

SEQUENCE LISTING

<110> REGENERON PHARMACEUTICALS, INC.

<120> COMPOSITIONS AND METHODS FOR TREATING CANCER

<130> RPB-02125

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<160> 41

<170> PatentIn version 3.5

<210> 1

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 1

Ile	Glu	Val	Met	Tyr	Pro	Pro	Pro	Tyr	Leu	Asp	Asn	Glu	Lys	Ser	Asn
1				5					10					15	

Gly	Thr	Ile	Ile	His	Val	Lys	Gly	Lys	His	Leu	Cys	Pro	Ser	Pro	Leu
			20					25					30		

Phe	Pro	Gly	Pro	Ser	Lys	Pro
			35			

<210> 2

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 2

Phe Trp Val Leu Val Val Val Gly Gly Val Leu Ala Cys Tyr Ser Leu
1 5 10 15

Leu Val Thr Val Ala Phe Ile Ile Phe Trp Val
20 25

<210> 3

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 3

Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr
1 5 10 15

Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro
20 25 30

Pro Arg Asp Phe Ala Ala Tyr Arg Ser
35 40

<210> 4

<211> 317

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 4

Met Ser Ser Glu Gln Lys Ser Gln His Cys Lys Pro Glu Glu Gly Val
1 5 10 15

Glu Ala Gln Glu Glu Ala Leu Gly Leu Val Gly Ala Gln Ala Pro Thr
20 25 30

Thr Glu Glu Gln Glu Ala Ala Val Ser Ser Ser Ser Pro Leu Val Pro
35 40 45

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

Ser Pro Gln Gly Ala Ser Ala Leu Pro Thr Thr Ile Ser Phe Thr Cys
65 70 75 80

Trp Arg Gln Pro Asn Glu Gly Ser Ser Ser Gln Glu Glu Glu Gly Pro
85 90 95

Ser Thr Ser Pro Asp Ala Glu Ser Leu Phe Arg Glu Ala Leu Ser Asn
100 105 110

Lys Val Asp Glu Leu Ala His Phe Leu Leu Arg Lys Tyr Arg Ala Lys
115 120 125

Glu Leu Val Thr Lys Ala Glu Met Leu Glu Arg Val Ile Lys Asn Tyr
130 135 140

Lys Arg Cys Phe Pro Val Ile Phe Gly Lys Ala Ser Glu Ser Leu Lys
145 150 155 160

Met Ile Phe Gly Ile Asp Val Lys Glu Val Asp Pro Ala Ser Asn Thr
165 170 175

Tyr Thr Leu Val Thr Cys Leu Gly Leu Ser Tyr Asp Gly Leu Leu Gly
180 185 190

Asn Asn Gln Ile Phe Pro Lys Thr Gly Leu Leu Ile Ile Val Leu Gly
195 200 205

Thr Ile Ala Met Glu Gly Asp Ser Ala Ser Glu Glu Glu Ile Trp Glu
210 215 220

Glu Leu Gly Val Met Gly Val Tyr Asp Gly Arg Glu His Thr Val Tyr
225 230 235 240

Gly Glu Pro Arg Lys Leu Leu Thr Gln Asp Trp Val Gln Glu Asn Tyr
245 250 255

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

Leu Trp Gly Pro Arg Ala Leu Ala Glu Thr Ser Tyr Val Lys Val Leu
275 280 285

Glu His Val Val Arg Val Asn Ala Arg Val Arg Ile Ala Tyr Pro Ser
290 295 300

Leu Arg Glu Ala Ala Leu Leu Glu Glu Glu Gly Val
305 310 315

<210> 5

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 5

Lys Val Leu Glu His Val Val Arg Val

1 5

<210> 6

<211> 478

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 6

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30

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

Tyr Ala Val Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Thr Tyr Ser Cys Gln Gln Thr Tyr Ser Thr Pro Pro
85 90 95

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Gly Gly Gly Gly
100 105 110

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Leu
115 120 125

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
130 135 140

Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met Thr Trp Val
145 150 155 160

Arg Gln Ala Pro Gly Met Gly Leu Glu Trp Val Ser Val Ile Ser Gly
165 170 175

Ser Gly Ser Glu Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
180 185 190

Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser
195 200 205

Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Lys Asp Ser Ser
210 215 220

Tyr Arg Ser Ser Ser Arg Ala Tyr Tyr Tyr Tyr Gly Met Asp Val Trp
225 230 235 240

Gly Leu Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Thr
245 250 255

Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser
260 265 270

Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly
275 280 285

Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp
290 295 300

Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val Ile
305 310 315 320

Thr Leu Tyr Cys Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe Lys
325 330 335

Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly Cys
340 345 350

Ser Cys Arg Phe Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu Arg Val
355 360 365

Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn
370 375 380

Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val
385 390 395 400

Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg
405 410 415

Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys
420 425 430

Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg
435 440 445

Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys
450 455 460

Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
465 470 475

<210> 7

<211> 474

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 7

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30

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

Tyr Ala Val Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Thr Tyr Ser Cys Gln Gln Thr Tyr Ser Thr Pro Pro
85 90 95

