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STELIC INSTITUTE & CO.

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

Ala Gly Cys Ser Asn Trp Lys Arg Val Leu Met Val Leu Ala Gly Leu
        195                 200                 205

Ala Ser Ser Thr Ala Asp Ile Gln His Asn Thr Val His Tyr Gly Ser
    210                 215                 220

Ala Leu Lys Arg Leu Asp Thr Phe Asp Arg Gln Gly Ile Val His Arg
225                 230                 235                 240

Leu Ser Thr Tyr Thr Lys Met Leu Phe Val Arg Glu Pro Phe Glu Arg
                245                 250                 255

Leu Val Ser Ala Phe Arg Asp Lys Phe Glu His Pro Asn Ser Tyr Tyr
            260                 265                 270

His Pro Val Phe Gly Lys Ala Ile Leu Ala Arg Tyr Arg Ala Asn Ala
        275                 280                 285

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

Val Gln Tyr Leu Leu Asp Val His Arg Pro Val Gly Met Asp Ile His
305                 310                 315                 320

Trp Asp His Val Ser Arg Leu Cys Ser Pro Cys Leu Ile Asp Tyr Asp
                325                 330                 335

Phe Val Gly Lys Phe Glu Ser Met Glu Asp Asp Ala Asn Phe Phe Leu
            340                 345                 350
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Arg Leu Ile His Ala Pro Gly Asn Leu Thr Phe Pro Arg Phe Lys Asp
        355                 360                 365

Arg His Ser Glu Glu Ala Arg Thr Thr Ser Arg Ile Thr His Gln Tyr
    370                 375                 380

Phe Ala Gln Leu Ser Ser Leu Gln Arg Gln Arg Thr Tyr Asp Phe Tyr
385                 390                 395                 400

Tyr Met Asp Tyr Leu Met Phe Asn Tyr Ser Lys Pro Phe Ser Asp Leu
                405                 410                 415

Tyr
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<210> 4
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<213> Mus musculus

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<222> (40)..(1281)

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                                            Met Lys Ala Lys Gln
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gtc ttc ttt tct gtc ctg ctg ttt ggg aca gca ggg ctt ctg ctc ttc      102
Val Phe Phe Ser Val Leu Leu Phe Gly Thr Ala Gly Leu Leu Leu Phe
                10                  15                  20

atg tac ttg caa gca tgg att gaa gaa cat cat aca ggg aaa ata gag      150
Met Tyr Leu Gln Ala Trp Ile Glu Glu His His Thr Gly Lys Ile Glu
            25                  30                  35

aag aaa agg gat cag aaa gga gta tcg gtg act acg gga aaa atc cag      198
Lys Lys Arg Asp Gln Lys Gly Val Ser Val Thr Thr Gly Lys Ile Gln
        40                  45                  50

aaa cag atc acg aat cag aac tct gag gtt cac atg cct gaa gat ctg      246
Lys Gln Ile Thr Asn Gln Asn Ser Glu Val His Met Pro Glu Asp Leu
    55                  60                  65

aag aag aaa ggg gga gat ctg ctc aac cta ggg agt cca aca agg gtt      294
Lys Lys Lys Gly Gly Asp Leu Leu Asn Leu Gly Ser Pro Thr Arg Val
70                  75                  80                  85

tta agg aag atc agc cat tca caa agg gag aac gga gct tac aga tca      342
Leu Arg Lys Ile Ser His Ser Gln Arg Glu Asn Gly Ala Tyr Arg Ser
                90                  95                  100

act gaa gca cat caa gga gct aaa att gaa gtt ttt cag aaa ccc atc      390
Thr Glu Ala His Gln Gly Ala Lys Ile Glu Val Phe Gln Lys Pro Ile
            105                 110                 115

cag atg gac tgg cca ctg gtc act cag ccc tta aac aaa agt ttg gtc      438
Gln Met Asp Trp Pro Leu Val Thr Gln Pro Leu Asn Lys Ser Leu Val
        120                 125                 130

caa ggc aac aaa tgg aag aaa gca gat gca acc caa gag aag cgt cgg      486
Gln Gly Asn Lys Trp Lys Lys Ala Asp Ala Thr Gln Glu Lys Arg Arg
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    135                 140                 145

tca ttc ctt cat gag ttt tgc aag aaa tat ggt aga gta aat gat ccc      534
Ser Phe Leu His Glu Phe Cys Lys Lys Tyr Gly Arg Val Asn Asp Pro
150                 155                 160                 165

aag ttc aac ctt ttt cat ata gta tct agg ata tat gta gaa gac aaa      582
Lys Phe Asn Leu Phe His Ile Val Ser Arg Ile Tyr Val Glu Asp Lys
                170                 175                 180

cac aaa atc ctg tac tgt gaa gta cca aaa gct ggc tgc tct aat tgg      630
His Lys Ile Leu Tyr Cys Glu Val Pro Lys Ala Gly Cys Ser Asn Trp
            185                 190                 195

aaa aga att ctg atg gtc cta aat gga ttg gct tcc tct gca tac aat      678
Lys Arg Ile Leu Met Val Leu Asn Gly Leu Ala Ser Ser Ala Tyr Asn
        200                 205                 210

atc tcc cat gat act gtg cac tat ggg aag cat ctg aaa aca ctg gat      726
Ile Ser His Asp Thr Val His Tyr Gly Lys His Leu Lys Thr Leu Asp
    215                 220                 225

agt ttt gac tta aaa gga gta cac atg cgt ttg aat aca tat acc aaa      774
Ser Phe Asp Leu Lys Gly Val His Met Arg Leu Asn Thr Tyr Thr Lys
230                 235                 240                 245

gct gtg ttt gtt aga gat ccc atg gaa aga tta gtc tcc gca ttt agg      822
Ala Val Phe Val Arg Asp Pro Met Glu Arg Leu Val Ser Ala Phe Arg
                250                 255                 260

gat aaa ttt gag cat ccc aat agt tac tac cat ccg gtg ttt gga aag      870
Asp Lys Phe Glu His Pro Asn Ser Tyr Tyr His Pro Val Phe Gly Lys
            265                 270                 275

gca att atc aag aaa tat cga cca aat gcc tct gca gaa gca tta aat      918
Ala Ile Ile Lys Lys Tyr Arg Pro Asn Ala Ser Ala Glu Ala Leu Asn
        280                 285                 290

aat gga tct gga gtc aaa ttc aaa gaa ttc gcc tac tat ttg ctg gat      966
Asn Gly Ser Gly Val Lys Phe Lys Glu Phe Ala Tyr Tyr Leu Leu Asp
    295                 300                 305

gct cac cgt cca gta gga atg gat att cac tgg gaa aga gtc agc aaa     1014
Ala His Arg Pro Val Gly Met Asp Ile His Trp Glu Arg Val Ser Lys
310                 315                 320                 325

ctg tgt tat ccg tgt ttg atc aac tat gac ttt gta ggg aag ttt gag     1062
Leu Cys Tyr Pro Cys Leu Ile Asn Tyr Asp Phe Val Gly Lys Phe Glu
                330                 335                 340

acc tta gga gag gat gcc aat tac ttt cta cag ttg att ggt gct cca     1110
Thr Leu Gly Glu Asp Ala Asn Tyr Phe Leu Gln Leu Ile Gly Ala Pro
            345                 350                 355

aaa gag ttg aca ttt cca aac ttt aag gat agg cac tcc tct gat gaa     1158
Lys Glu Leu Thr Phe Pro Asn Phe Lys Asp Arg His Ser Ser Asp Glu
        360                 365                 370

aga acc aat gcc cac gtg gta agg cag tat tta aag gac ctg agc aca     1206
Arg Thr Asn Ala His Val Val Arg Gln Tyr Leu Lys Asp Leu Ser Thr
    375                 380                 385

gcc gaa aga cag ctc atc tat gac ttc tat cac ttg gac tat ttg atg     1254
Ala Glu Arg Gln Leu Ile Tyr Asp Phe Tyr His Leu Asp Tyr Leu Met
390                 395                 400                 405

ttt aat tac aca act cca cat ttg taa tttgcattca ttttttctaaa          1301
Phe Asn Tyr Thr Thr Pro His Leu
                410

gccctacata gatttaatga tgatggcctc aaataagcta ctgtaattgt cctacaattc   1361
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tctgtatg 1369

<210> 5
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<212> PRT
<213> Mus musculus

<400> 5

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Gly Leu Leu Leu Phe Met Tyr Leu Gln Ala Trp Ile Glu Glu His His
20 25 30

