

P-54-661-PCT-sequences-asfiled.txt  
SEQUENCE LISTING

<110> UNIVERSITE DE GENEVE

<120> Deletion bearing BARD1 isoforms and use thereof

<130> P-54-661-PCT

<150> US 60/907,432

<151> 2007-04-02

<160> 38

<170> PatentIn version 3.3

<210> 1

<211> 777

<212> PRT

<213> Homo sapiens

<400> 1

Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser  
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly  
20 25 30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu  
35 40 45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly  
50 55 60

Gly Cys Glu His Ile Phe Cys Ser Asn Cys Val Ser Asp Cys Ile Gly  
65 70 75 80

Thr Gly Cys Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys  
85 90 95

Ile Asn Arg Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Leu Arg  
100 105 110

Asn Leu Leu His Asp Asn Glu Leu Ser Asp Leu Lys Glu Asp Lys Pro  
115 120 125

Arg Lys Ser Leu Phe Asn Asp Ala Gly Asn Lys Lys Asn Ser Ile Lys  
130 135 140

Met Trp Phe Ser Pro Arg Ser Lys Lys Val Arg Tyr Val Val Ser Lys  
145 150 155 160

Ala Ser Val Gln Thr Gln Pro Ala Ile Lys Lys Asp Ala Ser Ala Gln  
165 170 175

Gln Asp Ser Tyr Glu Phe Val Ser Pro Ser Pro Pro Ala Asp Val Ser  
180 185 190

P-54-661-PCT-sequences-asfiled.txt

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

P-54-661-PCT-sequences-asfiled.txt

Leu His Glu Ala Cys Asn His Gly His Leu Lys Val Val Glu Leu Leu  
 465 470 475 480  
 Leu Gln His Lys Ala Leu Val Asn Thr Thr Gly Tyr Gln Asn Asp Ser  
 485 490 495  
 Pro Leu His Asp Ala Ala Lys Asn Gly His Val Asp Ile Val Lys Leu  
 500 505 510  
 Leu Leu Ser Tyr Gly Ala Ser Arg Asn Ala Val Asn Ile Phe Gly Leu  
 515 520 525  
 Arg Pro Val Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu Leu Leu  
 530 535 540  
 Leu Pro Glu Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser Val Met  
 545 550 555 560  
 Asn Thr Gly Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly Ser Gly  
 565 570 575  
 Leu Ser Ser Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu  
 580 585 590  
 Lys Ala Lys Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val  
 595 600 605  
 Val Pro Gly Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile  
 610 615 620  
 Leu Asn Gly Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu  
 625 630 635 640  
 Arg Arg Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly  
 645 650 655  
 Pro Arg Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe  
 660 665 670  
 Asp Gly Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys  
 675 680 685  
 Asp Asn Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser  
 690 695 700  
 Arg Lys Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val  
 705 710 715 720  
 Ala Tyr His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr  
 725 730 735

P-54-661-PCT-sequences-asfiled.txt

Ile Ile Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln  
740 745 750

Gly Lys Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met  
755 760 765

Ser Phe Glu Leu Leu Pro Leu Asp Ser  
770 775

<210> 2  
<211> 758  
<212> PRT  
<213> Homo sapiens

<400> 2

Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser  
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly  
20 25 30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu  
35 40 45

Arg Cys Ser Arg Cys Asn Cys Val Ser Asp Cys Ile Gly Thr Gly Cys  
50 55 60

Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys Ile Asn Arg  
65 70 75 80

Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Leu Arg Asn Leu Leu  
85 90 95

His Asp Asn Glu Leu Ser Asp Leu Lys Glu Asp Lys Pro Arg Lys Ser  
100 105 110

Leu Phe Asn Asp Ala Gly Asn Lys Lys Asn Ser Ile Lys Met Trp Phe  
115 120 125

Ser Pro Arg Ser Lys Lys Val Arg Tyr Val Val Ser Lys Ala Ser Val  
130 135 140

Gln Thr Gln Pro Ala Ile Lys Lys Asp Ala Ser Ala Gln Gln Asp Ser  
145 150 155 160

