro Gln Glu Ala Thr Ala
                700                 705                 710

tgt tta gaa cta aag ttt aat caa att aaa gct gaa tta gct aaa acc     2273
Cys Leu Glu Leu Lys Phe Asn Gln Ile Lys Ala Glu Leu Ala Lys Thr
            715                 720                 725

aaa gga gaa tta atc aaa acc aaa gaa gag tta aaa aag aga gaa aat     2321
Lys Gly Glu Leu Ile Lys Thr Lys Glu Glu Leu Lys Lys Arg Glu Asn
        730                 735                 740

gaa tca gat tca ttg att caa gag ctt gag aca tct aat aag aaa ata     2369
Glu Ser Asp Ser Leu Ile Gln Glu Leu Glu Thr Ser Asn Lys Lys Ile
    745                 750                 755

att aca cag aat caa aga att aaa gaa ttg ata aat ata att gat caa     2417
Ile Thr Gln Asn Gln Arg Ile Lys Glu Leu Ile Asn Ile Ile Asp Gln
760                 765                 770                 775

aaa gaa gat act atc aac gaa ttt cag aac cta aag tct cat atg gaa     2465
Lys Glu Asp Thr Ile Asn Glu Phe Gln Asn Leu Lys Ser His Met Glu
                780                 785                 790

aac aca ttt aaa tgc aat gac aag gct gat aca tct tct tta ata ata     2513
Asn Thr Phe Lys Cys Asn Asp Lys Ala Asp Thr Ser Ser Leu Ile Ile
            795                 800                 805

aac aat aaa ttg att tgt aat gaa aca gtt gaa gta cct aag gac agc     2561
Asn Asn Lys Leu Ile Cys Asn Glu Thr Val Glu Val Pro Lys Asp Ser
        810                 815                 820

aaa tct aaa atc tgt tca gaa aga aaa aga gta aat gaa aat gaa ctt     2609
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Lys Ser Lys Ile Cys Ser Glu Arg Lys Arg Val Asn Glu Asn Glu Leu
    825                 830                 835

cag caa gat gaa cca cca gca aag aaa ggg tct atc cat gtt agt tca     2657
Gln Gln Asp Glu Pro Pro Ala Lys Lys Gly Ser Ile His Val Ser Ser
840                 845                 850                 855

gct atc act gaa gac caa aag aaa agt gaa gaa gtg cga ccg aac att     2705
Ala Ile Thr Glu Asp Gln Lys Lys Ser Glu Glu Val Arg Pro Asn Ile
                860                 865                 870

gca gaa att gaa gac atc aga gtt tta caa gaa aat aat gaa gga ctg     2753
Ala Glu Ile Glu Asp Ile Arg Val Leu Gln Glu Asn Asn Glu Gly Leu
            875                 880                 885

aga gca ttt tta ctc act att gag aat gaa ctt aaa aat gaa aag gaa     2801
Arg Ala Phe Leu Leu Thr Ile Glu Asn Glu Leu Lys Asn Glu Lys Glu
        890                 895                 900

gaa aaa gca gaa tta aat aaa cag att gtt cat ttt cag cag gaa ctt     2849
Glu Lys Ala Glu Leu Asn Lys Gln Ile Val His Phe Gln Gln Glu Leu
    905                 910                 915

tct ctt tct gaa aaa aag aat tta act tta agt aaa gag gtc caa caa     2897
Ser Leu Ser Glu Lys Lys Asn Leu Thr Leu Ser Lys Glu Val Gln Gln
920                 925                 930                 935

att cag tca aat tat gat att gca att gct gaa tta cat gtg cag aaa     2945
Ile Gln Ser Asn Tyr Asp Ile Ala Ile Ala Glu Leu His Val Gln Lys
                940                 945                 950

agt aaa aat caa gaa cag gag gaa aag atc atg aaa ttg tca aat gag     2993
Ser Lys Asn Gln Glu Gln Glu Glu Lys Ile Met Lys Leu Ser Asn Glu
            955                 960                 965

ata gaa act gct aca aga agc att aca aat aat gtt tca caa ata aaa     3041
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```
Ile Glu Thr Ala Thr Arg Ser Ile Thr Asn Asn Val Ser Gln Ile Lys
        970                 975                 980

tta atg cac acg aaa ata gac gaa cta cgt act ctt gat tca gtt tct     3089
Leu Met His Thr Lys Ile Asp Glu Leu Arg Thr Leu Asp Ser Val Ser
    985                 990                 995