Thr Gly Lys Ile Glu Lys Lys Arg Asp Gln Lys Gly Val Ser Val Thr
35 40 45

Thr Gly Lys Ile Gln Lys Gln Ile Thr Asn Gln Asn Ser Glu Val His
50 55 60

Met Pro Glu Asp Leu Lys Lys Lys Gly Gly Asp Leu Leu Asn Leu Gly
65 70 75 80

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

Gly Ala Tyr Arg Ser Thr Glu Ala His Gln Gly Ala Lys Ile Glu Val
100 105 110

Phe Gln Lys Pro Ile Gln Met Asp Trp Pro Leu Val Thr Gln Pro Leu
115 120 125

Asn Lys Ser Leu Val Gln Gly Asn Lys Trp Lys Lys Ala Asp Ala Thr
130 135 140

Gln Glu Lys Arg Arg Ser Phe Leu His Glu Phe Cys Lys Lys Tyr Gly
145 150 155 160

Arg Val Asn Asp Pro Lys Phe Asn Leu Phe His Ile Val Ser Arg Ile
165 170 175

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

Gly Cys Ser Asn Trp Lys Arg Ile Leu Met Val Leu Asn Gly Leu Ala
195 200 205

Ser Ser Ala Tyr Asn Ile Ser His Asp Thr Val His Tyr Gly Lys His
210 215 220

Leu Lys Thr Leu Asp Ser Phe Asp Leu Lys Gly Val His Met Arg Leu
225 230 235 240

```
Asn Thr Tyr Thr Lys Ala Val Phe Val Arg Asp Pro Met Glu Arg Leu
                245                 250                 255

Val Ser Ala Phe Arg Asp Lys Phe Glu His Pro Asn Ser Tyr Tyr His
            260                 265                 270

Pro Val Phe Gly Lys Ala Ile Ile Lys Lys Tyr Arg Pro Asn Ala Ser
        275                 280                 285

Ala Glu Ala Leu Asn Asn Gly Ser Gly Val Lys Phe Lys Glu Phe Ala
    290                 295                 300

Tyr Tyr Leu Leu Asp Ala His Arg Pro Val Gly Met Asp Ile His Trp
305                 310                 315                 320

Glu Arg Val Ser Lys Leu Cys Tyr Pro Cys Leu Ile Asn Tyr Asp Phe
                325                 330                 335

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

Leu Ile Gly Ala Pro Lys Glu Leu Thr Phe Pro Asn Phe Lys Asp Arg
        355                 360                 365

His Ser Ser Asp Glu Arg Thr Asn Ala His Val Val Arg Gln Tyr Leu
    370                 375                 380

Lys Asp Leu Ser Thr Ala Glu Arg Gln Leu Ile Tyr Asp Phe Tyr His
385                 390                 395                 400

Leu Asp Tyr Leu Met Phe Asn Tyr Thr Thr Pro His Leu
                405                 410
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<222> (369)..(1427)

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ggaccggcag gagcgcgcgg ccggagccac gcatcctcac acttgcacac caactcctgc    180

gcctttcacc ctctagacca gagtcggggc ctcggagagc ctcggtgaag ctagcgggag    240

ccagctccgg agcccagcca gctctgttct gagcctcccc ggtgctggta cccccgcggc    300

ggggtccccg cttctgcgct cgggacgcgc ctcccggaca gccgggtccc cgcggccagg    360

acaaagcc atg aag ccg gcg ctg ctg gaa gtg atg agg atg aac aga att      410
         Met Lys Pro Ala Leu Leu Glu Val Met Arg Met Asn Arg Ile
         1               5                   10
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tgc cgg atg gtg ctg gcc act tgc ttc gga tcc ttt atc ttg gtc atc      458
Cys Arg Met Val Leu Ala Thr Cys Phe Gly Ser Phe Ile Leu Val Ile
15                  20                  25                  30

ttc tat ttc caa agt atg ttg cac cca gtc atg cgg agg aac ccc ttc      506
Phe Tyr Phe Gln Ser Met Leu His Pro Val Met Arg Arg Asn Pro Phe
                35                  40                  45

ggt gtg gac atc tgc tgc cgg aag gga tcg aga agt ccc ctg cag gag      554
Gly Val Asp Ile Cys Cys Arg Lys Gly Ser Arg Ser Pro Leu Gln Glu
            50                  55                  60

ctc tac aat ccc atc cag ctg gag cta tcc aac act gcc atc ctg cac      602
Leu Tyr Asn Pro Ile Gln Leu Glu Leu Ser Asn Thr Ala Ile Leu His
        65                  70                  75

cag atg aga cgg gac cag gtg aca gac acc tgc cgg gcc aac agt gcc      650
Gln Met Arg Arg Asp Gln Val Thr Asp Thr Cys Arg Ala Asn Ser Ala
    80                  85                  90

atg agc cgc aag cgc agg gtg ctg acc ccc aac gac ctg aag cac ctg      698
Met Ser Arg Lys Arg Arg Val Leu Thr Pro Asn Asp Leu Lys His Leu
95                  100                 105                 110

gtg gtg gat gag gac cac gaa ctc atc tac tgc tat gtg ccc aag gta      746
Val Val Asp Glu Asp His Glu Leu Ile Tyr Cys Tyr Val Pro Lys Val
                115                 120                 125

gcg tgc acc aac tgg aag agg ctc atg atg gtc ctg agt ggc cgg ggc      794
Ala Cys Thr Asn Trp Lys Arg Leu Met Met Val Leu Ser Gly Arg Gly
            130                 135                 140

aag tac agc gat ccc atg gag atc cca gcc aac gaa gcc cac gtg tcg      842
Lys Tyr Ser Asp Pro Met Glu Ile Pro Ala Asn Glu Ala His Val Ser
        145                 150                 155

gcc aac ctg aag acc ctt aac cag tac agc atc cca gag atc aac cac      890
Ala Asn Leu Lys Thr Leu Asn Gln Tyr Ser Ile Pro Glu Ile Asn His
    160                 165                 170

cgc ttg aaa agc tac atg aag ttc ctg ttc gtg cgg gaa ccc ttc gag      938
Arg Leu Lys Ser Tyr Met Lys Phe Leu Phe Val Arg Glu Pro Phe Glu
175                 180                 185                 190

agg ctg gtg tct gcc tac cgc aac aag ttc acg cag aag tac aac acc      986
Arg Leu Val Ser Ala Tyr Arg Asn Lys Phe Thr Gln Lys Tyr Asn Thr
                195                 200                 205

tcc ttc cac aag cgc tac ggc acc aag atc atc cga cgc cag cgg aag     1034
Ser Phe His Lys Arg Tyr Gly Thr Lys Ile Ile Arg Arg Gln Arg Lys
            210                 215                 220

aac gcc acg cag gag gcc ctg cgc aag ggg gac gat gtc aag ttc gag     1082
Asn Ala Thr Gln Glu Ala Leu Arg Lys Gly Asp Asp Val Lys Phe Glu
        225                 230                 235

gag ttc gtg gcc tac ctc atc gac ccc cac acc cag cgg gag gag ccc     1130
Glu Phe Val Ala Tyr Leu Ile Asp Pro His Thr Gln Arg Glu Glu Pro
    240                 245                 250

ttc aac gag cac tgg cag acg gtc tac tct ctc tgc cac ccg tgc cac     1178
Phe Asn Glu His Trp Gln Thr Val Tyr Ser Leu Cys His Pro Cys His
255                 260                 265                 270

atc cac tac gac ctc gtg ggc aag tat gag aca ctg gag gag gac tcc     1226
Ile His Tyr Asp Leu Val Gly Lys Tyr Glu Thr Leu Glu Glu Asp Ser
                275                 280                 285

aat tac gta ctg cag ctg gcc gga gtg agc ggc tac ctg aag ttc ccc     1274
Asn Tyr Val Leu Gln Leu Ala Gly Val Ser Gly Tyr Leu Lys Phe Pro
            290                 295                 300
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acc tat gca aag tcc acc cga act acc gac gag atg acc acg gag ttc     1322
Thr Tyr Ala Lys Ser Thr Arg Thr Thr Asp Glu Met Thr Thr Glu Phe
        305                 310                 315

ttc cag aac atc agc gcc gag cac cag aca cag ctg tac gaa gtc tac     1370
Phe Gln Asn Ile Ser Ala Glu His Gln Thr Gln Leu Tyr Glu Val Tyr
    320                 325                 330

aaa ctg gac ttt tta atg ttc aac tac tca gtg cca aac tac ctg aag     1418
Lys Leu Asp Phe Leu Met Phe Asn Tyr Ser Val Pro Asn Tyr Leu Lys
335                 340                 345                 350

ttg gat tag agggctgcgg aggggagggg gaggggtggt tgggggagag             1467
Leu Asp

ggagagaatc ctgcttttta atttaagatt tttatttgtc aaaagaattc tatggagact   1527

gggttatttt gtaagttaat atgtcttcgg gggagatgct gcgagcggca tggttaagaa   1587

ttatttaaaa attctccacg gggaaggaca gctgtctttg caggggagcg gggtggaata   1647

tccctgtttt tagaagtgga tactgcaaca ctgtctccaa ggtgtccttg tgttctggtg   1707

aagtccacaa actgcattcc ataaagtcta atgaatctta tttatagtta tttaaacgtg   1767

gtctgtggca gcagcctgct cctgtctgtg cagaggagag tacagtctgt gcttcgctgg   1827

ctatggctca ttgggggagg ggaggggggtt atctccccca ctgaccgtgt gtagaatccc   1887

atggtgacag ctgcgggatg tgtgcctgtg gccattcaag aaaccctgct agaaagaagt   1947

caattgtcct tgcactaaga aacagggatg agactggttc aaaccgattg ctagcaaccc   2007

caaagtccct tgtagtaaag aaatgcaaat ttttttaacc caagaagaga gcagatgata   2067

gcgatttctc tttaccgaaa ttagcaggct ataagaatag gctttctgtg gaaatcttta   2127

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gccacttaac tagctaagta gttcattgcc caacacaaga aatgacagaa acccttttga   2487

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ttctaagtaa cttcaattaa attgaagaag aaaaaaaaaa aaaaa 5532

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<211> 352
<212> PRT
<213> Mus musculus

<400> 7

Met Lys Pro Ala Leu Leu Glu Val Met Arg Met Asn Arg Ile Cys Arg
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Met Val Leu Ala Thr Cys Phe Gly Ser Phe Ile Leu Val Ile Phe Tyr
20 25 30

Phe Gln Ser Met Leu His Pro Val Met Arg Arg Asn Pro Phe Gly Val
35 40 45

Asp Ile Cys Cys Arg Lys Gly Ser Arg Ser Pro Leu Gln Glu Leu Tyr
50 55 60

Asn Pro Ile Gln Leu Glu Leu Ser Asn Thr Ala Ile Leu His Gln Met
65 70 75 80

Arg Arg Asp Gln Val Thr Asp Thr Cys Arg Ala Asn Ser Ala Met Ser
85 90 95

Arg Lys Arg Arg Val Leu Thr Pro Asn Asp Leu Lys His Leu Val Val
100 105 110

Asp Glu Asp His Glu Leu Ile Tyr Cys Tyr Val Pro Lys Val Ala Cys
115 120 125

Thr Asn Trp Lys Arg Leu Met Met Val Leu Ser Gly Arg Gly Lys Tyr
130 135 140

Ser Asp Pro Met Glu Ile Pro Ala Asn Glu Ala His Val Ser Ala Asn
145 150 155 160

Leu Lys Thr Leu Asn Gln Tyr Ser Ile Pro Glu Ile Asn His Arg Leu
165 170 175

Lys Ser Tyr Met Lys Phe Leu Phe Val Arg Glu Pro Phe Glu Arg Leu
180 185 190

Val Ser Ala Tyr Arg Asn Lys Phe Thr Gln Lys Tyr Asn Thr Ser Phe
195 200 205

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His Lys Arg Tyr Gly Thr Lys Ile Ile Arg Arg Gln Arg Lys Asn Ala
    210                 215                 220

Thr Gln Glu Ala Leu Arg Lys Gly Asp Asp Val Lys Phe Glu Glu Phe
225                 230                 235                 240

Val Ala Tyr Leu Ile Asp Pro His Thr Gln Arg Glu Glu Pro Phe Asn
                245                 250                 255

