

SEQUENCE LISTING

<110> PAM Theragnostics GmbH

<120> Use of peptidylglycine alpha-amidating monooxygenase (PAM) for therapeutic purpose

<130> P75341W0

<150> 20159647.5

<151> 2020-02-26

<160> 24

<170> PatentIn version 3.5

<210> 1

<211> 973

<212> PRT

<213> Homo sapiens

<400> 1

Met Ala Gly Arg Val Pro Ser Leu Leu Val Leu Leu Val Phe Pro Ser
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Ser Cys Leu Ala Phe Arg Ser Pro Leu Ser Val Phe Lys Arg Phe Lys
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Glu Thr Thr Arg Pro Phe Ser Asn Glu Cys Leu Gly Thr Thr Arg Pro
35 40 45

Val Val Pro Ile Asp Ser Ser Asp Phe Ala Leu Asp Ile Arg Met Pro
50 55 60

Gly Val Thr Pro Lys Gln Ser Asp Thr Tyr Phe Cys Met Ser Met Arg
65 70 75 80

Ile Pro Val Asp Glu Glu Ala Phe Val Ile Asp Phe Lys Pro Arg Ala
85 90 95

Ser Met Asp Thr Val His His Met Leu Leu Phe Gly Cys Asn Met Pro
100 105 110

Ser Ser Thr Gly Ser Tyr Trp Phe Cys Asp Glu Gly Thr Cys Thr Asp
115 120 125

Lys Ala Asn Ile Leu Tyr Ala Trp Ala Arg Asn Ala Pro Pro Thr Arg
130 135 140

Leu Pro Lys Gly Val Gly Phe Arg Val Gly Gly Glu Thr Gly Ser Lys
145 150 155 160

Tyr Phe Val Leu Gln Val His Tyr Gly Asp Ile Ser Ala Phe Arg Asp
165 170 175

Asn Asn Lys Asp Cys Ser Gly Val Ser Leu His Leu Thr Arg Leu Pro
180 185 190

Gln Pro Leu Ile Ala Gly Met Tyr Leu Met Met Ser Val Asp Thr Val
195 200 205

Ile Pro Ala Gly Glu Lys Val Val Asn Ser Asp Ile Ser Cys His Tyr
210 215 220

Lys Asn Tyr Pro Met His Val Phe Ala Tyr Arg Val His Thr His His
225 230 235 240

Leu Gly Lys Val Val Ser Gly Tyr Arg Val Arg Asn Gly Gln Trp Thr
245 250 255

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

Gly His Pro Val Asp Val Ser Phe Gly Asp Leu Leu Ala Ala Arg Cys
275 280 285

Val Phe Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly Gly Thr
290 295 300

Ser Ser Asp Glu Met Cys Asn Leu Tyr Ile Met Tyr Tyr Met Glu Ala

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Lys His Ala Val	Ser Phe Met Thr Cys Thr Gln Asn Val Ala Pro Asp					
	325			330		335
Met Phe Arg Thr	Ile Pro Pro Glu Ala Asn Ile Pro Ile Pro Val Lys					
	340		345			350
Ser Asp Met Val	Met Met His Glu His His Lys Glu Thr Glu Tyr Lys					
	355		360			365
Asp Lys Ile Pro	Leu Leu Gln Gln Pro Lys Arg Glu Glu Glu Glu Val					
	370		375			380
Leu Asp Gln Gly	Asp Phe Tyr Ser Leu Leu Ser Lys Leu Leu Gly Glu					
385		390		395		400
Arg Glu Asp Val	Val His Val His Lys Tyr Asn Pro Thr Glu Lys Ala					
	405		410			415
Glu Ser Glu Ser	Asp Leu Val Ala Glu Ile Ala Asn Val Val Gln Lys					
	420		425			430
Lys Asp Leu Gly	Arg Ser Asp Ala Arg Glu Gly Ala Glu His Glu Arg					
	435		440			445
Gly Asn Ala Ile	Leu Val Arg Asp Arg Ile His Lys Phe His Arg Leu					
	450		455			460
Val Ser Thr Leu	Arg Pro Pro Glu Ser Arg Val Phe Ser Leu Gln Gln					
465		470		475		480
Pro Pro Pro Gly	Glu Gly Thr Trp Glu Pro Glu His Thr Gly Asp Phe					
	485		490			495
His Met Glu Glu	Ala Leu Asp Trp Pro Gly Val Tyr Leu Leu Pro Gly					
	500		505			510

Gln Val Ser Gly Val Ala Leu Asp Pro Lys Asn Asn Leu Val Ile Phe
515 520 525

His Arg Gly Asp His Val Trp Asp Gly Asn Ser Phe Asp Ser Lys Phe
530 535 540

Val Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu Glu Asp Thr Ile Leu
545 550 555 560

Val Ile Asp Pro Asn Asn Ala Ala Val Leu Gln Ser Ser Gly Lys Asn
565 570 575

Leu Phe Tyr Leu Pro His Gly Leu Ser Ile Asp Lys Asp Gly Asn Tyr
580 585 590

Trp Val Thr Asp Val Ala Leu His Gln Val Phe Lys Leu Asp Pro Asn
595 600 605

Asn Lys Glu Gly Pro Val Leu Ile Leu Gly Arg Ser Met Gln Pro Gly
610 615 620

Ser Asp Gln Asn His Phe Cys Gln Pro Thr Asp Val Ala Val Asp Pro
625 630 635 640

Gly Thr Gly Ala Ile Tyr Val Ser Asp Gly Tyr Cys Asn Ser Arg Ile
645 650 655

Val Gln Phe Ser Pro Ser Gly Lys Phe Ile Thr Gln Trp Gly Glu Glu
660 665 670

Ser Ser Gly Ser Ser Pro Leu Pro Gly Gln Phe Thr Val Pro His Ser
675 680 685

Leu Ala Leu Val Pro Leu Leu Gly Gln Leu Cys Val Ala Asp Arg Glu
690 695 700

Asn Gly Arg Ile Gln Cys Phe Lys Thr Asp Thr Lys Glu Phe Val Arg

705	710	715	720
Glu Ile Lys His Ser Ser Phe Gly Arg Asn Val Phe Ala Ile Ser Tyr	725	730	735
Ile Pro Gly Leu Leu Phe Ala Val Asn Gly Lys Pro His Phe Gly Asp	740	745	750
Gln Glu Pro Val Gln Gly Phe Val Met Asn Phe Ser Asn Gly Glu Ile	755	760	765
Ile Asp Ile Phe Lys Pro Val Arg Lys His Phe Asp Met Pro His Asp	770	775	780
Ile Val Ala Ser Glu Asp Gly Thr Val Tyr Ile Gly Asp Ala His Thr	785	790	795
Asn Thr Val Trp Lys Phe Thr Leu Thr Glu Lys Leu Glu His Arg Ser	805	810	815
Val Lys Lys Ala Gly Ile Glu Val Gln Glu Ile Lys Glu Ala Glu Ala	820	825	830
Val Val Glu Thr Lys Met Glu Asn Lys Pro Thr Ser Ser Glu Leu Gln	835	840	845
Lys Met Gln Glu Lys Gln Lys Leu Ile Lys Glu Pro Gly Ser Gly Val	850	855	860
Pro Val Val Leu Ile Thr Thr Leu Leu Val Ile Pro Val Val Val Leu	865	870	875
Leu Ala Ile Ala Ile Phe Ile Arg Trp Lys Lys Ser Arg Ala Phe Gly	885	890	895
Asp Ser Glu His Lys Leu Glu Thr Ser Ser Gly Arg Val Leu Gly Arg	900	905	910

