

10172W001_SEQ
SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.
<120> MULTISPECIFIC ANTIGEN-BINDING MOLECULES AND USES THEREOF
<130> 10172W001
<150> US 62/188,860
<151> 2015-07-06
<150> US 62/328,900
<151> 2016-04-28
<150> US 62/347,179
<151> 2016-06-08
<160> 12
<170> PatentIn version 3.5
<210> 1
<211> 502
<212> PRT
<213> Artificial sequence
<220>
<223> synthetic
<400> 1

Met Met Ala Leu Gly Ala Ala Gly Ala Thr Arg Val Phe Val Ala Met
1 5 10 15

Val Ala Ala Ala Leu Gly Gly His Pro Leu Leu Gly Val Ser Ala Thr
20 25 30

Leu Asn Ser Val Leu Asn Ser Asn Ala Ile Lys Asn Leu Pro Pro Pro
35 40 45

Leu Gly Gly Ala Ala Gly His Pro Gly Ser Ala Val Ser Ala Ala Pro
50 55 60

Gly Ile Leu Tyr Pro Gly Gly Asn Lys Tyr Gln Thr Ile Asp Asn Tyr

10172W001_SEQ

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

10172W001_SEQ

260

265

270

Gly Pro Thr Ile Lys Pro Cys Pro Pro Cys Lys Cys Pro Ala Pro Asn
 275 280 285

Leu Leu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Ile Lys Asp
 290 295 300

Val Leu Met Ile Ser Leu Ser Pro Ile Val Thr Cys Val Val Val Asp
 305 310 315 320

Val Ser Glu Asp Asp Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn
 325 330 335

Val Glu Val His Thr Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn
 340 345 350

Ser Thr Leu Arg Val Val Ser Ala Leu Pro Ile Gln His Gln Asp Trp
 355 360 365

Met Ser Gly Lys Glu Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro
 370 375 380

