

SEQUENCE LISTING

<110> SINOCELLTECH

<120> STABLE FORMULATION OF HUMAN PAPILLOMAVIRUS VIRUS-LIKE PARTICLE VACCINE

<130> PCT74213SXB

<160> 41

<170> PatentIn version 3.3

<210> 1

<211> 26

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 1

Lys	Ala	Lys	Pro	Lys	Leu	Lys	Arg	Ala	Ala	Pro	Thr	Ser	Thr	Arg	Thr
1				5					10					15	

Ser	Ser	Ala	Lys	Arg	Lys	Lys	Val	Lys	Lys
			20					25	

<210> 2

<211> 31

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 2

Leu	Gln	Ala	Gly	Leu	Lys	Ala	Lys	Pro	Lys	Leu	Lys	Arg	Ala	Ala	Pro
1				5					10					15	

Thr	Ser	Thr	Arg	Thr	Ser	Ser	Ala	Lys	Arg	Lys	Lys	Val	Lys	Lys
			20					25					30	

<210> 3

<211> 38

<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 3

Leu Gln Leu Gly Ala Arg Pro Lys Pro Thr Ile Gly Pro Arg Lys Arg
1 5 10 15

Ala Ala Pro Ala Pro Thr Ser Thr Pro Ser Pro Lys Arg Val Lys Arg
20 25 30

Arg Lys Ser Ser Arg Lys
35

<210> 4
<211> 469
<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 4

Met Trp Arg Pro Ser Asp Ser Thr Val Tyr Val Pro Pro Pro Asn Pro
1 5 10 15

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

Phe Tyr His Ala Ser Ser Ser Arg Leu Leu Ala Val Gly His Pro Tyr
35 40 45

Phe Ser Ile Lys Arg Ala Asn Lys Thr Val Val Pro Lys Val Ser Gly
50 55 60

Tyr Gln Tyr Arg Val Phe Lys Val Val Leu Pro Asp Pro Asn Lys Phe
65 70 75 80

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

Trp Ala Cys Thr Gly Leu Glu Val Gly Arg Gly Gln Pro Leu Gly Val
 100 105 110

Gly Val Ser Gly His Pro Phe Leu Asn Lys Tyr Asp Asp Val Glu Asn
 115 120 125

Ser Gly Ser Gly Gly Asn Pro Gly Gln Asp Asn Arg Val Asn Val Gly
 130 135 140

Met Asp Tyr Lys Gln Thr Gln Leu Cys Met Val Gly Cys Ala Pro Pro
 145 150 155 160

Leu Gly Glu His Trp Gly Lys Gly Lys Gln Cys Thr Asn Thr Pro Val
 165 170 175

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

Asp Gly Asp Met Val Asp Thr Gly Phe Gly Ala Met Asn Phe Ala Asp
 195 200 205

Leu Gln Thr Asn Lys Ser Asp Val Pro Ile Asp Ile Cys Gly Thr Thr
 210 215 220

Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ala Ala Asp Pro Tyr Gly Asp
 225 230 235 240

Arg Leu Phe Phe Phe Leu Arg Lys Glu Gln Met Phe Ala Arg His Phe
 245 250 255

Phe Asn Arg Ala Gly Glu Val Gly Glu Pro Val Pro Asp Thr Leu Ile
 260 265 270

Ile Lys Gly Ser Gly Asn Arg Thr Ser Val Gly Ser Ser Ile Tyr Val
 275 280 285

Asn Thr Pro Ser Gly Ser Leu Val Ser Ser Glu Ala Gln Leu Phe Asn
290 295 300

Lys Pro Tyr Trp Leu Gln Lys Ala Gln Gly His Asn Asn Gly Ile Cys
305 310 315 320

Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr Thr Arg Ser Thr
325 330 335

Asn Met Thr Leu Cys Ala Ser Val Thr Thr Ser Ser Thr Tyr Thr Asn
340 345 350

Ser Asp Tyr Lys Glu Tyr Met Arg His Val Glu Glu Tyr Asp Leu Gln
355 360 365

Phe Ile Phe Gln Leu Cys Ser Ile Thr Leu Ser Ala Glu Val Met Ala
370 375 380

Tyr Ile His Thr Met Asn Pro Ser Val Leu Glu Asp Trp Asn Phe Gly
385 390 395 400

Leu Ser Pro Pro Pro Asn Gly Thr Leu Glu Asp Thr Tyr Arg Tyr Val
405 410 415

Gln Ser Gln Ala Ile Thr Cys Gln Lys Pro Thr Pro Glu Lys Glu Lys
420 425 430

Pro Asp Pro Tyr Lys Asn Leu Ser Phe Trp Glu Val Asn Leu Lys Glu
435 440 445

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

Leu Gln Ser Gly Tyr
465

<210> 5
<211> 470
<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 5

Met Trp Arg Pro Ser Asp Ser Thr Val Tyr Val Pro Pro Pro Asn Pro
1 5 10 15

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

Phe Tyr His Ala Ser Ser Ser Arg Leu Leu Ala Val Gly His Pro Tyr
35 40 45

Tyr Ser Ile Lys Lys Val Asn Lys Thr Val Val Pro Lys Val Ser Gly
50 55 60

Tyr Gln Tyr Arg Val Phe Lys Val Val Leu Pro Asp Pro Asn Lys Phe
65 70 75 80

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

Trp Ala Cys Thr Gly Leu Glu Val Gly Arg Gly Gln Pro Leu Gly Val
100 105 110

Gly Val Ser Gly His Pro Leu Leu Asn Lys Tyr Asp Asp Val Glu Asn
115 120 125

Ser Gly Gly Tyr Gly Gly Asn Pro Gly Gln Asp Asn Arg Val Asn Val
130 135 140

Gly Met Asp Tyr Lys Gln Thr Gln Leu Cys Met Val Gly Cys Ala Pro
145 150 155 160

Pro Leu Gly Glu His Trp Gly Lys Gly Thr Gln Cys Ser Asn Thr Ser
165 170 175

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

Gln Asp Gly Asp Met Val Asp Thr Gly Phe Gly Ala Met Asn Phe Ala
195 200 205

Asp Leu Gln Thr Asn Lys Ser Asp Val Pro Leu Asp Ile Cys Gly Thr
210 215 220

Val Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ala Ala Asp Pro Tyr Gly
225 230 235 240

Asp Arg Leu Phe Phe Tyr Leu Arg Lys Glu Gln Met Phe Ala Arg His
245 250 255

Phe Phe Asn Arg Ala Gly Thr Val Gly Glu Pro Val Pro Asp Asp Leu
260 265 270

Leu Val Lys Gly Gly Asn Asn Arg Ser Ser Val Ala Ser Ser Ile Tyr
275 280 285

Val His Thr Pro Ser Gly Ser Leu Val Ser Ser Glu Ala Gln Leu Phe
290 295 300

Asn Lys Pro Tyr Trp Leu Gln Lys Ala Gln Gly His Asn Asn Gly Ile
305 310 315 320

Cys Trp Gly Asn His Leu Phe Val Thr Val Val Asp Thr Thr Arg Ser
325 330 335

Thr Asn Met Thr Leu Cys Ala Ser Val Ser Lys Ser Ala Thr Tyr Thr
340 345 350

Asn Ser Asp Tyr Lys Glu Tyr Met Arg His Val Glu Glu Phe Asp Leu
355 360 365

Gln Phe Ile Phe Gln Leu Cys Ser Ile Thr Leu Ser Ala Glu Val Met
 370 375 380

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

Gly Leu Ser Pro Pro Pro Asn Gly Thr Leu Glu Asp Thr Tyr Arg Tyr
 405 410 415

Val Gln Ser Gln Ala Ile Thr Cys Gln Lys Pro Thr Pro Glu Lys Glu
 420 425 430

Lys Gln Asp Pro Tyr Lys Asp Met Ser Phe Trp Glu Val Asn Leu Lys
 435 440 445

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

Leu Leu Gln Ser Gly Tyr
 465 470

<210> 6

<211> 474

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 6

Met Ser Leu Trp Leu Pro Ser Glu Ala Thr Val Tyr Leu Pro Pro Val
 1 5 10 15

Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Ala Arg Thr Asn
 20 25 30

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

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

Pro Tyr Gly Asp Ser Leu Phe Phe Tyr Leu Arg Arg Glu Gln Met Phe
245 250 255

Val Arg His Leu Phe Asn Arg Ala Gly Ala Val Gly Glu Asn Val Pro
260 265 270

Asp Asp Leu Tyr Ile Lys Gly Ser Gly Ser Thr Ala Asn Leu Ala Ser
275 280 285

Ser Asn Tyr Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser Asp Ala
290 295 300

Gln Ile Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn
305 310 315 320

Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr
325 330 335

Thr Arg Ser Thr Asn Met Ser Leu Cys Ala Ala Ile Ser Thr Ser Glu
340 345 350

Thr Thr Tyr Lys Asn Thr Asn Phe Lys Glu Tyr Leu Arg His Gly Glu
355 360 365

Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu Thr
370 375 380

Ala Asp Val Met Thr Tyr Ile His Ser Met Asn Ser Thr Ile Leu Glu
385 390 395 400

Asp Trp Asn Phe Gly Leu Gln Pro Pro Pro Gly Gly Thr Leu Glu Asp
405 410 415

Thr Tyr Arg Phe Val Thr Ser Gln Ala Ile Ala Cys Gln Lys His Thr
420 425 430

Pro Pro Ala Pro Lys Glu Asp Pro Leu Lys Lys Tyr Thr Phe Trp Glu
435 440 445

Val Asn Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp Gln Phe Pro Leu
 450 455 460

Gly Arg Lys Phe Leu Leu Gln Ala Gly Leu
 465 470

<210> 7
 <211> 470
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 7

Met Ala Leu Trp Arg Pro Ser Asp Asn Thr Val Tyr Leu Pro Pro Pro
 1 5 10 15

Ser Val Ala Arg Val Val Asn Thr Asp Asp Tyr Val Thr Arg Thr Ser
 20 25 30

Ile Phe Tyr His Ala Gly Ser Ser Arg Leu Leu Thr Val Gly Asn Pro
 35 40 45

Tyr Phe Arg Val Pro Ala Gly Gly Gly Asn Lys Gln Asp Ile Pro Lys
 50 55 60

Val Ser Ala Tyr Gln Tyr Arg Val Phe Arg Val Gln Leu Pro Asp Pro
 65 70 75 80

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

Arg Leu Val Trp Ala Cys Ala Gly Val Glu Ile Gly Arg Gly Gln Pro
 100 105 110

Leu Gly Val Gly Leu Ser Gly His Pro Phe Tyr Asn Lys Leu Asp Asp
 115 120 125

Thr Glu Ser Ser His Ala Ala Thr Ser Asn Val Ser Glu Asp Val Arg
130 135 140

Asp Asn Val Ser Val Asp Tyr Lys Gln Thr Gln Leu Cys Ile Leu Gly
145 150 155 160

Cys Ala Pro Ala Ile Gly Glu His Trp Ala Lys Gly Thr Ala Cys Lys
165 170 175

Ser Arg Pro Leu Ser Gln Gly Asp Cys Pro Pro Leu Glu Leu Lys Asn
180 185 190

Thr Val Leu Glu Asp Gly Asp Met Val Asp Thr Gly Tyr Gly Ala Met
195 200 205

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

Cys Gln Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ser Ala Asp
225 230 235 240

Pro Tyr Gly Asp Ser Met Phe Phe Cys Leu Arg Arg Glu Gln Leu Phe
245 250 255

Ala Arg His Phe Trp Asn Arg Ala Gly Thr Met Gly Asp Thr Val Pro
260 265 270

Gln Ser Leu Tyr Ile Lys Gly Thr Gly Met Arg Ala Ser Pro Gly Ser
275 280 285

Cys Val Tyr Ser Pro Ser Pro Ser Gly Ser Ile Val Thr Ser Asp Ser
290 295 300

Gln Leu Phe Asn Lys Pro Tyr Trp Leu His Lys Ala Gln Gly His Asn
305 310 315 320

Asn Gly Val Cys Trp His Asn Gln Leu Phe Val Thr Val Val Asp Thr
325 330 335

Thr Arg Ser Thr Asn Leu Thr Ile Cys Ala Ser Thr Gln Ser Pro Val
340 345 350

Pro Gly Gln Tyr Asp Ala Thr Lys Phe Lys Gln Tyr Ser Arg His Val
355 360 365

Glu Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys Thr Ile Thr Leu
370 375 380

Thr Ala Asp Val Met Ser Tyr Ile His Ser Met Asn Ser Ser Ile Leu
385 390 395 400

Glu Asp Trp Asn Phe Gly Val Pro Pro Pro Pro Thr Thr Ser Leu Val
405 410 415

Asp Thr Tyr Arg Phe Val Gln Ser Val Ala Ile Thr Cys Gln Lys Asp
420 425 430

Ala Ala Pro Ala Glu Asn Lys Asp Pro Tyr Asp Lys Leu Lys Phe Trp
435 440 445

Asn Val Asp Leu Lys Glu Lys Phe Ser Leu Asp Leu Asp Gln Tyr Pro
450 455 460

Leu Gly Arg Lys Phe Leu
465 470

<210> 8
<211> 475
<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 8

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

Glu Asp Trp Asn Phe Gly Leu Thr Thr Pro Pro Ser Gly Ser Leu Glu
 405 410 415

Asp Thr Tyr Arg Phe Val Thr Ser Gln Ala Ile Thr Cys Gln Lys Ser
 420 425 430

Ala Pro Gln Lys Pro Lys Glu Asp Pro Phe Lys Asp Tyr Val Phe Trp
 435 440 445

Glu Val Asn Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp Gln Phe Pro
 450 455 460

Leu Gly Arg Lys Phe Leu Leu Gln Ala Gly Tyr
 465 470 475

<210> 9

<211> 472

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 9

Met Ser Leu Trp Arg Ser Asn Glu Ala Thr Val Tyr Leu Pro Pro Val
 1 5 10 15

Ser Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Thr Arg Thr Asn
 20 25 30