cag  att tca aac ata gat  ttg ctc aat ctc agg  gat ctg tca aat      3134
Gln  Ile Ser Asn Ile Asp  Leu Leu Asn Leu Arg  Asp Leu Ser Asn
1000                1005                1010

ggt  tct gag gag gat aat  ttg cca aat aca cag  tta gac ctt tta      3179
Gly  Ser Glu Glu Asp Asn  Leu Pro Asn Thr Gln  Leu Asp Leu Leu
1015                1020                1025

ggt  aat gat tat ttg gta  agt aag caa gtt aaa  gaa tat cga att      3224
Gly  Asn Asp Tyr Leu Val  Ser Lys Gln Val Lys  Glu Tyr Arg Ile
1030                1035                1040

caa  gaa ccc aat agg gaa  aat tct ttc cac tct  agt att gaa gct      3269
Gln  Glu Pro Asn Arg Glu  Asn Ser Phe His Ser  Ser Ile Glu Ala
1045                1050                1055

att  tgg gaa gaa tgt aaa  gag att gtg aag gcc  tct tcc aaa aaa      3314
Ile  Trp Glu Glu Cys Lys  Glu Ile Val Lys Ala  Ser Ser Lys Lys
1060                1065                1070

agt  cat cag att gag gaa  ctg gaa caa caa att  gaa aaa ttg cag      3359
Ser  His Gln Ile Glu Glu  Leu Glu Gln Gln Ile  Glu Lys Leu Gln
1075                1080                1085

gca  gaa gta aaa ggc tat  aag gat gaa aac aat  aga cta aag gag      3404
Ala  Glu Val Lys Gly Tyr  Lys Asp Glu Asn Asn  Arg Leu Lys Glu
1090                1095                1100

aag  gag cat aaa aac caa  gat gac cta cta aaa  gaa aaa gaa act      3449
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Lys  Glu His Lys Asn Gln  Asp Asp Leu Leu Lys  Glu Lys Glu Thr
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ctt  ata cag cag ctg aaa  gaa gaa ttg caa gaa  aaa aat gtt act      3494
Leu  Ile Gln Gln Leu Lys  Glu Glu Leu Gln Glu  Lys Asn Val Thr
1120                1125                1130

ctt  gat gtt caa ata cag  cat gta gtt gaa gga  aag aga gcg ctt      3539
Leu  Asp Val Gln Ile Gln  His Val Val Glu Gly  Lys Arg Ala Leu
1135                1140                1145

tca  gaa ctt aca caa ggt  gtt act tgc tat aag  gca aaa ata aag      3584
Ser  Glu Leu Thr Gln Gly  Val Thr Cys Tyr Lys  Ala Lys Ile Lys
1150                1155                1160

gaa  ctt gaa aca att tta  gag act cag aaa gtt  gaa tgt agt cat      3629
Glu  Leu Glu Thr Ile Leu  Glu Thr Gln Lys Val  Glu Cys Ser His
1165                1170                1175

tca  gcc aag tta gaa caa  gac att ttg gaa aag  gaa tct atc atc      3674
Ser  Ala Lys Leu Glu Gln  Asp Ile Leu Glu Lys  Glu Ser Ile Ile
1180                1185                1190

tta  aag cta gaa aga aat  ttg aag gaa ttt caa  gaa cat ctt cag      3719
Leu  Lys Leu Glu Arg Asn  Leu Lys Glu Phe Gln  Glu His Leu Gln
1195                1200                1205

gat  tct gtc aaa aac acc  aaa gat tta aat gta  aag gaa ctc aag      3764
Asp  Ser Val Lys Asn Thr  Lys Asp Leu Asn Val  Lys Glu Leu Lys
1210                1215                1220

ctg  aaa gaa gaa atc aca  cag tta aca aat aat  ttg caa gat atg      3809
Leu  Lys Glu Glu Ile Thr  Gln Leu Thr Asn Asn  Leu Gln Asp Met
1225                1230                1235

aaa  cat tta ctt caa tta  aaa gaa gaa gaa gaa  gaa acc aac agg      3854
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Lys  His Leu Leu Gln Leu  Lys Glu Glu Glu Glu  Glu Thr Asn Arg
1240                1245                1250

caa  gaa aca gaa aaa ttg  aaa gag gaa ctc tct  gca agc tct gct      3899
Gln  Glu Thr Glu Lys Leu  Lys Glu Glu Leu Ser  Ala Ser Ser Ala
1255                1260                1265