Phe Arg Gly Lys Gly Ser Gly Gly Leu Asn Leu Gly Asn Phe Phe Ala
915 920 925

Ser Arg Lys Gly Tyr Ser Arg Lys Gly Phe Asp Arg Leu Ser Thr Glu
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Gly Ser Asp Gln Glu Lys Glu Asp Asp Gly Ser Glu Ser Glu Glu Glu
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965 970

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<212> PRT
<213> Homo sapiens

<400> 2

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Ser Cys Leu Ala Phe Arg Ser Pro Leu Ser Val Phe Lys Arg Phe Lys
20 25 30

Glu Thr Thr Arg Pro Phe Ser Asn Glu Cys Leu Gly Thr Thr Arg Pro
35 40 45

Val Val Pro Ile Asp Ser Ser Asp Phe Ala Leu Asp Ile Arg Met Pro
50 55 60

Gly Val Thr Pro Lys Gln Ser Asp Thr Tyr Phe Cys Met Ser Met Arg
65 70 75 80

Ile Pro Val Asp Glu Glu Ala Phe Val Ile Asp Phe Lys Pro Arg Ala
85 90 95

Ser Met Asp Thr Val His His Met Leu Leu Phe Gly Cys Asn Met Pro
100 105 110

Ser Ser Thr Gly Ser Tyr Trp Phe Cys Asp Glu Gly Thr Cys Thr Asp
115 120 125

Lys Ala Asn Ile Leu Tyr Ala Trp Ala Arg Asn Ala Pro Pro Thr Arg
130 135 140

Leu Pro Lys Gly Val Gly Phe Arg Val Gly Gly Glu Thr Gly Ser Lys
145 150 155 160

Tyr Phe Val Leu Gln Val His Tyr Gly Asp Ile Ser Ala Phe Arg Asp
165 170 175

Asn Asn Lys Asp Cys Ser Gly Val Ser Leu His Leu Thr Arg Leu Pro
180 185 190

Gln Pro Leu Ile Ala Gly Met Tyr Leu Met Met Ser Val Asp Thr Val
195 200 205

Ile Pro Ala Gly Glu Lys Val Val Asn Ser Asp Ile Ser Cys His Tyr
210 215 220

Lys Asn Tyr Pro Met His Val Phe Ala Tyr Arg Val His Thr His His
225 230 235 240

Leu Gly Lys Val Val Ser Gly Tyr Arg Val Arg Asn Gly Gln Trp Thr
245 250 255

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

Gly His Pro Val Asp Val Ser Phe Gly Asp Leu Leu Ala Ala Arg Cys
275 280 285

Val Phe Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly Gly Thr
290 295 300

Ser Ser Asp Glu Met Cys Asn Leu Tyr Ile Met Tyr Tyr Met Glu Ala
305 310 315 320

Lys His Ala Val Ser Phe Met Thr Cys Thr Gln Asn Val Ala Pro Asp
325 330 335

Met Phe Arg Thr Ile Pro Pro Glu Ala Asn Ile Pro Ile Pro Val Lys
340 345 350

Ser Asp Met Val Met Met His Glu His His Lys Glu Thr Glu Tyr Lys
355 360 365

Asp Lys Ile Pro Leu Leu Gln Gln Pro Lys Arg Glu Glu Glu Glu Val
370 375 380

Leu Asp Gln Asp Phe His Met Glu Glu Ala Leu Asp Trp Pro Gly Val
385 390 395 400

Tyr Leu Leu Pro Gly Gln Val Ser Gly Val Ala Leu Asp Pro Lys Asn
405 410 415

Asn Leu Val Ile Phe His Arg Gly Asp His Val Trp Asp Gly Asn Ser
420 425 430

Phe Asp Ser Lys Phe Val Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu
435 440 445

Glu Asp Thr Ile Leu Val Ile Asp Pro Asn Asn Ala Ala Val Leu Gln
450 455 460

Ser Ser Gly Lys Asn Leu Phe Tyr Leu Pro His Gly Leu Ser Ile Asp
465 470 475 480

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

Lys Leu Asp Pro Asn Asn Lys Glu Gly Pro Val Leu Ile Leu Gly Arg
500 505 510

Ser Met Gln Pro Gly Ser Asp Gln Asn His Phe Cys Gln Pro Thr Asp
515 520 525

Val Ala Val Asp Pro Gly Thr Gly Ala Ile Tyr Val Ser Asp Gly Tyr
530 535 540

Cys Asn Ser Arg Ile Val Gln Phe Ser Pro Ser Gly Lys Phe Ile Thr
545 550 555 560

Gln Trp Gly Glu Glu Ser Ser Gly Ser Ser Pro Leu Pro Gly Gln Phe
565 570 575

Thr Val Pro His Ser Leu Ala Leu Val Pro Leu Leu Gly Gln Leu Cys
580 585 590

Val Ala Asp Arg Glu Asn Gly Arg Ile Gln Cys Phe Lys Thr Asp Thr
595 600 605

Lys Glu Phe Val Arg Glu Ile Lys His Ser Ser Phe Gly Arg Asn Val
610 615 620

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

Pro His Phe Gly Asp Gln Glu Pro Val Gln Gly Phe Val Met Asn Phe
645 650 655

Ser Asn Gly Glu Ile Ile Asp Ile Phe Lys Pro Val Arg Lys His Phe
660 665 670

Asp Met Pro His Asp Ile Val Ala Ser Glu Asp Gly Thr Val Tyr Ile
675 680 685

Gly Asp Ala His Thr Asn Thr Val Trp Lys Phe Thr Leu Thr Glu Lys
690 695 700

Leu Glu His Arg Ser Val Lys Lys Ala Gly Ile Glu Val Gln Glu Ile
705 710 715 720

Lys Glu Ala Glu Ala Val Val Glu Thr Lys Met Glu Asn Lys Pro Thr
725 730 735

Ser Ser Glu Leu Gln Lys Met Gln Glu Lys Gln Lys Leu Ile Lys Glu
740 745 750

Pro Gly Ser Gly Val Pro Val Val Leu Ile Thr Thr Leu Leu Val Ile
755 760 765

Pro Val Val Val Leu Leu Ala Ile Ala Ile Phe Ile Arg Trp Lys Lys
770 775 780

Ser Arg Ala Phe Gly Asp Ser Glu His Lys Leu Glu Thr Ser Ser Gly
785 790 795 800

Arg Val Leu Gly Arg Phe Arg Gly Lys Gly Ser Gly Gly Leu Asn Leu
805 810 815

Gly Asn Phe Phe Ala Ser Arg Lys Gly Tyr Ser Arg Lys Gly Phe Asp
820 825 830

Arg Leu Ser Thr Glu Gly Ser Asp Gln Glu Lys Glu Asp Asp Gly Ser
835 840 845

Glu Ser Glu Glu Glu Tyr Ser Ala Pro Leu Pro Ala Leu Ala Pro Ser
850 855 860

Ser Ser
865

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

<400> 3

Met Ala Gly Arg Val Pro Ser Leu Leu Val Leu Leu Val Phe Pro Ser
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Ser Cys Leu Ala Phe Arg Ser Pro Leu Ser Val Phe Lys Arg Phe Lys
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Glu Thr Thr Arg Pro Phe Ser Asn Glu Cys Leu Gly Thr Thr Arg Pro
35 40 45