Ile Tyr Tyr His Ala Gly Ser Ser Arg Leu Leu Ala Val Gly His Pro
 35 40 45

Tyr Tyr Ala Ile Lys Lys Gln Asp Ser Asn Lys Ile Ala Val Pro Lys
 50 55 60

Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Val Lys Leu Pro Asp Pro
 65 70 75 80

Asn Lys Phe Gly Phe Pro Asp Thr Ser Phe Tyr Asp Pro Ala Ser Gln
85 90 95

Arg Leu Val Trp Ala Cys Thr Gly Val Glu Val Gly Arg Gly Gln Pro
100 105 110

Leu Gly Val Gly Ile Ser Gly His Pro Leu Leu Asn Lys Leu Asp Asp
115 120 125

Thr Glu Asn Ser Asn Lys Tyr Val Gly Asn Ser Gly Thr Asp Asn Arg
130 135 140

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

Cys Arg Pro Pro Ile Gly Glu His Trp Gly Lys Gly Thr Pro Cys Asn
165 170 175

Ala Asn Gln Val Lys Ala Gly Glu Cys Pro Pro Leu Glu Leu Leu Asn
180 185 190

Thr Val Leu Gln Asp Gly Asp Met Val Asp Thr Gly Phe Gly Ala Met
195 200 205

Asp Phe Thr Thr Leu Gln Ala Asn Lys Ser Asp Val Pro Leu Asp Ile
210 215 220

Cys Ser Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Lys Met Val Ser Glu
225 230 235 240

Pro Tyr Gly Asp Met Leu Phe Phe Tyr Leu Arg Arg Glu Gln Met Phe
245 250 255

Val Arg His Leu Phe Asn Arg Ala Gly Thr Val Gly Glu Thr Val Pro
260 265 270

Ala Asp Leu Tyr Ile Lys Gly Thr Thr Gly Thr Leu Pro Ser Thr Ser
275 280 285

Tyr Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser Asp Ala Gln Ile
290 295 300

Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn Asn Gly
305 310 315 320

Ile Cys Trp Ser Asn Gln Leu Phe Val Thr Val Val Asp Thr Thr Arg
325 330 335

Ser Thr Asn Met Ser Val Cys Ser Ala Val Ser Ser Ser Asp Ser Thr
340 345 350

Tyr Lys Asn Asp Asn Phe Lys Glu Tyr Leu Arg His Gly Glu Glu Tyr
355 360 365

Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu Thr Ala Asp
370 375 380

Val Met Thr Tyr Ile His Ser Met Asn Pro Ser Ile Leu Glu Asp Trp
385 390 395 400

Asn Phe Gly Leu Thr Pro Pro Pro Ser Gly Thr Leu Glu Asp Thr Tyr
405 410 415

Arg Tyr Val Thr Ser Gln Ala Val Thr Cys Gln Lys Pro Ser Ala Pro
420 425 430

Lys Pro Lys Asp Asp Pro Leu Lys Asn Tyr Thr Phe Trp Glu Val Asp
435 440 445

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

Lys Phe Leu Leu Gln Ala Gly Leu
465 470

<210> 10
 <211> 469
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 10

Met Ala Met Trp Arg Ser Ser Asp Ser Met Val Tyr Leu Pro Pro Pro
 1 5 10 15

Ser Val Ala Lys Val Val Asn Thr Asp Asp Tyr Val Thr Arg Thr Gly
 20 25 30

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

Tyr Phe Lys Val Gly Met Asn Gly Gly Arg Lys Gln Asp Ile Pro Lys
 50 55 60

Val Ser Ala Tyr Gln Tyr Arg Val Phe Arg Val Thr Leu Pro Asp Pro
 65 70 75 80

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

Arg Leu Val Trp Ala Cys Val Gly Val Glu Val Gly Arg Gly Gln Pro
 100 105 110

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

Thr Glu Asn Ser Pro Phe Ser Ser Thr Thr Asn Lys Asp Ser Arg Asp
 130 135 140

Asn Val Ser Val Asp Tyr Lys Gln Thr Gln Leu Cys Ile Ile Gly Cys
 145 150 155 160

Val Pro Ala Ile Gly Glu His Trp Gly Lys Gly Lys Ala Cys Lys Pro
165 170 175

Asn Asn Val Ser Thr Gly Asp Cys Pro Pro Leu Glu Leu Val Asn Thr
180 185 190

Pro Ile Glu Asp Gly Asp Met Ile Asp Thr Gly Tyr Gly Ala Met Asp
195 200 205

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

Gln Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ser Ala Asp Val
225 230 235 240

Tyr Gly Asp Ser Met Phe Phe Cys Leu Arg Arg Glu Gln Leu Phe Ala
245 250 255

Arg His Phe Trp Asn Arg Gly Gly Met Val Gly Asp Ala Ile Pro Ala
260 265 270

Gln Leu Tyr Ile Lys Gly Thr Asp Ile Arg Ala Asn Pro Gly Ser Ser
275 280 285

Val Tyr Cys Pro Ser Pro Ser Gly Ser Met Val Thr Ser Asp Ser Gln
290 295 300

Leu Phe Asn Lys Pro Tyr Trp Leu His Lys Ala Gln Gly His Asn Asn
305 310 315 320

Gly Ile Cys Trp His Asn Gln Leu Phe Leu Thr Val Val Asp Thr Thr
325 330 335

Arg Ser Thr Asn Phe Thr Leu Ser Thr Ser Ile Glu Ser Ser Ile Pro
340 345 350

Ser Thr Tyr Asp Pro Ser Lys Phe Lys Glu Tyr Thr Arg His Val Glu
355 360 365

Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys Thr Val Thr Leu Thr
 370 375 380

Thr Asp Val Met Ser Tyr Ile His Thr Met Asn Ser Ser Ile Leu Asp
 385 390 395 400

Asn Trp Asn Phe Ala Val Ala Pro Pro Pro Ser Ala Ser Leu Val Asp
 405 410 415

Thr Tyr Arg Tyr Leu Gln Ser Ala Ala Ile Thr Cys Gln Lys Asp Ala
 420 425 430

Pro Ala Pro Glu Lys Lys Asp Pro Tyr Asp Gly Leu Lys Phe Trp Asn
 435 440 445

Val Asp Leu Arg Glu Lys Phe Ser Leu Glu Leu Asp Gln Phe Pro Leu
 450 455 460

Gly Arg Lys Phe Leu
 465

<210> 11
 <211> 478
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 11

Met Ala Leu Trp Arg Pro Ser Asp Ser Thr Val Tyr Leu Pro Pro Pro
 1 5 10 15

Ser Val Ala Arg Val Val Asn Thr Asp Asp Tyr Val Ser Arg Thr Ser
 20 25 30

Ile Phe Tyr His Ala Gly Ser Ser Arg Leu Leu Thr Val Gly Asn Pro
 35 40 45

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

Lys Val Ser Ala Tyr Gln Tyr Arg Val Phe Arg Val Ala Leu Pro Asp
 65 70 75 80

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

Gln Arg Leu Val Trp Ala Cys Val Gly Met Glu Ile Gly Arg Gly Gln
 100 105 110

Pro Leu Gly Ile Gly Leu Ser Gly His Pro Phe Tyr Asn Lys Leu Asp
 115 120 125

Asp Thr Glu Ser Ala His Ala Ala Thr Ala Val Ile Thr Gln Asp Val
 130 135 140

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

Gly Cys Val Pro Ala Ile Gly Glu His Trp Ala Lys Gly Thr Leu Cys
 165 170 175

Lys Pro Ala Gln Leu Gln Pro Gly Asp Cys Pro Pro Leu Glu Leu Lys
 180 185 190

Asn Thr Ile Ile Glu Asp Gly Asp Met Val Asp Thr Gly Tyr Gly Ala
 195 200 205

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

Ile Cys Gln Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ser Ala
 225 230 235 240

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

Lys Phe Trp Thr Val Asp Leu Lys Glu Lys Phe Ser Ser Asp Leu Asp
 450 455 460

Gln Tyr Pro Leu Gly Arg Lys Phe Leu Val Gln Ala Gly Leu
 465 470 475

<210> 12
 <211> 474
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 12

Met Ala Leu Trp Arg Thr Asn Asp Ser Lys Val Tyr Leu Pro Pro Ala
 1 5 10 15

Pro Val Ser Arg Ile Val Asn Thr Glu Glu Tyr Ile Thr Arg Thr Gly
 20 25 30

Ile Tyr Tyr Tyr Ala Gly Ser Ser Arg Leu Ile Thr Leu Gly His Pro
 35 40 45

Tyr Phe Pro Ile Pro Lys Thr Ser Thr Arg Ala Ala Ile Pro Lys Val
 50 55 60

Ser Ala Phe Gln Tyr Arg Val Phe Arg Val Gln Leu Pro Asp Pro Asn
 65 70 75 80

Lys Phe Gly Leu Pro Asp Pro Asn Leu Tyr Asn Pro Asp Thr Asp Arg
 85 90 95

Leu Val Trp Gly Cys Val Gly Val Glu Val Gly Arg Gly Gln Pro Leu
 100 105 110

Gly Val Gly Leu Ser Gly His Pro Leu Phe Asn Lys Tyr Asp Asp Thr
 115 120 125

Glu Asn Ser Arg Ile Ala Asn Gly Asn Ala Gln Gln Asp Val Arg Asp
130 135 140

Asn Thr Ser Val Asp Asn Lys Gln Thr Gln Leu Cys Ile Ile Gly Cys
145 150 155 160

Ala Pro Pro Ile Gly Glu His Trp Gly Ile Gly Thr Thr Cys Lys Asn
165 170 175

Thr Pro Val Pro Pro Gly Asp Cys Pro Pro Leu Glu Leu Val Ser Ser
180 185 190

Val Ile Gln Asp Gly Asp Met Ile Asp Thr Gly Phe Gly Ala Met Asp
195 200 205

Phe Ala Ala Leu Gln Ala Thr Lys Ser Asp Val Pro Leu Asp Ile Ser
210 215 220

Gln Ser Val Cys Lys Tyr Pro Asp Tyr Leu Lys Met Ser Ala Asp Thr
225 230 235 240

Tyr Gly Asn Ser Met Phe Phe His Leu Arg Arg Glu Gln Ile Phe Ala
245 250 255

Arg His Tyr Tyr Asn Lys Leu Val Gly Val Gly Glu Asp Ile Pro Asn
260 265 270

Asp Tyr Tyr Ile Lys Gly Ser Gly Asn Gly Arg Asp Pro Ile Glu Ser
275 280 285

Tyr Ile Tyr Ser Ala Thr Pro Ser Gly Ser Met Ile Thr Ser Asp Ser
290 295 300

Gln Ile Phe Asn Lys Pro Tyr Trp Leu His Arg Ala Gln Gly His Asn
305 310 315 320

Asn Gly Ile Cys Trp Asn Asn Gln Leu Phe Ile Thr Cys Val Asp Thr
325 330 335

Thr Arg Ser Thr Asn Leu Thr Ile Ser Thr Ala Thr Ala Ala Val Ser
340 345 350

Pro Thr Phe Thr Pro Ser Asn Phe Lys Gln Tyr Ile Arg His Gly Glu
355 360 365

Glu Tyr Glu Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu Thr
370 375 380

Thr Glu Val Met Ala Tyr Leu His Thr Met Asp Pro Thr Ile Leu Glu
385 390 395 400

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

Ala Tyr Arg Phe Val Arg Asn Ala Ala Thr Ser Cys Gln Lys Asp Thr
420 425 430

Pro Pro Gln Ala Lys Pro Asp Pro Leu Ala Lys Tyr Lys Phe Trp Asp
435 440 445

Val Asp Leu Lys Glu Arg Phe Ser Leu Asp Leu Asp Gln Phe Ala Leu
450 455 460

Gly Arg Lys Phe Leu Leu Gln Val Gly Val
465 470

<210> 13
<211> 478
<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 13

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

Gly Cys Met Asp Phe Asn Thr Leu Gln Ala Ser Lys Ser Asp Val Pro
210 215 220

Ile Asp Ile Cys Ser Ser Val Cys Lys Tyr Pro Asp Tyr Leu Gln Met
225 230 235 240

Ala Ser Glu Pro Tyr Gly Asp Ser Leu Phe Phe Phe Leu Arg Arg Glu
245 250 255

Gln Met Phe Val Arg His Phe Phe Asn Arg Ala Gly Thr Leu Gly Asp
260 265 270

Pro Val Pro Gly Asp Leu Tyr Ile Gln Gly Ser Asn Ser Gly Asn Thr
275 280 285

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

Val Thr Ser Glu Ser Gln Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg
305 310 315 320

Ala Gln Gly His Asn Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val
325 330 335

Thr Val Val Asp Thr Thr Arg Ser Thr Asn Met Thr Leu Cys Ala Glu
340 345 350

Val Lys Lys Glu Ser Thr Tyr Lys Asn Glu Asn Phe Lys Glu Tyr Leu
355 360 365

Arg His Gly Glu Glu Phe Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys
370 375 380

Ile Thr Leu Thr Ala Asp Val Met Thr Tyr Ile His Lys Met Asp Ala
385 390 395 400

Thr Ile Leu Glu Asp Trp Gln Phe Gly Leu Thr Pro Pro Pro Ser Ala
 405 410 415

Ser Leu Glu Asp Thr Tyr Arg Phe Val Thr Ser Thr Ala Ile Thr Cys
 420 425 430

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

Met Phe Trp Glu Val Asp Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp
 450 455 460

