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<130> PF 60012 PCT

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 <212> DNA
 <213> Escherichia coli

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<210> 36
<211> 747
<212> PRT
<213> Escherichia coli
<400> 36

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Ala Ala Val Glu Pro Lys Glu Asp Thr Ile Thr Val Thr Ala Ala Pro
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Ala Pro Gln Glu Ser Ala Trp Gly Pro Ala Ala Thr Ile Ala Ala Arg
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Gln Ser Ala Thr Gly Thr Lys Thr Asp Thr Pro Ile Gln Lys Val Pro
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Gln Ser Ile Ser Val Val Thr Ala Glu Glu Met Ala Leu His Gln Pro
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Lys Ser Val Lys Glu Ala Leu Ser Tyr Thr Pro Gly Val Ser Val Gly
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115    120    125

Ala Ala Glu Gly Gln Ser Gln Asn Asn Tyr Leu Asn Gly Leu Lys Leu
130    135    140

Gln Gly Asn Phe Tyr Asn Asp Ala Val Ile Asp Pro Tyr Met Leu Glu

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 Ser Pro Gly Gly Leu Leu Asn Met Val Ser Lys Arg Pro Thr Thr Glu
 180 185 190
 Pro Leu Lys Glu Val Gln Phe Lys Ala Gly Thr Asp Ser Leu Phe Gln
 195 200 205
 Thr Gly Phe Asp Phe Ser Asp Ser Leu Asp Asp Asp Gly Val Tyr Ser
 210 215 220
 Tyr Arg Leu Thr Gly Leu Ala Arg Ser Ala Asn Ala Gln Gln Lys Gly
 225 230 235 240
 Ser Glu Glu Gln Arg Tyr Ala Ile Ala Pro Ala Phe Thr Trp Arg Pro
 245 250 255
 Asp Asp Lys Thr Asn Phe Thr Phe Leu Ser Tyr Phe Gln Asn Glu Pro
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 Glu Thr Gly Tyr Tyr Gly Trp Leu Pro Lys Glu Gly Thr Val Glu Pro
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 305 310 315 320
 His Glu Phe Asn Asp Thr Phe Thr Val Arg Gln Asn Leu Arg Phe Ala
 325 330 335
 Glu Asn Lys Thr Ser Gln Asn Ser Val Tyr Gly Tyr Gly Val Cys Ser
 340 345 350
 Asp Pro Ala Asn Ala Tyr Ser Lys Gln Cys Ala Ala Leu Ala Pro Ala
 355 360 365
 Asp Lys Gly His Tyr Leu Ala Arg Lys Tyr Val Val Asp Asp Glu Lys
 370 375 380
 Leu Gln Asn Phe Ser Val Asp Thr Gln Leu Gln Ser Lys Phe Ala Thr
 385 390 395 400
 Gly Asp Ile Asp His Thr Leu Leu Thr Gly Val Asp Phe Met Arg Met
 405 410 415
 Arg Asn Asp Ile Asn Ala Trp Phe Gly Tyr Asp Asp Ser Val Pro Leu
 420 425 430

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

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Arg Gln Val Val Ala Thr Ala Thr Phe Arg Phe
740 745

<210> 37
<211> 727
<212> PRT
<213> Escherichia coli

<400> 37

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35 40 45

Gly Thr Lys Thr Asp Thr Pro Ile Gln Lys Val Pro Gln Ser Ile Ser
50 55 60

Val Val Thr Ala Glu Glu Met Ala Leu His Gln Pro Lys Ser Val Lys
65 70 75 80

Glu Ala Leu Ser Tyr Thr Pro Gly Val Ser Val Gly Thr Arg Gly Ala
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Ser Asn Thr Tyr Asp His Leu Ile Ile Arg Gly Phe Ala Ala Glu Gly
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Gln Ser Gln Asn Asn Tyr Leu Asn Gly Leu Lys Leu Gln Gly Asn Phe
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Tyr Asn Asp Ala Val Ile Asp Pro Tyr Met Leu Glu Arg Ala Glu Ile
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Met Arg Gly Pro Val Ser Val Leu Tyr Gly Lys Ser Ser Pro Gly Gly
145 150 155 160

Leu Leu Asn Met Val Ser Lys Arg Pro Thr Thr Glu Pro Leu Lys Glu
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Val Gln Phe Lys Ala Gly Thr Asp Ser Leu Phe Gln Thr Gly Phe Asp
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Phe Ser Asp Ser Leu Asp Asp Asp Gly Val Tyr Ser Tyr Arg Leu Thr
Seite 34

195

200

205

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Arg Tyr Ala Ile Ala Pro Ala Phe Thr Trp Arg Pro Asp Asp Lys Thr
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Asn Phe Thr Phe Leu Ser Tyr Phe Gln Asn Glu Pro Glu Thr Gly Tyr
 245 250 255

Tyr Gly Trp Leu Pro Lys Glu Gly Thr Val Glu Pro Leu Pro Asn Gly
 260 265 270

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

Ser Arg Asn Glu Lys Met Val Gly Tyr Ser Phe Asp His Glu Phe Asn
 290 295 300

Asp Thr Phe Thr Val Arg Gln Asn Leu Arg Phe Ala Glu Asn Lys Thr
 305 310 315 320

Ser Gln Asn Ser Val Tyr Gly Tyr Gly Val Cys Ser Asp Pro Ala Asn
 325 330 335

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

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

Ser Val Asp Thr Gln Leu Gln Ser Lys Phe Ala Thr Gly Asp Ile Asp
 370 375 380

His Thr Leu Leu Thr Gly Val Asp Phe Met Arg Met Arg Asn Asp Ile
 385 390 395 400

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

Asn Pro Val Asn Thr Asp Phe Asp Phe Asn Ala Lys Asp Pro Ala Asn
 420 425 430

Ser Gly Pro Tyr Arg Ile Leu Asn Lys Gln Lys Gln Thr Gly Val Tyr
 435 440 445

Val Gln Asp Gln Ala Gln Trp Asp Lys Val Leu Val Thr Leu Gly Gly
 450 455 460

Arg Tyr Asp Trp Ala Asp Gln Glu Ser Leu Asn Arg Val Ala Gly Thr
 465 470 475 480

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Tyr Leu Phe Asp₅₀₀ Asn Gly Val Thr₅₀₅ Tyr Phe Ser Tyr₅₁₀ Ser Glu Ser
Phe Glu Pro₅₁₅ Ser Ser Gln Val Gly₅₂₀ Lys Asp Gly Asn Ile₅₂₅ Phe Ala Pro
Ser Lys₅₃₀ Gly Lys Gln Tyr Glu₅₃₅ Val Gly Val Lys Tyr₅₄₀ Val Pro Glu Asp
Arg Pro Ile Val Val Thr₅₅₀ Gly Ala Val Tyr Asn₅₅₅ Leu Thr Lys Thr Asn₅₆₀
Asn Leu Met Ala Asp₅₆₅ Pro Glu Gly Ser Phe₅₇₀ Phe Ser Val Glu Gly₅₇₅ Gly
Glu Ile Arg Ala₅₈₀ Arg Gly Val Glu Ile₅₈₅ Glu Ala Lys Ala Ala₅₉₀ Leu Ser
Ala Ser Val₅₉₅ Asn Val Val Gly Ser₆₀₀ Tyr Thr Tyr Thr Asp₆₀₅ Ala Glu Tyr
Thr Thr₆₁₀ Asp Thr Thr Tyr Lys₆₁₅ Gly Asn Thr Pro Ala₆₂₀ Gln Val Pro Lys
His Met Ala Ser Leu Trp₆₃₀ Ala Asp Tyr Thr Phe₆₃₅ Phe Asp Gly Pro Leu₆₄₀
Ser Gly Leu Thr Leu₆₄₅ Gly Thr Gly Gly Arg₆₅₀ Tyr Thr Gly Ser Ser₆₅₅ Tyr
Gly Asp Pro Ala₆₆₀ Asn Ser Phe Lys Val₆₆₅ Gly Ser Tyr Thr Val₆₇₀ Val Asp
Ala Leu Val₆₇₅ Arg Tyr Asp Leu Ala₆₈₀ Arg Val Gly Met Ala₆₈₅ Gly Ser Asn
Val Ala₆₉₀ Leu His Val Asn Asn₆₉₅ Leu Phe Asp Arg Glu₇₀₀ Tyr Val Ala Ser
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<211> 707
<212> PRT

<213> Escherichia coli

<400> 38

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Glu Glu Met Ala Leu His Gln Pro Lys Ser Val Lys Glu Ala Leu Ser
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Tyr Thr Pro Gly Val Ser Val Gly Thr Arg Gly Ala Ser Asn Thr Tyr
65 70 75 80

Asp His Leu Ile Ile Arg Gly Phe Ala Ala Glu Gly Gln Ser Gln Asn
85 90 95

Asn Tyr Leu Asn Gly Leu Lys Leu Gln Gly Asn Phe Tyr Asn Asp Ala
100 105 110

Val Ile Asp Pro Tyr Met Leu Glu Arg Ala Glu Ile Met Arg Gly Pro
115 120 125

Val Ser Val Leu Tyr Gly Lys Ser Ser Pro Gly Gly Leu Leu Asn Met
130 135 140

Val Ser Lys Arg Pro Thr Thr Glu Pro Leu Lys Glu Val Gln Phe Lys
145 150 155 160

Ala Gly Thr Asp Ser Leu Phe Gln Thr Gly Phe Asp Phe Ser Asp Ser
165 170 175

Leu Asp Asp Asp Gly Val Tyr Ser Tyr Arg Leu Thr Gly Leu Ala Arg
180 185 190

Ser Ala Asn Ala Gln Gln Lys Gly Ser Glu Glu Gln Arg Tyr Ala Ile
195 200 205

Ala Pro Ala Phe Thr Trp Arg Pro Asp Asp Lys Thr Asn Phe Thr Phe
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Leu Ser Tyr Phe Gln Asn Glu Pro Glu Thr Gly Tyr Tyr Gly Trp Leu
225 230 235 240

Pro Lys Glu Gly Thr Val Glu Pro Leu Pro Asn Gly Lys Arg Leu Pro
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Thr Asp Phe Asn Glu Gly Ala Lys Asn Asn Thr Tyr Ser Arg Asn Glu

260

265

270

Lys Met Val Gly Tyr Ser Phe Asp His Glu Phe Asn Asp Thr Phe Thr
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Val Tyr Gly Tyr Gly Val Cys Ser Asp Pro Ala Asn Ala Tyr Ser Lys
 305 310 315 320

Gln Cys Ala Ala Leu Ala Pro Ala Asp Lys Gly His Tyr Leu Ala Arg
 325 330 335

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Gln Leu Gln Ser Lys Phe Ala Thr Gly Asp Ile Asp His Thr Leu Leu
 355 360 365

Thr Gly Val Asp Phe Met Arg Met Arg Asn Asp Ile Asn Ala Trp Phe
 370 375 380

Gly Tyr Asp Asp Ser Val Pro Leu Leu Asn Leu Tyr Asn Pro Val Asn
 385 390 395 400

Thr Asp Phe Asp Phe Asn Ala Lys Asp Pro Ala Asn Ser Gly Pro Tyr
 405 410 415

Arg Ile Leu Asn Lys Gln Lys Gln Thr Gly Val Tyr Val Gln Asp Gln
 420 425 430

Ala Gln Trp Asp Lys Val Leu Val Thr Leu Gly Gly Arg Tyr Asp Trp
 435 440 445

Ala Asp Gln Glu Ser Leu Asn Arg Val Ala Gly Thr Thr Asp Lys Arg
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Asp Asp Lys Gln Phe Thr Trp Arg Gly Gly Val Asn Tyr Leu Phe Asp
 465 470 475 480

Asn Gly Val Thr Pro Tyr Phe Ser Tyr Ser Glu Ser Phe Glu Pro Ser
 485 490 495

Ser Gln Val Gly Lys Asp Gly Asn Ile Phe Ala Pro Ser Lys Gly Lys
 500 505 510

Gln Tyr Glu Val Gly Val Lys Tyr Val Pro Glu Asp Arg Pro Ile Val
 515 520 525

Val Thr Gly Ala Val Tyr Asn Leu Thr Lys Thr Asn Asn Leu Met Ala
 530 535 540

Asp Pro Glu Gly Ser Phe Phe Ser Val Glu Gly Gly Glu Ile Arg Ala
 545 550 555
 Arg Gly Val Glu Ile Glu Ala Lys Ala Ala Leu Ser Ala Ser Val Asn
 565 570 575
 Val Val Gly Ser Tyr Thr Tyr Thr Asp Ala Glu Tyr Thr Thr Asp Thr
 580 585 590
 Thr Tyr Lys Gly Asn Thr Pro Ala Gln Val Pro Lys His Met Ala Ser
 595 600 605
 Leu Trp Ala Asp Tyr Thr Phe Phe Asp Gly Pro Leu Ser Gly Leu Thr
 610 615 620
 Leu Gly Thr Gly Gly Arg Tyr Thr Gly Ser Ser Tyr Gly Asp Pro Ala
 625 630 635 640
 Asn Ser Phe Lys Val Gly Ser Tyr Thr Val Val Asp Ala Leu Val Arg
 645 650 655
 Tyr Asp Leu Ala Arg Val Gly Met Ala Gly Ser Asn Val Ala Leu His
 660 665 670
 Val Asn Asn Leu Phe Asp Arg Glu Tyr Val Ala Ser Cys Phe Asn Thr
 675 680 685
 Tyr Gly Cys Phe Trp Gly Ala Glu Arg Gln Val Val Ala Thr Ala Thr
 690 695 700
 Phe Arg Phe
 705

<210> 39
 <211> 683
 <212> PRT
 <213> Escherichia coli

<400> 39

Met Ala Arg Ser Lys Thr Ala Gln Pro Lys His Ser Leu Arg Lys Ile
 1 5 10 15
 Ala Val Val Val Ala Thr Ala Val Ser Gly Met Ser Val Tyr Ala Gln
 20 25 30
 Ala Ser Val Lys Glu Ala Leu Ser Tyr Thr Pro Gly Val Ser Val Gly
 35 40 45
 Thr Arg Gly Ala Ser Asn Thr Tyr Asp His Leu Ile Ile Arg Gly Phe
 50 55 60