Val Val Pro Ile Asp Ser Ser Asp Phe Ala Leu Asp Ile Arg Met Pro
50 55 60

Gly Val Thr Pro Lys Gln Ser Asp Thr Tyr Phe Cys Met Ser Met Arg
65 70 75 80

Ile Pro Val Asp Glu Glu Ala Phe Val Ile Asp Phe Lys Pro Arg Ala
85 90 95

Ser Met Asp Thr Val His His Met Leu Leu Phe Gly Cys Asn Met Pro
100 105 110

Ser Ser Thr Gly Ser Tyr Trp Phe Cys Asp Glu Gly Thr Cys Thr Asp
115 120 125

Lys Ala Asn Ile Leu Tyr Ala Trp Ala Arg Asn Ala Pro Pro Thr Arg
130 135 140

Leu Pro Lys Gly Val Gly Phe Arg Val Gly Gly Glu Thr Gly Ser Lys
145 150 155 160

Tyr Phe Val Leu Gln Val His Tyr Gly Asp Ile Ser Ala Phe Arg Asp
165 170 175

Asn Asn Lys Asp Cys Ser Gly Val Ser Leu His Leu Thr Arg Leu Pro
180 185 190

Gln Pro Leu Ile Ala Gly Met Tyr Leu Met Met Ser Val Asp Thr Val

195

200

205

Ile Pro Ala Gly Glu Lys Val Val Asn Ser Asp Ile Ser Cys His Tyr
 210 215 220

Lys Asn Tyr Pro Met His Val Phe Ala Tyr Arg Val His Thr His His
 225 230 235 240

Leu Gly Lys Val Val Ser Gly Tyr Arg Val Arg Asn Gly Gln Trp Thr
 245 250 255

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

Gly His Pro Val Asp Val Ser Phe Gly Asp Leu Leu Ala Ala Arg Cys
 275 280 285

Val Phe Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly Gly Thr
 290 295 300

Ser Ser Asp Glu Met Cys Asn Leu Tyr Ile Met Tyr Tyr Met Glu Ala
 305 310 315 320

Lys His Ala Val Ser Phe Met Thr Cys Thr Gln Asn Val Ala Pro Asp
 325 330 335

Met Phe Arg Thr Ile Pro Pro Glu Ala Asn Ile Pro Ile Pro Val Lys
 340 345 350

Ser Asp Met Val Met Met His Glu His His Lys Glu Thr Glu Tyr Lys
 355 360 365

Asp Lys Ile Pro Leu Leu Gln Gln Pro Lys Arg Glu Glu Glu Glu Val
 370 375 380

Leu Asp Gln Gly Asp Phe Tyr Ser Leu Leu Ser Lys Leu Leu Gly Glu
 385 390 395 400

Arg Glu Asp Val Val His Val His Lys Tyr Asn Pro Thr Glu Lys Ala
405 410 415

Glu Ser Glu Ser Asp Leu Val Ala Glu Ile Ala Asn Val Val Gln Lys
420 425 430

Lys Asp Leu Gly Arg Ser Asp Ala Arg Glu Gly Ala Glu His Glu Arg
435 440 445

Gly Asn Ala Ile Leu Val Arg Asp Arg Ile His Lys Phe His Arg Leu
450 455 460

Val Ser Thr Leu Arg Pro Pro Glu Ser Arg Val Phe Ser Leu Gln Gln
465 470 475 480

Pro Pro Pro Gly Glu Gly Thr Trp Glu Pro Glu His Thr Gly Asp Phe
485 490 495

His Met Glu Glu Ala Leu Asp Trp Pro Gly Val Tyr Leu Leu Pro Gly
500 505 510

Gln Val Ser Gly Val Ala Leu Asp Pro Lys Asn Asn Leu Val Ile Phe
515 520 525

His Arg Gly Asp His Val Trp Asp Gly Asn Ser Phe Asp Ser Lys Phe
530 535 540

Val Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu Glu Asp Thr Ile Leu
545 550 555 560

Val Ile Asp Pro Asn Asn Ala Ala Val Leu Gln Ser Ser Gly Lys Asn
565 570 575

Leu Phe Tyr Leu Pro His Gly Leu Ser Ile Asp Lys Asp Gly Asn Tyr
580 585 590

Trp Val Thr Asp Val Ala Leu His Gln Val Phe Lys Leu Asp Pro Asn

595

600

605

Asn Lys Glu Gly Pro Val Leu Ile Leu Gly Arg Ser Met Gln Pro Gly
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Ser Asp Gln Asn His Phe Cys Gln Pro Thr Asp Val Ala Val Asp Pro
 625 630 635 640

Gly Thr Gly Ala Ile Tyr Val Ser Asp Gly Tyr Cys Asn Ser Arg Ile
 645 650 655

Val Gln Phe Ser Pro Ser Gly Lys Phe Ile Thr Gln Trp Gly Glu Glu
 660 665 670

Ser Ser Gly Ser Ser Pro Leu Pro Gly Gln Phe Thr Val Pro His Ser
 675 680 685

Leu Ala Leu Val Pro Leu Leu Gly Gln Leu Cys Val Ala Asp Arg Glu
 690 695 700

Asn Gly Arg Ile Gln Cys Phe Lys Thr Asp Thr Lys Glu Phe Val Arg
 705 710 715 720

Glu Ile Lys His Ser Ser Phe Gly Arg Asn Val Phe Ala Ile Ser Tyr
 725 730 735

Ile Pro Gly Leu Leu Phe Ala Val Asn Gly Lys Pro His Phe Gly Asp
 740 745 750

Gln Glu Pro Val Gln Gly Phe Val Met Asn Phe Ser Asn Gly Glu Ile
 755 760 765

Ile Asp Ile Phe Lys Pro Val Arg Lys His Phe Asp Met Pro His Asp
 770 775 780

Ile Val Ala Ser Glu Asp Gly Thr Val Tyr Ile Gly Asp Ala His Thr
 785 790 795 800

Asn Thr Val Trp Lys Phe Thr Leu Thr Glu Lys Leu Glu His Arg Ser
805 810 815

Val Lys Lys Ala Gly Ile Glu Val Gln Glu Ile Lys Asp Ser Glu His
820 825 830

Lys Leu Glu Thr Ser Ser Gly Arg Val Leu Gly Arg Phe Arg Gly Lys
835 840 845

Gly Ser Gly Gly Leu Asn Leu Gly Asn Phe Phe Ala Ser Arg Lys Gly
850 855 860

Tyr Ser Arg Lys Gly Phe Asp Arg Leu Ser Thr Glu Gly Ser Asp Gln
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Glu Lys Glu Asp Asp Gly Ser Glu Ser Glu Glu Glu Tyr Ser Ala Pro
885 890 895

Leu Pro Ala Leu Ala Pro Ser Ser Ser
900 905

<210> 4
<211> 887
<212> PRT
<213> Homo sapiens

<400> 4

Met Ala Gly Arg Val Pro Ser Leu Leu Val Leu Leu Val Phe Pro Ser
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Ser Cys Leu Ala Phe Arg Ser Pro Leu Ser Val Phe Lys Arg Phe Lys
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Glu Thr Thr Arg Pro Phe Ser Asn Glu Cys Leu Gly Thr Thr Arg Pro
35 40 45