Glu His Trp Gln Thr Val Tyr Ser Leu Cys His Pro Cys His Ile His
            260                 265                 270

Tyr Asp Leu Val Gly Lys Tyr Glu Thr Leu Glu Glu Asp Ser Asn Tyr
        275                 280                 285

Val Leu Gln Leu Ala Gly Val Ser Gly Tyr Leu Lys Phe Pro Thr Tyr
    290                 295                 300

Ala Lys Ser Thr Arg Thr Thr Asp Glu Met Thr Thr Glu Phe Phe Gln
305                 310                 315                 320

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

Asp Phe Leu Met Phe Asn Tyr Ser Val Pro Asn Tyr Leu Lys Leu Asp
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<211> 1785
<212> DNA
<213> Mus musculus

<220>
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gccaggagtg ggcccagccc agggcagc atg acc aag ccg cgg ctc ttc cgg       172
                                Met Thr Lys Pro Arg Leu Phe Arg
                                1               5

ctg tgg ctg gta cta ggg tcg gct ctc atg atc ctt ttg atc att gta      220
Leu Trp Leu Val Leu Gly Ser Ala Leu Met Ile Leu Leu Ile Ile Val
    10                  15                  20

tat tgg gac aac gtg gga acc gcc cac ttc tat ctg cac acg tct ctc      268
Tyr Trp Asp Asn Val Gly Thr Ala His Phe Tyr Leu His Thr Ser Leu
25                  30                  35                  40

tcc agg cca cac atc cta gaa ccc ctt ccc acc cag gga ttg gtg gag      316
Ser Arg Pro His Ile Leu Glu Pro Leu Pro Thr Gln Gly Leu Val Glu
                45                  50                  55

gag aac gtg ttc aca tct gac gtg gat gag ttt ttg gat act ctc ctt      364
Glu Asn Val Phe Thr Ser Asp Val Asp Glu Phe Leu Asp Thr Leu Leu
            60                  65                  70
```

```
agt tct gac gcg aag cac aac gac ctt tcc agg aga aaa act gag cag      412
Ser Ser Asp Ala Lys His Asn Asp Leu Ser Arg Arg Lys Thr Glu Gln
        75                  80                  85

ccc ccg gcg ccc gcc ccc agc aag cca gtc ttg agc cac atg gag gag      460
Pro Pro Ala Pro Ala Pro Ser Lys Pro Val Leu Ser His Met Glu Glu
    90                  95                  100

aac gtg aga ggc tac gac tgg tcc act cat gat gcc cat cag aac cct      508
Asn Val Arg Gly Tyr Asp Trp Ser Thr His Asp Ala His Gln Asn Pro
105                 110                 115                 120

gac cgg gac agg cag cag gcc gag agg agg agc ctg ctg aga gac ttc      556
Asp Arg Asp Arg Gln Gln Ala Glu Arg Arg Ser Leu Leu Arg Asp Phe
                125                 130                 135

tgt gcc aac gcc agc ctg gca ttc ccc acc aag gac cgc tct ttt gac      604
Cys Ala Asn Ala Ser Leu Ala Phe Pro Thr Lys Asp Arg Ser Phe Asp
            140                 145                 150

gac atc ccc aac tac gaa ctg aac cac ctg atc gtg gac gac cgc cac      652
Asp Ile Pro Asn Tyr Glu Leu Asn His Leu Ile Val Asp Asp Arg His
        155                 160                 165

ggg gtc atc tac tgc tac gtg ccc aag gtg gcc tgc acc aac tgg aag      700
Gly Val Ile Tyr Cys Tyr Val Pro Lys Val Ala Cys Thr Asn Trp Lys
    170                 175                 180

cga gtg atg atc gtg ctg agc gag agc ctg ctg gac cgg ggc agc ccc      748
Arg Val Met Ile Val Leu Ser Glu Ser Leu Leu Asp Arg Gly Ser Pro
185                 190                 195                 200

tac cga gac ccc ctg gac atc ccc cgg gaa cac gtg cac aac acc agc      796
Tyr Arg Asp Pro Leu Asp Ile Pro Arg Glu His Val His Asn Thr Ser
                205                 210                 215

acg cac ctc acc ttc aac aag ttc tgg cgc cgc tac gga aag ttc tcc      844
Thr His Leu Thr Phe Asn Lys Phe Trp Arg Arg Tyr Gly Lys Phe Ser
            220                 225                 230

cgt cac ctc atg aag gtg aag ctg aag aag tac acc aag ttc ctg ttc      892
Arg His Leu Met Lys Val Lys Leu Lys Lys Tyr Thr Lys Phe Leu Phe
        235                 240                 245

gtg cgc gac ccc ttt gtg cgc ctc atc tca gcc ttc cgc agc aag ttc      940
Val Arg Asp Pro Phe Val Arg Leu Ile Ser Ala Phe Arg Ser Lys Phe
    250                 255                 260

gag ctg gag aac gaa gag ttt tac cgc aag ttc gcg gtg ccc atg ctc      988
Glu Leu Glu Asn Glu Glu Phe Tyr Arg Lys Phe Ala Val Pro Met Leu
265                 270                 275                 280

cga ctg tac gcc aac cac acc agc ctg ccc gcc tcg gtg agt gag gct     1036
Arg Leu Tyr Ala Asn His Thr Ser Leu Pro Ala Ser Val Ser Glu Ala
                285                 290                 295

ttc agc gcc ggg ctc aag gtc tcc ttc gcc aac ttc atc cag tac ctc     1084
Phe Ser Ala Gly Leu Lys Val Ser Phe Ala Asn Phe Ile Gln Tyr Leu
            300                 305                 310

cta gac cca cac acg gag aag ctg gcg cct ttc aac gag cac tgg cga     1132
Leu Asp Pro His Thr Glu Lys Leu Ala Pro Phe Asn Glu His Trp Arg
        315                 320                 325

cag gtg tac cgc ctc tgc cac ccg tgc cag ata gac tat gac ttc gtg     1180
Gln Val Tyr Arg Leu Cys His Pro Cys Gln Ile Asp Tyr Asp Phe Val
    330                 335                 340

ggg aag ctg gag acg ctc gat gag gac gct gcc cag ctc ctg agg ttc     1228
Gly Lys Leu Glu Thr Leu Asp Glu Asp Ala Ala Gln Leu Leu Arg Phe
345                 350                 355                 360
```

```
ctc aag gta gac tcc cag ctc cac ttc ccc ccc agt tat cgg aac agg     1276
Leu Lys Val Asp Ser Gln Leu His Phe Pro Pro Ser Tyr Arg Asn Arg
                365                 370                 375

acg gcc agc agc tgg gag gaa gac tgg ttt gcc aac atc ccc ctg gca     1324
Thr Ala Ser Ser Trp Glu Glu Asp Trp Phe Ala Asn Ile Pro Leu Ala
            380                 385                 390

tgg agg caa cag ctc tat aaa ctc tac gag gcc gac ttt gtt ctc ttt     1372
Trp Arg Gln Gln Leu Tyr Lys Leu Tyr Glu Ala Asp Phe Val Leu Phe
        395                 400                 405

ggc tac ccc aag cca gaa aac ctg ctc agg gac tga gcccccagaa          1418
Gly Tyr Pro Lys Pro Glu Asn Leu Leu Arg Asp
    410                 415

gccctcacgc tgcccccaac aaattgaatg gctgtcccat gaggccgtcc tttgaggatg   1478

ggaccctgtg gcctcctggg ttctctcctg gcttcctttg cttcctggtg tgacaggcag   1538

aggattccac gccccccccc cgcatctgga gaccgtggta cagccaagac cgaagcacct   1598

cactctccag agttttgcgc tccccacccc cgccctttg caatctggat ttgtttactc   1658

cacagcctgt attcatggaa cactgtgtta aatactgttt tctaagatta atatatttca   1718

gatatattta atacgaaagt gggaggaagc tggagtaaag tgtggcgccc gcaaaaaaaa   1778

aaaaaaa                                                            1785
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<210> 9
<211> 419
<212> PRT
<213> Mus musculus

<400> 9

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Met Thr Lys Pro Arg Leu Phe Arg Leu Trp Leu Val Leu Gly Ser Ala
1               5                   10                  15

Leu Met Ile Leu Leu Ile Ile Val Tyr Trp Asp Asn Val Gly Thr Ala
            20                  25                  30

His Phe Tyr Leu His Thr Ser Leu Ser Arg Pro His Ile Leu Glu Pro
        35                  40                  45

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

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

Leu Ser Arg Arg Lys Thr Glu Gln Pro Pro Ala Pro Ala Pro Ser Lys
                85                  90                  95

Pro Val Leu Ser His Met Glu Glu Asn Val Arg Gly Tyr Asp Trp Ser
            100                 105                 110

Thr His Asp Ala His Gln Asn Pro Asp Arg Asp Arg Gln Gln Ala Glu
        115                 120                 125
```

```
Arg Arg Ser Leu Leu Arg Asp Phe Cys Ala Asn Ala Ser Leu Ala Phe
    130                 135                 140

Pro Thr Lys Asp Arg Ser Phe Asp Asp Ile Pro Asn Tyr Glu Leu Asn
145                 150                 155                 160

His Leu Ile Val Asp Asp Arg His Gly Val Ile Tyr Cys Tyr Val Pro
                165                 170                 175

Lys Val Ala Cys Thr Asn Trp Lys Arg Val Met Ile Val Leu Ser Glu
            180                 185                 190

Ser Leu Leu Asp Arg Gly Ser Pro Tyr Arg Asp Pro Leu Asp Ile Pro
        195                 200                 205

Arg Glu His Val His Asn Thr Ser Thr His Leu Thr Phe Asn Lys Phe
    210                 215                 220

Trp Arg Arg Tyr Gly Lys Phe Ser Arg His Leu Met Lys Val Lys Leu
225                 230                 235                 240

Lys Lys Tyr Thr Lys Phe Leu Phe Val Arg Asp Pro Phe Val Arg Leu
                245                 250                 255

Ile Ser Ala Phe Arg Ser Lys Phe Glu Leu Glu Asn Glu Glu Phe Tyr
            260                 265                 270

Arg Lys Phe Ala Val Pro Met Leu Arg Leu Tyr Ala Asn His Thr Ser
        275                 280                 285

Leu Pro Ala Ser Val Ser Glu Ala Phe Ser Ala Gly Leu Lys Val Ser
    290                 295                 300

Phe Ala Asn Phe Ile Gln Tyr Leu Leu Asp Pro His Thr Glu Lys Leu
305                 310                 315                 320

Ala Pro Phe Asn Glu His Trp Arg Gln Val Tyr Arg Leu Cys His Pro
                325                 330                 335

Cys Gln Ile Asp Tyr Asp Phe Val Gly Lys Leu Glu Thr Leu Asp Glu
            340                 345                 350

Asp Ala Ala Gln Leu Leu Arg Phe Leu Lys Val Asp Ser Gln Leu His
        355                 360                 365

Phe Pro Pro Ser Tyr Arg Asn Arg Thr Ala Ser Ser Trp Glu Glu Asp
    370                 375                 380

Trp Phe Ala Asn Ile Pro Leu Ala Trp Arg Gln Gln Leu Tyr Lys Leu
385                 390                 395                 400

Tyr Glu Ala Asp Phe Val Leu Phe Gly Tyr Pro Lys Pro Glu Asn Leu
                405                 410                 415
```