Gln Phe Pro Leu Gly Arg Lys Phe Leu Leu Gln Ala Gly Leu
 465 470 475

<210> 14
 <211> 467
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 14

Met Ala Thr Trp Arg Pro Ser Glu Asn Lys Val Tyr Leu Pro Pro Thr
 1 5 10 15

Pro Val Ser Lys Val Val Ala Thr Asp Ser Tyr Val Lys Arg Thr Ser
 20 25 30

Ile Phe Tyr His Ala Gly Ser Ser Arg Leu Leu Ala Val Gly His Pro
 35 40 45

Tyr Tyr Ser Val Thr Lys Asp Asn Thr Lys Thr Asn Ile Pro Lys Val
 50 55 60

Ser Ala Tyr Gln Tyr Arg Val Phe Arg Val Arg Leu Pro Asp Pro Asn
 65 70 75 80

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

Leu Val Trp Ala Cys Val Gly Leu Glu Val Gly Arg Gly Gln Pro Leu
100 105 110

Gly Ala Gly Leu Ser Gly His Pro Leu Phe Asn Arg Leu Asp Asp Thr
115 120 125

Glu Ser Ser Asn Leu Ala Asn Asn Asn Val Ile Glu Asp Ser Arg Asp
130 135 140

Asn Ile Ser Val Asp Gly Lys Gln Thr Gln Leu Cys Ile Val Gly Cys
145 150 155 160

Thr Pro Ala Met Gly Glu His Trp Thr Lys Gly Ala Val Cys Lys Ser
165 170 175

Thr Gln Val Thr Thr Gly Asp Cys Pro Pro Leu Ala Leu Ile Asn Thr
180 185 190

Pro Ile Glu Asp Gly Asp Met Ile Asp Thr Gly Phe Gly Ala Met Asp
195 200 205

Phe Lys Val Leu Gln Glu Ser Lys Ala Glu Val Pro Leu Asp Ile Val
210 215 220

Gln Ser Thr Cys Lys Tyr Pro Asp Tyr Leu Lys Met Ser Ala Asp Ala
225 230 235 240

Tyr Gly Asp Ser Met Trp Phe Tyr Leu Arg Arg Glu Gln Leu Phe Ala
245 250 255

Arg His Tyr Phe Asn Arg Ala Gly Lys Val Gly Glu Thr Ile Pro Ala
260 265 270

Glu Leu Tyr Leu Lys Gly Ser Asn Gly Arg Glu Pro Pro Pro Ser Ser
275 280 285

Val Tyr Val Ala Thr Pro Ser Gly Ser Met Ile Thr Ser Glu Ala Gln
 290 295 300

Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn Asn
 305 310 315 320

Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr Thr
 325 330 335

Arg Ser Thr Asn Met Thr Ile Ser Thr Ala Thr Glu Gln Leu Ser Lys
 340 345 350

Tyr Asp Ala Arg Lys Ile Asn Gln Tyr Leu Arg His Val Glu Glu Tyr
 355 360 365

Glu Leu Gln Phe Val Phe Gln Leu Cys Lys Ile Thr Leu Ser Ala Glu
 370 375 380

Val Met Ala Tyr Leu His Asn Met Asn Ala Asn Leu Leu Glu Asp Trp
 385 390 395 400

Asn Ile Gly Leu Ser Pro Pro Val Ala Thr Ser Leu Glu Asp Lys Tyr
 405 410 415

Arg Tyr Val Arg Ser Thr Ala Ile Thr Cys Gln Arg Glu Gln Pro Pro
 420 425 430

Thr Glu Lys Gln Asp Pro Leu Ala Lys Tyr Lys Phe Trp Asp Val Asn
 435 440 445

Leu Gln Asp Ser Phe Ser Thr Asp Leu Asp Gln Phe Pro Leu Gly Arg
 450 455 460

Lys Phe Leu
 465

<210> 15
<211> 473
<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 15

Met Ser Val Trp Arg Pro Ser Glu Ala Thr Val Tyr Leu Pro Pro Val
1 5 10 15

Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Ser Arg Thr Ser
20 25 30

Ile Tyr Tyr Tyr Ala Gly Ser Ser Arg Leu Leu Ala Val Gly Asn Pro
35 40 45

Tyr Phe Ser Ile Lys Ser Pro Asn Asn Asn Lys Lys Val Leu Val Pro
50 55 60

Lys Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Val Arg Leu Pro Asp
65 70 75 80

Pro Asn Lys Phe Gly Phe Pro Asp Thr Ser Phe Tyr Asn Pro Asp Thr
85 90 95

Gln Arg Leu Val Trp Ala Cys Val Gly Leu Glu Ile Gly Arg Gly Gln
100 105 110

Pro Leu Gly Val Gly Val Ser Gly His Pro Tyr Leu Asn Lys Phe Asp
115 120 125

Asp Thr Glu Thr Ser Asn Arg Tyr Pro Ala Gln Pro Gly Ser Asp Asn
130 135 140

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

Gly Cys Lys Pro Pro Thr Gly Glu His Trp Gly Lys Gly Val Ala Cys
165 170 175

Asn Asn Asn Ala Ala Ala Thr Asp Cys Pro Pro Leu Glu Leu Phe Asn
180 185 190

Ser Ile Ile Glu Asp Gly Asp Met Val Asp Thr Gly Phe Gly Cys Met
195 200 205

Asp Phe Gly Thr Leu Gln Ala Asn Lys Ser Asp Val Pro Ile Asp Ile
210 215 220

Cys Asn Ser Thr Cys Lys Tyr Pro Asp Tyr Leu Lys Met Ala Ser Glu
225 230 235 240

Pro Tyr Gly Asp Ser Leu Phe Phe Phe Leu Arg Arg Glu Gln Met Phe
245 250 255

Val Arg His Phe Phe Asn Arg Ala Gly Lys Leu Gly Glu Ala Val Pro
260 265 270

Asp Asp Leu Tyr Ile Lys Gly Ser Gly Asn Thr Ala Val Ile Gln Ser
275 280 285

Ser Ala Phe Phe Pro Thr Pro Ser Gly Ser Ile Val Thr Ser Glu Ser
290 295 300

Gln Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn
305 310 315 320

Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr
325 330 335

Thr Arg Ser Thr Asn Met Thr Leu Cys Thr Glu Val Thr Lys Glu Gly
340 345 350

Thr Tyr Lys Asn Asp Asn Phe Lys Glu Tyr Val Arg His Val Glu Glu
355 360 365

Tyr Asp Leu Gln Phe Val Phe Gln Leu Cys Lys Ile Thr Leu Thr Ala
 370 375 380

Glu Ile Met Thr Tyr Ile His Thr Met Asp Ser Asn Ile Leu Glu Asp
 385 390 395 400

Trp Gln Phe Gly Leu Thr Pro Pro Pro Ser Ala Ser Leu Gln Asp Thr
 405 410 415

Tyr Arg Phe Val Thr Ser Gln Ala Ile Thr Cys Gln Lys Thr Ala Pro
 420 425 430

Pro Lys Glu Lys Glu Asp Pro Leu Asn Lys Tyr Thr Phe Trp Glu Val
 435 440 445

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

Arg Lys Phe Leu Leu Gln Ser Gly Leu
 465 470

<210> 16
 <211> 495
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 16

Met Trp Arg Pro Ser Asp Ser Thr Val Tyr Val Pro Pro Pro Asn Pro
 1 5 10 15

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

Phe Tyr His Ala Ser Ser Ser Arg Leu Leu Ala Val Gly His Pro Tyr
 35 40 45

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

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

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

Leu Gln Ser Gly Tyr Lys Ala Lys Pro Lys Leu Lys Arg Ala Ala Pro
 465 470 475 480

Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys Lys Val Lys Lys
 485 490 495

<210> 17

<211> 496

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 17

Met Trp Arg Pro Ser Asp Ser Thr Val Tyr Val Pro Pro Pro Asn Pro
 1 5 10 15

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

Phe Tyr His Ala Ser Ser Ser Arg Leu Leu Ala Val Gly His Pro Tyr
 35 40 45

Tyr Ser Ile Lys Lys Val Asn Lys Thr Val Val Pro Lys Val Ser Gly
 50 55 60

Tyr Gln Tyr Arg Val Phe Lys Val Val Leu Pro Asp Pro Asn Lys Phe
 65 70 75 80

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

Trp Ala Cys Thr Gly Leu Glu Val Gly Arg Gly Gln Pro Leu Gly Val
 100 105 110

Gly Val Ser Gly His Pro Leu Leu Asn Lys Tyr Asp Asp Val Glu Asn
115 120 125

Ser Gly Gly Tyr Gly Gly Asn Pro Gly Gln Asp Asn Arg Val Asn Val
130 135 140

Gly Met Asp Tyr Lys Gln Thr Gln Leu Cys Met Val Gly Cys Ala Pro
145 150 155 160

Pro Leu Gly Glu His Trp Gly Lys Gly Thr Gln Cys Ser Asn Thr Ser
165 170 175

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

Gln Asp Gly Asp Met Val Asp Thr Gly Phe Gly Ala Met Asn Phe Ala
195 200 205

Asp Leu Gln Thr Asn Lys Ser Asp Val Pro Leu Asp Ile Cys Gly Thr
210 215 220

Val Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ala Ala Asp Pro Tyr Gly
225 230 235 240

Asp Arg Leu Phe Phe Tyr Leu Arg Lys Glu Gln Met Phe Ala Arg His
245 250 255

Phe Phe Asn Arg Ala Gly Thr Val Gly Glu Pro Val Pro Asp Asp Leu
260 265 270

Leu Val Lys Gly Gly Asn Asn Arg Ser Ser Val Ala Ser Ser Ile Tyr
275 280 285

Val His Thr Pro Ser Gly Ser Leu Val Ser Ser Glu Ala Gln Leu Phe
290 295 300

Asn Lys Pro Tyr Trp Leu Gln Lys Ala Gln Gly His Asn Asn Gly Ile
305 310 315 320

Cys Trp Gly Asn His Leu Phe Val Thr Val Val Asp Thr Thr Arg Ser
325 330 335

Thr Asn Met Thr Leu Cys Ala Ser Val Ser Lys Ser Ala Thr Tyr Thr
340 345 350

Asn Ser Asp Tyr Lys Glu Tyr Met Arg His Val Glu Glu Phe Asp Leu
355 360 365

Gln Phe Ile Phe Gln Leu Cys Ser Ile Thr Leu Ser Ala Glu Val Met
370 375 380

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

Gly Leu Ser Pro Pro Pro Asn Gly Thr Leu Glu Asp Thr Tyr Arg Tyr
405 410 415

Val Gln Ser Gln Ala Ile Thr Cys Gln Lys Pro Thr Pro Glu Lys Glu
420 425 430

Lys Gln Asp Pro Tyr Lys Asp Met Ser Phe Trp Glu Val Asn Leu Lys
435 440 445

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

Leu Leu Gln Ser Gly Tyr Lys Ala Lys Pro Lys Leu Lys Arg Ala Ala
465 470 475 480

Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys Lys Val Lys Lys
485 490 495

<210> 18
<211> 500

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 18

Met	Ser	Leu	Trp	Leu	Pro	Ser	Glu	Ala	Thr	Val	Tyr	Leu	Pro	Pro	Val
1				5					10					15	

Pro	Val	Ser	Lys	Val	Val	Ser	Thr	Asp	Glu	Tyr	Val	Ala	Arg	Thr	Asn
			20					25					30		

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

Tyr	Phe	Pro	Ile	Lys	Lys	Pro	Asn	Asn	Asn	Lys	Ile	Leu	Val	Pro	Lys
	50					55					60				

Val	Ser	Gly	Leu	Gln	Tyr	Arg	Val	Phe	Arg	Ile	His	Leu	Pro	Asp	Pro
65					70					75					80

Asn	Lys	Phe	Gly	Phe	Pro	Asp	Thr	Ser	Phe	Tyr	Asn	Pro	Asp	Thr	Gln
			85						90					95	

Arg	Leu	Val	Trp	Ala	Cys	Val	Gly	Val	Glu	Val	Gly	Arg	Gly	Gln	Pro
			100					105					110		

Leu	Gly	Val	Gly	Ile	Ser	Gly	His	Pro	Leu	Leu	Asn	Lys	Leu	Asp	Asp
		115					120					125			

Thr	Glu	Asn	Ala	Ser	Ala	Tyr	Ala	Ala	Asn	Ala	Gly	Val	Asp	Asn	Arg
	130					135					140				

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

Cys	Lys	Pro	Pro	Ile	Gly	Glu	His	Trp	Gly	Lys	Gly	Ser	Pro	Cys	Thr
				165					170					175	

Asn Val Ala Val Asn Pro Gly Asp Cys Pro Pro Leu Glu Leu Ile Asn
180 185 190

Thr Val Ile Gln Asp Gly Asp Met Val Asp Thr Gly Phe Gly Ala Met
195 200 205

Asp Phe Thr Thr Leu Gln Ala Asn Lys Ser Glu Val Pro Leu Asp Ile
210 215 220

Cys Thr Ser Ile Cys Lys Tyr Pro Asp Tyr Ile Lys Met Val Ser Glu
225 230 235 240

Pro Tyr Gly Asp Ser Leu Phe Phe Tyr Leu Arg Arg Glu Gln Met Phe
245 250 255

Val Arg His Leu Phe Asn Arg Ala Gly Ala Val Gly Glu Asn Val Pro
260 265 270

Asp Asp Leu Tyr Ile Lys Gly Ser Gly Ser Thr Ala Asn Leu Ala Ser
275 280 285

Ser Asn Tyr Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser Asp Ala
290 295 300

Gln Ile Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn
305 310 315 320

Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr
325 330 335

Thr Arg Ser Thr Asn Met Ser Leu Cys Ala Ala Ile Ser Thr Ser Glu
340 345 350

Thr Thr Tyr Lys Asn Thr Asn Phe Lys Glu Tyr Leu Arg His Gly Glu
355 360 365

Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu Thr
 370 375 380

Ala Asp Val Met Thr Tyr Ile His Ser Met Asn Ser Thr Ile Leu Glu
 385 390 395 400

Asp Trp Asn Phe Gly Leu Gln Pro Pro Pro Gly Gly Thr Leu Glu Asp
 405 410 415

Thr Tyr Arg Phe Val Thr Ser Gln Ala Ile Ala Cys Gln Lys His Thr
 420 425 430

Pro Pro Ala Pro Lys Glu Asp Pro Leu Lys Lys Tyr Thr Phe Trp Glu
 435 440 445

Val Asn Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp Gln Phe Pro Leu
 450 455 460

