

CEL66494PC-2010057044  
SEQUENCE LISTING

<110> Cellzome AG  
<120> Methods for the identification and characterization of HDAC  
interacting compounds  
<130> CEL66494PC -  
<160> 24  
<170> PatentIn version 3.5  
<210> 1  
<211> 482  
<212> PRT  
<213> Homo sapiens  
<400> 1

Met Ala Gln Thr Gln Gly Thr Arg Arg Lys Val Cys Tyr Tyr Tyr Asp  
1 5 10 15

Gly Asp Val Gly Asn Tyr Tyr Tyr Gly Gln Gly His Pro Met Lys Pro  
20 25 30

His Arg Ile Arg Met Thr His Asn Leu Leu Leu Asn Tyr Gly Leu Tyr  
35 40 45

Arg Lys Met Glu Ile Tyr Arg Pro His Lys Ala Asn Ala Glu Glu Met  
50 55 60

Thr Lys Tyr His Ser Asp Asp Tyr Ile Lys Phe Leu Arg Ser Ile Arg  
65 70 75 80

Pro Asp Asn Met Ser Glu Tyr Ser Lys Gln Met Gln Arg Phe Asn Val  
85 90 95

Gly Glu Asp Cys Pro Val Phe Asp Gly Leu Phe Glu Phe Cys Gln Leu  
100 105 110

Ser Thr Gly Gly Ser Val Ala Ser Ala Val Lys Leu Asn Lys Gln Gln  
115 120 125

Thr Asp Ile Ala Val Asn Trp Ala Gly Gly Leu His His Ala Lys Lys  
130 135 140

Ser Glu Ala Ser Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala Ile  
145 150 155 160

Leu Glu Leu Leu Lys Tyr His Gln Arg Val Leu Tyr Ile Asp Ile Asp  
165 170 175

Ile His His Gly Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg  
180 185 190

Val Met Thr Val Ser Phe His Lys Tyr Gly Glu Tyr Phe Pro Gly Thr  
195 200 205

Gly Asp Leu Arg Asp Ile Gly Ala Gly Lys Gly Lys Tyr Tyr Ala Val  
210 215 220

Asn Tyr Pro Leu Arg Asp Gly Ile Asp Asp Glu Ser Tyr Glu Ala Ile  
225 230 235 240

Phe Lys Pro Val Met Ser Lys Val Met Glu Met Phe Gln Pro Ser Ala  
245 250 255

Val Val Leu Gln Cys Gly Ser Asp Ser Leu Ser Gly Asp Arg Leu Gly  
260 265 270

Cys Phe Asn Leu Thr Ile Lys Gly His Ala Lys Cys Val Glu Phe Val  
275 280 285

Lys Ser Phe Asn Leu Pro Met Leu Met Leu Gly Gly Gly Tyr Thr  
290 295 300

Ile Arg Asn Val Ala Arg Cys Trp Thr Tyr Glu Thr Ala Val Ala Leu  
305 310 315 320

Asp Thr Glu Ile Pro Asn Glu Leu Pro Tyr Asn Asp Tyr Phe Glu Tyr  
325 330 335

Phe Gly Pro Asp Phe Lys Leu His Ile Ser Pro Ser Asn Met Thr Asn  
340 345 350

Gln Asn Thr Asn Glu Tyr Leu Glu Lys Ile Lys Gln Arg Leu Phe Glu  
355 360 365

Asn Leu Arg Met Leu Pro His Ala Pro Gly Val Gln Met Gln Ala Ile  
370 375 380

Pro Glu Asp Ala Ile Pro Glu Glu Ser Gly Asp Glu Asp Glu Asp Asp  
385 390 395 400

Pro Asp Lys Arg Ile Ser Ile Cys Ser Ser Asp Lys Arg Ile Ala Cys  
405 410 415

Glu Glu Glu Phe Ser Asp Ser Glu Glu Glu Gly Glu Gly Gly Arg Lys  
420 425 430

Asn Ser Ser Asn Phe Lys Lys Ala Lys Arg Val Lys Thr Glu Asp Glu  
435 440 445

Lys Glu Lys Asp Pro Glu Glu Lys Lys Glu Val Thr Glu Glu Glu Lys  
450 455 460

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Thr Lys Glu Glu Lys Pro Glu Ala Lys Gly Val Lys Glu Glu Val Lys  
465 470 475 480

Leu Ala

<210> 2  
<211> 582  
<212> PRT  
<213> Homo sapiens

<400> 2

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

Leu Ala Ser Trp Cys Arg Cys His Leu Arg Phe Arg Ala Phe Gly Thr  
20 25 30

Ser Ala Gly Trp Tyr Arg Ala Phe Pro Ala Pro Pro Pro Leu Leu Pro  
35 40 45

Pro Ala Cys Pro Ser Pro Arg Asp Tyr Arg Pro His Val Ser Leu Ser  
50 55 60

Pro Phe Leu Ser Arg Pro Ser Arg Gly Gly Ser Ser Ser Ser Ser Ser  
65 70 75 80

Ser Arg Arg Arg Ser Pro Val Ala Ala Val Ala Gly Glu Pro Met Ala  
85 90 95

Tyr Ser Gln Gly Gly Gly Lys Lys Lys Val Cys Tyr Tyr Tyr Asp Gly  
100 105 110

Asp Ile Gly Asn Tyr Tyr Tyr Gly Gln Gly His Pro Met Lys Pro His  
115 120 125

Arg Ile Arg Met Thr His Asn Leu Leu Leu Asn Tyr Gly Leu Tyr Arg  
130 135 140

Lys Met Glu Ile Tyr Arg Pro His Lys Ala Thr Ala Glu Glu Met Thr  
145 150 155 160

Lys Tyr His Ser Asp Glu Tyr Ile Lys Phe Leu Arg Ser Ile Arg Pro  
165 170 175

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

Glu Asp Cys Pro Val Phe Asp Gly Leu Phe Glu Phe Cys Gln Leu Ser  
195 200 205

Thr Gly Gly Ser Val Ala Gly Ala Val Lys Leu Asn Arg Gln Gln Thr  
Seite 3

210 215 220  
 Asp Met Ala Val Asn Trp Ala Gly Gly Leu His His Ala Lys Lys Ser  
 225 230 235 240  
 Glu Ala Ser Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala Ile Leu  
 245 250 255  
 Glu Leu Leu Lys Tyr His Gln Arg Val Leu Tyr Ile Asp Ile Asp Ile  
 260 265 270  
 His His Gly Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val  
 275 280 285  
 Met Thr Val Ser Phe His Lys Tyr Gly Glu Tyr Phe Pro Gly Thr Gly  
 290 295 300  
 Asp Leu Arg Asp Ile Gly Ala Gly Lys Gly Lys Tyr Tyr Ala Val Asn  
 305 310 315 320  
 Phe Pro Met Arg Asp Gly Ile Asp Asp Glu Ser Tyr Gly Gln Ile Phe  
 325 330 335  
 Lys Pro Ile Ile Ser Lys Val Met Glu Met Tyr Gln Pro Ser Ala Val  
 340 345 350  
 Val Leu Gln Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys  
 355 360 365  
 Phe Asn Leu Thr Val Lys Gly His Ala Lys Cys Val Glu Val Val Lys  
 370 375 380  
 Thr Phe Asn Leu Pro Leu Leu Met Leu Gly Gly Gly Gly Tyr Thr Ile  
 385 390 395 400  
 Arg Asn Val Ala Arg Cys Trp Thr Tyr Glu Thr Ala Val Ala Leu Asp  
 405 410 415  
 Cys Glu Ile Pro Asn Glu Leu Pro Tyr Asn Asp Tyr Phe Glu Tyr Phe  
 420 425 430  
 Gly Pro Asp Phe Lys Leu His Ile Ser Pro Ser Asn Met Thr Asn Gln  
 435 440 445  
 Asn Thr Pro Glu Tyr Met Glu Lys Ile Lys Gln Arg Leu Phe Glu Asn  
 450 455 460  
 Leu Arg Met Leu Pro His Ala Pro Gly Val Gln Met Gln Ala Ile Pro  
 465 470 475 480  
 Glu Asp Ala Val His Glu Asp Ser Gly Asp Glu Asp Gly Glu Asp Pro  
 Seite 4

485

490

495

Asp Lys Arg Ile Ser Ile Arg Ala Ser Asp Lys Arg Ile Ala Cys Asp  
                   500                                  505                                  510

Glu Glu Phe Ser Asp Ser Glu Asp Glu Gly Glu Gly Gly Arg Arg Asn  
                   515                                  520                                  525

Val Ala Asp His Lys Lys Gly Ala Lys Lys Ala Arg Ile Glu Glu Asp  
                   530                                  535                                  540

Lys Lys Glu Thr Glu Asp Lys Lys Thr Asp Val Lys Glu Glu Asp Lys  
                   545                                  550                                  555                                  560

Ser Lys Asp Asn Ser Gly Glu Lys Thr Asp Thr Lys Gly Thr Lys Ser  
                                   565                                  570                                  575

Glu Gln Leu Ser Asn Pro  
                   580

<210> 3  
 <211> 429  
 <212> PRT  
 <213> Homo sapiens

<400> 3

Met Ile Val Phe Lys Pro Tyr Gln Ala Ser Gln His Asp Met Cys Arg  
   1                  5                                  10                                  15

Phe His Tyr Gly Ala Gly His Pro Met Lys Pro His Arg Leu Ala Leu  
                   20                                  25                                  30

Thr His Ser Leu Val Leu His Tyr Gly Leu Tyr Lys Lys Met Ile Val  
                   35                                  40                                  45

Phe Lys Pro Tyr Gln Ala Ser Gln His Asp Met Cys Arg Phe His Ser  
                   50                                  55                                  60

Glu Asp Tyr Ile Asp Phe Leu Gln Arg Val Ser Pro Thr Asn Met Gln  
   65                                  70                                  75                                  80

Gly Phe Thr Lys Ser Leu Asn Ala Phe Asn Val Gly Asp Asp Cys Pro  
                                   85                                  90                                  95

Val Phe Pro Gly Leu Phe Glu Phe Cys Ser Arg Tyr Thr Gly Ala Ser  
                   100                                  105                                  110

Leu Gln Gly Ala Thr Gln Leu Asn Asn Lys Ile Cys Asp Ile Ala Ile  
                   115                                  120                                  125

Asn Trp Ala Gly Gly Leu His His Ala Lys Lys Phe Glu Ala Ser Gly  
                   130                                  135                                  140

Phe Cys Tyr Val Asn Asp Ile Val Ile Gly Ile Leu Glu Leu Leu Lys  
 145 150 155 160  
 Tyr His Pro Arg Val Leu Tyr Ile Asp Ile Asp Ile His His Gly Asp  
 165 170 175  
 Gly Val Gln Glu Ala Phe Tyr Leu Thr Asp Arg Val Met Thr Val Ser  
 180 185 190  
 Phe His Lys Tyr Gly Asn Tyr Phe Phe Pro Gly Thr Gly Asp Met Tyr  
 195 200 205  
 Glu Val Gly Ala Glu Ser Gly Arg Tyr Tyr Cys Leu Asn Val Pro Leu  
 210 215 220  
 Arg Asp Gly Ile Asp Asp Gln Ser Tyr Lys His Leu Phe Gln Pro Val  
 225 230 235 240  
 Ile Asn Gln Val Val Asp Phe Tyr Gln Pro Thr Cys Ile Val Leu Gln  
 245 250 255  
 Cys Gly Ala Asp Ser Leu Gly Cys Asp Arg Leu Gly Cys Phe Asn Leu  
 260 265 270  
 Ser Ile Arg Gly His Gly Glu Cys Val Glu Tyr Val Lys Ser Phe Asn  
 275 280 285  
 Ile Pro Leu Leu Val Leu Gly Gly Gly Gly Tyr Thr Val Arg Asn Val  
 290 295 300  
 Ala Arg Cys Trp Thr Tyr Glu Thr Ser Leu Leu Val Glu Glu Ala Ile  
 305 310 315 320  
 Ser Glu Glu Leu Pro Tyr Ser Glu Tyr Phe Glu Tyr Phe Ala Pro Asp  
 325 330 335  
 Phe Thr Leu His Pro Asp Val Ser Thr Arg Ile Glu Asn Gln Asn Ser  
 340 345 350  
 Arg Gln Tyr Leu Asp Gln Ile Arg Gln Thr Ile Phe Glu Asn Leu Lys  
 355 360 365  
 Met Leu Asn His Ala Pro Ser Val Gln Ile His Asp Val Pro Ala Asp  
 370 375 380  
 Leu Leu Thr Tyr Asp Arg Thr Asp Glu Ala Asp Ala Glu Glu Arg Gly  
 385 390 395 400  
 Pro Glu Glu Asn Tyr Ser Arg Pro Glu Ala Pro Asn Glu Phe Tyr Asp  
 405 410 415

Gly Asp His Asp Asn Asp Lys Glu Ser Asp Val Glu Ile  
420 425

<210> 4  
<211> 1229  
<212> PRT  
<213> Homo sapiens  
<400> 4

Met Ser Gly Ala Asn Arg Gly Arg Gly Gln Ala Ser Ser Thr Met Thr  
1 5 10 15

Ser Thr Gly Gln Asp Ser Thr Thr Thr Arg Gln Arg Arg Ser Arg Gln  
20 25 30

Asn Pro Gln Ser Pro Pro Gln Asp Ser Ser Val Thr Ser Lys Arg Asn  
35 40 45

Ile Lys Lys Gly Ala Val Pro Arg Ser Ile Pro Asn Leu Ala Glu Val  
50 55 60

Lys Lys Lys Gly Lys Met Lys Lys Leu Gly Gln Ala Met Glu Glu Asp  
65 70 75 80

Leu Ile Val Gly Leu Gln Gly Met Asp Leu Asn Leu Glu Ala Glu Ala  
85 90 95

Leu Ala Gly Thr Gly Leu Val Leu Asp Glu Gln Leu Asn Glu Phe His  
100 105 110

Cys Leu Trp Asp Asp Ser Phe Pro Glu Gly Pro Glu Arg Leu His Ala  
115 120 125

Ile Lys Glu Gln Leu Ile Gln Glu Gly Leu Leu Asp Arg Cys Val Ser  
130 135 140

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

Leu Glu Tyr Ile Asp Leu Met Glu Thr Thr Gln Tyr Met Asn Glu Gly  
165 170 175

Glu Leu Arg Val Leu Ala Asp Thr Tyr Asp Ser Val Tyr Leu His Pro  
180 185 190

Asn Ser Tyr Ser Cys Ala Cys Leu Ala Ser Gly Ser Val Leu Arg Leu  
195 200 205

Val Asp Ala Val Leu Gly Ala Glu Ile Arg Asn Gly Met Ala Ile Ile  
210 215 220

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Arg Pro Pro Gly His His Ala Gln His Ser Leu Met Asp Gly Tyr Cys  
 225 230 235 240  
 Met Phe Asn His Val Ala Val Ala Ala Arg Tyr Ala Gln Gln Lys His  
 245 250 255  
 Arg Ile Arg Arg Val Leu Ile Val Asp Trp Asp Val His His Gly Gln  
 260 265 270  
 Gly Thr Gln Phe Thr Phe Asp Gln Asp Pro Ser Val Leu Tyr Phe Ser  
 275 280 285  
 Ile His Arg Tyr Glu Gln Gly Arg Phe Trp Pro His Leu Lys Ala Ser  
 290 295 300  
 Asn Trp Ser Thr Thr Gly Phe Gly Gln Gly Gln Gly Tyr Thr Ile Asn  
 305 310 315  
 Val Pro Trp Asn Gln Val Gly Met Arg Asp Ala Asp Tyr Ile Ala Ala  
 325 330 335  
 Phe Leu His Val Leu Leu Pro Val Ala Leu Glu Phe Gln Pro Gln Leu  
 340 345 350  
 Val Leu Val Ala Ala Gly Phe Asp Ala Leu Gln Gly Asp Pro Lys Gly  
 355 360 365  
 Glu Met Ala Ala Thr Pro Ala Gly Phe Ala Gln Leu Thr His Leu Leu  
 370 375 380  
 Met Gly Leu Ala Gly Gly Lys Leu Ile Leu Ser Leu Glu Gly Gly Tyr  
 385 390 395 400  
 Asn Leu Arg Ala Leu Ala Glu Gly Val Ser Ala Ser Leu His Thr Leu  
 405 410 415  
 Leu Gly Asp Pro Cys Pro Met Leu Glu Ser Pro Gly Ala Pro Cys Arg  
 420 425 430  
 Ser Ala Gln Ala Ser Val Ser Cys Ala Leu Glu Ala Leu Glu Pro Phe  
 435 440 445  
 Trp Glu Val Leu Val Arg Ser Thr Glu Thr Val Glu Arg Asp Asn Met  
 450 455 460  
 Glu Glu Asp Asn Val Glu Glu Ser Glu Glu Glu Gly Pro Trp Glu Pro  
 465 470 475 480  
 Pro Val Leu Pro Ile Leu Thr Trp Pro Val Leu Gln Ser Arg Thr Gly  
 485 490 495