Ala Ala Glu Gly Gln Ser Gln Asn Asn Tyr Leu Asn Gly Leu Lys Leu
65 70 75 80

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

Arg Ala Glu Ile Met Arg Gly Pro Val Ser Val Leu Tyr Gly Lys Ser
100 105 110

Ser Pro Gly Gly Leu Leu Asn Met Val Ser Lys Arg Pro Thr Thr Glu
115 120 125

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

Thr Gly Phe Asp Phe Ser Asp Ser Leu Asp Asp Asp Gly Val Tyr Ser
145 150 155 160

Tyr Arg Leu Thr Gly Leu Ala Arg Ser Ala Asn Ala Gln Gln Lys Gly
165 170 175

Ser Glu Glu Gln Arg Tyr Ala Ile Ala Pro Ala Phe Thr Trp Arg Pro
180 185 190

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

Glu Thr Gly Tyr Tyr Gly Trp Leu Pro Lys Glu Gly Thr Val Glu Pro
210 215 220

Leu Pro Asn Gly Lys Arg Leu Pro Thr Asp Phe Asn Glu Gly Ala Lys
225 230 235 240

Asn Asn Thr Tyr Ser Arg Asn Glu Lys Met Val Gly Tyr Ser Phe Asp
245 250 255

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

Glu Asn Lys Thr Ser Gln Asn Ser Val Tyr Gly Tyr Gly Val Cys Ser
275 280 285

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

Asp Lys Gly His Tyr Leu Ala Arg Lys Tyr Val Val Asp Asp Glu Lys
305 310 315 320

Leu Gln Asn Phe Ser Val Asp Thr Gln Leu Gln Ser Lys Phe Ala Thr
325 330 335

Gly Asp Ile Asp His Thr Leu Leu Thr Gly Val Asp Phe Met Arg Met
Seite 40

340

345

350

Arg Asn Asp Ile Asn Ala Trp Phe Gly Tyr Asp Asp Ser Val Pro Leu
 355 360 365

Leu Asn Leu Tyr Asn Pro Val Asn Thr Asp Phe Asp Phe Asn Ala Lys
 370 375 380

Asp Pro Ala Asn Ser Gly Pro Tyr Arg Ile Leu Asn Lys Gln Lys Gln
 385 390 395 400

Thr Gly Val Tyr Val Gln Asp Gln Ala Gln Trp Asp Lys Val Leu Val
 405 410 415

Thr Leu Gly Gly Arg Tyr Asp Trp Ala Asp Gln Glu Ser Leu Asn Arg
 420 425 430

Val Ala Gly Thr Thr Asp Lys Arg Asp Asp Lys Gln Phe Thr Trp Arg
 435 440 445

Gly Gly Val Asn Tyr Leu Phe Asp Asn Gly Val Thr Pro Tyr Phe Ser
 450 455 460

Tyr Ser Glu Ser Phe Glu Pro Ser Ser Gln Val Gly Lys Asp Gly Asn
 465 470 475 480

Ile Phe Ala Pro Ser Lys Gly Lys Gln Tyr Glu Val Gly Val Lys Tyr
 485 490 495

Val Pro Glu Asp Arg Pro Ile Val Val Thr Gly Ala Val Tyr Asn Leu
 500 505 510

Thr Lys Thr Asn Asn Leu Met Ala Asp Pro Glu Gly Ser Phe Phe Ser
 515 520 525

Val Glu Gly Gly Glu Ile Arg Ala Arg Gly Val Glu Ile Glu Ala Lys
 530 535 540

Ala Ala Leu Ser Ala Ser Val Asn Val Val Gly Ser Tyr Thr Tyr Thr
 545 550 555 560

Asp Ala Glu Tyr Thr Thr Asp Thr Thr Tyr Lys Gly Asn Thr Pro Ala
 565 570 575

Gln Val Pro Lys His Met Ala Ser Leu Trp Ala Asp Tyr Thr Phe Phe
 580 585 590

Asp Gly Pro Leu Ser Gly Leu Thr Leu Gly Thr Gly Gly Arg Tyr Thr
 595 600 605

Gly Ser Ser Tyr Gly Asp Pro Ala Asn Ser Phe Lys Val Gly Ser Tyr
 610 615 620

Thr Val Val Asp Ala Leu Val Arg Tyr Asp Leu Ala Arg Val Gly Met
625 630 635 640

Ala Gly Ser Asn Val Ala Leu His Val Asn Asn Leu Phe Asp Arg Glu
645 650 655

Tyr Val Ala Ser Cys Phe Asn Thr Tyr Gly Cys Phe Trp Gly Ala Glu
660 665 670

Arg Gln Val Val Ala Thr Ala Thr Phe Arg Phe
675 680

<210> 40
<211> 642
<212> PRT
<213> Escherichia coli

<400> 40

Met Ala Arg Ser Lys Thr Ala Gln Pro Lys His Ser Leu Arg Lys Ile
1 5 10 15

Ala Val Val Val Ala Thr Ala Val Ser Gly Met Ser Val Tyr Ala Gln
20 25 30

Ala Leu Asn Gly Leu Lys Leu Gln Gly Asn Phe Tyr Asn Asp Ala Val
35 40 45

Ile Asp Pro Tyr Met Leu Glu Arg Ala Glu Ile Met Arg Gly Pro Val
50 55 60

Ser Val Leu Tyr Gly Lys Ser Ser Pro Gly Gly Leu Leu Asn Met Val
65 70 75 80

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

Gly Thr Asp Ser Leu Phe Gln Thr Gly Phe Asp Phe Ser Asp Ser Leu
100 105 110

Asp Asp Asp Gly Val Tyr Ser Tyr Arg Leu Thr Gly Leu Ala Arg Ser
115 120 125

Ala Asn Ala Gln Gln Lys Gly Ser Glu Glu Gln Arg Tyr Ala Ile Ala
130 135 140

Pro Ala Phe Thr Trp Arg Pro Asp Asp Lys Thr Asn Phe Thr Phe Leu
145 150 155 160

Ser Tyr Phe Gln Asn Glu Pro Glu Thr Gly Tyr Tyr Gly Trp Leu Pro
165 170 175

Lys Glu Gly Thr Val Glu Pro Leu Pro Asn Gly Lys Arg Leu Pro Thr
180 185 190

Asp Phe Asn Glu Gly Ala Lys Asn Asn Thr Tyr Ser Arg Asn Glu Lys
195 200 205

Met Val Gly Tyr Ser Phe Asp His Glu Phe Asn Asp Thr Phe Thr Val
210 215 220

Arg Gln Asn Leu Arg Phe Ala Glu Asn Lys Thr Ser Gln Asn Ser Val
225 230 235 240

Tyr Gly Tyr Gly Val Cys Ser Asp Pro Ala Asn Ala Tyr Ser Lys Gln
245 250 255

Cys Ala Ala Leu Ala Pro Ala Asp Lys Gly His Tyr Leu Ala Arg Lys
260 265 270

Tyr Val Val Asp Asp Glu Lys Leu Gln Asn Phe Ser Val Asp Thr Gln
275 280 285

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

Gly Val Asp Phe Met Arg Met Arg Asn Asp Ile Asn Ala Trp Phe Gly
305 310 315 320

Tyr Asp Asp Ser Val Pro Leu Leu Asn Leu Tyr Asn Pro Val Asn Thr
325 330 335

Asp Phe Asp Phe Asn Ala Lys Asp Pro Ala Asn Ser Gly Pro Tyr Arg
340 345 350

Ile Leu Asn Lys Gln Lys Gln Thr Gly Val Tyr Val Gln Asp Gln Ala
355 360 365

Gln Trp Asp Lys Val Leu Val Thr Leu Gly Gly Arg Tyr Asp Trp Ala
370 375 380

Asp Gln Glu Ser Leu Asn Arg Val Ala Gly Thr Thr Asp Lys Arg Asp
385 390 395 400

Asp Lys Gln Phe Thr Trp Arg Gly Gly Val Asn Tyr Leu Phe Asp Asn
405 410 415

Gly Val Thr Pro Tyr Phe Ser Tyr Ser Glu Ser Phe Glu Pro Ser Ser
420 425 430

Gln Val Gly Lys Asp Gly Asn Ile Phe Ala Pro Ser Lys Gly Lys Gln
435 440 445

Tyr Glu Val Gly Val Lys Tyr Val Pro Glu Asp Arg Pro Ile Val Val
Seite 43

450

455

460

Thr Gly Ala Val Tyr Asn Leu Thr Lys Thr Asn Asn Leu Met Ala Asp
 465 470 475 480

Pro Glu Gly Ser Phe Phe Ser Val Glu Gly Gly Glu Ile Arg Ala Arg
 485 490 495

Gly Val Glu Ile Glu Ala Lys Ala Ala Leu Ser Ala Ser Val Asn Val
 500 505 510

Val Gly Ser Tyr Thr Tyr Thr Asp Ala Glu Tyr Thr Thr Asp Thr Thr
 515 520 525

Tyr Lys Gly Asn Thr Pro Ala Gln Val Pro Lys His Met Ala Ser Leu
 530 535 540

Trp Ala Asp Tyr Thr Phe Phe Asp Gly Pro Leu Ser Gly Leu Thr Leu
 545 550 555 560

Gly Thr Gly Gly Arg Tyr Thr Gly Ser Ser Tyr Gly Asp Pro Ala Asn
 565 570 575

Ser Phe Lys Val Gly Ser Tyr Thr Val Val Asp Ala Leu Val Arg Tyr
 580 585 590

Asp Leu Ala Arg Val Gly Met Ala Gly Ser Asn Val Ala Leu His Val
 595 600 605

Asn Asn Leu Phe Asp Arg Glu Tyr Val Ala Ser Cys Phe Asn Thr Tyr
 610 615 620

Gly Cys Phe Trp Gly Ala Glu Arg Gln Val Val Ala Thr Ala Thr Phe
 625 630 635 640

Arg Phe

<210> 41

<211> 587

<212> PRT

<213> Escherichia coli

<400> 41

Met Ala Arg Ser Lys Thr Ala Gln Pro Lys His Ser Leu Arg Lys Ile
 1 5 10 15

Ala Val Val Val Ala Thr Ala Val Ser Gly Met Ser Val Tyr Ala Gln
 20 25 30

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

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Thr Gly Phe Asp Phe Ser Asp Ser Leu Asp Asp Asp Gly Val Tyr Ser
 50 55 60
 Tyr Arg Leu Thr Gly Leu Ala Arg Ser Ala Asn Ala Gln Gln Lys Gly
 65 70 75 80
 Ser Glu Glu Gln Arg Tyr Ala Ile Ala Pro Ala Phe Thr Trp Arg Pro
 85 90 95
 Asp Asp Lys Thr Asn Phe Thr Phe Leu Ser Tyr Phe Gln Asn Glu Pro
 100 105 110
 Glu Thr Gly Tyr Tyr Gly Trp Leu Pro Lys Glu Gly Thr Val Glu Pro
 115 120 125
 Leu Pro Asn Gly Lys Arg Leu Pro Thr Asp Phe Asn Glu Gly Ala Lys
 130 135 140
 Asn Asn Thr Tyr Ser Arg Asn Glu Lys Met Val Gly Tyr Ser Phe Asp
 145 150 155 160
 His Glu Phe Asn Asp Thr Phe Thr Val Arg Gln Asn Leu Arg Phe Ala
 165 170 175
 Glu Asn Lys Thr Ser Gln Asn Ser Val Tyr Gly Tyr Gly Val Cys Ser
 180 185 190
 Asp Pro Ala Asn Ala Tyr Ser Lys Gln Cys Ala Ala Leu Ala Pro Ala
 195 200 205
 Asp Lys Gly His Tyr Leu Ala Arg Lys Tyr Val Val Asp Asp Glu Lys
 210 215 220
 Leu Gln Asn Phe Ser Val Asp Thr Gln Leu Gln Ser Lys Phe Ala Thr
 225 230 235 240
 Gly Asp Ile Asp His Thr Leu Leu Thr Gly Val Asp Phe Met Arg Met
 245 250 255
 Arg Asn Asp Ile Asn Ala Trp Phe Gly Tyr Asp Asp Ser Val Pro Leu
 260 265 270
 Leu Asn Leu Tyr Asn Pro Val Asn Thr Asp Phe Asp Phe Asn Ala Lys
 275 280 285
 Asp Pro Ala Asn Ser Gly Pro Tyr Arg Ile Leu Asn Lys Gln Lys Gln
 290 295 300
 Thr Gly Val Tyr Val Gln Asp Gln Ala Gln Trp Asp Lys Val Leu Val
 305 310 315 320

Thr Leu Gly Gly Arg Tyr Asp Trp Ala Asp Gln Glu Ser Leu Asn Arg
 325 330 335
 Val Ala Gly Thr Thr Asp Lys Arg Asp Asp Lys Gln Phe Thr Trp Arg
 340 345 350
 Gly Gly Val Asn Tyr Leu Phe Asp Asn Gly Val Thr Pro Tyr Phe Ser
 355 360 365
 Tyr Ser Glu Ser Phe Glu Pro Ser Ser Gln Val Gly Lys Asp Gly Asn
 370 375 380
 Ile Phe Ala Pro Ser Lys Gly Lys Gln Tyr Glu Val Gly Val Lys Tyr
 385 390 395 400
 Val Pro Glu Asp Arg Pro Ile Val Val Thr Gly Ala Val Tyr Asn Leu
 405 410 415
 Thr Lys Thr Asn Asn Leu Met Ala Asp Pro Glu Gly Ser Phe Phe Ser
 420 425 430
 Val Glu Gly Gly Glu Ile Arg Ala Arg Gly Val Glu Ile Glu Ala Lys
 435 440 445
 Ala Ala Leu Ser Ala Ser Val Asn Val Val Gly Ser Tyr Thr Tyr Thr
 450 455 460
 Asp Ala Glu Tyr Thr Thr Asp Thr Thr Tyr Lys Gly Asn Thr Pro Ala
 465 470 475 480
 Gln Val Pro Lys His Met Ala Ser Leu Trp Ala Asp Tyr Thr Phe Phe
 485 490 495
 Asp Gly Pro Leu Ser Gly Leu Thr Leu Gly Thr Gly Gly Arg Tyr Thr
 500 505 510
 Gly Ser Ser Tyr Gly Asp Pro Ala Asn Ser Phe Lys Val Gly Ser Tyr
 515 520 525
 Thr Val Val Asp Ala Leu Val Arg Tyr Asp Leu Ala Arg Val Gly Met
 530 535 540
 Ala Gly Ser Asn Val Ala Leu His Val Asn Asn Leu Phe Asp Arg Glu
 545 550 555 560
 Tyr Val Ala Ser Cys Phe Asn Thr Tyr Gly Cys Phe Trp Gly Ala Glu
 565 570 575
 Arg Gln Val Val Ala Thr Ala Thr Phe Arg Phe
 580 585