Val Val Pro Ile Asp Ser Ser Asp Phe Ala Leu Asp Ile Arg Met Pro
50 55 60

Gly Val Thr Pro Lys Gln Ser Asp Thr Tyr Phe Cys Met Ser Met Arg
65 70 75 80

Ile Pro Val Asp Glu Glu Ala Phe Val Ile Asp Phe Lys Pro Arg Ala
85 90 95

Ser Met Asp Thr Val His His Met Leu Leu Phe Gly Cys Asn Met Pro
100 105 110

Ser Ser Thr Gly Ser Tyr Trp Phe Cys Asp Glu Gly Thr Cys Thr Asp
115 120 125

Lys Ala Asn Ile Leu Tyr Ala Trp Ala Arg Asn Ala Pro Pro Thr Arg
130 135 140

Leu Pro Lys Gly Val Gly Phe Arg Val Gly Gly Glu Thr Gly Ser Lys
145 150 155 160

Tyr Phe Val Leu Gln Val His Tyr Gly Asp Ile Ser Ala Phe Arg Asp
165 170 175

Asn Asn Lys Asp Cys Ser Gly Val Ser Leu His Leu Thr Arg Leu Pro
180 185 190

Gln Pro Leu Ile Ala Gly Met Tyr Leu Met Met Ser Val Asp Thr Val
195 200 205

Ile Pro Ala Gly Glu Lys Val Val Asn Ser Asp Ile Ser Cys His Tyr
210 215 220

Lys Asn Tyr Pro Met His Val Phe Ala Tyr Arg Val His Thr His His
225 230 235 240

Leu Gly Lys Val Val Ser Gly Tyr Arg Val Arg Asn Gly Gln Trp Thr
245 250 255

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

Gly His Pro Val Asp Val Ser Phe Gly Asp Leu Leu Ala Ala Arg Cys
275 280 285

Val Phe Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly Gly Thr
290 295 300

Ser Ser Asp Glu Met Cys Asn Leu Tyr Ile Met Tyr Tyr Met Glu Ala
305 310 315 320

Lys His Ala Val Ser Phe Met Thr Cys Thr Gln Asn Val Ala Pro Asp
325 330 335

Met Phe Arg Thr Ile Pro Pro Glu Ala Asn Ile Pro Ile Pro Val Lys
340 345 350

Ser Asp Met Val Met Met His Glu His His Lys Glu Thr Glu Tyr Lys
355 360 365

Asp Lys Ile Pro Leu Leu Gln Gln Pro Lys Arg Glu Glu Glu Glu Val
370 375 380

Leu Asp Gln Gly Asp Phe Tyr Ser Leu Leu Ser Lys Leu Leu Gly Glu
385 390 395 400

Arg Glu Asp Val Val His Val His Lys Tyr Asn Pro Thr Glu Lys Ala
405 410 415

Glu Ser Glu Ser Asp Leu Val Ala Glu Ile Ala Asn Val Val Gln Lys
420 425 430

Lys Asp Leu Gly Arg Ser Asp Ala Arg Glu Gly Ala Glu His Glu Arg
435 440 445

Gly Asn Ala Ile Leu Val Arg Asp Arg Ile His Lys Phe His Arg Leu
450 455 460

Val Ser Thr Leu Arg Pro Pro Glu Ser Arg Val Phe Ser Leu Gln Gln
465 470 475 480

Pro Pro Pro Gly Glu Gly Thr Trp Glu Pro Glu His Thr Gly Asp Phe
485 490 495

His Met Glu Glu Ala Leu Asp Trp Pro Gly Val Tyr Leu Leu Pro Gly
500 505 510

Gln Val Ser Gly Val Ala Leu Asp Pro Lys Asn Asn Leu Val Ile Phe
515 520 525

His Arg Gly Asp His Val Trp Asp Gly Asn Ser Phe Asp Ser Lys Phe
530 535 540

Val Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu Glu Asp Thr Ile Leu
545 550 555 560

Val Ile Asp Pro Asn Asn Ala Ala Val Leu Gln Ser Ser Gly Lys Asn
565 570 575

Leu Phe Tyr Leu Pro His Gly Leu Ser Ile Asp Lys Asp Gly Asn Tyr
580 585 590

Trp Val Thr Asp Val Ala Leu His Gln Val Phe Lys Leu Asp Pro Asn
595 600 605

Asn Lys Glu Gly Pro Val Leu Ile Leu Gly Arg Ser Met Gln Pro Gly
610 615 620

Ser Asp Gln Asn His Phe Cys Gln Pro Thr Asp Val Ala Val Asp Pro
625 630 635 640

Gly Thr Gly Ala Ile Tyr Val Ser Asp Gly Tyr Cys Asn Ser Arg Ile
645 650 655

Val Gln Phe Ser Pro Ser Gly Lys Phe Ile Thr Gln Trp Gly Glu Glu
660 665 670

Ser Ser Gly Ser Ser Pro Leu Pro Gly Gln Phe Thr Val Pro His Ser
675 680 685

Leu Ala Leu Val Pro Leu Leu Gly Gln Leu Cys Val Ala Asp Arg Glu
690 695 700

Asn Gly Arg Ile Gln Cys Phe Lys Thr Asp Thr Lys Glu Phe Val Arg
705 710 715 720

Glu Ile Lys His Ser Ser Phe Gly Arg Asn Val Phe Ala Ile Ser Tyr
725 730 735

Ile Pro Gly Leu Leu Phe Ala Val Asn Gly Lys Pro His Phe Gly Asp
740 745 750

Gln Glu Pro Val Gln Gly Phe Val Met Asn Phe Ser Asn Gly Glu Ile
755 760 765

Ile Asp Ile Phe Lys Pro Val Arg Lys His Phe Asp Met Pro His Asp
770 775 780

Ile Val Ala Ser Glu Asp Gly Thr Val Tyr Ile Gly Asp Ala His Thr
785 790 795 800

Asn Thr Val Trp Lys Phe Thr Leu Thr Glu Lys Leu Glu His Arg Ser
805 810 815

Val Lys Lys Ala Gly Ile Glu Val Gln Glu Ile Lys Gly Lys Gly Ser
820 825 830

Gly Gly Leu Asn Leu Gly Asn Phe Phe Ala Ser Arg Lys Gly Tyr Ser
835 840 845

Arg Lys Gly Phe Asp Arg Leu Ser Thr Glu Gly Ser Asp Gln Glu Lys
850 855 860

Glu Asp Asp Gly Ser Glu Ser Glu Glu Glu Tyr Ser Ala Pro Leu Pro
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Ala Leu Ala Pro Ser Ser Ser
885

<210> 5
<211> 974
<212> PRT
<213> Homo sapiens

<400> 5

Met Ala Gly Arg Val Pro Ser Leu Leu Val Leu Leu Val Phe Pro Ser
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Ser Cys Leu Ala Phe Arg Ser Pro Leu Ser Val Phe Lys Arg Phe Lys
20 25 30