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Gly Gly Gly Gly
100 105 110

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Leu
115 120 125

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
130 135 140

Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met Thr Trp Val
145 150 155 160

Arg Gln Ala Pro Gly Met Gly Leu Glu Trp Val Ser Val Ile Ser Gly
165 170 175

Ser Gly Ser Glu Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
180 185 190

Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser
195 200 205

Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Lys Asp Ser Ser
210 215 220

Tyr Arg Ser Ser Ser Arg Ala Tyr Tyr Tyr Tyr Gly Met Asp Val Trp
225 230 235 240

Gly Leu Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Ile
245 250 255

Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly
260 265 270

Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu Phe

275

280

285

Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val Gly Gly Val
 290 295 300

Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe Ile Ile Phe Trp
 305 310 315 320

Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met
 325 330 335

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

Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg
 355 360 365

Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn
 370 375 380

Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg
 385 390 395 400

Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro
 405 410 415

Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala
 420 425 430

Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His
 435 440 445

Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp
 450 455 460

Ala Leu His Met Gln Ala Leu Pro Pro Arg
 465 470

<210> 8

<211> 470

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 8

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
85 90 95

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Gly Gly Gly
100 105 110

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu
115 120 125

Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly Ser Leu Arg Leu
130 135 140

Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Glu Tyr Tyr Met Thr Trp
145 150 155 160

Ile Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Val Ser Tyr Ile Ser
165 170 175

Ser Ser Gly Phe Asn Ile Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe
180 185 190

Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Phe Leu Gln Met Asn
195 200 205

Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Glu Gly
210 215 220

Val Thr Asp Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
225 230 235 240

Ser Ser Gly Gly Gly Gly Ser Thr Thr Thr Pro Ala Pro Arg Pro Pro
245 250 255

Thr Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu
260 265 270

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

Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly
290 295 300

Val Leu Leu Leu Ser Leu Val Ile Thr Leu Tyr Cys Lys Arg Gly Arg
305 310 315 320

Lys Lys Leu Leu Tyr Ile Phe Lys Gln Pro Phe Met Arg Pro Val Gln
325 330 335

Thr Thr Gln Glu Glu Asp Gly Cys Ser Cys Arg Phe Pro Glu Glu Glu
340 345 350

Glu Gly Gly Cys Glu Leu Arg Val Lys Phe Ser Arg Ser Ala Asp Ala
355 360 365

Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu
370 375 380

Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp
385 390 395 400

Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu
405 410 415

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

Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr
435 440 445

Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met
450 455 460

Gln Ala Leu Pro Pro Arg
465 470

<210> 9

<211> 466

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 9

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
85 90 95

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Gly Gly Gly
100 105 110

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu
115 120 125

Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly Ser Leu Arg Leu
130 135 140

Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Glu Tyr Tyr Met Thr Trp
145 150 155 160

Ile Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Val Ser Tyr Ile Ser
165 170 175

Ser Ser Gly Phe Asn Ile Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe
180 185 190

Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Phe Leu Gln Met Asn
195 200 205

Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Glu Gly
210 215 220

Val Thr Asp Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val

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

Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser
435 440 445

Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro
450 455 460

Pro Arg
465

<210> 10
<211> 478
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 10
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Ile Phe Asp Asp Tyr
20 25 30

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

Ser Leu Ile Ser Gly Asp Gly Asp Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

Leu Gln Met Asn Ser Leu Ile Ile Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Trp Val Phe Gly Val Val Met Thr His Tyr Trp Tyr Phe
100 105 110

Gly Leu Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly
115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile
130 135 140

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

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Thr Tyr Leu Asn
165 170 175

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly
180 185 190

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
195 200 205

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

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
225 230 235 240

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly Gly Gly Gly Ser Thr
245 250 255

Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser
260 265 270

Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly
275 280 285

Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp
290 295 300

Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val Ile
305 310 315 320

Thr Leu Tyr Cys Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe Lys
325 330 335

Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly Cys
340 345 350

Ser Cys Arg Phe Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu Arg Val
355 360 365

Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn
370 375 380

Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val
385 390 395 400

Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg
405 410 415

Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys
420 425 430

Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg
435 440 445

Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys
450 455 460

Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
465 470 475

<210> 11

<211> 474

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 11

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

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Ile Phe Asp Asp Tyr
20 25 30

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

Ser Leu Ile Ser Gly Asp Gly Asp Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

Leu Gln Met Asn Ser Leu Ile Ile Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Trp Val Phe Gly Val Val Met Thr His Tyr Trp Tyr Phe
100 105 110

Gly Leu Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly
115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile
130 135 140

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

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Thr Tyr Leu Asn
165 170 175

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly

180

185

190

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
 195 200 205

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

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 225 230 235 240

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly Gly Gly Gly Ser Ile
 245 250 255

Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly
 260 265 270

Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu Phe
 275 280 285

Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val Gly Gly Val
 290 295 300

Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe Ile Ile Phe Trp
 305 310 315 320

Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met
 325 330 335

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

Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg
 355 360 365

Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn
 370 375 380

Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg
385 390 395 400

Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro
405 410 415

Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala
420 425 430

Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His
435 440 445

Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp
450 455 460

Ala Leu His Met Gln Ala Leu Pro Pro Arg
465 470

<210> 12

<211> 466

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 12

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

Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Asp Ile Ile Tyr Ser Asn
20 25 30

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

Tyr Ala Ala Thr Asn Leu Ala Ala Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Gly Thr Tyr Tyr Cys Gln His Phe Trp Gly Ser Ser Ile
85 90 95

Ser Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Gly Gly Gly Gly Ser
100 105 110

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu Lys Glu
115 120 125

Ser Gly Pro Gly Leu Val Ala Pro Ser Gln Ser Leu Ser Ile Thr Cys
130 135 140

Thr Val Ser Gly Phe Ser Leu Thr Ser Tyr Gly Val His Trp Val Arg
145 150 155 160

Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu Gly Val Ile Trp Ala Gly
165 170 175

Gly Thr Thr Asn Tyr Asn Ser Ala Leu Met Ser Arg Leu Ser Ile Ser
180 185 190

Arg Asp Asn Ser Lys Ser Gln Val Phe Leu Glu Met Asn Ser Leu Gln
195 200 205

Thr Asp Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Asp Gly His Phe His
210 215 220

Phe Asp Phe Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly
225 230 235 240

Gly Gly Ser Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro
245 250 255

Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro
260 265 270

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

Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu
290 295 300

Ser Leu Val Ile Thr Leu Tyr Cys Lys Arg Gly Arg Lys Lys Leu Leu
305 310 315 320

Tyr Ile Phe Lys Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu
325 330 335

Glu Asp Gly Cys Ser Cys Arg Phe Pro Glu Glu Glu Glu Gly Gly Cys
340 345 350

Glu Leu Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln
355 360 365

Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu
370 375 380

Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly
385 390 395 400

Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu
405 410 415

Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly
420 425 430

Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser
435 440 445

Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro
450 455 460

Pro Arg
465

<210> 13
<211> 462
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 13
Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser Val Ser Val Gly
1 5 10 15

Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Asp Ile Ile Tyr Ser Asn
20 25 30

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

Tyr Ala Ala Thr Asn Leu Ala Ala Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Gly Thr Tyr Tyr Cys Gln His Phe Trp Gly Ser Ser Ile
85 90 95

Ser Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Gly Gly Gly Gly Ser
100 105 110

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu Lys Glu
115 120 125

Ser Gly Pro Gly Leu Val Ala Pro Ser Gln Ser Leu Ser Ile Thr Cys

130

135

140

Thr Val Ser Gly Phe Ser Leu Thr Ser Tyr Gly Val His Trp Val Arg
 145 150 155 160

Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu Gly Val Ile Trp Ala Gly
 165 170 175

Gly Thr Thr Asn Tyr Asn Ser Ala Leu Met Ser Arg Leu Ser Ile Ser
 180 185 190

Arg Asp Asn Ser Lys Ser Gln Val Phe Leu Glu Met Asn Ser Leu Gln
 195 200 205

Thr Asp Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Asp Gly His Phe His
 210 215 220

Phe Asp Phe Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly
 225 230 235 240

Gly Gly Ser Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu
 245 250 255

Lys Ser Asn Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro
 260 265 270

Ser Pro Leu Phe Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val
 275 280 285

Val Gly Gly Val Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe
 290 295 300

Ile Ile Phe Trp Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp
 305 310 315 320

Tyr Met Asn Met Thr Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr
 325 330 335

Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser Arg Val
340 345 350

Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn
355 360 365

Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val
370 375 380

Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg
385 390 395 400

Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys
405 410 415

Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg
420 425 430

Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys
435 440 445

Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
450 455 460

<210> 14

<211> 1411

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 14

catccagatg acccagtctc catcctccct gtctgcatct gtaggagaca gagtcaccat 60

cacttgccgg gcaagtcaga gcattagcag ctatttaa at tggtatcagc agaaaccagg 120

gaaagcccct aagctcctga tctatgctgc atccagtttg caaagtgggg tcccgtcaag 180

gttcagtggc agtggatctg ggacagatth cactctcacc atcagcagtc tgcaacctga	240
agatthttgca acttactact gtcaacagag ttacagtacc cctccgatca ctttcggcca	300
agggacacga ctggagatta aacgaggtgg aggcggtagt ggcggaggcg gaagtgggtgg	360
aggaggctca caggtgcagc tgggtggagtc tggggggaggc ttgggtcaagc ctggagggtc	420
cctgagactc tcctgtgcag cctctggatt cactttcagt gaatactaca tgacctggat	480
ccgccaggct ccagggcagg ggctggagtg ggtttcatac attagtagta gtggthttta	540
catatactac gcagactctg tgaagggccg attcaccatc tcaagggaca acgccaagaa	600
ctcactgttt ctgcaaatga acagcctgag agtcgaggac acggccgtat attactgtgc	660
gagagaaggt gtaacggacg gtatggacgt ctggggccaa gggaccacgg tcaccgtctc	720
ctcaggaggt ggtggaagta ctaccactcc tgctccccgc cccccaacac ctgctccaac	780
tattgcatcc caaccactct ccctcagacc cgaagcttgt cgcggccg ccggaggtgc	840
tgttcacact agaggactcg atthttgcttg cgacatthtat atctgggccc cacttgcagg	900
tacttgcgga gtattgctgc tctcacttgt tattactctt tattgcaaac ggggcagaaa	960
gaaactcctg tatatatthca aacaaccatt tatgagacca gtacaaacta ctcaagagga	1020
agatggctgt agctgccgat ttccagaaga agaagaagga ggatgtgaac tgagagtga	1080
gttcagcagg agcgcagacg ccccgcgta ccagcagggc cagaaccagc tctataacga	1140
gctcaatcta ggacgaagag aggagtacga tgtthttggac aagagacgtg gccgggaccc	1200
tgagatgggg ggaaagccga gaaggaagaa ccctcaggaa ggcctgtaca atgaactgca	1260
gaaagataag atggcggagg cctacagtga gattgggatg aaaggcgagc gccggagggg	1320
caaggggcac gatggcctth accagggtct cagtacagcc accaaggaca cctacgacgc	1380
ccttcacatg caggccctgc cccctcgcta a	1411

<210> 15

<211> 1413

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 15

gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc	60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca	120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccgtca	180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct	240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc	300
caagggacac gactggagat taaacgaggt ggaggcggta gtggcggagg cggaagtgg	360
ggaggaggct cacagggtga gctgggtggag tctgggggag gcttgggtcaa gcctggaggg	420
tccctgagac tctcctgtgc agcctctgga ttcactttca gtgaatacta catgacctgg	480
atccgccagg ctccagggca ggggctggag tgggtttcat acattagtag tagtggtttt	540
aacatatact acgcagactc tgtgaagggc cgattcacca tctcaaggga caacgccaag	600
aactcactgt ttctgcaaat gaacagcctg agagtcgagg acacggccgt atattactgt	660
gcgagagaag gtgtaacgga cggtatggac gtctggggcc aagggaccac ggtcaccgtc	720
tcctcaggag gtggtggaag tactaccact cctgctcccc gcccccaac acctgctcca	780
actattgcat cccaaccact ctccctcaga cccgaagctt gtcgccccgc cgccggaggt	840
gctgttcaca ctagaggact cgattttgct tgcgacattt atatctgggc cccacttgca	900
ggtacttgcg gagtattgct gctctcactt gttattactc tttattgcaa acggggcaga	960
aagaaactcc tgtatatatt caaacaacca tttatgagac cagtacaaac tactcaagag	1020
gaagatggct gtagctgccg atttccagaa gaagaagaag gaggatgtga actgagagtg	1080
aagttcagca ggagcgcaga cgccccgcg taccagcagg gccagaacca gctctataac	1140
gagctcaatc taggacgaag agaggagtac gatgttttgg acaagagacg tggccgggac	1200
cctgagatgg ggggaaagcc gagaaggaag aaccctcagg aaggcctgta caatgaactg	1260
cagaaagata agatggcgga ggcctacagt gagattggga tgaaaggcga gcgccggagg	1320
ggcaaggggc acgatggcct ttaccaggggt ctcagtagag ccaccaagga cacctacgac	1380

gcccttcaca tgcaggccct gccccctcgc taa

1413

<210> 16

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 16

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30

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

Tyr Ala Val Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Thr Tyr Ser Cys Gln Gln Thr Tyr Ser Thr Pro Pro
85 90 95

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105

<210> 17

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic

polypeptide"

<400> 17

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
85 90 95

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg
100 105

<210> 18

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 18

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Thr Tyr
20 25 30

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

Tyr Gly Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
85 90 95

Ile Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 19

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 19

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

Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Asp Ile Ile Tyr Ser Asn
20 25 30

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

Tyr Ala Ala Thr Asn Leu Ala Ala Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Gly Thr Tyr Tyr Cys Gln His Phe Trp Gly Ser Ser Ile
85 90 95

Ser Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 20

<211> 127

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 20

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

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

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

Ser Val Ile Ser Gly Ser Gly Ser Glu Thr Tyr Tyr Ala 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Val Lys Asp Ser Ser Tyr Arg Ser Ser Ser Arg Ala Tyr Tyr Tyr Tyr
100 105 110

Gly Met Asp Val Trp Gly Leu Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 21
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 21
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15

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

Tyr Met Thr Trp Ile Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Val
35 40 45

Ser Tyr Ile Ser Ser Ser Gly Phe Asn Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Arg Glu Gly Val Thr Asp Gly Met Asp Val Trp Gly Gln Gly Thr
100 105 110

Thr Val Thr Val Ser Ser
115

<210> 22
<211> 127
<212> PRT
<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 22