<211> 281

<212> PRT

<213> Escherichia coli

<400> 42

Met Ser Gln Thr Ser Thr Leu Lys Gly Gln Cys Ile Ala Glu Phe Leu
 1 5 10 15

Gly Thr Gly Leu Leu Ile Phe Phe Gly Val Gly Cys Val Ala Ala Leu
 20 25 30

Lys Val Ala Gly Ala Ser Phe Gly Gln Trp Glu Ile Ser Val Ile Trp
 35 40 45

Gly Leu Gly Val Ala Met Ala Ile Tyr Leu Thr Ala Gly Val Ser Gly
 50 55 60

Ala His Leu Asn Pro Ala Val Thr Ile Ala Leu Trp Leu Phe Ala Cys
 65 70 75 80

Phe Asp Lys Arg Lys Val Ile Pro Phe Ile Val Ser Gln Val Ala Gly
 85 90 95

Ala Phe Cys Ala Ala Ala Leu Val Tyr Gly Leu Tyr Tyr Asn Leu Phe
 100 105 110

Phe Asp Phe Glu Gln Thr His His Ile Val Arg Gly Ser Val Glu Ser
 115 120 125

Val Asp Leu Ala Gly Thr Phe Ser Thr Tyr Pro Asn Pro His Ile Asn
 130 135 140

Phe Val Gln Ala Phe Ala Val Glu Met Val Ile Thr Ala Ile Leu Met
 145 150 155 160

Gly Leu Ile Leu Ala Leu Thr Asp Asp Gly Asn Gly Val Pro Arg Gly
 165 170 175

Pro Leu Ala Pro Leu Leu Ile Gly Leu Leu Ile Ala Val Ile Gly Ala
 180 185 190

Ser Met Gly Pro Leu Thr Gly Phe Ala Met Asn Pro Ala Arg Asp Phe
 195 200 205

Gly Pro Lys Val Phe Ala Trp Leu Ala Gly Trp Gly Asn Val Ala Phe
 210 215 220

Thr Gly Gly Arg Asp Ile Pro Tyr Phe Leu Val Pro Leu Phe Gly Pro
 225 230 235 240

Ile Val Gly Ala Ile Val Gly Ala Phe Ala Tyr Arg Lys Leu Ile Gly
 245 250 255

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Arg His Leu Pro Cys Asp Ile Cys Val Val Glu Glu Lys Glu Thr Thr
260 265 270

Thr Pro Ser Glu Gln Lys Ala Ser Leu
275 280

<210> 43

<211> 362

<212> PRT

<213> Escherichia coli

<400> 43

Met Met Lys Arg Asn Ile Leu Ala Val Ile Val Pro Ala Leu Leu Val
1 5 10 15

Ala Gly Thr Ala Asn Ala Ala Glu Ile Tyr Asn Lys Asp Gly Asn Lys
20 25 30

Val Asp Leu Tyr Gly Lys Ala Val Gly Leu His Tyr Phe Ser Lys Gly
35 40 45

Asn Gly Glu Asn Ser Tyr Gly Gly Asn Gly Asp Met Thr Tyr Ala Arg
50 55 60

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

Gly Gln Trp Glu Tyr Asn Phe Gln Gly Asn Asn Ser Glu Gly Ala Asp
85 90 95

Ala Gln Thr Gly Asn Lys Thr Arg Leu Ala Phe Ala Gly Leu Lys Tyr
100 105 110

Ala Asp Val Gly Ser Phe Asp Tyr Gly Arg Asn Tyr Gly Val Val Tyr
115 120 125

Asp Ala Leu Gly Tyr Thr Asp Met Leu Pro Glu Phe Gly Gly Asp Thr
130 135 140

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

Tyr Arg Asn Ser Asn Phe Phe Gly Leu Val Asp Gly Leu Asn Phe Ala
165 170 175

Val Gln Tyr Leu Gly Lys Asn Glu Arg Asp Thr Ala Arg Arg Ser Asn
180 185 190

Gly Asp Gly Val Gly Gly Ser Ile Ser Tyr Glu Tyr Glu Gly Phe Gly
195 200 205

Ile Val Gly Ala Tyr Gly Ala Ala Asp Arg Thr Asn Leu Gln Glu Ala

210

215

220

Gln Pro Leu Gly Asn Gly Lys Lys Ala Glu Gln Trp Ala Thr Gly Leu
225 230 235 240

Lys Tyr Asp Ala Asn Asn Ile Tyr Leu Ala Ala Asn Tyr Gly Glu Thr
245 250 255

Arg Asn Ala Thr Pro Ile Thr Asn Lys Phe Thr Asn Thr Ser Gly Phe
260 265 270

Ala Asn Lys Thr Gln Asp Val Leu Leu Val Ala Gln Tyr Gln Phe Asp
275 280 285

Phe Gly Leu Arg Pro Ser Ile Ala Tyr Thr Lys Ser Lys Ala Lys Asp
290 295 300

Val Glu Gly Ile Gly Asp Val Asp Leu Val Asn Tyr Phe Glu Val Gly
305 310 315 320

Ala Thr Tyr Tyr Phe Asn Lys Asn Met Ser Thr Tyr Val Asp Tyr Ile
325 330 335

Ile Asn Gln Ile Asp Ser Asp Asn Lys Leu Gly Val Gly Ser Asp Asp
340 345 350

Thr Val Ala Val Gly Ile Val Tyr Gln Phe
355 360

<210> 44
<211> 346
<212> PRT
<213> Escherichia coli

<400> 44

Met Lys Lys Thr Ala Ile Ala Ile Ala Val Ala Leu Ala Gly Phe Ala
1 5 10 15

Thr Val Ala Gln Ala Ala Pro Lys Asp Asn Thr Trp Tyr Thr Gly Ala
20 25 30

Lys Leu Gly Trp Ser Gln Tyr His Asp Thr Gly Phe Ile Asn Asn Asn
35 40 45

Gly Pro Thr His Glu Asn Gln Leu Gly Ala Gly Ala Phe Gly Gly Tyr
50 55 60

Gln Val Asn Pro Tyr Val Gly Phe Glu Met Gly Tyr Asp Trp Leu Gly
65 70 75 80

Arg Met Pro Tyr Lys Gly Ser Val Glu Asn Gly Ala Tyr Lys Ala Gln
85 90 95

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Gly Val Gln Leu Thr Ala Lys Leu Gly Tyr Pro Ile Thr Asp Asp Leu
100 105 110

Asp Ile Tyr Thr Arg Leu Gly Gly Met Val Trp Arg Ala Asp Thr Lys
115 120 125

Ser Asn Val Tyr Gly Lys Asn His Asp Thr Gly Val Ser Pro Val Phe
130 135 140

Ala Gly Gly Val Glu Tyr Ala Ile Thr Pro Glu Ile Ala Thr Arg Leu
145 150 155 160

Glu Tyr Gln Trp Thr Asn Asn Ile Gly Asp Ala His Thr Ile Gly Thr
165 170 175

Arg Pro Asp Asn Gly Met Leu Ser Leu Gly Val Ser Tyr Arg Phe Gly
180 185 190

Gln Gly Glu Ala Ala Pro Val Val Ala Pro Ala Pro Ala Pro Ala Pro
195 200 205

Glu Val Gln Thr Lys His Phe Thr Leu Lys Ser Asp Val Leu Phe Asn
210 215 220

Phe Asn Lys Ala Thr Leu Lys Pro Glu Gly Gln Ala Ala Leu Asp Gln
225 230 235 240

Leu Tyr Ser Gln Leu Ser Asn Leu Asp Pro Lys Asp Gly Ser Val Val
245 250 255

Val Leu Gly Tyr Thr Asp Arg Ile Gly Ser Asp Ala Tyr Asn Gln Gly
260 265 270

Leu Ser Glu Arg Arg Ala Gln Ser Val Val Asp Tyr Leu Ile Ser Lys
275 280 285

Gly Ile Pro Ala Asp Lys Ile Ser Ala Arg Gly Met Gly Glu Ser Asn
290 295 300

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

Ile Asp Cys Leu Ala Pro Asp Arg Arg Val Glu Ile Glu Val Lys Gly
325 330 335

Ile Lys Asp Val Val Thr Gln Pro Gln Ala
340 345

<210> 45
<211> 301
<212> PRT
<213> Escherichia coli

<400> 45

Met Lys Lys Leu Leu Pro Cys Thr Ala Leu Val Met Cys Ala Gly Met
 1 5 10 15
 Ala Cys Ala Gln Ala Glu Glu Arg Asn Asp Trp His Phe Asn Ile Gly
 20 25 30
 Ala Met Tyr Glu Ile Glu Asn Val Glu Gly Tyr Gly Glu Asp Met Asp
 35 40 45
 Gly Leu Ala Glu Pro Ser Val Tyr Phe Asn Ala Ala Asn Gly Pro Trp
 50 55 60
 Arg Ile Ala Leu Ala Tyr Tyr Gln Glu Gly Pro Val Asp Tyr Ser Ala
 65 70 75 80
 Gly Lys Arg Gly Thr Trp Phe Asp Arg Pro Glu Leu Glu Val His Tyr
 85 90 95
 Gln Phe Leu Glu Asn Asp Asp Phe Ser Phe Gly Leu Thr Gly Gly Phe
 100 105 110
 Arg Asn Tyr Gly Tyr His Tyr Val Asp Glu Pro Gly Lys Asp Thr Ala
 115 120 125
 Asn Met Gln Arg Trp Lys Ile Ala Pro Asp Trp Asp Val Lys Leu Thr
 130 135 140
 Asp Asp Leu Arg Phe Asn Gly Trp Leu Ser Met Tyr Lys Phe Ala Asn
 145 150 155 160
 Asp Leu Asn Thr Thr Gly Tyr Ala Asp Thr Arg Val Glu Thr Glu Thr
 165 170 175
 Gly Leu Gln Tyr Thr Phe Asn Glu Thr Val Ala Leu Arg Val Asn Tyr
 180 185 190
 Tyr Leu Glu Arg Gly Phe Asn Met Asp Asp Ser Arg Asn Asn Gly Glu
 195 200 205
 Phe Ser Thr Gln Glu Ile Arg Ala Tyr Leu Pro Leu Thr Leu Gly Asn
 210 215 220
 His Ser Val Thr Pro Tyr Thr Arg Ile Gly Leu Asp Arg Trp Ser Asn
 225 230 235 240
 Trp Asp Trp Gln Asp Asp Ile Glu Arg Glu Gly His Asp Phe Asn Arg
 245 250 255
 Val Gly Leu Phe Tyr Gly Tyr Asp Phe Gln Asn Gly Leu Ser Val Ser
 260 265 270

Leu Glu Tyr Ala Phe Glu Trp Gln Asp His Asp Glu Gly Asp Ser Asp
275 280 285

Lys Phe His Tyr Ala Gly Val Gly Val Asn Tyr Ser Phe
290 295 300

<210> 46
<211> 367
<212> PRT
<213> Escherichia coli
<400> 46

Met Lys Val Lys Val Leu Ser Leu Leu Val Pro Ala Leu Leu Val Ala
1 5 10 15

Gly Ala Ala Asn Ala Ala Glu Val Tyr Asn Lys Asp Gly Asn Lys Leu
20 25 30

Asp Leu Tyr Gly Lys Val Asp Gly Leu His Tyr Phe Ser Asp Asn Lys
35 40 45

Asp Val Asp Gly Asp Gln Thr Tyr Met Arg Leu Gly Phe Lys Gly Glu
50 55 60

Thr Gln Val Thr Asp Gln Leu Thr Gly Tyr Gly Gln Trp Glu Tyr Gln
65 70 75 80

Ile Gln Gly Asn Ser Ala Glu Asn Glu Asn Asn Ser Trp Thr Arg Val
85 90 95

Ala Phe Ala Gly Leu Lys Phe Gln Asp Val Gly Ser Phe Asp Tyr Gly
100 105 110

Arg Asn Tyr Gly Val Val Tyr Asp Val Thr Ser Trp Thr Asp Val Leu
115 120 125

Pro Glu Phe Gly Gly Asp Thr Tyr Gly Ser Asp Asn Phe Met Gln Gln
130 135 140

Arg Gly Asn Gly Phe Ala Thr Tyr Arg Asn Thr Asp Phe Phe Gly Leu
145 150 155 160

Val Asp Gly Leu Asn Phe Ala Val Gln Tyr Gln Gly Lys Asn Gly Asn
165 170 175

Pro Ser Gly Glu Gly Phe Thr Ser Gly Val Thr Asn Asn Gly Arg Asp
180 185 190

Ala Leu Arg Gln Asn Gly Asp Gly Val Gly Gly Ser Ile Thr Tyr Asp
195 200 205

Tyr Glu Gly Phe Gly Ile Gly Gly Ala Ile Ser Ser Ser Lys Arg Thr
210 215 220

Asp Ala Gln Asn Thr Ala Ala Tyr Ile Gly Asn Gly Asp Arg Ala Glu
225 230 235 240

Thr Tyr Thr Gly Gly Leu Lys Tyr Asp Ala Asn Asn Ile Tyr Leu Ala
245 250 255

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

Trp Ala Asn Lys Ala Gln Asn Phe Glu Ala Val Ala Gln Tyr Gln Phe
275 280 285

Asp Phe Gly Leu Arg Pro Ser Leu Ala Tyr Leu Gln Ser Lys Gly Lys
290 295 300

Asn Leu Gly Arg Gly Tyr Asp Asp Glu Asp Ile Leu Lys Tyr Val Asp
305 310 315 320

Val Gly Ala Thr Tyr Tyr Phe Asn Lys Asn Met Ser Thr Tyr Val Asp
325 330 335

Tyr Lys Ile Asn Leu Leu Asp Asp Asn Gln Phe Thr Arg Asp Ala Gly
340 345 350

Ile Asn Thr Asp Asn Ile Val Ala Leu Gly Leu Val Tyr Gln Phe
355 360 365

<210> 47
<211> 230
<212> PRT
<213> Escherichia coli
<400> 47

Met Lys Lys Ile Asn Ala Ile Ile Leu Leu Ser Ser Leu Thr Ser Ala
1 5 10 15

Ser Val Phe Ala Gly Ala Tyr Val Glu Asn Arg Glu Ala Tyr Asn Leu
20 25 30

Ala Ser Asp Gln Gly Glu Val Met Leu Arg Val Gly Tyr Asn Phe Asp
35 40 45

Met Gly Ala Gly Ile Met Leu Thr Asn Thr Tyr Asn Phe Gln Arg Glu
50 55 60

Asp Glu Leu Lys His Gly Tyr Asn Glu Ile Glu Gly Trp Tyr Pro Leu
65 70 75 80

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

Asp Lys Ser Ile Gly Ser Gly Gly Ala Val Tyr Leu Asp Val Asn Tyr
100 105 110

Lys Phe Val Pro Trp Phe Asn Leu Thr Val Arg Asn Arg Tyr Asn His
115 120 125

Asn Asn Tyr Ser Ser Thr Asp Leu Ser Gly Glu Leu Asp Asn Asn Asp
130 135 140

Thr Tyr Glu Ile Gly Thr Tyr Trp Asn Phe Lys Ile Thr Asp Lys Phe
145 150 155 160

Ser Tyr Thr Phe Glu Pro His Tyr Phe Met Arg Val Asn Asp Phe Asn
165 170 175

Ser Ser Asn Gly Lys Asp His His Trp Glu Ile Thr Asn Thr Phe Arg
180 185 190

Tyr Arg Ile Asn Glu His Trp Leu Pro Tyr Phe Glu Leu Arg Trp Leu
195 200 205

Asp Arg Asn Val Glu Pro Tyr His Arg Glu Gln Asn Gln Ile Arg Ile
210 215 220

Gly Thr Lys Tyr Phe Phe
225 230

<210> 48
<211> 317
<212> PRT
<213> Escherichia coli

<400> 48

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

Ser Ser Phe Ala Ser Thr Glu Thr Leu Ser Phe Thr Pro Asp Asn Ile
20 25 30

Asn Ala Asp Ile Ser Leu Gly Thr Leu Ser Gly Lys Thr Lys Glu Arg
35 40 45

Val Tyr Leu Ala Glu Glu Gly Gly Arg Lys Val Ser Gln Leu Asp Trp
50 55 60

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

Met Pro Gln Ile Ser Ile Gly Ala Ala Gly Trp Thr Thr Leu Gly Ser
85 90 95

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Arg Gly Gly Asn Met Val Asp Gln Asp Trp Met Asp Ser Ser Asn Pro
100 105 110