Tyr Glu Phe Val Ser Pro Ser Pro Pro Ala Asp Val Ser Glu Arg Ala  
165 170 175

Lys Lys Ala Ser Ala Arg Ser Gly Lys Lys Gln Lys Lys Lys Thr Leu  
180 185 190

P-54-661-PCT-sequences-asfiled.txt

Ala Glu Ile Asn Gln Lys Trp Asn Leu Glu Ala Glu Lys Glu Asp Gly  
195 200 205

Glu Phe Asp Ser Lys Glu Glu Ser Lys Gln Lys Leu Val Ser Phe Cys  
210 215 220

Ser Gln Pro Ser Val Ile Ser Ser Pro Gln Ile Asn Gly Glu Ile Asp  
225 230 235 240

Leu Leu Ala Ser Gly Ser Leu Thr Glu Ser Glu Cys Phe Gly Ser Leu  
245 250 255

Thr Glu Val Ser Leu Pro Leu Ala Glu Gln Ile Glu Ser Pro Asp Thr  
260 265 270

Lys Ser Arg Asn Glu Val Val Thr Pro Glu Lys Val Cys Lys Asn Tyr  
275 280 285

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

His His Asn Arg Leu Ser Ser Pro Ile Ser Lys Arg Cys Arg Thr Ser  
305 310 315 320

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

Asn Ile Pro Leu Pro Glu Cys Ser Ser Pro Pro Ser Cys Lys Arg Lys  
340 345 350

Val Gly Gly Thr Ser Gly Arg Lys Asn Ser Asn Met Ser Asp Glu Phe  
355 360 365

Ile Ser Leu Ser Pro Gly Thr Pro Pro Ser Thr Leu Ser Ser Ser Ser  
370 375 380

Tyr Arg Gln Val Met Ser Ser Pro Ser Ala Met Lys Leu Leu Pro Asn  
385 390 395 400

Met Ala Val Lys Arg Asn His Arg Gly Glu Thr Leu Leu His Ile Ala  
405 410 415

Ser Ile Lys Gly Asp Ile Pro Ser Val Glu Tyr Leu Leu Gln Asn Gly  
420 425 430

Ser Asp Pro Asn Val Lys Asp His Ala Gly Trp Thr Pro Leu His Glu  
435 440 445

Ala Cys Asn His Gly His Leu Lys Val Val Glu Leu Leu Leu Gln His  
450 455 460

P-54-661-PCT-sequences-asfiled.txt

Lys Ala Leu Val Asn Thr Thr Gly Tyr Gln Asn Asp Ser Pro Leu His  
 465 470 475 480  
 Asp Ala Ala Lys Asn Gly His Val Asp Ile Val Lys Leu Leu Ser  
 485 490 495  
 Tyr Gly Ala Ser Arg Asn Ala Val Asn Ile Phe Gly Leu Arg Pro Val  
 500 505 510  
 Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu Leu Leu Leu Pro Glu  
 515 520 525  
 Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser Val Met Asn Thr Gly  
 530 535 540  
 Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly Ser Gly Leu Ser Ser  
 545 550 555 560  
 Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu Lys Ala Lys  
 565 570 575  
 Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val Val Pro Gly  
 580 585 590  
 Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile Leu Asn Gly  
 595 600 605  
 Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu Arg Arg Lys  
 610 615 620  
 Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg  
 625 630 635 640  
 Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly Cys  
 645 650 655  
 Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp Asn Leu  
 660 665 670  
 Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys Pro  
 675 680 685  
 Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr His  
 690 695 700  
 Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile Tyr  
 705 710 715 720  
 Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys Val  
 725 730 735