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

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Ile Phe Asp Asp Tyr
20 25 30

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

Ser Leu Ile Ser Gly Asp Gly Asp Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

Leu Gln Met Asn Ser Leu Ile Ile Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Trp Val Phe Gly Val Val Met Thr His Tyr Trp Tyr Phe
100 105 110

Gly Leu Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 23

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 23

Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala Pro Ser Gln

1	5	10	15												
Ser	Leu	Ser	Ile	Thr	Cys	Thr	Val	Ser	Gly	Phe	Ser	Leu	Thr	Ser	Tyr
			20					25					30		
Gly	Val	His	Trp	Val	Arg	Gln	Pro	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Leu
		35					40					45			
Gly	Val	Ile	Trp	Ala	Gly	Gly	Thr	Thr	Asn	Tyr	Asn	Ser	Ala	Leu	Met
		50				55					60				
Ser	Arg	Leu	Ser	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Ser	Gln	Val	Phe	Leu
65					70					75					80
Glu	Met	Asn	Ser	Leu	Gln	Thr	Asp	Asp	Thr	Ala	Ile	Tyr	Tyr	Cys	Ala
				85					90					95	
Arg	Asp	Gly	His	Phe	His	Phe	Asp	Phe	Trp	Gly	Gln	Gly	Thr	Thr	Leu
			100					105					110		
Thr	Val	Ser	Ser												
			115												

<210> 24
 <211> 326
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 24	
acatccagat gaccagtct ccacctccc tgtctgcatc tgtaggagac agagtcacca	60
tcacttgccg ggcaagtcag agcattagca gctatttaaa ttggtatcag cagaaaccag	120
ggaaaagcccc taagctcctg atctatgctg catccagttt gcaaagtggg gtcccgtcaa	180
ggttcagtgg cagtggatct gggacagatt tcactctcac catcagcagt ctgcaacctg	240

aagattttgc aacttactac tgtcaacaga gttacagtac ccctccgatc accttcggcc 300
aagggacacg actggagatt aaacga 326

<210> 25
<211> 353
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 25
aggtgcagct ggtggagtct gggggaggct tggtaagcc tggagggtcc ctgagactct 60
cctgtgcagc ctctggattc actttcagtg aatactacat gacctggatc cgccaggctc 120
cagggcaggg gctggagtgg gtttcataca ttagtagtag tggttttaac atatactacg 180
cagactctgt gaagggccga ttcaccatct caagggacaa cgccaagaac tcactgtttc 240
tgcaaatgaa cagcctgaga gtcgaggaca cggccgtata ttactgtgcg agagaagggtg 300
taacggacgg tatggacgtc tggggccaag ggaccacggt caccgtctcc tca 353

<210> 26
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 26
Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly
1 5 10 15

Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr
20 25 30

Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys
35 40 45

Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys
50 55 60

Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg
65 70 75 80

Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala
85 90 95

Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
100 105 110

<210> 27

<211> 69

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 27

Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala
1 5 10 15

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

Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile
35 40 45

Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val
50 55 60

Ile Thr Leu Tyr Cys
65

<210> 28

<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 28
Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe Lys Gln Pro Phe Met
1 5 10 15

Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly Cys Ser Cys Arg Phe
20 25 30

Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu
35 40

<210> 29
<211> 732
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 29
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr
20 25 30

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

Tyr Asp Ala Ser Ile Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro

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

Glu Ala Cys Arg Pro Ala Ala Gly Gly Ala Val His Thr Arg Gly Leu
275 280 285

Asp Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys
290 295 300

Gly Val Leu Leu Leu Ser Leu Val Ile Thr Leu Tyr Cys Lys Arg Gly
305 310 315 320

Arg Lys Lys Leu Leu Tyr Ile Phe Lys Gln Pro Phe Met Arg Pro Val
325 330 335

Gln Thr Thr Gln Glu Glu Asp Gly Cys Ser Cys Arg Phe Pro Glu Glu
340 345 350

Glu Glu Gly Gly Cys Glu Leu Arg Val Lys Phe Ser Arg Ser Ala Asp
355 360 365

Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn
370 375 380

Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg
385 390 395 400

Asp Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly
405 410 415

Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu
420 425 430

Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu
435 440 445

Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His
450 455 460

Met Gln Ala Leu Pro Pro Arg Gly Ser Gly Ala Thr Asn Phe Ser Leu

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

Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu
675 680 685

Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp
690 695 700

Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala
705 710 715 720

Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
725 730

<210> 30

<211> 728

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 30

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

Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr
20 25 30

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

Tyr Asp Ala Ser Ile Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Phe Asp Asn Val Pro Leu
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Gly Gly Gly Gly Ser
100 105 110

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
115 120 125

Ser Gly Gly Gly Leu Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys
130 135 140

Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr Ala Met His Trp Val Arg
145 150 155 160

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Gly Ile Ser Trp Asn
165 170 175

Ser Gly Ser Ile Ala Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
180 185 190

Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr Leu Gln Met Asn Ser Leu
195 200 205