Gly Thr Trp Thr Asp Glu Ser Arg His Pro Asp Thr Gln Leu Asn Tyr
115 120 125

Ala Asn Glu Phe Asp Leu Asn Ile Lys Gly Trp Leu Leu Asn Glu Pro
130 135 140

Asn Tyr Arg Leu Gly Leu Met Ala Gly Tyr Gln Glu Ser Arg Tyr Ser
145 150 155 160

Phe Thr Ala Arg Gly Gly Ser Tyr Ile Tyr Ser Ser Glu Glu Gly Phe
165 170 175

Arg Asp Asp Ile Gly Ser Phe Pro Asn Gly Glu Arg Ala Ile Gly Tyr
180 185 190

Lys Gln Arg Phe Lys Met Pro Tyr Ile Gly Leu Thr Gly Ser Tyr Arg
195 200 205

Tyr Glu Asp Phe Glu Leu Gly Gly Thr Phe Lys Tyr Ser Gly Trp Val
210 215 220

Glu Ser Ser Asp Asn Asp Glu His Tyr Asp Pro Gly Lys Arg Ile Thr
225 230 235 240

Tyr Arg Ser Lys Val Lys Asp Gln Asn Tyr Tyr Ser Val Ala Val Asn
245 250 255

Ala Gly Tyr Tyr Val Thr Pro Asn Ala Lys Val Tyr Val Glu Gly Ala
260 265 270

Trp Asn Arg Val Thr Asn Lys Lys Gly Asn Thr Ser Leu Tyr Asp His
275 280 285

Asn Asn Asn Thr Ser Asp Tyr Ser Lys Asn Gly Ala Gly Ile Glu Asn
290 295 300

Tyr Asn Phe Ile Thr Thr Ala Gly Leu Lys Tyr Thr Phe
305 310 315

<210> 49
<211> 351
<212> PRT
<213> Escherichia coli

<400> 49

Met Lys Lys Ser Thr Leu Ala Leu Val Val Met Gly Ile Val Ala Ser
1 5 10 15

Ala Ser Val Gln Ala Ala Glu Ile Tyr Asn Lys Asp Gly Asn Lys Leu
20 25 30

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Asp Val Tyr Gly Lys Val Lys Ala Met His Tyr Met Ser Asp Asn Ala
 35 40 45
 Ser Lys Asp Gly Asp Gln Ser Tyr Ile Arg Phe Gly Phe Lys Gly Glu
 50 55 60
 Thr Gln Ile Asn Asp Gln Leu Thr Gly Tyr Gly Arg Trp Glu Ala Glu
 65 70 75 80
 Phe Ala Gly Asn Lys Ala Glu Ser Asp Thr Ala Gln Gln Lys Thr Arg
 85 90 95
 Leu Ala Phe Ala Gly Leu Lys Tyr Lys Asp Leu Gly Ser Phe Asp Tyr
 100 105 110
 Gly Arg Asn Leu Gly Ala Leu Tyr Asp Val Glu Ala Trp Thr Asp Met
 115 120 125
 Phe Pro Glu Phe Gly Gly Asp Ser Ser Ala Gln Thr Asp Asn Phe Met
 130 135 140
 Thr Lys Arg Ala Ser Gly Leu Ala Thr Tyr Arg Asn Thr Asp Phe Phe
 145 150 155 160
 Gly Val Ile Asp Gly Leu Asn Leu Thr Leu Gln Tyr Gln Gly Lys Asn
 165 170 175
 Glu Asn Arg Asp Val Lys Lys Gln Asn Gly Asp Gly Phe Gly Thr Ser
 180 185 190
 Leu Thr Tyr Asp Phe Gly Gly Ser Asp Phe Ala Ile Ser Gly Ala Tyr
 195 200 205
 Thr Asn Ser Asp Arg Thr Asn Glu Gln Asn Leu Gln Ser Arg Gly Thr
 210 215 220
 Gly Lys Arg Ala Glu Ala Trp Ala Thr Gly Leu Lys Tyr Asp Ala Asn
 225 230 235 240
 Asn Ile Tyr Leu Ala Thr Phe Tyr Ser Glu Thr Arg Lys Met Thr Pro
 245 250 255
 Ile Thr Gly Gly Phe Ala Asn Lys Thr Gln Asn Phe Glu Ala Val Ala
 260 265 270
 Gln Tyr Gln Phe Asp Phe Gly Leu Arg Pro Ser Leu Gly Tyr Val Leu
 275 280 285
 Ser Lys Gly Lys Asp Ile Glu Gly Ile Gly Asp Glu Asp Leu Val Asn
 290 295 300

PF5908220080703_F_60012_PCT_Sequenc.txt

Tyr Ile Asp Val Gly Ala Thr Tyr Tyr Phe Asn Lys Asn Met Ser Ala
305 310 315 320

Phe Val Asp Tyr Lys Ile Asn Gln Leu Asp Ser Asp Asn Lys Leu Asn
325 330 335

Ile Asn Asn Asp Asp Ile Val Ala Val Gly Met Thr Tyr Gln Phe
340 345 350

<210> 50
<211> 446
<212> PRT
<213> Escherichia coli
<400> 50

Met Met Ile Thr Leu Arg Lys Leu Pro Leu Ala Val Ala Val Ala Ala
1 5 10 15

Gly Val Met Ser Ala Gln Ala Met Ala Val Asp Phe His Gly Tyr Ala
20 25 30

Arg Ser Gly Ile Gly Trp Thr Gly Ser Gly Gly Glu Gln Gln Cys Phe
35 40 45

Gln Thr Thr Gly Ala Gln Ser Lys Tyr Arg Leu Gly Asn Glu Cys Glu
50 55 60

Thr Tyr Ala Glu Leu Lys Leu Gly Gln Glu Val Trp Lys Glu Gly Asp
65 70 75 80

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

Asn Asp Trp Glu Ala Thr Asp Pro Ala Phe Arg Glu Ala Asn Val Gln
100 105 110

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

Lys Arg Phe Tyr Gln Arg His Asp Val His Met Ile Asp Phe Tyr Tyr
130 135 140

Trp Asp Ile Ser Gly Pro Gly Ala Gly Leu Glu Asn Ile Asp Val Gly
145 150 155 160

Phe Gly Lys Leu Ser Leu Ala Ala Thr Arg Ser Ser Glu Ala Gly Gly
165 170 175

Ser Ser Ser Phe Ala Ser Asn Asn Ile Tyr Asp Tyr Thr Asn Glu Thr
180 185 190

Ala Asn Asp Val Phe Asp Val Arg Leu Ala Gln Met Glu Ile Asn Pro
Seite 57

195

200

205

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

Asp Asn Tyr Arg Leu Val Asp Gly Ala Ser Lys Asp Gly Trp Leu Phe
 225 230 235 240

Thr Ala Glu His Thr Gln Ser Val Leu Lys Gly Phe Asn Lys Phe Val
 245 250 255

Val Gln Tyr Ala Thr Asp Ser Met Thr Ser Gln Gly Lys Gly Leu Ser
 260 265 270

Gln Gly Ser Gly Val Ala Phe Asp Asn Glu Lys Phe Ala Tyr Asn Ile
 275 280 285

Asn Asn Asn Gly His Met Leu Arg Ile Leu Asp His Gly Ala Ile Ser
 290 295 300

Met Gly Asp Asn Trp Asp Met Met Tyr Val Gly Met Tyr Gln Asp Ile
 305 310 315 320

Asn Trp Asp Asn Asp Asn Gly Thr Lys Trp Trp Thr Val Gly Ile Arg
 325 330 335

Pro Met Tyr Lys Trp Thr Pro Ile Met Ser Thr Val Met Glu Ile Gly
 340 345 350

Tyr Asp Asn Val Glu Ser Gln Arg Thr Gly Asp Lys Asn Asn Gln Tyr
 355 360 365

Lys Ile Thr Leu Ala Gln Gln Trp Gln Ala Gly Asp Ser Ile Trp Ser
 370 375 380

Arg Pro Ala Ile Arg Val Phe Ala Thr Tyr Ala Lys Trp Asp Glu Lys
 385 390 395 400

Trp Gly Tyr Asp Tyr Thr Gly Asn Ala Asp Asn Asn Ala Asn Phe Gly
 405 410 415

Lys Ala Val Pro Ala Asp Phe Asn Gly Gly Ser Phe Gly Arg Gly Asp
 420 425 430

Ser Asp Glu Trp Thr Phe Gly Ala Gln Met Glu Ile Trp Trp
 435 440 445

<210> 51

<211> 774

<212> PRT

<213> Escherichia coli

<400> 51

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Met Thr Pro Leu Arg Val Phe Arg Lys Thr Thr Pro Leu Val Asn Thr
1 5 10 15