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

Lys Arg Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys
 485 490 495

Lys Val Lys Lys
 500

<210> 19
 <211> 496
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 19

Met Ala Leu Trp Arg Pro Ser Asp Asn Thr Val Tyr Leu Pro Pro Pro
 1 5 10 15

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

Cys Gln Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ser Ala Asp
 225 230 235 240

Pro Tyr Gly Asp Ser Met Phe Phe Cys Leu Arg Arg Glu Gln Leu Phe
 245 250 255

Ala Arg His Phe Trp Asn Arg Ala Gly Thr Met Gly Asp Thr Val Pro
 260 265 270

Gln Ser Leu Tyr Ile Lys Gly Thr Gly Met Arg Ala Ser Pro Gly Ser
 275 280 285

Cys Val Tyr Ser Pro Ser Pro Ser Gly Ser Ile Val Thr Ser Asp Ser
 290 295 300

Gln Leu Phe Asn Lys Pro Tyr Trp Leu His Lys Ala Gln Gly His Asn
 305 310 315 320

Asn Gly Val Cys Trp His Asn Gln Leu Phe Val Thr Val Val Asp Thr
 325 330 335

Thr Arg Ser Thr Asn Leu Thr Ile Cys Ala Ser Thr Gln Ser Pro Val
 340 345 350

Pro Gly Gln Tyr Asp Ala Thr Lys Phe Lys Gln Tyr Ser Arg His Val
 355 360 365

Glu Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys Thr Ile Thr Leu
 370 375 380

Thr Ala Asp Val Met Ser Tyr Ile His Ser Met Asn Ser Ser Ile Leu
 385 390 395 400

Glu Asp Trp Asn Phe Gly Val Pro Pro Pro Pro Thr Thr Ser Leu Val
 405 410 415

Asp Thr Tyr Arg Phe Val Gln Ser Val Ala Ile Thr Cys Gln Lys Asp
 420 425 430

Ala Ala Pro Ala Glu Asn Lys Asp Pro Tyr Asp Lys Leu Lys Phe Trp
 435 440 445

Asn Val Asp Leu Lys Glu Lys Phe Ser Leu Asp Leu Asp Gln Tyr Pro
 450 455 460

Leu Gly Arg Lys Phe Leu Lys Ala Lys Pro Lys Leu Lys Arg Ala Ala
 465 470 475 480

Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys Lys Val Lys Lys
 485 490 495

<210> 20
 <211> 501
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 20

Met Ser Leu Trp Arg Pro Ser Glu Ala Thr Val Tyr Leu Pro Pro Val
 1 5 10 15

Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Thr Arg Thr Asn
 20 25 30

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

Tyr Tyr Ser Ile Pro Lys Ser Asp Asn Pro Lys Lys Ile Val Val Pro
 50 55 60

Lys Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Val Arg Leu Pro Asp
 65 70 75 80

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

Asn Ser Thr Tyr Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser Asp
 290 295 300

Ala Gln Ile Phe Asn Lys Pro Tyr Trp Met Gln Arg Ala Gln Gly His
 305 310 315 320

Asn Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp
 325 330 335

Thr Thr Arg Ser Thr Asn Met Ser Val Cys Ala Ala Ile Ala Asn Ser
 340 345 350

Asp Thr Thr Phe Lys Ser Ser Asn Phe Lys Glu Tyr Leu Arg His Gly
 355 360 365

Glu Glu Phe Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu
 370 375 380

Ser Ala Asp Ile Met Thr Tyr Ile His Ser Met Asn Pro Ala Ile Leu
 385 390 395 400

Glu Asp Trp Asn Phe Gly Leu Thr Thr Pro Pro Ser Gly Ser Leu Glu
 405 410 415

Asp Thr Tyr Arg Phe Val Thr Ser Gln Ala Ile Thr Cys Gln Lys Ser
 420 425 430

Ala Pro Gln Lys Pro Lys Glu Asp Pro Phe Lys Asp Tyr Val Phe Trp
 435 440 445

Glu Val Asn Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp Gln Phe Pro
 450 455 460

Leu Gly Arg Lys Phe Leu Leu Gln Ala Gly Tyr Lys Ala Lys Pro Lys
 465 470 475 480

Leu Lys Arg Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg
485 490 495

Lys Lys Val Lys Lys
500

<210> 21
<211> 498
<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 21

Met Ser Leu Trp Arg Ser Asn Glu Ala Thr Val Tyr Leu Pro Pro Val
1 5 10 15

Ser Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Thr Arg Thr Asn
20 25 30

Ile Tyr Tyr His Ala Gly Ser Ser Arg Leu Leu Ala Val Gly His Pro
35 40 45

Tyr Tyr Ala Ile Lys Lys Gln Asp Ser Asn Lys Ile Ala Val Pro Lys
50 55 60

Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Val Lys Leu Pro Asp Pro
65 70 75 80

Asn Lys Phe Gly Phe Pro Asp Thr Ser Phe Tyr Asp Pro Ala Ser Gln
85 90 95

Arg Leu Val Trp Ala Cys Thr Gly Val Glu Val Gly Arg Gly Gln Pro
100 105 110

Leu Gly Val Gly Ile Ser Gly His Pro Leu Leu Asn Lys Leu Asp Asp
115 120 125

Thr Glu Asn Ser Asn Lys Tyr Val Gly Asn Ser Gly Thr Asp Asn Arg
130 135 140

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

Cys Arg Pro Pro Ile Gly Glu His Trp Gly Lys Gly Thr Pro Cys Asn
165 170 175

Ala Asn Gln Val Lys Ala Gly Glu Cys Pro Pro Leu Glu Leu Leu Asn
180 185 190

Thr Val Leu Gln Asp Gly Asp Met Val Asp Thr Gly Phe Gly Ala Met
195 200 205

Asp Phe Thr Thr Leu Gln Ala Asn Lys Ser Asp Val Pro Leu Asp Ile
210 215 220

Cys Ser Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Lys Met Val Ser Glu
225 230 235 240

Pro Tyr Gly Asp Met Leu Phe Phe Tyr Leu Arg Arg Glu Gln Met Phe
245 250 255

Val Arg His Leu Phe Asn Arg Ala Gly Thr Val Gly Glu Thr Val Pro
260 265 270

Ala Asp Leu Tyr Ile Lys Gly Thr Thr Gly Thr Leu Pro Ser Thr Ser
275 280 285

Tyr Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser Asp Ala Gln Ile
290 295 300

Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn Asn Gly
305 310 315 320

Ile Cys Trp Ser Asn Gln Leu Phe Val Thr Val Val Asp Thr Thr Arg
325 330 335

Ser Thr Asn Met Ser Val Cys Ser Ala Val Ser Ser Ser Asp Ser Thr
340 345 350

Tyr Lys Asn Asp Asn Phe Lys Glu Tyr Leu Arg His Gly Glu Glu Tyr
355 360 365

Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu Thr Ala Asp
370 375 380

Val Met Thr Tyr Ile His Ser Met Asn Pro Ser Ile Leu Glu Asp Trp
385 390 395 400

Asn Phe Gly Leu Thr Pro Pro Pro Ser Gly Thr Leu Glu Asp Thr Tyr
405 410 415

Arg Tyr Val Thr Ser Gln Ala Val Thr Cys Gln Lys Pro Ser Ala Pro
420 425 430

Lys Pro Lys Asp Asp Pro Leu Lys Asn Tyr Thr Phe Trp Glu Val Asp
435 440 445

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

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

Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys Lys Val
485 490 495

Lys Lys

<210> 22
<211> 507
<212> PRT
<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 22

Met	Ala	Met	Trp	Arg	Ser	Ser	Asp	Ser	Met	Val	Tyr	Leu	Pro	Pro	Pro
1				5					10					15	

Ser	Val	Ala	Lys	Val	Val	Asn	Thr	Asp	Asp	Tyr	Val	Thr	Arg	Thr	Gly
			20					25					30		

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

Tyr	Phe	Lys	Val	Gly	Met	Asn	Gly	Gly	Arg	Lys	Gln	Asp	Ile	Pro	Lys
	50					55					60				

Val	Ser	Ala	Tyr	Gln	Tyr	Arg	Val	Phe	Arg	Val	Thr	Leu	Pro	Asp	Pro
65					70					75					80

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

Arg	Leu	Val	Trp	Ala	Cys	Val	Gly	Val	Glu	Val	Gly	Arg	Gly	Gln	Pro
			100					105					110		

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

Thr	Glu	Asn	Ser	Pro	Phe	Ser	Ser	Thr	Thr	Asn	Lys	Asp	Ser	Arg	Asp
	130					135					140				

Asn	Val	Ser	Val	Asp	Tyr	Lys	Gln	Thr	Gln	Leu	Cys	Ile	Ile	Gly	Cys
145					150					155					160

Val	Pro	Ala	Ile	Gly	Glu	His	Trp	Gly	Lys	Gly	Lys	Ala	Cys	Lys	Pro
				165					170					175	

Asn Asn Val Ser Thr Gly Asp Cys Pro Pro Leu Glu Leu Val Asn Thr
180 185 190

Pro Ile Glu Asp Gly Asp Met Ile Asp Thr Gly Tyr Gly Ala Met Asp
195 200 205

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

Gln Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ser Ala Asp Val
225 230 235 240

Tyr Gly Asp Ser Met Phe Phe Cys Leu Arg Arg Glu Gln Leu Phe Ala
245 250 255

Arg His Phe Trp Asn Arg Gly Gly Met Val Gly Asp Ala Ile Pro Ala
260 265 270

Gln Leu Tyr Ile Lys Gly Thr Asp Ile Arg Ala Asn Pro Gly Ser Ser
275 280 285

Val Tyr Cys Pro Ser Pro Ser Gly Ser Met Val Thr Ser Asp Ser Gln
290 295 300

Leu Phe Asn Lys Pro Tyr Trp Leu His Lys Ala Gln Gly His Asn Asn
305 310 315 320

Gly Ile Cys Trp His Asn Gln Leu Phe Leu Thr Val Val Asp Thr Thr
325 330 335

Arg Ser Thr Asn Phe Thr Leu Ser Thr Ser Ile Glu Ser Ser Ile Pro
340 345 350

Ser Thr Tyr Asp Pro Ser Lys Phe Lys Glu Tyr Thr Arg His Val Glu
355 360 365

Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys Thr Val Thr Leu Thr
370 375 380

Thr Asp Val Met Ser Tyr Ile His Thr Met Asn Ser Ser Ile Leu Asp
 385 390 395 400

Asn Trp Asn Phe Ala Val Ala Pro Pro Pro Ser Ala Ser Leu Val Asp
 405 410 415

Thr Tyr Arg Tyr Leu Gln Ser Ala Ala Ile Thr Cys Gln Lys Asp Ala
 420 425 430

Pro Ala Pro Glu Lys Lys Asp Pro Tyr Asp Gly Leu Lys Phe Trp Asn
 435 440 445

Val Asp Leu Arg Glu Lys Phe Ser Leu Glu Leu Asp Gln Phe Pro Leu
 450 455 460

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

Gly Pro Arg Lys Arg Ala Ala Pro Ala Pro Thr Ser Thr Pro Ser Pro
 485 490 495

Lys Arg Val Lys Arg Arg Lys Ser Ser Arg Lys
 500 505

<210> 23
 <211> 504
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 23

Met Ala Leu Trp Arg Pro Ser Asp Ser Thr Val Tyr Leu Pro Pro Pro
 1 5 10 15

Ser Val Ala Arg Val Val Asn Thr Asp Asp Tyr Val Ser Arg Thr Ser
 20 25 30

Ile Cys Gln Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ser Ala
 225 230 235 240

Asp Pro Tyr Gly Asp Ser Met Phe Phe Cys Leu Arg Arg Glu Gln Leu
 245 250 255

Phe Ala Arg His Phe Trp Asn Arg Ala Gly Val Met Gly Asp Thr Val
 260 265 270

Pro Thr Asp Leu Tyr Ile Lys Gly Thr Ser Ala Asn Met Arg Glu Thr
 275 280 285

Pro Gly Ser Cys Val Tyr Ser Pro Ser Pro Ser Gly Ser Ile Thr Thr
 290 295 300

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

Gly His Asn Asn Gly Ile Cys Trp His Asn Gln Leu Phe Val Thr Val
 325 330 335

Val Asp Thr Thr Arg Ser Thr Asn Leu Thr Leu Cys Ala Ser Thr Gln
 340 345 350

Asn Pro Val Pro Asn Thr Tyr Asp Pro Thr Lys Phe Lys His Tyr Ser
 355 360 365

Arg His Val Glu Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys Thr
 370 375 380

Ile Thr Leu Thr Ala Glu Val Met Ser Tyr Ile His Ser Met Asn Ser
 385 390 395 400

Ser Ile Leu Glu Asn Trp Asn Phe Gly Val Pro Pro Pro Pro Thr Thr
 405 410 415

Ser Leu Val Asp Thr Tyr Arg Phe Val Gln Ser Val Ala Val Thr Cys
 420 425 430

Gln Lys Asp Thr Thr Pro Pro Glu Lys Gln Asp Pro Tyr Asp Lys Leu
 435 440 445

Lys Phe Trp Thr Val Asp Leu Lys Glu Lys Phe Ser Ser Asp Leu Asp
 450 455 460

Gln Tyr Pro Leu Gly Arg Lys Phe Leu Val Gln Ala Gly Leu Lys Ala
 465 470 475 480

Lys Pro Lys Leu Lys Arg Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser
 485 490 495