Leu Arg Asp

<210> 10
<211> 1728
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)..(1116)

<400> 10

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atg act gtc gcc tgc cac gcg tgc cag gca cag cat ggg aag acg ctc        48
Met Thr Val Ala Cys His Ala Cys Gln Ala Gln His Gly Lys Thr Leu
1               5                   10                  15

ctg ttg cag gcg gcc ctt gcc ggt ggt ggc aag tct ggg tgc tgc act        96
Leu Leu Gln Ala Ala Leu Ala Gly Gly Gly Lys Ser Gly Cys Cys Thr
            20                  25                  30

cct gct cct gtg cgc cct gcg tcc cgg gta acc aca gga aag gat gcc       144
Pro Ala Pro Val Arg Pro Ala Ser Arg Val Thr Thr Gly Lys Asp Ala
        35                  40                  45

cag gac act gaa tgg cag ggc tcc cca aaa gcc ctt ttg ggg gtt ccg       192
Gln Asp Thr Glu Trp Gln Gly Ser Pro Lys Ala Leu Leu Gly Val Pro
    50                  55                  60

aca ttt gaa aat aaa gct ctg ggc tcc agc tgg ttc ggt gga gtg agg       240
Thr Phe Glu Asn Lys Ala Leu Gly Ser Ser Trp Phe Gly Gly Val Arg
65                  70                  75                  80

aag agt ccc cta cag ctg ttg cgt gac ctg gac cag ggt cca cgc tcc       288
Lys Ser Pro Leu Gln Leu Leu Arg Asp Leu Asp Gln Gly Pro Arg Ser
                85                  90                  95

gcg atg gcc gag gtg cac cag cag cgg cgt gag ctg ctg cgc cgg gcc       336
Ala Met Ala Glu Val His Gln Gln Arg Arg Glu Leu Leu Arg Arg Ala
            100                 105                 110

tgc agc cgc cac acg cga cgc caa cgc ctg ctg cag ccg gag gac ctg       384
Cys Ser Arg His Thr Arg Arg Gln Arg Leu Leu Gln Pro Glu Asp Leu
        115                 120                 125

cgt cac gtg ctg gtg gac gac gcg cac cgg ctg ctg tac tgc tac gtg       432
Arg His Val Leu Val Asp Asp Ala His Arg Leu Leu Tyr Cys Tyr Val
    130                 135                 140

cct aag gtg gcc tgc acc aac tgg aag cgt gtg atg ctg gcg ttg cgc       480
Pro Lys Val Ala Cys Thr Asn Trp Lys Arg Val Met Leu Ala Leu Arg
145                 150                 155                 160

ggc cgt ggg gat cca agc gca atc cct gcg cac gag gcg cat gcg cct       528
Gly Arg Gly Asp Pro Ser Ala Ile Pro Ala His Glu Ala His Ala Pro
                165                 170                 175

ggc ctg ctg ccc tcg ctg gcc gac ttt gcg ccg gct gag gtc aac tgg       576
Gly Leu Leu Pro Ser Leu Ala Asp Phe Ala Pro Ala Glu Val Asn Trp
            180                 185                 190

cgg ctg cgc gac tac ctg acc ttt ctc ttc gtg cgg gag ccc ttc gag       624
Arg Leu Arg Asp Tyr Leu Thr Phe Leu Phe Val Arg Glu Pro Phe Glu
        195                 200                 205

cgc ctg gcg tca gcc tac cgc aac aag ctg gcg cgg cca cac agc gcg       672
Arg Leu Ala Ser Ala Tyr Arg Asn Lys Leu Ala Arg Pro His Ser Ala
    210                 215                 220
```

```
gcc ttc cag cgg cgc tat ggc aca cgc atc gtg cgt cgc cta cga cca      720
Ala Phe Gln Arg Arg Tyr Gly Thr Arg Ile Val Arg Arg Leu Arg Pro
225                 230                 235                 240

cac gcg cag ccc gat gcg ctg gcc cgc ggc cac gac gtg cgc ttc gcc      768
His Ala Gln Pro Asp Ala Leu Ala Arg Gly His Asp Val Arg Phe Ala
                245                 250                 255

gag ttc ctg gcc tac ctg ctc gac ccg cgc acg cgc cgt cat gag ccc      816
Glu Phe Leu Ala Tyr Leu Leu Asp Pro Arg Thr Arg Arg His Glu Pro
            260                 265                 270

ttc aac gaa cac tgg gag cgc gca cac gcg ctg tgc cat ccg tgc cta      864
Phe Asn Glu His Trp Glu Arg Ala His Ala Leu Cys His Pro Cys Leu
        275                 280                 285

gtg cgc tat gat gta gtg ggc aag ttt gag acg ata gca gat gat gct      912
Val Arg Tyr Asp Val Val Gly Lys Phe Glu Thr Ile Ala Asp Asp Ala
    290                 295                 300

gcc ttc gtg ctg gac ctg gtg ggt gag cct ggg cta cgt ttc cct gct      960
Ala Phe Val Leu Asp Leu Val Gly Glu Pro Gly Leu Arg Phe Pro Ala
305                 310                 315                 320

cca ccg ctg agg cca gag aag gac ctt acg cgt gag cag gcc cgg cgc     1008
Pro Pro Leu Arg Pro Glu Lys Asp Leu Thr Arg Glu Gln Ala Arg Arg
                325                 330                 335

ctt ttc cag gac atc agc ccc ttc tac cag cgt cgc ctc ttt aac ctc     1056
Leu Phe Gln Asp Ile Ser Pro Phe Tyr Gln Arg Arg Leu Phe Asn Leu
            340                 345                 350

tat aag atg gac ttt ctg ctc ttc aat tac tct gcc cct tcc tac ctg     1104
Tyr Lys Met Asp Phe Leu Leu Phe Asn Tyr Ser Ala Pro Ser Tyr Leu
        355                 360                 365

cga ctg caa taa gggtgttggg tgcaatagag ccagtggctg ctgtgaccag         1156
Arg Leu Gln
    370

gaggccacca ggaggtctgg aacgaacctg gttgtgtgga ttggagacct tatccagtgg   1216

gcctgaccaa gagtctggcc actggtcaca ctcattccga ctgggtaggg tacaggttgc   1276

tttaggtgac cataaccttg tcaggccgtt tctgctgtta gtttgatgtg tgtctcttcc   1336

tcccactctg cagatgtcag gcttcttcct aggactccag gtttgtagtt ctttggtttg   1396

gtttgagagg ccatttctca gtcttgtctg tgtagaacct gtccgtggca tggtgctaca   1456

agacagaatg tcatggcttg gttcagtgtg gcctaaggtc ttgtcagcat ttactgctta   1516

ggagttaaca tgagctgcct gccaccccag cagtcacagg atggtgagca ctaccactcc   1576

acatctacct ggctgatcta cctttgatct cagccttgca agaggctgga tcttcccctg   1636

tgtcagcaaa ggccaagatg caatactgtg gcagcttttc cagctcactt ttatttttt    1696

tgttgttttt ttaaataaat atgttttgtt ac                                 1728
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<210> 11
<211> 371
<212> PRT
<213> Mus musculus

<400> 11

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Met Thr Val Ala Cys His Ala Cys Gln Ala Gln His Gly Lys Thr Leu
1               5                   10                  15
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Leu Leu Gln Ala Ala Leu Ala Gly Gly Gly Lys Ser Gly Cys Cys Thr
            20                  25                  30

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

Gln Asp Thr Glu Trp Gln Gly Ser Pro Lys Ala Leu Leu Gly Val Pro
    50                  55                  60

Thr Phe Glu Asn Lys Ala Leu Gly Ser Ser Trp Phe Gly Gly Val Arg
65                  70                  75                  80

Lys Ser Pro Leu Gln Leu Leu Arg Asp Leu Asp Gln Gly Pro Arg Ser
                85                  90                  95

Ala Met Ala Glu Val His Gln Gln Arg Arg Glu Leu Leu Arg Arg Ala
            100                 105                 110

Cys Ser Arg His Thr Arg Arg Gln Arg Leu Leu Gln Pro Glu Asp Leu
        115                 120                 125

Arg His Val Leu Val Asp Asp Ala His Arg Leu Leu Tyr Cys Tyr Val
    130                 135                 140

Pro Lys Val Ala Cys Thr Asn Trp Lys Arg Val Met Leu Ala Leu Arg
145                 150                 155                 160

Gly Arg Gly Asp Pro Ser Ala Ile Pro Ala His Glu Ala His Ala Pro
                165                 170                 175

Gly Leu Leu Pro Ser Leu Ala Asp Phe Ala Pro Ala Glu Val Asn Trp
            180                 185                 190

Arg Leu Arg Asp Tyr Leu Thr Phe Leu Phe Val Arg Glu Pro Phe Glu
        195                 200                 205

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

Ala Phe Gln Arg Arg Tyr Gly Thr Arg Ile Val Arg Arg Leu Arg Pro
225                 230                 235                 240

His Ala Gln Pro Asp Ala Leu Ala Arg Gly His Asp Val Arg Phe Ala
                245                 250                 255

Glu Phe Leu Ala Tyr Leu Leu Asp Pro Arg Thr Arg Arg His Glu Pro
            260                 265                 270

Phe Asn Glu His Trp Glu Arg Ala His Ala Leu Cys His Pro Cys Leu
        275                 280                 285

Val Arg Tyr Asp Val Val Gly Lys Phe Glu Thr Ile Ala Asp Asp Ala
```

```
    290                 295                 300

Ala Phe Val Leu Asp Leu Val Gly Glu Pro Gly Leu Arg Phe Pro Ala
305                 310                 315                 320

Pro Pro Leu Arg Pro Glu Lys Asp Leu Thr Arg Glu Gln Ala Arg Arg
                325                 330                 335

Leu Phe Gln Asp Ile Ser Pro Phe Tyr Gln Arg Arg Leu Phe Asn Leu
            340                 345                 350

Tyr Lys Met Asp Phe Leu Leu Phe Asn Tyr Ser Ala Pro Ser Tyr Leu
        355                 360                 365

Arg Leu Gln
    370
```

<210> 12
<211> 2073
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (129)..(1259)

<400> 12

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ccggccctgg tccctgcctg caccccggga gctggccacc cactatccct cccctcccga     60

gacctccagc ccctgctgca gtcacctccc ctgcagcctc gaggtcggcg aggtctggcc    120

gcagcacc atg ttt ccc cgc cct ctg acc cca ctg gct gcc ccg aaa agc      170
         Met Phe Pro Arg Pro Leu Thr Pro Leu Ala Ala Pro Lys Ser
         1               5                   10

gcg gag acc ctg ggc cgc acg cca agg cgg gcc cca ttg ggc cgg gcc      218
Ala Glu Thr Leu Gly Arg Thr Pro Arg Arg Ala Pro Leu Gly Arg Ala
15                  20                  25                  30

cgg gct ggg ctc ggg ggg ccg ccc ctg ctg ctg ccg tcc atg ctg atg      266
Arg Ala Gly Leu Gly Gly Pro Pro Leu Leu Leu Pro Ser Met Leu Met
                35                  40                  45

ttc gct gta atc gtg gcc tcc agc gga ctg ctg ctc atg atc gag cga      314
Phe Ala Val Ile Val Ala Ser Ser Gly Leu Leu Leu Met Ile Glu Arg
            50                  55                  60

ggc atc cta tcg gag atg aaa ccc ctt ccc ctg cac cct ccc agc cac      362
Gly Ile Leu Ser Glu Met Lys Pro Leu Pro Leu His Pro Pro Ser His
        65                  70                  75

aaa ggc gcg gcc tgg agc ggg aca gat cct aag cct aga ggc cta tcc      410
Lys Gly Ala Ala Trp Ser Gly Thr Asp Pro Lys Pro Arg Gly Leu Ser
    80                  85                  90

ttg gat gct ggg gac tcg gac ttg caa gtg agg gag gac atc cga aac      458
Leu Asp Ala Gly Asp Ser Asp Leu Gln Val Arg Glu Asp Ile Arg Asn
95                  100                 105                 110

cgg acc ttg agg gcc gtg tgc gga caa cca ggc atg ccc cgg gac ccc      506
Arg Thr Leu Arg Ala Val Cys Gly Gln Pro Gly Met Pro Arg Asp Pro
                115                 120                 125

tgg gac ttg ccg gtg gga cag cgg cgc acc ctg ctg cgc cac att ctc      554
```

