

SEQUENCE LISTING

<110> APPLIED MOLECULAR TRANSPORT INC.

<120> NOVEL TOXIN-DERIVED DELIVERY CONSTRUCTS FOR ORAL DELIVERY

<130> 40566-711.601

<140>

<141>

<150> 62/640,168

<151> 2018-03-08

<150> 62/640,194

<151> 2018-03-08

<150> 62/640,188

<151> 2018-03-08

<160> 221

<170> PatentIn version 3.5

<210> 1

<211> 634

<212> PRT

<213> Vibrio cholera

<400> 1

Val	Glu	Glu	Ala	Leu	Asn	Ile	Phe	Asp	Glu	Cys	Arg	Ser	Pro	Cys	Ser
1				5					10					15	

Leu	Thr	Pro	Glu	Pro	Gly	Lys	Pro	Ile	Gln	Ser	Lys	Leu	Ser	Ile	Pro
			20					25					30		

Ser	Asp	Val	Val	Leu	Asp	Glu	Gly	Val	Leu	Tyr	Tyr	Ser	Met	Thr	Ile
		35					40					45			

Asn	Asp	Glu	Gln	Asn	Asp	Ile	Lys	Asp	Glu	Asp	Lys	Gly	Glu	Ser	Ile
	50					55					60				

Ile	Thr	Ile	Gly	Glu	Phe	Ala	Thr	Val	Arg	Ala	Thr	Arg	His	Tyr	Val
65					70					75					80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
 210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
 225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
 245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
 260 265 270

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

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala

290

295

300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
 305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
 325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
 340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
 355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
 370 375 380

Gln Ala Ala Asp Ile Leu Ser Leu Phe Cys Pro Asp Ala Asp Lys Ser
 385 390 395 400

Cys Val Ala Ser Asn Asn Asp Gln Ala Asn Ile Asn Ile Glu Ser Arg
 405 410 415

Ser Gly Arg Ser Tyr Leu Pro Glu Asn Arg Ala Val Ile Thr Pro Gln
 420 425 430

Gly Val Thr Asn Trp Thr Tyr Gln Glu Leu Glu Ala Thr His Gln Ala
 435 440 445

Leu Thr Arg Glu Gly Tyr Val Phe Val Gly Tyr His Gly Thr Asn His
 450 455 460

Val Ala Ala Gln Thr Ile Val Asn Arg Ile Ala Pro Val Pro Arg Gly
 465 470 475 480

Asn Asn Thr Glu Asn Glu Glu Lys Trp Gly Gly Leu Tyr Val Ala Thr
 485 490 495

His Ala Glu Val Ala His Gly Tyr Ala Arg Ile Lys Glu Gly Thr Gly

500

505

510

Glu Tyr Gly Leu Pro Thr Arg Ala Glu Arg Asp Ala Arg Gly Val Met
 515 520 525

Leu Arg Val Tyr Ile Pro Arg Ala Ser Leu Glu Arg Phe Tyr Arg Thr
 530 535 540

Asn Thr Pro Leu Glu Asn Ala Glu Glu His Ile Thr Gln Val Ile Gly
 545 550 555 560

His Ser Leu Pro Leu Arg Asn Glu Ala Phe Thr Gly Pro Glu Ser Ala
 565 570 575

Gly Gly Glu Asp Glu Thr Val Ile Gly Trp Asp Met Ala Ile His Ala
 580 585 590

Val Ala Ile Pro Ser Thr Ile Pro Gly Asn Ala Tyr Glu Glu Leu Ala
 595 600 605

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

Pro Tyr Lys Glu Arg Lys Asp Glu Leu Lys
 625 630

<210> 2

<211> 634

<212> PRT

<213> Vibrio cholera

<400> 2

Val Glu Asp Glu Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

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Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
245 250 255

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Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
260 265 270

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

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala
290 295 300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
370 375 380

Gln Ala Ala Asp Ile Leu Ser Leu Phe Cys Pro Asp Ala Asp Lys Ser
385 390 395 400

Cys Val Ala Ser Asn Asn Asp Gln Ala Asn Ile Asn Ile Glu Ser Arg
405 410 415

Ser Gly Arg Ser Tyr Leu Pro Glu Asn Arg Ala Val Ile Thr Pro Gln
420 425 430

Gly Val Thr Asn Trp Thr Tyr Gln Glu Leu Glu Ala Thr His Gln Ala
435 440 445

Leu Thr Arg Glu Gly Tyr Val Phe Val Gly Tyr His Gly Thr Asn His
450 455 460

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Val Ala Ala Gln Thr Ile Val Asn Arg Ile Ala Pro Val Pro Arg Gly
465 470 475 480

Asn Asn Thr Glu Asn Glu Glu Lys Trp Gly Gly Leu Tyr Val Ala Thr
485 490 495

His Ala Glu Val Ala His Gly Tyr Ala Arg Ile Lys Glu Gly Thr Gly
500 505 510

Glu Tyr Gly Leu Pro Thr Arg Ala Glu Arg Asp Ala Arg Gly Val Met
515 520 525

Leu Arg Val Tyr Ile Pro Arg Ala Ser Leu Glu Arg Phe Tyr Arg Thr
530 535 540

Asn Thr Pro Leu Glu Asn Ala Glu Glu His Ile Thr Gln Val Ile Gly
545 550 555 560

His Ser Leu Pro Leu Arg Asn Glu Ala Phe Thr Gly Pro Glu Ser Ala
565 570 575

Gly Gly Glu Asp Glu Thr Val Ile Gly Trp Asp Met Ala Ile His Ala
580 585 590

Val Ala Ile Pro Ser Thr Ile Pro Gly Asn Ala Tyr Glu Glu Leu Ala
595 600 605

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

Pro Tyr Lys Glu Arg Lys Asp Glu Leu Lys
625 630

<210> 3

<211> 634

<212> PRT

<213> Vibrio cholera

<400> 3

Val Glu Asp Glu Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser

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

210

215

220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
 225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
 245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
 260 265 270

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

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala
 290 295 300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
 305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
 325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
 340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
 355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
 370 375 380

Gln Ala Ala Asp Ile Leu Ser Leu Phe Cys Pro Asp Ala Asp Lys Ser
 385 390 395 400

Cys Val Ala Ser Asn Asn Asp Gln Ala Asn Ile Asn Ile Glu Ser Arg
 405 410 415

Ser Gly Arg Ser Tyr Leu Pro Glu Asn Arg Ala Val Ile Thr Pro Gln

420

425

430

Gly Val Thr Asn Trp Thr Tyr Gln Glu Leu Glu Ala Thr His Gln Ala
 435 440 445

Leu Thr Arg Glu Gly Tyr Val Phe Val Gly Tyr His Gly Thr Asn His
 450 455 460

Val Ala Ala Gln Thr Ile Val Asn Arg Ile Ala Pro Val Pro Arg Gly
 465 470 475 480

Asn Asn Thr Glu Asn Glu Glu Lys Trp Gly Gly Leu Tyr Val Ala Thr
 485 490 495

His Ala Glu Val Ala His Gly Tyr Ala Arg Ile Lys Glu Gly Thr Gly
 500 505 510

Glu Tyr Gly Leu Pro Thr Arg Ala Glu Arg Asp Ala Arg Gly Val Met
 515 520 525

Leu Arg Val Tyr Ile Pro Arg Ala Ser Leu Glu Arg Phe Tyr Arg Thr
 530 535 540

Asn Thr Pro Leu Glu Asn Ala Glu Glu His Ile Thr Gln Val Ile Gly
 545 550 555 560

His Ser Leu Pro Leu Arg Asn Glu Ala Phe Thr Gly Pro Glu Ser Ala
 565 570 575

Gly Gly Glu Asp Ala Thr Val Ile Gly Trp Asp Met Ala Ile His Ala
 580 585 590

Val Ala Ile Pro Ser Thr Ile Pro Gly Asn Ala Tyr Glu Glu Leu Ala
 595 600 605

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

Pro Tyr Lys Glu Arg Lys Asp Glu Leu Lys

625

630

<210> 4

<211> 265

<212> PRT

<213> Vibrio cholera

<400> 4

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

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Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys
260 265

<210> 5

<211> 266

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 5

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

40566-711_601_SL.txt

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys
260 265

40566-711_601_SL.txt

<210> 6

<211> 250

<212> PRT

<213> Vibrio cholera

<400> 6

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln
245 250

<210> 7

<211> 251

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 7

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

40566-711_601_SL.txt

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln
245 250

<210> 8

<211> 244

<212> PRT

<213> Vibrio cholera

<400> 8

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro

20

25

30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
 210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala

225

230

235

240

Gly Thr Pro Lys

<210> 9

<211> 245

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 9

Met	Val	Glu	Glu	Ala	Leu	Asn	Ile	Phe	Asp	Glu	Cys	Arg	Ser	Pro	Cys
1				5					10					15	

Ser	Leu	Thr	Pro	Glu	Pro	Gly	Lys	Pro	Ile	Gln	Ser	Lys	Leu	Ser	Ile
			20					25					30		

Pro	Ser	Asp	Val	Val	Leu	Asp	Glu	Gly	Val	Leu	Tyr	Tyr	Ser	Met	Thr
		35					40					45			

Ile	Asn	Asp	Glu	Gln	Asn	Asp	Ile	Lys	Asp	Glu	Asp	Lys	Gly	Glu	Ser
	50					55					60				

Ile	Ile	Thr	Ile	Gly	Glu	Phe	Ala	Thr	Val	Arg	Ala	Thr	Arg	His	Tyr
65				70						75				80	

Val	Asn	Gln	Asp	Ala	Pro	Phe	Gly	Val	Ile	His	Leu	Asp	Ile	Thr	Thr
				85					90					95	

Glu	Asn	Gly	Thr	Lys	Thr	Tyr	Ser	Tyr	Asn	Arg	Lys	Glu	Gly	Glu	Phe
			100					105					110		

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

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

40566-711_601_SL.txt

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

Ala Gly Thr Pro Lys
245

<210> 10

<211> 205

<212> PRT

<213> Vibrio cholera

<400> 10

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

40566-711_601_SL.txt

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu
195 200 205

<210> 11

<211> 206

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 11

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile

20

25

30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
 35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
 50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
 65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
 85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
 100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
 165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
 180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu
 195 200 205

<210> 12

<211> 204

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 12

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly
195 200

<210> 13

<211> 203

<212> PRT

<213> Vibrio cholera

<400> 13

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly

180

185

190

Ser Arg His Lys Arg Trp Ala His Trp His Thr
 195 200

<210> 14

<211> 202

<212> PRT

<213> Vibrio cholera

<400> 14

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

40566-711_601_SL.txt

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser Arg His Lys Arg Trp Ala His Trp His
195 200

<210> 15

<211> 201

<212> PRT

<213> Vibrio cholera

<400> 15

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro

130

135

140

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

Ser Arg His Lys Arg Trp Ala His Trp
 195 200

<210> 16

<211> 200

<212> PRT

<213> Vibrio cholera

<400> 16

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

40566-711_601_SL.txt

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser Arg His Lys Arg Trp Ala His
195 200

<210> 17

<211> 199

<212> PRT

<213> Vibrio cholera

<400> 17

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

Ser Arg His Lys Arg Trp Ala
 195

<210> 18

<211> 198

<212> PRT

<213> Vibrio cholera

<400> 18

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

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Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser Arg His Lys Arg Trp
195

<210> 19

<211> 197

<212> PRT

<213> Vibrio cholera

<400> 19

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

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

35

40

45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

Ser Arg His Lys Arg
 195

<210> 20

<211> 196

<212> PRT

<213> Vibrio cholera

<400> 20

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

40566-711_601_SL.txt

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser Arg His Lys
195

<210> 21
<211> 195
<212> PRT

<213> Vibrio cholera

<400> 21

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

Ser Arg His

195

<210> 22

<211> 194

<212> PRT

<213> Vibrio cholera

<400> 22

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

40566-711_601_SL.txt

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser Arg

<210> 23

<211> 193

<212> PRT

<213> Vibrio cholera

<400> 23

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

Ser

<213> *Vibrio cholera*

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

40566-711_601_SL.txt

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

<210> 25

<211> 191

<212> PRT

<213> Vibrio cholera

<400> 25

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys

115

120

125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
 180 185 190

<210> 26

<211> 190

<212> PRT

<213> Vibrio cholera

<400> 26

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

40566-711_601_SL.txt

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys
180 185 190

<210> 27

<211> 189

<212> PRT

<213> Vibrio cholera

<400> 27

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala

100

105

110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln
 180 185

<210> 28

<211> 188

<212> PRT

<213> Vibrio cholera

<400> 28

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

40566-711_601_SL.txt

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala
180 185

<210> 29

<211> 187

<212> PRT

<213> Vibrio cholera

<400> 29

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala
 180 185

<210> 30

<211> 186

<212> PRT

<213> Vibrio cholera

<400> 30

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

40566-711_601_SL.txt

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
180 185

<210> 31
<211> 187
<212> PRT
<213> Artificial Sequence

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

<400> 31
Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

40566-711_601_SL.txt

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
180 185

<210> 32

<211> 185

<212> PRT

<213> Vibrio cholera

<400> 32

Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser Leu
1 5 10 15

Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser
20 25 30

Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn
35 40 45

40566-711_601_SL.txt

Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile
50 55 60

Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn
65 70 75 80

Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn
85 90 95

Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile
100 105 110

Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile
115 120 125

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

Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr
145 150 155 160

Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala
165 170 175

Ile Ser Trp Pro Ser Val Ser Tyr Lys
180 185

<210> 33

<211> 184

<212> PRT

<213> Vibrio cholera

<400> 33

Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser Leu Thr
1 5 10 15

Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp
20 25 30

40566-711_601_SL.txt

Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp
35 40 45

Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr
50 55 60

Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln
65 70 75 80

Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly
85 90 95

Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn
100 105 110

Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser
115 120 125

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

Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln
145 150 155 160

Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile
165 170 175

Ser Trp Pro Ser Val Ser Tyr Lys
180

<210> 34

<211> 183

<212> PRT

<213> Vibrio cholera

<400> 34

Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser Leu Thr Pro
1 5 10 15

Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp Val
20 25 30

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Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu
35 40 45

Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile
50 55 60

Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp
65 70 75 80

Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr
85 90 95

Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp
100 105 110

Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val
115 120 125

Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr
130 135 140

Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly
145 150 155 160

Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser
165 170 175

Trp Pro Ser Val Ser Tyr Lys
180

<210> 35

<211> 182

<212> PRT

<213> Vibrio cholera

<400> 35

Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser Leu Thr Pro Glu
1 5 10 15

40566-711_601_SL.txt

Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp Val Val
20 25 30

Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln
35 40 45

Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly
50 55 60

Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala
65 70 75 80

Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys
85 90 95

Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu
100 105 110

Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp
115 120 125

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

Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn
145 150 155 160

Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp
165 170 175

Pro Ser Val Ser Tyr Lys
180

<210> 36

<211> 181

<212> PRT

<213> Vibrio cholera

<400> 36

Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser Leu Thr Pro Glu Pro
1 5 10 15

40566-711_601_SL.txt

Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu
20 25 30

Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn
35 40 45

Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu
50 55 60

Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro
65 70 75 80

Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr
85 90 95

Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val
100 105 110

Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu
115 120 125

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

Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val
145 150 155 160

Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro
165 170 175

Ser Val Ser Tyr Lys
180

<210> 37

<211> 180

<212> PRT

<213> Vibrio cholera

<400> 37

40566-711_601_SL.txt

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

Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp
20 25 30

Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp
35 40 45

Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe
50 55 60

Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe
65 70 75 80

Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr
85 90 95

Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro
100 105 110

Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu
115 120 125

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

Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser
145 150 155 160

Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser
165 170 175

Val Ser Tyr Lys
180

<210> 38

<211> 179

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 38

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

Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu
20 25 30

Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile
35 40 45

Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala
50 55 60

Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly
65 70 75 80

Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser
85 90 95

Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile
100 105 110

Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp
115 120 125

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

Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe
145 150 155 160

Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val
165 170 175

Ser Tyr Lys

<210> 39

<211> 178

<212> PRT

<213> Vibrio cholera

<400> 39

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

Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly
 20 25 30

Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys
 35 40 45

Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr
 50 55 60

Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val
 65 70 75 80

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

Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly
 100 105 110

Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln
 115 120 125

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

Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser
 145 150 155 160

Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser
 165 170 175

Tyr Lys

<210> 40

<211> 177

<212> PRT

<213> Vibrio cholera

<400> 40

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

Gln Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val
 20 25 30

Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp
 35 40 45

Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val
 50 55 60

Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile
 65 70 75 80

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

Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu
 100 105 110

Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln
 115 120 125

Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser Ile Asp Leu Asp Asn
 130 135 140

Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val
 145 150 155 160

Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr
 165 170 175

Lys

<210> 41

<211> 176

<212> PRT

<213> Vibrio cholera

<400> 41

Cys Arg Ser Pro Cys Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln
1 5 10 15

Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu
20 25 30

Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu
35 40 45

Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg
50 55 60

Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile His
65 70 75 80

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

Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp
100 105 110

Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg
115 120 125

Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln
130 135 140

Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr
145 150 155 160

Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
165 170 175

<210> 42

<211> 175

<212> PRT

<213> Vibrio cholera

<400> 42

Arg Ser Pro Cys Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser
 1 5 10 15

Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr
 20 25 30

Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp
 35 40 45

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

Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu
 65 70 75 80

Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys
 85 90 95

Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser
 100 105 110

Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn
 115 120 125

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

Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg
 145 150 155 160

Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
 165 170 175

<210> 43

<211> 174

<212> PRT

<213> Vibrio cholera

<400> 43

Ser Pro Cys Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys
 1 5 10 15

Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr
 20 25 30

Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys
 35 40 45

Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr
 50 55 60

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

Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu
 85 90 95

Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro
 100 105 110

Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile
 115 120 125

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

Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro
 145 150 155 160

Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
 165 170

<210> 44

<211> 173

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 44

Pro Cys Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu
1 5 10 15

Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser
20 25 30

Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly
35 40 45

Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg
50 55 60

His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile
65 70 75 80

Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly
85 90 95

Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala
100 105 110

Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile
115 120 125

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

Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu
145 150 155 160

His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
165 170

<210> 45

<211> 172

<212> PRT

<213> Vibrio cholera

<400> 45

40566-711_601_SL.txt

Cys Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser
1 5 10 15

Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met
20 25 30

Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu
35 40 45

Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His
50 55 60

Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr
65 70 75 80

Thr Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu
85 90 95

Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser
100 105 110

Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu
115 120 125

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

Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His
145 150 155 160

Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
165 170

<210> 46

<211> 171

<212> PRT

<213> Vibrio cholera

<400> 46

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

40566-711_601_SL.txt

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
20 25 30

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
35 40 45

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
50 55 60

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
65 70 75 80

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
85 90 95

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

Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val
115 120 125

Pro Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp
130 135 140

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
145 150 155 160

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
165 170

<210> 47

<211> 170

<212> PRT

<213> Vibrio cholera

<400> 47

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

40566-711_601_SL.txt

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
20 25 30

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
35 40 45

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
50 55 60

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
65 70 75 80

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
85 90 95

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
100 105 110

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
130 135 140

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

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
165 170

<210> 48

<211> 169

<212> PRT

<213> Vibrio cholera

<400> 48

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

Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn
20 25 30

40566-711_601_SL.txt

Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile
35 40 45

Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn
50 55 60

Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn
65 70 75 80

Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile
85 90 95

Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile
100 105 110

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

Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr
130 135 140

Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala
145 150 155 160

Ile Ser Trp Pro Ser Val Ser Tyr Lys
165

<210> 49

<211> 168

<212> PRT

<213> Vibrio cholera

<400> 49

Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp
1 5 10 15

Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp
20 25 30

40566-711_601_SL.txt

Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr
35 40 45

Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln
50 55 60

Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly
65 70 75 80

Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn
85 90 95

Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser
100 105 110

Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu
115 120 125

Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln
130 135 140

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

Ser Trp Pro Ser Val Ser Tyr Lys
165

<210> 50

<211> 167

<212> PRT

<213> Vibrio cholera

<400> 50

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

Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu
20 25 30

Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile
35 40 45

40566-711_601_SL.txt

Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp
50 55 60

Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr
65 70 75 80

Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp
85 90 95

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

Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr
115 120 125

Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly
130 135 140

Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser
145 150 155 160

Trp Pro Ser Val Ser Tyr Lys
165

<210> 51

<211> 166

<212> PRT

<213> Vibrio cholera

<400> 51

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

Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln
20 25 30

Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly
35 40 45

40566-711_601_SL.txt

Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala
50 55 60

Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys
65 70 75 80

Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu
85 90 95

Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp
100 105 110

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

Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn
130 135 140

Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp
145 150 155 160

Pro Ser Val Ser Tyr Lys
165

<210> 52

<211> 165

<212> PRT

<213> Vibrio cholera

<400> 52

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

Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn
20 25 30

Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu
35 40 45

Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro
50 55 60

Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr
65 70 75 80

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

Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu
100 105 110

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

Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val
130 135 140

Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro
145 150 155 160

Ser Val Ser Tyr Lys
165

<210> 53

<211> 164

<212> PRT

<213> Vibrio cholera

<400> 53

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

Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp
20 25 30

Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe
35 40 45

Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe
50 55 60

40566-711_601_SL.txt

Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr
65 70 75 80

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

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

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

Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser
130 135 140

Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser
145 150 155 160

Val Ser Tyr Lys

<210> 54

<211> 163

<212> PRT

<213> Vibrio cholera

<400> 54

Pro Ile Gln Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu
1 5 10 15

Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile
20 25 30

Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala
35 40 45

Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly
50 55 60

Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser
65 70 75 80

Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile
85 90 95

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

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

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

Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val
145 150 155 160

Ser Tyr Lys

<210> 55

<211> 162

<212> PRT

<213> Vibrio cholera

<400> 55

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

Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys
20 25 30

Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr
35 40 45

Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val
50 55 60

Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser Tyr
65 70 75 80

40566-711_601_SL.txt

Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly
85 90 95

Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln
100 105 110

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

Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser
130 135 140

Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser
145 150 155 160

Tyr Lys

<210> 56

<211> 161

<212> PRT

<213> Vibrio cholera

<400> 56

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

Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp
20 25 30

Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val
35 40 45

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

His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn
65 70 75 80

Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu
85 90 95

Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln
 100 105 110

Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser Ile Asp Leu Asp Asn
 115 120 125

Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val
 130 135 140

Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr
 145 150 155 160

Lys

<210> 57

<211> 160

<212> PRT

<213> Vibrio cholera

<400> 57

Ser Lys Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu
 1 5 10 15

Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu
 20 25 30

Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg
 35 40 45

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

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

Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp
 85 90 95

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Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg
100 105 110

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

Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr
130 135 140

Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150 155 160

<210> 58

<211> 159

<212> PRT

<213> Vibrio cholera

<400> 58

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

Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp
20 25 30

Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala
35 40 45

Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu
50 55 60

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

Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser
85 90 95

Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn
100 105 110

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

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

Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150 155

<210> 59

<211> 158

<212> PRT

<213> Vibrio cholera

<400> 59

Leu Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr
1 5 10 15

Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys
20 25 30

Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr
35 40 45

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

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

Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro
85 90 95

Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile
100 105 110

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

Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro
130 135 140

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Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150 155

<210> 60

<211> 157

<212> PRT

<213> Vibrio cholera

<400> 60

Ser Ile Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser
1 5 10 15

Met Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly
20 25 30

Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg
35 40 45

His Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile
50 55 60

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

Glu Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala
85 90 95

Ser Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile
100 105 110

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

Gln Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu
130 135 140

His Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150 155

<210> 61

<211> 156

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<212> PRT

<213> Vibrio cholera

<400> 61

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

Thr Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu
20 25 30

Ser Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His
35 40 45

Tyr Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr
50 55 60

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

Phe Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser
85 90 95

Ile Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu
100 105 110

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

Trp Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His
130 135 140

Asn Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150 155

<210> 62

<211> 155

<212> PRT

<213> Vibrio cholera

<400> 62

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
1 5 10 15

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
20 25 30

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
35 40 45

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
50 55 60

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

Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile
85 90 95

Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val
100 105 110

Pro Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp
115 120 125

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
130 135 140

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150 155

<210> 63

<211> 154

<212> PRT

<213> Vibrio cholera

<400> 63

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
1 5 10 15

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
20 25 30

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Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
35 40 45

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
50 55 60

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

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
85 90 95

Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro
100 105 110

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
115 120 125

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
130 135 140

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150

<210> 64

<211> 153

<212> PRT

<213> Vibrio cholera

<400> 64

Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn
1 5 10 15

Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile
20 25 30

Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn
35 40 45

Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn
50 55 60

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

Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile
85 90 95

Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys
100 105 110

Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr
115 120 125

Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala
130 135 140

Ile Ser Trp Pro Ser Val Ser Tyr Lys
145 150

<210> 65

<211> 152

<212> PRT

<213> Vibrio cholera

<400> 65

Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp
1 5 10 15

Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr
20 25 30

Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln
35 40 45

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

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

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Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser
85 90 95

Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu
100 105 110

Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln
115 120 125

Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile
130 135 140

Ser Trp Pro Ser Val Ser Tyr Lys
145 150

<210> 66

<211> 151

<212> PRT

<213> Vibrio cholera

<400> 66

Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu
1 5 10 15

Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile
20 25 30

Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp
35 40 45

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

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

Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val
85 90 95

Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr
100 105 110

Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly
115 120 125

Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser
130 135 140

Trp Pro Ser Val Ser Tyr Lys
145 150

<210> 67

<211> 150

<212> PRT

<213> Vibrio cholera

<400> 67

Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln
1 5 10 15

Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly
20 25 30

Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala
35 40 45

Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys
50 55 60

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

Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp
85 90 95

Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser
100 105 110

Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn
115 120 125

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Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp
130 135 140