Ile Arg Leu Ser Leu Leu Pro Leu Ala Gly Leu Ser Phe Ser Ala Phe
20 25 30

Ala Ala Gln Val Asn Ile Ala Pro Gly Ser Leu Asp Lys Ala Leu Asn
35 40 45

Gln Tyr Ala Ala His Ser Gly Phe Thr Leu Ser Val Asp Ala Ser Leu
50 55 60

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

Ser Gly Leu Gln Gln Leu Leu Asp Gly Ser Gly Leu Gln Val Lys Pro
85 90 95

Leu Gly Asn Asn Ser Trp Thr Leu Glu Pro Ala Pro Ala Pro Lys Glu
100 105 110

Asp Ala Leu Thr Val Val Gly Asp Trp Leu Gly Asp Ala Arg Glu Asn
115 120 125

Asp Val Phe Glu His Ala Gly Ala Arg Asp Val Ile Arg Arg Glu Asp
130 135 140

Phe Ala Lys Thr Gly Ala Thr Thr Met Arg Glu Val Leu Asn Arg Ile
145 150 155 160

Pro Gly Val Ser Ala Pro Glu Asn Asn Gly Thr Gly Ser His Asp Leu
165 170 175

Ala Met Asn Phe Gly Ile Arg Gly Leu Asn Pro Arg Leu Ala Ser Arg
180 185 190

Ser Thr Val Leu Met Asp Gly Ile Pro Val Pro Phe Ala Pro Tyr Gly
195 200 205

Gln Pro Gln Leu Ser Leu Ala Pro Val Ser Leu Gly Asn Met Asp Ala
210 215 220

Ile Asp Val Val Arg Gly Gly Gly Ala Val Arg Tyr Gly Pro Gln Ser
225 230 235 240

Val Gly Gly Val Val Asn Phe Val Thr Arg Ala Ile Pro Gln Asp Phe
245 250 255

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

PF5908220080703_F_60012_PCT_Sequenc.txt

Asn Asn Pro Lys Glu Thr His Asn Leu Met Val Gly Gly Thr Ala Asp
275 280 285

Asn Gly Phe Gly Thr Ala Leu Leu Tyr Ser Gly Thr Arg Gly Ser Asp
290 295 300

Trp Arg Glu His Ser Ala Thr Arg Ile Asp Asp Leu Met Leu Lys Ser
305 310 315 320

Lys Tyr Ala Pro Asp Glu Val His Thr Phe Asn Ser Leu Leu Gln Tyr
325 330 335

Tyr Asp Gly Glu Ala Asp Met Pro Gly Gly Leu Ser Arg Ala Asp Tyr
340 345 350

Asp Ala Asp Arg Trp Gln Ser Thr Arg Pro Tyr Asp Arg Phe Trp Gly
355 360 365

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

His Lys Phe Asn Ile Gln Gly Phe Tyr Thr Gln Thr Leu Arg Ser Gly
385 390 395 400

Tyr Leu Glu Gln Gly Lys Arg Ile Thr Leu Ser Pro Arg Asn Tyr Trp
405 410 415

Val Arg Gly Ile Glu Pro Arg Tyr Ser Gln Ile Phe Met Ile Gly Pro
420 425 430

Ser Ala His Glu Val Gly Val Gly Tyr Arg Tyr Leu Asn Glu Ser Thr
435 440 445

His Glu Met Arg Tyr Tyr Thr Ala Thr Ser Ser Gly Gln Leu Pro Ser
450 455 460

Gly Ser Ser Pro Tyr Asp Arg Asp Thr Arg Ser Gly Thr Glu Ala His
465 470 475 480

Ala Trp Tyr Leu Asp Asp Lys Ile Asp Ile Gly Asn Trp Thr Ile Thr
485 490 495

Pro Gly Met Arg Phe Glu His Ile Glu Ser Tyr Gln Asn Asn Ala Ile
500 505 510

Thr Gly Thr His Glu Glu Val Ser Tyr Asn Ala Pro Leu Pro Ala Leu
515 520 525

Asn Val Leu Tyr His Leu Thr Asp Ser Trp Asn Leu Tyr Ala Asn Thr
530 535 540

Glu Gly Ser Phe Gly Thr Val Gln Tyr Ser Gln Ile Gly Lys Ala Val
Seite 60

545 550 555 560

Gln Ser Gly Asn Val Glu Pro Glu Lys Ala Arg Thr Trp Glu Leu Gly
565 570 575

Thr Arg Tyr Asp Asp Gly Ala Leu Thr Ala Glu Met Gly Leu Phe Leu
580 585 590

Ile Asn Phe Asn Asn Gln Tyr Asp Ser Asn Gln Thr Asn Asp Thr Val
595 600 605

Thr Ala Arg Gly Lys Thr Arg His Thr Gly Leu Glu Thr Gln Ala Arg
610 615 620

Tyr Asp Leu Gly Thr Leu Thr Pro Thr Leu Asp Asn Val Ser Ile Tyr
625 630 635 640

Ala Ser Tyr Ala Tyr Val Asn Ala Glu Ile Arg Glu Lys Gly Asp Thr
645 650 655

Tyr Gly Asn Leu Val Pro Phe Ser Pro Lys His Lys Gly Thr Leu Gly
660 665 670

Val Asp Tyr Lys Pro Gly Asn Trp Thr Phe Asn Leu Asn Ser Asp Phe
675 680 685

Gln Ser Ser Gln Phe Ala Asp Asn Ala Asn Thr Val Lys Glu Ser Ala
690 695 700

Asp Gly Ser Thr Gly Arg Ile Pro Gly Phe Met Leu Trp Gly Ala Arg
705 710 715 720

Val Ala Tyr Asp Phe Gly Pro Gln Met Ala Asp Leu Asn Leu Ala Phe
725 730 735

Gly Val Lys Asn Ile Phe Asp Gln Asp Tyr Phe Ile Arg Ser Tyr Asp
740 745 750

Asp Asn Asn Lys Gly Ile Tyr Ala Gly Gln Pro Arg Thr Leu Tyr Met
755 760 765

Gln Gly Ser Leu Lys Phe
770

<210> 52
<211> 417
<212> PRT
<213> Escherichia coli

<400> 52

Met Tyr Tyr Leu Lys Asn Thr Asn Phe Trp Met Phe Gly Leu Phe Phe
1 5 10 15

PF5908220080703_F_60012_PCT_Sequenc.txt

Phe Phe Tyr Phe Phe Ile Met Gly Ala Tyr Phe Pro Phe Phe Pro Ile
 20 25 30
 Trp Leu His Asp Ile Asn His Ile Ser Lys Ser Asp Thr Gly Ile Ile
 35 40 45
 Phe Ala Ala Ile Ser Leu Phe Ser Leu Leu Phe Gln Pro Leu Phe Gly
 50 55 60
 Leu Leu Ser Asp Lys Leu Gly Leu Arg Lys Tyr Leu Leu Trp Ile Ile
 65 70 75 80
 Thr Gly Met Leu Val Met Phe Ala Pro Phe Phe Ile Phe Ile Phe Gly
 85 90 95
 Pro Leu Leu Gln Tyr Asn Ile Leu Val Gly Ser Ile Val Gly Gly Ile
 100 105 110
 Tyr Leu Gly Phe Cys Phe Asn Ala Gly Ala Pro Ala Val Glu Ala Phe
 115 120 125
 Ile Glu Lys Val Ser Arg Arg Ser Asn Phe Glu Phe Gly Arg Ala Arg
 130 135 140
 Met Phe Gly Cys Val Gly Trp Ala Leu Cys Ala Ser Ile Val Gly Ile
 145 150 155 160
 Met Phe Thr Ile Asn Asn Gln Phe Val Phe Trp Leu Gly Ser Gly Cys
 165 170 175
 Ala Leu Ile Leu Ala Val Leu Leu Phe Phe Ala Lys Thr Asp Ala Pro
 180 185 190
 Ser Ser Ala Thr Val Ala Asn Ala Val Gly Ala Asn His Ser Ala Phe
 195 200 205
 Ser Leu Lys Leu Ala Leu Glu Leu Phe Arg Gln Pro Lys Leu Trp Phe
 210 215 220
 Leu Ser Leu Tyr Val Ile Gly Val Ser Cys Thr Tyr Asp Val Phe Asp
 225 230 235 240
 Gln Gln Phe Ala Asn Phe Phe Thr Ser Phe Phe Ala Thr Gly Glu Gln
 245 250 255
 Gly Thr Arg Val Phe Gly Tyr Val Thr Thr Met Gly Glu Leu Leu Asn
 260 265 270
 Ala Ser Ile Met Phe Phe Ala Pro Leu Ile Ile Asn Arg Ile Gly Gly
 275 280 285

Lys Asn Ala Leu Leu Leu Ala Gly Thr Ile Met Ser Val Arg Ile Ile
290 295 300

Gly Ser Ser Phe Ala Thr Ser Ala Leu Glu Val Val Ile Leu Lys Thr
305 310 315 320

Leu His Met Phe Glu Val Pro Phe Leu Leu Val Gly Cys Phe Lys Tyr
325 330 335

Ile Thr Ser Gln Phe Glu Val Arg Phe Ser Ala Thr Ile Tyr Leu Val
340 345 350

Cys Phe Cys Phe Phe Lys Gln Leu Ala Met Ile Phe Met Ser Val Leu
355 360 365

Ala Gly Asn Met Tyr Glu Ser Ile Gly Phe Gln Gly Ala Tyr Leu Val
370 375 380

Leu Gly Leu Val Ala Leu Gly Phe Thr Leu Ile Ser Val Phe Thr Leu
385 390 395 400

Ser Gly Pro Gly Pro Leu Ser Leu Leu Arg Arg Gln Val Asn Glu Val
405 410 415

Ala

<210> 53
<211> 1049
<212> PRT
<213> Escherichia coli
<400> 53

Met Pro Asn Phe Phe Ile Asp Arg Pro Ile Phe Ala Trp Val Ile Ala
1 5 10 15

Ile Ile Ile Met Leu Ala Gly Gly Leu Ala Ile Leu Lys Leu Pro Val
20 25 30

Ala Gln Tyr Pro Thr Ile Ala Pro Pro Ala Val Thr Ile Ser Ala Ser
35 40 45

Tyr Pro Gly Ala Asp Ala Lys Thr Val Gln Asp Thr Val Thr Gln Val
50 55 60

Ile Glu Gln Asn Met Asn Gly Ile Asp Asn Leu Met Tyr Met Ser Ser
65 70 75 80

Asn Ser Asp Ser Thr Gly Thr Val Gln Ile Thr Leu Thr Phe Glu Ser
85 90 95

Gly Thr Asp Ala Asp Ile Ala Gln Val Gln Val Gln Asn Lys Leu Gln
100 105 110

Leu Ala Met Pro Leu Leu Pro Gln Glu Val Gln Gln Gln Gly Val Ser
 115 120 125
 Val Glu Lys Ser Ser Ser Ser Phe Leu Met Val Val Gly Val Ile Asn
 130 135 140
 Thr Asp Gly Thr Met Thr Gln Glu Asp Ile Ser Asp Tyr Val Ala Ala
 145 150 155 160
 Asn Met Lys Asp Ala Ile Ser Arg Thr Ser Gly Val Gly Asp Val Gln
 165 170 175
 Leu Phe Gly Ser Gln Tyr Ala Met Arg Ile Trp Met Asn Pro Asn Glu
 180 185 190
 Leu Asn Lys Phe Gln Leu Thr Pro Val Asp Val Ile Thr Ala Ile Lys
 195 200 205
 Ala Gln Asn Ala Gln Val Ala Ala Gly Gln Leu Gly Gly Thr Pro Pro
 210 215 220
 Val Lys Gly Gln Gln Leu Asn Ala Ser Ile Ile Ala Gln Thr Arg Leu
 225 230 235 240
 Thr Ser Thr Glu Glu Phe Gly Lys Ile Leu Leu Lys Val Asn Gln Asp
 245 250 255
 Gly Ser Arg Val Leu Leu Arg Asp Val Ala Lys Ile Glu Leu Gly Gly
 260 265 270
 Glu Asn Tyr Asp Ile Ile Ala Glu Phe Asn Gly Gln Pro Ala Ser Gly
 275 280 285
 Leu Gly Ile Lys Leu Ala Thr Gly Ala Asn Ala Leu Asp Thr Ala Ala
 290 295 300
 Ala Ile Arg Ala Glu Leu Ala Lys Met Glu Pro Phe Phe Pro Ser Gly
 305 310 315 320
 Leu Lys Ile Val Tyr Pro Tyr Asp Thr Thr Pro Phe Val Lys Ile Ser
 325 330 335
 Ile His Glu Val Val Lys Thr Leu Val Glu Ala Ile Ile Leu Val Phe
 340 345 350
 Leu Val Met Tyr Leu Phe Leu Gln Asn Phe Arg Ala Thr Leu Ile Pro
 355 360 365
 Thr Ile Ala Val Pro Val Val Leu Leu Gly Thr Phe Ala Val Leu Ala
 370 375 380

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Ala Phe Gly Phe Ser Ile Asn Thr Leu Thr Met Phe Gly Met Val Leu
385 390 395 400

Ala Ile Gly Leu Leu Val Asp Asp Ala Ile Val Val Val Glu Asn Val
405 410 415

Glu Arg Val Met Ala Glu Glu Gly Leu Pro Pro Lys Glu Ala Thr Arg
420 425 430

Lys Ser Met Gly Gln Ile Gln Gly Ala Leu Val Gly Ile Ala Met Val
435 440 445

Leu Ser Ala Val Phe Val Pro Met Ala Phe Phe Gly Gly Ser Thr Gly
450 455 460

Ala Ile Tyr Arg Gln Phe Ser Ile Thr Ile Val Ser Ala Met Ala Leu
465 470 475 480

Ser Val Leu Val Ala Leu Ile Leu Thr Pro Ala Leu Cys Ala Thr Met
485 490 495

Leu Lys Pro Ile Ala Lys Gly Asp His Gly Glu Gly Lys Lys Gly Phe
500 505 510

Phe Gly Trp Phe Asn Arg Met Phe Glu Lys Ser Thr His His Tyr Thr
515 520 525

Asp Ser Val Gly Gly Ile Leu Arg Ser Thr Gly Arg Tyr Leu Val Leu
530 535 540

Tyr Leu Ile Ile Val Val Gly Met Ala Tyr Leu Phe Val Arg Leu Pro
545 550 555 560

Ser Ser Phe Leu Pro Asp Glu Asp Gln Gly Val Phe Met Thr Met Val
565 570 575

Gln Leu Pro Ala Gly Ala Thr Gln Glu Arg Thr Gln Lys Val Leu Asn
580 585 590

Glu Val Thr His Tyr Tyr Leu Thr Lys Glu Lys Asn Asn Val Glu Ser
595 600 605

Val Phe Ala Val Asn Gly Phe Gly Phe Ala Gly Arg Gly Gln Asn Thr
610 615 620

Gly Ile Ala Phe Val Ser Leu Lys Asp Trp Ala Asp Arg Pro Gly Glu
625 630 635 640

Glu Asn Lys Val Glu Ala Ile Thr Met Arg Ala Thr Arg Ala Phe Ser
645 650 655

PF5908220080703_F_60012_PCT_Sequenc.txt

Gln Ile Lys Asp 660 Ala Met Val Phe 665 Ala Phe Asn Leu Pro Ala 670 Ile Val

Glu Leu Gly 675 Thr Ala Thr Gly Phe 680 Asp Phe Glu Leu Ile 685 Asp Gln Ala

Gly Leu Gly 690 His Glu Lys Leu 695 Thr Gln Ala Arg Asn 700 Gln Leu Leu Ala

Glu Ala Ala Lys His 710 Pro Asp Met Leu Thr Ser 715 Val Arg Pro Asn Gly 720

Leu Glu Asp Thr 725 Pro Gln Phe Lys Ile Asp 730 Ile Asp Gln Glu Lys 735 Ala

Gln Ala Leu Gly 740 Val Ser Ile Asn Asp 745 Ile Asn Thr Thr Leu Gly Ala 750

Ala Trp Gly 755 Gly Ser Tyr Val Asn 760 Asp Phe Ile Asp Arg 765 Gly Arg Val

Lys Lys 770 Val Tyr Val Met Ser 775 Glu Ala Lys Tyr Arg 780 Met Leu Pro Asp

Asp 785 Ile Gly Asp Trp Tyr 790 Val Arg Ala Ala Asp 795 Gly Gln Met Val Pro 800

Phe Ser Ala Phe 805 Ser Ser Ser Arg Trp Glu 810 Tyr Gly Ser Pro Arg 815 Leu

Glu Arg Tyr Asn 820 Gly Leu Pro Ser Met 825 Glu Ile Leu Gly Gln 830 Ala Ala

Pro Gly Lys 835 Ser Thr Gly Glu Ala 840 Met Glu Leu Met Glu 845 Gln Leu Ala

Ser Lys 850 Leu Pro Thr Gly Val 855 Gly Tyr Asp Trp Thr 860 Gly Met Ser Tyr

Gln Glu Arg Leu Ser 870 Gly Asn Gln Ala Pro Ser 875 Leu Tyr Ala Ile Ser 880

Leu Ile Val Val 885 Phe Leu Cys Leu Ala 890 Ala Leu Tyr Glu Ser Trp 895 Ser

Ile Pro Phe 900 Val Met Leu Val Val 905 Pro Leu Gly Val Ile 910 Gly Ala

Leu Leu Ala 915 Ala Thr Phe Arg Gly 920 Leu Thr Asn Asp Val 925 Tyr Phe Gln

Val Gly Leu Leu Thr Thr Ile Gly Leu Ser Ala Lys Asn Ala Ile Leu

930

935

940

Ile Val Glu Phe Ala Lys Asp Leu Met Asp Lys Glu Gly Lys Gly Leu
 945 950 955 960

Ile Glu Ala Thr Leu Asp Ala Val Arg Met Arg Leu Arg Pro Ile Leu
 965 970 975

Met Thr Ser Leu Ala Phe Ile Leu Gly Val Met Pro Leu Val Ile Ser
 980 985 990

Thr Gly Ala Gly Ser Gly Ala Gln Asn Ala Val Gly Thr Gly Val Met
 995 1000 1005

Gly Gly Met Val Thr Ala Thr Val Leu Ala Ile Phe Phe Val Pro
 1010 1015 1020

Val Phe Phe Val Val Val Arg Arg Arg Phe Ser Arg Lys Asn Glu
 1025 1030 1035

Asp Ile Glu His Ser His Thr Val Asp His His
 1040 1045

<210> 54
 <211> 262
 <212> PRT
 <213> Halobacterium sp.