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Leu Val Tyr Asp Gln Asn Met Met Asn His Cys Asn Leu Trp Asp Ser  
 500 505 510  
 His His Pro Glu Val Pro Gln Arg Ile Leu Arg Ile Met Cys Arg Leu  
 515 520 525  
 Glu Glu Leu Gly Leu Ala Gly Arg Cys Leu Thr Leu Thr Pro Arg Pro  
 530 535 540  
 Ala Thr Glu Ala Glu Leu Leu Thr Cys His Ser Ala Glu Tyr Val Gly  
 545 550 555 560  
 His Leu Arg Ala Thr Glu Lys Met Lys Thr Arg Glu Leu His Arg Glu  
 565 570 575  
 Ser Ser Asn Phe Asp Ser Ile Tyr Ile Cys Pro Ser Thr Phe Ala Cys  
 580 585 590  
 Ala Gln Leu Ala Thr Gly Ala Ala Cys Arg Leu Val Glu Ala Val Leu  
 595 600 605  
 Ser Gly Glu Val Leu Asn Gly Ala Ala Val Val Arg Pro Pro Gly His  
 610 615 620  
 His Ala Glu Gln Asp Ala Ala Cys Gly Phe Cys Phe Phe Asn Ser Val  
 625 630 635 640  
 Ala Val Ala Ala Arg His Ala Gln Thr Ile Ser Gly His Ala Leu Arg  
 645 650 655  
 Ile Leu Ile Val Asp Trp Asp Val His His Gly Asn Gly Thr Gln His  
 660 665 670  
 Met Phe Glu Asp Asp Pro Ser Val Leu Tyr Val Ser Leu His Arg Tyr  
 675 680 685  
 Asp His Gly Thr Phe Phe Pro Met Gly Asp Glu Gly Ala Ser Ser Gln  
 690 695 700  
 Ile Gly Arg Ala Ala Gly Thr Gly Phe Thr Val Asn Val Ala Trp Asn  
 705 710 715 720  
 Gly Pro Arg Met Gly Asp Ala Asp Tyr Leu Ala Ala Trp His Arg Leu  
 725 730 735  
 Val Leu Pro Ile Ala Tyr Glu Phe Asn Pro Glu Leu Val Leu Val Ser  
 740 745 750  
 Ala Gly Phe Asp Ala Ala Arg Gly Asp Pro Leu Gly Gly Cys Gln Val  
 755 760 765

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Ser Pro Glu Gly Tyr Ala His Leu Thr His Leu Leu Met Gly Leu Ala  
770 775 780

Ser Gly Arg Ile Ile Leu Ile Leu Glu Gly Gly Tyr Asn Leu Thr Ser  
785 790 795 800

Ile Ser Glu Ser Met Ala Ala Cys Thr Arg Ser Leu Leu Gly Asp Pro  
805 810 815

Pro Pro Leu Leu Thr Leu Pro Arg Pro Pro Leu Ser Gly Ala Leu Ala  
820 825 830

Ser Ile Thr Glu Thr Ile Gln Val His Arg Arg Tyr Trp Arg Ser Leu  
835 840 845

Arg Val Met Lys Val Glu Asp Arg Glu Gly Pro Ser Ser Ser Lys Leu  
850 855 860

Val Thr Lys Lys Ala Pro Gln Pro Ala Lys Pro Arg Leu Ala Glu Arg  
865 870 875 880

Met Thr Thr Arg Glu Lys Lys Val Leu Glu Ala Gly Met Gly Lys Val  
885 890 895

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

Glu Thr Ala Val Val Ala Leu Thr Gln Asp Gln Pro Ser Glu Ala Ala  
915 920 925

Thr Gly Gly Ala Thr Leu Ala Gln Thr Ile Ser Glu Ala Ala Ile Gly  
930 935 940

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

Thr Pro Asp Gln Thr Thr Ser Glu Glu Thr Val Gly Gly Ala Ile Leu  
965 970 975

Asp Gln Thr Thr Ser Glu Asp Ala Val Gly Gly Ala Thr Leu Gly Gln  
980 985 990

Thr Thr Ser Glu Glu Ala Val Gly Gly Ala Thr Leu Ala Gln Thr Thr  
995 1000 1005

Ser Glu Ala Ala Met Glu Gly Ala Thr Leu Asp Gln Thr Thr Ser  
1010 1015 1020

Glu Glu Ala Pro Gly Gly Thr Glu Leu Ile Gln Thr Pro Leu Ala  
1025 1030 1035

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Ser Ser Thr Asp His Gln Thr Pro Pro Thr Ser Pro Val Gln Gly  
1040 1045 1050

Thr Thr Pro Gln Ile Ser Pro Ser Thr Leu Ile Gly Ser Leu Arg  
1055 1060 1065

Thr Leu Glu Leu Gly Ser Glu Ser Gln Gly Ala Ser Glu Ser Gln  
1070 1075 1080

Ala Pro Gly Glu Glu Asn Leu Leu Gly Glu Ala Ala Gly Gly Gln  
1085 1090 1095

Asp Met Ala Asp Ser Met Leu Met Gln Gly Ser Arg Gly Leu Thr  
1100 1105 1110

Asp Gln Ala Ile Phe Tyr Ala Val Thr Pro Leu Pro Trp Cys Pro  
1115 1120 1125

His Leu Val Ala Val Cys Pro Ile Pro Ala Ala Gly Leu Asp Val  
1130 1135 1140

Thr Gln Pro Cys Gly Asp Cys Gly Thr Ile Gln Glu Asn Trp Val  
1145 1150 1155

Cys Leu Ser Cys Tyr Gln Val Tyr Cys Gly Arg Tyr Ile Asn Gly  
1160 1165 1170

His Met Leu Gln His His Gly Asn Ser Gly His Pro Leu Val Leu  
1175 1180 1185

Ser Tyr Ile Asp Leu Ser Ala Trp Cys Tyr Tyr Cys Gln Ala Tyr  
1190 1195 1200

Val His His Gln Ala Leu Leu Asp Val Lys Asn Ile Ala His Gln  
1205 1210 1215

Asn Lys Phe Gly Glu Asp Met Pro His Pro His  
1220 1225

<210> 5  
<211> 377  
<212> PRT  
<213> Homo sapiens

<400> 5

Met Glu Glu Pro Glu Glu Pro Ala Asp Ser Gly Gln Ser Leu Val Pro  
1 5 10 15

Val Tyr Ile Tyr Ser Pro Glu Tyr Val Ser Met Cys Asp Ser Leu Ala  
20 25 30

Lys Ile Pro Lys Arg Ala Ser Met Val His Ser Leu Ile Glu Ala Tyr  
 35 40 45  
 Ala Leu His Lys Gln Met Arg Ile Val Lys Pro Lys Val Ala Ser Met  
 50 55 60  
 Glu Glu Met Ala Thr Phe His Thr Asp Ala Tyr Leu Gln His Leu Gln  
 65 70 75 80  
 Lys Val Ser Gln Glu Gly Asp Asp Asp His Pro Asp Ser Ile Glu Tyr  
 85 90 95  
 Gly Leu Gly Tyr Asp Cys Pro Ala Thr Glu Gly Ile Phe Asp Tyr Ala  
 100 105 110  
 Ala Ala Ile Gly Gly Ala Thr Ile Thr Ala Ala Gln Cys Leu Ile Asp  
 115 120 125  
 Gly Met Cys Lys Val Ala Ile Asn Trp Ser Gly Gly Trp His His Ala  
 130 135 140  
 Lys Lys Asp Glu Ala Ser Gly Phe Cys Tyr Leu Asn Asp Ala Val Leu  
 145 150 155 160  
 Gly Ile Leu Arg Leu Arg Arg Lys Phe Glu Arg Ile Leu Tyr Val Asp  
 165 170 175  
 Leu Asp Leu His His Gly Asp Gly Val Glu Asp Ala Phe Ser Phe Thr  
 180 185 190  
 Ser Lys Val Met Thr Val Ser Leu His Lys Phe Ser Pro Gly Phe Phe  
 195 200 205  
 Pro Gly Thr Gly Asp Val Ser Asp Val Gly Leu Gly Lys Gly Arg Tyr  
 210 215 220  
 Tyr Ser Val Asn Val Pro Ile Gln Asp Gly Ile Gln Asp Glu Lys Tyr  
 225 230 235 240  
 Tyr Gln Ile Cys Glu Ser Val Leu Lys Glu Val Tyr Gln Ala Phe Asn  
 245 250 255  
 Pro Lys Ala Val Val Leu Gln Leu Gly Ala Asp Thr Ile Ala Gly Asp  
 260 265 270  
 Pro Met Cys Ser Phe Asn Met Thr Pro Val Gly Ile Gly Lys Cys Leu  
 275 280 285  
 Lys Tyr Ile Leu Gln Trp Gln Leu Ala Thr Leu Ile Leu Gly Gly Gly  
 290 295 300

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Gly Tyr Asn Leu Ala Asn Thr Ala Arg Cys Trp Thr Tyr Leu Thr Gly  
305 310 315 320

Val Ile Leu Gly Lys Thr Leu Ser Ser Glu Ile Pro Asp His Glu Phe  
325 330 335

Phe Thr Ala Tyr Gly Pro Asp Tyr Val Leu Glu Ile Thr Pro Ser Cys  
340 345 350

Arg Pro Asp Arg Asn Glu Pro His Arg Ile Gln Gln Ile Leu Asn Tyr  
355 360 365

Ile Lys Gly Asn Leu Lys His Val Val  
370 375

<210> 6  
<211> 669  
<212> PRT  
<213> Homo sapiens  
<400> 6

Met Gly Thr Ala Leu Val Tyr His Glu Asp Met Thr Ala Thr Arg Leu  
1 5 10 15

Leu Trp Asp Asp Pro Glu Cys Glu Ile Glu Arg Pro Glu Arg Leu Thr  
20 25 30

Ala Ala Leu Asp Arg Leu Arg Gln Arg Gly Leu Glu Gln Arg Cys Leu  
35 40 45

Arg Leu Ser Ala Arg Glu Ala Ser Glu Glu Glu Leu Gly Leu Val His  
50 55 60

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

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

Pro Ser Thr Phe His Cys Ala Arg Leu Ala Ala Gly Ala Gly Leu Gln  
100 105 110

Leu Val Asp Ala Val Leu Thr Gly Ala Val Gln Asn Gly Leu Ala Leu  
115 120 125

Val Arg Pro Pro Gly His His Gly Gln Arg Ala Ala Ala Asn Gly Phe  
130 135 140

Cys Val Phe Asn Asn Val Ala Ile Ala Ala Ala His Ala Lys Gln Lys  
145 150 155 160

His Gly Leu His Arg Ile Leu Val Val Asp Trp Asp Val His His Gly  
Seite 13

165

170

175

Gln Gly Ile Gln Tyr Leu Phe Glu Asp Asp Pro Ser Val Leu Tyr Phe  
180 185 190

Ser Trp His Arg Tyr Glu His Gly Arg Phe Trp Pro Phe Leu Arg Glu  
195 200 205

Ser Asp Ala Asp Ala Val Gly Arg Gly Gln Gly Leu Gly Phe Thr Val  
210 215 220

Asn Leu Pro Trp Asn Gln Val Gly Met Gly Asn Ala Asp Tyr Val Ala  
225 230 235 240

Ala Phe Leu His Leu Leu Leu Pro Leu Ala Phe Glu Phe Asp Pro Glu  
245 250 255

Leu Val Leu Val Ser Ala Gly Phe Asp Ser Ala Ile Gly Asp Pro Glu  
260 265 270

Gly Gln Met Gln Ala Thr Pro Glu Cys Phe Ala His Leu Thr Gln Leu  
275 280 285

Leu Gln Val Leu Ala Gly Gly Arg Val Cys Ala Val Leu Glu Gly Gly  
290 295 300

Tyr His Leu Glu Ser Leu Ala Glu Ser Val Cys Met Thr Val Gln Thr  
305 310 315 320

Leu Leu Gly Asp Pro Ala Pro Pro Leu Ser Gly Pro Met Ala Pro Cys  
325 330 335

Gln Ser Ala Leu Glu Ser Ile Gln Ser Ala Arg Ala Ala Gln Ala Pro  
340 345 350

His Trp Lys Ser Leu Gln Gln Gln Asp Val Thr Ala Val Pro Met Ser  
355 360 365

Pro Ser Ser His Ser Pro Glu Gly Arg Pro Pro Pro Leu Leu Pro Gly  
370 375 380

Gly Pro Val Cys Lys Ala Ala Ala Ser Ala Pro Ser Ser Leu Leu Asp  
385 390 395 400

Gln Pro Cys Leu Cys Pro Ala Pro Ser Val Arg Thr Ala Val Ala Leu  
405 410 415

Thr Thr Pro Asp Ile Thr Leu Val Leu Pro Pro Asp Val Ile Gln Gln  
420 425 430

Glu Ala Ser Ala Leu Arg Glu Glu Thr Glu Ala Trp Ala Arg Pro His

435

Glu Ser Leu Ala Arg Glu Glu Ala Leu Thr Ala Leu Gly Lys Leu Leu  
450 455 460

Tyr Leu Leu Asp Gly Met Leu Asp Gly Gln Val Asn Ser Gly Ile Ala  
465 470 475 480

Ala Thr Pro Ala Ser Ala Ala Ala Ala Thr Leu Asp Val Ala Val Arg  
485 490 495

Arg Gly Leu Ser His Gly Ala Gln Arg Leu Leu Cys Val Ala Leu Gly  
500 505 510

Gln Leu Asp Arg Pro Pro Asp Leu Ala His Asp Gly Arg Ser Leu Trp  
515 520 525

Leu Asn Ile Arg Gly Lys Glu Ala Ala Ala Leu Ser Met Phe His Val  
530 535 540

Ser Thr Pro Leu Pro Val Met Thr Gly Gly Phe Leu Ser Cys Ile Leu  
545 550 555 560

Gly Leu Val Leu Pro Leu Ala Tyr Gly Phe Gln Pro Asp Leu Val Leu  
565 570 575

Val Ala Leu Gly Pro Gly His Gly Leu Gln Gly Pro His Ala Ala Leu  
580 585 590

Leu Ala Ala Met Leu Arg Gly Leu Ala Gly Gly Arg Val Leu Ala Leu  
595 600 605

Leu Glu Glu Asn Ser Thr Pro Gln Leu Ala Gly Ile Leu Ala Arg Val  
610 615 620

Leu Asn Gly Glu Ala Pro Pro Ser Leu Gly Pro Ser Ser Val Ala Ser  
625 630 635 640

Pro Glu Asp Val Gln Ala Leu Met Tyr Leu Arg Gly Gln Leu Glu Pro  
645 650 655

Gln Trp Lys Met Leu Gln Cys His Pro His Leu Val Ala  
660 665

<210> 7  
<211> 876  
<212> PRT  
<213> Homo sapiens

<400> 7

Met Leu Ser Gly Lys Lys Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala  
1 5 10 15

Ala Ala Thr Gly Thr Glu Ala Gly Pro Gly Thr Ala Gly Gly Ser Glu  
20 25 30

Asn Gly Ser Glu Val Ala Ala Gln Pro Ala Gly Leu Ser Gly Pro Ala  
35 40 45

Glu Val Gly Pro Gly Ala Val Gly Glu Arg Thr Pro Arg Lys Lys Glu  
50 55 60

Pro Pro Arg Ala Ser Pro Pro Gly Gly Leu Ala Glu Pro Pro Gly Ser  
65 70 75 80

Ala Gly Pro Gln Ala Gly Pro Thr Val Val Pro Gly Ser Ala Thr Pro  
85 90 95

Met Glu Thr Gly Ile Ala Glu Thr Pro Glu Gly Arg Arg Thr Ser Arg  
100 105 110

Arg Lys Arg Ala Lys Val Glu Tyr Arg Glu Met Asp Glu Ser Leu Ala  
115 120 125

Asn Leu Ser Glu Asp Glu Tyr Tyr Ser Glu Glu Glu Arg Asn Ala Lys  
130 135 140

Ala Glu Lys Glu Lys Lys Leu Pro Pro Pro Pro Pro Gln Ala Pro Pro  
145 150 155 160

Glu Glu Glu Asn Glu Ser Glu Pro Glu Glu Pro Ser Gly Gln Ala Gly  
165 170 175

Gly Leu Gln Asp Asp Ser Ser Gly Gly Tyr Gly Asp Gly Gln Ala Ser  
180 185 190

Gly Val Glu Gly Ala Ala Phe Gln Ser Arg Leu Pro His Asp Arg Met  
195 200 205

Thr Ser Gln Glu Ala Ala Cys Phe Pro Asp Ile Ile Ser Gly Pro Gln  
210 215 220

Gln Thr Gln Lys Val Phe Leu Phe Ile Arg Asn Arg Thr Leu Gln Leu  
225 230 235 240