Ala Lys Arg Lys Lys Val Lys Lys
 500

<210> 24

<211> 500

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 24

Met Ala Leu Trp Arg Thr Asn Asp Ser Lys Val Tyr Leu Pro Pro Ala
 1 5 10 15

Pro Val Ser Arg Ile Val Asn Thr Glu Glu Tyr Ile Thr Arg Thr Gly
 20 25 30

Ile Tyr Tyr Tyr Ala Gly Ser Ser Arg Leu Ile Thr Leu Gly His Pro
 35 40 45

Tyr Phe Pro Ile Pro Lys Thr Ser Thr Arg Ala Ala Ile Pro Lys Val
 50 55 60

Ser Ala Phe Gln Tyr Arg Val Phe Arg Val Gln Leu Pro Asp Pro Asn
 65 70 75 80

Lys Phe Gly Leu Pro Asp Pro Asn Leu Tyr Asn Pro Asp Thr Asp Arg
85 90 95

Leu Val Trp Gly Cys Val Gly Val Glu Val Gly Arg Gly Gln Pro Leu
100 105 110

Gly Val Gly Leu Ser Gly His Pro Leu Phe Asn Lys Tyr Asp Asp Thr
115 120 125

Glu Asn Ser Arg Ile Ala Asn Gly Asn Ala Gln Gln Asp Val Arg Asp
130 135 140

Asn Thr Ser Val Asp Asn Lys Gln Thr Gln Leu Cys Ile Ile Gly Cys
145 150 155 160

Ala Pro Pro Ile Gly Glu His Trp Gly Ile Gly Thr Thr Cys Lys Asn
165 170 175

Thr Pro Val Pro Pro Gly Asp Cys Pro Pro Leu Glu Leu Val Ser Ser
180 185 190

Val Ile Gln Asp Gly Asp Met Ile Asp Thr Gly Phe Gly Ala Met Asp
195 200 205

Phe Ala Ala Leu Gln Ala Thr Lys Ser Asp Val Pro Leu Asp Ile Ser
210 215 220

Gln Ser Val Cys Lys Tyr Pro Asp Tyr Leu Lys Met Ser Ala Asp Thr
225 230 235 240

Tyr Gly Asn Ser Met Phe Phe His Leu Arg Arg Glu Gln Ile Phe Ala
245 250 255

Arg His Tyr Tyr Asn Lys Leu Val Gly Val Gly Glu Asp Ile Pro Asn
260 265 270

Asp Tyr Tyr Ile Lys Gly Ser Gly Asn Gly Arg Asp Pro Ile Glu Ser
275 280 285

Tyr Ile Tyr Ser Ala Thr Pro Ser Gly Ser Met Ile Thr Ser Asp Ser
290 295 300

Gln Ile Phe Asn Lys Pro Tyr Trp Leu His Arg Ala Gln Gly His Asn
305 310 315 320

Asn Gly Ile Cys Trp Asn Asn Gln Leu Phe Ile Thr Cys Val Asp Thr
325 330 335

Thr Arg Ser Thr Asn Leu Thr Ile Ser Thr Ala Thr Ala Ala Val Ser
340 345 350

Pro Thr Phe Thr Pro Ser Asn Phe Lys Gln Tyr Ile Arg His Gly Glu
355 360 365

Glu Tyr Glu Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu Thr
370 375 380

Thr Glu Val Met Ala Tyr Leu His Thr Met Asp Pro Thr Ile Leu Glu
385 390 395 400

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

Ala Tyr Arg Phe Val Arg Asn Ala Ala Thr Ser Cys Gln Lys Asp Thr
420 425 430

Pro Pro Gln Ala Lys Pro Asp Pro Leu Ala Lys Tyr Lys Phe Trp Asp
435 440 445

Val Asp Leu Lys Glu Arg Phe Ser Leu Asp Leu Asp Gln Phe Ala Leu
450 455 460

Gly Arg Lys Phe Leu Leu Gln Val Gly Val Lys Ala Lys Pro Lys Leu
465 470 475 480

Lys Arg Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys
485 490 495

Lys Val Lys Lys
500

<210> 25
<211> 504
<212> PRT
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 25

Met Ser Val Trp Arg Pro Ser Glu Ala Thr Val Tyr Leu Pro Pro Val
1 5 10 15

Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Ser Arg Thr Ser
20 25 30

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

Tyr Phe Ser Ile Lys Asn Thr Ser Ser Gly Asn Gly Lys Lys Val Leu
50 55 60

Val Pro Lys Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Ile Lys Leu
65 70 75 80

Pro Asp Pro Asn Lys Phe Gly Phe Pro Asp Thr Ser Phe Tyr Asn Pro
85 90 95

Glu Thr Gln Arg Leu Val Trp Ala Cys Thr Gly Leu Glu Ile Gly Arg
100 105 110

Gly Gln Pro Leu Gly Val Gly Ile Ser Gly His Pro Leu Leu Asn Lys
115 120 125

Phe Asp Asp Thr Glu Thr Ser Asn Lys Tyr Ala Gly Lys Pro Gly Ile
130 135 140

Asp Asn Arg Glu Cys Leu Ser Met Asp Tyr Lys Gln Thr Gln Leu Cys
145 150 155 160

Ile Leu Gly Cys Lys Pro Pro Ile Gly Glu His Trp Gly Lys Gly Thr
165 170 175

Pro Cys Asn Asn Asn Ser Gly Asn Pro Gly Asp Cys Pro Pro Leu Gln
180 185 190

Leu Ile Asn Ser Val Ile Gln Asp Gly Asp Met Val Asp Thr Gly Phe
195 200 205

Gly Cys Met Asp Phe Asn Thr Leu Gln Ala Ser Lys Ser Asp Val Pro
210 215 220

Ile Asp Ile Cys Ser Ser Val Cys Lys Tyr Pro Asp Tyr Leu Gln Met
225 230 235 240

Ala Ser Glu Pro Tyr Gly Asp Ser Leu Phe Phe Phe Leu Arg Arg Glu
245 250 255

Gln Met Phe Val Arg His Phe Phe Asn Arg Ala Gly Thr Leu Gly Asp
260 265 270

Pro Val Pro Gly Asp Leu Tyr Ile Gln Gly Ser Asn Ser Gly Asn Thr
275 280 285

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

Val Thr Ser Glu Ser Gln Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg
305 310 315 320

Ala Gln Gly His Asn Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val
325 330 335

Thr Val Val Asp Thr Thr Arg Ser Thr Asn Met Thr Leu Cys Ala Glu
340 345 350

Val Lys Lys Glu Ser Thr Tyr Lys Asn Glu Asn Phe Lys Glu Tyr Leu
355 360 365

Arg His Gly Glu Glu Phe Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys
370 375 380

Ile Thr Leu Thr Ala Asp Val Met Thr Tyr Ile His Lys Met Asp Ala
385 390 395 400

Thr Ile Leu Glu Asp Trp Gln Phe Gly Leu Thr Pro Pro Pro Ser Ala
405 410 415

Ser Leu Glu Asp Thr Tyr Arg Phe Val Thr Ser Thr Ala Ile Thr Cys
420 425 430

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

Met Phe Trp Glu Val Asp Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp
450 455 460

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

Lys Pro Lys Leu Lys Arg Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser
485 490 495

Ala Lys Arg Lys Lys Val Lys Lys
500

<210> 26
<211> 498

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 26

Met Ala Thr Trp Arg Pro Ser Glu Asn Lys Val Tyr Leu Pro Pro Thr
1 5 10 15

Pro Val Ser Lys Val Val Ala Thr Asp Ser Tyr Val Lys Arg Thr Ser
20 25 30

Ile Phe Tyr His Ala Gly Ser Ser Arg Leu Leu Ala Val Gly His Pro
35 40 45

Tyr Tyr Ser Val Thr Lys Asp Asn Thr Lys Thr Asn Ile Pro Lys Val
50 55 60

Ser Ala Tyr Gln Tyr Arg Val Phe Arg Val Arg Leu Pro Asp Pro Asn
65 70 75 80

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

Leu Val Trp Ala Cys Val Gly Leu Glu Val Gly Arg Gly Gln Pro Leu
100 105 110

Gly Ala Gly Leu Ser Gly His Pro Leu Phe Asn Arg Leu Asp Asp Thr
115 120 125

Glu Ser Ser Asn Leu Ala Asn Asn Asn Val Ile Glu Asp Ser Arg Asp
130 135 140

Asn Ile Ser Val Asp Gly Lys Gln Thr Gln Leu Cys Ile Val Gly Cys
145 150 155 160

Thr Pro Ala Met Gly Glu His Trp Thr Lys Gly Ala Val Cys Lys Ser
165 170 175

Thr Gln Val Thr Thr Gly Asp Cys Pro Pro Leu Ala Leu Ile Asn Thr
180 185 190

Pro Ile Glu Asp Gly Asp Met Ile Asp Thr Gly Phe Gly Ala Met Asp
195 200 205

Phe Lys Val Leu Gln Glu Ser Lys Ala Glu Val Pro Leu Asp Ile Val
210 215 220

Gln Ser Thr Cys Lys Tyr Pro Asp Tyr Leu Lys Met Ser Ala Asp Ala
225 230 235 240

Tyr Gly Asp Ser Met Trp Phe Tyr Leu Arg Arg Glu Gln Leu Phe Ala
245 250 255

Arg His Tyr Phe Asn Arg Ala Gly Lys Val Gly Glu Thr Ile Pro Ala
260 265 270

Glu Leu Tyr Leu Lys Gly Ser Asn Gly Arg Glu Pro Pro Pro Ser Ser
275 280 285

Val Tyr Val Ala Thr Pro Ser Gly Ser Met Ile Thr Ser Glu Ala Gln
290 295 300

Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn Asn
305 310 315 320

Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr Thr
325 330 335

Arg Ser Thr Asn Met Thr Ile Ser Thr Ala Thr Glu Gln Leu Ser Lys
340 345 350

Tyr Asp Ala Arg Lys Ile Asn Gln Tyr Leu Arg His Val Glu Glu Tyr
355 360 365

Glu Leu Gln Phe Val Phe Gln Leu Cys Lys Ile Thr Leu Ser Ala Glu
 370 375 380

Val Met Ala Tyr Leu His Asn Met Asn Ala Asn Leu Leu Glu Asp Trp
 385 390 395 400

Asn Ile Gly Leu Ser Pro Pro Val Ala Thr Ser Leu Glu Asp Lys Tyr
 405 410 415

Arg Tyr Val Arg Ser Thr Ala Ile Thr Cys Gln Arg Glu Gln Pro Pro
 420 425 430

Thr Glu Lys Gln Asp Pro Leu Ala Lys Tyr Lys Phe Trp Asp Val Asn
 435 440 445

Leu Gln Asp Ser Phe Ser Thr Asp Leu Asp Gln Phe Pro Leu Gly Arg
 450 455 460

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

Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys Lys Val
 485 490 495

Lys Lys

<210> 27
 <211> 499
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 27

Met Ser Val Trp Arg Pro Ser Glu Ala Thr Val Tyr Leu Pro Pro Val
 1 5 10 15

Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Ser Arg Thr Ser
20 25 30

Ile Tyr Tyr Tyr Ala Gly Ser Ser Arg Leu Leu Ala Val Gly Asn Pro
35 40 45

Tyr Phe Ser Ile Lys Ser Pro Asn Asn Asn Lys Lys Val Leu Val Pro
50 55 60

Lys Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Val Arg Leu Pro Asp
65 70 75 80

Pro Asn Lys Phe Gly Phe Pro Asp Thr Ser Phe Tyr Asn Pro Asp Thr
85 90 95

Gln Arg Leu Val Trp Ala Cys Val Gly Leu Glu Ile Gly Arg Gly Gln
100 105 110

Pro Leu Gly Val Gly Val Ser Gly His Pro Tyr Leu Asn Lys Phe Asp
115 120 125

Asp Thr Glu Thr Ser Asn Arg Tyr Pro Ala Gln Pro Gly Ser Asp Asn
130 135 140

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

Gly Cys Lys Pro Pro Thr Gly Glu His Trp Gly Lys Gly Val Ala Cys
165 170 175

Asn Asn Asn Ala Ala Ala Thr Asp Cys Pro Pro Leu Glu Leu Phe Asn
180 185 190

Ser Ile Ile Glu Asp Gly Asp Met Val Asp Thr Gly Phe Gly Cys Met
195 200 205

Asp Phe Gly Thr Leu Gln Ala Asn Lys Ser Asp Val Pro Ile Asp Ile
210 215 220

Cys Asn Ser Thr Cys Lys Tyr Pro Asp Tyr Leu Lys Met Ala Ser Glu
 225 230 235 240

Pro Tyr Gly Asp Ser Leu Phe Phe Phe Leu Arg Arg Glu Gln Met Phe
 245 250 255

Val Arg His Phe Phe Asn Arg Ala Gly Lys Leu Gly Glu Ala Val Pro
 260 265 270

Asp Asp Leu Tyr Ile Lys Gly Ser Gly Asn Thr Ala Val Ile Gln Ser
 275 280 285

Ser Ala Phe Phe Pro Thr Pro Ser Gly Ser Ile Val Thr Ser Glu Ser
 290 295 300

Gln Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn
 305 310 315 320

Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr
 325 330 335

Thr Arg Ser Thr Asn Met Thr Leu Cys Thr Glu Val Thr Lys Glu Gly
 340 345 350

Thr Tyr Lys Asn Asp Asn Phe Lys Glu Tyr Val Arg His Val Glu Glu
 355 360 365

Tyr Asp Leu Gln Phe Val Phe Gln Leu Cys Lys Ile Thr Leu Thr Ala
 370 375 380

Glu Ile Met Thr Tyr Ile His Thr Met Asp Ser Asn Ile Leu Glu Asp
 385 390 395 400

Trp Gln Phe Gly Leu Thr Pro Pro Pro Ser Ala Ser Leu Gln Asp Thr
 405 410 415

Tyr Arg Phe Val Thr Ser Gln Ala Ile Thr Cys Gln Lys Thr Ala Pro
420 425 430

Pro Lys Glu Lys Glu Asp Pro Leu Asn Lys Tyr Thr Phe Trp Glu Val
435 440 445

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

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

Arg Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys Lys
485 490 495

Val Lys Lys

<210> 28

<211> 499

<212> PRT

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 28

Met Ser Val Trp Arg Pro Ser Glu Ala Thr Val Tyr Leu Pro Pro Val
1 5 10 15

Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Ser Arg Thr Ser
20 25 30

Ile Tyr Tyr Tyr Ala Gly Ser Ser Arg Leu Leu Ala Val Gly His Pro
35 40 45

Tyr Phe Ser Ile Lys Asn Pro Thr Asn Ala Lys Lys Leu Leu Val Pro
50 55 60

Lys Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Val Arg Leu Pro Asp
65 70 75 80