Ala Pro Ile Glu Arg Thr Ile Ser Lys Pro Lys Gly Ser Val Arg Ala
 385 390 395 400

Pro Gln Val Tyr Val Leu Pro Pro Pro Glu Glu Glu Met Thr Lys Lys
 405 410 415

Gln Val Thr Leu Thr Cys Met Val Thr Asp Phe Met Pro Glu Asp Ile
 420 425 430

Tyr Val Glu Trp Thr Asn Asn Gly Lys Thr Glu Leu Asn Tyr Lys Asn
 435 440 445

Thr Glu Pro Val Leu Asp Ser Asp Gly Ser Tyr Phe Met Tyr Ser Lys

10172W001_SEQ

450

455

460

Leu Arg Val Glu Lys Lys Asn Trp Val Glu Arg Asn Ser Tyr Ser Cys
465 470 475 480

Ser Val Val His Glu Gly Leu His Asn His His Thr Thr Lys Ser Phe
485 490 495

Ser Arg Thr Pro Gly Lys
500

<210> 2
<211> 496
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic

<400> 2

Met Met Ala Leu Gly Ala Ala Gly Ala Thr Arg Val Phe Val Ala Met
1 5 10 15

Val Ala Ala Ala Leu Gly Gly His Pro Leu Leu Gly Val Ser Ala Thr
20 25 30

Leu Asn Ser Val Leu Asn Ser Asn Ala Ile Lys Asn Leu Pro Pro Pro
35 40 45

Leu Gly Gly Ala Ala Gly His Pro Gly Ser Ala Val Ser Ala Ala Pro
50 55 60

Gly Ile Leu Tyr Pro Gly Gly Asn Lys Tyr Gln Thr Ile Asp Asn Tyr
65 70 75 80

Gln Pro Tyr Pro Cys Ala Glu Asp Glu Glu Cys Gly Thr Asp Glu Tyr
85 90 95

10172W001_SEQ

Cys Ala Ser Pro Thr Arg Gly Gly Asp Ala Gly Val Gln Ile Cys Leu
100 105 110

Ala Cys Arg Lys Arg Arg Lys Arg Cys Met Arg His Ala Met Cys Cys
115 120 125

Pro Gly Asn Tyr Cys Lys Asn Gly Ile Cys Val Ser Ser Asp Gln Asn
130 135 140

His Phe Arg Gly Glu Ile Glu Glu Thr Ile Thr Glu Ser Phe Gly Asn
145 150 155 160

Asp His Ser Thr Leu Asp Gly Tyr Ser Arg Arg Thr Thr Leu Ser Ser
165 170 175

Lys Met Tyr His Thr Lys Gly Gln Glu Gly Ser Val Cys Leu Arg Ser
180 185 190

Ser Asp Cys Ala Ser Gly Leu Cys Cys Ala Arg His Phe Trp Ser Lys
195 200 205

Ile Cys Lys Pro Val Leu Lys Glu Gly Gln Val Cys Thr Lys His Arg
210 215 220

Arg Lys Gly Ser His Gly Leu Glu Ile Phe Gln Arg Cys Tyr Cys Gly
225 230 235 240

Glu Gly Leu Ser Cys Arg Ile Gln Lys Asp His His Gln Ala Ser Asn
245 250 255

Ser Ser Arg Leu His Thr Cys Gln Arg His Gly Pro Gly Asp Lys Thr
260 265 270

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
275 280 285

10172W001_SEQ

Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
290 295 300

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
305 310 315 320

Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
325 330 335

Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val
340 345 350

Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
355 360 365

Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
370 375 380

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

Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys
405 410 415

Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
420 425 430

Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
435 440 445

Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
450 455 460

Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
465 470 475 480

10172W001_SEQ

Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 485 490 495

<210> 3
 <211> 122
 <212> PRT
 <213> Artificial sequence

<220>
 <223> synthetic

<400> 3

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

Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asp Tyr
 20 25 30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ala Val Ile Trp Tyr Asp Gly Ser Ile Lys Tyr Phe Arg Asp Ser Val
 50 55 60

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

Leu Gln Met Asn Ser Leu Arg Val Glu Asp Thr Ala His Tyr Tyr Cys
 85 90 95

Ala Lys Glu Ser Ser Ser Trp Tyr Phe Tyr His Gly Leu Asp Val Trp
 100 105 110

Gly Gln Gly Thr Met Val Thr Val Ser Ser
 115 120

<210> 4

10172W001_SEQ

<211> 114
 <212> PRT
 <213> Artificial sequence

<220>
 <223> synthetic

<400> 4

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Asn Gln Ser Leu Leu His Ser
 20 25 30

Asn Gly Asn Asn Tyr Leu Ala Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45