Trp Leu Asp Asn Pro Lys Ile Gln Leu Thr Phe Glu Ala Thr Leu Gln  
245 250 255

Gln Leu Glu Ala Pro Tyr Asn Ser Asp Thr Val Leu Val His Arg Val  
260 265 270

His Ser Tyr Leu Glu Arg His Gly Leu Ile Asn Phe Gly Ile Tyr Lys  
275 280 285



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Arg Ile Lys Pro Leu Pro Thr Lys Lys Thr Gly Lys Val Ile Ile Ile  
 290 295 300  
 Gly Ser Gly Val Ser Gly Leu Ala Ala Ala Arg Gln Leu Gln Ser Phe  
 305 310 315 320  
 Gly Met Asp Val Thr Leu Leu Glu Ala Arg Asp Arg Val Gly Gly Arg  
 325 330 335  
 Val Ala Thr Phe Arg Lys Gly Asn Tyr Val Ala Asp Leu Gly Ala Met  
 340 345 350  
 Val Val Thr Gly Leu Gly Gly Asn Pro Met Ala Val Val Ser Lys Gln  
 355 360 365  
 Val Asn Met Glu Leu Ala Lys Ile Lys Gln Lys Cys Pro Leu Tyr Glu  
 370 375 380  
 Ala Asn Gly Gln Ala Asp Thr Val Lys Val Pro Lys Glu Lys Asp Glu  
 385 390 395 400  
 Met Val Glu Gln Glu Phe Asn Arg Leu Leu Glu Ala Thr Ser Tyr Leu  
 405 410 415  
 Ser His Gln Leu Asp Phe Asn Val Leu Asn Asn Lys Pro Val Ser Leu  
 420 425 430  
 Gly Gln Ala Leu Glu Val Val Ile Gln Leu Gln Glu Lys His Val Lys  
 435 440 445  
 Asp Glu Gln Ile Glu His Trp Lys Lys Ile Val Lys Thr Gln Glu Glu  
 450 455 460  
 Leu Lys Glu Leu Leu Asn Lys Met Val Asn Leu Lys Glu Lys Ile Lys  
 465 470 475 480  
 Glu Leu His Gln Gln Tyr Lys Glu Ala Ser Glu Val Lys Pro Pro Arg  
 485 490 495  
 Asp Ile Thr Ala Glu Phe Leu Val Lys Ser Lys His Arg Asp Leu Thr  
 500 505 510  
 Ala Leu Cys Lys Glu Tyr Asp Glu Leu Ala Glu Thr Gln Gly Lys Leu  
 515 520 525  
 Glu Glu Lys Leu Gln Glu Leu Glu Ala Asn Pro Pro Ser Asp Val Tyr  
 530 535 540  
 Leu Ser Ser Arg Asp Arg Gln Ile Leu Asp Trp His Phe Ala Asn Leu  
 545 550 555 560

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Glu Phe Ala Asn Ala Thr Pro Leu Ser Thr Leu Ser Leu Lys His Trp  
 565 570 575  
 Asp Gln Asp Asp Phe Glu Phe Thr Gly Ser His Leu Thr Val Arg  
 580 585 590  
 Asn Gly Tyr Ser Cys Val Pro Val Ala Leu Ala Glu Gly Leu Asp Ile  
 595 600 605  
 Lys Leu Asn Thr Ala Val Arg Gln Val Arg Tyr Thr Ala Ser Gly Cys  
 610 615 620  
 Glu Val Ile Ala Val Asn Thr Arg Ser Thr Ser Gln Thr Phe Ile Tyr  
 625 630 635  
 Lys Cys Asp Ala Val Leu Cys Thr Leu Pro Leu Gly Val Leu Lys Gln  
 645 650 655  
 Gln Pro Pro Ala Val Gln Phe Val Pro Pro Leu Pro Glu Trp Lys Thr  
 660 665 670  
 Ser Ala Val Gln Arg Met Gly Phe Gly Asn Leu Asn Lys Val Val Leu  
 675 680 685  
 Cys Phe Asp Arg Val Phe Trp Asp Pro Ser Val Asn Leu Phe Gly His  
 690 695 700  
 Val Gly Ser Thr Thr Ala Ser Arg Gly Glu Leu Phe Leu Phe Trp Asn  
 705 710 715 720  
 Leu Tyr Lys Ala Pro Ile Leu Leu Ala Leu Val Ala Gly Glu Ala Ala  
 725 730 735  
 Gly Ile Met Glu Asn Ile Ser Asp Asp Val Ile Val Gly Arg Cys Leu  
 740 745 750  
 Ala Ile Leu Lys Gly Ile Phe Gly Ser Ser Ala Val Pro Gln Pro Lys  
 755 760 765  
 Glu Thr Val Val Ser Arg Trp Arg Ala Asp Pro Trp Ala Arg Gly Ser  
 770 775 780  
 Tyr Ser Tyr Val Ala Ala Gly Ser Ser Gly Asn Asp Tyr Asp Leu Met  
 785 790 795 800  
 Ala Gln Pro Ile Thr Pro Gly Pro Ser Ile Pro Gly Ala Pro Gln Pro  
 805 810 815  
 Ile Pro Arg Leu Phe Phe Ala Gly Glu His Thr Ile Arg Asn Tyr Pro  
 820 825 830

Ala Thr Val His Gly Ala Leu Leu Ser Gly Leu Arg Glu Ala Gly Arg  
835 840 845

Ile Ala Asp Gln Phe Leu Gly Ala Met Tyr Thr Leu Pro Arg Gln Ala  
850 855 860

Thr Pro Gly Val Pro Ala Gln Gln Ser Pro Ser Met  
865 870 875

<210> 8  
<211> 1217  
<212> PRT  
<213> Homo sapiens  
<400> 8

Met Lys Gly Met Ser His Glu Pro Lys Ser Pro Ser Leu Gly Met Leu  
1 5 10 15

Ser Thr Ala Thr Arg Thr Thr Ala Thr Val Asn Pro Leu Thr Pro Ser  
20 25 30

Pro Leu Asn Gly Ala Leu Val Pro Ser Gly Ser Pro Ala Thr Ser Ser  
35 40 45

Ala Leu Ser Ala Gln Ala Ala Pro Ser Ser Ser Phe Ala Ala Ala Leu  
50 55 60

Arg Lys Leu Ala Lys Gln Ala Glu Glu Pro Arg Gly Ser Ser Leu Ser  
65 70 75 80

Ser Glu Ser Ser Pro Val Ser Ser Pro Ala Thr Asn His Ser Ser Pro  
85 90 95

Ala Ser Thr Pro Lys Arg Val Pro Met Gly Pro Ile Ile Val Pro Pro  
100 105 110

Gly Gly His Ser Val Pro Ser Thr Pro Pro Val Val Thr Ile Ala Pro  
115 120 125

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

Gly Ser Arg Ser Ser Ser Gly Gly Arg Glu Arg Leu Ile Val Glu Pro  
145 150 155 160

Pro Leu Pro Gln Glu Lys Ala Gly Gly Pro Ala Ile Pro Ser His Leu  
165 170 175

Leu Ser Thr Pro Tyr Pro Phe Gly Leu Ser Pro Ser Ser Val Val Gln  
180 185 190

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Asp Ser Arg Phe Pro Pro Leu Asn Leu Gln Arg Pro Val His His Val  
 195 200 205  
 Val Pro Pro Ser Thr Val Thr Glu Asp Tyr Leu Arg Ser Phe Arg Pro  
 210 215 220  
 Tyr His Thr Thr Asp Asp Leu Arg Met Ser Ser Leu Pro Pro Leu Gly  
 225 230 235 240  
 Leu Asp Pro Ala Thr Ala Ala Ala Tyr Tyr His Pro Ser Tyr Leu Ala  
 245 250 255  
 Pro His Pro Phe Pro His Pro Ala Phe Arg Met Asp Asp Ser Tyr Cys  
 260 265 270  
 Leu Ser Ala Leu Arg Ser Pro Phe Tyr Pro Ile Pro Thr Pro Gly Ser  
 275 280 285  
 Leu Pro Pro Leu His Pro Ser Ala Met His Leu His Leu Ser Gly Val  
 290 295 300  
 Arg Tyr Pro Pro Glu Leu Ser His Ser Ser Leu Ala Ala Leu His Ser  
 305 310 315 320  
 Glu Arg Met Ser Gly Leu Ser Ala Glu Arg Leu Gln Met Asp Glu Glu  
 325 330 335  
 Leu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu  
 340 345 350  
 Ala Asp Arg Glu Arg Glu Lys Glu Arg Glu Arg Glu Arg Glu Lys Glu  
 355 360 365  
 Arg Glu Gln Glu Lys Glu Arg Glu Arg Glu Lys Glu Arg Glu Arg Glu  
 370 375 380  
 Leu Glu Arg Gln Arg Glu Gln Arg Ala Arg Glu Lys Glu Leu Leu Ala  
 385 390 395 400  
 Ala Lys Ala Leu Glu Pro Ser Phe Leu Pro Val Ala Glu Leu His Gly  
 405 410 415  
 Leu Arg Gly His Ala Thr Glu Glu Arg Gly Lys Pro Ser Glu Gln Leu  
 420 425 430  
 Thr Pro Thr Arg Ala Glu Lys Leu Lys Asp Ala Gly Leu Gln Ala Pro  
 435 440 445  
 Lys Pro Val Gln His Pro Leu His Pro Val Pro Thr Pro His His Thr  
 450 455 460

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Val 465 Pro Ser Leu Ile Ser 470 Asn His Gly Ile Phe 475 Ser Leu Pro Ser Ser 480  
 Ser Ala Ala Thr Ala 485 Leu Leu Ile Gln Arg 490 Thr Asn Glu Glu Glu Lys 495  
 Trp Leu Ala Arg 500 Gln Arg Arg Leu Arg 505 Gln Glu Lys Glu Asp 510 Arg Gln  
 Ser Gln Val 515 Ser Glu Phe Arg Gln 520 Gln Val Leu Glu Gln 525 His Leu Asp  
 Met Gly 530 Arg Pro Pro Val Pro 535 Ala Glu Ala Glu His 540 Arg Pro Glu Ser  
 Thr 545 Thr Arg Pro Gly Pro 550 Asn Arg His Glu Pro 555 Gly Gly Arg Asp Pro 560  
 Pro Gln His Phe Gly 565 Gly Pro Pro Pro Leu 570 Ile Ser Pro Lys Pro 575 Gln  
 Leu His Ala Ala 580 Pro Thr Ala Leu Trp 585 Asn Pro Val Ser Leu 590 Met Asp  
 Asn Thr 595 Leu Glu Thr Arg Arg Ala 600 Glu Ser His Ser Leu 605 His Ser His  
 Pro Ala 610 Ala Phe Glu Pro Ser 615 Arg Gln Ala Ala Val 620 Pro Leu Val Lys  
 Val 625 Glu Arg Val Phe Cys 630 Pro Glu Lys Ala Glu 635 Glu Gly Pro Arg Lys 640  
 Arg Glu Pro Ala Pro 645 Leu Asp Lys Tyr Gln 650 Pro Pro Pro Pro Pro 655  
 Arg Glu Gly Gly 660 Ser Leu Glu His Gln 665 Pro Phe Leu Pro Gly 670 Pro Gly  
 Pro Phe Leu 675 Ala Glu Leu Glu Lys 680 Ser Thr Gln Thr Ile 685 Leu Gly Gln  
 Gln Arg 690 Ala Ser Leu Pro Gln 695 Ala Ala Thr Phe Gly 700 Glu Leu Ser Gly  
 Pro Leu Lys Pro Gly Ser 710 Pro Tyr Arg Pro Pro 715 Val Pro Arg Ala Pro 720  
 Asp Pro Ala Tyr Ile 725 Tyr Asp Glu Phe Leu 730 Gln Gln Arg Arg Arg 735 Leu

Val Ser Lys Leu Asp Leu Glu Glu Arg Arg Arg Arg Glu Ala Gln Glu  
 740 745 750  
 Lys Gly Tyr Tyr Tyr Asp Leu Asp Asp Ser Tyr Asp Glu Ser Asp Glu  
 755 760 765  
 Glu Glu Val Arg Ala His Leu Arg Cys Val Ala Glu Gln Pro Pro Leu  
 770 775 780  
 Lys Leu Asp Thr Ser Ser Glu Lys Leu Glu Phe Leu Gln Leu Phe Gly  
 785 790 795 800  
 Leu Thr Thr Gln Gln Gln Lys Glu Glu Leu Val Ala Gln Lys Arg Arg  
 805 810 815  
 Lys Arg Arg Arg Met Leu Arg Glu Arg Ser Pro Ser Pro Pro Thr Ile  
 820 825 830  
 Gln Ser Lys Arg Gln Thr Pro Ser Pro Arg Leu Ala Leu Ser Thr Arg  
 835 840 845  
 Tyr Ser Pro Asp Glu Met Asn Asn Ser Pro Asn Phe Glu Glu Lys Lys  
 850 855 860  
 Lys Phe Leu Thr Ile Phe Asn Leu Thr His Ile Ser Ala Glu Lys Arg  
 865 870 875 880  
 Lys Asp Lys Glu Arg Leu Val Glu Met Leu Arg Ala Met Lys Gln Lys  
 885 890 895  
 Ala Leu Ser Ala Ala Val Ala Asp Ser Leu Thr Asn Ser Pro Arg Asp  
 900 905 910  
 Ser Pro Ala Val Ser Leu Ser Glu Pro Ala Thr Gln Gln Ala Ser Leu  
 915 920 925  
 Asp Val Glu Lys Pro Val Gly Val Ala Ala Ser Leu Ser Asp Ile Pro  
 930 935 940  
 Lys Ala Ala Glu Pro Gly Lys Leu Glu Gln Val Arg Pro Gln Glu Leu  
 945 950 955 960  
 Ser Arg Val Gln Glu Leu Ala Pro Ala Ser Gly Glu Lys Ala Arg Leu  
 965 970 975  
 Ser Glu Ala Pro Gly Gly Lys Lys Ser Leu Ser Met Leu His Tyr Ile  
 980 985 990  
 Arg Gly Ala Ala Pro Lys Asp Ile Pro Val Pro Leu Ser His Ser Thr  
 995 1000 1005

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Asn Gly Lys Ser Lys Pro Trp Glu Pro Phe Val Ala Glu Glu Phe  
 1010 1015 1020

Ala His Gln Phe His Glu Ser Val Leu Gln Ser Thr Gln Lys Ala  
 1025 1030 1035

Leu Gln Lys His Lys Gly Ser Val Ala Val Leu Ser Ala Glu Gln  
 1040 1045 1050

Asn His Lys Val Asp Thr Ser Val His Tyr Asn Ile Pro Glu Leu  
 1055 1060 1065

Gln Ser Ser Ser Arg Ala Pro Pro Pro Gln His Asn Gly Gln Gln  
 1070 1075 1080

Glu Pro Pro Thr Ala Arg Lys Gly Pro Pro Thr Gln Glu Leu Asp  
 1085 1090 1095

Arg Asp Ser Glu Glu Glu Glu Glu Glu Asp Asp Glu Asp Gly Glu  
 1100 1105 1110

Asp Glu Glu Glu Val Pro Lys Arg Lys Trp Gln Gly Ile Glu Ala  
 1115 1120 1125

Val Phe Glu Ala Tyr Gln Glu His Ile Glu Glu Gln Asn Leu Glu  
 1130 1135 1140

Arg Gln Val Leu Gln Thr Gln Cys Arg Arg Leu Glu Ala Arg His  
 1145 1150 1155

Tyr Ser Leu Ser Leu Thr Ala Glu Gln Leu Ser His Ser Val Ala  
 1160 1165 1170

Glu Leu Arg Ser Gln Lys Gln Lys Met Val Ser Glu Arg Glu Arg  
 1175 1180 1185

Leu Gln Ala Glu Leu Asp His Leu Arg Lys Cys Leu Ala Leu Pro  
 1190 1195 1200

Ala Met His Trp Pro Arg Gly Tyr Leu Lys Gly Tyr Pro Arg  
 1205 1210 1215

<210> 9  
 <211> 347  
 <212> PRT  
 <213> Homo sapiens

<400> 9

Met Glu Asn Leu Met Thr Ser Ser Thr Leu Pro Pro Leu Phe Ala Asp  
 1 5 10 15

Glu Asp Gly Ser Lys Glu Ser Asn Asp Leu Ala Thr Thr Gly Leu Asn  
 20 25 30  
 His Pro Glu Val Pro Tyr Ser Ser Gly Ala Thr Ser Ser Thr Asn Asn  
 35 40 45  
 Pro Glu Phe Val Glu Asp Leu Ser Gln Gly Gln Leu Leu Gln Ser Glu  
 50 55 60  
 Ser Ser Asn Ala Ala Glu Gly Asn Glu Gln Arg His Glu Asp Glu Gln  
 65 70 75 80  
 Arg Ser Lys Arg Gly Gly Trp Ser Lys Gly Arg Lys Arg Lys Lys Pro  
 85 90 95  
 Leu Arg Asp Ser Asn Ala Pro Lys Ser Pro Leu Thr Gly Tyr Val Arg  
 100 105 110  
 Phe Met Asn Glu Arg Arg Glu Gln Leu Arg Ala Lys Arg Pro Glu Val  
 115 120 125  
 Pro Phe Pro Glu Ile Thr Arg Met Leu Gly Asn Glu Trp Ser Lys Leu  
 130 135 140  
 Pro Pro Glu Glu Lys Gln Arg Tyr Leu Asp Glu Ala Asp Arg Asp Lys  
 145 150 155 160  
 Glu Arg Tyr Met Lys Glu Leu Glu Gln Tyr Gln Lys Thr Glu Ala Tyr  
 165 170 175  
 Lys Val Phe Ser Arg Lys Thr Gln Asp Arg Gln Lys Gly Lys Ser His  
 180 185 190  
 Arg Gln Asp Ala Ala Arg Gln Ala Thr His Asp His Glu Lys Glu Thr  
 195 200 205  
 Glu Val Lys Glu Arg Ser Val Phe Asp Ile Pro Ile Phe Thr Glu Glu  
 210 215 220  
 Phe Leu Asn His Ser Lys Ala Arg Glu Ala Glu Leu Arg Gln Leu Arg  
 225 230 235 240  
 Lys Ser Asn Met Glu Phe Glu Glu Arg Asn Ala Ala Leu Gln Lys His  
 245 250 255  
 Val Glu Ser Met Arg Thr Ala Val Glu Lys Leu Glu Val Asp Val Ile  
 260 265 270  
 Gln Glu Arg Ser Arg Asn Thr Val Leu Gln Gln His Leu Glu Thr Leu  
 275 280 285