Glu Thr Thr Arg Pro Phe Ser Asn Glu Cys Leu Gly Thr Thr Arg Pro
35 40 45

Val Val Pro Ile Asp Ser Ser Asp Phe Ala Leu Asp Ile Arg Met Pro
50 55 60

Gly Val Thr Pro Lys Gln Ser Asp Thr Tyr Phe Cys Met Ser Met Arg
65 70 75 80

Ile Pro Val Asp Glu Glu Ala Phe Val Ile Asp Phe Lys Pro Arg Ala
85 90 95

Ser Met Asp Thr Val His His Met Leu Leu Phe Gly Cys Asn Met Pro
100 105 110

Ser Ser Thr Gly Ser Tyr Trp Phe Cys Asp Glu Gly Thr Cys Thr Asp
115 120 125

Lys Ala Asn Ile Leu Tyr Ala Trp Ala Arg Asn Ala Pro Pro Thr Arg

130

135

140

Leu Pro Lys Gly Val Gly Phe Arg Val Gly Gly Glu Thr Gly Ser Lys
 145 150 155 160

Tyr Phe Val Leu Gln Val His Tyr Gly Asp Ile Ser Ala Phe Arg Asp
 165 170 175

Asn Asn Lys Asp Cys Ser Gly Val Ser Leu His Leu Thr Arg Leu Pro
 180 185 190

Gln Pro Leu Ile Ala Gly Met Tyr Leu Met Met Ser Val Asp Thr Val
 195 200 205

Ile Pro Ala Gly Glu Lys Val Val Asn Ser Asp Ile Ser Cys His Tyr
 210 215 220

Lys Asn Tyr Pro Met His Val Phe Ala Tyr Arg Val His Thr His His
 225 230 235 240

Leu Gly Lys Val Val Ser Gly Tyr Arg Val Arg Asn Gly Gln Trp Thr
 245 250 255

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

Gly His Pro Val Asp Val Ser Phe Gly Asp Leu Leu Ala Ala Arg Cys
 275 280 285

Val Phe Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly Gly Thr
 290 295 300

Ser Ser Asp Glu Met Cys Asn Leu Tyr Ile Met Tyr Tyr Met Glu Ala
 305 310 315 320

Lys His Ala Val Ser Phe Met Thr Cys Thr Gln Asn Val Ala Pro Asp
 325 330 335

Met Phe Arg Thr Ile Pro Pro Glu Ala Asn Ile Pro Ile Pro Val Lys
340 345 350

Ser Asp Met Val Met Met His Glu His His Lys Glu Thr Glu Tyr Lys
355 360 365

Asp Lys Ile Pro Leu Leu Gln Gln Pro Lys Arg Glu Glu Glu Glu Val
370 375 380

Leu Asp Gln Gly Asp Phe Tyr Ser Leu Leu Ser Lys Leu Leu Gly Glu
385 390 395 400

Arg Glu Asp Val Val His Val His Lys Tyr Asn Pro Thr Glu Lys Ala
405 410 415

Glu Ser Glu Ser Asp Leu Val Ala Glu Ile Ala Asn Val Val Gln Lys
420 425 430

Lys Asp Leu Gly Arg Ser Asp Ala Arg Glu Gly Ala Glu His Glu Arg
435 440 445

Gly Asn Ala Ile Leu Val Arg Asp Arg Ile His Lys Phe His Arg Leu
450 455 460

Val Ser Thr Leu Arg Pro Pro Glu Ser Arg Val Phe Ser Leu Gln Gln
465 470 475 480

Pro Pro Pro Gly Glu Gly Thr Trp Glu Pro Glu His Thr Gly Asp Phe
485 490 495

His Met Glu Glu Ala Leu Asp Trp Pro Gly Val Tyr Leu Leu Pro Gly
500 505 510

Gln Val Ser Gly Val Ala Leu Asp Pro Lys Asn Asn Leu Val Ile Phe
515 520 525

His Arg Gly Asp His Val Trp Asp Gly Asn Ser Phe Asp Ser Lys Phe

530

535

540

Val Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu Glu Asp Thr Ile Leu
 545 550 555 560