Pro His Leu Leu Ile Tyr Leu Gly Ser Asn Arg Ala Ser Gly Val Pro
 50 55 60

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

Ser Arg Val Glu Ala Gly Asp Val Gly Thr Tyr Phe Cys Met Gln Ser
 85 90 95

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

Lys Arg

<210> 5
 <211> 692
 <212> PRT
 <213> Artificial sequence

<220>
 <223> synthetic

10172W001_SEQ

<400> 5

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

Leu Leu Leu Leu Leu Leu Leu Gly Pro Ala Gly Ala Arg Ala Gln Glu
20 25 30

Asp Glu Asp Gly Asp Tyr Glu Glu Leu Val Leu Ala Leu Arg Ser Glu
35 40 45

Glu Asp Gly Leu Ala Glu Ala Pro Glu His Gly Thr Thr Ala Thr Phe
50 55 60

His Arg Cys Ala Lys Asp Pro Trp Arg Leu Pro Gly Thr Tyr Val Val
65 70 75 80

Val Leu Lys Glu Glu Thr His Leu Ser Gln Ser Glu Arg Thr Ala Arg
85 90 95

Arg Leu Gln Ala Gln Ala Ala Arg Arg Gly Tyr Leu Thr Lys Ile Leu
100 105 110

His Val Phe His Gly Leu Leu Pro Gly Phe Leu Val Lys Met Ser Gly
115 120 125

Asp Leu Leu Glu Leu Ala Leu Lys Leu Pro His Val Asp Tyr Ile Glu
130 135 140

Glu Asp Ser Ser Val Phe Ala Gln Ser Ile Pro Trp Asn Leu Glu Arg
145 150 155 160

Ile Thr Pro Pro Arg Tyr Arg Ala Asp Glu Tyr Gln Pro Pro Asp Gly
165 170 175

Gly Ser Leu Val Glu Val Tyr Leu Leu Asp Thr Ser Ile Gln Ser Asp

10172W001_SEQ

180

185

190

His Arg Glu Ile Glu Gly Arg Val Met Val Thr Asp Phe Glu Asn Val
 195 200 205

Pro Glu Glu Asp Gly Thr Arg Phe His Arg Gln Ala Ser Lys Cys Asp
 210 215 220

Ser His Gly Thr His Leu Ala Gly Val Val Ser Gly Arg Asp Ala Gly
 225 230 235 240

Val Ala Lys Gly Ala Ser Met Arg Ser Leu Arg Val Leu Asn Cys Gln
 245 250 255

Gly Lys Gly Thr Val Ser Gly Thr Leu Ile Gly Leu Glu Phe Ile Arg
 260 265 270

Lys Ser Gln Leu Val Gln Pro Val Gly Pro Leu Val Val Leu Leu Pro
 275 280 285

Leu Ala Gly Gly Tyr Ser Arg Val Leu Asn Ala Ala Cys Gln Arg Leu
 290 295 300

Ala Arg Ala Gly Val Val Leu Val Thr Ala Ala Gly Asn Phe Arg Asp
 305 310 315 320

Asp Ala Cys Leu Tyr Ser Pro Ala Ser Ala Pro Glu Val Ile Thr Val
 325 330 335

Gly Ala Thr Asn Ala Gln Asp Gln Pro Val Thr Leu Gly Thr Leu Gly
 340 345 350

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

Ile Gly Ala Ser Ser Asp Cys Ser Thr Cys Phe Val Ser Gln Ser Gly

10172W001_SEQ

370

375

380

Thr Ser Gln Ala Ala Ala His Val Ala Gly Ile Ala Ala Met Met Leu
 385 390 395 400

Ser Ala Glu Pro Glu Leu Thr Leu Ala Glu Leu Arg Gln Arg Leu Ile
 405 410 415

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

Gln Arg Val Leu Thr Pro Asn Leu Val Ala Ala Leu Pro Pro Ser Thr
 435 440 445

His Gly Ala Gly Trp Gln Leu Phe Cys Arg Thr Val Trp Ser Ala His
 450 455 460

Ser Gly Pro Thr Arg Met Ala Thr Ala Val Ala Arg Cys Ala Pro Asp
 465 470 475 480

Glu Glu Leu Leu Ser Cys Ser Ser Phe Ser Arg Ser Gly Lys Arg Arg
 485 490 495

Gly Glu Arg Met Glu Ala Gln Gly Gly Lys Leu Val Cys Arg Ala His
 500 505 510