P-54-661-PCT-sequences-asfiled.txt

Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe Glu  
740 745 750

Leu Leu Pro Leu Asp Ser  
755

<210> 3  
<211> 680  
<212> PRT  
<213> Homo sapiens

<400> 3

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

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

Lys Ser Leu Phe Asn Asp Ala Gly Asn Lys Lys Asn Ser Ile Lys Met  
35 40 45

Trp Phe Ser Pro Arg Ser Lys Lys Val Arg Tyr Val Val Ser Lys Ala  
50 55 60

Ser Val Gln Thr Gln Pro Ala Ile Lys Lys Asp Ala Ser Ala Gln Gln  
65 70 75 80

Asp Ser Tyr Glu Phe Val Ser Pro Ser Pro Pro Ala Asp Val Ser Glu  
85 90 95

Arg Ala Lys Lys Ala Ser Ala Arg Ser Gly Lys Lys Gln Lys Lys Lys  
100 105 110

Thr Leu Ala Glu Ile Asn Gln Lys Trp Asn Leu Glu Ala Glu Lys Glu  
115 120 125

Asp Gly Glu Phe Asp Ser Lys Glu Glu Ser Lys Gln Lys Leu Val Ser  
130 135 140

Phe Cys Ser Gln Pro Ser Val Ile Ser Ser Pro Gln Ile Asn Gly Glu  
145 150 155 160

Ile Asp Leu Leu Ala Ser Gly Ser Leu Thr Glu Ser Glu Cys Phe Gly  
165 170 175

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

Asp Thr Lys Ser Arg Asn Glu Val Val Thr Pro Glu Lys Val Cys Lys  
195 200 205

P-54-661-PCT-sequences-asfiled.txt

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



P-54-661-PCT-sequences-asfiled.txt

Ser Ser Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu Lys  
485 490 495

Ala Lys Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val Val  
500 505 510

Pro Gly Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile Leu  
515 520 525

Asn Gly Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu Arg  
530 535 540

Arg Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro  
545 550 555 560

Arg Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp  
565 570 575

Gly Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp  
580 585 590

Asn Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg  
595 600 605

Lys Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala  
610 615 620

Tyr His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile  
625 630 635 640

Ile Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly  
645 650 655

Lys Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser  
660 665 670

Phe Glu Leu Leu Pro Leu Asp Ser  
675 680

<210> 4  
<211> 732  
<212> PRT  
<213> Homo sapiens  
<400> 4

Ala Ser Leu Trp Phe Pro Glu Ala Ser Leu Leu Pro Ala Leu Arg Gly  
1 5 10 15

Ala Phe His Pro Lys Ala Gly Arg Cys Arg Ile Ile Gly Ser Arg Gly  
20 25 30

Thr Gly Ser Arg Gly Ser Ala Pro Gly Thr Ser Leu Val Pro Arg Pro  
Page 9

35

40

45

Pro Trp Asn Arg Met Val Ala Val Pro Gly Pro Thr Val Ala Pro Arg  
 50 55 60

Ser Thr Ala Trp Arg Ser Cys Cys Ala Ala Arg Val Asp Leu Lys Glu  
 65 70 75 80

Asp Lys Pro Arg Lys Ser Leu Phe Asn Asp Ala Gly Asn Lys Lys Asn  
 85 90 95

Ser Ile Lys Met Trp Phe Ser Pro Arg Ser Lys Lys Val Arg Tyr Val  
 100 105 110

Val Ser Lys Ala Ser Val Gln Thr Gln Pro Ala Ile Lys Lys Asp Ala  
 115 120 125

Ser Ala Gln Gln Asp Ser Tyr Glu Phe Val Ser Pro Ser Pro Pro Ala  
 130 135 140

Asp Val Ser Glu Arg Ala Lys Lys Ala Ser Ala Arg Ser Gly Lys Lys  
 145 150 155 160