Arg Ser Glu Asp Thr Ala Leu Tyr His Cys Ala Lys Asp Trp Arg Arg
210 215 220

Thr Asn Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr
225 230 235 240

Val Ser Ser Gly Gly Gly Gly Ser Ile Glu Val Met Tyr Pro Pro Pro
245 250 255

Tyr Leu Asp Asn Glu Lys Ser Asn Gly Thr Ile Ile His Val Lys Gly
260 265 270

Lys His Leu Cys Pro Ser Pro Leu Phe Pro Gly Pro Ser Lys Pro Phe
275 280 285

Trp Val Leu Val Val Val Gly Gly Val Leu Ala Cys Tyr Ser Leu Leu
290 295 300

Val Thr Val Ala Phe Ile Ile Phe Trp Val Arg Ser Lys Arg Ser Arg
305 310 315 320

Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg Pro Gly Pro
325 330 335

Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala Ala
340 345 350

Tyr Arg Ser Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr
355 360 365

Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg
370 375 380

Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met
385 390 395 400

Gly Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu
405 410 415

Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys
420 425 430

Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu
435 440 445

Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu
450 455 460

Pro Pro Arg Gly Ser Gly Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala
465 470 475 480

Gly Asp Val Glu Glu Asn Pro Gly Pro Met Val Ser Lys Gly Glu Glu
485 490 495

Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val
500 505 510

Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr
515 520 525

Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro
530 535 540

Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys
545 550 555 560

Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser
565 570 575

Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp
580 585 590

Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr
595 600 605

Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly
610 615 620

Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val
625 630 635 640

Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys
645 650 655

Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr
660 665 670

Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn
675 680 685

His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys
690 695 700

Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr
705 710 715 720

Leu Gly Met Asp Glu Leu Tyr Lys
725

<210> 31

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 31

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

Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr
20 25 30

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

Tyr Asp Ala Ser Ile Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Phe Asp Asn Val Pro Leu
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105

<210> 32
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 32
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
1 5 10 15

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

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

Ser Gly Ile Ser Trp Asn Ser Gly Ser Ile Ala Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Trp Arg Arg Thr Asn Tyr Tyr Gly Met Asp Val Trp Gly
100 105 110

Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 33
<211> 739
<212> PRT
<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 33

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

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

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

Ser Thr Ile Ser Gly Asn Ser Asp Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Leu His Ile Thr Met Val Arg Gly Ala Ile Pro Ala Asp
100 105 110

Val Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser Gly
115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile
130 135 140

Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
145 150 155 160

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Phe Tyr Leu Asn
165 170 175

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala

180

185

190

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
 195 200 205

Ser Glu Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 210 215 220

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 225 230 235 240

Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Gly Gly Gly Gly Ser Thr
 245 250 255

Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser
 260 265 270

Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly
 275 280 285

Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp
 290 295 300

Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val Ile
 305 310 315 320

Thr Leu Tyr Cys Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe Lys
 325 330 335

Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly Cys
 340 345 350

Ser Cys Arg Phe Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu Arg Val
 355 360 365

Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn
 370 375 380

Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val
385 390 395 400

Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg
405 410 415

Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys
420 425 430

Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg
435 440 445

Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys
450 455 460

Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg Gly Ser
465 470 475 480

Gly Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala Gly Asp Val Glu Glu
485 490 495

Asn Pro Gly Pro Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val
500 505 510

Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe
515 520 525

Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr
530 535 540

Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr
545 550 555 560

Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro
565 570 575

Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly

580

585

590

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

Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile
610 615 620

Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His
625 630 635 640

Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp
645 650 655

Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile
660 665 670

Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro
675 680 685

Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr
690 695 700

Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val
705 710 715 720

Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu
725 730 735

Leu Tyr Lys

<210> 34

<211> 735

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 34

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

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

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

Ser Thr Ile Ser Gly Asn Ser Asp Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Leu His Ile Thr Met Val Arg Gly Ala Ile Pro Ala Asp
100 105 110

Val Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser Gly
115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile
130 135 140

Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
145 150 155 160

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Phe Tyr Leu Asn
165 170 175

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
180 185 190

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
195 200 205

Ser Glu Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
210 215 220

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
225 230 235 240

Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Gly Gly Gly Gly Ser Ile
245 250 255

Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly
260 265 270

Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu Phe
275 280 285

Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val Gly Gly Val
290 295 300

Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe Ile Ile Phe Trp
305 310 315 320

Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met
325 330 335

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

Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg
355 360 365

Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn
370 375 380

Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg
385 390 395 400

Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro
405 410 415

Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala
420 425 430

Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His
435 440 445

Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp
450 455 460

Ala Leu His Met Gln Ala Leu Pro Pro Arg Gly Ser Gly Ala Thr Asn
465 470 475 480

Phe Ser Leu Leu Lys Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
485 490 495