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

Gly Glu Thr Pro Thr Val Asp Thr Ile Asp Ser Tyr Met Asn Arg Leu  
305 310 315 320

His Ser Ile Ile Leu Ala Asn Pro Gln Asp Asn Glu Asn Phe Ile Ala  
325 330 335

Thr Val Arg Glu Val Val Asn Arg Leu Asp Arg  
340 345

<210> 10  
<211> 317  
<212> PRT  
<213> Homo sapiens  
<400> 10

Met Ser His Gly Pro Lys Gln Pro Gly Ala Ala Ala Ala Pro Ala Gly  
1 5 10 15

Gly Lys Ala Pro Gly Gln His Gly Gly Phe Val Val Thr Val Lys Gln  
20 25 30

Glu Arg Gly Glu Gly Pro Arg Ala Gly Glu Lys Gly Ser His Glu Glu  
35 40 45

Glu Pro Val Lys Lys Arg Gly Trp Pro Lys Gly Lys Lys Arg Lys Lys  
50 55 60

Ile Leu Pro Asn Gly Pro Lys Ala Pro Val Thr Gly Tyr Val Arg Phe  
65 70 75 80

Leu Asn Glu Arg Arg Glu Gln Ile Arg Thr Arg His Pro Asp Leu Pro  
85 90 95

Phe Pro Glu Ile Thr Lys Met Leu Gly Ala Glu Trp Ser Lys Leu Gln  
100 105 110

Pro Thr Glu Lys Gln Arg Tyr Leu Asp Glu Ala Glu Arg Glu Lys Gln  
115 120 125

Gln Tyr Met Lys Glu Leu Arg Ala Tyr Gln Gln Ser Glu Ala Tyr Lys  
130 135 140

Met Cys Thr Glu Lys Ile Gln Glu Lys Lys Ile Lys Lys Glu Asp Ser  
145 150 155 160

Ser Ser Gly Leu Met Asn Thr Leu Leu Asn Gly His Lys Gly Gly Asp  
165 170 175

Cys Asp Gly Phe Ser Thr Phe Asp Val Pro Ile Phe Thr Glu Glu Phe  
seite 25

180

185

190

Leu Asp Gln Asn Lys Ala Arg Glu Ala Glu Leu Arg Arg Leu Arg Lys  
195 200 205

Met Asn Val Ala Phe Glu Glu Gln Asn Ala Val Leu Gln Arg His Thr  
210 215 220

Gln Ser Met Ser Ser Ala Arg Glu Arg Leu Glu Gln Glu Leu Ala Leu  
225 230 235

Glu Glu Arg Arg Thr Leu Ala Leu Gln Gln Gln Leu Gln Ala Val Arg  
245 250 255

Gln Ala Leu Thr Ala Ser Phe Ala Ser Leu Pro Val Pro Gly Thr Gly  
260 265 270

Glu Thr Pro Thr Leu Gly Thr Leu Asp Phe Tyr Met Ala Arg Leu His  
275 280 285

Gly Ala Ile Glu Arg Asp Pro Ala Gln His Glu Lys Leu Ile Val Arg  
290 295 300

Ile Lys Glu Ile Leu Ala Gln Val Ala Ser Glu His Leu  
305 310 315

<210> 11  
<211> 482  
<212> PRT  
<213> Homo sapiens

<400> 11

Met Val Glu Lys Gly Pro Glu Val Ser Gly Lys Arg Arg Gly Arg Asn  
1 5 10 15

Asn Ala Ala Ala Ser Ala Ser Ala Ala Ala Ala Ser Ala Ala Ala Ser  
20 25 30

Ala Ala Cys Ala Ser Pro Ala Ala Thr Ala Ala Ser Gly Ala Ala Ala  
35 40 45

Ser Ser Ala Ser Ala Ala Ala Ala Ser Ala Ala Ala Pro Asn Asn  
50 55 60

Gly Gln Asn Lys Ser Leu Ala Ala Ala Ala Pro Asn Gly Asn Ser Ser  
65 70 75 80

Ser Asn Ser Trp Glu Glu Gly Ser Ser Gly Ser Ser Ser Asp Glu Glu  
85 90 95

His Gly Gly Gly Gly Met Arg Val Gly Pro Gln Tyr Gln Ala Val Val  
100 105 110

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Pro Asp Phe Asp Pro Ala Lys Leu Ala Arg Arg Ser Gln Glu Arg Asp  
115 120 125

Asn Leu Gly Met Leu Val Trp Ser Pro Asn Gln Asn Leu Ser Glu Ala  
130 135 140

Lys Leu Asp Glu Tyr Ile Ala Ile Ala Lys Glu Lys His Gly Tyr Asn  
145 150 155 160

Met Glu Gln Ala Leu Gly Met Leu Phe Trp His Lys His Asn Ile Glu  
165 170 175

Lys Ser Leu Ala Asp Leu Pro Asn Phe Thr Pro Phe Pro Asp Glu Trp  
180 185 190

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

Lys Thr Phe His Arg Ile Gln Gln Met Leu Pro Asp Lys Ser Ile Ala  
210 215 220

Ser Leu Val Lys Phe Tyr Tyr Ser Trp Lys Lys Thr Arg Thr Lys Thr  
225 230 235 240

Ser Val Met Asp Arg His Ala Arg Lys Gln Lys Arg Glu Arg Glu Glu  
245 250 255

Ser Glu Asp Glu Leu Glu Glu Ala Asn Gly Asn Asn Pro Ile Asp Ile  
260 265 270

Glu Val Asp Gln Asn Lys Glu Ser Lys Lys Glu Val Pro Pro Thr Glu  
275 280 285

Thr Val Pro Gln Val Lys Lys Glu Lys His Ser Thr Gln Ala Lys Asn  
290 295 300

Arg Ala Lys Arg Lys Pro Pro Lys Gly Met Phe Leu Ser Gln Glu Asp  
305 310 315 320

Val Glu Ala Val Ser Ala Asn Ala Thr Ala Ala Thr Thr Val Leu Arg  
325 330 335

Gln Leu Asp Met Glu Leu Val Ser Val Lys Arg Gln Ile Gln Asn Ile  
340 345 350

Lys Gln Thr Asn Ser Ala Leu Lys Glu Lys Leu Asp Gly Gly Ile Glu  
355 360 365

Pro Tyr Arg Leu Pro Glu Val Ile Gln Lys Cys Asn Ala Arg Trp Thr  
370 375 380

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

Asp Phe Gln Ala Ile Ser Asp Val Ile Gly Asn Lys Ser Val Val Gln  
405 410 415

Val Lys Asn Phe Phe Val Asn Tyr Arg Arg Arg Phe Asn Ile Asp Glu  
420 425 430

Val Leu Gln Glu Trp Glu Ala Glu His Gly Lys Glu Glu Thr Asn Gly  
435 440 445

Pro Ser Asn Gln Lys Pro Val Lys Ser Pro Asp Asn Ser Ile Lys Met  
450 455 460

Pro Glu Glu Glu Asp Glu Ala Pro Val Leu Asp Val Arg Tyr Ala Ser  
465 470 475 480

Ala Ser

<210> 12  
<211> 553  
<212> PRT  
<213> Homo sapiens

<400> 12

Met Pro Gly Met Met Glu Lys Gly Pro Glu Leu Leu Gly Lys Asn Arg  
1 5 10 15

Ser Ala Asn Gly Ser Ala Lys Ser Pro Ala Gly Gly Gly Gly Ser Gly  
20 25 30

Ala Ser Ser Thr Asn Gly Gly Leu His Tyr Ser Glu Pro Glu Ser Gly  
35 40 45

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

Tyr Gln Ala Arg Ile Pro Glu Phe Asp Pro Gly Ala Thr Lys Tyr Thr  
65 70 75 80

Asp Lys Asp Asn Gly Gly Met Leu Val Trp Ser Pro Tyr His Ser Ile  
85 90 95

Pro Asp Ala Lys Leu Asp Glu Tyr Ile Ala Ile Ala Lys Glu Lys His  
100 105 110

Gly Tyr Asn Val Glu Gln Ala Leu Gly Met Leu Phe Trp His Lys His  
115 120 125

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Asn Ile Glu Lys Ser Leu Ala Asp Leu Pro Asn Phe Thr Pro Phe Pro  
 130 135 140  
 Asp Glu Trp Thr Val Glu Asp Lys Val Leu Phe Glu Gln Ala Phe Ser  
 145 150 155 160  
 Phe His Gly Lys Ser Phe His Arg Ile Gln Gln Met Leu Pro Asp Lys  
 165 170 175  
 Thr Ile Ala Ser Leu Val Lys Tyr Tyr Tyr Ser Trp Lys Lys Thr Arg  
 180 185 190  
 Ser Arg Thr Ser Leu Met Asp Arg Gln Ala Arg Lys Leu Ala Asn Arg  
 195 200 205  
 His Asn Gln Gly Asp Ser Asp Asp Asp Val Glu Glu Thr His Pro Met  
 210 215 220  
 Asp Gly Asn Asp Ser Asp Tyr Asp Pro Lys Lys Glu Ala Lys Lys Glu  
 225 230 235 240  
 Gly Asn Thr Glu Gln Pro Val Gln Thr Ser Lys Ile Gly Leu Gly Arg  
 245 250 255  
 Arg Glu Tyr Gln Ser Leu Gln His Arg His His Ser Gln Arg Ser Lys  
 260 265 270  
 Cys Arg Pro Pro Lys Gly Met Tyr Leu Thr Gln Glu Asp Val Val Ala  
 275 280 285  
 Val Ser Cys Ser Pro Asn Ala Ala Asn Thr Ile Leu Arg Gln Leu Asp  
 290 295 300  
 Met Glu Leu Ile Ser Leu Lys Arg Gln Val Gln Asn Ala Lys Gln Val  
 305 310 315 320  
 Asn Ser Ala Leu Lys Gln Lys Met Glu Gly Gly Ile Glu Glu Phe Lys  
 325 330 335  
 Pro Pro Glu Ser Asn Gln Lys Ile Asn Ala Arg Trp Thr Thr Glu Glu  
 340 345 350  
 Gln Leu Leu Ala Val Gln Gly Val Arg Lys Tyr Gly Lys Asp Phe Gln  
 355 360 365  
 Ala Ile Ala Asp Val Ile Gly Asn Lys Thr Val Gly Gln Val Lys Asn  
 370 375 380  
 Phe Phe Val Asn Tyr Arg Arg Arg Phe Asn Leu Glu Glu Val Leu Gln  
 385 390 395 400

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Glu Trp Glu Ala Glu Gln Gly Thr Gln Ala Ser Asn Gly Asp Ala Ser  
405 410 415

Thr Leu Gly Glu Glu Thr Lys Ser Ala Ser Asn Val Pro Ser Gly Lys  
420 425 430

Ser Thr Asp Glu Glu Glu Glu Ala Gln Thr Pro Gln Ala Pro Arg Thr  
435 440 445

Leu Gly Pro Ser Pro Pro Ala Pro Ser Ser Thr Pro Thr Pro Thr Ala  
450 455 460

Pro Ile Ala Thr Leu Asn Gln Pro Pro Pro Leu Leu Arg Pro Thr Leu  
465 470 475 480

Pro Ala Ala Pro Ala Leu His Arg Gln Pro Pro Pro Leu Gln Gln Gln  
485 490 495

Ala Arg Phe Ile Gln Pro Arg Pro Thr Leu Asn Gln Pro Pro Pro Pro  
500 505 510

Leu Ile Arg Pro Ala Asn Ser Met Pro Pro Arg Leu Asn Pro Arg Pro  
515 520 525

Val Leu Ser Thr Val Gly Gly Gln Gln Pro Pro Ser Leu Ile Gly Ile  
530 535 540

Gln Thr Asp Ser Gln Ser Ser Leu His  
545 550

<210> 13  
<211> 1379  
<212> PRT  
<213> Homo sapiens  
<400> 13

Met Asp Thr Ser Ser Val Gly Gly Leu Glu Leu Thr Asp Gln Thr Pro  
1 5 10 15

Val Leu Leu Gly Ser Thr Ala Met Ala Thr Ser Leu Thr Asn Val Gly  
20 25 30

Asn Ser Phe Ser Gly Pro Ala Asn Pro Leu Val Ser Arg Ser Asn Lys  
35 40 45

Phe Gln Asn Ser Ser Val Glu Asp Asp Asp Asp Val Val Phe Ile Glu  
50 55 60

Pro Val Gln Pro Pro Pro Pro Ser Val Pro Val Val Ala Asp Gln Arg  
65 70 75 80

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

Ser Lys Ile Thr Pro Ser Ser Lys Glu Leu Ala Ser Gln Lys Gly Ser  
100 105 110

Val Ser Glu Thr Ile Val Ile Asp Asp Glu Glu Asp Met Glu Thr Asn  
115 120 125

Gln Gly Gln Glu Lys Asn Ser Ser Asn Phe Ile Glu Arg Arg Pro Pro  
130 135 140

Glu Thr Lys Asn Arg Thr Asn Asp Val Asp Phe Ser Thr Ser Ser Phe  
145 150 155 160

Ser Arg Ser Lys Val Asn Ala Gly Met Gly Asn Ser Gly Ile Thr Thr  
165 170 175

Glu Pro Asp Ser Glu Ile Gln Ile Ala Asn Val Thr Thr Leu Glu Thr  
180 185 190

Gly Val Ser Ser Val Asn Asp Gly Gln Leu Glu Asn Thr Asp Gly Arg  
195 200 205

Asp Met Asn Leu Met Ile Thr His Val Thr Ser Leu Gln Asn Thr Asn  
210 215 220

Leu Gly Asp Val Ser Asn Gly Leu Gln Ser Ser Asn Phe Gly Val Asn  
225 230 235 240

Ile Gln Thr Tyr Thr Pro Ser Leu Thr Ser Gln Thr Lys Thr Gly Val  
245 250 255

Gly Pro Phe Asn Pro Gly Arg Met Asn Val Ala Gly Asp Val Phe Gln  
260 265 270

Asn Gly Glu Ser Ala Thr His His Asn Pro Asp Ser Trp Ile Ser Gln  
275 280 285

Ser Ala Ser Phe Pro Arg Asn Gln Lys Gln Pro Gly Val Asp Ser Leu  
290 295 300

Ser Pro Val Ala Ser Leu Pro Lys Gln Ile Phe Gln Pro Ser Val Gln  
305 310 315 320

Gln Gln Pro Thr Lys Pro Val Lys Val Thr Cys Ala Asn Cys Lys Lys  
325 330 335

Pro Leu Gln Lys Gly Gln Thr Ala Tyr Gln Arg Lys Gly Ser Ala His  
340 345 350

Leu Phe Cys Ser Thr Thr Cys Leu Ser Ser Phe Ser His Lys Pro Ala  
 355 360 365  
 Pro Lys Lys Leu Cys Val Met Cys Lys Lys Asp Ile Thr Thr Met Lys  
 370 375 380  
 Gly Thr Ile Gly Trp Leu Lys Trp Ile Gln Val Ser Pro Ser Arg Asn  
 385 390 395 400  
 Ser Val Val Thr Ser Cys Leu Ile Ser Leu Met Lys Asn Asn Arg Ile  
 405 410 415  
 Leu Leu Lys Gly Ala Leu Asn Lys Ser Arg Cys Thr Ile Cys Gly Lys  
 420 425 430  
 Leu Thr Glu Ile Arg His Glu Val Ser Phe Lys Asn Met Thr His Lys  
 435 440 445  
 Leu Cys Ser Asp His Cys Phe Asn Arg Tyr Arg Met Ala Asn Gly Leu  
 450 455 460  
 Ile Met Asn Cys Cys Glu Gln Cys Gly Glu Tyr Leu Pro Ser Lys Gly  
 465 470 475 480  
 Ala Gly Asn Asn Val Leu Val Ile Asp Gly Gln Gln Lys Arg Phe Cys  
 485 490 495  
 Cys Gln Ser Cys Val Ser Glu Tyr Lys Gln Val Gly Ser His Pro Ser  
 500 505 510  
 Phe Leu Lys Glu Val Arg Asp His Met Gln Asp Ser Phe Leu Met Gln  
 515 520 525  
 Pro Glu Lys Tyr Gly Lys Leu Thr Thr Cys Thr Gly Cys Arg Thr Gln  
 530 535 540  
 Cys Arg Phe Phe Asp Met Thr Gln Cys Ile Gly Pro Asn Gly Tyr Met  
 545 550 555 560  
 Glu Pro Tyr Cys Ser Thr Ala Cys Met Asn Ser His Lys Thr Lys Tyr  
 565 570 575  
 Ala Lys Ser Gln Ser Leu Gly Ile Ile Cys His Phe Cys Lys Arg Asn  
 580 585 590  
 Ser Leu Pro Gln Tyr Gln Ala Thr Met Pro Asp Gly Lys Leu Tyr Asn  
 595 600 605  
 Phe Cys Asn Ser Ser Cys Val Ala Lys Phe Gln Ala Leu Ser Met Gln  
 610 615 620