Gln Lys Lys Lys Thr Leu Ala Glu Ile Asn Gln Lys Trp Asn Leu Glu  
 165 170 175

Ala Glu Lys Glu Asp Gly Glu Phe Asp Ser Lys Glu Glu Ser Lys Gln  
 180 185 190

Lys Leu Val Ser Phe Cys Ser Gln Pro Ser Val Ile Ser Ser Pro Gln  
 195 200 205

Ile Asn Gly Glu Ile Asp Leu Leu Ala Ser Gly Ser Leu Thr Glu Ser  
 210 215 220

Glu Cys Phe Gly Ser Leu Thr Glu Val Ser Leu Pro Leu Ala Glu Gln  
 225 230 235 240

Ile Glu Ser Pro Asp Thr Lys Ser Arg Asn Glu Val Val Thr Pro Glu  
 245 250 255

Lys Val Cys Lys Asn Tyr Leu Thr Ser Lys Lys Ser Leu Pro Leu Glu  
 260 265 270

Asn Asn Gly Lys Arg Gly His His Asn Arg Leu Ser Ser Pro Ile Ser  
 275 280 285

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

Gln Thr Val Pro Ser Glu Asn Ile Pro Leu Pro Glu Cys Ser Ser Pro  
 Page 10

305 310 315 320

Pro Ser Cys Lys Arg<sub>325</sub> Lys Val Gly Gly Thr<sub>330</sub> Ser Gly Arg Lys Asn<sub>335</sub> Ser

Asn Met Ser Asp<sub>340</sub> Glu Phe Ile Ser Leu<sub>345</sub> Ser Pro Gly Thr Pro<sub>350</sub> Pro Ser

Thr Leu Ser<sub>355</sub> Ser Ser Ser Tyr Arg<sub>360</sub> Gln Val Met Ser Ser<sub>365</sub> Pro Ser Ala

Met Lys<sub>370</sub> Leu Leu Pro Asn Met<sub>375</sub> Ala Val Lys Arg Asn<sub>380</sub> His Arg Gly Glu

Thr<sub>385</sub> Leu Leu His Ile Ala<sub>390</sub> Ser Ile Lys Gly Asp<sub>395</sub> Ile Pro Ser Val Glu<sub>400</sub>

Tyr Leu Leu Gln Asn<sub>405</sub> Gly Ser Asp Pro Asn<sub>410</sub> Val Lys Asp His Ala<sub>415</sub> Gly

Trp Thr Pro Leu<sub>420</sub> His Glu Ala Cys Asn<sub>425</sub> His Gly His Leu Lys<sub>430</sub> Val Val

Glu Leu Leu<sub>435</sub> Leu Gln His Lys Ala<sub>440</sub> Leu Val Asn Thr Thr<sub>445</sub> Gly Tyr Gln

Asn Asp<sub>450</sub> Ser Pro Leu His Asp<sub>455</sub> Ala Ala Lys Asn<sub>460</sub> Gly His Val Asp Ile

Val<sub>465</sub> Lys Leu Leu Leu Ser<sub>470</sub> Tyr Gly Ala Ser Arg<sub>475</sub> Asn Ala Val Asn Ile<sub>480</sub>

Phe Gly Leu Arg Pro<sub>485</sub> Val Asp Tyr Thr Asp<sub>490</sub> Asp Glu Ser Met Lys<sub>495</sub> Ser

Leu Leu Leu Leu<sub>500</sub> Pro Glu Lys Asn Glu<sub>505</sub> Ser Ser Ser Ala Ser<sub>510</sub> His Cys

Ser Val Met<sub>515</sub> Asn Thr Gly Gln Arg Arg Asp Gly Pro Leu<sub>525</sub> Val Leu Ile

Gly Ser Gly Leu Ser Ser Glu<sub>535</sub> Gln Gln Lys Met Leu<sub>540</sub> Ser Glu Leu Ala

Val<sub>545</sub> Ile Leu Lys Ala Lys<sub>550</sub> Lys Tyr Thr Glu Phe<sub>555</sub> Asp Ser Thr Val Thr<sub>560</sub>