cgt  acc cag aat ctg aaa  gca gat ctt cag agg  aag gaa gaa gat      3944
Arg  Thr Gln Asn Leu Lys  Ala Asp Leu Gln Arg  Lys Glu Glu Asp
1270                1275                1280

tat  gct gac ctg aaa gag  aaa ctg act gat gcc  aaa aag cag att      3989
Tyr  Ala Asp Leu Lys Glu  Lys Leu Thr Asp Ala  Lys Lys Gln Ile
1285                1290                1295

aag  caa gta cag aaa gag  gta tct gta atg cgt  gat gag gat aaa      4034
Lys  Gln Val Gln Lys Glu  Val Ser Val Met Arg  Asp Glu Asp Lys
1300                1305                1310

tta  ctg agg att aaa att  aat gaa ctg gag aaa  aag aaa aac cag      4079
Leu  Leu Arg Ile Lys Ile  Asn Glu Leu Glu Lys  Lys Lys Asn Gln
1315                1320                1325

tgt  tct cag gaa tta gat  atg aaa cag cga acc  att cag caa ctc      4124
Cys  Ser Gln Glu Leu Asp  Met Lys Gln Arg Thr  Ile Gln Gln Leu
1330                1335                1340

aag  gag cag tta aat aat  cag aaa gtg gaa gaa  gct ata caa cag      4169
Lys  Glu Gln Leu Asn Asn  Gln Lys Val Glu Glu  Ala Ile Gln Gln
1345                1350                1355

tat  gag aga gca tgc aaa  gat cta aat gtt aaa  gag aaa ata att      4214
Tyr  Glu Arg Ala Cys Lys  Asp Leu Asn Val Lys  Glu Lys Ile Ile
1360                1365                1370

gaa  gac atg cga atg aca  cta gaa gaa cag gaa  caa act cag gta      4259
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Glu  Asp Met Arg Met Thr  Leu Glu Glu Gln Glu  Gln Thr Gln Val
1375                1380                1385

gaa  cag gat caa gtg ctt  gag gct aaa tta gag  gaa gtt gaa agg      4304
Glu  Gln Asp Gln Val Leu  Glu Ala Lys Leu Glu  Glu Val Glu Arg
1390                1395                1400

ctg  gcc aca gaa ttg gaa  aaa tgg aag gaa aaa  tgc aat gat ttg      4349
Leu  Ala Thr Glu Leu Glu  Lys Trp Lys Glu Lys  Cys Asn Asp Leu
1405                1410                1415

gaa  acc aaa aac aat caa  agg tca aat aaa gaa  cat gag aac aac      4394
Glu  Thr Lys Asn Asn Gln  Arg Ser Asn Lys Glu  His Glu Asn Asn
1420                1425                1430

aca  gat gtg ctt gga aag  ctc act aat ctt caa  gat gag tta cag      4439
Thr  Asp Val Leu Gly Lys  Leu Thr Asn Leu Gln  Asp Glu Leu Gln
1435                1440                1445

gag  tct gaa cag aaa tat  aat gct gat aga aag  aaa tgg tta gaa      4484
Glu  Ser Glu Gln Lys Tyr  Asn Ala Asp Arg Lys  Lys Trp Leu Glu
1450                1455                1460

gaa  aaa atg atg ctt atc  act caa gcg aaa gaa  gca gag aat ata      4529
Glu  Lys Met Met Leu Ile  Thr Gln Ala Lys Glu  Ala Glu Asn Ile
1465                1470                1475

cga  aat aaa gag atg aaa  aaa tat gct gag gac  agg gag cgt ttt      4574
Arg  Asn Lys Glu Met Lys  Lys Tyr Ala Glu Asp  Arg Glu Arg Phe
1480                1485                1490

ttt  aag caa cag aat gaa  atg gaa ata ctg aca  gcc cag ctg aca      4619
Phe  Lys Gln Gln Asn Glu  Met Glu Ile Leu Thr  Ala Gln Leu Thr
1495                1500                1505

gag  aaa gat agt gac ctt  caa aag tgg cga gaa  gaa cga gat caa      4664
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Glu  Lys Asp Ser Asp Leu  Gln Lys Trp Arg Glu  Glu Arg Asp Gln
1510                1515                1520

ctg  gtt gca gct tta gaa  ata cag cta aaa gca  ctg ata tcc agt      4709
Leu  Val Ala Ala Leu Glu  Ile Gln Leu Lys Ala  Leu Ile Ser Ser
1525                1530                1535