Val Ile Asp Pro Asn Asn Ala Ala Val Leu Gln Ser Ser Gly Lys Asn
 565 570 575

Leu Phe Tyr Leu Pro His Gly Leu Ser Ile Asp Lys Asp Gly Asn Tyr
 580 585 590

Trp Val Thr Asp Val Ala Leu His Gln Val Phe Lys Leu Asp Pro Asn
 595 600 605

Asn Lys Glu Gly Pro Val Leu Ile Leu Gly Arg Ser Met Gln Pro Gly
 610 615 620

Ser Asp Gln Asn His Phe Cys Gln Pro Thr Asp Val Ala Val Asp Pro
 625 630 635 640

Gly Thr Gly Ala Ile Tyr Val Ser Asp Gly Tyr Cys Asn Ser Arg Ile
 645 650 655

Val Gln Phe Ser Pro Ser Gly Lys Phe Ile Thr Gln Trp Gly Glu Glu
 660 665 670

Ser Ser Gly Ser Ser Pro Leu Pro Gly Gln Phe Thr Val Pro His Ser
 675 680 685

Leu Ala Leu Val Pro Leu Leu Gly Gln Leu Cys Val Ala Asp Arg Glu
 690 695 700

Asn Gly Arg Ile Gln Cys Phe Lys Thr Asp Thr Lys Glu Phe Val Arg
 705 710 715 720

Glu Ile Lys His Ser Ser Phe Gly Arg Asn Val Phe Ala Ile Ser Tyr
 725 730 735

Ile Pro Gly Leu Leu Phe Ala Val Asn Gly Lys Pro His Phe Gly Asp
740 745 750

Gln Glu Pro Val Gln Gly Phe Val Met Asn Phe Ser Asn Gly Glu Ile
755 760 765

Ile Asp Ile Phe Lys Pro Val Arg Lys His Phe Asp Met Pro His Asp
770 775 780

Ile Val Ala Ser Glu Asp Gly Thr Val Tyr Ile Gly Asp Ala His Thr
785 790 795 800

Asn Thr Val Trp Lys Phe Thr Leu Thr Glu Lys Leu Glu His Arg Ser
805 810 815

Val Lys Lys Ala Gly Ile Glu Val Gln Glu Ile Lys Glu Ala Glu Ala
820 825 830

Val Val Glu Thr Lys Met Glu Asn Lys Pro Thr Ser Ser Glu Leu Gln
835 840 845

Lys Met Gln Glu Lys Gln Lys Leu Ile Lys Glu Pro Gly Ser Gly Val
850 855 860

Pro Val Val Leu Ile Thr Thr Leu Leu Val Ile Pro Val Val Val Leu
865 870 875 880

Leu Ala Ile Ala Ile Phe Ile Arg Trp Lys Lys Ser Arg Ala Phe Gly
885 890 895

Ala Asp Ser Glu His Lys Leu Glu Thr Ser Ser Gly Arg Val Leu Gly
900 905 910

Arg Phe Arg Gly Lys Gly Ser Gly Gly Leu Asn Leu Gly Asn Phe Phe
915 920 925

Ala Ser Arg Lys Gly Tyr Ser Arg Lys Gly Phe Asp Arg Leu Ser Thr

930

935

940

Glu Gly Ser Asp Gln Glu Lys Glu Asp Asp Gly Ser Glu Ser Glu Glu
 945 950 955 960

Glu Tyr Ser Ala Pro Leu Pro Ala Leu Ala Pro Ser Ser Ser
 965 970

<210> 6
 <211> 955
 <212> PRT
 <213> Homo sapiens

<400> 6

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

Ser Cys Leu Ala Phe Arg Ser Pro Leu Ser Val Phe Lys Arg Phe Lys
 20 25 30

Glu Thr Thr Arg Pro Phe Ser Asn Glu Cys Leu Gly Thr Thr Arg Pro
 35 40 45

Val Val Pro Ile Asp Ser Ser Asp Phe Ala Leu Asp Ile Arg Met Pro
 50 55 60

Gly Val Thr Pro Lys Gln Ser Asp Thr Tyr Phe Cys Met Ser Met Arg
 65 70 75 80

Ile Pro Val Asp Glu Glu Ala Phe Val Ile Asp Phe Lys Pro Arg Ala
 85 90 95

Ser Met Asp Thr Val His His Met Leu Leu Phe Gly Cys Asn Met Pro
 100 105 110

Ser Ser Thr Gly Ser Tyr Trp Phe Cys Asp Glu Gly Thr Cys Thr Asp
 115 120 125

Lys Ala Asn Ile Leu Tyr Ala Trp Ala Arg Asn Ala Pro Pro Thr Arg
130 135 140

Leu Pro Lys Gly Val Gly Phe Arg Val Gly Gly Glu Thr Gly Ser Lys
145 150 155 160

Tyr Phe Val Leu Gln Val His Tyr Gly Asp Ile Ser Ala Phe Arg Asp
165 170 175

Asn Asn Lys Asp Cys Ser Gly Val Ser Leu His Leu Thr Arg Leu Pro
180 185 190

Gln Pro Leu Ile Ala Gly Met Tyr Leu Met Met Ser Val Asp Thr Val
195 200 205

Ile Pro Ala Gly Glu Lys Val Val Asn Ser Asp Ile Ser Cys His Tyr
210 215 220

Lys Asn Tyr Pro Met His Val Phe Ala Tyr Arg Val His Thr His His
225 230 235 240

Leu Gly Lys Val Val Ser Gly Tyr Arg Val Arg Asn Gly Gln Trp Thr
245 250 255

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

Gly His Pro Val Asp Val Ser Phe Gly Asp Leu Leu Ala Ala Arg Cys
275 280 285

Val Phe Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly Gly Thr
290 295 300

Ser Ser Asp Glu Met Cys Asn Leu Tyr Ile Met Tyr Tyr Met Glu Ala
305 310 315 320

Lys His Ala Val Ser Phe Met Thr Cys Thr Gln Asn Val Ala Pro Asp
325 330 335

Met Phe Arg Thr Ile Pro Pro Glu Ala Asn Ile Pro Ile Pro Val Lys
340 345 350

Ser Asp Met Val Met Met His Glu His His Lys Glu Thr Glu Tyr Lys
355 360 365

Asp Lys Ile Pro Leu Leu Gln Gln Pro Lys Arg Glu Glu Glu Glu Val
370 375 380

Leu Asp Gln Gly Asp Phe Tyr Ser Leu Leu Ser Lys Leu Leu Gly Glu
385 390 395 400

Arg Glu Asp Val Val His Val His Lys Tyr Asn Pro Thr Glu Lys Ala
405 410 415

Glu Ser Glu Ser Asp Leu Val Ala Glu Ile Ala Asn Val Val Gln Lys
420 425 430

Lys Asp Leu Gly Arg Ser Asp Ala Arg Glu Gly Ala Glu His Glu Arg
435 440 445

Gly Asn Ala Ile Leu Val Arg Asp Arg Ile His Lys Phe His Arg Leu
450 455 460

Val Ser Thr Leu Arg Pro Pro Glu Ser Arg Val Phe Ser Leu Gln Gln
465 470 475 480

Pro Pro Pro Gly Glu Gly Thr Trp Glu Pro Glu His Thr Gly Asp Phe
485 490 495

His Met Glu Glu Ala Leu Asp Trp Pro Gly Val Tyr Leu Leu Pro Gly
500 505 510

Gln Val Ser Gly Val Ala Leu Asp Pro Lys Asn Asn Leu Val Ile Phe
515 520 525

His Arg Gly Asp His Val Trp Asp Gly Asn Ser Phe Asp Ser Lys Phe
530 535 540

Val Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu Glu Asp Thr Ile Leu
545 550 555 560