Ser Ser Pro Asn Gly Gln Phe Val Ala Pro Ser Asp Ile Gln Leu Lys  
625 630 635 640

Cys Asn Tyr Cys Lys Asn Ser Phe Cys Ser Lys Pro Glu Ile Leu Glu  
645 650 655

Trp Glu Asn Lys Val His Gln Phe Cys Ser Lys Thr Cys Ser Asp Asp  
660 665 670

Tyr Lys Lys Leu His Cys Ile Val Thr Tyr Cys Glu Tyr Cys Gln Glu  
675 680 685

Glu Lys Thr Leu His Glu Thr Val Asn Phe Ser Gly Val Lys Arg Pro  
690 695 700

Phe Cys Ser Glu Gly Cys Lys Leu Leu Tyr Lys Gln Asp Phe Ala Arg  
705 710 715 720

Arg Leu Gly Leu Arg Cys Val Thr Cys Asn Tyr Cys Ser Gln Leu Cys  
725 730 735

Lys Gly Gly Ala Thr Lys Glu Leu Asp Gly Val Val Arg Asp Phe Cys  
740 745 750

Ser Glu Asp Cys Cys Lys Lys Phe Gln Asp Trp Tyr Tyr Lys Ala Ala  
755 760 765

Arg Cys Asp Cys Cys Lys Ser Gln Gly Thr Leu Lys Glu Arg Val Gln  
770 775 780

Trp Arg Gly Glu Met Lys His Phe Cys Asp Gln His Cys Leu Leu Arg  
785 790 795 800

Phe Tyr Cys Gln Gln Asn Glu Pro Asn Met Thr Thr Gln Lys Gly Pro  
805 810 815

Glu Asn Leu His Tyr Asp Gln Gly Cys Gln Thr Ser Arg Thr Lys Met  
820 825 830

Thr Gly Ser Ala Pro Pro Pro Ser Pro Thr Pro Asn Lys Glu Met Lys  
835 840 845

Asn Lys Ala Val Leu Cys Lys Pro Leu Thr Met Thr Lys Ala Thr Tyr  
850 855 860

Cys Lys Pro His Met Gln Thr Lys Ser Cys Gln Thr Asp Asp Thr Trp  
865 870 875 880

Arg Thr Glu Tyr Val Pro Val Pro Ile Pro Val Pro Val Tyr Ile Pro  
885 890 895

Val Pro Met His Met Tyr Ser Gln Asn Ile Pro Val Pro Thr Thr Val  
900 905 910

Pro Val Pro Val Pro Val Pro Val Phe Leu Pro Ala Pro Leu Asp Ser  
915 920 925

Ser Glu Lys Ile Pro Ala Ala Ile Glu Glu Leu Lys Ser Lys Val Ser  
930 935 940

Ser Asp Ala Leu Asp Thr Glu Leu Leu Thr Met Thr Asp Met Met Ser  
945 950 955 960

Glu Asp Glu Gly Lys Thr Glu Thr Thr Asn Ile Asn Ser Val Ile Ile  
965 970 975

Glu Thr Asp Ile Ile Gly Ser Asp Leu Leu Lys Asn Ser Asp Pro Glu  
980 985 990

Thr Gln Ser Ser Met Pro Asp Val Pro Tyr Glu Pro Asp Leu Asp Ile  
995 1000 1005

Glu Ile Asp Phe Pro Arg Ala Ala Glu Glu Leu Asp Met Glu Asn  
1010 1015 1020

Glu Phe Leu Leu Pro Pro Val Phe Gly Glu Glu Tyr Glu Glu Gln  
1025 1030 1035

Pro Arg Pro Arg Ser Lys Lys Lys Gly Ala Lys Arg Lys Ala Val  
1040 1045 1050

Ser Gly Tyr Gln Ser His Asp Asp Ser Ser Asp Asn Ser Glu Cys  
1055 1060 1065

Ser Phe Pro Phe Lys Tyr Thr Tyr Gly Val Asn Ala Trp Lys His  
1070 1075 1080

Trp Val Lys Thr Arg Gln Leu Asp Glu Asp Leu Leu Val Leu Asp  
1085 1090 1095

Glu Leu Lys Ser Ser Lys Ser Val Lys Leu Lys Glu Asp Leu Leu  
1100 1105 1110

Ser His Thr Thr Ala Glu Leu Asn Tyr Gly Leu Ala His Phe Val  
1115 1120 1125

Asn Glu Ile Arg Arg Pro Asn Gly Glu Asn Tyr Ala Pro Asp Ser  
1130 1135 1140

Ile Tyr Tyr Leu Cys Leu Gly Ile Gln Glu Tyr Leu Cys Gly Ser  
1145 1150 1155

Asn Arg Lys Asp Asn Ile Phe Ile Asp Pro Gly Tyr Gln Thr Phe  
1160 1165 1170

Glu Gln Glu Leu Asn Lys Ile Leu Arg Ser Trp Gln Pro Ser Ile  
1175 1180 1185

Leu Pro Asp Gly Ser Ile Phe Ser Arg Val Glu Glu Asp Tyr Leu  
1190 1195 1200

Trp Arg Ile Lys Gln Leu Gly Ser His Ser Pro Val Ala Leu Leu  
1205 1210 1215

Asn Thr Leu Phe Tyr Phe Asn Thr Lys Tyr Phe Gly Leu Lys Thr  
1220 1225 1230

Val Glu Gln His Leu Arg Leu Ser Phe Gly Thr Val Phe Arg His  
1235 1240 1245

Trp Lys Lys Asn Pro Leu Thr Met Glu Asn Lys Ala Cys Leu Arg  
1250 1255 1260

Tyr Gln Val Ser Ser Leu Cys Gly Thr Asp Asn Glu Asp Lys Ile  
1265 1270 1275

Thr Thr Gly Lys Arg Lys His Glu Asp Asp Glu Pro Val Phe Glu  
1280 1285 1290

Gln Ile Glu Asn Thr Ala Asn Pro Ser Arg Cys Pro Val Lys Met  
1295 1300 1305

Phe Glu Cys Tyr Leu Ser Lys Ser Pro Gln Asn Leu Asn Gln Arg  
1310 1315 1320

Met Asp Val Phe Tyr Leu Gln Pro Glu Cys Ser Ser Ser Thr Asp  
1325 1330 1335

Ser Pro Val Trp Tyr Thr Ser Thr Ser Leu Asp Arg Asn Thr Leu  
1340 1345 1350

Glu Asn Met Leu Val Arg Val Leu Leu Val Lys Asp Ile Tyr Asp  
1355 1360 1365

Lys Asp Asn Tyr Glu Leu Asp Glu Asp Thr Asp  
1370 1375

<210> 14  
<211> 653  
<212> PRT  
<213> Homo sapiens

<400> 14

Met Ser Leu Trp Pro Trp Pro Thr Gly Arg Thr Ser Thr Pro Tyr Pro  
Seite 35

1 5 10 15

Glu Ala Arg Met Thr Glu Glu Ala Cys Arg Thr Arg Ser Gln Lys Arg  
20 25 30

Ala Leu Glu Arg Asp Pro Thr Glu Asp Asp Val Glu Ser Lys Lys Ile  
35 40 45

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

Met Arg Val Thr Pro Glu Pro Gly Ala Gly Pro Thr Gln Gly Leu Leu  
65 70 75 80

Arg Ala Thr Glu Ala Thr Ala Met Ala Met Gly Arg Gly Glu Gly Leu  
85 90 95

Val Gly Asp Gly Pro Val Asp Met Arg Thr Ser His Ser Asp Met Lys  
100 105 110

Ser Glu Arg Arg Pro Pro Ser Pro Asp Val Ile Val Leu Ser Asp Asn  
115 120 125

Glu Gln Pro Ser Ser Pro Arg Val Asn Gly Leu Thr Thr Val Ala Leu  
130 135 140

Lys Glu Thr Ser Thr Glu Ala Leu Met Lys Ser Ser Pro Glu Glu Arg  
145 150 155 160

Glu Arg Met Ile Lys Gln Leu Lys Glu Glu Leu Arg Leu Glu Glu Ala  
165 170 175

Lys Leu Val Leu Leu Lys Lys Leu Arg Gln Ser Gln Ile Gln Lys Glu  
180 185 190

Ala Thr Ala Gln Lys Pro Thr Gly Ser Val Gly Ser Thr Val Thr Thr  
195 200 205

Pro Pro Pro Leu Val Arg Gly Thr Gln Asn Ile Pro Ala Gly Lys Pro  
210 215 220

Ser Leu Gln Thr Ser Ser Ala Arg Met Pro Gly Ser Val Ile Pro Pro  
225 230 235 240

Pro Leu Val Arg Gly Gly Gln Gln Ala Ser Ser Lys Leu Gly Pro Gln  
245 250 255

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

Ile His Ser Ile Arg Gln His Ser Ser Thr Gly Pro Pro Pro Leu Leu

275

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

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

Leu Leu Val Asn Ile Pro Gln Pro Thr Pro Ala Ser Leu Lys Gly Thr  
325 330 335

Thr Ala Thr Ser Ala Gln Ala Asn Ser Thr Pro Thr Ser Val Ala Ser  
340 345 350

Val Val Thr Ser Ala Glu Ser Pro Ala Ser Arg Gln Ala Ala Ala Lys  
355 360 365

Leu Ala Leu Arg Lys Gln Leu Glu Lys Thr Leu Leu Glu Ile Pro Pro  
370 375 380

Pro Lys Pro Pro Ala Pro Glu Met Asn Phe Leu Pro Ser Ala Ala Asn  
385 390 395 400

Asn Glu Phe Ile Tyr Leu Val Gly Leu Glu Glu Val Val Gln Asn Leu  
405 410 415

Leu Glu Thr Gln Ala Gly Arg Met Ser Ala Ala Thr Val Leu Ser Arg  
420 425 430

Glu Pro Tyr Met Cys Ala Gln Cys Lys Thr Asp Phe Thr Cys Arg Trp  
435 440 445

Arg Glu Glu Lys Ser Gly Ala Ile Met Cys Glu Asn Cys Met Thr Thr  
450 455 460

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

Ala Phe Val Lys Ala Leu Gln Gln Glu Gln Glu Ile Glu Gln Arg Leu  
485 490 495

Leu Gln Gln Gly Thr Ala Pro Ala Gln Ala Lys Ala Glu Pro Thr Ala  
500 505 510

Ala Pro His Pro Val Leu Lys Gln Val Ile Lys Pro Arg Arg Lys Leu  
515 520 525

Ala Phe Arg Ser Gly Glu Ala Arg Asp Trp Ser Asn Gly Ala Val Leu  
530 535 540

Gln Ala Ser Ser Gln Leu Ser Arg Gly Ser Ala Thr Thr Pro Arg Gly

545 550 555 560

Val Leu His Thr Phe Ser Pro Ser Pro Lys Leu Gln Asn Ser Ala Ser  
565 570 575

Ala Thr Ala Leu Val Ser Arg Thr Gly Arg His Ser Glu Arg Thr Val  
580 585 590

Ser Ala Gly Lys Gly Ser Ala Thr Ser Asn Trp Lys Lys Thr Pro Leu  
595 600 605

Ser Thr Gly Gly Thr Leu Ala Phe Val Ser Pro Ser Leu Ala Val His  
610 615 620

Lys Ser Ser Ser Ala Val Asp Arg Gln Arg Glu Tyr Leu Leu Asp Met  
625 630 635 640

Ile Pro Pro Arg Ser Ile Pro Gln Ser Ala Thr Trp Lys  
645 650

<210> 15  
<211> 593  
<212> PRT  
<213> Homo sapiens

<400> 15

Met Asp Arg Met Thr Glu Asp Ala Leu Arg Leu Asn Leu Leu Lys Arg  
1 5 10 15

Ser Leu Asp Pro Ala Asp Glu Arg Asp Asp Val Leu Ala Lys Arg Leu  
20 25 30

Lys Met Glu Gly His Glu Ala Met Glu Arg Leu Lys Met Leu Ala Leu  
35 40 45

Leu Lys Arg Lys Asp Leu Ala Asn Leu Glu Val Pro His Glu Leu Pro  
50 55 60

Thr Lys Gln Asp Gly Ser Gly Val Lys Gly Tyr Glu Glu Lys Leu Asn  
65 70 75 80

Gly Asn Leu Arg Pro His Gly Asp Asn Arg Thr Ala Gly Arg Pro Gly  
85 90 95

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

Glu Pro Glu Arg Gly Arg Leu Thr Pro Ser Pro Asp Ile Ile Val Leu  
115 120 125

Ser Asp Asn Glu Ala Ser Ser Pro Arg Ser Ser Ser Arg Met Glu Glu  
130 135 140

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Arg Leu Lys Ala Ala Asn Leu Glu Met Phe Lys Gly Lys Gly Ile Glu  
 145 150 155 160  
 Glu Arg Gln Gln Leu Ile Lys Gln Leu Arg Asp Glu Leu Arg Leu Glu  
 165 170 175  
 Glu Ala Arg Leu Val Leu Leu Lys Lys Leu Arg Gln Ser Gln Leu Gln  
 180 185 190  
 Lys Glu Asn Val Val Gln Lys Thr Pro Val Val Gln Asn Ala Ala Ser  
 195 200 205  
 Ile Val Gln Pro Ser Pro Ala His Val Gly Gln Gln Gly Leu Ser Lys  
 210 215 220  
 Leu Pro Ser Arg Pro Gly Ala Gln Gly Val Glu Pro Gln Asn Leu Arg  
 225 230 235 240  
 Thr Leu Gln Gly His Ser Val Ile Arg Ser Ala Thr Asn Thr Thr Leu  
 245 250 255  
 Pro His Met Leu Met Ser Gln Arg Val Ile Ala Pro Asn Pro Ala Gln  
 260 265 270  
 Leu Gln Gly Gln Arg Gly Pro Pro Lys Pro Gly Leu Val Arg Thr Thr  
 275 280 285  
 Thr Pro Asn Met Asn Pro Ala Ile Asn Tyr Gln Pro Gln Ser Ser Ser  
 290 295 300  
 Ser Val Pro Cys Gln Arg Thr Thr Ser Ser Ala Ile Tyr Met Asn Leu  
 305 310 315 320  
 Ala Ser His Ile Gln Pro Gly Thr Val Asn Arg Val Ser Ser Pro Leu  
 325 330 335  
 Pro Ser Pro Ser Ala Met Thr Asp Ala Ala Asn Ser Gln Ala Ala Ala  
 340 345 350  
 Lys Leu Ala Leu Arg Lys Gln Leu Glu Lys Thr Leu Leu Glu Ile Pro  
 355 360 365  
 Pro Pro Lys Pro Pro Ala Pro Leu Leu His Phe Leu Pro Ser Ala Ala  
 370 375 380  
 Asn Ser Glu Phe Ile Tyr Met Val Gly Leu Glu Glu Val Val Gln Ser  
 385 390 395 400  
 Val Ile Asp Ser Gln Gly Lys Ser Cys Ala Ser Leu Leu Arg Val Glu  
 405 410 415

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Pro Phe Val Cys Ala Gln Cys Arg Thr Asp Phe Thr Pro His Trp Lys  
420 425 430

Gln Glu Lys Asn Gly Lys Ile Leu Cys Glu Gln Cys Met Thr Ser Asn  
435 440 445

Gln Lys Lys Ala Leu Lys Ala Glu His Thr Asn Arg Leu Lys Asn Ala  
450 455 460

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

Gln Gln Ala Ala Leu Ser Pro Thr Thr Ala Pro Ala Val Ser Ser Val  
485 490 495

Ser Lys Gln Glu Thr Ile Met Arg His His Thr Leu Arg Gln Ala Pro  
500 505 510

Gln Pro Gln Ser Ser Leu Gln Arg Gly Ile Pro Thr Ser Ala Arg Ser  
515 520 525

Met Leu Ser Asn Phe Ala Gln Ala Pro Gln Leu Ser Val Pro Gly Gly  
530 535 540

Leu Leu Gly Met Pro Gly Val Asn Ile Ala Tyr Leu Asn Thr Gly Ile  
545 550 555 560