His Val Val Val Pro<sub>565</sub> Gly Asp Ala Val Gln<sub>570</sub> Ser Thr Leu Lys Cys<sub>575</sub> Met

Leu Gly Ile Leu Asn Gly Cys Trp Ile Leu Lys Phe Glu Trp Val Lys

580

585

590

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

Pro Glu Gly Pro Arg Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro  
610 615 620

Lys Leu Phe Asp Gly Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His  
625 630 635 640

His Pro Lys Asp Asn Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln  
645 650 655

Ile Leu Ser Arg Lys Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile  
660 665 670

Asn Thr Val Ala Tyr His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys  
675 680 685

Thr Gln Tyr Ile Ile Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg  
690 695 700

Val Arg Gln Gly Lys Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp  
705 710 715 720

Cys Val Met Ser Phe Glu Leu Leu Pro Leu Asp Ser  
725 730

<210> 5  
<211> 127  
<212> PRT  
<213> Homo sapiens

<400> 5

Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser  
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly  
20 25 30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu  
35 40 45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly  
50 55 60

Gly Cys Glu His Ile Phe Cys Ser Asn Cys Val Ser Asp Cys Ile Gly  
65 70 75 80

Thr Gly Cys Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys  
85 90 95

P-54-661-PCT-sequences-asfiled.txt

Ile Asn Arg Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Leu Arg  
100 105 110

Asn Leu Leu His Asp Asn Glu Leu Ser Gly Arg His Thr Phe Cys  
115 120 125

<210> 6  
<211> 326  
<212> PRT  
<213> Homo sapiens

<400> 6

Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser  
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Ser Ala Met Glu Pro Asp Gly Arg Gly  
20 25 30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu  
35 40 45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly  
50 55 60

Gly Cys Glu His Ile Phe Cys Ser Asn Ile Phe Gly Leu Arg Pro Val  
65 70 75 80

Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu Leu Leu Leu Pro Glu  
85 90 95

Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser Val Met Asn Thr Gly  
100 105 110

Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly Ser Gly Leu Ser Ser  
115 120 125

Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu Lys Ala Lys  
130 135 140

Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val Val Pro Gly  
145 150 155 160

Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile Leu Asn Gly  
165 170 175

Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu Arg Arg Lys  
180 185 190

Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg  
195 200 205

P-54-661-PCT-sequences-asfiled.txt

Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly Cys  
210 215 220

Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp Asn Leu  
225 230 235 240

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

Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr His  
260 265 270

Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile Tyr  
275 280 285

Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys Val  
290 295 300

Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe Glu  
305 310 315 320

Leu Leu Pro Leu Asp Ser  
325

<210> 7  
<211> 263  
<212> PRT  
<213> Homo sapiens

<400> 7

Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser  
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Ser Ala Met Glu Pro Asp Gly Arg Gly  
20 25 30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu  
35 40 45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly  
50 55 60

Gly Cys Glu His Ile Phe Cys Ser Asn Cys Val Ser Asp Cys Ile Gly  
65 70 75 80

Thr Gly Cys Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys  
85 90 95

Ile Asn Arg Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Arg Asn  
100 105 110

P-54-661-PCT-sequences-asfiled.txt

Leu Leu His Asp Asn Glu Leu Ser Gly Val Lys Ala Cys Leu Arg Arg  
115 120 125

Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg  
130 135 140

Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly  
145 150 155 160

Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp Asn  
165 170 175

Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys  
180 185 190

Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr  
195 200 205

His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile  
210 215 220

Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys  
225 230 235 240

Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe  
245 250 255

Glu Leu Leu Pro Leu Asp Ser  
260

<210> 8  
<211> 167  
<212> PRT  
<213> Homo sapiens

<400> 8

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

Arg Ser Cys Cys Ala Ala Arg Val Gly Val Lys Ala Cys Leu Arg Arg  
20 25 30

Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg  
35 40 45

Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly  
50 55 60

Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Glu His His Pro Lys Asp Asn  
65 70 75 80

Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys

Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr  
100 105 110

His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile  
115 120 125

Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys  
130 135 140

Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe  
145 150 155 160

Glu Leu Leu Pro Leu Asp Ser  
165

<210> 9  
<211> 219  
<212> PRT  
<213> Homo sapiens  
<400> 9

Ala Ser Leu Trp Phe Pro Glu Ala Ser Leu Leu Pro Ala Leu Arg Gly  
1 5 10 15

Ala Phe His Pro Lys Ala Gly Arg Cys Arg Ile Ile Gly Ser Arg Gly  
20 25 30

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

Pro Trp Asn Arg Met Val Ala Val Pro Gly Pro Thr Val Ala Pro Arg  
50 55 60

Ser Thr Ala Trp Arg Ser Cys Cys Ala Ala Arg Val Gly Val Lys Ala  
65 70 75 80

Cys Leu Arg Arg Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro  
85 90 95

Glu Gly Pro Arg Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys  
100 105 110

Leu Phe Asp Gly Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Glu His His  
115 120 125

Pro Lys Asp Asn Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile  
130 135 140

Leu Ser Arg Lys Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn  
145 150 155 160



P-54-661-PCT-sequences-asfiled.txt

Thr Val Ala Tyr His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr  
165 170 175

Gln Tyr Ile Ile Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val  
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Val Met Ser Phe Glu Leu Leu Pro Leu Asp Ser  
210 215

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Lys Lys Asp Ala Ser Ala Gln Gln Asp Ser Tyr Glu Phe Val Ser Pro  
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Ser Pro Pro Ala Asp Val Ser Glu Arg Ala Lys Lys Ala Ser Ala Arg  
35 40 45

Ser Gly Lys Lys Gln Lys Lys Lys Thr Leu Ala Glu Ile Asn Gln Lys  
50 55 60

Trp Asn Leu Glu Ala Glu Lys Glu Asp Gly Glu Phe Asp Ser Lys Glu  
65 70 75 80

Glu Ser Lys Gln Lys Leu Val Ser Phe Cys Ser Gln Pro Ser Val Ile  
85 90 95

Ser Ser Pro Gln Ile Asn Gly Glu Ile Asp Leu Leu Ala Ser Gly Ser  
100 105 110

Leu Thr Glu Ser Glu Cys Phe Gly Ser Leu Thr Glu Val Ser Leu Pro  
115 120 125

Leu Ala Glu Gln Ile Glu Ser Pro Asp Thr Lys Ser Arg Asn Glu Val  
130 135 140

Val Thr Pro Glu Lys Val Cys Lys Asn Tyr Leu Thr Ser Lys Lys Ser  
145 150 155 160

Leu Pro Leu Glu Asn Asn Gly Lys Arg Gly His His Asn Arg Leu Ser  
165 170 175

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Ser Pro Ile Ser Lys Arg Cys Arg Thr Ser Ile Leu Ser Thr Ser Gly  
180 185 190

Asp Phe Val Lys Gln Thr Val Pro Ser Glu Asn Ile Pro Leu Pro Glu  
195 200 205

Cys Ser Ser Pro Pro Ser Cys Lys Arg Lys Val Gly Gly Thr Ser Gly  
210 215 220

Arg Lys Asn Ser Asn Met Ser Asp Glu Phe Ile Ser Leu Ser Pro Gly  
225 230 235 240

Thr Pro Pro Ser Thr Leu Ser Ser Ser Ser Tyr Arg Gln Val Met Ser  
245 250 255

Ser Pro Ser Ala Met Lys Leu Leu Pro Asn Met Ala Val Lys Arg Asn  
260 265 270

His Arg Gly Glu Thr Leu Leu His Ile Ala Ser Ile Lys Gly Asp Ile  
275 280 285

Pro Ser Val Glu Tyr Leu Leu Gln Asn Gly Ser Asp Pro Asn Val Lys  
290 295 300

Asp His Ala Gly Trp Thr Pro Leu His Glu Ala Cys Asn His Gly His  
305 310 315 320