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

gta agt gac cgc tac cgc ttc ctc tac tgc tat gtc ccc aaa gtg gcc      602
Val Ser Asp Arg Tyr Arg Phe Leu Tyr Cys Tyr Val Pro Lys Val Ala
        145                 150                 155

tgc tct aac tgg aaa cgt gtg ctg aag gtg ctg gct ggc gtc ctg aac      650
Cys Ser Asn Trp Lys Arg Val Leu Lys Val Leu Ala Gly Val Leu Asn
    160                 165                 170

aac gtg gat gtc cgc ctc aag atg gac cac ccc agt gac ttg gtg ttt      698
Asn Val Asp Val Arg Leu Lys Met Asp His Pro Ser Asp Leu Val Phe
175                 180                 185                 190

ctg gca gac ctg cgg cct gag gag att cgc tac cgt ctg cag cac tac      746
Leu Ala Asp Leu Arg Pro Glu Glu Ile Arg Tyr Arg Leu Gln His Tyr
                195                 200                 205

ttc aag ttc ctg ttt gtg cga gac ccc ttg gaa cgc ctc ctg tct gct      794
Phe Lys Phe Leu Phe Val Arg Asp Pro Leu Glu Arg Leu Leu Ser Ala
            210                 215                 220

tac cgt aac aag ttt gga gag atc cga gag tac cag cag cga tat ggg      842
Tyr Arg Asn Lys Phe Gly Glu Ile Arg Glu Tyr Gln Gln Arg Tyr Gly
        225                 230                 235

gcc gaa att gtc agg cgc tac agg gct gga gct ggt ccc agc cct gca      890
Ala Glu Ile Val Arg Arg Tyr Arg Ala Gly Ala Gly Pro Ser Pro Ala
    240                 245                 250

ggg gac gat gtc acc ttc cca gag ttc ctg aga tac ctg gtg gat gag      938
Gly Asp Asp Val Thr Phe Pro Glu Phe Leu Arg Tyr Leu Val Asp Glu
255                 260                 265                 270

gat cct gaa cat atg aat gag cat tgg atg cct gtg tac cac ctg tgc      986
Asp Pro Glu His Met Asn Glu His Trp Met Pro Val Tyr His Leu Cys
                275                 280                 285

caa cca tgt gct gtg cac tac gac ttc gtg ggt tcc tat gag agg ctg     1034
Gln Pro Cys Ala Val His Tyr Asp Phe Val Gly Ser Tyr Glu Arg Leu
            290                 295                 300

gag gct gat gcc aac cag gtg ctg gag tgg gtg cgg gcc cca ccc cat     1082
Glu Ala Asp Ala Asn Gln Val Leu Glu Trp Val Arg Ala Pro Pro His
        305                 310                 315

gtc cgg ttc cca gct cgc cag gcc tgg tac cgg cca gcc agc cca gaa     1130
Val Arg Phe Pro Ala Arg Gln Ala Trp Tyr Arg Pro Ala Ser Pro Glu
    320                 325                 330

agt ctg cat tac cac ttg tgc aat gtt cca cgg gcc ctg ctt caa gat     1178
Ser Leu His Tyr His Leu Cys Asn Val Pro Arg Ala Leu Leu Gln Asp
335                 340                 345                 350

gtg cta cct aag tat atc ctg gac ttc tcc ctc ttt gct tac cca ctg     1226
Val Leu Pro Lys Tyr Ile Leu Asp Phe Ser Leu Phe Ala Tyr Pro Leu
                355                 360                 365

ccc aat gtc acc aag gaa gcc tgt cac caa tga cagtaggcca gcacctttg    1279
Pro Asn Val Thr Lys Glu Ala Cys His Gln
            370                 375

gagtttgggt ttaatgatat cagctttggg atgtctttca gagaaactcc tggctctggg   1339

tggcttcctg gtttctctag gtgtctccat atctcagtgg taaggactgt ccttggaggt   1399

ccttgtccac agtggctcag aggacagagc tagaaaggag gcctgctgct ttcactggtg   1459

aactgcctct cttaggggcc tgtggtatcc gtgtctgcag ggcaccagtg gttattaaag   1519
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ccatatgttt gatcgaaaga ctgacttcag ccccctggct gctgggtcta tgcagtccac 1579