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu
500 505 510

Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
515 520 525

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
530 535 540

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
545 550 555 560

Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
565 570 575

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
580 585 590

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
595 600 605

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
610 615 620

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
625 630 635 640

Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
645 650 655

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

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
675 680 685

Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
690 695 700

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
705 710 715 720

Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
725 730 735

<210> 35

<211> 2220

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 35

gaggtgcagc tgctggagag cggaggaggc ctggtgcagc ctggaggaag cctgaggctg

acatgcgag catccggctt cacctttcgc tcttacgcaa tgagctgggt gcggcaggca	120
ccaggcaagg gactggagtg ggtgagcaca atctccggca attctgacag cacctactat	180
gccgattccg tgaagggccg ctttacaatc tcccgggaga actctaagaa taccctgtat	240
ctgcagatga actctctgcg ggccgaggac acagccgtgt actattgcgc caaggatctg	300
cacatcacca tggtagagagg agcaatccca gcagacgtgt tcgatatctg gggccagggc	360
acaatgggtga ccgtgagctc cggaggagga ggatccggcg gaggaggctc tggaggagga	420
ggaagcgaca tccagatgac ccagagccct tctagcctgt ccgcctctgt gggcgataga	480
gtgacaatca cctgtagggc cagccagtcc atctcttttt acctgaattg gtatcagcag	540
aagcccggca agggcccctaa gctgctgata tacgcagcat cctctctgca gagcggagtg	600
ccatccaggt tcagcggatc cggctctgag acagacttta cactgaccat cagctccctg	660
cagcctgagg atttcgccac ctactattgc cagcagagct attccacacc ccctatcacc	720
tttggccagg gaaccaggct ggagatcaag ggaggaggag gatccaccac aaccccagcc	780
cctcgccac ccacaccagc accaaccatc gcatctcagc cactgagcct gagacctgag	840
gcctgtaggc cagcagcagg aggagcagtg cacaccaggg gactggactt cgctgcat	900
atctacatct gggcaccact ggcaggaaca tgtggcgtgc tgctgctgag cctggtcac	960
accctgtact gcaagagagg caggaagaag ctgctgtata tcttcaagca gcccttcacg	1020
cggcccgtgc agacaacca ggaggaggac ggctgctcct gtagattccc tgaagaagag	1080
gaggaggat gtgagctgag ggtgaagttt tctcggagcg ccgatgcacc agcataccag	1140
caggacaga accagctgta taacgagctg aatctgggcc ggagagagga gtacgacgtg	1200
ctggataaga ggcggggcag agaccctgag atgggaggca agccccggag aaagaaccct	1260
caggagggcc tgtacaatga gctgcagaag gacaagatgg ccgaggccta tagcgagatc	1320
ggcatgaagg gagagaggcg ccggggcaag ggacacgatg gcctgtacca gggcctgtcc	1380
acagccacca aggacacata tgatgccctg cacatgcagg ccctgcctcc aagaggatcc	1440
ggagccacca acttttctct gctgaagcag gcaggcgacg tggaggagaa tcctggacca	1500
atggtgagca agggagagga gctgttcacc ggagtgggtgc caatcctggt ggagctggac	1560

ggc gatgtga atggccacaa gttttccgtg tctggagagg gagagggcga tgcaacatac	1620
ggcaagctga ccctgaagtt catctgcaca accggcaagc tgcccgtgcc ttggccaaca	1680
ctggtgacaa ccctgaccta cggcgtgcag tgtttctcta gatatccaga ccacatgaag	1740
cagcacgatt tctttaagag cgccatgccc gagggctacg tgcaggagag aaccatcttc	1800
tttaaggacg atggcaacta taagacaagg gccgaggtga agttcgaggg cgacaccctg	1860
gtgaaccgca tcgagctgaa gggcatcgac tttaaggagg atggcaatat cctgggccac	1920
aagctggagt acaactataa ttctcacaac gtgtacatca tggccgataa gcagaagaac	1980
ggcatcaagg tgaacttcaa gatcaggcac aatatcgagg acggctccgt gcagctggcc	2040
gatcactacc agcagaacac accaatcggc gacggccctg tgctgctgcc agataatcac	2100
tatctgtcta cccagagcgc cctgtccaag gaccccaacg agaagcgcga tcacatggtg	2160
ctgctggagt tcgtgacagc agcaggaatc accctgggaa tggacgagct gtataagtga	2220

<210> 36

<211> 2208

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 36

gaggtgcagc tgctggagag cggaggaggc ctggtgcagc ctggaggatc tctgaggctg	60
acctgcgcag caagcggctt cacatttcgc tcctacgcaa tgtcttgggt gcggcaggca	120
ccaggcaagg gactggagtg ggtgagcacc atctccggca attctgacag cacatactat	180
gccgattctg tgaagggccg ctttaccatc agccgggaga actccaagaa tacactgtat	240
ctgcagatga acagcctgag ggccgaggac accgccgtgt actattgtgc caaggatctg	300
cacatcaciaa tgggtgcgcgg agcaatccca gcagacgtgt tcgatatctg gggccagggc	360
accatggtga cagtgaagctc cggaggagga ggatccggcg gaggaggctc tggaggagga	420
ggaagcgaca tccagatgac ccagagccct tctagcctgt ccgcctctgt gggcgataga	480