Gly Gly His Lys Gly Pro Ser Leu Ala Asp Arg Gln Arg Glu Tyr Leu  
565 570 575

Leu Asp Met Ile Pro Pro Arg Ser Ile Ser Gln Ser Ile Ser Gly Gln  
580 585 590

Lys

<210> 16  
<211> 291  
<212> PRT  
<213> Homo sapiens

<400> 16

Met Glu Arg Lys Arg Trp Glu Cys Pro Ala Leu Pro Gln Gly Trp Glu  
1 5 10 15

Arg Glu Glu Val Pro Arg Arg Ser Gly Leu Ser Ala Gly His Arg Asp  
20 25 30

Val Phe Tyr Tyr Ser Pro Ser Gly Lys Lys Phe Arg Ser Lys Pro Gln  
35 40 45



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Leu Ala Arg Tyr Leu Gly Gly Ser Met Asp Leu Ser Thr Phe Asp Phe  
 50 55 60  
 Arg Thr Gly Lys Met Leu Met Ser Lys Met Asn Lys Ser Arg Gln Arg  
 65 70 75 80  
 Val Arg Tyr Asp Ser Ser Asn Gln Val Lys Gly Lys Pro Asp Leu Asn  
 85 90 95  
 Thr Ala Leu Pro Val Arg Gln Thr Ala Ser Ile Phe Lys Gln Pro Val  
 100 105 110  
 Thr Lys Ile Thr Asn His Pro Ser Asn Lys Val Lys Ser Asp Pro Gln  
 115 120 125  
 Lys Ala Val Asp Gln Pro Arg Gln Leu Phe Trp Glu Lys Lys Leu Ser  
 130 135 140  
 Gly Leu Asn Ala Phe Asp Ile Ala Glu Glu Leu Val Lys Thr Met Asp  
 145 150 155 160  
 Leu Pro Lys Gly Leu Gln Gly Val Gly Pro Gly Cys Thr Asp Glu Thr  
 165 170 175  
 Leu Leu Ser Ala Ile Ala Ser Ala Leu His Thr Ser Thr Met Pro Ile  
 180 185 190  
 Thr Gly Gln Leu Ser Ala Ala Val Glu Lys Asn Pro Gly Val Trp Leu  
 195 200 205  
 Asn Thr Thr Gln Pro Leu Cys Lys Ala Phe Met Val Thr Asp Glu Asp  
 210 215 220  
 Ile Arg Lys Gln Glu Glu Leu Val Gln Gln Val Arg Lys Arg Leu Glu  
 225 230 235 240  
 Glu Ala Leu Met Ala Asp Met Leu Ala His Val Glu Glu Leu Ala Arg  
 245 250 255  
 Asp Gly Glu Ala Pro Leu Asp Lys Ala Cys Ala Glu Asp Asp Asp Glu  
 260 265 270  
 Glu Asp Glu Glu Glu Glu Glu Glu Glu Pro Asp Pro Asp Pro Glu Met  
 275 280 285  
 Glu His Val  
 290

<210> 17  
 <211> 668  
 <212> PRT

<213> Homo sapiens

<400> 17

Met Ala Ala Asn Met Tyr Arg Val Gly Asp Tyr Val Tyr Phe Glu Asn  
1 5 10 15  
Ser Ser Ser Asn Pro Tyr Leu Val Arg Arg Ile Glu Glu Leu Asn Lys  
20 25 30  
Thr Ala Asn Gly Asn Val Glu Ala Lys Val Val Cys Leu Phe Arg Arg  
35 40 45  
Arg Asp Ile Ser Ser Ser Leu Asn Ser Leu Ala Asp Ser Asn Ala Arg  
50 55 60  
Glu Phe Glu Glu Glu Ser Lys Gln Pro Gly Val Ser Glu Gln Gln Arg  
65 70 75 80  
His Gln Leu Lys His Arg Glu Leu Phe Leu Ser Arg Gln Phe Glu Ser  
85 90 95  
Leu Pro Ala Thr His Ile Arg Gly Lys Cys Ser Val Thr Leu Leu Asn  
100 105 110  
Glu Thr Asp Ile Leu Ser Gln Tyr Leu Glu Lys Glu Asp Cys Phe Phe  
115 120 125  
Tyr Ser Leu Val Phe Asp Pro Val Gln Lys Thr Leu Leu Ala Asp Gln  
130 135 140  
Gly Glu Ile Arg Val Gly Cys Lys Tyr Gln Ala Glu Ile Pro Asp Arg  
145 150 155 160  
Leu Val Glu Gly Glu Ser Asp Asn Arg Asn Gln Gln Lys Met Glu Met  
165 170 175  
Lys Val Trp Asp Pro Asp Asn Pro Leu Thr Asp Arg Gln Ile Asp Gln  
180 185 190  
Phe Leu Val Val Ala Arg Ala Val Gly Thr Phe Ala Arg Ala Leu Asp  
195 200 205  
Cys Ser Ser Ser Ile Arg Gln Pro Ser Leu His Met Ser Ala Ala Ala  
210 215 220  
Ala Ser Arg Asp Ile Thr Leu Phe His Ala Met Asp Thr Leu Gln Arg  
225 230 235 240  
Asn Gly Tyr Asp Leu Ala Lys Ala Met Ser Thr Leu Val Pro Gln Gly  
245 250 255

Gly Pro Val Leu Cys Arg Asp Glu Met Glu Glu Trp Ser Ala Ser Glu  
260 265 270

Ala Met Leu Phe Glu Glu Ala Leu Glu Lys Tyr Gly Lys Asp Phe Asn  
275 280 285

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

Gln Phe Tyr Tyr Met Trp Lys Thr Thr Asp Arg Tyr Ile Gln Gln Lys  
305 310 315 320

Arg Leu Lys Ala Ala Glu Ala Asp Ser Lys Leu Lys Gln Val Tyr Ile  
325 330 335

Pro Thr Tyr Thr Lys Pro Asn Pro Asn Gln Ile Ile Ser Val Gly Ser  
340 345 350

Lys Pro Gly Met Asn Gly Ala Gly Phe Gln Lys Gly Leu Thr Cys Glu  
355 360 365

Ser Cys His Thr Thr Gln Ser Ala Gln Trp Tyr Ala Trp Gly Pro Pro  
370 375 380

Asn Met Gln Cys Arg Leu Cys Ala Ser Cys Trp Ile Tyr Trp Lys Lys  
385 390 395 400

Tyr Gly Gly Leu Lys Thr Pro Thr Gln Leu Glu Gly Ala Thr Arg Gly  
405 410 415

Thr Thr Glu Pro His Ser Arg Gly His Leu Ser Arg Pro Glu Ala Gln  
420 425 430

Ser Leu Ser Pro Tyr Thr Thr Ser Ala Asn Arg Ala Lys Leu Leu Ala  
435 440 445

Lys Asn Arg Gln Thr Phe Leu Leu Gln Thr Thr Lys Leu Thr Arg Leu  
450 455 460

Ala Arg Arg Met Cys Arg Asp Leu Leu Gln Pro Arg Arg Ala Ala Arg  
465 470 475 480

Arg Pro Tyr Ala Pro Ile Asn Ala Asn Ala Ile Lys Ala Glu Cys Ser  
485 490 495

Ile Arg Leu Pro Lys Ala Ala Lys Thr Pro Leu Lys Ile His Pro Leu  
500 505 510

Val Arg Leu Pro Leu Ala Thr Ile Val Lys Asp Leu Val Ala Gln Ala  
515 520 525

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Pro Leu Lys Pro Lys Thr Pro Arg Gly Thr Lys Thr Pro Ile Asn Arg  
530 535 540

Asn Gln Leu Ser Gln Asn Arg Gly Leu Gly Gly Ile Met Val Lys Arg  
545 550 555 560

Ala Tyr Glu Thr Met Ala Gly Ala Gly Val Pro Phe Ser Ala Asn Gly  
565 570 575

Arg Pro Leu Ala Ser Gly Ile Arg Ser Ser Ser Gln Pro Ala Ala Lys  
580 585 590

Arg Gln Lys Leu Asn Pro Ala Asp Ala Pro Asn Pro Val Val Phe Val  
595 600 605

Ala Thr Lys Asp Thr Arg Ala Leu Arg Lys Ala Leu Thr His Leu Glu  
610 615 620

Met Arg Arg Ala Ala Arg Arg Pro Asn Leu Pro Leu Lys Val Lys Pro  
625 630 635 640

Thr Leu Ile Ala Val Arg Pro Pro Val Pro Leu Pro Ala Pro Ser His  
645 650 655

Pro Ala Ser Thr Asn Glu Pro Ile Val Leu Glu Asp  
660 665

<210> 18  
<211> 594  
<212> PRT  
<213> Homo sapiens

<400> 18

Met Ala Ala Asn Met Tyr Arg Val Gly Asp Tyr Val Tyr Phe Glu Asn  
1 5 10 15

Ser Ser Ser Asn Pro Tyr Leu Ile Arg Arg Ile Glu Glu Leu Asn Lys  
20 25 30

Thr Ala Ser Gly Asn Val Glu Ala Lys Val Val Cys Phe Tyr Arg Arg  
35 40 45

Arg Asp Ile Ser Asn Thr Leu Ile Met Leu Ala Asp Lys His Ala Lys  
50 55 60

Glu Ile Glu Glu Glu Ser Glu Thr Thr Val Glu Ala Asp Leu Thr Asp  
65 70 75 80

Lys Gln Lys His Gln Leu Lys His Arg Glu Leu Phe Leu Ser Arg Gln  
85 90 95

Tyr Glu Ser Leu Pro Ala Thr His Ile Arg Gly Lys Cys Ser Val Ala  
Seite 44

100

105

110

Leu Leu Asn Glu Thr Glu Ser Val Leu Ser Tyr Leu Asp Lys Glu Asp  
115 120 125

Thr Phe Phe Tyr Ser Leu Val Tyr Asp Pro Ser Leu Lys Thr Leu Leu  
130 135 140

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

Pro Glu Met Leu Leu Glu Gly Glu Ser Asp Glu Arg Glu Gln Ser Lys  
165 170 175

Leu Glu Val Lys Val Trp Asp Pro Asn Ser Pro Leu Thr Asp Arg Gln  
180 185 190

Ile Asp Gln Phe Leu Val Val Ala Arg Ala Val Gly Thr Phe Ala Arg  
195 200 205

Ala Leu Asp Cys Ser Ser Ser Val Arg Gln Pro Ser Leu His Met Ser  
210 215 220

Ala Ala Ala Ala Ser Arg Asp Ile Thr Leu Phe His Ala Met Asp Thr  
225 230 235 240

Leu Tyr Arg His Ser Tyr Asp Leu Ser Ser Ala Ile Ser Val Leu Val  
245 250 255

Pro Leu Gly Gly Pro Val Leu Cys Arg Asp Glu Met Glu Glu Trp Ser  
260 265 270

Ala Ser Glu Ala Ser Leu Phe Glu Glu Ala Leu Glu Lys Tyr Gly Lys  
275 280 285

Asp Phe Asn Asp Ile Arg Gln Asp Phe Leu Pro Trp Lys Ser Leu Thr  
290 295 300

Ser Ile Ile Glu Tyr Tyr Tyr Met Trp Lys Thr Thr Asp Arg Tyr Val  
305 310 315 320

Gln Gln Lys Arg Leu Lys Ala Ala Glu Ala Glu Ser Lys Leu Lys Gln  
325 330 335

Val Tyr Ile Pro Thr Tyr Ser Lys Pro Asn Pro Asn Gln Ile Ser Thr  
340 345 350

Ser Asn Gly Lys Pro Gly Ala Val Asn Gly Ala Val Gly Thr Thr Phe  
355 360 365

Gln Pro Gln Asn Pro Leu Leu Gly Arg Ala Cys Glu Ser Cys Tyr Ala

370

375

380

Thr Gln Ser His Gln Trp Tyr Ser Trp Gly Pro Pro Asn Met Gln Cys  
385 390 395 400

Arg Leu Cys Ala Ile Cys Trp Leu Tyr Trp Lys Lys Tyr Gly Gly Leu  
405 410 415

Lys Met Pro Thr Gln Ser Glu Glu Glu Lys Leu Ser Pro Ser Pro Thr  
420 425 430

Thr Glu Asp Pro Arg Val Arg Ser His Val Ser Arg Gln Ala Met Gln  
435 440 445

Gly Met Pro Val Arg Asn Thr Gly Ser Pro Lys Ser Ala Val Lys Thr  
450 455 460

Arg Gln Ala Phe Phe Leu His Thr Thr Tyr Phe Thr Lys Phe Ala Arg  
465 470 475 480

Gln Val Cys Lys Asn Thr Leu Arg Leu Arg Gln Ala Ala Arg Arg Pro  
485 490 495

Phe Val Ala Ile Asn Tyr Ala Ala Ile Arg Ala Glu Tyr Ala Asp Arg  
500 505 510

His Ala Glu Leu Ser Gly Ser Pro Leu Lys Ser Lys Ser Thr Arg Lys  
515 520 525

Pro Leu Ala Cys Ile Ile Gly Tyr Leu Glu Ile His Pro Ala Lys Lys  
530 535 540

Pro Asn Val Ile Arg Ser Thr Pro Ser Leu Gln Thr Pro Thr Thr Lys  
545 550 555 560

Arg Met Leu Thr Thr Pro Asn His Thr Ser Leu Ser Ile Leu Gly Lys  
565 570 575

Arg Asn Tyr Ser His His Asn Gly Leu Asp Glu Leu Thr Cys Cys Val  
580 585 590

Ser Asp

<210> 19  
<211> 1214  
<212> PRT  
<213> Homo sapiens

<400> 19

Met Ala Val Arg Lys Lys Asp Gly Gly Pro Asn Val Lys Tyr Tyr Glu  
1 5 10 15

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Ala Ala Asp Thr Val Thr Gln Phe Asp Asn Val Arg Leu Trp Leu Gly  
20 25 30

Lys Asn Tyr Lys Lys Tyr Ile Gln Ala Glu Pro Pro Thr Asn Lys Ser  
35 40 45

Leu Ser Ser Leu Val Val Gln Leu Leu Gln Phe Gln Glu Glu Val Phe  
50 55 60

Gly Lys His Val Ser Asn Ala Pro Leu Thr Lys Leu Pro Ile Lys Cys  
65 70 75 80

Phe Leu Asp Phe Lys Ala Gly Gly Ser Leu Cys His Ile Leu Ala Ala  
85 90 95

Ala Tyr Lys Phe Lys Ser Asp Gln Gly Trp Arg Arg Tyr Asp Phe Gln  
100 105 110

Asn Pro Ser Arg Met Asp Arg Asn Val Glu Met Phe Met Thr Ile Glu  
115 120 125

Lys Ser Leu Val Gln Asn Asn Cys Leu Ser Arg Pro Asn Ile Phe Leu  
130 135 140

Cys Pro Glu Ile Glu Pro Lys Leu Leu Gly Lys Leu Lys Asp Ile Ile  
145 150 155 160

Lys Arg His Gln Gly Thr Val Thr Glu Asp Lys Asn Asn Ala Ser His  
165 170 175

Val Val Tyr Pro Val Pro Gly Asn Leu Glu Glu Glu Glu Trp Val Arg  
180 185 190

Pro Val Met Lys Arg Asp Lys Gln Val Leu Leu His Trp Gly Tyr Tyr  
195 200 205

Pro Asp Ser Tyr Asp Thr Trp Ile Pro Ala Ser Glu Ile Glu Ala Ser  
210 215 220

Val Glu Asp Ala Pro Thr Pro Glu Lys Pro Arg Lys Val His Ala Lys  
225 230 235 240

Trp Ile Leu Asp Thr Asp Thr Phe Asn Glu Trp Met Asn Glu Glu Asp  
245 250 255

Tyr Glu Val Asn Asp Asp Lys Asn Pro Val Ser Arg Arg Lys Lys Ile  
260 265 270

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

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Arg Asp Lys Lys Gly Gly Asn Tyr Lys Lys Arg Lys Arg Ser Pro Ser  
290 295 300

Pro Ser Pro Thr Pro Glu Ala Lys Lys Lys Asn Ala Lys Lys Gly Pro  
305 310 315 320

Ser Thr Pro Tyr Thr Lys Ser Lys Arg Gly His Arg Glu Glu Glu Gln  
325 330 335

Glu Asp Leu Thr Lys Asp Met Asp Glu Pro Ser Pro Val Pro Asn Val  
340 345 350

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

Ser Ala Pro Val Lys Gly Gly Thr Met Thr Asp Leu Asp Glu Gln Glu  
370 375 380

Asp Glu Ser Met Glu Thr Thr Gly Lys Asp Glu Asp Glu Asn Ser Thr  
385 390 395 400

Gly Asn Lys Gly Glu Gln Thr Lys Asn Pro Asp Leu His Glu Asp Asn  
405 410 415

Val Thr Glu Gln Thr His His Ile Ile Ile Pro Ser Tyr Ala Ala Trp  
420 425 430

Phe Asp Tyr Asn Ser Val His Ala Ile Glu Arg Arg Ala Leu Pro Glu  
435 440 445

Phe Phe Asn Gly Lys Asn Lys Ser Lys Thr Pro Glu Ile Tyr Leu Ala  
450 455 460

Tyr Arg Asn Phe Met Ile Asp Thr Tyr Arg Leu Asn Pro Gln Glu Tyr  
465 470 475 480

Leu Thr Ser Thr Ala Cys Arg Arg Asn Leu Ala Gly Asp Val Cys Ala  
485 490 495

Ile Met Arg Val His Ala Phe Leu Glu Gln Trp Gly Leu Ile Asn Tyr  
500 505 510

Gln Val Asp Ala Glu Ser Arg Pro Thr Pro Met Gly Pro Pro Pro Thr  
515 520 525

Ser His Phe His Val Leu Ala Asp Thr Pro Ser Gly Leu Val Pro Leu  
530 535 540

Gln Pro Lys Thr Pro Gln Gln Thr Ser Ala Ser Gln Gln Met Leu Asn  
545 550 555 560