aat  gta cag aaa gat aat  gaa att gaa caa cta  aaa agg atc ata      4754
Asn  Val Gln Lys Asp Asn  Glu Ile Glu Gln Leu  Lys Arg Ile Ile
1540                1545                1550

tca  gag act tct aaa ata  gaa aca caa atc atg  gat atc aag ccc      4799
Ser  Glu Thr Ser Lys Ile  Glu Thr Gln Ile Met  Asp Ile Lys Pro
1555                1560                1565

aaa  cgt att agt tca gca  gat cct gac aaa ctt  caa act gaa cct      4844
Lys  Arg Ile Ser Ser Ala  Asp Pro Asp Lys Leu  Gln Thr Glu Pro
1570                1575                1580

cta  tcg aca agt ttt gaa  att tcc aga aat aaa  ata gag gat gga      4889
Leu  Ser Thr Ser Phe Glu  Ile Ser Arg Asn Lys  Ile Glu Asp Gly
1585                1590                1595

tct  gta gtc ctt gac tct  tgt gaa gtg tca aca  gaa aat gat caa      4934
Ser  Val Val Leu Asp Ser  Cys Glu Val Ser Thr  Glu Asn Asp Gln
1600                1605                1610

agc  act cga ttt cca aaa  cct gag tta gag att  caa ttt aca cct      4979
Ser  Thr Arg Phe Pro Lys  Pro Glu Leu Glu Ile  Gln Phe Thr Pro
1615                1620                1625

tta  cag cca aac aaa atg  gca gtg aaa cac cct  ggt tgt acc aca      5024
Leu  Gln Pro Asn Lys Met  Ala Val Lys His Pro  Gly Cys Thr Thr
1630                1635                1640

cca  gtg aca gtt aag att  ccc aag gct cgg aag  agg aag agt aat      5069
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Pro  Val Thr Val Lys Ile  Pro Lys Ala Arg Lys  Arg Lys Ser Asn
1645                1650                1655

gaa  atg gag gag gac ttg  gtg aaa tgt gaa aat  aag aag aat gct      5114
Glu  Met Glu Glu Asp Leu  Val Lys Cys Glu Asn  Lys Lys Asn Ala
1660                1665                1670

aca  ccc aga act aat ttg  aaa ttt cct att tca  gat gat aga aat      5159
Thr  Pro Arg Thr Asn Leu  Lys Phe Pro Ile Ser  Asp Asp Arg Asn
1675                1680                1685

tct  tct gtc aaa aag gaa  caa aag gtt gcc ata  cgt cca tca tct      5204
Ser  Ser Val Lys Lys Glu  Gln Lys Val Ala Ile  Arg Pro Ser Ser
1690                1695                1700

aag  aaa aca tat tct tta  cgg agt cag gca tcc  ata att ggt gta      5249
Lys  Lys Thr Tyr Ser Leu  Arg Ser Gln Ala Ser  Ile Ile Gly Val
1705                1710                1715

aac  ctg gcc act aag aaa  aaa gaa gga aca cta  cag aaa ttt gga      5294
Asn  Leu Ala Thr Lys Lys  Lys Glu Gly Thr Leu  Gln Lys Phe Gly
1720                1725                1730

gac  ttc tta caa cat tct  ccc tca att ctt caa  tca aaa gca aag      5339
Asp  Phe Leu Gln His Ser  Pro Ser Ile Leu Gln  Ser Lys Ala Lys
1735                1740                1745

aag  ata att gaa aca atg  agc tct tca aag ctc  tca aat gta gaa      5384
Lys  Ile Ile Glu Thr Met  Ser Ser Ser Lys Leu  Ser Asn Val Glu
1750                1755                1760

gca  agt aaa gaa aat gtg  tct caa cca aaa cga  gcc aaa cgg aaa      5429
Ala  Ser Lys Glu Asn Val  Ser Gln Pro Lys Arg  Ala Lys Arg Lys
1765                1770                1775

tta  tac aca agt gaa att  tca tct cct att gat  ata tca ggc caa      5474
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Leu  Tyr Thr Ser Glu Ile  Ser Ser Pro Ile Asp  Ile Ser Gly Gln
1780                1785                1790

gtg  att tta atg gac cag  aaa atg aag gag agt  gat cac cag att      5519
Val  Ile Leu Met Asp Gln  Lys Met Lys Glu Ser  Asp His Gln Ile
1795                1800                1805