<400> 54

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

Ile Thr Gly Arg Pro Glu Trp Ile Trp Leu Ala Leu Gly Thr Ala Leu
 20 25 30

Met Gly Leu Gly Thr Leu Tyr Phe Leu Val Lys Gly Met Gly Val Ser
 35 40 45

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

Ile Ala Phe Thr Met Tyr Leu Ser Met Leu Leu Gly Tyr Gly Leu Thr
 65 70 75 80

Met Val Pro Phe Gly Gly Glu Gln Asn Pro Ile Tyr Trp Ala Arg Tyr
 85 90 95

Ala Asp Trp Leu Phe Thr Thr Pro Leu Leu Leu Asp Leu Ala Leu
 100 105 110

Leu Val Asp Ala Asp Gln Gly Thr Ile Leu Ala Leu Val Gly Ala Asp
 115 120 125

PF5908220080703_F_60012_PCT_Sequenc.txt

Gly Ile Met Ile Gly Thr Gly Leu Val Gly Ala Leu Thr Lys Val Tyr
130 135 140

Ser Tyr Arg Phe Val Trp Trp Ala Ile Ser Thr Ala Ala Met Leu Tyr
145 150 155 160

Ile Leu Tyr Val Leu Phe Phe Gly Phe Thr Ser Lys Ala Glu Ser Met
165 170 175

Arg Pro Glu Val Ala Ser Thr Phe Lys Val Leu Arg Asn Val Thr Val
180 185 190

Val Leu Trp Ser Ala Tyr Pro Val Val Trp Leu Ile Gly Ser Glu Gly
195 200 205

Ala Gly Ile Val Pro Leu Asn Ile Glu Thr Leu Leu Phe Met Val Leu
210 215 220

Asp Val Ser Ala Lys Val Gly Phe Gly Leu Ile Leu Leu Arg Ser Arg
225 230 235 240

Ala Ile Phe Gly Glu Ala Glu Ala Pro Glu Pro Ser Ala Gly Asp Gly
245 250 255

Ala Ala Ala Thr Ser Asp
260

<210> 55
<211> 496
<212> PRT
<213> Aeromonas salmonicida
<400> 55

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

Gly Met Ser Ser Pro Leu Trp Ala Ala Glu Gly Gly Ile Glu Ala Arg
20 25 30

Leu Ala Ala Leu Glu Ala Arg Val Gln Ala Ala Glu Ala Arg Ala Glu
35 40 45

Ala Ala Glu Ser Arg Ala Ser Gln Ala Glu Ile Lys Ala Ser Ala Ala
50 55 60

Ser Glu Glu Ala Gln Val Ala Asn Thr Arg Ser Gln Lys Val Asp Glu
65 70 75 80

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

Gly Leu Leu Val Asn Gly Asn Gly Asn Gly Gly Arg Gly Gly Pro Tyr
Seite 68

100

105

110

Ile Thr Pro Ala Gly Ser Val Gly Gly Ala Val Gly Arg Leu Gly Asn
 115 120 125

Glu Asp Asp Thr Tyr Met Glu Ala Asn Leu Leu Lys Thr Gln Thr Phe
 130 135 140

Asp Asp Gly Ser Trp Ala Arg Tyr Lys Leu Met Leu Ala Asp Gly Val
 145 150 155 160

Glu Thr Ser Asn Asp Trp Thr Ala Ser Asp Ser Ser Leu Asn Thr Arg
 165 170 175

Gln Val Phe Ala Glu Ile Gly Asn Leu Ala Ser Phe Asp Gly Ala Phe
 180 185 190

Lys Asn Ala Val Leu Trp Ala Gly Lys Arg Phe Asp Arg Asp Asn Phe
 195 200 205

Asp Ile His Trp Leu Asp Ser Asp Val Val Phe Leu Ala Gly Thr Gly
 210 215 220

Gly Gly Val Tyr Asp Val Gln Leu Ala Asp Ser Trp Lys Val Asn Phe
 225 230 240

Ser Leu Tyr Gly Arg Asp Tyr Gly Asp Ile Ser Ala Ser Gly Leu Ser
 245 250 255

Asp Ile Glu Ser Tyr Ile Leu Thr Met Asn Asn Arg Phe Gly Asn Trp
 260 265 270

Gln Trp Met Val Asn Gly Leu Leu Ala Asn Asp Asn Glu Gln Arg Ile
 275 280 285

Asn Asp Gly Gly Lys Gly Ser Glu Ala Ala Asp Lys Gly Ala His Thr
 290 295 300

Leu Val Ala Tyr His Ala Asp Ser Phe Phe Gly Ile Asn Pro Gly Phe
 305 310 315 320

Ser Lys Ala Ala Ile Leu Tyr Gly His Gly Leu Gly Ala Glu Leu Lys
 325 330 335

Gly Leu Gly Ser Asp Ser Glu Leu Leu Pro Asp Ala Asp Ala Val Arg
 340 345 350

Val Ala Val Phe Gly Ala Thr Asp Leu Asn Pro Arg Trp Arg Phe Ala
 355 360 365

Pro Ala Leu Leu Ala Glu Gln Ser Gln Asp Arg Tyr Val Lys Gly Asp
 370 375 380

Glu Tyr Gln Trp Leu Thr Leu Asn Thr Arg Val Ala Gln Val Leu Ser
385 390 395 400

Gln Asn Val Glu Leu Val Tyr Glu Ala Ala Trp Gln Tyr Met Asp Leu
405 410 415

Asp Pro Lys Gly Tyr Lys Gly Arg Gln Ala Val Asn Gly Asn Phe Thr
420 425 430

Lys Leu Thr Phe Ala Pro Thr Phe Lys Ala Gln Thr Ala Gly Phe Phe
435 440 445

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

Glu Leu Asp Ser Tyr Ala Ser Asp Asp Ala Met Gly Gln Ser Asn Phe
465 470 475 480

Thr Ala Gly Gly Glu Trp Asn Phe Gly Val Gln Met Glu Thr Trp Phe
485 490 495

<210> 56
<211> 746
<212> PRT
<213> Escherichia coli
<400> 56

Met Asn Lys Lys Ile His Ser Leu Ala Leu Leu Val Asn Leu Gly Ile
1 5 10 15

Tyr Gly Val Ala Gln Ala Gln Glu Pro Thr Asp Thr Pro Val Ser His
20 25 30

Asp Asp Thr Ile Val Val Thr Ala Ala Glu Gln Asn Leu Gln Ala Pro
35 40 45

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

Arg Asp Val Ser Lys Ile Ile Arg Thr Met Pro Gly Val Asn Leu Thr
65 70 75 80

Gly Asn Ser Thr Ser Gly Gln Arg Gly Asn Asn Arg Gln Ile Asp Ile
85 90 95

Arg Gly Met Gly Pro Glu Asn Thr Leu Ile Leu Ile Asp Gly Lys Pro
100 105 110

Val Ser Ser Arg Asn Ser Val Arg Gln Gly Trp Arg Gly Glu Arg Asp
115 120 125

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Thr Arg Gly Asp Thr Ser Trp Val Pro Pro Glu Met Ile Glu Arg Ile
130 135 140

Glu Val Leu Arg Gly Pro Ala Ala Ala Arg Tyr Gly Asn Gly Ala Ala
145 150 155 160

Gly Gly Val Val Asn Ile Ile Thr Lys Lys Gly Ser Gly Glu Trp His
165 170 175

Gly Ser Trp Asp Ala Tyr Phe Asn Ala Pro Glu His Lys Glu Glu Gly
180 185 190

Ala Thr Lys Arg Thr Asn Phe Ser Leu Thr Gly Pro Leu Gly Asp Glu
195 200 205

Phe Ser Phe Arg Leu Tyr Gly Asn Leu Asp Lys Thr Gln Ala Asp Ala
210 215 220

Trp Asp Ile Asn Gln Gly His Gln Ser Ala Arg Ala Gly Thr Tyr Ala
225 230 235 240

Thr Thr Leu Pro Ala Gly Arg Glu Gly Val Ile Asn Lys Asp Ile Asn
245 250 255

Gly Val Val Arg Trp Asp Phe Ala Pro Leu Gln Ser Leu Glu Leu Glu
260 265 270

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

Thr Asn Ser Asp Ser Tyr Thr Arg Ser Lys Tyr Gly Asp Glu Thr Asn
290 295 300

Arg Leu Tyr Arg Gln Asn Tyr Ala Leu Thr Trp Asn Gly Gly Trp Asp
305 310 315 320

Asn Gly Val Thr Thr Ser Asn Trp Val Gln Tyr Glu His Thr Arg Asn
325 330 335

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

Glu Lys Ala Thr Gln Asp Phe Val Asp Ile Asp Leu Asp Asp Val Met
355 360 365

Leu His Ser Glu Val Asn Leu Pro Ile Asp Phe Leu Val Asn Gln Thr
370 375 380

Leu Thr Leu Gly Thr Glu Trp Asn Gln Gln Arg Met Lys Asp Leu Ser
385 390 395 400

Ser Asn Thr Gln Ala Leu Thr Gly Thr Asn Thr Gly Gly Ala Ile Asp

Gly Val Ser Thr Thr Asp Arg Ser Pro Tyr Ser Lys Ala Glu Ile Phe
420 425 430

Ser Leu Phe Ala Glu Asn Asn Met Glu Leu Thr Asp Ser Thr Ile Val
435 440 445

Thr Pro Gly Leu Arg Phe Asp His His Ser Ile Val Gly Asn Asn Trp
450 455 460

Ser Pro Ala Leu Asn Ile Ser Gln Gly Leu Gly Asp Asp Phe Thr Leu
465 470 475 480

Lys Met Gly Ile Ala Arg Ala Tyr Lys Ala Pro Ser Leu Tyr Gln Thr
485 490 495

Asn Pro Asn Tyr Ile Leu Tyr Ser Lys Gly Gln Gly Cys Tyr Ala Ser
500 505 510

Ala Gly Gly Cys Tyr Leu Gln Gly Asn Asp Asp Leu Lys Ala Glu Thr
515 520 525

Ser Ile Asn Lys Glu Ile Gly Leu Glu Phe Lys Arg Asp Gly Trp Leu
530 535 540

Ala Gly Val Thr Trp Phe Arg Asn Asp Tyr Arg Asn Lys Ile Glu Ala
545 550 555 560

Gly Tyr Val Ala Val Gly Gln Asn Ala Val Gly Thr Asp Leu Tyr Gln
565 570 575

Trp Asp Asn Val Pro Lys Ala Val Val Glu Gly Leu Glu Gly Ser Leu
580 585 590

Asn Val Pro Val Ser Glu Thr Val Met Trp Thr Asn Asn Ile Thr Tyr
595 600 605

Met Leu Lys Ser Glu Asn Lys Thr Thr Gly Asp Arg Leu Ser Ile Ile
610 615 620

Pro Glu Tyr Thr Leu Asn Ser Thr Leu Ser Trp Gln Ala Arg Glu Asp
625 630 635 640

Leu Ser Met Gln Thr Thr Phe Thr Trp Tyr Gly Lys Gln Gln Pro Lys
645 650 655

Lys Tyr Asn Tyr Lys Gly Gln Pro Ala Val Gly Pro Glu Thr Lys Glu
660 665 670

Ile Ser Pro Tyr Ser Ile Val Gly Leu Ser Ala Thr Trp Asp Val Thr
675 680 685

Lys Asn Val Ser Leu Thr Gly Gly Val Asp Asn Leu Phe Asp Lys Arg
690 695 700

Leu Trp Arg Ala Gly Asn Ala Gln Thr Thr Gly Asp Leu Ala Gly Ala
705 710 715 720

Asn Tyr Ile Ala Gly Ala Gly Ala Tyr Thr Tyr Asn Glu Pro Gly Arg
725 730 735

Thr Trp Tyr Met Ser Val Asn Thr His Phe
740 745

<210> 57
<211> 729
<212> PRT
<213> Escherichia coli

<400> 57

Met Leu Ser Thr Gln Phe Asn Arg Asp Asn Gln Tyr Gln Ala Ile Thr
1 5 10 15

Lys Pro Ser Leu Leu Ala Gly Cys Ile Ala Leu Ala Leu Leu Pro Ser
20 25 30

Ala Ala Phe Ala Ala Pro Ala Thr Glu Glu Thr Val Ile Val Glu Gly
35 40 45

Ser Ala Thr Ala Pro Asp Asp Gly Glu Asn Asp Tyr Ser Val Thr Ser
50 55 60

Thr Ser Ala Gly Thr Lys Met Gln Met Thr Gln Arg Asp Ile Pro Gln
65 70 75 80

Ser Val Thr Ile Val Ser Gln Gln Arg Met Glu Asp Gln Gln Leu Gln
85 90 95

Thr Leu Gly Glu Val Met Glu Asn Thr Leu Gly Ile Ser Lys Ser Gln
100 105 110

Ala Asp Ser Asp Arg Ala Leu Tyr Tyr Ser Arg Gly Phe Gln Ile Asp
115 120 125

Asn Tyr Met Val Asp Gly Ile Pro Thr Tyr Phe Glu Ser Arg Trp Asn
130 135 140

Leu Gly Asp Ala Leu Ser Asp Met Ala Leu Phe Glu Arg Val Glu Val
145 150 155 160

Val Arg Gly Ala Thr Gly Leu Met Thr Gly Thr Gly Asn Pro Ser Ala
165 170 175

Ala Ile Asn Met Val Arg Lys His Ala Thr Ser Arg Glu Phe Lys Gly
180 185 190

Asp Val Ser Ala Glu Tyr Gly Ser Trp Asn Lys Glu Arg Tyr Val Ala
195 200 205

Asp Leu Gln Ser Pro Leu Thr Glu Asp Gly Lys Ile Arg Ala Arg Ile
210 215 220

Val Gly Gly Tyr Gln Asn Asn Asp Ser Trp Leu Asp Arg Tyr Asn Ser
225 230 235 240

Glu Lys Thr Phe Phe Ser Gly Ile Val Asp Ala Asp Leu Gly Asp Leu
245 250 255

Thr Thr Leu Ser Ala Gly Tyr Glu Tyr Gln Arg Ile Asp Val Asn Ser
260 265 270

Pro Thr Trp Gly Gly Leu Pro Arg Trp Asn Thr Asp Gly Ser Ser Asn
275 280 285

Ser Tyr Asp Arg Ala Arg Ser Thr Ala Pro Asp Trp Ala Tyr Asn Asp
290 295 300

Lys Glu Ile Asn Lys Val Phe Met Thr Leu Lys Gln Gln Phe Ala Asp
305 310 315 320

Thr Trp Gln Ala Thr Leu Asn Ala Thr His Ser Glu Val Glu Phe Asp
325 330 335

Ser Lys Met Met Tyr Val Asp Ala Tyr Val Asn Lys Ala Asp Gly Met
340 345 350

Leu Val Gly Pro Tyr Ser Asn Tyr Gly Pro Gly Phe Asp Tyr Val Gly
355 360 365

Gly Thr Gly Trp Asn Ser Gly Lys Arg Lys Val Asp Ala Leu Asp Leu
370 375 380

Phe Ala Asp Gly Ser Tyr Glu Leu Phe Gly Arg Gln His Asn Leu Met
385 390 395 400

Phe Gly Gly Ser Tyr Ser Lys Gln Asn Asn Arg Tyr Phe Ser Ser Trp
405 410 415

Ala Asn Ile Phe Pro Asp Glu Ile Gly Ser Phe Tyr Asn Phe Asn Gly
420 425 430

Asn Phe Pro Gln Thr Asp Trp Ser Pro Gln Ser Leu Ala Gln Asp Asp
435 440 445

Thr Thr His Met Lys Ser Leu Tyr Ala Ala Thr Arg Val Thr Leu Ala

450

455

460

Asp Pro Leu His Leu Ile Leu Gly Ala Arg Tyr Thr Asn Trp Arg Val
 465 470 475 480

Asp Thr Leu Thr Tyr Ser Met Glu Lys Asn His Thr Thr Pro Tyr Ala
 485 490 495

Gly Leu Val Phe Asp Ile Asn Asp Asn Trp Ser Thr Tyr Ala Ser Tyr
 500 505 510

Thr Ser Ile Phe Gln Pro Gln Asn Asp Arg Asp Ser Ser Gly Lys Tyr
 515 520 525

Leu Ala Pro Ile Thr Gly Asn Asn Tyr Glu Leu Gly Leu Lys Ser Asp
 530 535 540

Trp Met Asn Ser Arg Leu Thr Thr Thr Leu Ala Ile Phe Arg Ile Glu
 545 550 555 560

Gln Asp Asn Val Ala Gln Ser Thr Gly Thr Pro Ile Pro Gly Ser Asn
 565 570 575

Gly Glu Thr Ala Tyr Lys Ala Val Asp Gly Thr Val Ser Lys Gly Val
 580 585 590

Glu Phe Glu Leu Asn Gly Ala Ile Thr Asp Asn Trp Gln Leu Thr Phe
 595 600 605

Gly Ala Thr Arg Tyr Ile Ala Glu Asp Asn Glu Gly Asn Ala Val Asn
 610 615 620

Pro Asn Leu Pro Arg Thr Thr Val Lys Met Phe Thr Ser Tyr Arg Leu
 625 630 635 640

Pro Val Met Pro Glu Leu Thr Val Gly Gly Gly Val Asn Trp Gln Asn
 645 650 655

Arg Val Tyr Thr Asp Thr Val Thr Pro Tyr Gly Thr Phe Arg Ala Glu
 660 665 670

Gln Gly Ser Tyr Ala Leu Val Asp Leu Phe Thr Arg Tyr Gln Val Thr
 675 680 685

Lys Asn Phe Ser Leu Gln Gly Asn Val Asn Asn Leu Phe Asp Lys Thr
 690 695 700

Tyr Asp Thr Asn Val Glu Gly Ser Ile Val Tyr Gly Thr Pro Arg Asn
 705 710 715 720

Phe Ser Ile Thr Gly Thr Tyr Gln Phe
 725

<210> 58
 <211> 452
 <212> PRT
 <213> Escherichia coli

<400> 58

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Met  Glu  Thr  Val  Leu  Ala  Lys  Ile  Val  Ala  Asp  Lys  Ala  Ile  Trp  Val
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 20      25      30