Pro Asn Lys Phe Gly Phe Pro Asp Thr Ser Phe Tyr Asn Pro Asp Thr
85 90 95

Gln Arg Leu Val Trp Ala Cys Val Gly Leu Glu Ile Gly Arg Gly Gln
100 105 110

Pro Leu Gly Val Gly Ile Ser Gly His Pro Leu Leu Asn Lys Phe Asp
115 120 125

Asp Thr Glu Thr Gly Asn Lys Tyr Pro Gly Gln Pro Gly Ala Asp Asn
130 135 140

Arg Glu Cys Leu Ser Met Asp Tyr Lys Gln Thr Gln Leu Cys Leu Leu
145 150 155 160

Gly Cys Lys Pro Pro Thr Gly Glu His Trp Gly Lys Gly Val Ala Cys
165 170 175

Thr Asn Ala Ala Pro Ala Asn Asp Cys Pro Pro Leu Glu Leu Ile Asn
180 185 190

Thr Ile Ile Glu Asp Gly Asp Met Val Asp Thr Gly Phe Gly Cys Met
195 200 205

Asp Phe Lys Thr Leu Gln Ala Asn Lys Ser Asp Val Pro Ile Asp Ile
210 215 220

Cys Gly Ser Thr Cys Lys Tyr Pro Asp Tyr Leu Lys Met Thr Ser Glu
225 230 235 240

Pro Tyr Gly Asp Ser Leu Phe Phe Phe Leu Arg Arg Glu Gln Met Phe
245 250 255

Val Arg His Phe Phe Asn Arg Ala Gly Thr Leu Gly Glu Ala Val Pro
260 265 270

Asp Asp Leu Tyr Ile Lys Gly Ser Gly Thr Thr Ala Ser Ile Gln Ser
 275 280 285

Ser Ala Phe Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser Glu Ser
 290 295 300

Gln Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn
 305 310 315 320

Asn Gly Ile Cys Trp Gly Asn Gln Val Phe Val Thr Val Val Asp Thr
 325 330 335

Thr Arg Ser Thr Asn Met Thr Leu Cys Thr Gln Val Thr Ser Asp Ser
 340 345 350

Thr Tyr Lys Asn Glu Asn Phe Lys Glu Tyr Ile Arg His Val Glu Glu
 355 360 365

Tyr Asp Leu Gln Phe Val Phe Gln Leu Cys Lys Val Thr Leu Thr Ala
 370 375 380

Glu Val Met Thr Tyr Ile His Ala Met Asn Pro Asp Ile Leu Glu Asp
 385 390 395 400

Trp Gln Phe Gly Leu Thr Pro Pro Pro Ser Ala Ser Leu Gln Asp Thr
 405 410 415

Tyr Arg Phe Val Thr Ser Gln Ala Ile Thr Cys Gln Lys Thr Val Pro
 420 425 430

Pro Lys Glu Lys Glu Asp Pro Leu Gly Lys Tyr Thr Phe Trp Glu Val
 435 440 445

Asp Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp Gln Phe Pro Leu Gly
 450 455 460

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

Arg Ala Ala Pro Thr Ser Thr Arg Thr Ser Ser Ala Lys Arg Lys Lys
 485 490 495

Val Lys Lys

<210> 29
 <211> 508
 <212> PRT
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 29

Met Ala Leu Trp Arg Ser Ser Asp Asn Lys Val Tyr Leu Pro Pro Pro
 1 5 10 15

Ser Val Ala Lys Val Val Ser Thr Asp Glu Tyr Val Thr Arg Thr Ser
 20 25 30

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

Tyr Phe Lys Val Pro Lys Gly Gly Asn Gly Arg Gln Asp Val Pro Lys
 50 55 60

Val Ser Ala Tyr Gln Tyr Arg Val Phe Arg Val Lys Leu Pro Asp Pro
 65 70 75 80

Asn Lys Phe Gly Leu Pro Asp Asn Thr Val Tyr Asp Pro Asn Ser Gln
 85 90 95

Arg Leu Val Trp Ala Cys Val Gly Val Glu Ile Gly Arg Gly Gln Pro
 100 105 110

Leu Gly Val Gly Leu Ser Gly His Pro Leu Tyr Asn Lys Leu Asp Asp
115 120 125

Thr Glu Asn Ser His Val Ala Ser Ala Val Asp Thr Lys Asp Thr Arg
130 135 140

Asp Asn Val Ser Val Asp Tyr Lys Gln Thr Gln Leu Cys Ile Ile Gly
145 150 155 160

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

Pro Thr Thr Val Val Gln Gly Asp Cys Pro Pro Leu Glu Leu Ile Asn
180 185 190

Thr Pro Ile Glu Asp Gly Asp Met Val Asp Thr Gly Tyr Gly Ala Met
195 200 205

Asp Phe Lys Leu Leu Gln Asp Asn Lys Ser Glu Val Pro Leu Asp Ile
210 215 220

Cys Gln Ser Ile Cys Lys Tyr Pro Asp Tyr Leu Gln Met Ser Ala Asp
225 230 235 240

Ala Tyr Gly Asp Ser Met Phe Phe Cys Leu Arg Arg Glu Gln Val Phe
245 250 255

Ala Arg His Phe Trp Asn Arg Ser Gly Thr Met Gly Asp Gln Leu Pro
260 265 270

Glu Ser Leu Tyr Ile Lys Gly Thr Asp Ile Arg Ala Asn Pro Gly Ser
275 280 285

Tyr Leu Tyr Ser Pro Ser Pro Ser Gly Ser Val Val Thr Ser Asp Ser
290 295 300

Gln Leu Phe Asn Lys Pro Tyr Trp Leu His Lys Ala Gln Gly Leu Asn
305 310 315 320

Asn Gly Ile Cys Trp His Asn Gln Leu Phe Leu Thr Val Val Asp Thr
 325 330 335

Thr Arg Ser Thr Asn Leu Ser Val Cys Ala Ser Thr Thr Ser Ser Ile
 340 345 350

Pro Asn Val Tyr Thr Pro Thr Ser Phe Lys Glu Tyr Ala Arg His Val
 355 360 365

Glu Glu Phe Asp Leu Gln Phe Ile Phe Gln Leu Cys Lys Ile Thr Leu
 370 375 380

Thr Thr Glu Val Met Ser Tyr Ile His Asn Met Asn Thr Thr Ile Leu
 385 390 395 400

Glu Asp Trp Asn Phe Gly Val Thr Pro Pro Pro Thr Ala Ser Leu Val
 405 410 415

Asp Thr Tyr Arg Phe Val Gln Ser Ala Ala Val Thr Cys Gln Lys Asp
 420 425 430

Thr Ala Pro Pro Val Lys Gln Asp Pro Tyr Asp Lys Leu Lys Phe Trp
 435 440 445

Pro Val Asp Leu Lys Glu Arg Phe Ser Ala Asp Leu Asp Gln Phe Pro
 450 455 460

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

Ile Gly Pro Arg Lys Arg Ala Ala Pro Ala Pro Thr Ser Thr Pro Ser
 485 490 495

Pro Lys Arg Val Lys Arg Arg Lys Ser Ser Arg Lys
 500 505

<210> 30
 <211> 1522
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 30
 ctgggtacca tgtggagacc atctgacagc acagtctatg tgcctcctcc aaaccctgtg 60
 agcaaggtgg tggctacaga tgcctatgtg accaggacca acatcttcta ccatgcctcc 120
 tccagcagac tgctggctgt gggacacca tacttcagca tcaagagggc taacaagaca 180
 gtgggtgcaa aggtgtctgg ctaccaatac aggggtgttca aggtgggtgct gcctgaccca 240
 aacaagtttg ccctgcctga ctctccctg tttagcccaa ccaccagag actgggtgtgg 300
 gcttgactg gattggaggt gggcagggga caaccactgg gaggggagt gtctggacac 360
 ccattcctga acaaatatga tgatgtggag aactctggct ctggaggcaa ccctggacaa 420
 gacaacaggg tgaatgtggg gatggactac aagcagacc aactttgtat ggtgggctgt 480
 gccctccac tgggagaaca ctggggcaag ggcaagcagt gtaccaacac acctgtccag 540
 gctggagact gtcctccatt ggaactgatt acctctgtga ttcaggatgg agatatgggtg 600
 gacacaggct ttggagctat gaactttgct gacctcaaa ccaacaagtc tgatgtgcca 660
 attgacatct gtggcaccac ttgtaaatac cctgactacc tccaaatggc tgctgaccca 720
 tatggagaca gactgttctt cttcctgagg aaggaacaga tgtttgccag acacttcttc 780
 aacagggtg gagaggtggg agaacctgtg cctgacacc tgattatcaa gggctctggc 840
 aacaggacct ctgtgggctc cagcatctat gtgaacacac catctggctc cctgggtgtcc 900
 tctgaggctc aacttttcaa caagccatac tggctcaaa aggctcaagg acacaacaat 960
 ggcatctgtt ggggcaacca actttttgtg acagtgggtg acaccaccag gagcaccaat 1020
 atgaccctgt gtgcctctgt gaccacctcc agcacctaca ccaactctga ctacaaggaa 1080
 tatatgaggc atgtggagga atatgacctc caattcatct tccaactttg tagcatcacc 1140
 ctgtctgctg aggtgatggc ttacatccac acaatgaacc catctgtgtt ggaggactgg 1200
 aactttggac tgagccctcc tccaaatggc accttgagg acacctacag atatgtccag 1260

agccaggcta tcacttgtca gaagccaaca cctgagaagg agaagcctga cccataacaag	1320
aacctgtcct tctgggaggt gaacctgaaa gagaagttct cctctgaact ggaccaatac	1380
ccactgggca ggaagttcct gctccaatct ggctacaggg gcagggtccag catcaggaca	1440
ggagtgaaga gacctgctgt gagcaaggca tctgctgccc caaagaggaa gaggggctaag	1500
accaagaggt aaactcgagc tc	1522

<210> 31
 <211> 1525
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 31	
ctgggtacca tgtggagacc atctgacagc acagtctatg tgcctcctcc aaaccctgtg	60
agcaaggtgg tggctacaga tgcctatgtg aagaggacca acatcttcta ccatgcctcc	120
tccagcagac tgctggctgt gggacacca tactacagca tcaagaaggt gaacaagaca	180
gtggtgccaa aggtgtcttg ctaccaatac aggggtgttca aggtgggtgct gcctgaccca	240
aacaagtttg ccctgcctga ctctccctg tttagcccaa ccaccagag actggtgtgg	300
gcttgactg gattggaggt gggcagggga caaccactgg gagtgggagt gtctggacac	360
ccactgctga acaaatatga tgatgtggag aactctggag gctatggagg caaccctgga	420
caagacaaca gggatgaatgt ggggatggac tacaagcaga cccaactttg tatggtgggc	480
tgtgcccctc cactgggaga aactggggc aagggcaccc agttagtagcaa cacctctgtc	540
cagaatggag actgtcctcc attggaactg attacctctg tgattcagga tggagatatg	600
gtggacacag gctttggagc tatgaacttt gctgacctcc aaaccaacaa gtctgatgtg	660
ccactggaca tctgtggcac agtgtgtaaa taccctgact acctccaaat ggctgctgac	720
ccatatggag acagactgtt cttctacctg aggaaggaac agatgtttgc cagacacttc	780
ttcaacaggg ctggcacagt gggagaacct gtgcctgatg acctgctggt gaaggagggc	840
aacaacaggt cctctgtggc atccagcatc tatgtgcata caccatctgg ctccctgggtg	900

tcctctgagg ctcaactttt caacaagcca tactggctcc aaaaggctca aggacacaac	960
aatggcatct gttggggcaa ccacctgttt gtgacagtgg tggacaccac caggagcacc	1020
aatatgaccc tgtgtgcctc tgtgagcaag tctgccacct acaccaactc tgactacaag	1080
gaatatatga ggcatgtgga ggagtttgac ctccaattca tcttccaact ttgtagcatc	1140
accctgtctg ctgaggtgat ggcttacatc cacacaatga acccatctgt gttggaggac	1200
tggaactttg gactgagccc tcctccaaat ggcaccttgg aggacaccta cagatatgtc	1260
cagagccagg ctatcacttg tcagaagcca acacctgaga aggagaagca ggaccatac	1320
aaggatatga gtttctggga ggtgaacctg aaagagaagt tctcctctga actggaccag	1380
tttccactgg gcaggaagtt cctgctcaa tctggctaca ggggcaggac ctctgccagg	1440
acaggcatca agagacctgc tgtgagcaag ccaagcacag ccccaaagag gaagaggacc	1500
aagaccaaga agtaaactcg agctc	1525