atc  aaa cga cga ctt cga  aca aaa aca gcc aaa  taa atcacttatg       5565
Ile  Lys Arg Arg Leu Arg  Thr Lys Thr Ala Lys
1810                1815                1820

gaaatgttta atataaattt tatagtcata gtcattggaa cttgcatcct gtattgtaaa   5625

tataaatgta tatattatgc attaaatcac tctgcatata gattgctgtt ttatacatag   5685

tataatttta attcaataaa tgagtcaaaa tttgtatatt tttataaggc ttttttataa   5745

tagcttcttt caaactgtat ttccctatta tctcagacat tggatcagtg aagatcctag   5805

gaaagaggct gttattctca tttattttgc tatacaggat gtaataggtc aggtatttgg   5865

tttacttata tttaacaatg tcttatgaat tttttttact ttatctgtta tacaactgat   5925

tttacatatc tgtttggatt atagctagga tttggagaat aagtgtgtac agatcacaaa   5985

acatgtatat acattattta gaaaagatct caagtcttta attagaatgt ctcacttatt   6045

ttgtaaacat tttgtgggta catagtacat gtatatattt acggggtatg tgagatgttt   6105

tgacacaggc atgcaatgtg aaatacgtgt atcatggaga atgaggtatc catcccctca   6165

agcatttttc ctttgaatta cagataatcc aattacattc tttagatcat ttaaaaatat   6225

acaagtaagt tattattgat tatagtcact ctattgtgct atcagatagt agatcattct   6285

ttttatctta tttgtttttg tacccattaa ccatccccac ctccccctgc aaccgtcagt   6345
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acccttacca gccactggta accattcttc tactctgtat gcccatgagg tcaattgatt 6405

ttatttttag atcccataaa taaatgagaa catgcagtct ttgtcaaaaa aaaa 6459

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<212> PRT
<213> Homo sapiens

<400> 188

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Phe Ser Ala Asp Pro Ile Ala Arg Pro Ser Glu Ile Asn Phe Asp Gly
20 25 30