ctggtctgtt gtaatttaac ctgtggccaa atcccaaata tgacactagc caagcacatg 1639

atcatgccta ggaccaatgg ctgtgacccc ctattcaccc atcccatgga cctcaggact 1699

ggagtgagct gtggtgcctt agaaatgaaa tgtgtgcaat tctactccag acttttacat 1759

ttcctcctct tgctaggtct gaatcatttt tctaaggaaa gagaaacgga agtggggccc 1819

ttacctcgaa gctctaaagc ccagcccctc aagcatccaa agacgcctgt gcctgacctc 1879

ttcctagggc tcctggagca tcttcaataa gcctcccttc cctacaaacc tttggagact 1939

atgtgagact gtatggccca tatatctggc tgtcacttgt ctaatgcatt tatttaaaat 1999

gtgtatattt taataggatc cttgtaaggg ctgactttta ataaagcttt ttcatataca 2059

aaaaaaaaaa aaaa 2073

<210> 13
<211> 376
<212> PRT
<213> Mus musculus

<400> 13

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

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

Gly Leu Gly Gly Pro Pro Leu Leu Leu Pro Ser Met Leu Met Phe Ala
35 40 45

Val Ile Val Ala Ser Ser Gly Leu Leu Leu Met Ile Glu Arg Gly Ile
50 55 60

Leu Ser Glu Met Lys Pro Leu Pro Leu His Pro Pro Ser His Lys Gly
65 70 75 80

Ala Ala Trp Ser Gly Thr Asp Pro Lys Pro Arg Gly Leu Ser Leu Asp
85 90 95

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

Leu Arg Ala Val Cys Gly Gln Pro Gly Met Pro Arg Asp Pro Trp Asp
115 120 125

Leu Pro Val Gly Gln Arg Arg Thr Leu Leu Arg His Ile Leu Val Ser
130 135 140

Asp Arg Tyr Arg Phe Leu Tyr Cys Tyr Val Pro Lys Val Ala Cys Ser
145 150 155 160

Asn Trp Lys Arg Val Leu Lys Val Leu Ala Gly Val Leu Asn Asn Val
165 170 175

```
Asp Val Arg Leu Lys Met Asp His Pro Ser Asp Leu Val Phe Leu Ala
            180                 185                 190

Asp Leu Arg Pro Glu Glu Ile Arg Tyr Arg Leu Gln His Tyr Phe Lys
        195                 200                 205

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

Asn Lys Phe Gly Glu Ile Arg Glu Tyr Gln Gln Arg Tyr Gly Ala Glu
225                 230                 235                 240

Ile Val Arg Arg Tyr Arg Ala Gly Ala Gly Pro Ser Pro Ala Gly Asp
                245                 250                 255

Asp Val Thr Phe Pro Glu Phe Leu Arg Tyr Leu Val Asp Glu Asp Pro
            260                 265                 270

Glu His Met Asn Glu His Trp Met Pro Val Tyr His Leu Cys Gln Pro
        275                 280                 285

Cys Ala Val His Tyr Asp Phe Val Gly Ser Tyr Glu Arg Leu Glu Ala
    290                 295                 300

Asp Ala Asn Gln Val Leu Glu Trp Val Arg Ala Pro Pro His Val Arg
305                 310                 315                 320

Phe Pro Ala Arg Gln Ala Trp Tyr Arg Pro Ala Ser Pro Glu Ser Leu
                325                 330                 335

His Tyr His Leu Cys Asn Val Pro Arg Ala Leu Leu Gln Asp Val Leu
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Pro Lys Tyr Ile Leu Asp Phe Ser Leu Phe Ala Tyr Pro Leu Pro Asn
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Val Thr Lys Glu Ala Cys His Gln
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cagagtgtta gggtgtgacc tttaaatgac ctattaaaga aaccccaaca ggtgtagagt    180

acacctgtga tcccagctct taggaggttg gacagatgga taaagaggtc caggtgtccc    240
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ggactacata gagagaccct atctcaaaag agaggcgaag acttaggttt tgagagtggg    300

cctgaggtct ctcttcaaaa gttttataga aagatgtctc tgttccctgt ctatgaacac    360

ggatggcctg agcacctgtc tcttcacagg atcagagtgt cccccacctg aagagggctg    420

attgggtccc aagctatgct cctgagctga gtgcctgcag ccagtctgag gaactccatg    480

gcgccccctc tcccc atg gag aaa gga ctc gct ttg cct cag gat ttc cgg      531
                Met Glu Lys Gly Leu Ala Leu Pro Gln Asp Phe Arg
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gac ctt gta cac agc cta aag att cga ggc aga tac gtc ttg ttc ctg      579
Asp Leu Val His Ser Leu Lys Ile Arg Gly Arg Tyr Val Leu Phe Leu
        15                  20                  25

gca ttt gtg gtc ata gtt ttt atc ttc att gaa aag gaa aat aaa atc      627
Ala Phe Val Val Ile Val Phe Ile Phe Ile Glu Lys Glu Asn Lys Ile
    30                  35                  40

ata tcc agg gtc tcc gac aag ctg aag cag atc cct cat ttt gtg gca      675
Ile Ser Arg Val Ser Asp Lys Leu Lys Gln Ile Pro His Phe Val Ala
45                  50                  55                  60

gat gcc aac agc act gac cca gcc ctg ctc tta tcg gag aat gca tct      723
Asp Ala Asn Ser Thr Asp Pro Ala Leu Leu Leu Ser Glu Asn Ala Ser
                65                  70                  75

ctc ttg tcc ctg agc gag ttg gat tcc acc ttt tcc cat ctg cgg agc      771
Leu Leu Ser Leu Ser Glu Leu Asp Ser Thr Phe Ser His Leu Arg Ser
            80                  85                  90

cgc ctg cac aac ctg agc ctg cag ctg ggc gtg gag cca gca atg gag      819
Arg Leu His Asn Leu Ser Leu Gln Leu Gly Val Glu Pro Ala Met Glu
        95                  100                 105

agc cag gag gct ggg gca gag aag cca tcc cag cag gct gga gca ggg      867
Ser Gln Glu Ala Gly Ala Glu Lys Pro Ser Gln Gln Ala Gly Ala Gly
    110                 115                 120

acc cgg cgc cac gtg ctt ctc atg gcc acc acc cgc acg ggt tcc tcg      915
Thr Arg Arg His Val Leu Leu Met Ala Thr Thr Arg Thr Gly Ser Ser
125                 130                 135                 140

ttc gtg ggc gag ttc ttc aac cag cag ggc aat atc ttc tac ctc ttc      963
Phe Val Gly Glu Phe Phe Asn Gln Gln Gly Asn Ile Phe Tyr Leu Phe
                145                 150                 155

gag cca ctg tgg cac atc gag cgc acc gtg ttc ttc cag cag cga ggc     1011
Glu Pro Leu Trp His Ile Glu Arg Thr Val Phe Phe Gln Gln Arg Gly
            160                 165                 170

gcc agc gcg gct ggt tca gcc ttg gtc tac cgt gat gtc ctc aag cag     1059
Ala Ser Ala Ala Gly Ser Ala Leu Val Tyr Arg Asp Val Leu Lys Gln
        175                 180                 185

ttg ttg cta tgc gac ctg tat gtg ctg gag ccc ttc atc agc cct ccg     1107
Leu Leu Leu Cys Asp Leu Tyr Val Leu Glu Pro Phe Ile Ser Pro Pro
    190                 195                 200

ccc gag gac cac ttg act cag ttc ctg ttc cgc cgg gga tcc agc cgt     1155
Pro Glu Asp His Leu Thr Gln Phe Leu Phe Arg Arg Gly Ser Ser Arg
205                 210                 215                 220

tca ctc tgc gag gat ccg gtg tgc aca ccc ttc gtc aag aag gtc ttt     1203
Ser Leu Cys Glu Asp Pro Val Cys Thr Pro Phe Val Lys Lys Val Phe
                225                 230                 235

gag aag tac cac tgc agg aac cgt cgc tgc ggg cca ctc aac gtg acc     1251
Glu Lys Tyr His Cys Arg Asn Arg Arg Cys Gly Pro Leu Asn Val Thr
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ttg gcg ggc gag gcc tgc cgc cgc aag gac cac gtg gcc ctc aag gct     1299
Leu Ala Gly Glu Ala Cys Arg Arg Lys Asp His Val Ala Leu Lys Ala
        255                 260                 265

gtg cgc atc cgt cag ctg gag ttc ctg cag ccg cta gtt gag gac ccg     1347
Val Arg Ile Arg Gln Leu Glu Phe Leu Gln Pro Leu Val Glu Asp Pro
    270                 275                 280

agg ttg gat cta cga gtc att cag ctg gtg cgc gac ccc cgg gcc gtg     1395
Arg Leu Asp Leu Arg Val Ile Gln Leu Val Arg Asp Pro Arg Ala Val
285                 290                 295                 300

ctg gct tca cgc ata gtg gcc ttt gcg ggc aag tat gag aac tgg aag     1443
Leu Ala Ser Arg Ile Val Ala Phe Ala Gly Lys Tyr Glu Asn Trp Lys
                305                 310                 315

aag tgg ctg tcc gag ggg cag gac cag ctg agc gag gat gag gtg cag     1491
Lys Trp Leu Ser Glu Gly Gln Asp Gln Leu Ser Glu Asp Glu Val Gln
            320                 325                 330

cga ttg cgg ggc aac tgt gag agc atc cgc ctg tct gca gag ctg ggc     1539
Arg Leu Arg Gly Asn Cys Glu Ser Ile Arg Leu Ser Ala Glu Leu Gly
        335                 340                 345

ttg cgg cag cca gcc tgg ctg cgc ggt cgt tac atg ctg gtg cgc tat     1587
Leu Arg Gln Pro Ala Trp Leu Arg Gly Arg Tyr Met Leu Val Arg Tyr
    350                 355                 360

gag gat gtg gca cgc agg cca ctg cag aag gcc cga gag atg tac agc     1635
Glu Asp Val Ala Arg Arg Pro Leu Gln Lys Ala Arg Glu Met Tyr Ser
365                 370                 375                 380

ttt gcg ggc atc ccc ttg acc ccg cag gtg gag gac tgg atc cag aag     1683
Phe Ala Gly Ile Pro Leu Thr Pro Gln Val Glu Asp Trp Ile Gln Lys
                385                 390                 395

aac acg cag gcg aca cgc gac agc agc gat gtc tac tcc act cag aaa     1731
Asn Thr Gln Ala Thr Arg Asp Ser Ser Asp Val Tyr Ser Thr Gln Lys
            400                 405                 410

aac tct tct gag cag ttt gag aag tgg cgc ttc agc atg cct ttc aag     1779
Asn Ser Ser Glu Gln Phe Glu Lys Trp Arg Phe Ser Met Pro Phe Lys
        415                 420                 425

ctg gca cag gtg gta cag gct gcc tgt ggc ccg acc atg cac ctc ttt     1827
Leu Ala Gln Val Val Gln Ala Ala Cys Gly Pro Thr Met His Leu Phe
    430                 435                 440

ggc tac aag ttg gcc agg gat gcc gcc tca ctc acc aac cgc tcc atc     1875
Gly Tyr Lys Leu Ala Arg Asp Ala Ala Ser Leu Thr Asn Arg Ser Ile
445                 450                 455                 460

agc ctg ctg gag gag cgg ggc acc ttc tgg gtc acg tag tgggggatgt      1924
Ser Leu Leu Glu Glu Arg Gly Thr Phe Trp Val Thr
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gagttctggt gccctcttct ggcatgcagg tgtacatgca gatagagcac tcctatgcat 5944

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Ser Leu Lys Ile Arg Gly Arg Tyr Val Leu Phe Leu Ala Phe Val Val
20 25 30

Ile Val Phe Ile Phe Ile Glu Lys Glu Asn Lys Ile Ile Ser Arg Val
35 40 45

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Ser Asp Lys Leu Lys Gln Ile Pro His Phe Val Ala Asp Ala Asn Ser
    50                  55                  60

Thr Asp Pro Ala Leu Leu Leu Ser Glu Asn Ala Ser Leu Leu Ser Leu
65                  70                  75                  80

Ser Glu Leu Asp Ser Thr Phe Ser His Leu Arg Ser Arg Leu His Asn
                85                  90                  95

Leu Ser Leu Gln Leu Gly Val Glu Pro Ala Met Glu Ser Gln Glu Ala
            100                 105                 110

Gly Ala Glu Lys Pro Ser Gln Gln Ala Gly Ala Gly Thr Arg Arg His
        115                 120                 125

Val Leu Leu Met Ala Thr Thr Arg Thr Gly Ser Ser Phe Val Gly Glu
    130                 135                 140

Phe Phe Asn Gln Gln Gly Asn Ile Phe Tyr Leu Phe Glu Pro Leu Trp
145                 150                 155                 160

His Ile Glu Arg Thr Val Phe Phe Gln Gln Arg Gly Ala Ser Ala Ala
                165                 170                 175

Gly Ser Ala Leu Val Tyr Arg Asp Val Leu Lys Gln Leu Leu Leu Cys
            180                 185                 190

Asp Leu Tyr Val Leu Glu Pro Phe Ile Ser Pro Pro Pro Glu Asp His
        195                 200                 205

Leu Thr Gln Phe Leu Phe Arg Arg Gly Ser Ser Arg Ser Leu Cys Glu
    210                 215                 220

Asp Pro Val Cys Thr Pro Phe Val Lys Lys Val Phe Glu Lys Tyr His
225                 230                 235                 240

Cys Arg Asn Arg Arg Cys Gly Pro Leu Asn Val Thr Leu Ala Gly Glu
                245                 250                 255

Ala Cys Arg Arg Lys Asp His Val Ala Leu Lys Ala Val Arg Ile Arg
            260                 265                 270

Gln Leu Glu Phe Leu Gln Pro Leu Val Glu Asp Pro Arg Leu Asp Leu
        275                 280                 285

Arg Val Ile Gln Leu Val Arg Asp Pro Arg Ala Val Leu Ala Ser Arg