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

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

His Val Asp Ile Val Lys Leu Leu Leu Ser Tyr Gly Ala Ser Arg Asn  
355 360 365

Ala Val Asn Ile Phe Gly Leu Arg Pro Val Asp Tyr Thr Asp Asp Glu  
370 375 380

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

Ala Ser His Cys Ser Val Met Asn Thr Gly Gln Arg Arg Asp Gly Pro  
405 410 415

Leu Val Leu Ile Gly Ser Gly Leu Ser Ser Glu Gln Gln Lys Met Leu  
420 425 430

Ser Glu Leu Ala Val Ile Leu Lys Ala Lys Lys Tyr Thr Glu Phe Asp  
435 440 445

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Ser Thr Val Thr His Val Val Val Pro Gly Asp Ala Val Gln Ser Thr  
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Leu Lys Cys Met Leu Gly Ile Leu Asn Gly Cys Trp Ile Leu Lys Phe  
465 470 475 480

Glu Trp Val Lys Ala Cys Leu Arg Arg Lys Val Cys Glu Gln Glu Glu  
485 490 495

Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg Ser Arg Leu Asn Arg Glu  
500 505 510

Gln Leu Leu Pro Lys Leu Phe Asp Gly Cys Tyr Phe Tyr Leu Trp Gly  
515 520 525

Thr Phe Lys His His Pro Lys Asp Asn Leu Ile Lys Leu Val Thr Ala  
530 535 540

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

Thr Gln Thr Ile Asn Thr Val Ala Tyr His Ala Arg Pro Asp Ser Asp  
565 570 575

Gln Arg Phe Cys Thr Gln Tyr Ile Ile Tyr Glu Asp Leu Cys Asn Tyr  
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His Pro Glu Arg Val Arg Gln Gly Lys Val Trp Lys Ala Pro Ser Ser  
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Trp Phe Ile Asp Cys Val Met Ser Phe Glu Leu Leu Pro Leu Asp Ser  
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Glu Cys Ser Ser Pro Pro Ser Cys Lys Arg Lys Val Gly Gly Thr Ser  
35 40 45

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

Asn His Arg Gly Glu Thr Leu Leu His Ile Ala Ser Ile Lys Gly Asp  
100 105 110

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

Lys Asp His Ala Gly Trp Thr Pro Leu His Glu Ala Cys Asn His Gly  
130 135 140

His Leu Lys Val Val Glu Leu Leu Leu Gln His Lys Ala Leu Val Asn  
145 150 155 160

Thr Thr Gly Tyr Gln Asn Asp Ser Pro Leu His Asp Ala Ala Lys Asn  
165 170 175

Gly His Val Asp Ile Val Lys Leu Leu Leu Ser Tyr Gly Ala Ser Arg  
180 185 190

Asn Ala Val Asn Ile Phe Gly Leu Arg Pro Val Asp Tyr Thr Asp Asp  
195 200 205

Glu Ser Met Lys Ser Leu Leu Leu Leu Pro Glu Lys Asn Glu Ser Ser  
210 215 220

Ser Ala Ser His Cys Ser Val Met Asn Thr Gly Gln Arg Arg Asp Gly  
225 230 235 240

Pro Leu Val Leu Ile Gly Ser Gly Leu Ser Ser Glu Gln Gln Lys Met  
245 250 255

Leu Ser Glu Leu Ala Val Ile Leu Lys Ala Lys Lys Tyr Thr Glu Phe  
260 265 270

Asp Ser Thr Val Thr His Val Val Val Pro Gly Asp Ala Val Gln Ser  
275 280 285

Thr Leu Lys Cys Met Leu Gly Ile Leu Asn Gly Cys Trp Ile Leu Lys  
290 295 300

Phe Glu Trp Val Lys Ala Cys Leu Arg Arg Lys Val Cys Glu Gln Glu  
305 310 315 320

Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg Ser Arg Leu Asn Arg  
325 330 335