Pro Ser Val Ser Tyr Lys
145 150

<210> 68
<211> 149
<212> PRT
<213> Vibrio cholera

<400> 68
Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn
1 5 10 15

Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu
20 25 30

Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro
35 40 45

Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr
50 55 60

Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val
65 70 75 80

Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu
85 90 95

Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser Ile
100 105 110

Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val
115 120 125

Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro
130 135 140

Ser Val Ser Tyr Lys
145

<210> 69

<211> 148

<212> PRT

<213> Vibrio cholera

<400> 69

Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp
1 5 10 15

Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe
20 25 30

Ala Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe
35 40 45

Gly Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr
50 55 60

Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro
65 70 75 80

Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu
85 90 95

Asp Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser Ile Asp
100 105 110

Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser
115 120 125

Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser
130 135 140

Val Ser Tyr Lys
145

<210> 70

<211> 147

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 70

Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile
1 5 10 15

Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala
20 25 30

Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly
35 40 45

Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser
50 55 60

Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile
65 70 75 80

Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp
85 90 95

Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser Ile Asp Leu
100 105 110

Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe
115 120 125

Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val
130 135 140

Ser Tyr Lys
145

<210> 71

<211> 185

<212> PRT

<213> Vibrio cholera

<400> 71

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

40566-711_601_SL.txt

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr
180 185

<210> 72

<211> 184

<212> PRT

<213> Vibrio cholera

<400> 72

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

40566-711_601_SL.txt

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser
180

<210> 73

<211> 183

<212> PRT

<213> Vibrio cholera

<400> 73

40566-711_601_SL.txt

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val
180

<210> 74

<211> 182

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 74

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser
180

<210> 75

<211> 181

<212> PRT

<213> *Vibrio cholera*

<400> 75

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro
 180

40566-711_601_SL.txt

<210> 76

<211> 180

<212> PRT

<213> Vibrio cholera

<400> 76

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp
180

<210> 77

<211> 179

<212> PRT

<213> Vibrio cholera

<400> 77

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser

<210> 78

<211> 178

<212> PRT

<213> Vibrio cholera

<400> 78

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile

<210> 79

<211> 177

<212> PRT

<213> Vibrio cholera

<400> 79

Val	Glu	Glu	Ala	Leu	Asn	Ile	Phe	Asp	Glu	Cys	Arg	Ser	Pro	Cys	Ser
1				5					10					15	

Leu	Thr	Pro	Glu	Pro	Gly	Lys	Pro	Ile	Gln	Ser	Lys	Leu	Ser	Ile	Pro
			20					25					30		

Ser	Asp	Val	Val	Leu	Asp	Glu	Gly	Val	Leu	Tyr	Tyr	Ser	Met	Thr	Ile
		35					40					45			

Asn	Asp	Glu	Gln	Asn	Asp	Ile	Lys	Asp	Glu	Asp	Lys	Gly	Glu	Ser	Ile
	50					55					60				

Ile	Thr	Ile	Gly	Glu	Phe	Ala	Thr	Val	Arg	Ala	Thr	Arg	His	Tyr	Val
65					70					75					80

Asn	Gln	Asp	Ala	Pro	Phe	Gly	Val	Ile	His	Leu	Asp	Ile	Thr	Thr	Glu
				85					90						95

Asn	Gly	Thr	Lys	Thr	Tyr	Ser	Tyr	Asn	Arg	Lys	Glu	Gly	Glu	Phe	Ala
			100					105					110		

Ile	Asn	Trp	Leu	Val	Pro	Ile	Gly	Glu	Asp	Ser	Pro	Ala	Ser	Ile	Lys
		115					120					125			

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

Lys	Leu	Tyr	Ser	Ile	Asp	Leu	Asp	Asn	Gln	Thr	Leu	Glu	Gln	Trp	Lys
145					150					155					160

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Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala

<210> 80

<211> 176

<212> PRT

<213> Vibrio cholera

<400> 80

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

<210> 81

<211> 175

<212> PRT

<213> Vibrio cholera

<400> 81

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

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Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

<210> 82

<211> 174

<212> PRT

<213> Vibrio cholera

<400> 82

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His
165 170

<210> 83

<211> 173

<212> PRT

<213> Vibrio cholera

<400> 83

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu
165 170

40566-711_601_SL.txt

<210> 84

<211> 172

<212> PRT

<213> Vibrio cholera

<400> 84

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro
165 170

<210> 85

<211> 171

<212> PRT

<213> Vibrio cholera

<400> 85

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg
 165 170

<210> 86

<211> 170

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 86

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr
165 170

<210> 87

<211> 169

<212> PRT

<213> Vibrio cholera

<400> 87

40566-711_601_SL.txt

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val
165

<210> 88

<211> 168

<212> PRT

<213> Vibrio cholera

<400> 88

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

40566-711_601_SL.txt

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser
165

<210> 89

<211> 167

<212> PRT

<213> Vibrio cholera

<400> 89

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

40566-711_601_SL.txt

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe
165

<210> 90

<211> 166

<212> PRT

<213> Vibrio cholera

<400> 90

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

40566-711_601_SL.txt

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser
165

<210> 91

<211> 165

<212> PRT

<213> Vibrio cholera

<400> 91

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

40566-711_601_SL.txt

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val
165

<210> 92

<211> 164

<212> PRT

<213> Vibrio cholera

<400> 92

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn

<210> 93

<211> 163

<212> PRT

<213> Vibrio cholera

<400> 93

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

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Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly

<210> 94

<211> 162

<212> PRT

<213> Vibrio cholera

<400> 94

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

40566-711_601_SL.txt

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln

<210> 95

<211> 161

<212> PRT

<213> Vibrio cholera

<400> 95

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

40566-711_601_SL.txt

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr

<210> 96

<211> 160

<212> PRT

<213> Vibrio cholera

<400> 96

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

<210> 97

<211> 159

<212> PRT

<213> Vibrio cholera

<400> 97

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

40566-711_601_SL.txt

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp
145 150 155

<210> 98

<211> 158

<212> PRT

<213> Vibrio cholera

<400> 98

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln
145 150 155

<210> 99

<211> 157

<212> PRT

<213> Vibrio cholera

<400> 99

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

40566-711_601_SL.txt

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu
145 150 155

<210> 100

<211> 156

<212> PRT

<213> Vibrio cholera

<400> 100

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu
145 150 155

<210> 101

<211> 155

<212> PRT

<213> Vibrio cholera

<400> 101

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr
 145 150 155

<210> 102

<211> 154

<212> PRT

<213> Vibrio cholera

<400> 102

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln
145 150

<210> 103

<211> 153

<212> PRT

<213> Vibrio cholera

<400> 103

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

40566-711_601_SL.txt

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn
145 150

<210> 104

<211> 152

<212> PRT

<213> Vibrio cholera

<400> 104

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp
145 150

<210> 105

<211> 151

<212> PRT

<213> Vibrio cholera

<400> 105

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

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Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu
145 150

<210> 106

<211> 150

<212> PRT

<213> Vibrio cholera

<400> 106

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp
 145 150

<210> 107
 <211> 151
 <212> PRT
 <213> Artificial Sequence

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

<400> 107
 Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
 1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
 20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
 35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
 50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
 65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
 85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
 100 105 110

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

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

Pro Lys Leu Tyr Ser Ile Asp
145 150

<210> 108

<211> 149

<212> PRT

<213> Vibrio cholera

<400> 108

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val Pro

130

135

140

Lys Leu Tyr Ser Ile
145

<210> 109

<211> 148

<212> PRT

<213> Vibrio cholera

<400> 109

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser
145

<210> 110

<211> 147

<212> PRT

<213> Vibrio cholera

<400> 110

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr
145

<210> 111

<211> 146

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 111

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu
145

<210> 112

<211> 145

<212> PRT

<213> Vibrio cholera

<400> 112

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro

20

25

30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys
 145

<210> 113

<211> 144

<212> PRT

<213> Vibrio cholera

<400> 113

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

40566-711_601_SL.txt

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

<210> 114

<211> 143

<212> PRT

<213> Vibrio cholera

<400> 114

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu

85

90

95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

<210> 115

<211> 142

<212> PRT

<213> Vibrio cholera

<400> 115

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

40566-711_601_SL.txt

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

<210> 116

<211> 141

<212> PRT

<213> Vibrio cholera

<400> 116

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

<210> 117

<211> 140

<212> PRT

<213> Vibrio cholera

40566-711_601_SL.txt

<400> 117

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

<210> 118

<211> 139

<212> PRT

<213> Vibrio cholera

<400> 118

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

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

35

40

45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn
 130 135

<210> 119

<211> 138

<212> PRT

<213> Vibrio cholera

<400> 119

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

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Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

Ile Ser Val Asp Glu Leu Asp Gln Gln Arg
130 135

<210> 120

<211> 137

<212> PRT

<213> Vibrio cholera

<400> 120

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys

115

120

125

Ile Ser Val Asp Glu Leu Asp Gln Gln
 130 135

<210> 121

<211> 136

<212> PRT

<213> Vibrio cholera

<400> 121

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

Ile Ser Val Asp Glu Leu Asp Gln
 130 135

<210> 122

<211> 135

<212> PRT

<213> Vibrio cholera

<400> 122

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

Ile Ser Val Asp Glu Leu Asp
 130 135

<210> 123

<211> 134

<212> PRT

<213> Vibrio cholera

<400> 123

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

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Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

Ile Ser Val Asp Glu Leu
130

<210> 124

<211> 133

<212> PRT

<213> Vibrio cholera

<400> 124

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val

40566-711_601_SL.txt

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

Lys Ile Ser Val Asp Glu
130

<210> 126

<211> 121

<212> PRT

<213> Vibrio cholera

<400> 126

Gly Asn Ala Met Ser Ala Leu Ala Ala His Arg Val Cys Gly Val Pro
1 5 10 15

Leu Glu Thr Leu Ala Arg Ser Arg Lys Pro Arg Asp Leu Thr Asp Asp
20 25 30

Leu Ser Cys Ala Tyr Gln Ala Gln Asn Ile Val Ser Leu Phe Val Ala
35 40 45

Thr Arg Ile Leu Phe Ser His Leu Asp Ser Val Phe Thr Leu Asn Leu
50 55 60

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

Ile Asn Glu Asn Asn Pro Gly Met Val Thr Gln Val Leu Thr Val Ala
85 90 95

Arg Gln Ile Tyr Asn Asp Tyr Val Thr His His Pro Gly Leu Thr Pro
100 105 110

Glu Gln Thr Ser Ala Gly Ala Gln Ala
115 120

<210> 127

<211> 39

<212> PRT

<213> Vibrio cholera

<400> 127

Ala	Asp	Ile	Leu	Ser	Leu	Phe	Cys	Pro	Asp	Ala	Asp	Lys	Ser	Cys	Val
1				5					10					15	

Ala	Ser	Asn	Asn	Asp	Gln	Ala	Asn	Ile	Asn	Ile	Glu	Ser	Arg	Ser	Gly
			20					25					30		

Arg	Ser	Tyr	Leu	Pro	Glu	Asn
			35			

<210> 128

<211> 209

<212> PRT

<213> Vibrio cholera

<400> 128

Arg	Ala	Val	Ile	Thr	Pro	Gln	Gly	Val	Thr	Asn	Trp	Thr	Tyr	Gln	Glu
1				5					10					15	

Leu	Glu	Ala	Thr	His	Gln	Ala	Leu	Thr	Arg	Glu	Gly	Tyr	Val	Phe	Val
			20					25					30		

Gly	Tyr	His	Gly	Thr	Asn	His	Val	Ala	Ala	Gln	Thr	Ile	Val	Asn	Arg
		35					40					45			

Ile	Ala	Pro	Val	Pro	Arg	Gly	Asn	Asn	Thr	Glu	Asn	Glu	Glu	Lys	Trp
	50					55					60				

Gly	Gly	Leu	Tyr	Val	Ala	Thr	His	Ala	Glu	Val	Ala	His	Gly	Tyr	Ala
65					70					75					80

Arg	Ile	Lys	Glu	Gly	Thr	Gly	Glu	Tyr	Gly	Leu	Pro	Thr	Arg	Ala	Glu
			85						90					95	

Arg	Asp	Ala	Arg	Gly	Val	Met	Leu	Arg	Val	Tyr	Ile	Pro	Arg	Ala	Ser
			100					105					110		

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Leu Glu Arg Phe Tyr Arg Thr Asn Thr Pro Leu Glu Asn Ala Glu Glu
115 120 125

His Ile Thr Gln Val Ile Gly His Ser Leu Pro Leu Arg Asn Glu Ala
130 135 140

Phe Thr Gly Pro Glu Ser Ala Gly Gly Glu Asp Glu Thr Val Ile Gly
145 150 155 160

Trp Asp Met Ala Ile His Ala Val Ala Ile Pro Ser Thr Ile Pro Gly
165 170 175

Asn Ala Tyr Glu Glu Leu Ala Ile Asp Glu Glu Ala Val Ala Lys Glu
180 185 190

Gln Ser Ile Ser Thr Lys Pro Pro Tyr Lys Glu Arg Lys Asp Glu Leu
195 200 205

Lys

<210> 129

<211> 425

<212> PRT

<213> Vibrio cholera

<400> 129

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

40566-711_601_SL.txt

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
260 265 270

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

40566-711_601_SL.txt

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala
290 295 300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
370 375 380

Gln Ala Ala Asp Ile Leu Ser Leu Phe Cys Pro Asp Ala Asp Lys Ser
385 390 395 400

Cys Val Ala Ser Asn Asn Asp Gln Ala Asn Ile Asn Ile Glu Ser Arg
405 410 415

Ser Gly Arg Ser Tyr Leu Pro Glu Asn
420 425

<210> 130

<211> 415

<212> PRT

<213> Vibrio cholera

<400> 130

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

40566-711_601_SL.txt

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

40566-711_601_SL.txt

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
260 265 270

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

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala
290 295 300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
370 375 380