Val Ile Asp Pro Asn Asn Ala Ala Val Leu Gln Ser Ser Gly Lys Asn
565 570 575

Leu Phe Tyr Leu Pro His Gly Leu Ser Ile Asp Lys Asp Gly Asn Tyr
580 585 590

Trp Val Thr Asp Val Ala Leu His Gln Val Phe Lys Leu Asp Pro Asn
595 600 605

Asn Lys Glu Gly Pro Val Leu Ile Leu Gly Arg Ser Met Gln Pro Gly
610 615 620

Ser Asp Gln Asn His Phe Cys Gln Pro Thr Asp Val Ala Val Asp Pro
625 630 635 640

Gly Thr Gly Ala Ile Tyr Val Ser Asp Gly Tyr Cys Asn Ser Arg Ile
645 650 655

Val Gln Phe Ser Pro Ser Gly Lys Phe Ile Thr Gln Trp Gly Glu Glu
660 665 670

Ser Ser Gly Ser Ser Pro Leu Pro Gly Gln Phe Thr Val Pro His Ser
675 680 685

Leu Ala Leu Val Pro Leu Leu Gly Gln Leu Cys Val Ala Asp Arg Glu
690 695 700

Asn Gly Arg Ile Gln Cys Phe Lys Thr Asp Thr Lys Glu Phe Val Arg
705 710 715 720

Glu Ile Lys His Ser Ser Phe Gly Arg Asn Val Phe Ala Ile Ser Tyr
725 730 735

Ile Pro Gly Leu Leu Phe Ala Val Asn Gly Lys Pro His Phe Gly Asp
740 745 750

Gln Glu Pro Val Gln Gly Phe Val Met Asn Phe Ser Asn Gly Glu Ile
755 760 765

Ile Asp Ile Phe Lys Pro Val Arg Lys His Phe Asp Met Pro His Asp
770 775 780

Ile Val Ala Ser Glu Asp Gly Thr Val Tyr Ile Gly Asp Ala His Thr
785 790 795 800

Asn Thr Val Trp Lys Phe Thr Leu Thr Glu Lys Leu Glu His Arg Ser
805 810 815

Val Lys Lys Ala Gly Ile Glu Val Gln Glu Ile Lys Glu Ala Glu Ala
820 825 830

Val Val Glu Thr Lys Met Glu Asn Lys Pro Thr Ser Ser Glu Leu Gln
835 840 845

Lys Met Gln Glu Lys Gln Lys Leu Ile Lys Glu Pro Gly Ser Gly Val
850 855 860

Pro Val Val Leu Ile Thr Thr Leu Leu Val Ile Pro Val Val Val Leu
865 870 875 880

Leu Ala Ile Ala Ile Phe Ile Arg Trp Lys Lys Ser Arg Ala Phe Gly
885 890 895

Gly Lys Gly Ser Gly Gly Leu Asn Leu Gly Asn Phe Phe Ala Ser Arg
900 905 910

Lys Gly Tyr Ser Arg Lys Gly Phe Asp Arg Leu Ser Thr Glu Gly Ser
915 920 925

Asp Gln Glu Lys Glu Asp Asp Gly Ser Glu Ser Glu Glu Glu Tyr Ser
930 935 940

Ala Pro Leu Pro Ala Leu Ala Pro Ser Ser Ser
945 950 955

<210> 7
<211> 464
<212> PRT
<213> Homo sapiens

<400> 7

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

Arg Pro Val Val Pro Ile Asp Ser Ser Asp Phe Ala Leu Asp Ile Arg
20 25 30

Met Pro Gly Val Thr Pro Lys Gln Ser Asp Thr Tyr Phe Cys Met Ser
35 40 45

Met Arg Ile Pro Val Asp Glu Glu Ala Phe Val Ile Asp Phe Lys Pro
50 55 60

Arg Ala Ser Met Asp Thr Val His His Met Leu Leu Phe Gly Cys Asn
65 70 75 80

Met Pro Ser Ser Thr Gly Ser Tyr Trp Phe Cys Asp Glu Gly Thr Cys
85 90 95

Thr Asp Lys Ala Asn Ile Leu Tyr Ala Trp Ala Arg Asn Ala Pro Pro
100 105 110

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

Ser Lys Tyr Phe Val Leu Gln Val His Tyr Gly Asp Ile Ser Ala Phe
130 135 140

Arg Asp Asn Asn Lys Asp Cys Ser Gly Val Ser Leu His Leu Thr Arg
145 150 155 160

Leu Pro Gln Pro Leu Ile Ala Gly Met Tyr Leu Met Met Ser Val Asp
165 170 175

Thr Val Ile Pro Ala Gly Glu Lys Val Val Asn Ser Asp Ile Ser Cys
180 185 190

His Tyr Lys Asn Tyr Pro Met His Val Phe Ala Tyr Arg Val His Thr
195 200 205

His His Leu Gly Lys Val Val Ser Gly Tyr Arg Val Arg Asn Gly Gln
210 215 220

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

Pro Val Gly His Pro Val Asp Val Ser Phe Gly Asp Leu Leu Ala Ala
245 250 255

Arg Cys Val Phe Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly
260 265 270

Gly Thr Ser Ser Asp Glu Met Cys Asn Leu Tyr Ile Met Tyr Tyr Met
275 280 285

Glu Ala Lys His Ala Val Ser Phe Met Thr Cys Thr Gln Asn Val Ala
290 295 300

Pro Asp Met Phe Arg Thr Ile Pro Pro Glu Ala Asn Ile Pro Ile Pro
305 310 315 320

Val Lys Ser Asp Met Val Met Met His Glu His His Lys Glu Thr Glu
325 330 335

Tyr Lys Asp Lys Ile Pro Leu Leu Gln Gln Pro Lys Arg Glu Glu Glu

340

345

350

Glu Val Leu Asp Gln Gly Asp Phe Tyr Ser Leu Leu Ser Lys Leu Leu
 355 360 365

Gly Glu Arg Glu Asp Val Val His Val His Lys Tyr Asn Pro Thr Glu
 370 375 380

Lys Ala Glu Ser Glu Ser Asp Leu Val Ala Glu Ile Ala Asn Val Val
 385 390 395 400

Gln Lys Lys Asp Leu Gly Arg Ser Asp Ala Arg Glu Gly Ala Glu His
 405 410 415

Glu Arg Gly Asn Ala Ile Leu Val Arg Asp Arg Ile His Lys Phe His
 420 425 430

Arg Leu Val Ser Thr Leu Arg Pro Pro Glu Ser Arg Val Phe Ser Leu
 435 440 445

Gln Gln Pro Pro Pro Gly Glu Gly Thr Trp Glu Pro Glu His Thr Gly
 450 455 460

<210> 8

<211> 323

<212> PRT

<213> Homo sapiens

<400> 8

Asp Phe His Met Glu Glu Ala Leu Asp Trp Pro Gly Val Tyr Leu Leu
 1 5 10 15

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

Ile Phe His Arg Gly Asp His Val Trp Asp Gly Asn Ser Phe Asp Ser
 35 40 45

Lys Phe Val Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu Glu Asp Thr
50 55 60