    290                 295                 300

Ile Val Ala Phe Ala Gly Lys Tyr Glu Asn Trp Lys Lys Trp Leu Ser
305                 310                 315                 320

Glu Gly Gln Asp Gln Leu Ser Glu Asp Glu Val Gln Arg Leu Arg Gly
                325                 330                 335
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Asn Cys Glu Ser Ile Arg Leu Ser Ala Glu Leu Gly Leu Arg Gln Pro
            340                 345                 350

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

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

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

Thr Arg Asp Ser Ser Asp Val Tyr Ser Thr Gln Lys Asn Ser Ser Glu
                405                 410                 415

Gln Phe Glu Lys Trp Arg Phe Ser Met Pro Phe Lys Leu Ala Gln Val
            420                 425                 430

Val Gln Ala Ala Cys Gly Pro Thr Met His Leu Phe Gly Tyr Lys Leu
        435                 440                 445

Ala Arg Asp Ala Ala Ser Leu Thr Asn Arg Ser Ile Ser Leu Leu Glu
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Glu Arg Gly Thr Phe Trp Val Thr
465                 470
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tggggagagt gaggattcgg tgaact atg aag ggc cgg cgg cgg cgg cgc cga      173
                               Met Lys Gly Arg Arg Arg Arg Arg Arg
                               1               5

aag tat tgc aag ttc acg ctg ctc ttg gcg ctg tac acg ctt ttg cta      221
Lys Tyr Cys Lys Phe Thr Leu Leu Leu Ala Leu Tyr Thr Leu Leu Leu
10                  15                  20                  25

ctt ctt gtc ccc tct gta ctg gac agc cac agc gag cag gac aag ggc      269
Leu Leu Val Pro Ser Val Leu Asp Ser His Ser Glu Gln Asp Lys Gly
                30                  35                  40

agg aac tgc ccc ggc ctg cag cgc agc ttg ggt gtg tgg agc ctg gag      317
Arg Asn Cys Pro Gly Leu Gln Arg Ser Leu Gly Val Trp Ser Leu Glu
            45                  50                  55

gcg gcg gcg gcc ggg gaa cgt gag cag ggc gct gag gtg cgg tcc ctg      365
Ala Ala Ala Ala Gly Glu Arg Glu Gln Gly Ala Glu Val Arg Ser Leu
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        60                  65                  70

gcc gaa gga aac ccg gat cga tcc ccc ggg tcc ccc ggc aac ctc agc      413
Ala Glu Gly Asn Pro Asp Arg Ser Pro Gly Ser Pro Gly Asn Leu Ser
    75                  80                  85

gcc gtc ggt gag gcg gtg acc cag gaa aag caa cac atc tat gtg cat      461
Ala Val Gly Glu Ala Val Thr Gln Glu Lys Gln His Ile Tyr Val His
90                  95                  100                 105

gcc acc tgg cgc acc ggc tcg tcc ttc ttg ggc gaa ctc ttc aac cag      509
Ala Thr Trp Arg Thr Gly Ser Ser Phe Leu Gly Glu Leu Phe Asn Gln
                110                 115                 120

cac ccg gac gtt ttc tac ttg tac gac ccc atg tgg cat ctg tgg cag      557
His Pro Asp Val Phe Tyr Leu Tyr Asp Pro Met Trp His Leu Trp Gln
            125                 130                 135

gca ctg tat ccg ggc gac gcg gag agc ctg cag ggc gca cta aga gac      605
Ala Leu Tyr Pro Gly Asp Ala Glu Ser Leu Gln Gly Ala Leu Arg Asp
        140                 145                 150

atg ctg cgc tcc ctc ttc cgc tgt gat ttc tct gtg ctg cgc ctg tac      653
Met Leu Arg Ser Leu Phe Arg Cys Asp Phe Ser Val Leu Arg Leu Tyr
    155                 160                 165

gcg cag cct ggg gac cct ggg gag cga gca ccg gac tcg gcc aac ctc      701
Ala Gln Pro Gly Asp Pro Gly Glu Arg Ala Pro Asp Ser Ala Asn Leu
170                 175                 180                 185

acc acg gcc atg ctt ttc cgc tgg cgg acc aac aag gtc atc tgc tcg      749
Thr Thr Ala Met Leu Phe Arg Trp Arg Thr Asn Lys Val Ile Cys Ser
                190                 195                 200

ccg cct ctg tgc ccc gcc gcg ccc cgg gca cgc gcg gac gtg gga ctc      797
Pro Pro Leu Cys Pro Ala Ala Pro Arg Ala Arg Ala Asp Val Gly Leu
            205                 210                 215

gtc gag gac aaa gcc tgc gaa agt acc tgc ccg ccc gtt tcg ctc cgc      845
Val Glu Asp Lys Ala Cys Glu Ser Thr Cys Pro Pro Val Ser Leu Arg
        220                 225                 230

gcc ctg gag gcc gag tgc cgc aag tac ccg gtg gtg gtc atc aaa gac      893
Ala Leu Glu Ala Glu Cys Arg Lys Tyr Pro Val Val Val Ile Lys Asp
    235                 240                 245

gtg cgg cta ctg gac ctg gga gtg ctg gtc cct ctg ctg cgt gac cca      941
Val Arg Leu Leu Asp Leu Gly Val Leu Val Pro Leu Leu Arg Asp Pro
250                 255                 260                 265

ggc ctc aac cta aag gtg gtg caa ctc ttc cga gac cct cgg gcc gtg      989
Gly Leu Asn Leu Lys Val Val Gln Leu Phe Arg Asp Pro Arg Ala Val
                270                 275                 280

cac aac tcg cgc ctc aag tcg agg cag gga ctg ctg cgc gaa agc atc     1037
His Asn Ser Arg Leu Lys Ser Arg Gln Gly Leu Leu Arg Glu Ser Ile
            285                 290                 295

cag gtg ctg cgc acg cgc cag agg ggc gac cac ttc cac cgg gtg ctg     1085
Gln Val Leu Arg Thr Arg Gln Arg Gly Asp His Phe His Arg Val Leu
        300                 305                 310

ctg gcg cat gga gtg gat gcc cgt ccg gga ggc cag gcc cgg gct ctg     1133
Leu Ala His Gly Val Asp Ala Arg Pro Gly Gly Gln Ala Arg Ala Leu
    315                 320                 325

ccc tcg gcg cca cgc gct gat ttc ttc tta acc agc gcg ctt gag gtg     1181
Pro Ser Ala Pro Arg Ala Asp Phe Phe Leu Thr Ser Ala Leu Glu Val
330                 335                 340                 345

atc tgt gaa gcg tgg ctt cgc gac ctg cta ttc acc cgc ggc gcg ccc     1229
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Ile Cys Glu Ala Trp Leu Arg Asp Leu Leu Phe Thr Arg Gly Ala Pro
                350                 355                 360

gcc tgg ctg agg cgt cgc tac ctg cgg ctg cgt tat gag gac ctg gtg     1277
Ala Trp Leu Arg Arg Arg Tyr Leu Arg Leu Arg Tyr Glu Asp Leu Val
            365                 370                 375

tgg cag ccc caa gcc cag ctg cgc cgc ctg ctg cgc ttc tct ggg ttg     1325
Trp Gln Pro Gln Ala Gln Leu Arg Arg Leu Leu Arg Phe Ser Gly Leu
        380                 385                 390

cgg aca ctc gcc gcg ctt gat gcc ttc gca ttc aat atg acg cgg ggc     1373
Arg Thr Leu Ala Ala Leu Asp Ala Phe Ala Phe Asn Met Thr Arg Gly
    395                 400                 405

tcg gcc tac ggc gcc gat cgt ccc ttc cac ttg tct gcg cgg gac gcc     1421
Ser Ala Tyr Gly Ala Asp Arg Pro Phe His Leu Ser Ala Arg Asp Ala
410                 415                 420                 425

cga gag gct gtg cac gcc tgg cgc gaa cgt ctg agc caa gag cag gtg     1469
Arg Glu Ala Val His Ala Trp Arg Glu Arg Leu Ser Gln Glu Gln Val
                430                 435                 440

cgc caa gtg gaa acc gcc tgc gcc cct gcc atg cgt ctg ctt gcc tac     1517
Arg Gln Val Glu Thr Ala Cys Ala Pro Ala Met Arg Leu Leu Ala Tyr
            445                 450                 455

cct cga agt ggg gac gaa cgc gac agg aag acc gtc agg gaa ggg gag     1565
Pro Arg Ser Gly Asp Glu Arg Asp Arg Lys Thr Val Arg Glu Gly Glu
        460                 465                 470

aca cca ctg gag acc aag gcc aat tgg gct gtg taa taccctgatc          1611
Thr Pro Leu Glu Thr Lys Ala Asn Trp Ala Val
    475                 480

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gactgatttg gtatcaactg ctgtgccatt ctcctggtca ggagcatcac aagctgttaa   1791

gtaatgacag acaccttggc tgagatgaag tttccagaaa ggaagtaaca gtgcaatgtg   1851

gatatttgtg accacaacat aggaaaagct gtacttccca ggctgaactt ggctcagctt   1911

gagccatttc aacaaggcat cctcacaata atgaagagat gtgatctggt ttcctttcac   1971

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Asp Ser His Ser Glu Gln Asp Lys Gly Arg Asn Cys Pro Gly Leu Gln
        35                  40                  45
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Arg Ser Leu Gly Val Trp Ser Leu Glu Ala Ala Ala Ala Gly Glu Arg
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Glu Gln Gly Ala Glu Val Arg Ser Leu Ala Glu Gly Asn Pro Asp Arg
65                  70                  75                  80

Ser Pro Gly Ser Pro Gly Asn Leu Ser Ala Val Gly Glu Ala Val Thr
                85                  90                  95

Gln Glu Lys Gln His Ile Tyr Val His Ala Thr Trp Arg Thr Gly Ser
            100                 105                 110

Ser Phe Leu Gly Glu Leu Phe Asn Gln His Pro Asp Val Phe Tyr Leu
        115                 120                 125

Tyr Asp Pro Met Trp His Leu Trp Gln Ala Leu Tyr Pro Gly Asp Ala
    130                 135                 140

Glu Ser Leu Gln Gly Ala Leu Arg Asp Met Leu Arg Ser Leu Phe Arg
145                 150                 155                 160

Cys Asp Phe Ser Val Leu Arg Leu Tyr Ala Gln Pro Gly Asp Pro Gly
                165                 170                 175

Glu Arg Ala Pro Asp Ser Ala Asn Leu Thr Thr Ala Met Leu Phe Arg
            180                 185                 190

Trp Arg Thr Asn Lys Val Ile Cys Ser Pro Pro Leu Cys Pro Ala Ala
        195                 200                 205

Pro Arg Ala Arg Ala Asp Val Gly Leu Val Glu Asp Lys Ala Cys Glu
    210                 215                 220

Ser Thr Cys Pro Pro Val Ser Leu Arg Ala Leu Glu Ala Glu Cys Arg
225                 230                 235                 240

Lys Tyr Pro Val Val Val Ile Lys Asp Val Arg Leu Leu Asp Leu Gly
                245                 250                 255

Val Leu Val Pro Leu Leu Arg Asp Pro Gly Leu Asn Leu Lys Val Val
            260                 265                 270

Gln Leu Phe Arg Asp Pro Arg Ala Val His Asn Ser Arg Leu Lys Ser
        275                 280                 285

Arg Gln Gly Leu Leu Arg Glu Ser Ile Gln Val Leu Arg Thr Arg Gln
    290                 295                 300

Arg Gly Asp His Phe His Arg Val Leu Leu Ala His Gly Val Asp Ala
305                 310                 315                 320

Arg Pro Gly Gly Gln Ala Arg Ala Leu Pro Ser Ala Pro Arg Ala Asp
                325                 330                 335
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Phe Phe Leu Thr Ser Ala Leu Glu Val Ile Cys Glu Ala Trp Leu Arg
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Asp Leu Leu Phe Thr Arg Gly Ala Pro Ala Trp Leu Arg Arg Arg Tyr
        355                 360                 365

Leu Arg Leu Arg Tyr Glu Asp Leu Val Trp Gln Pro Gln Ala Gln Leu
    370                 375                 380

Arg Arg Leu Leu Arg Phe Ser Gly Leu Arg Thr Leu Ala Ala Leu Asp
385                 390                 395                 400

Ala Phe Ala Phe Asn Met Thr Arg Gly Ser Ala Tyr Gly Ala Asp Arg
                405                 410                 415

Pro Phe His Leu Ser Ala Arg Asp Ala Arg Glu Ala Val His Ala Trp
            420                 425                 430

Arg Glu Arg Leu Ser Gln Glu Gln Val Arg Gln Val Glu Thr Ala Cys
        435                 440                 445

Ala Pro Ala Met Arg Leu Leu Ala Tyr Pro Arg Ser Gly Asp Glu Arg
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Asp Arg Lys Thr Val Arg Glu Gly Glu Thr Pro Leu Glu Thr Lys Ala
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Asn Trp Ala Val
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caatgagaag accatgattt cttttaattt tctgtgtgtt tccacattcc ccagtgagaa    180