Gln Ala Ala Asp Ile Leu Ser Leu Phe Cys Pro Asp Ala Asp Lys Ser
385 390 395 400

Cys Val Ala Ser Asn Asn Asp Gln Ala Asn Ile Asn Ile Glu Ser
405 410 415

<210> 131

<211> 397

<212> PRT

<213> Vibrio cholera

<400> 131

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
 210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
260 265 270

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

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala
290 295 300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
370 375 380

Gln Ala Ala Asp Ile Leu Ser Leu Phe Cys Pro Asp Ala
385 390 395

<210> 132

<211> 386

<212> PRT

<213> Vibrio cholera

<400> 132

40566-711_601_SL.txt

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

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

40566-711_601_SL.txt

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
260 265 270

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

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala
290 295 300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
370 375 380

Gln Ala
385

<210> 133

<211> 291

<212> PRT

<213> Vibrio cholera

<400> 133

Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
 20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
 35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
 50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
 65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
 85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
 100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
 115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
 145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
 165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
 180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
 210 215 220

Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
 225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
 245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
 260 265 270

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

Arg Lys Pro
 290

<210> 134

<211> 1902

<212> DNA

<213> Vibrio cholera

<400> 134

gtcgaagaag ctttaaacad ctttgatgaa tgccgttcgc catgttcggt gaccccgga	60
ccgggtaagc cgattcaatc aaaactgtct atccctagt atgttggttct ggatgaaggt	120
gttctgtatt actcgatgac gattaatgat gagcagaatg atattaagga tgaggacaaa	180
ggcgagtcca ttatcactat tgggtgaattt gccacagtac gcgcgactag acattatgtt	240
aatcaagatg cgccttttgg tgtcatccat ttagatatta cgacagaaaa tggtaaaaa	300
acgtactctt ataaccgcaa agagggtgaa ttgcaatca attggtagt gcctattggt	360
gaagattctc ctgcaagcat caaaatctcc gttgatgagc tcgatcagca acgcaatata	420
atcgagggtgc ctaaactgta tagtattgat ctcgataacc aaacgttaga gcagtggaaa	480
acccaaggta atgtttcttt ttcggtaacg cgtcctgaac ataatatcgc tatctcttgg	540
ccaagcgtga gttacaaagc agcgcagaaa gaggggtcac gccataagcg ttgggctcat	600

40566-711_601_SL.txt

tggcatacag gcttagcact gtgttggctt gtgccaatgg atgctatcta taactatatc	660
accagcaaaa attgtacttt aggggataat tggtttgggtg gctcttatga gactgttgca	720
ggcactccga aggtgattac ggttaagcaa gggattgaac aaaagccagt tgagcagcgc	780
atccatttct ccaaggggaa tgcgatgagc gcacttgctg ctcatcgcgt ctgtggtgtg	840
ccattagaaa ctttggcgcg cagtcgcaaa cctcgtgatc tgacggatga tttatcatgt	900
gcctatcaag cgcagaatat cgtgagttta tttgtcgcga cgcgtatcct gttcttcat	960
ctggatagcg tatttactct gaatcttgac gaacaagaac cagaggtggc tgaacgtcta	1020
agtgatcttc gccgtatcaa tgaaaataac ccgggcatgg ttacacaggt ttttaaccgtt	1080
gctcgtcaga tctataacga ttatgtcact caccatccgg gcttaactcc tgagcaaacc	1140
agtgcgggtg cacaagctgc cgatatcctc tctttatttt gcccagatgc tgataagtct	1200
tgtgtggctt caaacaacga tcaagccaat atcaacatcg agtctcgttc tggccgttca	1260
tatttgcctg aaaaccgtgc ggtaatcacc cctcaaggcg tcacaaattg gacttaccag	1320
gaactcgaag caacacatca agctctgact cgtgagggtt atgtgttcgt gggttaccat	1380
ggtagaatc atgtcgtgc gcaaaccatc gtgaatcgca ttgcccctgt tccgcgcggc	1440
aacaacactg aaaacgagga aaagtggggc gggttatatg ttgcaactca cgctgaagtt	1500
gcccattggtt atgctcgcac caaagaaggg acaggggagt atggccttcc gacccgtgct	1560
gagcgcgacg ctcgtgggggt aatgctgcgc gtgtatatcc ctcgtgcttc attagaacgt	1620
ttttatcgca cgaatacacc tttggaaaat gctgaggagc atatcacgca agtgattggt	1680
cattctttgc cattacgcaa tgaagcattt actggtccag aaagtgcggg cggggaagac	1740
gaaactgtca ttggctggga tatggcgatt catgcagttg cgatcccttc gactatccca	1800
gggaacgctt acgaagaatt ggcgattgat gaggaggctg ttgcaaaaga gcaatcgatt	1860
agcacaaaac caccttataa agagcgcaaa gatgaactta ag	1902

<210> 135

<211> 613

<212> PRT

<213> Pseudomonas aeruginosa

<400> 135

Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys Val

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

210

215

220

Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile Lys
 225 230 235 240

Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu Gly Gly Ser Leu
 245 250 255

Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro Leu Glu Thr Phe
 260 265 270

Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Glu Gln Cys Gly
 275 280 285

Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala Ala Arg Leu Ser
 290 295 300

Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu Ala Ser Pro Gly
 305 310 315 320

Ser Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln Pro Glu Gln Ala
 325 330 335

Arg Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu Arg Phe Val Arg
 340 345 350

Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Ser Ala Asp Val Val
 355 360 365

Ser Leu Thr Cys Pro Val Ala Ala Gly Glu Cys Ala Gly Pro Ala Asp
 370 375 380

Ser Gly Asp Ala Leu Leu Glu Arg Asn Tyr Pro Thr Gly Ala Glu Phe
 385 390 395 400

Leu Gly Asp Gly Gly Asp Val Ser Phe Ser Thr Arg Gly Thr Gln Asn
 405 410 415

Trp Thr Val Glu Arg Leu Leu Gln Ala His Arg Gln Leu Glu Glu Arg

420

425

430

Gly Tyr Val Phe Val Gly Tyr His Gly Thr Phe Leu Glu Ala Ala Gln
 435 440 445

Ser Ile Val Phe Gly Gly Val Arg Ala Arg Ser Gln Asp Leu Asp Ala
 450 455 460

Ile Trp Arg Gly Phe Tyr Ile Ala Gly Asp Pro Ala Leu Ala Tyr Gly
 465 470 475 480

Tyr Ala Gln Asp Gln Glu Pro Asp Ala Arg Gly Arg Ile Arg Asn Gly
 485 490 495

Ala Leu Leu Arg Val Tyr Val Pro Arg Ser Ser Leu Pro Gly Phe Tyr
 500 505 510

Arg Thr Gly Leu Thr Leu Ala Ala Pro Glu Ala Ala Gly Glu Val Glu
 515 520 525

Arg Leu Ile Gly His Pro Leu Pro Leu Arg Leu Asp Ala Ile Thr Gly
 530 535 540

Pro Glu Glu Glu Gly Gly Arg Leu Glu Thr Ile Leu Gly Trp Pro Leu
 545 550 555 560

Ala Glu Arg Thr Val Val Ile Pro Ser Ala Ile Pro Thr Asp Pro Arg
 565 570 575

Asn Val Gly Gly Asp Leu Asp Pro Ser Ser Ile Pro Asp Lys Glu Gln
 580 585 590

Ala Ile Ser Ala Leu Pro Asp Tyr Ala Ser Gln Pro Gly Lys Pro Pro
 595 600 605

Arg Glu Asp Leu Lys
 610

<210> 136

<211> 1839

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 136

gccgaggaag ccttcgacct ctggaacgaa tgcgccaagg cctgcgtgct cgacctcaag	60
gacggcgtgc gttccagccg catgagcgtc gacccggcca tcgccgacac caacggccag	120
ggcgtgctgc actactccat ggtcctggag ggcggaacg acgcgctcaa gctggccatc	180
gacaacgccc tcagcatcac cagcgacggc ctgacctacc gcctcgaagg tggcgtcgag	240
ccgaacaagc cggtgcgcta cagctacacg cgccaggcgc gcggcagttg gtcgctgaac	300
tggctggtgc cgatcggcca cgagaagcct tcgaacatca aggtgttcat ccacgaactg	360
aacgccggta accagctcag ccacatgtcg ccgatctaca ccatcgagat gggcgacgag	420
ttgctggcga agctggcgcg cgatgccacc ttcttcgtca gggcgcacga gagcaacgag	480
atgcagccga cgctcgccat cagccatgcc ggggtcagcg tggatcatggc ccaggcccag	540
ccgcgccggg aaaagcgctg gagcgaatgg gccagcggca aggtgttgtg cctgctcgac	600
ccgctggacg gggctctaaa ctacctcgcc cagcagcgct gcaacctcga cgatacctgg	660
gaaggcaaga tctaccgggt gctcgccggc aaccggcgga agcatgacct ggacatcaag	720
cccacgggtca tcagtcatcg cctgcatttc cccgagggcg gcagcctggc cgcgctgacc	780
gcgccaccagg cctgccacct gccgctggag accttcaccc gtcatcgcca gccgcgcggc	840
tgggaacaac tggagcagtg cggctatccg gtgcagcggc tggatcgccct ctacctggcg	900
gcgcggtgtg cgtggaacca ggtcgaccag gtgatccgca acgccctggc cagccccggc	960
agcggcggcg acctgggcga agcgatccgc gagcagccgg agcaggcccc tctggccctg	1020
accctggccg ccgccgagag cgagcgcttc gtccggcagg gcacaggcaa cgacgaggcc	1080
ggcgcgggcca gcgccgacgt ggtgagcctg acctgcccgg tcgccgccgg tgaatgcgcg	1140
ggccccggcg acagcggcga cgccctgctg gagcgcaact atcccactgg cgcggagtgc	1200
ctcggcgacg gcggcgacat cagcttcagc acccgcgga cgagaactg gacggtggag	1260
cggctgctcc aggcgcaccg ccaactggag gagcgcggt atgtgttcgt cggctaccac	1320
ggcaccttcc tcgaagcggc gcaaagcatc gtcttcggcg gggcgcgcgc gcgcagccag	1380
gacctcgacg cgatctggcg cggtttctat atcgccggcg atccggcgct ggcctacggc	1440

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tacgcccagg accaggaacc cgacgcgcgc ggccggatcc gcaacgggtgc cctgctgcgg 1500
gtctatgtgc cgcgctcgag tctgccgggc ttctaccgca ccggcctgac cctggccgcg 1560
ccggaggcgg cgggcgaggt cgaacggctg atcggccatc cgctgccgct ggcctggac 1620
gccatcaccg gccccgagga ggaaggcggg cgcctggaaa ccattctcgg ctggccgctg 1680
gccgagcgca ccgtggtgat tccctcggcg atccccaccg acccgcgcaa cgtcggcggc 1740
gacctcgacc cgtccagcat ccccgacaag gaacaggcga tcagcgccct gccggactac 1800
gccagccagc ccggcaaacc gccgcgcgag gacctgaag 1839

<210> 137

<211> 252

<212> PRT

<213> Pseudomonas aeruginosa

<400> 137

Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys Val
1 5 10 15

Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp Pro
20 25 30

Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met Val
35 40 45

Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala Leu
50 55 60

Ser Ile Thr Ser Asp Gly Leu Thr Ile Arg Leu Glu Gly Gly Val Glu
65 70 75 80

Pro Asn Lys Pro Val Arg Tyr Ser Tyr Thr Arg Gln Ala Arg Gly Ser
85 90 95

Trp Ser Leu Asn Trp Leu Val Pro Ile Gly His Glu Lys Pro Ser Asn
100 105 110

Ile Lys Val Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser His
115 120 125

Met Ser Pro Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala Lys
130 135 140

Leu Ala Arg Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn Glu
145 150 155 160

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

Ala Gln Ala Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala Ser
180 185 190

Gly Lys Val Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn Tyr
195 200 205

Leu Ala Gln Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys Ile
210 215 220

Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile Lys
225 230 235 240

Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu
245 250

<210> 138

<211> 112

<212> PRT

<213> Pseudomonas aeruginosa

<400> 138

Gly Gly Ser Leu Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro
1 5 10 15

Leu Glu Thr Phe Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu
20 25 30

Glu Gln Cys Gly Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala
35 40 45

40566-711_601_SL.txt

Ala Arg Leu Ser Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu
50 55 60

Ala Ser Pro Gly Ser Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln
65 70 75 80

Pro Glu Gln Ala Arg Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu
85 90 95

Arg Phe Val Arg Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Ser
100 105 110