<210> 32
 <211> 1537
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 32	
ctgggtacca tgagtctgtg gctgccatct gaggctacag tctacctgcc tcctgtgcct	60
gtgagcaagg tggtagcac agatgaatat gtggcaagga ccaacatcta ctaccatgct	120
ggcaccagca gactgctggc tgtgggacac ccatactttc caatcaagaa gccaaacaac	180
aacaagattc tgggtccaaa ggtgtctgga ctccaatata ggggtgttcag gattcacctg	240
cctgacccaa acaagtttgg ctttcctgac acctccttct acaaccctga caccagaga	300
ctgggtgtggg cttgtgtggg agtggaggtg ggcaggggac aaccactggg agtgggcatc	360
tctggacacc cactgctgaa caaactggat gacacagaga atgcctctgc ctatgctgcc	420
aatgctggag tggacaacag ggagtgtatc agtatggact acaagcagac ccaactttgt	480
ctgattggct gtaagcctcc aattggagaa cactggggca agggcagccc atgtaccaat	540

gtggctgtga accctggaga ctgtcctcca ttggaactga taaacacagt gattcaggat	600
ggagatatgg tggacacagg ctttggagct atggacttca ccaccctcca agccaacaag	660
tctgaggtgc cactggacat ctgtaccagc atctgtaaat accctgacta catcaagatg	720
gtgtctgaac catatggaga ctccctgttc ttctacctga ggagggaaca gatgtttgtg	780
agacacctgt tcaacagggc tggagcagtg ggagagaatg tgcctgatga cctctacatc	840
aagggtcttg gcagcacagc caacctggca tccagcaact actttccaac accatctggc	900
agtatggtga cctctgatgc ccagattttc aacaagccat actggctcca aagggtcaa	960
ggacacaaca atggcatctg ttggggcaac caactttttg tgacagtggg ggacaccacc	1020
aggagcacca atatgagtct gtgtgctgcc atcagcacct ctgagaccac ctacaagaac	1080
accaacttca aggaatacct gagacatgga gaggaatatg acctccaatt catcttccaa	1140
ctttgtaaga ttaccctgac agcagatgtg atgacctaca tccacagtat gaacagcacc	1200
atcttgaggg actggaactt tggactccaa cctcctcctg gaggcacctt ggaggacacc	1260
tacaggtttg tgaccagcca ggctattgcc tgtcagaaac acacacctcc tgccccaag	1320
gaggaccac tgaaaaata caccttctgg gaggtgaacc tgaaagagaa gttctctgct	1380
gacctggacc agtttccact gggcaggaag ttctgtctcc aagcaggact gaaagccaag	1440
ccaaagttca ccctgggcaa gaggaaggct acaccaacca cctccagcac cagcaccaca	1500
gccaagagga agaagaggaa actgtaaact cgagctc	1537

<210> 33
 <211> 1543
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 33	
ctgggtacca tggccctctg gagaccatcc gataacacag tgtacttgcc cccacccagc	60
gtcgcccggg tggatgaacac agacgactac gtcaccagaa cctcaatctt ctaccacgcc	120
gggtccagcc ggctgctgac cgtgggcaac ccctacttcc gcgtgcccgc cggcggcgga	180

aacaaacaag acatcccca agtcagcgcc tatcagtacc ggggtgttccg cgtccaactg	240
cccgatccca acaagttcgg cctgcccgc acctccatct acaaccccga gacccagagg	300
ctgggtctggg cttgcgccgg cgtcgagatc gggagggggcc aacccttggg cgtgggggtg	360
tccggccacc ctttctacaa caagctggac gataccgagt ccagccacgc agcaaccagc	420
aacgtctccg aagatgtgcg cgataacgtc agcgtggact acaaacaac ccaactgtgc	480
atcctgggat gcgcacccgc catcggcgag cattgggcca aggggaccgc ctgcaagagc	540
aggcccctga gccaaaggga ctgtccaccc ctggagtga agaataccgt gctcgaggac	600
ggcgacatgg tggacaccgg ctacggcgct atggatttct ccaccctcca ggacaccaag	660
tgcgaagtgc ccctcgacat ctgccaaagc atctgcaagt accccgacta cctccagatg	720
agcgccgacc cctacggcga cagcatgttc ttctgtctca gaagggaaca attgttcgcc	780
cgccacttct ggaaccgggc cggcacaatg ggagatacag tccccagag cctgtacatc	840
aaggggaccg gaatgagggc cagccccggg tcctgcgtct acagcccaag cccctccggg	900
agcatcgtca caagcgatag ccaactcttc aacaagccct actgggtcca caaagcccaa	960
ggccacaata acgggggtgtg ttggcacaac cagctgttcg tgaccgtcgt ggacacaacc	1020
aggtccacaa acctgaccat ctgcgccagc acccaaagcc ccgtgcccgg ccagtacgac	1080
gccacaaagt tcaaacaata ctctcggcac gtggaagagt acgacctca attcatcttc	1140
caactctgca ccatcacct caccgccgac gtgatgagct acatccactc catgaactcc	1200
tccatcctgg aagactggaa tttcggcgtg ccaccacccc ctaccacctc cctcgtcgac	1260
acctacagat tcgtgcagag cgtggccatc acatgccaga aagacgccgc ccccgccgag	1320
aacaaagacc catacgacaa actgaaattc tggaacgtcg acctgaaaga gaaattcagc	1380
ctggatctgg accagtaccc attgggcagg aagttcctcg tgcaagccgg cctcaggaga	1440
aaaccaacaa tcggggcccag gaagaggagc gccccagcg caaccaccag cagcaagccc	1500
gcaaaaaggg tcagagttag ggcacgcaaa taaactcgag ctc	1543

<210> 34
<211> 1534

<212> DNA

<213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 34

```
ctgggtacca tgagcctgtg gaggcccagc gaggccaccg tgtacctgcc ccccggtgccc      60
gtgagcaagg tggtgagcac cgacgagtac gtgaccagga ccaacatcta ctaccacgcc      120
ggcagcgcca ggctgctgac cgtggggccac ccctactaca gcatcccca gagcgacaac      180
cccaagaaga tcgtggtgcc caaggtgagc ggccctgcagt acaggggtgtt cagggtgagg      240
ctgcccgacc ccaacaagtt cggcttcccc gacaccagct tctacaaccc cgagaccag      300
aggctggtgt gggcctgcgt gggcctggag gtgggcaggg gccagcccct gggcgtgggc      360
atcagcggcc acccctgct gaacaagttc gacgacaccg agaacagcaa caggtacgcc      420
ggcggccccg gcaccgacaa cagggagtgc atcagcatgg actacaagca gaccagctg      480
tgcctgctgg gctgcaagcc ccccatcggc gagcactggg gcaagggcag cccctgcagc      540
aacaacgcca tcacccccgg cgactgcccc cccctggagc tgaagaacag cgtgatccag      600
gacggcgaca tggtggacac cggcttcggc gccatggact tcaccgccct gcaggacacc      660
aagagcaacg tgcccctgga catctgcaac agcatctgca agtaccgccga ctacctgaag      720
atggtggccg agccctacgg cgacaccctg ttcttctacc tgaggaggga gcagatgttc      780
gtgaggcact tcttcaacag gagcggcacc gtgggcgaga gcgtgcccac cgacctgtac      840
atcaagggca gcggcagcac cgccaccctg gccaacagca cctacttccc cacccccagc      900
ggcagcatgg tgaccagcga cgcccagatc ttcaacaagc cctactggat gcagagggcc      960
cagggccaca acaacggcat ctgctggggc aaccagctgt tcgtgaccgt ggtggacacc     1020
accaggagca ccaacatgag cgtgtgcgcc gccatcgcca acagcgacac caccttcaag     1080
agcagcaact tcaaggagta cctgaggcac ggcgaggagt tcgacctgca gttcatcttc     1140
cagctgtgca agatcacct gagcgccgac atcatgacct acatccacag catgaacccc     1200
gccatcctgg aggactggaa cttcggcctg accaccccc ccagcggcag cctggaggac     1260
acctacaggt tcgtgaccag ccaggccatc acctgccaga agtccgcccc ccagaagccc     1320
```

aaggaggacc cttcaagga ctacgtgttc tgggaggtga acctgaagga gaagttcagc	1380
gccgacctgg accagttccc cctgggcagg aagttcctgc tgcaggccgg ctacagggcc	1440
aggcccaagt tcaaggccgg caagaggagc gccccagcg ccagcaccac ccccccgcc	1500
aagaggaaga agaccaagaa gtaaactcga gctc	1534

<210> 35
 <211> 1528
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 35	
ctgggtacca tgagtctgtg gaggagcaat gaggctacag tctacctgcc tcctgtgtct	60
gtgagcaagg tggtagcac agatgaatat gtgaccagga ccaacatcta ctaccatgct	120
ggctccagca gactgctggc tgtgggacac ccatactatg ccatcaagaa gcaggacagc	180
aacaagattg ctgtgcaaaa ggtgtctgga ctccaataca ggggtgttcag ggtgaaactg	240
cctgacccaa acaagtttgg ctttcctgac acctccttct atgaccctgc cagccagaga	300
ctgggtgtggg cttgtactgg agtggaggtg ggcaggggac aaccactggg agtgggcatc	360
tctggacacc cactgctgaa caaactggat gacacagaga acagcaaaa atatgtgggc	420
aactctggca cagacaacag ggagtgtatc agtatggact acaagcagac ccaactttgt	480
ctgattggct gtagacctcc aattggagaa cactggggca agggcacacc atgtaatgcc	540
aaccaggtga aggctggaga gtgtcctcca ttggaactgc tgaacacagt gctccaagat	600
ggagatatgg tggacacagg ctttggagct atggacttca ccacctcca agccaacaag	660
tctgatgtgc cactggacat ctgttccagc atctgtaaat accctgacta cctgaaaatg	720
gtgtctgaac catatggaga tatgctgttc ttctacctga ggagggaaca gatgtttgtg	780
agacacctgt tcaacagggc tggcacagtg ggagagacag tgcctgctga cctctacatc	840
aagggcacca caggcacct gccaaagcacc tcctactttc caacaccatc tggcagtatg	900
gtgacctctg atgccagat tttcaacaag ccatactggc tccaaagggc tcaaggacac	960

aacaatggca tctgttggag caaccaactt tttgtgacag tgggtggacac caccaggagc	1020
accaatatga gtgtgtgttc tgctgtgtcc tcctctgaca gcacctaca gaatgacaac	1080
ttcaaggaat acctgagaca tggagaggaa tatgacctcc aattcatctt ccaactttgt	1140
aagattaccc tgacagcaga tgtgatgacc tacatccaca gtatgaaccc aagcatcttg	1200
gaggactgga actttggact gacacctct ccatctggca ccttggagga cacctacaga	1260
tatgtgacca gccaggctgt gacttgtcag aagccatctg ccccaaagcc aaaggatgac	1320
ccactgaaaa actacacctt ctggggagggtg gacctgaaag agaagttctc tgctgacctg	1380
gaccagtttc cactgggcag gaagttcctg ctccaagcag gactgaaagc cagaccaaac	1440
ttcagactgg gcaagagggc tgcccctgcc agcaccagca agaagtccag caccaagagg	1500
aggaaggtga agagctaaac tcgagctc	1528

<210> 36
 <211> 1537
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 36	
ctgggtacca tggctatgtg gaggtcctct gacagtatgg tctacctgcc tcctccatct	60
gtggctaagg tggatgaacac agatgactat gtgaccagga caggcatcta ctactatgct	120
ggctccagca gactgctgac agtgggacac ccatacttca aggtggggat gaatggaggc	180
aggaagcagg acatcccaaa ggtgtctgcc taccaataca ggggtgttcag ggtgaccctg	240
cctgacccaa acaagttcag catccctgat gcctccctct acaaccctga gacccagaga	300
ctgggtgtggg cttgtgtggg agtggagggtg ggcaggggac aaccactggg agtgggcatc	360
tctggacacc cactctacaa cagacaggat gacacagaga acagcccatt ctccagcacc	420
accaacaagg acagcaggga caatgtgtct gtggactaca agcagacca actttgtatc	480
attggctgtg tgcctgccat tggagaacac tggggcaagg gcaaggcttg taagccaaac	540
aatgtgagca caggagactg tcctccattg gaactggtga acacaccaat tgaggatgga	600

gatatgattg acacaggcta tggagctatg gactttggag ccctccaaga gaccaagtct	660
gaggtgccac tggacatctg tcagagcatc tgtaaatacc ctgactacct ccaaatgagt	720
gctgatgtct atggagacag tatgtttcttc tgtctgagga gggaacaact ttttgccaga	780
cacttctgga acaggggagg gatggtggga gatgccatcc ctgcccact ctacatcaag	840
ggcacagaca tcagggctaa ccctggctcc tctgtctact gtccaagccc atctggcagt	900
atggtgacct ctgacagcca acttttcaac aagccatact ggctgcacaa ggctcaagga	960
cacaacaatg gcatctgttg gcacaacaa cttttcctga cagtgggtgga caccaccagg	1020
agcaccaact tcaccctgag caccagcatt gagtccagca tccaagcac ctatgaccca	1080
agcaagttca aggaatacac caggcatgtg gaggaatatg acctccaatt catcttccaa	1140
ctttgtactg tgaccctgac cacagatgtg atgagttaca tccacacaat gaactccagc	1200
atcctggaca actggaactt tgctgtggct cctcctccat ctgcctccct ggtggacacc	1260
tacagatacc tccaatctgc tgccatcact tgtcagaagg atgcccctgc ccctgagaag	1320
aaggacccat atgatggact gaagttctgg aatgtggacc tgagggagaa gttctccttg	1380
gaactggacc agtttccact gggcaggaag ttcctgctcc aagccagggt gaggaggaga	1440
ccaaccattg gaccaaggaa gagacctgct gccagcacct cctcctcctc tgccacaaaa	1500
cacaagagga agagggtgag caagtaaact cgagctc	1537