ttcttccacc tttttttgtg ccatgggaaa aacctgaagg gcaggcagag ctgctcccga    240

acttgtgacc ttctctgagg ttgcagcggc tcttgtagaa catgactctg ggacatcact    300

tccttttgtt ttctttcgga gctgaaccaa agaatgtgca ccctctttct ctagtgctgt    360

ggtgtctgct tatttttgta tttgtgcttt ccatccatct tctgtgatca caaggcattc    420

ttaaggtttt ctagcacgac ttgcggacat ccagactcgt ggggggccca cccatggctc    480

ggtaagccag cagcccaggg cactggcact acc atg agg cac tgc att aat tgc     534
                                     Met Arg His Cys Ile Asn Cys
                                     1               5
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tgc ata cag ctg tta ccc gac ggc gca cac aag cag cag gtc aac tgc      582
Cys Ile Gln Leu Leu Pro Asp Gly Ala His Lys Gln Gln Val Asn Cys
        10                  15                  20

caa ggg ggc ccc cat cac ggt cac cag gcg tgc ccc acg tgc aaa gga      630
Gln Gly Gly Pro His His Gly His Gln Ala Cys Pro Thr Cys Lys Gly
    25                  30                  35

gaa aac aaa att ctg ttt cgt gtg gac agt aag cag atg aac ttg ctt      678
Glu Asn Lys Ile Leu Phe Arg Val Asp Ser Lys Gln Met Asn Leu Leu
40                  45                  50                  55

gct gtt ctc gaa gtg agg act gaa ggg aac gaa aac tgg ggt ggg ttt      726
Ala Val Leu Glu Val Arg Thr Glu Gly Asn Glu Asn Trp Gly Gly Phe
                60                  65                  70

ttg cgc ttc aaa aag ggg aag cga tgt agc ctc gtt ttt gga ctg ata      774
Leu Arg Phe Lys Lys Gly Lys Arg Cys Ser Leu Val Phe Gly Leu Ile
            75                  80                  85

ata atg acc ttg gta atg gct tct tac atc ctt tct ggg gcc cac caa      822
Ile Met Thr Leu Val Met Ala Ser Tyr Ile Leu Ser Gly Ala His Gln
        90                  95                  100

gag ctt ctg atc tca tca cct ttc cat tac gga ggc ttc ccc agc aac      870
Glu Leu Leu Ile Ser Ser Pro Phe His Tyr Gly Gly Phe Pro Ser Asn
    105                 110                 115

ccc agc ttg atg gac agc gaa aac cca agt gac aca aag gag cat cac      918
Pro Ser Leu Met Asp Ser Glu Asn Pro Ser Asp Thr Lys Glu His His
120                 125                 130                 135

cac caa tcc tct gta aat aat att tca tac atg aag gac tat cca agc      966
His Gln Ser Ser Val Asn Asn Ile Ser Tyr Met Lys Asp Tyr Pro Ser
                140                 145                 150

att aaa tta att atc aac agc atc aca act agg att gag ttc acg acc     1014
Ile Lys Leu Ile Ile Asn Ser Ile Thr Thr Arg Ile Glu Phe Thr Thr
            155                 160                 165

aga cag ctc cca gac tta gaa gac ctt aag aag cag gag ttg cat atg     1062
Arg Gln Leu Pro Asp Leu Glu Asp Leu Lys Lys Gln Glu Leu His Met
        170                 175                 180

ttt tca gtc atc ccc aac aaa ttc ctt cca aac agt aag agc ccc tgt     1110
Phe Ser Val Ile Pro Asn Lys Phe Leu Pro Asn Ser Lys Ser Pro Cys
    185                 190                 195

tgg tac gag gag ttc tcg ggg cag aac acc acc gac ccc tac ctc acc     1158
Trp Tyr Glu Glu Phe Ser Gly Gln Asn Thr Thr Asp Pro Tyr Leu Thr
200                 205                 210                 215

aac tcc tac gtg ctc tac tcc aag cgc ttc cgc tcc acc ttc gac gcc     1206
Asn Ser Tyr Val Leu Tyr Ser Lys Arg Phe Arg Ser Thr Phe Asp Ala
                220                 225                 230

ctg cgc aag gcc ttc tgg ggc cac ctg gcg cac gcg cac ggg aag cac     1254
Leu Arg Lys Ala Phe Trp Gly His Leu Ala His Ala His Gly Lys His
            235                 240                 245

ttc cgc ctg cgc tgc ctg ccg cac ttc tac atc ata ggg cag ccc aag     1302
Phe Arg Leu Arg Cys Leu Pro His Phe Tyr Ile Ile Gly Gln Pro Lys
        250                 255                 260

tgc ggg acc aca gac ctc tat gac cgc ctg cgg ctg cac cct gag gtc     1350
Cys Gly Thr Thr Asp Leu Tyr Asp Arg Leu Arg Leu His Pro Glu Val
    265                 270                 275

aag ttc tcc gcc atc aag gag cca cac tgg tgg acc cgg aag cgc ttt     1398
Lys Phe Ser Ala Ile Lys Glu Pro His Trp Trp Thr Arg Lys Arg Phe
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280                 285                 290                 295

gga atc gtc cgc cta aga gat ggg ctg cga gac cgc tat ccc gtg gaa     1446
Gly Ile Val Arg Leu Arg Asp Gly Leu Arg Asp Arg Tyr Pro Val Glu
                300                 305                 310

gat tat ctg gac ctc ttt gac ctg gcc gca cac cag atc cat caa gga     1494
Asp Tyr Leu Asp Leu Phe Asp Leu Ala Ala His Gln Ile His Gln Gly
            315                 320                 325

ctg cag gcc agc tct gca aag gag cag agc aag atg aat aca atc att     1542
Leu Gln Ala Ser Ser Ala Lys Glu Gln Ser Lys Met Asn Thr Ile Ile
        330                 335                 340

atc ggg gag gcc agt gcc tcc acg atg tgg gat aat aat gcc tgg acg     1590
Ile Gly Glu Ala Ser Ala Ser Thr Met Trp Asp Asn Asn Ala Trp Thr
    345                 350                 355

ttc ttc tac gac aac agc acg gat ggc gag cca ccg ttt ctg acg cag     1638
Phe Phe Tyr Asp Asn Ser Thr Asp Gly Glu Pro Pro Phe Leu Thr Gln
360                 365                 370                 375

gac ttc atc cac gcc ttt cag cca aat gcc aga ctg att gtc atg ctc     1686
Asp Phe Ile His Ala Phe Gln Pro Asn Ala Arg Leu Ile Val Met Leu
                380                 385                 390

agg gac cct gtg gag agg ttg tac tca gac tat ctc tac ttt gca agt     1734
Arg Asp Pro Val Glu Arg Leu Tyr Ser Asp Tyr Leu Tyr Phe Ala Ser
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tcg aat aaa tcc gcg gac gac ttc cat gag aaa gtg aca gaa gca ctg     1782
Ser Asn Lys Ser Ala Asp Asp Phe His Glu Lys Val Thr Glu Ala Leu
        410                 415                 420

cag ctg ttt gaa aat tgc atg ctt gat tat tca ctg cgc gcc tgc gtc     1830
Gln Leu Phe Glu Asn Cys Met Leu Asp Tyr Ser Leu Arg Ala Cys Val
    425                 430                 435

tac aac aac acc ctc aac aac gcc atg cct gtg agg ctc cag gtt ggg     1878
Tyr Asn Asn Thr Leu Asn Asn Ala Met Pro Val Arg Leu Gln Val Gly
440                 445                 450                 455

ctc tat gct gtg tac ctt ctg gac tgg ctc agc gtt ttt gac aag caa     1926
Leu Tyr Ala Val Tyr Leu Leu Asp Trp Leu Ser Val Phe Asp Lys Gln
                460                 465                 470

cag ttt ctc att ctt cgc ctg gaa gat cat gca tcc aac gtc aag tac     1974
Gln Phe Leu Ile Leu Arg Leu Glu Asp His Ala Ser Asn Val Lys Tyr
            475                 480                 485

acc atg cac aag gtc ttc cag ttt ctg aac cta ggg ccc tta agt gag     2022
Thr Met His Lys Val Phe Gln Phe Leu Asn Leu Gly Pro Leu Ser Glu
        490                 495                 500

aag cag gag gct ttg atg acc aag agc ccc gca tcc aat gca cgg cgt     2070
Lys Gln Glu Ala Leu Met Thr Lys Ser Pro Ala Ser Asn Ala Arg Arg
    505                 510                 515

ccc gag gac cgg aac ctg ggg ccc atg tgg ccc atc aca cag aag att     2118
Pro Glu Asp Arg Asn Leu Gly Pro Met Trp Pro Ile Thr Gln Lys Ile
520                 525                 530                 535

ctg cgg gat ttc tac agg ccc ttc aac gct agg ctg gcg cag gtc ctc     2166
Leu Arg Asp Phe Tyr Arg Pro Phe Asn Ala Arg Leu Ala Gln Val Leu
                540                 545                 550

gcg gat gag gcg ttt gcg tgg aag acg acg tga gagctgaatt gttgctgcac   2219
Ala Asp Glu Ala Phe Ala Trp Lys Thr Thr
            555                 560

gtgctgggcc cgccaatgcc gtcatcatca ggattttaca aatctctttg cggggaactg   2279
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<400> 19

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Ala Cys Pro Thr Cys Lys Gly Glu Asn Lys Ile Leu Phe Arg Val Asp
35 40 45

Ser Lys Gln Met Asn Leu Leu Ala Val Leu Glu Val Arg Thr Glu Gly
50 55 60

Asn Glu Asn Trp Gly Gly Phe Leu Arg Phe Lys Lys Gly Lys Arg Cys
65 70 75 80

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

Ile Leu Ser Gly Ala His Gln Glu Leu Leu Ile Ser Ser Pro Phe His
100 105 110

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

Ser Asp Thr Lys Glu His His His Gln Ser Ser Val Asn Asn Ile Ser
130 135 140

Tyr Met Lys Asp Tyr Pro Ser Ile Lys Leu Ile Ile Asn Ser Ile Thr
145 150 155 160

Thr Arg Ile Glu Phe Thr Thr Arg Gln Leu Pro Asp Leu Glu Asp Leu
165 170 175

Lys Lys Gln Glu Leu His Met Phe Ser Val Ile Pro Asn Lys Phe Leu
180 185 190

Pro Asn Ser Lys Ser Pro Cys Trp Tyr Glu Glu Phe Ser Gly Gln Asn
195 200 205

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Thr Thr Asp Pro Tyr Leu Thr Asn Ser Tyr Val Leu Tyr Ser Lys Arg
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Phe Arg Ser Thr Phe Asp Ala Leu Arg Lys Ala Phe Trp Gly His Leu
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Ala His Ala His Gly Lys His Phe Arg Leu Arg Cys Leu Pro His Phe
                245                 250                 255

Tyr Ile Ile Gly Gln Pro Lys Cys Gly Thr Thr Asp Leu Tyr Asp Arg
            260                 265                 270

Leu Arg Leu His Pro Glu Val Lys Phe Ser Ala Ile Lys Glu Pro His
        275                 280                 285

Trp Trp Thr Arg Lys Arg Phe Gly Ile Val Arg Leu Arg Asp Gly Leu
    290                 295                 300

Arg Asp Arg Tyr Pro Val Glu Asp Tyr Leu Asp Leu Phe Asp Leu Ala
305                 310                 315                 320

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

Ser Lys Met Asn Thr Ile Ile Ile Gly Glu Ala Ser Ala Ser Thr Met
            340                 345                 350

Trp Asp Asn Asn Ala Trp Thr Phe Phe Tyr Asp Asn Ser Thr Asp Gly
        355                 360                 365

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

Ala Arg Leu Ile Val Met Leu Arg Asp Pro Val Glu Arg Leu Tyr Ser
385                 390                 395                 400

Asp Tyr Leu Tyr Phe Ala Ser Ser Asn Lys Ser Ala Asp Asp Phe His
                405                 410                 415

Glu Lys Val Thr Glu Ala Leu Gln Leu Phe Glu Asn Cys Met Leu Asp
            420                 425                 430

Tyr Ser Leu Arg Ala Cys Val Tyr Asn Asn Thr Leu Asn Asn Ala Met
        435                 440                 445

Pro Val Arg Leu Gln Val Gly Leu Tyr Ala Val Tyr Leu Leu Asp Trp
    450                 455                 460

Leu Ser Val Phe Asp Lys Gln Gln Phe Leu Ile Leu Arg Leu Glu Asp
465                 470                 475                 480

His Ala Ser Asn Val Lys Tyr Thr Met His Lys Val Phe Gln Phe Leu
                485                 490                 495
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Asn Leu Gly Pro Leu Ser Glu Lys Gln Glu Ala Leu Met Thr Lys Ser
500 505 510

Pro Ala Ser Asn Ala Arg Arg Pro Glu Asp Arg Asn Leu Gly Pro Met
515 520 525

Trp Pro Ile Thr Gln Lys Ile Leu Arg Asp Phe Tyr Arg Pro Phe Asn
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Ala Arg Leu Ala Gln Val Leu Ala Asp Glu Ala Phe Ala Trp Lys Thr
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cgggtaacca caggaaagga tgcccaggac actgaatggc agggctcccc aaaagccctt 180

ttgggggttc cgacatttga aaataaagct ctgggctcca gctggttcgg tggagtgagg 240

aagagtcccc tacagctgtt gcgtgacctg gaccagatgt ttggcagctg tgagctatgg 300

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cctcattttg tggcagatgc caacagcact gacccagccc tgctcttatc ggagaatgca 240

tctctcttgt ccctgagcga gttggattcc acctttccc atctgcggag ccgcctgcac 300

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