Asn Ala Phe Gly Gly Glu Gly Val Tyr Ala Ile Ala Arg Cys Cys Leu
 515 520 525

Leu Pro Gln Ala Asn Cys Ser Val His Thr Ala Pro Pro Ala Glu Ala
 530 535 540

Ser Met Gly Thr Arg Val His Cys His Gln Gln Gly His Val Leu Thr
 545 550 555 560

Gly Cys Ser Ser His Trp Glu Val Glu Asp Leu Gly Thr His Lys Pro

10172W001_SEQ

565

570

575

Pro Val Leu Arg Pro Arg Gly Gln Pro Asn Gln Cys Val Gly His Arg
580 585 590

Glu Ala Ser Ile His Ala Ser Cys Cys His Ala Pro Gly Leu Glu Cys
595 600 605

Lys Val Lys Glu His Gly Ile Pro Ala Pro Gln Glu Gln Val Thr Val
610 615 620

Ala Cys Glu Glu Gly Trp Thr Leu Thr Gly Cys Ser Ala Leu Pro Gly
625 630 635 640

Thr Ser His Val Leu Gly Ala Tyr Ala Val Asp Asn Thr Cys Val Val
645 650 655

Arg Ser Arg Asp Val Ser Thr Thr Gly Ser Thr Ser Glu Gly Ala Val
660 665 670

Thr Ala Val Ala Ile Cys Cys Arg Ser Arg His Leu Ala Gln Ala Ser
675 680 685

Gln Glu Leu Gln
690

<210> 6

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> synthetic

<400> 6

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

10172W001_SEQ

<210> 7

<211> 662

<212> PRT

<213> Homo sapiens

<400> 7

Gln Glu Asp Glu Asp Gly Asp Tyr Glu Glu Leu Val Leu Ala Leu Arg
1 5 10 15

Ser Glu Glu Asp Gly Leu Ala Glu Ala Pro Glu His Gly Thr Thr Ala
20 25 30

Thr Phe His Arg Cys Ala Lys Asp Pro Trp Arg Leu Pro Gly Thr Tyr
35 40 45

Val Val Val Leu Lys Glu Glu Thr His Leu Ser Gln Ser Glu Arg Thr
50 55 60

Ala Arg Arg Leu Gln Ala Gln Ala Ala Arg Arg Gly Tyr Leu Thr Lys
65 70 75 80

Ile Leu His Val Phe His Gly Leu Leu Pro Gly Phe Leu Val Lys Met
85 90 95

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

Ile Glu Glu Asp Ser Ser Val Phe Ala Gln Ser Ile Pro Trp Asn Leu
115 120 125

Glu Arg Ile Thr Pro Pro Arg Tyr Arg Ala Asp Glu Tyr Gln Pro Pro
130 135 140

Asp Gly Gly Ser Leu Val Glu Val Tyr Leu Leu Asp Thr Ser Ile Gln
145 150 155 160

10172W001_SEQ

Ser Asp His Arg Glu Ile Glu Gly Arg Val Met Val Thr Asp Phe Glu
 165 170 175

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

Cys Asp Ser His Gly Thr His Leu Ala Gly Val Val Ser Gly Arg Asp
 195 200 205

Ala Gly Val Ala Lys Gly Ala Ser Met Arg Ser Leu Arg Val Leu Asn
 210 215 220

Cys Gln Gly Lys Gly Thr Val Ser Gly Thr Leu Ile Gly Leu Glu Phe
 225 230 235 240

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

Leu Pro Leu Ala Gly Gly Tyr Ser Arg Val Leu Asn Ala Ala Cys Gln
 260 265 270

Arg Leu Ala Arg Ala Gly Val Val Leu Val Thr Ala Ala Gly Asn Phe
 275 280 285

Arg Asp Asp Ala Cys Leu Tyr Ser Pro Ala Ser Ala Pro Glu Val Ile
 290 295 300

Thr Val Gly Ala Thr Asn Ala Gln Asp Gln Pro Val Thr Leu Gly Thr
 305 310 315 320

Leu Gly Thr Asn Phe Gly Arg Cys Val Asp Leu Phe Ala Pro Gly Glu
 325 330 335

Asp Ile Ile Gly Ala Ser Ser Asp Cys Ser Thr Cys Phe Val Ser Gln
 340 345 350

10172W001_SEQ

Ser Gly Thr Ser Gln Ala Ala Ala His Val Ala Gly Ile Ala Ala Met
 355 360 365