Ile Lys Leu Asp Leu Ser His Glu Phe Ser Leu Val Ala Pro Asn Thr
35 40 45

Glu Ala Asn Ser Phe Glu Ser Lys Asp Tyr Leu Gln Val Cys Leu Arg
50 55 60

Ile Arg Pro Phe Thr Gln Ser Glu Lys Glu Leu Glu Ser Glu Gly Cys
65 70 75 80

Val His Ile Leu Asp Ser Gln Thr Val Val Leu Lys Glu Pro Gln Cys
85 90 95

Ile Leu Gly Arg Leu Ser Glu Lys Ser Ser Gly Gln Met Ala Gln Lys
100 105 110

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

Phe Gln Gly Cys Ile Met Gln Pro Val Lys Asp Leu Leu Lys Gly Gln
130 135 140

Ser Arg Leu Ile Phe Thr Tyr Gly Leu Thr Asn Ser Gly Lys Thr Tyr
145 150 155 160

Thr Phe Gln Gly Thr Glu Glu Asn Ile Gly Ile Leu Pro Arg Thr Leu
165 170 175

Asn Val Leu Phe Asp Ser Leu Gln Glu Arg Leu Tyr Thr Lys Met Asn
180 185 190

Leu Lys Pro His Arg Ser Arg Glu Tyr Leu Arg Leu Ser Ser Glu Gln
195 200 205

Glu Lys Glu Glu Ile Ala Ser Lys Ser Ala Leu Leu Arg Gln Ile Lys
210 215 220

Glu Val Thr Val His Asn Asp Ser Asp Asp Thr Leu Tyr Gly Ser Leu
225 230 235 240

Thr Asn Ser Leu Asn Ile Ser Glu Phe Glu Glu Ser Ile Lys Asp Tyr
245 250 255

Glu Gln Ala Asn Leu Asn Met Ala Asn Ser Ile Lys Phe Ser Val Trp
260 265 270

Val Ser Phe Phe Glu Ile Tyr Asn Glu Tyr Ile Tyr Asp Leu Phe Val
275 280 285

Pro Val Ser Ser Lys Phe Gln Lys Arg Lys Met Leu Arg Leu Ser Gln
290 295 300

Asp Val Lys Gly Tyr Ser Phe Ile Lys Asp Leu Gln Trp Ile Gln Val
305 310 315 320

Ser Asp Ser Lys Glu Ala Tyr Arg Leu Leu Lys Leu Gly Ile Lys His
325 330 335

Gln Ser Val Ala Phe Thr Lys Leu Asn Asn Ala Ser Ser Arg Ser His
340 345 350

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

Arg Val Ile Arg Val Ser Glu Leu Ser Leu Cys Asp Leu Ala Gly Ser
370 375 380

Glu Arg Thr Met Lys Thr Gln Asn Glu Gly Glu Arg Leu Arg Glu Thr
385 390 395 400

Gly Asn Ile Asn Thr Ser Leu Leu Thr Leu Gly Lys Cys Ile Asn Val
405 410 415

Leu Lys Asn Ser Glu Lys Ser Lys Phe Gln Gln His Val Pro Phe Arg
420 425 430

Glu Ser Lys Leu Thr His Tyr Phe Gln Ser Phe Phe Asn Gly Lys Gly
435 440 445

Lys Ile Cys Met Ile Val Asn Ile Ser Gln Cys Tyr Leu Ala Tyr Asp
450 455 460

Glu Thr Leu Asn Val Leu Lys Phe Ser Ala Ile Ala Gln Lys Val Cys
465 470 475 480

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

Lys Ser Ser Gln Asp Val Ser Leu Asp Ser Asn Ser Asn Ser Lys Ile
500 505 510

Leu Asn Val Lys Arg Ala Thr Ile Ser Trp Glu Asn Ser Leu Glu Asp
515 520 525

Leu Met Glu Asp Glu Asp Leu Val Glu Glu Leu Glu Asn Ala Glu Glu
530 535 540

Thr Gln Asn Val Glu Thr Lys Leu Leu Asp Glu Asp Leu Asp Lys Thr
545 550 555 560

Leu Glu Glu Asn Lys Ala Phe Ile Ser His Glu Glu Lys Arg Lys Leu
565 570 575

Leu Asp Leu Ile Glu Asp Leu Lys Lys Lys Leu Ile Asn Glu Lys Lys
580 585 590

Glu Lys Leu Thr Leu Glu Phe Lys Ile Arg Glu Glu Val Thr Gln Glu
595 600 605

Phe Thr Gln Tyr Trp Ala Gln Arg Glu Ala Asp Phe Lys Glu Thr Leu
610 615 620

Leu Gln Glu Arg Glu Ile Leu Glu Glu Asn Ala Glu Arg Arg Leu Ala
625 630 635 640

Ile Phe Lys Asp Leu Val Gly Lys Cys Asp Thr Arg Glu Glu Ala Ala
645 650 655

Lys Asp Ile Cys Ala Thr Lys Val Glu Thr Glu Glu Thr His Asn Tyr
660 665 670

Val Gly Phe Glu Asp Ile Ile Asp Ser Leu Gln Asp Asn Val Ala Asp
675 680 685

Ile Lys Lys Gln Ala Glu Ile Ala His Leu Tyr Ile Ala Ser Leu Pro
690 695 700

Asp Pro Gln Glu Ala Thr Ala Cys Leu Glu Leu Lys Phe Asn Gln Ile
705 710 715 720

Lys Ala Glu Leu Ala Lys Thr Lys Gly Glu Leu Ile Lys Thr Lys Glu
725 730 735

Glu Leu Lys Lys Arg Glu Asn Glu Ser Asp Ser Leu Ile Gln Glu Leu
740 745 750

Glu Thr Ser Asn Lys Lys Ile Ile Thr Gln Asn Gln Arg Ile Lys Glu
755 760 765

Leu Ile Asn Ile Ile Asp Gln Lys Glu Asp Thr Ile Asn Glu Phe Gln
770 775 780