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Phe Pro Asp Lys Gly<sub>565</sub> Lys Glu Lys Pro Thr<sub>570</sub> Asp Met Gln Asn Phe<sub>575</sub> Gly  
 Leu Arg Thr Asp<sub>580</sub> Met Tyr Thr Lys Lys<sub>585</sub> Asn Val Pro Ser Lys<sub>590</sub> Ser Lys  
 Ala Ala Ala<sub>595</sub> Ser Ala Thr Arg Glu<sub>600</sub> Trp Thr Glu Gln Glu<sub>605</sub> Thr Leu Leu  
 Leu Leu<sub>610</sub> Glu Ala Leu Glu Met<sub>615</sub> Tyr Lys Asp Asp<sub>620</sub> Trp Asn Lys Val Ser  
 Glu<sub>625</sub> His Val Gly Ser Arg<sub>630</sub> Thr Gln Asp Glu Cys<sub>635</sub> Ile Leu His Phe Leu<sub>640</sub>  
 Arg Leu Pro Ile Glu<sub>645</sub> Asp Pro Tyr Leu Glu<sub>650</sub> Asp Ser Glu Ala Ser<sub>655</sub> Leu  
 Gly Pro Leu Ala<sub>660</sub> Tyr Gln Pro Ile Pro<sub>665</sub> Phe Ser Gln Ser Gly<sub>670</sub> Asn Pro  
 Val Met Ser<sub>675</sub> Thr Val Ala Phe Leu<sub>680</sub> Ala Ser Val Val Asp<sub>685</sub> Pro Arg Val  
 Ala Ser<sub>690</sub> Ala Ala Ala Lys Ser<sub>695</sub> Ala Leu Glu Glu Phe<sub>700</sub> Ser Lys Met Lys  
 Glu<sub>705</sub> Glu Val Pro Thr Ala<sub>710</sub> Leu Val Glu Ala His<sub>715</sub> Val Arg Lys Val Glu<sub>720</sub>  
 Glu Ala Ala Lys Val<sub>725</sub> Thr Gly Lys Ala Asp<sub>730</sub> Pro Ala Phe Gly Leu<sub>735</sub> Glu  
 Ser Ser Gly Ile<sub>740</sub> Ala Gly Thr Thr Ser<sub>745</sub> Asp Glu Pro Glu Arg<sub>750</sub> Ile Glu  
 Glu Ser Gly<sub>755</sub> Asn Asp Glu Ala Arg<sub>760</sub> Val Glu Gly Gln Ala<sub>765</sub> Thr Asp Glu  
 Lys Lys<sub>770</sub> Glu Pro Lys Glu Pro<sub>775</sub> Arg Glu Gly Gly Gly<sub>780</sub> Ala Ile Glu Glu  
 Glu<sub>785</sub> Ala Lys Glu Lys Thr<sub>790</sub> Ser Glu Ala Pro Lys<sub>795</sub> Lys Asp Glu Glu Lys<sub>800</sub>  
 Gly Lys Glu Gly Asp<sub>805</sub> Ser Glu Lys Glu Ser<sub>810</sub> Glu Lys Ser Asp Gly<sub>815</sub> Asp  
 Pro Ile Val Asp<sub>820</sub> Pro Glu Lys Glu Lys<sub>825</sub> Glu Pro Lys Glu Gly<sub>830</sub> Gln Glu

Glu Val Leu Lys Glu Val Val Glu Ser Glu Gly Glu Arg Lys Thr Lys  
 835 840 845  
 Val Glu Arg Asp Ile Gly Glu Gly Asn Leu Ser Thr Ala Ala Ala Ala  
 850 855 860  
 Ala Leu Ala Ala Ala Ala Val Lys Ala Lys His Leu Ala Ala Val Glu  
 865 870 875 880  
 Glu Arg Lys Ile Lys Ser Leu Val Ala Leu Leu Val Glu Thr Gln Met  
 885 890 895  
 Lys Lys Leu Glu Ile Lys Leu Arg His Phe Glu Glu Leu Glu Thr Ile  
 900 905 910  
 Met Asp Arg Glu Arg Glu Ala Leu Glu Tyr Gln Arg Gln Gln Leu Leu  
 915 920 925  
 Ala Asp Arg Gln Ala Phe His Met Glu Gln Leu Lys Tyr Ala Glu Met  
 930 935 940  
 Arg Ala Arg Gln Gln His Phe Gln Gln Met His Gln Gln Gln Gln Gln  
 945 950 955 960  
 Pro Pro Pro Ala Leu Pro Pro Gly Ser Gln Pro Ile Pro Pro Thr Gly  
 965 970 975  
 Ala Ala Gly Pro Pro Ala Val His Gly Leu Ala Val Ala Pro Ala Ser  
 980 985 990  
 Val Val Pro Ala Pro Ala Gly Ser Gly Ala Pro Pro Gly Ser Leu Gly  
 995 1000 1005  
 Pro Ser Glu Gln Ile Gly Gln Ala Gly Ser Thr Ala Gly Pro Gln  
 1010 1015 1020  
 Gln Gln Gln Pro Ala Gly Ala Pro Gln Pro Gly Ala Val Pro Pro  
 1025 1030 1035  
 Gly Val Pro Pro Pro Gly Pro His Gly Pro Ser Pro Phe Pro Asn  
 1040 1045 1050  
 Gln Gln Thr Pro Pro Ser Met Met Pro Gly Ala Val Pro Gly Ser  
 1055 1060 1065  
 Gly His Pro Gly Val Ala Gly Asn Ala Pro Leu Gly Leu Pro Phe  
 1070 1075 1080  
 Gly Met Pro Pro Pro Pro Pro Pro Pro Ala Pro Ser Ile Ile Pro  
 1085 1090 1095

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

Pro Asn Leu His Gly His His His His Leu Pro Phe Ala Pro Gly  
1115 1120 1125

Thr Leu Pro Pro Pro Asn Leu Pro Val Ser Met Ala Asn Pro Leu  
1130 1135 1140

His Pro Asn Leu Pro Ala Thr Thr Thr Met Pro Ser Ser Leu Pro  
1145 1150 1155

Leu Gly Pro Gly Leu Gly Ser Ala Ala Ala Gln Ser Pro Ala Ile  
1160 1165 1170

Val Ala Ala Val Gln Gly Asn Leu Leu Pro Ser Ala Ser Pro Leu  
1175 1180 1185

Pro Asp Pro Gly Thr Pro Leu Pro Pro Asp Pro Thr Ala Pro Ser  
1190 1195 1200

Pro Gly Thr Val Thr Pro Val Pro Pro Pro Gln  
1205 1210

<210> 20  
<211> 577  
<212> PRT  
<213> Homo sapiens

<400> 20

Met Thr Glu Leu Ala Gly Ala Ser Ser Ser Cys Cys His Arg Pro Ala  
1 5 10 15

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

Gly Arg Glu Gly Gly Ser His Phe Ile Asn Thr Ser Ser Pro Arg Gly  
35 40 45

Glu Ala Lys Met Ser Ile Thr Ser Asp Glu Val Asn Phe Leu Val Tyr  
50 55 60

Arg Tyr Leu Gln Glu Ser Gly Phe Ser His Ser Ala Phe Thr Phe Gly  
65 70 75 80

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

Pro Ala Ala Leu Ile Ser Ile Leu Gln Lys Gly Leu Gln Tyr Val Glu  
100 105 110

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Ala Glu Ile Ser Ile Asn Glu Asp Gly Thr Val Phe Asp Gly Arg Pro  
115 120 125

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

Thr Arg Gln Gln Ala Phe Arg Glu Lys Leu Ala Gln Gln Gln Ala Ser  
145 150 155 160

Ala Ala Ala Ala Ala Ala Ala Ala Thr Ala Ala Ala Thr Ala Ala Thr  
165 170 175

Thr Thr Ser Ala Gly Val Ser His Gln Asn Pro Ser Lys Asn Arg Glu  
180 185 190

Ala Thr Val Asn Gly Glu Glu Asn Arg Ala His Ser Val Asn Asn His  
195 200 205

Ala Lys Pro Met Glu Ile Asp Gly Glu Val Glu Ile Pro Ser Ser Lys  
210 215 220

Ala Thr Val Leu Arg Gly His Glu Ser Glu Val Phe Ile Cys Ala Trp  
225 230 235 240

Asn Pro Val Ser Asp Leu Leu Ala Ser Gly Ser Gly Asp Ser Thr Ala  
245 250 255

Arg Ile Trp Asn Leu Asn Glu Asn Ser Asn Gly Gly Ser Thr Gln Leu  
260 265 270

Val Leu Arg His Cys Ile Arg Glu Gly Gly His Asp Val Pro Ser Asn  
275 280 285

Lys Asp Val Thr Ser Leu Asp Trp Asn Thr Asn Gly Thr Leu Leu Ala  
290 295 300

Thr Gly Ser Tyr Asp Gly Phe Ala Arg Ile Trp Thr Glu Asp Gly Asn  
305 310 315 320

Leu Ala Ser Thr Leu Gly Gln His Lys Gly Pro Ile Phe Ala Leu Lys  
325 330 335

Trp Asn Arg Lys Gly Asn Tyr Ile Leu Ser Ala Gly Val Asp Lys Thr  
340 345 350

Thr Ile Ile Trp Asp Ala His Thr Gly Glu Ala Lys Gln Gln Phe Pro  
355 360 365

Phe His Ser Ala Pro Ala Leu Asp Val Asp Trp Gln Asn Asn Thr Thr  
370 375 380

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Phe Ala Ser Cys Ser Thr Asp Met Cys Ile His Val Cys Arg Leu Gly  
385 390 395 400

Cys Asp Arg Pro Val Lys Thr Phe Gln Gly His Thr Asn Glu Val Asn  
405 410 415

Ala Ile Lys Trp Asp Pro Ser Gly Met Leu Leu Ala Ser Cys Ser Asp  
420 425 430

Asp Met Thr Leu Lys Ile Trp Ser Met Lys Gln Glu Val Cys Ile His  
435 440 445

Asp Leu Gln Ala His Asn Lys Glu Ile Tyr Thr Ile Lys Trp Ser Pro  
450 455 460

Thr Gly Pro Ala Thr Ser Asn Pro Asn Ser Asn Ile Met Leu Ala Ser  
465 470 475 480

Ala Ser Phe Asp Ser Thr Val Arg Leu Trp Asp Ile Glu Arg Gly Val  
485 490 495

Cys Thr His Thr Leu Thr Lys His Gln Glu Pro Val Tyr Ser Val Ala  
500 505 510

Phe Ser Pro Asp Gly Lys Tyr Leu Ala Ser Gly Ser Phe Asp Lys Cys  
515 520 525

Val His Ile Trp Asn Thr Gln Ser Gly Asn Leu Val His Ser Tyr Arg  
530 535 540

Gly Thr Gly Gly Ile Phe Glu Val Cys Trp Asn Ala Arg Gly Asp Lys  
545 550 555 560

Val Gly Ala Ser Ala Ser Asp Gly Ser Val Cys Val Leu Asp Leu Arg  
565 570 575

Lys

<210> 21  
<211> 514  
<212> PRT  
<213> Homo sapiens

<400> 21

Met Ser Ile Ser Ser Asp Glu Val Asn Phe Leu Val Tyr Arg Tyr Leu  
1 5 10 15

Gln Glu Ser Gly Phe Ser His Ser Ala Phe Thr Phe Gly Ile Glu Ser  
20 25 30

His Ile Ser Gln Ser Asn Ile Asn Gly Ala Leu Val Pro Pro Ala Ala  
35 40 45

Leu Ile Ser Ile Ile Gln Lys Gly Leu Gln Tyr Val Glu Ala Glu Val  
50 55 60

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

Leu Ser Leu Ile Asp Ala Val Met Pro Asp Val Val Gln Thr Arg Gln  
85 90 95

Gln Ala Tyr Arg Asp Lys Leu Ala Gln Gln Gln Ala Ala Ala Ala Ala  
100 105 110

Ala Ala Ala Ala Ala Ala Ser Gln Gln Gly Ser Ala Lys Asn Gly Glu  
115 120 125

Asn Thr Ala Asn Gly Glu Glu Asn Gly Ala His Thr Ile Ala Asn Asn  
130 135 140

His Thr Asp Met Met Glu Val Asp Gly Asp Val Glu Ile Pro Pro Asn  
145 150 155 160

Lys Ala Val Val Leu Arg Gly His Glu Ser Glu Val Phe Ile Cys Ala  
165 170 175

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

Ala Arg Ile Trp Asn Leu Ser Glu Asn Ser Thr Ser Gly Ser Thr Gln  
195 200 205

Leu Val Leu Arg His Cys Ile Arg Glu Gly Gly Gln Asp Val Pro Ser  
210 215 220

Asn Lys Asp Val Thr Ser Leu Asp Trp Asn Ser Glu Gly Thr Leu Leu  
225 230 235 240

Ala Thr Gly Ser Tyr Asp Gly Phe Ala Arg Ile Trp Thr Lys Asp Gly  
245 250 255

Asn Leu Ala Ser Thr Leu Gly Gln His Lys Gly Pro Ile Phe Ala Leu  
260 265 270

Lys Trp Asn Lys Lys Gly Asn Phe Ile Leu Ser Ala Gly Val Asp Lys  
275 280 285

Thr Thr Ile Ile Trp Asp Ala His Thr Gly Glu Ala Lys Gln Gln Phe  
290 295 300

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Pro Phe His Ser Ala Pro Ala Leu Asp Val Asp Trp Gln Ser Asn Asn  
305 310 315 320

Thr Phe Ala Ser Cys Ser Thr Asp Met Cys Ile His Val Cys Lys Leu  
325 330 335

Gly Gln Asp Arg Pro Ile Lys Thr Phe Gln Gly His Thr Asn Glu Val  
340 345 350

Asn Ala Ile Lys Trp Asp Pro Thr Gly Asn Leu Leu Ala Ser Cys Ser  
355 360 365

Asp Asp Met Thr Leu Lys Ile Trp Ser Met Lys Gln Asp Asn Cys Val  
370 375 380

His Asp Leu Gln Ala His Asn Lys Glu Ile Tyr Thr Ile Lys Trp Ser  
385 390 395 400

Pro Thr Gly Pro Gly Thr Asn Asn Pro Asn Ala Asn Leu Met Leu Ala  
405 410 415

Ser Ala Ser Phe Asp Ser Thr Val Arg Leu Trp Asp Val Asp Arg Gly  
420 425 430

Ile Cys Ile His Thr Leu Thr Lys His Gln Glu Pro Val Tyr Ser Val  
435 440 445

Ala Phe Ser Pro Asp Gly Arg Tyr Leu Ala Ser Gly Ser Phe Asp Lys  
450 455 460

Cys Val His Ile Trp Asn Thr Gln Thr Gly Ala Leu Val His Ser Tyr  
465 470 475 480

Arg Gly Thr Gly Gly Ile Phe Glu Val Cys Trp Asn Ala Ala Gly Asp  
485 490 495

Lys Val Gly Ala Ser Ala Ser Asp Gly Ser Val Cys Val Leu Asp Leu  
500 505 510

Arg Lys

<210> 22  
<211> 1273  
<212> PRT  
<213> Homo sapiens

<400> 22

Met Lys Arg Arg Leu Asp Asp Gln Glu Ser Pro Val Tyr Ala Ala Gln  
1 5 10 15

Gln Arg Arg Ile Pro Gly Ser Thr Glu Ala Phe Pro His Gln His Arg  
Seite 55

20

25

30

Val Leu Ala Pro Ala Pro Pro Val Tyr Glu Ala Val Ser Glu Thr Met  
35 40 45

Gln Ser Ala Thr Gly Ile Gln Tyr Ser Val Thr Pro Ser Tyr Gln Val  
50 55 60

Ser Ala Met Pro Gln Ser Ser Gly Ser His Gly Pro Ala Ile Ala Ala  
65 70 75 80

Val His Ser Ser His His His Pro Thr Ala Val Gln Pro His Gly Gly  
85 90 95

Gln Val Val Gln Ser His Ala His Pro Ala Pro Pro Val Ala Pro Val  
100 105 110

Gln Gly Gln Gln Gln Phe Gln Arg Leu Lys Val Glu Asp Ala Leu Ser  
115 120 125

Tyr Leu Asp Gln Val Lys Leu Gln Phe Gly Ser Gln Pro Gln Val Tyr  
130 135 140

Asn Asp Phe Leu Asp Ile Met Lys Glu Phe Lys Ser Gln Ser Ile Asp  
145 150 155 160