Met Leu Ser Ala Glu Pro Glu Leu Thr Leu Ala Glu Leu Arg Gln Arg
 370 375 380

Leu Ile His Phe Ser Ala Lys Asp Val Ile Asn Glu Ala Trp Phe Pro
 385 390 395 400

Glu Asp Gln Arg Val Leu Thr Pro Asn Leu Val Ala Ala Leu Pro Pro
 405 410 415

Ser Thr His Gly Ala Gly Trp Gln Leu Phe Cys Arg Thr Val Trp Ser
 420 425 430

Ala His Ser Gly Pro Thr Arg Met Ala Thr Ala Val Ala Arg Cys Ala
 435 440 445

Pro Asp Glu Glu Leu Leu Ser Cys Ser Ser Phe Ser Arg Ser Gly Lys
 450 455 460

Arg Arg Gly Glu Arg Met Glu Ala Gln Gly Gly Lys Leu Val Cys Arg
 465 470 475 480

Ala His Asn Ala Phe Gly Gly Glu Gly Val Tyr Ala Ile Ala Arg Cys
 485 490 495

Cys Leu Leu Pro Gln Ala Asn Cys Ser Val His Thr Ala Pro Pro Ala
 500 505 510

Glu Ala Ser Met Gly Thr Arg Val His Cys His Gln Gln Gly His Val
 515 520 525

Leu Thr Gly Cys Ser Ser His Trp Glu Val Glu Asp Leu Gly Thr His
 530 535 540

10172W001_SEQ

Lys Pro Pro Val Leu Arg Pro Arg Gly Gln Pro Asn Gln Cys Val Gly
545 550 555 560

His Arg Glu Ala Ser Ile His Ala Ser Cys Cys His Ala Pro Gly Leu
565 570 575

Glu Cys Lys Val Lys Glu His Gly Ile Pro Ala Pro Gln Glu Gln Val
580 585 590

Thr Val Ala Cys Glu Glu Gly Trp Thr Leu Thr Gly Cys Ser Ala Leu
595 600 605

Pro Gly Thr Ser His Val Leu Gly Ala Tyr Ala Val Asp Asn Thr Cys
610 615 620

Val Val Arg Ser Arg Asp Val Ser Thr Thr Gly Ser Thr Ser Glu Gly
625 630 635 640

Ala Val Thr Ala Val Ala Ile Cys Cys Arg Ser Arg His Leu Ala Gln
645 650 655

Ala Ser Gln Glu Leu Gln
660

<210> 8
<211> 267
<212> PRT
<213> Homo sapiens

<400> 8

Glu Ala Trp Phe Pro Glu Asp Gln Arg Val Leu Thr Pro Asn Leu Val
1 5 10 15

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

Arg Thr Val Trp Ser Ala His Ser Gly Pro Thr Arg Met Ala Thr Ala

10172W001_SEQ

35

40

45

Val Ala Arg Cys Ala Pro Asp Glu Glu Leu Leu Ser Cys Ser Ser Phe
 50 55 60

Ser Arg Ser Gly Lys Arg Arg Gly Glu Arg Met Glu Ala Gln Gly Gly
 65 70 75 80

Lys Leu Val Cys Arg Ala His Asn Ala Phe Gly Gly Glu Gly Val Tyr
 85 90 95

Ala Ile Ala Arg Cys Cys Leu Leu Pro Gln Ala Asn Cys Ser Val His
 100 105 110

Thr Ala Pro Pro Ala Glu Ala Ser Met Gly Thr Arg Val His Cys His
 115 120 125

Gln Gln Gly His Val Leu Thr Gly Cys Ser Ser His Trp Glu Val Glu
 130 135 140

Asp Leu Gly Thr His Lys Pro Pro Val Leu Arg Pro Arg Gly Gln Pro
 145 150 155 160

Asn Gln Cys Val Gly His Arg Glu Ala Ser Ile His Ala Ser Cys Cys
 165 170 175

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

Pro Gln Glu Gln Val Thr Val Ala Cys Glu Glu Gly Trp Thr Leu Thr
 195 200 205

Gly Cys Ser Ala Leu Pro Gly Thr Ser His Val Leu Gly Ala Tyr Ala
 210 215 220

Val Asp Asn Thr Cys Val Val Arg Ser Arg Asp Val Ser Thr Thr Gly

10172W001 SEQ

225 230 235 240

Ser Thr Ser Glu Gly Ala Val Thr Ala Val Ala Ile Cys Cys Arg Ser
245 250 255

Arg His Leu Ala Gln Ala Ser Gln Glu Leu Gln
260 265

```
<210> 9
<211> 243
<212> PRT
<213> Homo sapiens
```