Gln  Pro  Ser  Thr  Arg  His  Phe  Tyr  Asp  Ala  Leu  Gln  Gly  Ala  Arg  Thr
 35      40      45

Ala  Phe  Ile  Leu  Glu  Cys  Lys  Lys  Ala  Ser  Pro  Ser  Lys  Gly  Val  Ile
 50      55      60

Arg  Asp  Asp  Phe  Asp  Pro  Ala  Arg  Ile  Ala  Ala  Ile  Tyr  Lys  His  Tyr
 65      70      75      80

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

Phe  Asn  Phe  Leu  Pro  Ile  Val  Ser  Gln  Ile  Ala  Pro  Gln  Pro  Ile  Leu
100     105     110

Cys  Lys  Asp  Phe  Ile  Ile  Asp  Pro  Tyr  Gln  Ile  Tyr  Leu  Ala  Arg  Tyr
115     120     125

Tyr  Gln  Ala  Asp  Ala  Cys  Leu  Leu  Met  Leu  Ser  Val  Leu  Asp  Asp  Asp
130     135     140

Gln  Tyr  Arg  Gln  Leu  Ala  Ala  Val  Ala  His  Ser  Leu  Glu  Met  Gly  Val
145     150     155     160

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

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

Ile  Asp  Leu  Asn  Arg  Thr  Arg  Glu  Leu  Ala  Pro  Lys  Leu  Gly  His  Asn
195     200     205

Val  Thr  Val  Ile  Ser  Glu  Ser  Gly  Ile  Asn  Thr  Tyr  Ala  Gln  Val  Arg
210     215     220

Glu  Leu  Ser  His  Phe  Ala  Asn  Gly  Phe  Leu  Ile  Gly  Ser  Ala  Leu  Met
225     230     235     240
    
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Ala His Asp Asp Leu His Ala Ala Val Arg Arg Val Leu Leu Gly Glu
245 250 255

Asn Lys Val Cys Gly Leu Thr Arg Gly Gln Asp Ala Lys Ala Ala Tyr
260 265 270

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

Arg Cys Val Asn Val Glu Gln Ala Gln Glu Val Met Ala Ala Ala Pro
290 295 300

Leu Gln Tyr Val Gly Val Phe Arg Asn His Asp Ile Ala Asp Val Val
305 310 315 320

Asp Lys Ala Lys Val Leu Ser Leu Ala Ala Val Gln Leu His Gly Asn
325 330 335

Glu Glu Gln Leu Tyr Ile Asp Thr Leu Arg Glu Ala Leu Pro Ala His
340 345 350

Val Ala Ile Trp Lys Ala Leu Ser Val Gly Glu Thr Leu Pro Ala Arg
355 360 365

Glu Phe Gln His Val Asp Lys Tyr Val Leu Asp Asn Gly Gln Gly Gly
370 375 380

Ser Gly Gln Arg Phe Asp Trp Ser Leu Leu Asn Gly Gln Ser Leu Gly
385 390 395 400

Asn Val Leu Leu Ala Gly Gly Leu Gly Ala Asp Asn Cys Val Glu Ala
405 410 415

Ala Gln Thr Gly Cys Ala Gly Leu Asp Phe Asn Ser Ala Val Glu Ser
420 425 430

Gln Pro Gly Ile Lys Asp Ala Arg Leu Leu Ala Ser Val Phe Gln Thr
435 440 445

Leu Arg Ala Tyr
450

<210> 59
<211> 289
<212> PRT
<213> Escherichia coli

<400> 59

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

Ala Val Tyr Ala Gln Glu Ala Thr Val Lys Glu Val His Asp Ala Pro
20 25 30

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Ala Val Arg Gly Ser Ile Ile Ala Asn Met Leu Gln Glu His Asp Asn
35 40 45

Pro Phe Thr Leu Tyr Pro Tyr Asp Thr Asn Tyr Leu Ile Tyr Thr Gln
50 55 60

Thr Ser Asp Leu Asn Lys Glu Ala Ile Ala Ser Tyr Asp Trp Ala Glu
65 70 75 80

Asn Ala Arg Lys Asp Glu Val Lys Phe Gln Leu Ser Leu Ala Phe Pro
85 90 95

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

Thr Gln Lys Ser Trp Trp Gln Leu Ser Asn Ser Glu Glu Ser Ser Pro
115 120 125

Phe Arg Glu Thr Asn Tyr Glu Pro Gln Leu Phe Leu Gly Phe Ala Thr
130 135 140

Asp Tyr Arg Phe Ala Gly Trp Thr Leu Arg Asp Val Glu Met Gly Tyr
145 150 155 160

Asn His Asp Ser Asn Gly Arg Ser Asp Pro Thr Ser Arg Ser Trp Asn
165 170 175

Arg Leu Tyr Thr Arg Leu Met Ala Glu Asn Gly Asn Trp Leu Val Glu
180 185 190

Val Lys Pro Trp Tyr Val Val Gly Asn Thr Asp Asp Asn Pro Asp Ile
195 200 205

Thr Lys Tyr Met Gly Tyr Tyr Gln Leu Lys Ile Gly Tyr His Leu Gly
210 215 220

Asp Ala Val Leu Ser Ala Lys Gly Gln Tyr Asn Trp Asn Thr Gly Tyr
225 230 235 240

Gly Gly Ala Glu Leu Gly Leu Ser Tyr Pro Ile Thr Lys His Val Arg
245 250 255

Leu Tyr Thr Gln Val Tyr Ser Gly Tyr Gly Glu Ser Leu Ile Asp Tyr
260 265 270

Asn Phe Asn Gln Thr Arg Val Gly Val Gly Val Met Leu Asn Asp Leu
275 280 285

Phe

<210> 60
 <211> 663
 <212> PRT
 <213> Escherichia coli

<400> 60

Met Phe Arg Leu Asn Pro Phe Val Arg Val Gly Leu Cys Leu Ser Ala
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Ile Ser Cys Ala Trp Pro Val Leu Ala Val Asp Asp Asp Gly Glu Thr
 20 25 30

Met Val Val Thr Ala Ser Ser Val Glu Gln Asn Leu Lys Asp Ala Pro
 35 40 45

Ala Ser Ile Ser Val Ile Thr Gln Glu Asp Leu Gln Arg Lys Pro Val
 50 55 60

Gln Asn Leu Lys Asp Val Leu Lys Glu Val Pro Gly Val Gln Leu Thr
 65 70 75 80

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

Ser Tyr Thr Leu Ile Leu Val Asp Gly Lys Arg Val Asn Ser Arg Asn
 100 105 110

Ala Val Phe Arg His Asn Asp Phe Asp Leu Asn Trp Ile Pro Val Asp
 115 120 125

Ser Ile Glu Arg Ile Glu Val Val Arg Gly Pro Met Ser Ser Leu Tyr
 130 135 140

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

Gly Gln Lys Trp Ser Gly Thr Val Thr Val Asp Thr Thr Ile Gln Glu
 165 170 175

His Arg Asp Arg Gly Asp Thr Tyr Asn Gly Gln Phe Phe Thr Ser Gly
 180 185 190

Pro Leu Ile Asp Gly Val Leu Gly Met Lys Ala Tyr Gly Ser Leu Ala
 195 200 205

Lys Arg Glu Lys Asp Asp Pro Gln Asn Ser Thr Thr Thr Asp Thr Gly
 210 215 220

Glu Thr Pro Arg Ile Glu Gly Phe Ser Ser Arg Asp Gly Asn Val Glu
 225 230 235 240

Phe Ala Trp Thr Pro Asn Gln Asn His Asp Phe Thr Ala Gly Tyr Gly

Phe Asp Arg Gln Asp Arg Asp Ser Asp Ser Leu Asp Lys Asn Arg Leu
260 265 270

Glu Arg Gln Asn Tyr Ser Val Ser His Asn Gly Arg Trp Asp Tyr Gly
275 280 285

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

Gly Asn Ser Ser Pro Ile Thr Ser Glu Ser Asn Thr Val Asp Gly Lys
305 310 315 320

Tyr Thr Leu Pro Leu Thr Ala Ile Asn Gln Phe Leu Thr Val Gly Gly
325 330 335

Glu Trp Arg His Asp Lys Leu Ser Asp Ala Val Asn Leu Thr Gly Gly
340 345 350

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

Glu Trp Arg Ile Phe Glu Pro Leu Ala Leu Thr Thr Gly Val Arg Met
370 375 380

Asp Asp His Glu Thr Tyr Gly Glu His Trp Ser Pro Arg Ala Tyr Leu
385 390 395 400

Val Tyr Asn Ala Thr Asp Thr Val Thr Val Lys Gly Gly Trp Ala Thr
405 410 415

Ala Phe Lys Ala Pro Ser Leu Leu Gln Leu Ser Pro Asp Trp Thr Ser
420 425 430

Asn Ser Cys Arg Gly Ala Cys Lys Ile Val Gly Ser Pro Asp Leu Lys
435 440 445

Pro Glu Thr Ser Glu Ser Trp Glu Leu Gly Leu Tyr Tyr Met Gly Glu
450 455 460

Glu Gly Trp Leu Glu Gly Val Glu Ser Ser Val Thr Val Phe Arg Asn
465 470 475 480

Asp Val Lys Asp Arg Ile Ser Ile Ser Arg Thr Ser Asp Val Asn Ala
485 490 495

Ala Pro Gly Tyr Gln Asn Phe Val Gly Phe Glu Thr Gly Ala Asn Gly
500 505 510

Arg Arg Ile Pro Val Phe Ser Tyr Tyr Asn Val Asn Lys Ala Arg Ile
515 520 525

Gln Gly Val Glu Thr Glu Leu Lys Ile Pro Phe Asn Asp Glu Trp Lys
530 535 540

Leu Ser Ile Asn Tyr Thr Tyr Asn Asp Gly Arg Asp Val Ser Asn Gly
545 550 555 560

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

Leu Asp Trp Lys Pro Leu Ala Leu Glu Asp Trp Ser Phe Tyr Val Ser
580 585 590

Gly His Tyr Thr Gly Gln Lys Arg Ala Asp Ser Ala Thr Ala Lys Thr
595 600 605

Pro Gly Gly Tyr Thr Ile Trp Asn Thr Gly Ala Ala Trp Gln Val Thr
610 615 620

Lys Asp Val Lys Leu Arg Ala Gly Val Leu Asn Leu Gly Asp Lys Asp
625 630 635 640

Leu Ser Arg Asp Asp Tyr Ser Tyr Asn Glu Asp Gly Arg Arg Tyr Phe
645 650 655

Met Ala Val Asp Tyr Arg Phe
660

<210> 61
<211> 1120
<212> PRT
<213> Escherichia coli

<400> 61

Met Thr Met Phe Gln Tyr Tyr Lys Arg Ser Arg His Phe Val Phe Ser
1 5 10 15

Ala Phe Ile Ala Phe Val Phe Val Leu Leu Cys Gln Asn Thr Ala Phe
20 25 30

Ala Arg Ala Ser Ser Asn Gly Asp Leu Pro Thr Lys Ala Asp Leu Gln
35 40 45

Ala Gln Leu Asp Ser Leu Asn Lys Gln Lys Asp Leu Ser Ala Gln Asp
50 55 60

Lys Leu Val Gln Gln Asp Leu Thr Asp Thr Leu Ala Thr Leu Asp Lys
65 70 75 80

Ile Asp Arg Ile Lys Glu Glu Thr Val Gln Leu Arg Gln Lys Val Ala
85 90 95

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Glu Ala Pro Glu Lys Met Arg Gln Ala Thr Ala Ala Leu Thr Ala Leu
100 105 110