<210> 37
 <211> 1543
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 37	
ctgggtacca tggctctgtg gagaccatct gacagcacag tctacctgcc tcctccatct	60
gtggcaaggg tggatgaacac agatgactat gtgagcagga ccagcatctt ctaccatgct	120
ggctccagca gactgctgac agtgggcaac ccatacttca gggtaggtgcc aagtggagca	180
ggcaacaagc aggctgtgcc aaaggtgtct gcctaccaat acagggtgtt cagggtggct	240

ctgcctgacc caaacaagtt tggactgcct gacagcacca tctacaaccc tgagaccag	300
agactggtgt gggcttgtgt ggggatggag attggcaggg gacaaccact gggcattgga	360
ctgtctggac acccattcta caacaaactg gatgacacag agtctgcca tgctgccaca	420
gcagtgatta cccaggatgt gagggacaat gtgtctgtgg actacaagca gacccaactt	480
tgtatcctgg gctgtgtgcc tgccattgga gaacactggg ctaagggcac cctgtgtaag	540
cctgccaac tccaacctgg agactgtcct ccattggaac tgaaaaacac catcattgag	600
gatggagata tggatggacac aggctatgga gctatggact tcagcacctt ccaagacacc	660
aagtgtgagg tgccactgga catctgtcag agcatctgta aataccctga ctacctcaa	720
atgagtgtg acccatatgg agacagtatg ttcttctgtc tgaggaggga acaacttttt	780
gccagacact tctggaacag ggctggagtg atgggagaca cagtccaac agacctctac	840
atcaagggca cctctgcca tatgaggag acacctggct cctgtgtcta cagccaagc	900
ccatctggca gcatcaccac ctctgacagc caacttttca acaagccata ctggctgcac	960
aaggctcaag gacacaaca tggcatctgt tggcacaacc aactttttgt gacagtgggtg	1020
gacaccacca ggagcaccaa cctgaccctg tgtgccagca cccagaaccc tgtgccaac	1080
acctatgacc caaccaagtt caagcactac agcaggcatg tggaggaata tgacctcaa	1140
ttcatcttcc aactttgtac catcacctg acagcagagg tgatgagtta catccacagt	1200
atgaactcca gcatcttgga gaactggaac tttggagtgc ctctcctcc aaccacctcc	1260
ctggtggaca cctacaggtt tgtccagtct gtggctgtga cttgtcagaa ggacaccaca	1320
cctcctgaga agcaggaccc atatgacaaa ctgaagttct ggacagtgga cctgaaagag	1380
aagttctcct ctgacctgga ccaataccca ctgggcagga agttcctggg ccaggctgga	1440
ctgaggagga gaccaaccat tggaccaagg aagagacctg ctgccagcac cagcacagcc	1500
agcagacctg ccaagagggt gaggattagg agcaagaagt aaa	1543

<210> 38
 <211> 1534
 <212> DNA
 <213> Artificial

<220>

<223> The sequence is artificially synthesized.

<400> 38

ctgggtacca tggctctgtg gaggaccaat gacagcaagg tctacctgcc tcctgcccct	60
gtgagcagga ttgtgaacac agaggaatac atcaccagga caggcatcta ctactatgct	120
ggctccagca gactgattac cctgggacac ccatactttc caatcccaaa gaccagcacc	180
agggctgcca tcccaaaggt gtctgccttc caatacaggg tgttcagggt ccaacttcct	240
gacccaaaca agtttggact gcctgaccca aacctctaca accctgacac agacagactg	300
gtgtggggct gtgtgggagt ggaggtgggc aggggacaac cactgggagt gggactgtct	360
ggacaccac tgttcaacaa atatgatgac acagagaaca gcaggattgc caatggcaat	420
gccaacagg atgtgaggga caacacctct gtggacaaca agcagacca actttgtatc	480
attggctgtg cccctccaat tggagaacac tggggcattg gcaccacttg taagaacaca	540
cctgtgcctc ctggagactg tcctccattg gaactgggtg cctctgtgat tcaggatgga	600
gatatgattg acacaggctt tggagctatg gactttgctg ccctccaagc caccaagtct	660
gatgtgccac tggacatcag ccagtctgtg tgtaaatacc ctgactacct gaaaatgagt	720
gctgacacct atggcaacag tatgttcttc cacctgagga gggaacagat ttttgccaga	780
cactactaca aaaaactggg gggagtggga gaggacatcc caaatgacta ctacatcaag	840
ggctctggca atggcaggga cccaattgag tcctacatct actctgccac accatctggc	900
agtatgatta cctctgacag ccagattttc aacaagccat actggctgca cagggtcaa	960
ggacacaaca atggcatctg ttggaacaac caacttttca tcacttgtgt ggacaccacc	1020
aggagcacca acctgacct cagcacagcc acagcagcag tgagcccaac cttcacacca	1080
agcaacttca agcaatacat cagacatgga gaggaatatg aactccaatt catcttccaa	1140
ctttgtaaga ttaccctgac cacagagggt atggcttacc tgcacacaat ggaccaacc	1200
atcttggaac agtggaaact tggactgacc ctgcctccat ctgcctcctt ggaggatgcc	1260
tacaggtttg tgaggaatgc tgccacctcc tgtcagaagg acacacctcc acaggctaag	1320
cctgaccac tggctaaata caagttctgg gatgtggacc tgaaagagag gttctccctg	1380

gacctggacc agtttgcctt gggcaggaag ttcctgctcc aagtgggagt ccagaggaag 1440
ccaagacctg gactgaaaag acctgcctcc tctgcctcct cctcctcctc ctcctctgcc 1500
aagaggaaga gggatgaaga gtaaacctga gctc 1534

<210> 39
<211> 1531
<212> DNA
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 39
ctgggtacca tgagcgtgtg gaggcccagc gaggccaccg tgtacctgcc ccccggtgcc 60
gtgagcaagg tggatgagcac cgacgagtac gtgagcagga ccagcatcta ctactacgcc 120
ggcagcagca ggctgctgac cgtggggccac ccctacttca gcatcaagaa caccagcagc 180
ggcaacggca agaaggtgct ggtgcccag gtgagcggcc tgcagtacag ggtgttcagg 240
atcaagctgc ccgaccccaa caagttcggc ttccccgaca ccagcttcta caaccccgag 300
accagaggc tggatgtgggc ctgcaccggc ctggagatcg gcagggggca gccctgggc 360
gtgggcatca gcgggcacc cctgctgaac aagttcgacg acaccgagac cagcaacaag 420
tacgccggca agcccggcat cgacaacagg gagggcctga gcatggacta caagcagacc 480
cagctgtgca tcctgggctg caagcccccc atcggcgagc actggggcaa gggcaccccc 540
tgcaacaaca acagcggcaa ccccggcgac tgcccccccc tgcagctgat caacagcgtg 600
atccaggacg gcgacatggt ggacaccggc ttcggctgca tggacttcaa caccctgcag 660
gccagcaaga gcgacgtgcc catcgacatc tgcagcagcg tgtgcaagta ccccgactac 720
ctgcagatgg ccagcgagcc ctacggcgac agcctgttct tcttcctgag gagggagcag 780
atgttcgtga ggcacttctt caacagggcc ggcaccctgg gcgaccccg gcccggcgac 840
ctgtacatcc agggcagcaa cagcggcaac accgccaccg tgcagagcag cgccttcttc 900
cccaccccca gcggcagcat ggtgaccagc gagagccagc tgttcaaaa gccctactgg 960
ctgcagaggg cccagggcca caacaacggc atctgctggg gcaaccagct gttcgtgacc 1020

gtggtggaca ccaccaggag caccaacatg accctgtgcg ccgaggtgaa gaaggagagc 1080
acctacaaga acgagaactt caaggagtac ctgaggcacg gcgaggagt cgcacctgcag 1140
ttcatcttcc agctgtgcaa gatcacctg accgccgacg tgatgaccta catccacaag 1200
atggacgcca ccatcctgga ggactggcag ttcggcctga ccccccccc cagcgccagc 1260
ctggaggaca cctacaggtt cgtgaccagc accgccatca cctgccagaa gaacaccccc 1320
cccaagggca aggaggaccc cctgaaggac tacatgttct gggaggtgga cctgaaggag 1380
aagttcagcg ccgacctgga ccagttcccc ctgggcagga agttcctgct gcaggccggc 1440
ctgcaggcca ggcccaagct gaagaggccc gccagcagcg ccccaggac cagcaccaag 1500
aagaagaagg tgaagaggta aactcgagct c 1531

<210> 40
<211> 1519
<212> DNA
<213> Artificial

<220>
<223> The sequence is artificially synthesized.

<400> 40
ctgggtacca tggctacctg gagaccatct gagaacaagg tctacctgcc tccaacacct 60
gtgagcaagg tgggtggctac agactcctat gtgaagagga ccagcatctt ctacctgct 120
ggctccagca gactgctggc tgtgggacac ccatactact ctgtgaccaa ggacaacacc 180
aagaccaaca tcccaaaggt gtctgcctac caatacaggg tgttcagggt gagactgcct 240
gacccaaaca agtttggact gcctgacacc aacatctaca accctgacca ggagagactg 300
gtgtgggctt gtgtgggatt ggaggtgggc aggggacaac cactgggagc aggactgtct 360
ggacaccac tgttcaacag actggatgac acagagtcca gcaacctggc taacaacaat 420
gtgattgagg acagcaggga caacatctct gtggatggca agcagacca actttgtatt 480
gtgggctgta ctctgctat gggagaacac tggaccaagg gagcagtgtg taagagcacc 540
caggtgacca caggagactg tcctccactg gctctgataa acacaccaat tgaggatgga 600
gatatgattg acacaggctt tggagctatg gacttcaagg tgctccaaga gagcaaggct 660

gaggtgccac tggacattgt ccagagcact tgtaaatacc ctgactacct gaaaatgagt	720
gctgatgcct atggagacag tatgtggttc tacctgagga gggaacaact ttttgccaga	780
cactacttca acagggctgg caaggtggga gagaccatcc ctgctgaact ctacctgaaa	840
ggcagcaatg gcaggggaacc tcctccatcc tctgtctatg tggctacacc atctggcagt	900
atgattacct ctgaggctca acttttcaac aagccatact ggctccaaag ggctcaagga	960
cacaacaatg gcatctgttg gggcaaccaa ctttttgtga cagtgggtga caccaccagg	1020
agcaccaata tgaccatcag cacagccaca gaacaactta gcaaataatga tgccaggaag	1080
ataaaccaat acctgaggca tgtggaggaa tatgaactcc aatttgtgtt ccaactttgt	1140
aagattaccc tgtctgctga ggtgatggct tacctgcaca atatgaatgc caacctgttg	1200
gaggactgga acattggact gagccctcct gtggctacct ccttggagga caaatacaga	1260
tatgtgagga gcacagccat cacttgtcag agggaacaac ctccaacaga gaagcaggac	1320
ccactggcta aatacaagtt ctgggatgtg aacctccaag actccttcag cacagacctg	1380
gaccagtttc cactgggcag gaagttcctg atgcaacttg gcaccaggag caagcctgct	1440
gtggctacca gcaagaagag gtctgcccc accagcacca gcacacctgc caagaggaag	1500
aggaggtaaa ctcgagctc	1519

<210> 41
 <211> 1507
 <212> DNA
 <213> Artificial

<220>
 <223> The sequence is artificially synthesized.

<400> 41	
ctgggtacca tgagcgtgtg gaggcccagc gaggccaccg tgtacctgcc ccccggtgcc	60
gtgagcaagg tggtagacac cgacgagtac gtgagcagga ccagcatcta ctactacgcc	120
ggcagcagca ggctgctggc cgtggggaac ccctacttca gcatcaagag ccccaacaac	180
aacaagaagg tgctggtgcc caaggtgagc ggcctgcagt acagggtgtt cagggtgagg	240
ctgcccgacc ccaacaagtt cggtctcccc gacaccagct tctacaaccc cgacaccag	300

aggctggtgt gggcctgcgt gggcctggag atcggcaggg gccagcccct gggcgtgggc	360
gtgagcggcc acccctacct gaacaagttc gacgacaccg agaccagcaa caggtacccc	420
gcccagcccc gcagcgacaa cagggagtgct ctgagcatgg actacaagca gaccagctg	480
tgcctgatcg gctgcaagcc cccaccggc gagcactggg gcaagggcgt ggcctgcaac	540
aacaacgccg ccgccaccga ctgccccccc ctggagctgt tcaacagcat catcgaggac	600
ggcgacatgg tggacaccgg cttcggctgc atggacttcg gcaccctgca ggccaacaag	660
agcgacgtgc ccatcgacat ctgcaacagc acctgcaagt accccgacta cctgaagatg	720
gccagcgagc cctacggcga cagcctgttc ttcttcctga ggaggagca gatgttcgtg	780
aggcatttct tcaacagggc cggcaagctg ggcgaggccg tgcccgcga cctgtacatc	840
aagggcagcg gcaacaccgc cgtgatccag agcagcgcct tcttccccac cccagcggc	900
agcatcgtga ccagcgagag ccagctgttc aacaagccct actggctgca gagggcccag	960
ggccacaaca acggcatctg ctggggcaac cagctgttcg tgaccgtggt ggacaccacc	1020
aggagcacca acatgaccct gtgcaccgag gtgaccaagg agggcaccta caagaacgac	1080
aacttcaagg agtacgtgag gcacgtggag gactacgacc tgacgttcgt gttccagctg	1140
tgcaagatca ccctgaccgc cgagatcatg acctacatcc acaccatgga cagcaacatc	1200
ctggaggact ggcagttcgg cctgaccccc cccccagcg ccagcctgca ggacacctac	1260
aggttcgtga ccagccaggc catcacctgc cagaagaccg cccccccaa ggagaaggag	1320
gacccccctga acaagtacac cttctgggag gtgaacctga aggagaagtt cagcgccgac	1380
ctggaccagt tccccctggg caggaagtct ctgctgcaga gcggcctgaa ggccaagccc	1440
aggctgaaga ggagcgcccc caccaccagg gccccagca ccaagaggaa gaaggtgaag	1500
aagtaaa	1507