<210> 139

<211> 40

<212> PRT

<213> Pseudomonas aeruginosa

<400> 139

Ala Asp Val Val Ser Leu Thr Cys Pro Val Ala Ala Gly Glu Cys Ala
1 5 10 15

Gly Pro Ala Asp Ser Gly Asp Ala Leu Leu Glu Arg Asn Tyr Pro Thr
20 25 30

Gly Ala Glu Phe Leu Gly Asp Gly
35 40

<210> 140

<211> 209

<212> PRT

<213> Pseudomonas aeruginosa

<400> 140

Gly Asp Val Ser Phe Ser Thr Arg Gly Thr Gln Asn Trp Thr Val Glu
1 5 10 15

Arg Leu Leu Gln Ala His Arg Gln Leu Glu Glu Arg Gly Tyr Val Phe
20 25 30

Val Gly Tyr His Gly Thr Phe Leu Glu Ala Ala Gln Ser Ile Val Phe
35 40 45

40566-711_601_SL.txt

Gly Gly Val Arg Ala Arg Ser Gln Asp Leu Asp Ala Ile Trp Arg Gly
50 55 60

Phe Tyr Ile Ala Gly Asp Pro Ala Leu Ala Tyr Gly Tyr Ala Gln Asp
65 70 75 80

Gln Glu Pro Asp Ala Arg Gly Arg Ile Arg Asn Gly Ala Leu Leu Arg
85 90 95

Val Tyr Val Pro Arg Ser Ser Leu Pro Gly Phe Tyr Arg Thr Gly Leu
100 105 110

Thr Leu Ala Ala Pro Glu Ala Ala Gly Glu Val Glu Arg Leu Ile Gly
115 120 125

His Pro Leu Pro Leu Arg Leu Asp Ala Ile Thr Gly Pro Glu Glu Glu
130 135 140

Gly Gly Arg Leu Glu Thr Ile Leu Gly Trp Pro Leu Ala Glu Arg Thr
145 150 155 160

Val Val Ile Pro Ser Ala Ile Pro Thr Asp Pro Arg Asn Val Gly Gly
165 170 175

Asp Leu Asp Pro Ser Ser Ile Pro Asp Lys Glu Gln Ala Ile Ser Ala
180 185 190

Leu Pro Asp Tyr Ala Ser Gln Pro Gly Lys Pro Pro Arg Glu Asp Leu
195 200 205

Lys

<210> 141

<211> 404

<212> PRT

<213> Pseudomonas aeruginosa

<400> 141

Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys Val
1 5 10 15

40566-711_601_SL.txt

Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp Pro
20 25 30

Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met Val
35 40 45

Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala Leu
50 55 60

Ser Ile Thr Ser Asp Gly Leu Thr Ile Arg Leu Glu Gly Gly Val Glu
65 70 75 80

Pro Asn Lys Pro Val Arg Tyr Ser Tyr Thr Arg Gln Ala Arg Gly Ser
85 90 95

Trp Ser Leu Asn Trp Leu Val Pro Ile Gly His Glu Lys Pro Ser Asn
100 105 110

Ile Lys Val Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser His
115 120 125

Met Ser Pro Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala Lys
130 135 140

Leu Ala Arg Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn Glu
145 150 155 160

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

Ala Gln Ala Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala Ser
180 185 190

Gly Lys Val Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn Tyr
195 200 205

Leu Ala Gln Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys Ile
210 215 220

40566-711_601_SL.txt

Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile Lys
225 230 235 240

Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu Gly Gly Ser Leu
245 250 255

Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro Leu Glu Thr Phe
260 265 270

Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Glu Gln Cys Gly
275 280 285

Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala Ala Arg Leu Ser
290 295 300

Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu Ala Ser Pro Gly
305 310 315 320

Ser Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln Pro Glu Gln Ala
325 330 335

Arg Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu Arg Phe Val Arg
340 345 350

Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Ser Ala Asp Val Val
355 360 365

Ser Leu Thr Cys Pro Val Ala Ala Gly Glu Cys Ala Gly Pro Ala Asp
370 375 380

Ser Gly Asp Ala Leu Leu Glu Arg Asn Tyr Pro Thr Gly Ala Glu Phe
385 390 395 400

Leu Gly Asp Gly

<210> 142

<211> 395

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 142

Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys Val
 1 5 10 15

Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp Pro
 20 25 30

Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met Val
 35 40 45

Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala Leu
 50 55 60

Ser Ile Thr Ser Asp Gly Leu Thr Ile Arg Leu Glu Gly Gly Val Glu
 65 70 75 80

Pro Asn Lys Pro Val Arg Tyr Ser Tyr Thr Arg Gln Ala Arg Gly Ser
 85 90 95

Trp Ser Leu Asn Trp Leu Val Pro Ile Gly His Glu Lys Pro Ser Asn
 100 105 110

Ile Lys Val Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser His
 115 120 125

Met Ser Pro Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala Lys
 130 135 140

Leu Ala Arg Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn Glu
 145 150 155 160

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

Ala Gln Ala Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala Ser
 180 185 190

40566-711_601_SL.txt

Gly Lys Val Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn Tyr
195 200 205

Leu Ala Gln Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys Ile
210 215 220

Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile Lys
225 230 235 240

Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu Gly Gly Ser Leu
245 250 255

Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro Leu Glu Thr Phe
260 265 270

Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Glu Gln Cys Gly
275 280 285

Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala Ala Arg Leu Ser
290 295 300

Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu Ala Ser Pro Gly
305 310 315 320

Ser Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln Pro Glu Gln Ala
325 330 335

Arg Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu Arg Phe Val Arg
340 345 350

Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Ser Ala Asp Val Val
355 360 365

Ser Leu Thr Cys Pro Val Ala Ala Gly Glu Cys Ala Gly Pro Ala Asp
370 375 380

Ser Gly Asp Ala Leu Leu Glu Arg Asn Tyr Pro
385 390 395

<210> 143

<211> 375

<212> PRT

<213> Pseudomonas aeruginosa

<400> 143

Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys Val
 1 5 10 15

Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp Pro
 20 25 30

Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met Val
 35 40 45

Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala Leu
 50 55 60

Ser Ile Thr Ser Asp Gly Leu Thr Ile Arg Leu Glu Gly Gly Val Glu
 65 70 75 80

Pro Asn Lys Pro Val Arg Tyr Ser Tyr Thr Arg Gln Ala Arg Gly Ser
 85 90 95

Trp Ser Leu Asn Trp Leu Val Pro Ile Gly His Glu Lys Pro Ser Asn
 100 105 110

Ile Lys Val Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser His
 115 120 125

Met Ser Pro Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala Lys
 130 135 140

Leu Ala Arg Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn Glu
 145 150 155 160

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

Ala Gln Ala Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala Ser
 180 185 190

Gly Lys Val Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn Tyr
 195 200 205

Leu Ala Gln Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys Ile
 210 215 220

Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile Lys
 225 230 235 240

Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu Gly Gly Ser Leu
 245 250 255

Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro Leu Glu Thr Phe
 260 265 270

Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Glu Gln Cys Gly
 275 280 285

Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala Ala Arg Leu Ser
 290 295 300

Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu Ala Ser Pro Gly
 305 310 315 320

Ser Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln Pro Glu Gln Ala
 325 330 335

Arg Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu Arg Phe Val Arg
 340 345 350

Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Ser Ala Asp Val Val
 355 360 365

Ser Leu Thr Cys Pro Val Ala
 370 375

<210> 144

<211> 364

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 144

Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys Val
 1 5 10 15

Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp Pro
 20 25 30

Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met Val
 35 40 45

Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala Leu
 50 55 60

Ser Ile Thr Ser Asp Gly Leu Thr Ile Arg Leu Glu Gly Gly Val Glu
 65 70 75 80

Pro Asn Lys Pro Val Arg Tyr Ser Tyr Thr Arg Gln Ala Arg Gly Ser
 85 90 95

Trp Ser Leu Asn Trp Leu Val Pro Ile Gly His Glu Lys Pro Ser Asn
 100 105 110

Ile Lys Val Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser His
 115 120 125

Met Ser Pro Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala Lys
 130 135 140

Leu Ala Arg Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn Glu
 145 150 155 160

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

Ala Gln Ala Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala Ser
 180 185 190

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Gly Lys Val Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn Tyr
195 200 205

Leu Ala Gln Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys Ile
210 215 220

Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile Lys
225 230 235 240

Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu Gly Gly Ser Leu
245 250 255

Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro Leu Glu Thr Phe
260 265 270

Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Glu Gln Cys Gly
275 280 285

Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala Ala Arg Leu Ser
290 295 300

Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu Ala Ser Pro Gly
305 310 315 320

Ser Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln Pro Glu Gln Ala
325 330 335

Arg Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu Arg Phe Val Arg
340 345 350

Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Ser
355 360

<210> 145

<211> 277

<212> PRT

<213> Pseudomonas aeruginosa

<400> 145

Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys Val
1 5 10 15

40566-711_601_SL.txt

Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp Pro
20 25 30

Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met Val
35 40 45

Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala Leu
50 55 60

Ser Ile Thr Ser Asp Gly Leu Thr Ile Arg Leu Glu Gly Gly Val Glu
65 70 75 80

Pro Asn Lys Pro Val Arg Tyr Ser Tyr Thr Arg Gln Ala Arg Gly Ser
85 90 95

Trp Ser Leu Asn Trp Leu Val Pro Ile Gly His Glu Lys Pro Ser Asn
100 105 110

Ile Lys Val Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser His
115 120 125

Met Ser Pro Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala Lys
130 135 140

Leu Ala Arg Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn Glu
145 150 155 160

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

Ala Gln Ala Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala Ser
180 185 190

Gly Lys Val Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn Tyr
195 200 205

Leu Ala Gln Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys Ile
210 215 220

Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile Lys
225 230 235 240

Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu Gly Gly Ser Leu
245 250 255

Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro Leu Glu Thr Phe
260 265 270

Thr Arg His Arg Gln
275

<210> 146

<211> 627

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 146

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

40566-711_601_SL.txt

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys Gly Gly Gly Ser Leu Ala
260 265 270

Ala Leu Thr Ala His Gln Ala Cys His Leu Pro Leu Glu Thr Phe Thr
275 280 285

Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Glu Gln Cys Gly Tyr
290 295 300

40566-711_601_SL.txt

Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala Ala Arg Leu Ser Trp
305 310 315 320

Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu Ala Ser Pro Gly Ser
325 330 335

Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln Pro Glu Gln Ala Arg
340 345 350

Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu Arg Phe Val Arg Gln
355 360 365

Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Ser Ala Asp Val Val Ser
370 375 380

Leu Thr Cys Pro Val Ala Ala Gly Glu Cys Ala Gly Pro Ala Asp Ser
385 390 395 400

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

Gly Asp Gly Gly Asp Val Ser Phe Ser Thr Arg Gly Thr Gln Asn Trp
420 425 430

Thr Val Glu Arg Leu Leu Gln Ala His Arg Gln Leu Glu Glu Arg Gly
435 440 445

Tyr Val Phe Val Gly Tyr His Gly Thr Phe Leu Glu Ala Ala Gln Ser
450 455 460

Ile Val Phe Gly Gly Val Arg Ala Arg Ser Gln Asp Leu Asp Ala Ile
465 470 475 480

Trp Arg Gly Phe Tyr Ile Ala Gly Asp Pro Ala Leu Ala Tyr Gly Tyr
485 490 495

Ala Gln Asp Gln Glu Pro Asp Ala Arg Gly Arg Ile Arg Asn Gly Ala
500 505 510

40566-711_601_SL.txt

Leu Leu Arg Val Tyr Val Pro Arg Ser Ser Leu Pro Gly Phe Tyr Arg
515 520 525

Thr Ser Leu Thr Leu Ala Ala Pro Glu Ala Ala Gly Glu Val Glu Arg
530 535 540

Leu Ile Gly His Pro Leu Pro Leu Arg Leu Asp Ala Ile Thr Gly Pro
545 550 555 560

Glu Glu Glu Gly Gly Arg Leu Thr Ile Leu Gly Trp Pro Leu Ala Glu
565 570 575

Arg Thr Val Val Ile Pro Ser Ala Ile Pro Thr Asp Pro Arg Asn Val
580 585 590

Gly Gly Asp Leu Asp Pro Ser Ser Ile Pro Asp Lys Glu Gln Ala Ile
595 600 605

Ser Ala Leu Pro Asp Tyr Ala Ser Gln Pro Gly Lys Pro Pro Arg Glu
610 615 620

Asp Leu Lys
625

<210> 147
<211> 620
<212> PRT
<213> Artificial Sequence

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

<400> 147
Met Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys
1 5 10 15

Val Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp
20 25 30

40566-711_601_SL.txt

Pro Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met
35 40 45

Val Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala
50 55 60

Leu Ser Ile Thr Ser Asp Gly Leu Thr Ile Arg Leu Glu Gly Gly Val
65 70 75 80

Glu Pro Asn Lys Pro Val Arg Tyr Ser Tyr Thr Arg Gln Ala Arg Gly
85 90 95

Ser Trp Ser Leu Asn Trp Leu Val Pro Ile Gly His Glu Lys Pro Ser
100 105 110

Asn Ile Lys Val Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser
115 120 125

His Met Ser Pro Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala
130 135 140

Lys Leu Ala Arg Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn
145 150 155 160

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

Met Ala Gln Thr Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala
180 185 190

Ser Gly Lys Val Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn
195 200 205

Tyr Leu Ala Gln Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys
210 215 220

Ile Tyr Arg Val Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile
225 230 235 240

40566-711_601_SL.txt

Lys Pro Thr Val Ile Ser His Arg Leu His Phe Pro Glu Gly Gly Asn
245 250 255

Ala Met Ser Ala Leu Ala Ala His Arg Val Cys Gly Val Pro Leu Glu
260 265 270

Thr Leu Ala Arg Ser Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser
275 280 285

Cys Ala Tyr Gln Ala Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg
290 295 300

Ile Leu Phe Ser His Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu
305 310 315 320