<400> 9

Gly Ala Gly Trp Gln Leu Phe Cys Arg Thr Val Trp Ser Ala His Ser
1 5 10 15

Gly Pro Thr Arg Met Ala Thr Ala Val Ala Arg Cys Ala Pro Asp Glu
20 25 30

Glu Leu Leu Ser Cys Ser Ser Phe Ser Arg Ser Gly Lys Arg Arg Gly
35 40 45

Glu Arg Met Glu Ala Gln Gly Gly Lys Leu Val Cys Arg Ala His Asn
50 55 60

Ala Phe Gly Gly Glu Gly Val Tyr Ala Ile Ala Arg Cys Cys Leu Leu
65 70 75 80

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

Met Gly Thr Arg Val His Cys His Gln Gln Gly His Val Leu Thr Gly
100 105 110

Cys Ser Ser His Trp Glu Val Glu Asp Leu Gly Thr His Lys Pro Pro
115 120 125

10172W001_SEQ

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

Ala Ser Ile His Ala Ser Cys Cys His Ala Pro Gly Leu Glu Cys Lys
145 150 155 160

Val Lys Glu His Gly Ile Pro Ala Pro Gln Glu Gln Val Thr Val Ala
165 170 175

Cys Glu Glu Gly Trp Thr Leu Thr Gly Cys Ser Ala Leu Pro Gly Thr
180 185 190

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

Ser Arg Asp Val Ser Thr Thr Gly Ser Thr Ser Glu Gly Ala Val Thr
210 215 220

Ala Val Ala Ile Cys Cys Arg Ser Arg His Leu Ala Gln Ala Ser Gln
225 230 235 240

Glu Leu Gln

<210> 10
<211> 399
<212> PRT
<213> Homo sapiens

<400> 10

Met Gly Glu Pro Gly Gln Ser Pro Ser Pro Arg Ser Ser His Gly Ser
1 5 10 15

Pro Pro Thr Leu Ser Thr Leu Thr Leu Leu Leu Leu Cys Gly His
20 25 30

10172W001_SEQ

Ala His Ser Gln Cys Lys Ile Leu Arg Cys Asn Ala Glu Tyr Val Ser
35 40 45

Ser Thr Leu Ser Leu Arg Gly Gly Gly Ser Ser Gly Ala Leu Arg Gly
50 55 60

Gly Gly Gly Gly Gly Arg Gly Gly Gly Val Gly Ser Gly Gly Leu Cys
65 70 75 80

Arg Ala Leu Arg Ser Tyr Ala Leu Cys Thr Arg Arg Thr Ala Arg Thr
85 90 95

Cys Arg Gly Asp Leu Ala Phe His Ser Ala Val His Gly Ile Glu Asp
100 105 110

Leu Met Ile Gln His Asn Cys Ser Arg Gln Gly Pro Thr Ala Pro Pro
115 120 125

Pro Pro Arg Gly Pro Ala Leu Pro Gly Ala Gly Ser Gly Leu Pro Ala
130 135 140

Pro Asp Pro Cys Asp Tyr Glu Gly Arg Phe Ser Arg Leu His Gly Arg
145 150 155 160

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

Ser Phe His His His Phe His Thr Cys Arg Val Gln Gly Ala Trp Pro
180 185 190

Leu Leu Asp Asn Asp Phe Leu Phe Val Gln Ala Thr Ser Ser Pro Met
195 200 205

Ala Leu Gly Ala Asn Ala Thr Ala Thr Arg Lys Leu Thr Ile Ile Phe
210 215 220

10172W001_SEQ

Lys Asn Met Gln Glu Cys Ile Asp Gln Lys Val Tyr Gln Ala Glu Val
225 230 235 240

Asp Asn Leu Pro Val Ala Phe Glu Asp Gly Ser Ile Asn Gly Gly Asp
245 250 255

Arg Pro Gly Gly Ser Ser Leu Ser Ile Gln Thr Ala Asn Pro Gly Asn
260 265 270

His Val Glu Ile Gln Ala Ala Tyr Ile Gly Thr Thr Ile Ile Ile Arg
275 280 285

Gln Thr Ala Gly Gln Leu Ser Phe Ser Ile Lys Val Ala Glu Asp Val
290 295 300

Ala Met Ala Phe Ser Ala Glu Gln Asp Leu Gln Leu Cys Val Gly Gly
305 310 315 320

Cys Pro Pro Ser Gln Arg Leu Ser Arg Ser Glu Arg Asn Arg Arg Gly
325 330 335

Ala Ile Thr Ile Asp Thr Ala Arg Arg Leu Cys Lys Glu Gly Leu Pro
340 345 350

Val Glu Asp Ala Tyr Phe His Ser Cys Val Phe Asp Val Leu Ile Ser
355 360 365

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

Arg Ala Phe Leu Pro Asp Leu Glu Lys Leu His Leu Phe Pro Ser
385 390 395

<210> 11
<211> 622
<212> PRT

10172W001_SEQ

<213> Homo sapiens

<400> 11