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Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly Cys Tyr Phe Tyr Leu Trp  
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Gly Thr Phe Lys His His Pro Lys Asp Asn Leu Ile Lys Leu Val Thr  
355 360 365

Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys Pro Lys Pro Asp Ser Asp  
370 375 380

Val Thr Gln Thr Ile Asn Thr Val Ala Tyr His Ala Arg Pro Asp Ser  
385 390 395 400

Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile Tyr Glu Asp Leu Cys Asn  
405 410 415

Tyr His Pro Glu Arg Val Arg Gln Gly Lys Val Trp Lys Ala Pro Ser  
420 425 430

Ser Trp Phe Ile Asp Cys Val Met Ser Phe Glu Leu Leu Pro Leu Asp  
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Ser

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gtgtaattat caccagaga gggttcggca gggcaaagtc tggaaggctc cttcgagctg	960

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 gcgttgact aacattctga gagagcctgt gtgttttagga ggatgtgagc acatcttctg 240  
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 <211> 702  
 <212> DNA  
 <213> Artificial

<220>  
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<210> 19  
 <211> 2000  
 <212> DNA  
 <213> Homo sapiens

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 agagggctaa aaaggcttct gcaagatctg gaaaaaagca aaaaaagaaa actttagctg 180  
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<212> PRT  
<213> Artificial

<220>  
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<400> 21

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Arg Ser Cys Cys Ala Ala Arg Val  
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<210> 22  
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<400> 22

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<210> 23  
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<400> 23

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caagctgtta ctttcctatg gagcctccag aaatgctgtt aatatatttg gtctgcggcc	300
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 <211> 347  
 <212> PRT  
 <213> Homo sapiens

<400> 24

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Thr Pro Leu His Glu Ala Cys Asn His Gly His Leu Lys Val Val Glu  
 35 40 45

Leu Leu Leu Gln His Lys Ala Leu Val Asn Thr Thr Gly Tyr Gln Asn  
 50 55 60

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

Lys Leu Leu Leu Ser Tyr Gly Ala Ser Arg Asn Ala Val Asn Ile Phe  
 85 90 95

Gly Leu Arg Pro Val Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu  
 100 105 110

Leu Leu Leu Pro Glu Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser  
 115 120 125

Val Met Asn Thr Gly Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly  
 130 135 140

Ser Gly Leu Ser Ser Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val  
 145 150 155 160

Ile Leu Lys Ala Lys Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His  
 165 170 175

Val Val Val Pro Gly Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu  
 180 185 190

Gly Ile Leu Asn Gly Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala  
 195 200 205

Cys Leu Arg Arg Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro  
210 215 220

Glu Gly Pro Arg Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys  
225 230 235 240

Leu Phe Asp Gly Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His  
245 250 255

Pro Lys Asp Asn Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile  
260 265 270

Leu Ser Arg Lys Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn  
275 280 285

Thr Val Ala Tyr His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr  
290 295 300

Gln Tyr Ile Ile Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val  
305 310 315 320

Arg Gln Gly Lys Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys  
325 330 335

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<220>  
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<400> 25

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<220>  
<223> /="synthetic construct"

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23

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<212> DNA  
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 <400> 28  
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<210> 29  
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 <212> DNA  
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 <400> 29  
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<210> 30  
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Leu Leu

<210> 31  
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<210> 32  
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<220>
<223> /note="synthetic construct"

<400> 32
cagctgtcaa gaggaagcaa c 21

<210> 33
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<400> 34
agcaagtggc tccttgacag 20

<210> 35
<211> 24
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<220>
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<400> 35
ccagtcccat ttctaagaga tgta 24

<210> 36
<211> 18
<212> DNA
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<220>
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<400> 36
gaggagagac ttgctcc 18

<210> 37
<211> 18
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<220>
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<400> 37
gctggatgga caccattg 18

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<211> 20

<212> DNA

<213> Artificial

<220>

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<400> 38

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20