Asn Leu Lys Ser His Met Glu Asn Thr Phe Lys Cys Asn Asp Lys Ala
785 790 795 800

Asp Thr Ser Ser Leu Ile Ile Asn Asn Lys Leu Ile Cys Asn Glu Thr
805 810 815

Val Glu Val Pro Lys Asp Ser Lys Ser Lys Ile Cys Ser Glu Arg Lys
820 825 830

Arg Val Asn Glu Asn Glu Leu Gln Gln Asp Glu Pro Pro Ala Lys Lys
835 840 845

Gly Ser Ile His Val Ser Ser Ala Ile Thr Glu Asp Gln Lys Lys Ser
850 855 860

Glu Glu Val Arg Pro Asn Ile Ala Glu Ile Glu Asp Ile Arg Val Leu
865 870 875 880

Gln Glu Asn Asn Glu Gly Leu Arg Ala Phe Leu Leu Thr Ile Glu Asn
885 890 895

Glu Leu Lys Asn Glu Lys Glu Glu Lys Ala Glu Leu Asn Lys Gln Ile
900 905 910

Val His Phe Gln Gln Glu Leu Ser Leu Ser Glu Lys Lys Asn Leu Thr
915 920 925

Leu Ser Lys Glu Val Gln Gln Ile Gln Ser Asn Tyr Asp Ile Ala Ile
930 935 940

Ala Glu Leu His Val Gln Lys Ser Lys Asn Gln Glu Gln Glu Glu Lys
945 950 955 960

Ile Met Lys Leu Ser Asn Glu Ile Glu Thr Ala Thr Arg Ser Ile Thr
965 970 975

Asn Asn Val Ser Gln Ile Lys Leu Met His Thr Lys Ile Asp Glu Leu
980 985 990

Arg Thr Leu Asp Ser Val Ser Gln Ile Ser Asn Ile Asp Leu Leu Asn
995 1000 1005

Leu Arg Asp Leu Ser Asn Gly Ser Glu Glu Asp Asn Leu Pro Asn
1010 1015 1020

Thr Gln Leu Asp Leu Leu Gly Asn Asp Tyr Leu Val Ser Lys Gln
1025 1030 1035

Val Lys Glu Tyr Arg Ile Gln Glu Pro Asn Arg Glu Asn Ser Phe
1040 1045 1050

His Ser Ser Ile Glu Ala Ile Trp Glu Glu Cys Lys Glu Ile Val
1055 1060 1065

Lys Ala Ser Ser Lys Lys Ser His Gln Ile Glu Glu Leu Glu Gln
1070 1075 1080

Gln Ile Glu Lys Leu Gln Ala Glu Val Lys Gly Tyr Lys Asp Glu
1085 1090 1095

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Asn Asn  Arg Leu Lys Glu Lys  Glu His Lys Asn Gln  Asp Asp Leu
    1100                1105                1110

Leu Lys  Glu Lys Glu Thr Leu  Ile Gln Gln Leu Lys  Glu Glu Leu
    1115                1120                1125

Gln Glu  Lys Asn Val Thr Leu  Asp Val Gln Ile Gln  His Val Val
    1130                1135                1140

Glu Gly  Lys Arg Ala Leu Ser  Glu Leu Thr Gln Gly  Val Thr Cys
    1145                1150                1155

Tyr Lys  Ala Lys Ile Lys Glu  Leu Glu Thr Ile Leu  Glu Thr Gln
    1160                1165                1170

Lys Val  Glu Cys Ser His Ser  Ala Lys Leu Glu Gln  Asp Ile Leu
    1175                1180                1185

Glu Lys  Glu Ser Ile Ile Leu  Lys Leu Glu Arg Asn  Leu Lys Glu
    1190                1195                1200

Phe Gln  Glu His Leu Gln Asp  Ser Val Lys Asn Thr  Lys Asp Leu
    1205                1210                1215

Asn Val  Lys Glu Leu Lys Leu  Lys Glu Glu Ile Thr  Gln Leu Thr
    1220                1225                1230
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Asn Asn  Leu Gln Asp Met Lys  His Leu Leu Gln Leu  Lys Glu Glu
    1235                 1240                 1245

Glu Glu  Glu Thr Asn Arg Gln  Glu Thr Glu Lys Leu  Lys Glu Glu
    1250                 1255                 1260

Leu Ser  Ala Ser Ser Ala Arg  Thr Gln Asn Leu Lys  Ala Asp Leu
    1265                 1270                 1275

Gln Arg  Lys Glu Glu Asp Tyr  Ala Asp Leu Lys Glu  Lys Leu Thr
    1280                 1285                 1290

Asp Ala  Lys Lys Gln Ile Lys  Gln Val Gln Lys Glu  Val Ser Val
    1295                 1300                 1305

Met Arg  Asp Glu Asp Lys Leu  Leu Arg Ile Lys Ile  Asn Glu Leu
    1310                 1315                 1320

Glu Lys  Lys Lys Asn Gln Cys  Ser Gln Glu Leu Asp  Met Lys Gln
    1325                 1330                 1335

Arg Thr  Ile Gln Gln Leu Lys  Glu Gln Leu Asn Asn  Gln Lys Val
    1340                 1345                 1350