Ile Leu Val Ile Asp Pro Asn Asn Ala Ala Val Leu Gln Ser Ser Gly
65 70 75 80

Lys Asn Leu Phe Tyr Leu Pro His Gly Leu Ser Ile Asp Lys Asp Gly
85 90 95

Asn Tyr Trp Val Thr Asp Val Ala Leu His Gln Val Phe Lys Leu Asp
100 105 110

Pro Asn Asn Lys Glu Gly Pro Val Leu Ile Leu Gly Arg Ser Met Gln
115 120 125

Pro Gly Ser Asp Gln Asn His Phe Cys Gln Pro Thr Asp Val Ala Val
130 135 140

Asp Pro Gly Thr Gly Ala Ile Tyr Val Ser Asp Gly Tyr Cys Asn Ser
145 150 155 160

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

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

His Ser Leu Ala Leu Val Pro Leu Leu Gly Gln Leu Cys Val Ala Asp
195 200 205

Arg Glu Asn Gly Arg Ile Gln Cys Phe Lys Thr Asp Thr Lys Glu Phe
210 215 220

Val Arg Glu Ile Lys His Ser Ser Phe Gly Arg Asn Val Phe Ala Ile
225 230 235 240

Ser Tyr Ile Pro Gly Leu Leu Phe Ala Val Asn Gly Lys Pro His Phe
245 250 255

Gly Asp Gln Glu Pro Val Gln Gly Phe Val Met Asn Phe Ser Asn Gly
260 265 270

Glu Ile Ile Asp Ile Phe Lys Pro Val Arg Lys His Phe Asp Met Pro
275 280 285

His Asp Ile Val Ala Ser Glu Asp Gly Thr Val Tyr Ile Gly Asp Ala
290 295 300

His Thr Asn Thr Val Trp Lys Phe Thr Leu Thr Glu Lys Leu Glu His
305 310 315 320

Arg Ser Val

<210> 9
<211> 20
<212> PRT
<213> Homo sapiens

<400> 9

Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1 5 10 15

Tyr Ser Phe Arg
20

<210> 10
<211> 814
<212> PRT
<213> Homo sapiens

<400> 10

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

Ser Asn Glu Cys Leu Gly Thr Thr Arg Pro Val Val Pro Ile Asp Ser
20 25 30

Ser Asp Phe Ala Leu Asp Ile Arg Met Pro Gly Val Thr Pro Lys Gln
35 40 45

Ser Asp Thr Tyr Phe Cys Met Ser Met Arg Ile Pro Val Asp Glu Glu
50 55 60

Ala Phe Val Ile Asp Phe Lys Pro Arg Ala Ser Met Asp Thr Val His
65 70 75 80

His Met Leu Leu Phe Gly Cys Asn Met Pro Ser Ser Thr Gly Ser Tyr
85 90 95

Trp Phe Cys Asp Glu Gly Thr Cys Thr Asp Lys Ala Asn Ile Leu Tyr
100 105 110

Ala Trp Ala Arg Asn Ala Pro Pro Thr Arg Leu Pro Lys Gly Val Gly
115 120 125

Phe Arg Val Gly Gly Glu Thr Gly Ser Lys Tyr Phe Val Leu Gln Val
130 135 140

His Tyr Gly Asp Ile Ser Ala Phe Arg Asp Asn Asn Lys Asp Cys Ser
145 150 155 160

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

Met Tyr Leu Met Met Ser Val Asp Thr Val Ile Pro Ala Gly Glu Lys
180 185 190

Val Val Asn Ser Asp Ile Ser Cys His Tyr Lys Asn Tyr Pro Met His
195 200 205

Val Phe Ala Tyr Arg Val His Thr His His Leu Gly Lys Val Val Ser
210 215 220

Gly Tyr Arg Val Arg Asn Gly Gln Trp Thr Leu Ile Gly Arg Gln Ser
225 230 235 240

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

Ser Phe Gly Asp Leu Leu Ala Ala Arg Cys Val Phe Thr Gly Glu Gly
260 265 270

Arg Thr Glu Ala Thr His Ile Gly Gly Thr Ser Ser Asp Glu Met Cys
275 280 285

Asn Leu Tyr Ile Met Tyr Tyr Met Glu Ala Lys His Ala Val Ser Phe
290 295 300

Met Thr Cys Thr Gln Asn Val Ala Pro Asp Met Phe Arg Thr Ile Pro
305 310 315 320

Pro Glu Ala Asn Ile Pro Ile Pro Val Lys Ser Asp Met Val Met Met
325 330 335

His Glu His His Lys Glu Thr Glu Tyr Lys Asp Lys Ile Pro Leu Leu
340 345 350

Gln Gln Pro Lys Arg Glu Glu Glu Glu Val Leu Asp Gln Gly Asp Phe
355 360 365

Tyr Ser Leu Leu Ser Lys Leu Leu Gly Glu Arg Glu Asp Val Val His
370 375 380

Val His Lys Tyr Asn Pro Thr Glu Lys Ala Glu Ser Glu Ser Asp Leu
385 390 395 400

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

Asp Ala Arg Glu Gly Ala Glu His Glu Arg Gly Asn Ala Ile Leu Val
420 425 430

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

Pro Glu Ser Arg Val Phe Ser Leu Gln Gln Pro Pro Pro Gly Glu Gly
450 455 460

Thr Trp Glu Pro Glu His Thr Gly Asp Phe His Met Glu Glu Ala Leu
465 470 475 480

Asp Trp Pro Gly Val Tyr Leu Leu Pro Gly Gln Val Ser Gly Val Ala
485 490 495

Leu Asp Pro Lys Asn Asn Leu Val Ile Phe His Arg Gly Asp His Val
500 505 510

Trp Asp Gly Asn Ser Phe Asp Ser Lys Phe Val Tyr Gln Gln Ile Gly
515 520 525

Leu Gly Pro Ile Glu Glu Asp Thr Ile Leu Val Ile Asp Pro Asn Asn
530 535 540

Ala Ala Val Leu Gln Ser Ser Gly Lys Asn Leu Phe Tyr Leu Pro His
545 550 555 560

Gly Leu Ser Ile Asp Lys Asp Gly Asn Tyr Trp Val Thr Asp Val Ala
565 570 575

Leu His Gln Val Phe Lys Leu Asp Pro Asn Asn Lys Glu Gly Pro Val
580 585 590

Leu Ile Leu Gly Arg Ser Met Gln Pro Gly Ser Asp Gln Asn His Phe
595 600 605

Cys Gln Pro Thr Asp Val Ala Val Asp Pro Gly Thr Gly Ala Ile Tyr
610 615 620

Val Ser Asp Gly Tyr Cys Asn Ser Arg Ile Val Gln Phe Ser Pro Ser
625 630 635 640

Gly Lys Phe Ile Thr Gln Trp Gly Glu Glu Ser Ser Gly Ser Ser Pro
645 650 655

Leu Pro Gly Gln Phe Thr Val Pro His Ser Leu Ala Leu Val Pro Leu
660 665 670

Leu Gly Gln Leu Cys Val Ala Asp Arg Glu Asn Gly Arg Ile Gln Cys
675 680 685

Phe Lys Thr Asp Thr Lys Glu Phe Val Arg Glu Ile Lys His Ser Ser
690 695 700

Phe Gly Arg Asn Val Phe Ala Ile Ser Tyr Ile Pro Gly Leu Leu Phe
705 710 715 720

Ala Val Asn Gly Lys Pro His Phe Gly Asp Gln Glu Pro Val Gln Gly
725 730 735

Phe Val Met Asn Phe Ser Asn Gly Glu Ile Ile Asp Ile Phe Lys Pro
740 745 750

Val Arg Lys His Phe Asp Met Pro His Asp Ile Val Ala Ser Glu Asp
755 760 765

Gly Thr Val Tyr Ile Gly Asp Ala His Thr Asn Thr Val Trp Lys Phe
770 775 780

Thr Leu Thr Glu Lys Leu Glu His Arg Ser Val Lys Lys Ala Gly Ile
785 790 795 800

Glu Val Gln Glu Ile Lys Glu Ala Glu Ala Val Val Gly Ser
805 810

<210> 11
<211> 15

<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 11

Cys	Leu	Gly	Thr	Thr	Arg	Pro	Val	Val	Pro	Ile	Asp	Ser	Ser	Asp
1				5					10					15

<210> 12
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 12

Cys	Asn	Met	Pro	Ser	Ser	Thr	Gly	Ser	Tyr	Trp	Phe	Cys	Asp	Glu	Gly
1				5					10					15	

Thr	Cys	Thr	Asp
			20

<210> 13
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 13

Tyr	Gly	Asp	Ile	Ser	Ala	Phe	Arg	Asp	Asn	Asn	Lys	Asp
1				5					10			

<210> 14
<211> 13
<212> PRT
<213> Artificial Sequence

<220>

<223> Peptide

<400> 14

Ser Val Asp Thr Val Ile Pro Ala Gly Glu Lys Val Val
1 5 10

<210> 15

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 15

Cys Thr Gln Asn Val Ala Pro Asp Met Phe Arg Thr Ile Pro
1 5 10

<210> 16

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 16

Thr Gly Glu Gly Arg Thr Glu Ala Thr His Ile Gly Gly Thr Ser Ser
1 5 10 15

Asp Glu Met Cys
20

<210> 17

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 17

Tyr Arg Val His Thr His His Leu Gly Lys Val
1 5 10

<210> 18
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 18

Gln Ser Pro Gln Leu Pro Gln Ala Phe Tyr Pro Val Gly His Pro Val
1 5 10 15

<210> 19
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 19

Arg Gly Asp His Val Trp Asp Gly Asn Ser Phe Asp Ser Lys Phe Val
1 5 10 15

Tyr Gln Gln Ile Gly Leu Gly Pro Ile Glu Glu Asp
20 25

<210> 20
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 20

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

Gln Asn His Phe Cys
20

<210> 21
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 21

Ile Asp Pro Asn Asn Ala Ala Val Leu Gln Ser Ser Gly Lys Asn Leu
1 5 10 15

Phe Tyr

<210> 22
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 22

Asn Gly Lys Pro His Phe Gly Asp Gln Glu Pro Val Gln Gly
1 5 10

<210> 23
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide

<400> 23

Trp Gly Glu Glu Ser Ser Gly Ser Ser Pro Leu Pro Gly Gln Phe Thr
1 5 10 15

Val Pro His

<210> 24

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 24

Cys	Phe	Lys	Thr	Asp	Thr	Lys	Glu	Phe	Val	Arg	Glu	Ile	Lys	His	Ser
1				5					10					15	