gtgaccatca catgcagggc cagccagtcc atctctttct acctgaactg gtatcagcag	540
aagccaggca agggccccc aa gctgctgac tacgcagcat cctctctgca gtctggagtg	600
ccaagcaggt tcagcggatc cggatctgag accgacttta ccctgacaat cagctccctg	660
cagcctgagg atttcgccac atactattgt cagcagagct attccacccc ccctatcaca	720
tttggccagg gaaccaggct ggagatcaag ggaggaggcg gcagcatcga agtgatgtac	780
ccacccccctt atctggacaa cgagaagtcc aatggcacaa tcatccacgt gaagggaag	840
cacctgtgcc caagccctct gttcccagga ccatccaagc ctttttgggt gctggtggtg	900
gtgggaggcg tgctggcctg ttactccctg ctggtgaccg tggccttcat catcttttgg	960
gtgagatcta agcgcagccg gctgctgcac tctgattata tgaatatgac cccacggaga	1020
cctggcccaa caagaaagca ctaccagcca tatgcaccac caagggactt cgcagcctac	1080
agaagcaggg tgaagttttc tcggagcgcc gatgcaccag cataccagca gggacagaac	1140
cagctgtata acgagctgaa tctgggcagg cgcgaggagt atgacgtgct ggataagcgg	1200
agaggcagag accctgagat gggaggcaag ccaaggagga agaaccctca ggagggcctg	1260
tacaatgagc tgcagaagga caagatggcc gaggcctata gcgagatcgg catgaaggga	1320
gagcggagaa ggggcaaggg acacgatggc ctgtaccagg gcctgtccac cgccacaaag	1380
gacacctatg atgccctgca catgcaggcc ctgcctcaa ggggatccgg agccacaaac	1440
ttttctctgc tgaagcaggc aggcgacgtg gaggagaatc caggacctat ggtgtccaag	1500
ggagaggagc tgttcaccgg agtggtgcca atcctgggtg agctggacgg cgatgtgaat	1560
ggccacaagt tttccgtgtc tggagaggga gaggcgatg caacctacgg caagctgaca	1620
ctgaagttca tctgcaccac aggcaagctg ccagtgccct ggcctaccct ggtgaccaca	1680
ctgacatacg gcgtgcagtg tttctccgc tatcctgacc acatgaagca gcacgatttc	1740
tttaagtctg ccatgccaga gggctacgtg caggagcgca ccatcttctt taaggacgat	1800
ggcaactata agacccgggc cgaggatgaag ttcgaggcg acacactggt gaacagaatc	1860
gagctgaagg gcatcgactt taaggaggat ggcaatatcc tgggccacaa gctggagtac	1920
aactataata gccacaacgt gtacatcatg gccgataagc agaagaacgg catcaagggtg	1980

aacttcaaga tccggcacaa tatcgaggac ggctccgtgc agctggccga tcactaccag	2040
cagaacacccc caatcggcga cggacctgtg ctgctgccag ataatcacta tctgtccaca	2100
cagtctgccc tgagcaagga cccaacgag aagagagatc acatggtgct gctggagttc	2160
gtgaccgcag caggaatcac actgggaatg gacgagctgt acaagtga	2208

<210> 37
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 37
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Phe Tyr
 20 25 30

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
 85 90 95

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
 100 105

<210> 38

<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 38
Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly
1 5 10 15

Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr
20 25 30

Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys
35 40 45

Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys
50 55 60

Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg
65 70 75 80

Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala
85 90 95

Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
100 105 110

<210> 39
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 39
gacatccaga tgaccagag cccttctagc ctgtccgcct ctgtgggcga tagagtgacc

atcacatgca gggccagcca gtccatctct ttctacctga actggtatca gcagaagcca	120
ggcaaggccc ccaagctgct gatctacgca gcatcctctc tgcagtctgg agtgccaagc	180
aggttcagcg gatccggatc tgagaccgac tttaccctga caatcagctc cctgcagcct	240
gaggatttcg ccacatacta ttgtcagcag agctattcca cccccctat cacatttggc	300
caggaacca ggctggagat caag	324

<210> 40
 <211> 381
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 40	
gaggtgcagc tgctggagag cggaggaggc ctggtgcagc ctggaggatc tctgaggctg	60
acctgcgcag caagcggctt cacatttcgc tcctacgcaa tgtcttgggt gcggcaggca	120
ccaggcaagg gactggagtg ggtgagcacc atctccggca attctgacag cacatactat	180
gccgattctg tgaagggccg ctttaccatc agccgggaga actccaagaa tacactgtat	240
ctgcagatga acagcctgag ggccgaggac accgccgtgt actattgtgc caaggatctg	300
cacatcaciaa tgggtgcgcgg agcaatccca gcagacgtgt tcgatatctg gggccagggc	360
accatggtga cagtgagctc c	381

<210> 41
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic 6xHis tag"

<400> 41
 His His His His His His

1

5