Gln Glu Pro Glu Val Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn
325 330 335

Glu Asn Asn Pro Gly Met Val Thr Gln Val Leu Thr Val Ala Arg Gln
340 345 350

Ile Tyr Asn Asp Tyr Val Thr His His Pro Gly Leu Thr Pro Glu Gln
355 360 365

Thr Ser Ala Gly Ala Gln Ala Ala Glu Ile Leu Ser Leu Phe Cys Pro
370 375 380

Asp Ala Asp Lys Ser Cys Val Ala Thr Asn Asn Asp Gln Ala Asn Ile
385 390 395 400

Asn Ile Glu Ser Arg Ser Gly Arg Ser Tyr Leu Pro Glu Asn Arg Ala
405 410 415

Val Ile Thr Pro Gln Gly Val Thr Asn Trp Thr Tyr Gln Glu Leu Glu
420 425 430

Ala Thr His Gln Ala Leu Thr Arg Glu Gly Tyr Val Phe Val Gly Tyr
435 440 445

40566-711_601_SL.txt

Thr Asn His Val Ala Ala Gln Thr Ile Val Asn Arg Ile Ala Pro Val
450 455 460

Pro Arg Gly Asn Asn Thr Glu Asn Glu Glu Lys Trp Gly Gly Leu Tyr
465 470 475 480

Val Ala Thr His Ala Glu Val Ala His Gly Tyr Ala Arg Ile Lys Glu
485 490 495

Gly Thr Gly Glu Tyr Gly Leu Pro Thr Arg Ala Glu Arg Asp Ala Arg
500 505 510

Gly Val Met Leu Arg Val Tyr Ile Pro Arg Ala Ser Leu Glu Arg Phe
515 520 525

Tyr Arg Thr Asn Thr Pro Leu Glu Asn Ala Glu Glu His Ile Thr Gln
530 535 540

Val Ile Gly His Ser Leu Pro Leu Arg Asn Glu Ala Phe Thr Gly Pro
545 550 555 560

Glu Ser Ala Gly Gly Glu Asp Thr Val Ile Gly Trp Asp Met Ala Ile
565 570 575

His Ala Val Ala Ile Pro Ser Thr Ile Pro Gly Asn Ala Tyr Glu Glu
580 585 590

Leu Ala Ile Asp Glu Glu Ala Val Ala Lys Glu Gln Ser Ile Ser Thr
595 600 605

Lys Pro Pro Tyr Lys Glu Arg Lys Asp Glu Leu Lys
610 615 620

<210> 148

<211> 18

<212> PRT

<213> Vibrio cholera

<400> 148

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

Ile Asp

<210> 149

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 149

Met	Val	Glu	Glu	Ala	Leu	Asn	Ile	Phe	Asp	Glu	Cys	Arg	Ser	Pro	Cys
1				5				10						15	

Ser	Leu	Thr	Pro	Glu	Pro	Gly	Lys	Pro	Ile	Gln	Ser	Lys	Leu	Ser	Ile
			20				25						30		

Pro	Ser	Asp	Val	Val	Leu	Asp
			35			

<210> 150

<211> 38

<212> PRT

<213> Vibrio cholera

<400> 150

Val	Glu	Glu	Ala	Leu	Asn	Ile	Phe	Asp	Glu	Cys	Arg	Ser	Pro	Cys	Ser
1				5				10						15	

Leu	Thr	Pro	Glu	Pro	Gly	Lys	Pro	Ile	Gln	Ser	Lys	Leu	Ser	Ile	Pro
			20				25						30		

Ser	Asp	Val	Val	Leu	Asp
			35		

<210> 151

<211> 37

<212> PRT

<213> Vibrio cholera

<400> 151

Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val
1 5 10 15

Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro
20 25 30

Ser Val Ser Tyr Lys
35

<210> 152

<211> 22

<212> PRT

<213> Vibrio cholera

<400> 152

Lys Ala Ala Gln Lys Glu Gly Ser Arg His Lys Arg Trp Ala His Trp
1 5 10 15

His Thr Gly Leu Ala Leu
20

<210> 153

<211> 593

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 153

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

40566-711_601_SL.txt

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala
260 265 270

40566-711_601_SL.txt

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

Ser Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln
290 295 300

Ala Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser
305 310 315 320

His Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu
325 330 335

Val Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro
340 345 350

Gly Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp
355 360 365

Tyr Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly
370 375 380

Ala Gln Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
385 390 395 400

Gly Ser Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala Met
405 410 415

Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln Glu
420 425 430

Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln
435 440 445

Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr Pro Ser
450 455 460

Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile
465 470 475 480

40566-711_601_SL.txt

Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe Leu Arg
485 490 495

Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser Asn Val
500 505 510

Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu Met Gly
515 520 525

Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr
530 535 540

Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu Leu Lys
545 550 555 560

Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys Val Glu
565 570 575

Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser Cys Gly
580 585 590

Phe

<210> 154

<211> 580

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 154

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

40566-711_601_SL.txt

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

40566-711_601_SL.txt

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala
260 265 270

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

Ser Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln
290 295 300

Ala Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser
305 310 315 320

His Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu
325 330 335

Val Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro
340 345 350

Gly Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp
355 360 365

Tyr Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly
370 375 380

Ala Gln Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
385 390 395 400

Gly Ser Met His Ser Ser Ala Leu Leu Cys Cys Leu Val Leu Leu Thr
405 410 415

Gly Val Arg Ala Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys
420 425 430

Thr His Phe Pro Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp
435 440 445

40566-711_601_SL.txt

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

Asn Leu Leu Leu Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu
465 470 475 480

Gly Cys Gln Ala Leu Ser Glu Met Ile Gln Phe Tyr Leu Glu Glu Val
485 490 495

Met Pro Gln Ala Glu Asn Gln Asp Pro Asp Ile Lys Ala His Val Asn
500 505 510

Ser Leu Gly Glu Asn Leu Lys Thr Leu Arg Leu Arg Leu Arg Arg Cys
515 520 525

His Arg Phe Leu Pro Cys Glu Asn Lys Ser Lys Ala Val Glu Gln Val
530 535 540

Lys Asn Ala Phe Asn Lys Leu Gln Glu Lys Gly Ile Tyr Lys Ala Met
545 550 555 560

Ser Glu Phe Asp Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Met
565 570 575

Lys Ile Arg Asn
580

<210> 155
<211> 460
<212> PRT
<213> Artificial Sequence

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

<400> 155
Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

40566-711_601_SL.txt

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

40566-711_601_SL.txt

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys Gly Gly Gly Gly Ser Gly
260 265 270

Gly Gly Gly Ser Gly Gly Gly Gly Ser Met Ala Ala Leu Gln Lys Ser
275 280 285

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

Leu Ala Leu Leu Val Gln Gly Gly Ala Ala Ala Pro Ile Ser Ser His
305 310 315 320

Cys Arg Leu Asp Lys Ser Asn Phe Gln Gln Pro Tyr Ile Thr Asn Arg
325 330 335

Thr Phe Met Leu Ala Lys Glu Ala Ser Leu Ala Asp Asn Asn Thr Asp
340 345 350

Val Arg Leu Ile Gly Glu Lys Leu Phe His Gly Val Ser Met Ser Glu
355 360 365

Arg Cys Tyr Leu Met Lys Gln Val Leu Asn Phe Thr Leu Glu Glu Val
370 375 380

Leu Phe Pro Gln Ser Asp Arg Phe Gln Pro Tyr Met Gln Glu Val Val
385 390 395 400

Pro Phe Leu Ala Arg Leu Ser Asn Arg Leu Ser Thr Cys His Ile Glu
405 410 415

Gly Asp Asp Leu His Ile Gln Arg Asn Val Gln Lys Leu Lys Asp Thr
420 425 430

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Val Lys Lys Leu Gly Glu Ser Gly Glu Ile Lys Ala Ile Gly Glu Leu
 435 440 445

Asp Leu Leu Phe Met Ser Leu Arg Asn Ala Cys Ile
 450 455 460

<210> 156

<211> 491

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 156

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
 1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
 20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
 35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
 50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
 65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
 85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
 100 105 110

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

Lys Ile Ser Val Asp Glu Leu Asp Gln Gln Arg Asn Ile Ile Glu Val

130

135

140

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
 165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
 180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
 195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
 210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
 225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
 245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys Met Arg Ser Ser Lys Asn
 260 265 270

Val Ile Lys Glu Phe Met Arg Phe Lys Val Arg Met Glu Gly Thr Val
 275 280 285

Asn Gly His Glu Phe Glu Ile Glu Gly Glu Gly Glu Gly Arg Pro Tyr
 290 295 300

Glu Gly His Asn Thr Val Lys Leu Lys Val Thr Lys Gly Gly Pro Leu
 305 310 315 320

Pro Phe Ala Trp Asp Ile Leu Ser Pro Gln Phe Gln Tyr Gly Ser Lys
 325 330 335

Val Tyr Val Lys His Pro Ala Asp Ile Pro Asp Tyr Lys Lys Leu Ser

340

345

350

Phe Pro Glu Gly Phe Lys Trp Glu Arg Val Met Asn Phe Glu Asp Gly
 355 360 365

Gly Val Val Thr Val Thr Gln Asp Ser Ser Leu Gln Asp Gly Cys Phe
 370 375 380

Ile Tyr Lys Val Lys Phe Ile Gly Val Asn Phe Pro Ser Asp Gly Pro
 385 390 395 400

Val Met Gln Lys Lys Thr Met Gly Trp Glu Ala Ser Thr Glu Arg Leu
 405 410 415

Tyr Pro Arg Asp Gly Val Leu Lys Gly Glu Ile His Lys Ala Leu Lys
 420 425 430

Leu Lys Asp Gly Gly His Tyr Leu Val Glu Phe Lys Ser Ile Tyr Met
 435 440 445

Ala Lys Lys Pro Val Gln Leu Pro Gly Tyr Tyr Tyr Val Asp Ser Lys
 450 455 460

Leu Asp Ile Thr Ser His Asn Glu Asp Tyr Thr Ile Val Glu Gln Tyr
 465 470 475 480

Glu Arg Thr Glu Gly Arg His His Leu Phe Leu
 485 490

<210> 157

<211> 859

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 157

Val Glu Asp Glu Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys Ser
 1 5 10 15

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Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile Pro
20 25 30

Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr Ile
35 40 45

Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser Ile
50 55 60

Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr Val
65 70 75 80

Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr Glu
85 90 95

Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe Ala
100 105 110

Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile Lys
115 120 125

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

Lys Leu Tyr Ser Ile Asp Leu Asp Asn Gln Thr Leu Glu Gln Trp Lys
145 150 155 160

Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn Ile
165 170 175

Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu Gly
180 185 190

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

Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln Asn
210 215 220

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Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val Ala
225 230 235 240

Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys Pro
245 250 255

Val Glu Gln Arg Ile His Phe Ser Lys Gly Asn Ala Met Ser Ala Leu
260 265 270

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

Arg Lys Pro Arg Asp Leu Thr Asp Asp Leu Ser Cys Ala Tyr Gln Ala
290 295 300

Gln Asn Ile Val Ser Leu Phe Val Ala Thr Arg Ile Leu Phe Ser His
305 310 315 320

Leu Asp Ser Val Phe Thr Leu Asn Leu Asp Glu Gln Glu Pro Glu Val
325 330 335

Ala Glu Arg Leu Ser Asp Leu Arg Arg Ile Asn Glu Asn Asn Pro Gly
340 345 350

Met Val Thr Gln Val Leu Thr Val Ala Arg Gln Ile Tyr Asn Asp Tyr
355 360 365

Val Thr His His Pro Gly Leu Thr Pro Glu Gln Thr Ser Ala Gly Ala
370 375 380

Gln Ala Ala Asp Ile Leu Ser Leu Phe Cys Pro Asp Ala Asp Lys Ser
385 390 395 400

Cys Val Ala Ser Asn Asn Asp Gln Ala Asn Ile Asn Ile Glu Ser Arg
405 410 415

Ser Gly Arg Ser Tyr Leu Pro Glu Asn Arg Ala Val Ile Thr Pro Gln
420 425 430

Gly Val Thr Asn Trp Thr Tyr Gln Glu Leu Glu Ala Thr His Gln Ala
 435 440 445

Leu Thr Arg Glu Gly Tyr Val Phe Val Gly Tyr His Gly Thr Asn His
 450 455 460

Val Ala Ala Gln Thr Ile Val Asn Arg Ile Ala Pro Val Pro Arg Gly
 465 470 475 480

Asn Asn Thr Glu Asn Glu Glu Lys Trp Gly Gly Leu Tyr Val Ala Thr
 485 490 495

His Ala Glu Val Ala His Gly Tyr Ala Arg Ile Lys Glu Gly Thr Gly
 500 505 510

Glu Tyr Gly Leu Pro Thr Arg Ala Glu Arg Asp Ala Arg Gly Val Met
 515 520 525

Leu Arg Val Tyr Ile Pro Arg Ala Ser Leu Glu Arg Phe Tyr Arg Thr
 530 535 540

Asn Thr Pro Leu Glu Asn Ala Glu Glu His Ile Thr Gln Val Ile Gly
 545 550 555 560

His Ser Leu Pro Leu Arg Asn Glu Ala Phe Thr Gly Pro Glu Ser Ala
 565 570 575

Gly Gly Glu Asp Ala Thr Val Ile Gly Trp Asp Met Ala Ile His Ala
 580 585 590

Val Ala Ile Pro Ser Thr Ile Pro Gly Asn Ala Tyr Glu Glu Leu Ala
 595 600 605

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

Pro Tyr Lys Glu Arg Lys Asp Glu Leu Lys Met Arg Ser Ser Lys Asn
 625 630 635 640

Val Ile Lys Glu Phe Met Arg Phe Lys Val Arg Met Glu Gly Thr Val
645 650 655

Asn Gly His Glu Phe Glu Ile Glu Gly Glu Gly Glu Gly Arg Pro Tyr
660 665 670

Glu Gly His Asn Thr Val Lys Leu Lys Val Thr Lys Gly Gly Pro Leu
675 680 685

Pro Phe Ala Trp Asp Ile Leu Ser Pro Gln Phe Gln Tyr Gly Ser Lys
690 695 700

Val Tyr Val Lys His Pro Ala Asp Ile Pro Asp Tyr Lys Lys Leu Ser
705 710 715 720

Phe Pro Glu Gly Phe Lys Trp Glu Arg Val Met Asn Phe Glu Asp Gly
725 730 735

Gly Val Val Thr Val Thr Gln Asp Ser Ser Leu Gln Asp Gly Cys Phe
740 745 750

Ile Tyr Lys Val Lys Phe Ile Gly Val Asn Phe Pro Ser Asp Gly Pro
755 760 765

Val Met Gln Lys Lys Thr Met Gly Trp Glu Ala Ser Thr Glu Arg Leu
770 775 780

Tyr Pro Arg Asp Gly Val Leu Lys Gly Glu Ile His Lys Ala Leu Lys
785 790 795 800

Leu Lys Asp Gly Gly His Tyr Leu Val Glu Phe Lys Ser Ile Tyr Met
805 810 815

Ala Lys Lys Pro Val Gln Leu Pro Gly Tyr Tyr Tyr Val Asp Ser Lys
820 825 830

Leu Asp Ile Thr Ser His Asn Glu Asp Tyr Thr Ile Val Glu Gln Tyr
835 840 845

Glu Arg Thr Glu Gly Arg His His Leu Phe Leu
850 855

<210> 158
<211> 340
<212> PRT
<213> Artificial Sequence

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

<400> 158
Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

Lys Ile Ser Val Asp Glu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
130 135 140

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Gly Gly Gly Gly Ser Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp
145 150 155 160

Asn Ala Met Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr
165 170 175

Tyr Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser
180 185 190

Phe Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro
195 200 205

Thr Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu
210 215 220

Leu Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln
225 230 235 240

Phe Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp
245 250 255

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

Leu Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe
275 280 285

Lys Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala
290 295 300

Leu Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp
305 310 315 320

Lys Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly
325 330 335

Ser Cys Gly Phe
340

<210> 159

<211> 357

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 159

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
 1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
 20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
 35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
 50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
 65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
 85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
 100 105 110

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

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

Pro Lys Leu Tyr Ser Ile Asp Gly Gly Gly Gly Ser Gly Gly Gly Gly
 145 150 155 160

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Ser Gly Gly Gly Gly Ser Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe
165 170 175

Asp Asn Ala Met Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp
180 185 190

Thr Tyr Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr
195 200 205

Ser Phe Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile
210 215 220

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

Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val
245 250 255

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

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

Thr Leu Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile
290 295 300

Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp
305 310 315 320

Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met
325 330 335

Asp Lys Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu
340 345 350

Gly Ser Cys Gly Phe
355

<210> 160

<211> 393

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 160

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn

165

170

175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Gly Gly Gly Gly Ser
 180 185 190

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Phe Pro Thr Ile Pro Leu
 195 200 205

Ser Arg Leu Phe Asp Asn Ala Met Leu Arg Ala His Arg Leu His Gln
 210 215 220

Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys
 225 230 235 240

Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe
 245 250 255

Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys
 260 265 270

Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp
 275 280 285

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

Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu
 305 310 315 320

Glu Gly Ile Gln Thr Leu Met Gly Arg Leu Glu Asp Gly Ser Pro Arg
 325 330 335

Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser
 340 345 350

His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe
 355 360 365

Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val Gln Cys

370

375

380

Arg Ser Val Glu Gly Ser Cys Gly Phe
385 390

<210> 161

<211> 412

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 161

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Gly Gly
195 200 205

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Phe Pro Thr
210 215 220

Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala Met Leu Arg Ala His Arg
225 230 235 240

Leu His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu Glu Ala Tyr
245 250 255

Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro Gln Thr Ser
260 265 270

Leu Cys Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr
275 280 285

Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile
290 295 300

Gln Ser Trp Leu Glu Pro Val Gln Phe Leu Arg Ser Val Phe Ala Asn
305 310 315 320

Ser Leu Val Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp Leu Leu Lys
325 330 335

Asp Leu Glu Glu Gly Ile Gln Thr Leu Met Gly Arg Leu Glu Asp Gly
340 345 350

Ser Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp
355 360 365

Thr Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu
370 375 380

Tyr Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile
385 390 395 400

Val Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe
405 410

<210> 162
<211> 451
<212> PRT
<213> Artificial Sequence

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

<400> 162
Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

40566-711_601_SL.txt

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
225 230 235 240

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

Gly Gly Gly Ser Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn
260 265 270

Ala Met Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr
275 280 285

Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe
290 295 300

40566-711_601_SL.txt

Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr
305 310 315 320

Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu
325 330 335

Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe
340 345 350

Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser
355 360 365

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu
370 375 380

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys
385 390 395 400

Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu
405 410 415

Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys
420 425 430

Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser
435 440 445

Cys Gly Phe
450

<210> 163

<211> 457

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 163

40566-711_601_SL.txt

Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
195 200 205

40566-711_601_SL.txt

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
 210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
 225 230 235 240

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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Phe Pro Thr Ile Pro Leu
 260 265 270

Ser Arg Leu Phe Asp Asn Ala Met Leu Arg Ala His Arg Leu His Gln
 275 280 285

Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys
 290 295 300

Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe
 305 310 315 320

Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys
 325 330 335

Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp
 340 345 350

Leu Glu Pro Val Gln Phe Leu Arg Ser Val Phe Ala Asn Ser Leu Val
 355 360 365

Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu
 370 375 380

Glu Gly Ile Gln Thr Leu Met Gly Arg Leu Glu Asp Gly Ser Pro Arg
 385 390 395 400

Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser
 405 410 415

40566-711_601_SL.txt

His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe
420 425 430

Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val Gln Cys
435 440 445

Arg Ser Val Glu Gly Ser Cys Gly Phe
450 455

<210> 164
<211> 472
<212> PRT
<213> Artificial Sequence

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

<400> 164
Met Val Glu Glu Ala Leu Asn Ile Phe Asp Glu Cys Arg Ser Pro Cys
1 5 10 15

Ser Leu Thr Pro Glu Pro Gly Lys Pro Ile Gln Ser Lys Leu Ser Ile
20 25 30

Pro Ser Asp Val Val Leu Asp Glu Gly Val Leu Tyr Tyr Ser Met Thr
35 40 45

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

Ala Ile Asn Trp Leu Val Pro Ile Gly Glu Asp Ser Pro Ala Ser Ile

115

120

125

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
 165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
 180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
 195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
 210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
 225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
 245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys Gly Gly Gly Gly Ser Gly
 260 265 270

Gly Gly Gly Ser Gly Gly Gly Gly Ser Phe Pro Thr Ile Pro Leu Ser
 275 280 285

Arg Leu Phe Asp Asn Ala Met Leu Arg Ala His Arg Leu His Gln Leu
 290 295 300

Ala Phe Asp Thr Tyr Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu
 305 310 315 320

Gln Lys Tyr Ser Phe Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser

325

330

335

Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser
 340 345 350

Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu
 355 360 365

Glu Pro Val Gln Phe Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr
 370 375 380

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

Gly Ile Gln Thr Leu Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr
 405 410 415

Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His
 420 425 430

Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg
 435 440 445

Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg
 450 455 460

Ser Val Glu Gly Ser Cys Gly Phe
 465 470

<210> 165

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 165

Gly Val Leu Tyr Tyr Ser Met Thr Ile Asn Asp Glu Gln Asn Asp Ile
 1 5 10 15

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Lys Asp Glu Asp Lys Gly Glu Ser Ile Ile Thr Ile Gly Glu Phe Ala
20 25 30

Thr Val Arg Ala Thr Arg His Tyr Val Asn Gln Asp Ala Pro Phe Gly
35 40 45

Val Ile His Leu Asp Ile Thr Thr Glu Asn Gly Thr Lys Thr Tyr Ser
50 55 60

Tyr Asn Arg Lys Glu Gly Glu Phe Ala Ile Asn Trp Leu Val Pro Ile
65 70 75 80

Gly Glu Asp Ser Pro Ala Ser Ile Lys Ile Ser Val Asp Glu Leu Asp
85 90 95

Gln Gln Arg Asn Ile Ile Glu Val Pro Lys Leu Tyr Ser Ile Asp Leu
100 105 110

Asp Asn Gln Thr Leu Glu Gln Trp Lys Thr Gln Gly Asn Val Ser Phe
115 120 125

Ser Val Thr Arg Pro Glu His Asn Ile Ala Ile Ser Trp Pro Ser Val
130 135 140

Ser Tyr Lys Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
145 150 155 160

Gly Gly Ser Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala
165 170 175

Met Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln
180 185 190

Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu
195 200 205

Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr Pro
210 215 220

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Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg
225 230 235 240

Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe Leu
245 250 255

Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser Asn
260 265 270

Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu Met
275 280 285

Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys Gln
290 295 300

Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu Leu
305 310 315 320

Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys Val
325 330 335

Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser Cys
340 345 350

Gly Phe

<210> 166

<211> 4

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<400> 166

Ala Ala Pro Phe

1

<210> 167
 <211> 3
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<400> 167
 Gly Gly Phe
 1

<210> 168
 <211> 4
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<400> 168
 Ala Ala Pro Val
 1

<210> 169
 <211> 3
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<400> 169
 Gly Gly Leu
 1

<210> 170
 <211> 3
 <212> PRT
 <213> Unknown

<220>

<221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<400> 170
 Ala Ala Leu
 1

<210> 171
 <211> 3
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<400> 171
 Phe Val Arg
 1

<210> 172
 <211> 3
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<400> 172
 Val Gly Arg
 1

<210> 173
 <211> 4
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<400> 173
 Arg Gln Pro Arg
 1

<210> 174
 <211> 5
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<220>
 <221> MOD_RES
 <222> (5)..(5)
 <223> Any amino acid

<400> 174
 Tyr Val Ala Asp Xaa
 1 5

<210> 175
 <211> 5
 <212> PRT
 <213> Unknown

<220>
 <221> source
 <223> /note="Description of Unknown:
 Peptidase cleavage sequence"

<220>
 <221> MOD_RES
 <222> (2)..(3)
 <223> Any amino acid

<220>
 <221> MOD_RES
 <222> (5)..(5)
 <223> Any amino acid

<400> 175
 Asp Xaa Xaa Asp Xaa
 1 5

<210> 176
 <211> 9
 <212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (2)..(7)

<223> Any amino acid

<220>

<221> SITE

<222> (2)..(7)

<223> /note="This region may encompass 0, 2, 4 or 6 residues"

<220>

<221> MOD_RES

<222> (9)..(9)

<223> Any amino acid

<400> 176

Arg Xaa Xaa Xaa Xaa Xaa Xaa Arg Xaa

1 5

<210> 177

<211> 9

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (2)..(7)

<223> Any amino acid

<220>

<221> SITE

<222> (2)..(7)

<223> /note="This region may encompass 0, 2, 4 or 6 residues"

<220>

<221> MOD_RES

<222> (9)..(9)

<223> Any amino acid

<400> 177

Lys Xaa Xaa Xaa Xaa Xaa Xaa Arg Xaa
1 5

<210> 178

<211> 6

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (6)..(6)

<223> Any amino acid

<400> 178

Glu Arg Thr Lys Arg Xaa
1 5

<210> 179

<211> 5

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (5)..(5)

<223> Any amino acid

<400> 179

Arg Val Arg Arg Xaa
1 5

<210> 180

<211> 5

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (5)..(5)

<223> Any amino acid

<400> 180

Arg Val Arg Arg Xaa

1 5

<210> 181

<211> 6

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (2)..(2)

<223> Any amino acid

<220>

<221> MOD_RES

<222> (6)..(6)

<223> Any amino acid

<400> 181

Pro Xaa Trp Val Pro Xaa

1 5

<210> 182

<211> 4

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:

Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (4)..(4)

<223> Any amino acid

<400> 182

Trp Val Ala Xaa

1

<210> 183

<211> 4

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Any amino acid

<220>

<221> MOD_RES

<222> (3)..(4)

<223> Any amino acid

<400> 183

Xaa Phe Xaa Xaa

1

<210> 184

<211> 4

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Any amino acid

<220>

<221> MOD_RES

<222> (3)..(4)

<223> Any amino acid

<400> 184

Xaa Tyr Xaa Xaa

1

<210> 185

<211> 4

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Any amino acid

<220>

<221> MOD_RES

<222> (3)..(4)

<223> Any amino acid

<400> 185

Xaa Trp Xaa Xaa

1

<210> 186

<211> 12

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Peptidase cleavage sequence"