Glu Glu  Ala Ile Gln Gln Tyr  Glu Arg Ala Cys Lys  Asp Leu Asn
    1355                 1360                 1365
```

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Val Lys  Glu Lys Ile Ile Glu  Asp Met Arg Met Thr  Leu Glu Glu
    1370                1375                1380

Gln Glu  Gln Thr Gln Val Glu  Gln Asp Gln Val Leu  Glu Ala Lys
    1385                1390                1395

Leu Glu  Glu Val Glu Arg Leu  Ala Thr Glu Leu Glu  Lys Trp Lys
    1400                1405                1410

Glu Lys  Cys Asn Asp Leu Glu  Thr Lys Asn Asn Gln  Arg Ser Asn
    1415                1420                1425

Lys Glu  His Glu Asn Asn Thr  Asp Val Leu Gly Lys  Leu Thr Asn
    1430                1435                1440

Leu Gln  Asp Glu Leu Gln Glu  Ser Glu Gln Lys Tyr  Asn Ala Asp
    1445                1450                1455

Arg Lys  Lys Trp Leu Glu Glu  Lys Met Met Leu Ile  Thr Gln Ala
    1460                1465                1470

Lys Glu  Ala Glu Asn Ile Arg  Asn Lys Glu Met Lys  Lys Tyr Ala
    1475                1480                1485

Glu Asp  Arg Glu Arg Phe Phe  Lys Gln Gln Asn Glu  Met Glu Ile
    1490                1495                1500
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Leu Thr  Ala Gln Leu Thr Glu  Lys Asp Ser Asp Leu  Gln Lys Trp
    1505                1510                1515

Arg Glu  Glu Arg Asp Gln Leu  Val Ala Ala Leu Glu  Ile Gln Leu
    1520                1525                1530

Lys Ala  Leu Ile Ser Ser Asn  Val Gln Lys Asp Asn  Glu Ile Glu
    1535                1540                1545

Gln Leu  Lys Arg Ile Ile Ser  Glu Thr Ser Lys Ile  Glu Thr Gln
    1550                1555                1560

Ile Met  Asp Ile Lys Pro Lys  Arg Ile Ser Ser Ala  Asp Pro Asp
    1565                1570                1575

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

Asn Lys  Ile Glu Asp Gly Ser  Val Val Leu Asp Ser  Cys Glu Val
    1595                1600                1605

Ser Thr  Glu Asn Asp Gln Ser  Thr Arg Phe Pro Lys  Pro Glu Leu
    1610                1615                1620

Glu Ile  Gln Phe Thr Pro Leu  Gln Pro Asn Lys Met  Ala Val Lys
    1625                1630                1635
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His Pro  Gly Cys Thr Thr Pro  Val Thr Val Lys Ile  Pro Lys Ala
    1640                1645                1650

Arg Lys  Arg Lys Ser Asn Glu  Met Glu Glu Asp Leu  Val Lys Cys
    1655                1660                1665

Glu Asn  Lys Lys Asn Ala Thr  Pro Arg Thr Asn Leu  Lys Phe Pro
    1670                1675                1680

Ile Ser  Asp Asp Arg Asn Ser  Ser Val Lys Lys Glu  Gln Lys Val
    1685                1690                1695

Ala Ile  Arg Pro Ser Ser Lys  Lys Thr Tyr Ser Leu  Arg Ser Gln
    1700                1705                1710

Ala Ser  Ile Ile Gly Val Asn  Leu Ala Thr Lys Lys  Lys Glu Gly
    1715                1720                1725

Thr Leu  Gln Lys Phe Gly Asp  Phe Leu Gln His Ser  Pro Ser Ile
    1730                1735                1740

Leu Gln  Ser Lys Ala Lys Lys  Ile Ile Glu Thr Met  Ser Ser Ser
    1745                1750                1755

Lys Leu  Ser Asn Val Glu Ala  Ser Lys Glu Asn Val  Ser Gln Pro
    1760                1765                1770
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Lys Arg Ala Lys Arg Lys Leu Tyr Thr Ser Glu Ile Ser Ser Pro
1775 1780 1785

Ile Asp Ile Ser Gly Gln Val Ile Leu Met Asp Gln Lys Met Lys
1790 1795 1800

Glu Ser Asp His Gln Ile Ile Lys Arg Arg Leu Arg Thr Lys Thr
1805 1810 1815

Ala Lys
1820

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Asn Lys Arg Lys
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