Thr Pro Gly Val Ile Ser Arg Val Ser Gln Leu Phe Lys Gly His Pro  
165 170 175

Asp Leu Ile Met Gly Phe Asn Thr Phe Leu Pro Pro Gly Tyr Lys Ile  
180 185 190

Glu Val Gln Thr Asn Asp Met Val Asn Val Thr Thr Pro Gly Gln Val  
195 200 205

His Gln Ile Pro Thr His Gly Ile Gln Pro Gln Pro Gln Pro Pro Pro  
210 215 220

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

Pro Ala Pro Gln Pro Pro Pro Ala Lys Val Ser Lys Pro Ser Gln Leu  
245 250 255

Gln Ala His Thr Pro Ala Ser Gln Gln Thr Pro Pro Leu Pro Pro Tyr  
260 265 270

Ala Ser Pro Arg Ser Pro Pro Val Gln Pro His Thr Pro Val Thr Ile  
275 280 285

Ser Leu Gly Thr Ala Pro Ser Leu Gln Asn Asn Gln Pro Val Glu Phe  
Seite 56



290

295

300

Asn His Ala Ile Asn Tyr Val Asn Lys Ile Lys Asn Arg Phe Gln Gly  
305 310 315 320

Gln Pro Asp Ile Tyr Lys Ala Phe Leu Glu Ile Leu His Thr Tyr Gln  
325 330 335

Lys Glu Gln Arg Asn Ala Lys Glu Ala Gly Gly Asn Tyr Thr Pro Ala  
340 345 350

Leu Thr Glu Gln Glu Val Tyr Ala Gln Val Ala Arg Leu Phe Lys Asn  
355 360 365

Gln Glu Asp Leu Leu Ser Glu Phe Gly Gln Phe Leu Pro Asp Ala Asn  
370 375 380

Ser Ser Val Leu Leu Ser Lys Thr Thr Ala Glu Lys Val Asp Ser Val  
385 390 395 400

Arg Asn Asp His Gly Gly Thr Val Lys Lys Pro Gln Leu Asn Asn Lys  
405 410 415

Pro Gln Arg Pro Ser Gln Asn Gly Cys Gln Ile Arg Arg His Pro Thr  
420 425 430

Gly Thr Thr Pro Pro Val Lys Lys Lys Pro Lys Leu Leu Asn Leu Lys  
435 440 445

Asp Ser Ser Met Ala Asp Ala Ser Lys His Gly Gly Gly Thr Glu Ser  
450 455 460

Leu Phe Phe Asp Lys Val Arg Lys Ala Leu Arg Ser Ala Glu Ala Tyr  
465 470 475 480

Glu Asn Phe Leu Arg Cys Leu Val Ile Phe Asn Gln Glu Val Ile Ser  
485 490 495

Arg Ala Glu Leu Val Gln Leu Val Ser Pro Phe Leu Gly Lys Phe Pro  
500 505 510

Glu Leu Phe Asn Trp Phe Lys Asn Phe Leu Gly Tyr Lys Glu Ser Val  
515 520 525

His Leu Glu Thr Tyr Pro Lys Glu Arg Ala Thr Glu Gly Ile Ala Met  
530 535 540

Glu Ile Asp Tyr Ala Ser Cys Lys Arg Leu Gly Ser Ser Tyr Arg Ala  
545 550 555 560

Leu Pro Lys Ser Tyr Gln Gln Pro Lys Cys Thr Gly Arg Thr Pro Leu

565

570

575

Cys Lys Glu Val<sub>580</sub> Leu Asn Asp Thr Trp<sub>585</sub> Val Ser Phe Pro Ser<sub>590</sub> Trp Ser  
 Glu Asp Ser<sub>595</sub> Thr Phe Val Ser Ser<sub>600</sub> Lys Lys Thr Gln Tyr<sub>605</sub> Glu Glu His  
 Ile Tyr<sub>610</sub> Arg Cys Glu Asp Glu<sub>615</sub> Arg Phe Glu Leu Asp<sub>620</sub> Val Val Leu Glu  
 Thr Asn Leu Ala Thr Ile<sub>630</sub> Arg Val Leu Glu Ala<sub>635</sub> Ile Gln Lys Lys Leu<sub>640</sub>  
 Ser Arg Leu Ser Ala<sub>645</sub> Glu Glu Gln Ala Lys<sub>650</sub> Phe Arg Leu Asp Asn Thr<sub>655</sub>  
 Leu Gly Gly Thr<sub>660</sub> Ser Glu Val Ile His<sub>665</sub> Arg Lys Ala Leu Gln Arg Ile<sub>670</sub>  
 Tyr Ala Asp<sub>675</sub> Lys Ala Ala Asp Ile<sub>680</sub> Ile Asp Gly Leu Arg<sub>685</sub> Lys Asn Pro  
 Ser Ile<sub>690</sub> Ala Val Pro Ile Val<sub>695</sub> Leu Lys Arg Leu Lys<sub>700</sub> Met Lys Glu Glu  
 Glu Trp Arg Glu Ala Gln<sub>710</sub> Arg Gly Phe Asn Lys<sub>715</sub> Val Trp Arg Glu Gln<sub>720</sub>  
 Asn Glu Lys Tyr Tyr<sub>725</sub> Leu Lys Ser Leu Asp<sub>730</sub> His Gln Gly Ile Asn Phe<sub>735</sub>  
 Lys Gln Asn Asp<sub>740</sub> Thr Lys Val Leu Arg<sub>745</sub> Ser Lys Ser Leu Leu<sub>750</sub> Asn Glu  
 Ile Glu Ser<sub>755</sub> Ile Tyr Asp Glu Arg Gln Glu Gln Ala Thr<sub>765</sub> Glu Glu Asn  
 Ala Gly Val Pro Val Gly Pro<sub>775</sub> His Leu Ser Leu Ala<sub>780</sub> Tyr Glu Asp Lys  
 Gln Ile Leu Glu Asp Ala<sub>790</sub> Ala Ala Leu Ile Ile<sub>795</sub> His His Val Lys Arg<sub>800</sub>  
 Gln Thr Gly Ile Gln<sub>805</sub> Lys Glu Asp Lys Tyr<sub>810</sub> Lys Ile Lys Gln Ile Met<sub>815</sub>  
 His His Phe Ile<sub>820</sub> Pro Asp Leu Leu Phe<sub>825</sub> Ala Gln Arg Gly Asp<sub>830</sub> Leu Ser  
 Asp Val Glu Glu Glu Glu Glu Glu Glu Met Asp Val Asp Glu Ala Thr

835

Gly Ala Val Lys Lys His Asn Gly Val Gly Gly Ser Pro Pro Lys Ser  
850 855 860

Lys Leu Leu Phe Ser Asn Thr Ala Ala Gln Lys Leu Arg Gly Met Asp  
865 870 875 880

Glu Val Tyr Asn Leu Phe Tyr Val Asn Asn Asn Trp Tyr Ile Phe Met  
885 890 895

Arg Leu His Gln Ile Leu Cys Leu Arg Leu Leu Arg Ile Cys Ser Gln  
900 905 910

Ala Glu Arg Gln Ile Glu Glu Glu Asn Arg Glu Arg Glu Trp Glu Arg  
915 920 925

Glu Val Leu Gly Ile Lys Arg Asp Lys Ser Asp Ser Pro Ala Ile Gln  
930 935 940

Leu Arg Leu Lys Glu Pro Met Asp Val Asp Val Glu Asp Tyr Tyr Pro  
945 950 955 960

Ala Phe Leu Asp Met Val Arg Ser Leu Leu Asp Gly Asn Ile Asp Ser  
965 970 975

Ser Gln Tyr Glu Asp Ser Leu Arg Glu Met Phe Thr Ile His Ala Tyr  
980 985 990

Ile Ala Phe Thr Met Asp Lys Leu Ile Gln Ser Ile Val Arg Gln Leu  
995 1000 1005

Gln His Ile Val Ser Asp Glu Ile Cys Val Gln Val Thr Asp Leu  
1010 1015 1020

Tyr Leu Ala Glu Asn Asn Asn Gly Ala Thr Gly Gly Gln Leu Asn  
1025 1030 1035

Thr Gln Asn Ser Arg Ser Leu Leu Glu Ser Thr Tyr Gln Arg Lys  
1040 1045 1050

Ala Glu Gln Leu Met Ser Asp Glu Asn Cys Phe Lys Leu Met Phe  
1055 1060 1065

Ile Gln Ser Gln Gly Gln Val Gln Leu Thr Ile Glu Leu Leu Asp  
1070 1075 1080

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

Ser Asp Tyr Val Glu Arg Tyr Met Asn Ser Asp Thr Thr Ser Pro

1100 1105 1110  
 Glu Leu Arg Glu His Leu Ala Gln Lys Pro Val Phe Leu Pro Arg  
 1115 1120 1125  
 Asn Leu Arg Arg Ile Arg Lys Cys Gln Arg Gly Arg Glu Gln Gln  
 1130 1135 1140  
 Glu Lys Glu Gly Lys Glu Gly Asn Ser Lys Lys Thr Met Glu Asn  
 1145 1150 1155  
 Val Asp Ser Leu Asp Lys Leu Glu Cys Arg Phe Lys Leu Asn Ser  
 1160 1165 1170  
 Tyr Lys Met Val Tyr Val Ile Lys Ser Glu Asp Tyr Met Tyr Arg  
 1175 1180 1185  
 Arg Thr Ala Leu Leu Arg Ala His Gln Ser His Glu Arg Val Ser  
 1190 1195 1200  
 Lys Arg Leu His Gln Arg Phe Gln Ala Trp Val Asp Lys Trp Thr  
 1205 1210 1215  
 Lys Glu His Val Pro Arg Glu Met Ala Ala Glu Thr Ser Lys Trp  
 1220 1225 1230  
 Leu Met Gly Glu Gly Leu Glu Gly Leu Val Pro Cys Thr Thr Thr  
 1235 1240 1245  
 Cys Asp Thr Glu Thr Leu His Phe Val Ser Ile Asn Lys Tyr Arg  
 1250 1255 1260  
 Val Lys Tyr Gly Thr Val Phe Lys Ala Pro  
 1265 1270

<210> 23  
 <211> 425  
 <212> PRT  
 <213> Homo sapiens

<400> 23

Met Ala Asp Lys Glu Ala Ala Phe Asp Asp Ala Val Glu Glu Arg Val  
 1 5 10 15  
 Ile Asn Glu Glu Tyr Lys Ile Trp Lys Lys Asn Thr Pro Phe Leu Tyr  
 20 25 30  
 Asp Leu Val Met Thr His Ala Leu Glu Trp Pro Ser Leu Thr Ala Gln  
 35 40 45  
 Trp Leu Pro Asp Val Thr Arg Pro Glu Gly Lys Asp Phe Ser Ile His  
 50 55 60

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Arg Leu Val Leu Gly Thr His Thr Ser Asp Glu Gln Asn His Leu Val  
 65 70 75 80  
 Ile Ala Ser Val Gln Leu Pro Asn Asp Asp Ala Gln Phe Asp Ala Ser  
 85 90 95  
 His Tyr Asp Ser Glu Lys Gly Glu Phe Gly Gly Phe Gly Ser Val Ser  
 100 105 110  
 Gly Lys Ile Glu Ile Glu Ile Lys Ile Asn His Glu Gly Glu Val Asn  
 115 120 125  
 Arg Ala Arg Tyr Met Pro Gln Asn Pro Cys Ile Ile Ala Thr Lys Thr  
 130 135 140  
 Pro Ser Ser Asp Val Leu Val Phe Asp Tyr Thr Lys His Pro Ser Lys  
 145 150 155 160  
 Pro Asp Pro Ser Gly Glu Cys Asn Pro Asp Leu Arg Leu Arg Gly His  
 165 170 175  
 Gln Lys Glu Gly Tyr Gly Leu Ser Trp Asn Pro Asn Leu Ser Gly His  
 180 185 190  
 Leu Leu Ser Ala Ser Asp Asp His Thr Ile Cys Leu Trp Asp Ile Ser  
 195 200 205  
 Ala Val Pro Lys Glu Gly Lys Val Val Asp Ala Lys Thr Ile Phe Thr  
 210 215 220  
 Gly His Thr Ala Val Val Glu Asp Val Ser Trp His Leu Leu His Glu  
 225 230 235 240  
 Ser Leu Phe Gly Ser Val Ala Asp Asp Gln Lys Leu Met Ile Trp Asp  
 245 250 255  
 Thr Arg Ser Asn Asn Thr Ser Lys Pro Ser His Ser Val Asp Ala His  
 260 265 270  
 Thr Ala Glu Val Asn Cys Leu Ser Phe Asn Pro Tyr Ser Glu Phe Ile  
 275 280 285  
 Leu Ala Thr Gly Ser Ala Asp Lys Thr Val Ala Leu Trp Asp Leu Arg  
 290 295 300  
 Asn Leu Lys Leu Lys Leu His Ser Phe Glu Ser His Lys Asp Glu Ile  
 305 310 315 320  
 Phe Gln Val Gln Trp Ser Pro His Asn Glu Thr Ile Leu Ala Ser Ser  
 325 330 335

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Gly Thr Asp Arg Arg Leu Asn Val Trp Asp Leu Ser Lys Ile Gly Glu  
340 345 350

Glu Gln Ser Pro Glu Asp Ala Glu Asp Gly Pro Pro Glu Leu Leu Phe  
355 360 365

Ile His Gly Gly His Thr Ala Lys Ile Ser Asp Phe Ser Trp Asn Pro  
370 375 380

Asn Glu Pro Trp Val Ile Cys Ser Val Ser Glu Asp Asn Ile Met Gln  
385 390 395 400

Val Trp Gln Met Ala Glu Asn Ile Tyr Asn Asp Glu Asp Pro Glu Gly  
405 410 415

Ser Val Asp Pro Glu Gly Gln Gly Ser  
420 425

<210> 24  
<211> 469  
<212> PRT  
<213> Homo sapiens  
<400> 24

Met Ala Ala Glu Ala Gly Val Val Gly Ala Gly Ala Ser Pro Asp Gly  
1 5 10 15

Asp Trp Arg Asp Gln Ala Cys Gly Leu Leu Leu His Val His Leu Ser  
20 25 30

Ser Arg Leu Gly Arg Ala Ala Pro Val Arg Thr Gly Arg His Leu Arg  
35 40 45

Thr Val Phe Glu Asp Thr Val Glu Glu Arg Val Ile Asn Glu Glu Tyr  
50 55 60

Lys Ile Trp Lys Lys Asn Thr Pro Phe Leu Tyr Asp Leu Val Met Thr  
65 70 75 80

His Ala Leu Gln Trp Pro Ser Leu Thr Val Gln Trp Leu Pro Glu Val  
85 90 95

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

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

Ile Pro Asn Asp Asp Ala Gln Phe Asp Ala Ser His Cys Asp Ser Asp  
130 135 140

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Lys Gly Glu Phe Gly Gly Phe Gly Ser Val Thr Gly Lys Ile Glu Cys  
 145 150 155 160  
 Glu Ile Lys Ile Asn His Glu Gly Glu Val Asn Arg Ala Arg Tyr Met  
 165 170 175  
 Pro Gln Asn Pro His Ile Ile Ala Thr Lys Thr Pro Ser Ser Asp Val  
 180 185 190  
 Leu Val Phe Asp Tyr Thr Lys His Pro Ala Lys Pro Asp Pro Ser Gly  
 195 200 205  
 Glu Cys Asn Pro Asp Leu Arg Leu Arg Gly His Gln Lys Glu Gly Tyr  
 210 215 220  
 Gly Leu Ser Trp Asn Ser Asn Leu Ser Gly His Leu Leu Ser Ala Ser  
 225 230 235 240  
 Asp Asp His Thr Val Cys Leu Trp Asp Ile Asn Ala Gly Pro Lys Glu  
 245 250 255  
 Gly Lys Ile Val Asp Ala Lys Ala Ile Phe Thr Gly His Ser Ala Val  
 260 265 270  
 Val Glu Asp Val Ala Trp His Leu Leu His Glu Ser Leu Phe Gly Ser  
 275 280 285  
 Val Ala Asp Asp Gln Lys Leu Met Ile Trp Asp Thr Arg Ser Asn Thr  
 290 295 300  
 Thr Ser Lys Pro Ser His Leu Val Asp Ala His Thr Ala Glu Val Asn  
 305 310 315 320  
 Cys Leu Ser Phe Asn Pro Tyr Ser Glu Phe Ile Leu Ala Thr Gly Ser  
 325 330 335  
 Ala Asp Lys Thr Val Ala Leu Trp Asp Leu Arg Asn Leu Lys Leu Lys  
 340 345 350  
 Leu His Thr Phe Glu Ser His Lys Asp Glu Ile Phe Gln Val His Trp  
 355 360 365  
 Ser Pro His Asn Glu Thr Ile Leu Ala Ser Ser Gly Thr Asp Arg Arg  
 370 375 380  
 Leu Asn Val Trp Asp Leu Ser Lys Ile Gly Glu Glu Gln Ser Ala Glu  
 385 390 395 400  
 Asp Ala Glu Asp Gly Pro Pro Glu Leu Leu Phe Ile His Gly Gly His  
 405 410 415

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Thr Ala Lys Ile Ser Asp Phe Ser Trp Asn Pro Asn Glu Pro Trp Val  
 420 425 430

Ile Cys Ser Val Ser Glu Asp Asn Ile Met Gln Ile Trp Gln Met Ala  
 435 440 445

Glu Asn Ile Tyr Asn Asp Glu Glu Ser Asp Val Thr Thr Ser Glu Leu  
 450 455 460

Glu Gly Gln Gly Ser  
 465