Met Lys Glu Asn Val Ala Ser Ala Thr Val Phe Thr Leu Leu Leu Phe
 1 5 10 15

Leu Asn Thr Cys Leu Leu Asn Gly Gln Leu Pro Pro Gly Lys Pro Glu
 20 25 30

Ile Phe Lys Cys Arg Ser Pro Asn Lys Glu Thr Phe Thr Cys Trp Trp
 35 40 45

Arg Pro Gly Thr Asp Gly Gly Leu Pro Thr Asn Tyr Ser Leu Thr Tyr
 50 55 60

His Arg Glu Gly Glu Thr Leu Met His Glu Cys Pro Asp Tyr Ile Thr
 65 70 75 80

Gly Gly Pro Asn Ser Cys His Phe Gly Lys Gln Tyr Thr Ser Met Trp
 85 90 95

Arg Thr Tyr Ile Met Met Val Asn Ala Thr Asn Gln Met Gly Ser Ser
 100 105 110

Phe Ser Asp Glu Leu Tyr Val Asp Val Thr Tyr Ile Val Gln Pro Asp
 115 120 125

Pro Pro Leu Glu Leu Ala Val Glu Val Lys Gln Pro Glu Asp Arg Lys
 130 135 140

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

Thr Gly Trp Phe Thr Leu Leu Tyr Glu Ile Arg Leu Lys Pro Glu Lys
 165 170 175

10172W001_SEQ

Ala Ala Glu Trp Glu Ile His Phe Ala Gly Gln Gln Thr Glu Phe Lys
 180 185 190

Ile Leu Ser Leu His Pro Gly Gln Lys Tyr Leu Val Gln Val Arg Cys
 195 200 205

Lys Pro Asp His Gly Tyr Trp Ser Ala Trp Ser Pro Ala Thr Phe Ile
 210 215 220

Gln Ile Pro Ser Asp Phe Thr Met Asn Asp Thr Thr Val Trp Ile Ser
 225 230 235 240

Val Ala Val Leu Ser Ala Val Ile Cys Leu Ile Ile Val Trp Ala Val
 245 250 255

Ala Leu Lys Gly Tyr Ser Met Val Thr Cys Ile Phe Pro Pro Val Pro
 260 265 270

Gly Pro Lys Ile Lys Gly Phe Asp Ala His Leu Leu Glu Lys Gly Lys
 275 280 285

Ser Glu Glu Leu Leu Ser Ala Leu Gly Cys Gln Asp Phe Pro Pro Thr
 290 295 300

Ser Asp Tyr Glu Asp Leu Leu Val Glu Tyr Leu Glu Val Asp Asp Ser
 305 310 315 320

Glu Asp Gln His Leu Met Ser Val His Ser Lys Glu His Pro Ser Gln
 325 330 335

Gly Met Lys Pro Thr Tyr Leu Asp Pro Asp Thr Asp Ser Gly Arg Gly
 340 345 350

Ser Cys Asp Ser Pro Ser Leu Leu Ser Glu Lys Cys Glu Glu Pro Gln
 355 360 365

10172W001_SEQ

Ala Asn Pro Ser Thr Phe Tyr Asp Pro Glu Val Ile Glu Lys Pro Glu
370 375 380

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

Gly Lys Ile Pro Tyr Phe His Ala Gly Gly Ser Lys Cys Ser Thr Trp
405 410 415

Pro Leu Pro Gln Pro Ser Gln His Asn Pro Arg Ser Ser Tyr His Asn
420 425 430

Ile Thr Asp Val Cys Glu Leu Ala Val Gly Pro Ala Gly Ala Pro Ala
435 440 445

Thr Leu Leu Asn Glu Ala Gly Lys Asp Ala Leu Lys Ser Ser Gln Thr
450 455 460

Ile Lys Ser Arg Glu Glu Gly Lys Ala Thr Gln Gln Arg Glu Val Glu
465 470 475 480

Ser Phe His Ser Glu Thr Asp Gln Asp Thr Pro Trp Leu Leu Pro Gln
485 490 495

Glu Lys Thr Pro Phe Gly Ser Ala Lys Pro Leu Asp Tyr Val Glu Ile
500 505 510

His Lys Val Asn Lys Asp Gly Ala Leu Ser Leu Leu Pro Lys Gln Arg
515 520 525

Glu Asn Ser Gly Lys Pro Lys Lys Pro Gly Thr Pro Glu Asn Asn Lys
530 535 540

Glu Tyr Ala Lys Val Ser Gly Val Met Asp Asn Asn Ile Leu Val Leu
545 550 555 560

10172W001_SEQ

Val Pro Asp Pro His Ala Lys Asn Val Ala Cys Phe Glu Glu Ser Ala
 565 570 575

Lys Glu Ala Pro Pro Ser Leu Glu Gln Asn Gln Ala Glu Lys Ala Leu
 580 585 590

Ala Asn Phe Thr Ala Thr Ser Ser Lys Cys Arg Leu Gln Leu Gly Gly
 595 600 605

Leu Asp Tyr Leu Asp Pro Ala Cys Phe Thr His Ser Phe His
 610 615 620

<210> 12
 <211> 21
 <212> PRT
 <213> Homo sapiens
 <400> 12

Asp Ala His Leu Leu Glu Lys Gly Lys Ser Glu Glu Leu Leu Ser Ala
 1 5 10 15

Leu Gly Cys Gln Asp
 20