<220>

<221> VARIANT

<222> (10)..(10)

<223> /replace="Ala" or "Pro"

<220>

<221> VARIANT

<222> (12)..(12)

<223> /replace="Pro" or "Ala"

<220>

<221> SITE

<222> (1)..(12)

<223> /note="Variant residues given in the sequence have no preference with respect to those in the annotations for variant positions"

<400> 186

Asp Arg Tyr Ile Pro Phe His Leu Leu Val Tyr Ser

1 5 10

<210> 187

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 187

Ser Gly Gly Gly Gly Ser Gly Lys Ala Gly Ser Arg Gly Leu Thr

1 5 10 15

<210> 188

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 188

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Leu Arg Gln Pro Arg

1 5 10 15

<210> 189

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 189

Ser Gly Gly Gly Gly Ser Gly Lys Lys Val Glu Arg Phe Arg Tyr
1 5 10 15

<210> 190

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 190

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

<210> 191

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 191

Ser Gly Gly Gly Gly Ser Gly Lys Ala Gly Ser Phe Ser Glu Gly
1 5 10 15

<210> 192

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 192

Ser Gly Gly Gly Gly Ser Gly Lys Ala Gly Ser Ala Ala Pro Phe
1 5 10 15

<210> 193

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 193

Gly Gly Gly Gly Ser Gly Gly Gly Glu Asn Leu Tyr Phe Gln Ser
1 5 10 15

<210> 194

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 194

Val Ser Trp Lys Thr Trp Phe Pro Asn Leu Ala Val
1 5 10

<210> 195

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 195

Tyr Ser Pro Phe His Lys Trp Phe Pro Ser Met His
1 5 10

<210> 196

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

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

<400> 196
Ile Pro Gln Val Trp Arg Asp Trp Phe Lys Leu Pro
1 5 10

<210> 197
<211> 12
<212> PRT
<213> Artificial Sequence

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

<400> 197
Phe Pro Ala Trp Phe Thr Lys Leu Tyr Pro Arg Thr
1 5 10

<210> 198
<211> 12
<212> PRT
<213> Artificial Sequence

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

<400> 198
Gln Ile Asn Thr Ala Lys Trp Trp Lys Thr His Phe
1 5 10

<210> 199
<211> 12
<212> PRT
<213> Artificial Sequence

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

peptide"

<400> 199

Asp	Ala	Ser	Lys	Ala	Leu	Arg	Ser	Ser	Gly	Met	Pro
1				5					10		

<210> 200

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 200

Trp	Lys	Thr	Trp	Phe	Pro
1				5	

<210> 201

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 201

Ser	Gly	Gly	Gly	Gly	Trp	Lys	Thr	Trp	Phe	Pro	Arg	Gly	Leu	Thr
1				5					10				15	

<210> 202

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 202

Ser	Gly	Gly	Gly	Gly	Trp	Lys	Thr	Trp	Phe	Pro	Arg	Gln	Pro	Arg
1				5					10				15	

<210> 203
<211> 15
<212> PRT
<213> Artificial Sequence

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

<400> 203
Ser Gly Gly Gly Gly Trp Lys Thr Trp Phe Pro Arg Phe Arg Tyr
1 5 10 15

<210> 204
<211> 15
<212> PRT
<213> Artificial Sequence

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

<400> 204
Ser Gly Gly Gly Gly Trp Lys Thr Trp Phe Pro Met Thr Pro Arg
1 5 10 15

<210> 205
<211> 15
<212> PRT
<213> Artificial Sequence

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

<400> 205
Ser Gly Gly Gly Gly Trp Lys Thr Trp Phe Pro Phe Ser Glu Gly
1 5 10 15

<210> 206
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<221> source

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

<400> 206

Ser Gly Gly Gly Gly Trp Lys Thr Trp Phe Pro Ala Ala Pro Phe
1 5 10 15

<210> 207

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 207

Gly Thr Gly Gly Ser
1 5

<210> 208

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 208

Gly Gly Gly Gly Ser
1 5

<210> 209

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 209

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

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

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

<400> 210
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 1 5 10 15

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

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

<400> 211
 Gly Gly Gly Gly Ser Gly Gly Gly
 1 5

<210> 212
 <211> 50
 <212> PRT
 <213> Artificial Sequence

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

<220>
 <221> SITE
 <222> (1)..(50)
 <223> /note="This sequence may encompass 1-10 'Gly Gly Gly Gly Ser' repeating units"

<400> 212
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 1 5 10 15

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Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 20 25 30

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
 35 40 45

Gly Ser
 50

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

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

<220>
 <221> SITE
 <222> (1)..(20)
 <223> /note="This sequence may encompass 1-10 'Gly Ser' repeating units"

<400> 213
 Gly Ser Gly Ser Gly Ser Gly Ser Gly Ser Gly Ser Gly Ser Gly Ser
 1 5 10 15

Gly Ser Gly Ser
 20

<210> 214
 <211> 191
 <212> PRT
 <213> Homo sapiens

<400> 214
 Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala Met Leu Arg
 1 5 10 15

Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu
 20 25 30

40566-711_601_SL.txt

Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro
 35 40 45

Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg
 50 55 60

Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu
 65 70 75 80

Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe Leu Arg Ser Val
 85 90 95

Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp
 100 105 110

Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu Met Gly Arg Leu
 115 120 125

Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser
 130 135 140

Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr
 145 150 155 160

Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe
 165 170 175

Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe
 180 185 190

<210> 215

<211> 87

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
 GPL-1 agonist peptide"

<400> 215

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

Leu Phe Pro Ile Ser Trp Gln Met Pro Val Glu Ser Gly Leu Ser Ser
20 25 30

Glu Asp Ser Ala Ser Ser Glu Ser Phe Ala Ser Lys Ile Lys Arg His
35 40 45

Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu Glu
50 55 60

Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser Ser
65 70 75 80

Gly Ala Pro Pro Pro Ser Gly
85

<210> 216

<211> 110

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Insulin peptide"

<400> 216

Met Ala Leu Trp Met Arg Leu Leu Pro Leu Leu Ala Leu Leu Ala Leu
1 5 10 15

Trp Gly Pro Asp Pro Ala Ala Ala Phe Val Asn Gln His Leu Cys Gly
20 25 30

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

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

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

65

70

75

80

Ala Leu Glu Gly Ser Leu Gln Lys Arg Gly Ile Val Glu Gln Cys Cys
 85 90 95

Thr Ser Ile Cys Ser Leu Tyr Gln Leu Glu Asn Tyr Cys Asn
 100 105 110

<210> 217

<211> 178

<212> PRT

<213> Homo sapiens

<400> 217

Met His Ser Ser Ala Leu Leu Cys Cys Leu Val Leu Leu Thr Gly Val
 1 5 10 15

Arg Ala Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys Thr His
 20 25 30

Phe Pro Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp Ala Phe
 35 40 45

Ser Arg Val Lys Thr Phe Phe Gln Met Lys Asp Gln Leu Asp Asn Leu
 50 55 60

Leu Leu Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu Gly Cys
 65 70 75 80

Gln Ala Leu Ser Glu Met Ile Gln Phe Tyr Leu Glu Glu Val Met Pro
 85 90 95

Gln Ala Glu Asn Gln Asp Pro Asp Ile Lys Ala His Val Asn Ser Leu
 100 105 110

Gly Glu Asn Leu Lys Thr Leu Arg Leu Arg Leu Arg Arg Cys His Arg
 115 120 125

Phe Leu Pro Cys Glu Asn Lys Ser Lys Ala Val Glu Gln Val Lys Asn
 130 135 140

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Ala Phe Asn Lys Leu Gln Glu Lys Gly Ile Tyr Lys Ala Met Ser Glu
145 150 155 160

Phe Asp Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Met Lys Ile
165 170 175

Arg Asn

<210> 218

<211> 179

<212> PRT

<213> Homo sapiens

<400> 218

Met Ala Ala Leu Gln Lys Ser Val Ser Ser Phe Leu Met Gly Thr Leu
1 5 10 15

Ala Thr Ser Cys Leu Leu Leu Leu Ala Leu Leu Val Gln Gly Gly Ala
20 25 30

Ala Ala Pro Ile Ser Ser His Cys Arg Leu Asp Lys Ser Asn Phe Gln
35 40 45

Gln Pro Tyr Ile Thr Asn Arg Thr Phe Met Leu Ala Lys Glu Ala Ser
50 55 60

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

His Gly Val Ser Met Ser Glu Arg Cys Tyr Leu Met Lys Gln Val Leu
85 90 95

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

Pro Tyr Met Gln Glu Val Val Pro Phe Leu Ala Arg Leu Ser Asn Arg
115 120 125

Leu Ser Thr Cys His Ile Glu Gly Asp Asp Leu His Ile Gln Arg Asn

130

135

140

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

Ile Lys Ala Ile Gly Glu Leu Asp Leu Leu Phe Met Ser Leu Arg Asn
 165 170 175

Ala Cys Ile

<210> 219

<211> 71

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
 ExtB polypeptide"

<400> 219

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

Ile Ala Thr Asn Ala Tyr Ala Ser Thr Gln Ser Asn Lys Lys Asp Leu
 20 25 30

Cys Glu His Tyr Arg Gln Ile Ala Lys Glu Ser Cys Lys Lys Gly Phe
 35 40 45

Leu Gly Val Arg Asp Gly Thr Ala Gly Ala Cys Phe Gly Ala Gln Ile
 50 55 60

Met Val Ala Ala Lys Gly Cys
 65 70

<210> 220

<211> 225

<212> PRT

<213> Unknown

<220>

<221> source

<223> /note="Description of Unknown:
Red Fluorescent Protein (RFP) sequence"

<400> 220

Met	Arg	Ser	Ser	Lys	Asn	Val	Ile	Lys	Glu	Phe	Met	Arg	Phe	Lys	Val
1				5					10					15	

Arg	Met	Glu	Gly	Thr	Val	Asn	Gly	His	Glu	Phe	Glu	Ile	Glu	Gly	Glu
			20					25					30		

Gly	Glu	Gly	Arg	Pro	Tyr	Glu	Gly	His	Asn	Thr	Val	Lys	Leu	Lys	Val
		35					40					45			

Thr	Lys	Gly	Gly	Pro	Leu	Pro	Phe	Ala	Trp	Asp	Ile	Leu	Ser	Pro	Gln
	50					55					60				

Phe	Gln	Tyr	Gly	Ser	Lys	Val	Tyr	Val	Lys	His	Pro	Ala	Asp	Ile	Pro
65					70					75					80

Asp	Tyr	Lys	Lys	Leu	Ser	Phe	Pro	Glu	Gly	Phe	Lys	Trp	Glu	Arg	Val
				85					90					95	

Met	Asn	Phe	Glu	Asp	Gly	Gly	Val	Val	Thr	Val	Thr	Gln	Asp	Ser	Ser
			100					105					110		

Leu	Gln	Asp	Gly	Cys	Phe	Ile	Tyr	Lys	Val	Lys	Phe	Ile	Gly	Val	Asn
		115					120					125			

Phe	Pro	Ser	Asp	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Met	Gly	Trp	Glu
	130					135					140				

Ala	Ser	Thr	Glu	Arg	Leu	Tyr	Pro	Arg	Asp	Gly	Val	Leu	Lys	Gly	Glu
145					150					155					160

Ile	His	Lys	Ala	Leu	Lys	Leu	Lys	Asp	Gly	Gly	His	Tyr	Leu	Val	Glu
			165						170					175	

Phe	Lys	Ser	Ile	Tyr	Met	Ala	Lys	Lys	Pro	Val	Gln	Leu	Pro	Gly	Tyr
			180					185					190		

40566-711_601_SL.txt

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

Ile Asn Asp Glu Gln Asn Asp Ile Lys Asp Glu Asp Lys Gly Glu Ser
50 55 60

Ile Ile Thr Ile Gly Glu Phe Ala Thr Val Arg Ala Thr Arg His Tyr
65 70 75 80

Val Asn Gln Asp Ala Pro Phe Gly Val Ile His Leu Asp Ile Thr Thr
85 90 95

Glu Asn Gly Thr Lys Thr Tyr Ser Tyr Asn Arg Lys Glu Gly Glu Phe
100 105 110

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

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

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

Lys Thr Gln Gly Asn Val Ser Phe Ser Val Thr Arg Pro Glu His Asn
 165 170 175

Ile Ala Ile Ser Trp Pro Ser Val Ser Tyr Lys Ala Ala Gln Lys Glu
 180 185 190

Gly Ser Arg His Lys Arg Trp Ala His Trp His Thr Gly Leu Ala Leu
 195 200 205

Cys Trp Leu Val Pro Met Asp Ala Ile Tyr Asn Tyr Ile Thr Gln Gln
 210 215 220

Asn Cys Thr Leu Gly Asp Asn Trp Phe Gly Gly Ser Tyr Glu Thr Val
 225 230 235 240

Ala Gly Thr Pro Lys Val Ile Thr Val Lys Gln Gly Ile Glu Gln Lys
 245 250 255

Pro Val Glu Gln Arg Ile His Phe Ser Lys Gly Gly Gly Gly Ser Gly
 260 265 270

Gly Gly Gly Ser Gly Gly Gly Gly Ser
 275 280