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

Ser Leu Arg Gln Leu Glu Thr Arg Val Ala Gln Ala Leu Asp Asp Leu
130 135 140

Gln Asn Ala Gln Asn Asp Leu Ala Ser Tyr Asn Ser Gln Leu Val Ser
145 150 155 160

Leu Gln Thr Gln Pro Glu Arg Val Gln Asn Ala Met Tyr Asn Ala Ser
165 170 175

Gln Gln Leu Gln Gln Ile Arg Ser Arg Leu Asp Gly Thr Asp Val Gly
180 185 190

Glu Thr Ala Leu Arg Pro Ser Gln Lys Val Leu Met Gln Ala Gln Gln
195 200 205

Ala Leu Leu Asn Ala Glu Ile Asp Gln Gln Arg Lys Ser Leu Glu Gly
210 215 220

Asn Thr Val Leu Gln Asp Thr Leu Gln Lys Gln Arg Asp Tyr Val Thr
225 230 235 240

Ala Asn Ser Ala Arg Leu Glu His Gln Leu Gln Leu Leu Gln Glu Ala
245 250 255

Val Asn Ser Lys Arg Leu Thr Leu Thr Glu Lys Thr Ala Gln Glu Ala
260 265 270

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

Gln Glu Leu Glu Ile Asn Gln Gln Leu Ser Gln Arg Leu Ile Thr Ala
290 295 300

Thr Glu Asn Gly Asn Gln Leu Met Gln Gln Asn Ile Lys Val Lys Asn
305 310 315 320

Trp Leu Glu Arg Ala Leu Gln Ser Glu Arg Asn Ile Lys Glu Gln Ile
325 330 335

Ala Val Leu Lys Gly Ser Leu Leu Leu Ser Arg Ile Leu Tyr Gln Gln
340 345 350

Gln Gln Thr Leu Pro Ser Ala Asp Glu Leu Glu Asn Met Thr Asn Arg
355 360 365

Ile Ala Asp Leu Arg Leu Glu Gln Phe Glu Val Asn Gln Gln Arg Asp

370

375

380

Ala Leu Phe Gln Ser Asp Ala Phe Val Asn Lys Leu Glu Glu Gly His
 385 390 395 400

Thr Asn Glu Val Asn Ser Glu Val His Asp Ala Leu Leu Gln Val Val
 405 410 415

Asp Met Arg Arg Glu Leu Leu Asp Gln Leu Asn Lys Gln Leu Gly Asn
 420 425 430

Gln Leu Met Met Ala Ile Asn Leu Gln Ile Asn Gln Gln Gln Leu Met
 435 440 445

Ser Val Ser Lys Asn Leu Lys Ser Ile Leu Thr Gln Gln Ile Phe Trp
 450 455 460

Val Asn Ser Asn Arg Pro Met Asp Trp Asp Trp Ile Lys Ala Phe Pro
 465 470 475 480

Gln Ser Leu Lys Asp Glu Phe Lys Ser Met Lys Ile Thr Val Asn Trp
 485 490 495

Gln Lys Ala Trp Pro Ala Val Phe Ile Ala Phe Leu Ala Gly Leu Pro
 500 505 510

Leu Leu Leu Ile Ala Gly Leu Ile His Trp Arg Leu Gly Trp Leu Lys
 515 520 525

Ala Tyr Gln Gln Lys Leu Ala Ser Ala Val Gly Ser Leu Arg Asn Asp
 530 535 540

Ser Gln Leu Asn Thr Pro Lys Ala Ile Leu Ile Asp Leu Ile Arg Ala
 545 550 555 560

Leu Pro Val Cys Leu Ile Ile Leu Ala Val Gly Leu Ile Leu Leu Thr
 565 570 575

Met Gln Leu Asn Ile Ser Glu Leu Leu Trp Ser Phe Ser Lys Lys Leu
 580 585 590

Ala Ile Phe Trp Leu Val Phe Gly Leu Cys Trp Lys Val Leu Glu Lys
 595 600 605

Asn Gly Val Ala Val Arg His Phe Gly Met Pro Glu Gln Gln Thr Ser
 610 615 620

His Trp Arg Arg Gln Ile Val Arg Ile Ser Leu Ala Leu Leu Pro Ile
 625 630 635 640

His Phe Trp Ser Val Val Ala Glu Leu Ser Pro Leu His Leu Met Asp
 645 650 655

Asp Val Leu Gly Gln Ala Met Ile Phe Phe Asn Leu Leu Leu Ile Ala
 660 665 670
 Phe Leu Val Trp Pro Met Cys Arg Glu Ser Trp Arg Asp Lys Glu Ser
 675 680 685
 His Thr Met Arg Leu Val Thr Ile Thr Val Leu Ser Ile Ile Pro Ile
 690 695 700
 Ala Leu Met Val Leu Thr Ala Thr Gly Tyr Phe Tyr Thr Thr Leu Arg
 705 710 715 720
 Leu Ala Gly Arg Trp Ile Glu Thr Val Tyr Leu Val Ile Ile Trp Asn
 725 730 735
 Leu Leu Tyr Gln Thr Val Leu Arg Gly Leu Ser Val Ala Ala Arg Arg
 740 745 750
 Ile Ala Trp Arg Arg Ala Leu Ala Arg Arg Gln Asn Leu Val Lys Glu
 755 760 765
 Gly Ala Glu Gly Ala Glu Pro Pro Glu Glu Pro Thr Ile Ala Leu Glu
 770 775 780
 Gln Val Asn Gln Gln Thr Leu Arg Ile Thr Met Leu Leu Met Phe Ala
 785 790 795 800
 Leu Phe Gly Val Met Phe Trp Ala Ile Trp Ser Asp Leu Ile Thr Val
 805 810 815
 Phe Ser Tyr Leu Asp Ser Ile Thr Leu Trp His Tyr Asn Gly Thr Glu
 820 825 830
 Ala Gly Ala Ala Val Val Lys Asn Val Thr Met Gly Ser Leu Leu Phe
 835 840 845
 Ala Ile Ile Ala Ser Met Val Ala Trp Ala Leu Ile Arg Asn Leu Pro
 850 855 860
 Gly Leu Leu Glu Val Leu Val Leu Ser Arg Leu Asn Met Arg Gln Gly
 865 870 875 880
 Ala Ser Tyr Ala Ile Thr Thr Ile Leu Asn Tyr Ile Ile Ile Ala Val
 885 890 895
 Gly Ala Met Thr Val Phe Gly Ser Leu Gly Val Ser Trp Asp Lys Leu
 900 905 910
 Gln Trp Leu Ala Ala Ala Leu Ser Val Gly Leu Gly Phe Gly Leu Gln
 915 920 925

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Glu Ile Phe Gly Asn Phe Val Ser Gly Leu Ile Ile Leu Phe Glu Arg
930 935 940

Pro Val Arg Ile Gly Asp Thr Val Thr Ile Gly Ser Phe Ser Gly Thr
945 950 955 960

Val Ser Lys Ile Arg Ile Arg Ala Thr Thr Ile Thr Asp Phe Asp Arg
965 970 975

Lys Glu Val Ile Ile Pro Asn Lys Ala Phe Val Thr Glu Arg Leu Ile
980 985 990

Asn Trp Ser Leu Thr Asp Thr Thr Thr Arg Leu Val Ile Arg Leu Gly
995 1000 1005

Val Ala Tyr Gly Ser Asp Leu Glu Lys Val Arg Lys Val Leu Leu
1010 1015 1020

Lys Ala Ala Thr Glu His Pro Arg Val Met His Glu Pro Met Pro
1025 1030 1035

Glu Val Phe Phe Thr Ala Phe Gly Ala Ser Thr Leu Asp His Glu
1040 1045 1050

Leu Arg Leu Tyr Val Arg Glu Leu Arg Asp Arg Ser Arg Thr Val
1055 1060 1065

Asp Glu Leu Asn Arg Thr Ile Asp Gln Leu Cys Arg Glu Asn Asp
1070 1075 1080

Ile Asn Ile Ala Phe Asn Gln Leu Glu Val His Leu His Asn Glu
1085 1090 1095

Lys Gly Asp Glu Val Thr Glu Val Lys Arg Asp Tyr Lys Gly Asp
1100 1105 1110

Asp Pro Thr Pro Ala Val Gly
1115 1120

<210> 62
<211> 448
<212> PRT
<213> Escherichia coli

<400> 62

Met Val Met Ser Gln Lys Thr Leu Phe Thr Lys Ser Ala Leu Ala Val
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Ala Val Ala Leu Ile Ser Thr Gln Ala Trp Ser Ala Gly Phe Gln Leu
20 25 30

Asn Glu Phe Ser Ser Ser Gly Leu Gly Arg Ala Tyr Ser Gly Glu Gly
Seite 85

35

40

45

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

Thr Met Phe Asp Arg Pro Thr Phe Ser Ala Gly Ala Val Tyr Ile Asp
 65 70 75 80

Pro Asp Val Asn Ile Ser Gly Thr Ser Pro Ser Gly Arg Ser Leu Lys
 85 90 95

Ala Asp Asn Ile Ala Pro Thr Ala Trp Val Pro Asn Met His Phe Val
 100 105 110

Ala Pro Ile Asn Asp Gln Phe Gly Trp Gly Ala Ser Ile Thr Ser Asn
 115 120 125

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

Gly Gly Thr Thr Asp Leu Glu Thr Met Asn Leu Asn Leu Ser Gly Ala
 145 150 155 160

Tyr Arg Leu Asn Asn Ala Trp Ser Phe Gly Leu Gly Phe Asn Ala Val
 165 170 175

Tyr Ala Arg Ala Lys Ile Glu Arg Phe Ala Gly Asp Leu Gly Gln Leu
 180 185 190

Val Ala Gly Gln Ile Met Gln Ser Pro Ala Gly Gln Thr Gln Gln Gly
 195 200 205

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

Ala His Leu Asn Gly Asn Gln Trp Gly Phe Gly Trp Asn Ala Gly Ile
 225 230 235 240

Leu Tyr Glu Leu Asp Lys Asn Asn Arg Tyr Ala Leu Thr Tyr Arg Ser
 245 250 255

Glu Val Lys Ile Asp Phe Lys Gly Asn Tyr Ser Ser Asp Leu Asn Arg
 260 265 270

Ala Phe Asn Asn Tyr Gly Leu Pro Ile Pro Thr Ala Thr Gly Gly Ala
 275 280 285

Thr Gln Ser Gly Tyr Leu Thr Leu Asn Leu Pro Glu Met Trp Glu Val
 290 295 300

Ser Gly Tyr Asn Arg Val Asp Pro Gln Trp Ala Ile His Tyr Ser Leu
 305 310 315 320

Ala Tyr Thr Ser Trp₃₂₅ Ser Gln Phe Gln₃₃₀ Leu Lys Ala Thr Ser₃₃₅ Thr
 Ser Gly Asp Thr₃₄₀ Leu Phe Gln Lys His₃₄₅ Glu Gly Phe Lys Asp₃₅₀ Ala Tyr
 Arg Ile Ala₃₅₅ Leu Gly Thr Thr Tyr₃₆₀ Tyr Tyr Asp Asp Asn₃₆₅ Trp Thr Phe
 Arg Thr Gly Ile Ala Phe Asp₃₇₅ Asp Ser Pro Val Pro₃₈₀ Ala Gln Asn Arg
 Ser Ile Ser Ile Pro Asp₃₉₀ Gln Asp Arg Phe Trp₃₉₅ Leu Ser Ala Gly Thr₄₀₀
 Thr Tyr Ala Phe Asn₄₀₅ Lys Asp Ala Ser Val₄₁₀ Asp Val Gly Val Ser₄₁₅ Tyr
 Met His Gly Gln₄₂₀ Ser Val Lys Ile Asn₄₂₅ Glu Gly Pro Tyr Gln₄₃₀ Phe Glu
 Ser Glu Gly₄₃₅ Lys Ala Trp Leu Phe₄₄₀ Gly Thr Asn Phe Asn₄₄₅ Tyr Ala Phe
 <210> 63
 <211> 316
 <212> PRT
 <213> Escherichia coli
 <400> 63
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 Val Glu Glu Ser₂₀ Gln Pro Leu Val Asn₂₅ Ala Val Trp Ile Asp₃₀ Leu Val
 Glu Pro Asp₃₅ Asp Asp Glu Arg Leu₄₀ Arg Val Gln Ser Glu₄₅ Leu Gly Gln
 Ser Leu Ala Thr Arg Pro Glu₅₅ Leu Glu Asp Ile Glu₆₀ Ala Ser Ala Arg
 Phe₆₅ Phe Glu Asp Asp Asp₇₀ Gly Leu His Ile His₇₅ Ser Phe Phe Phe Phe₈₀
 Glu Asp Ala Glu Asp₈₅ His Ala Gly Asn Ser₉₀ Thr Val Ala Phe Thr₉₅ Ile
 Arg Asp Gly Arg₁₀₀ Leu Phe Thr Leu Arg₁₀₅ Glu Arg Glu Leu Pro₁₁₀ Ala Phe

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Arg Leu Tyr Arg Met Arg Ala Arg Ser Gln Ser Met Val Asp Gly Asn
115 120 125

Ala Tyr Glu Leu Leu Leu Asp Leu Phe Glu Thr Lys Ile Glu Gln Leu
130 135 140

Ala Asp Glu Ile Glu Asn Ile Tyr Ser Asp Leu Glu Gln Leu Ser Arg
145 150 155 160

Val Ile Met Glu Gly His Gln Gly Asp Glu Tyr Asp Glu Ala Leu Ser
165 170 175

Thr Leu Ala Glu Leu Glu Asp Ile Gly Trp Lys Val Arg Leu Cys Leu
180 185 190

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

Pro Gly Gly Gln Leu Glu Gln Ala Arg Glu Ile Leu Arg Asp Ile Glu
210 215 220

Ser Leu Leu Pro His Asn Glu Ser Leu Phe Gln Lys Val Asn Phe Leu
225 230 235 240

Met Gln Ala Ala Met Gly Phe Ile Asn Ile Glu Gln Asn Arg Ile Ile
245 250 255

Lys Ile Phe Ser Val Val Ser Val Val Phe Leu Pro Pro Thr Leu Val
260 265 270

Ala Ser Ser Tyr Gly Met Asn Phe Glu Phe Met Pro Glu Leu Lys Trp
275 280 285

Ser Phe Gly Tyr Pro Gly Ala Ile Ile Phe Met Ile Leu Ala Gly Leu
290 295 300

Ala Pro Tyr Leu Tyr Phe Lys Arg Lys Asn Trp Leu
305 310 315

<210> 64

<211> 468

<212> PRT

<213> Escherichia coli

<400> 64

Met Arg Thr Phe Ser Gly Lys Arg Ser Thr Leu Ala Leu Ala Ile Ala
1 5 10 15

Gly Val Thr Ala Met Ser Gly Phe Met Ala Met Pro Glu Ala Arg Ala
20 25 30

Glu Gly Phe Ile Asp Asp Ser Thr Leu Thr Gly Gly Ile Tyr Tyr Trp
35 40 45

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Gln Arg Glu Arg Asp Arg Lys Asp Val Thr Asp Gly Asp Lys Tyr Lys
50 55 60

Thr Asn Leu Ser His Ser Thr Trp Asn Ala Asn Leu Asp Phe Gln Ser
65 70 75 80

Gly Tyr Ala Ala Asp Met Phe Gly Leu Asp Ile Ala Ala Phe Thr Ala
85 90 95

Ile Glu Met Ala Glu Asn Gly Asp Ser Ser His Pro Asn Glu Ile Ala
100 105 110

Phe Ser Lys Ser Asn Lys Ala Tyr Asp Glu Asp Trp Ser Gly Asp Lys
115 120 125

Ser Gly Ile Ser Leu Tyr Lys Ala Ala Ala Lys Phe Lys Tyr Gly Pro
130 135 140

Val Trp Ala Arg Ala Gly Tyr Ile Gln Pro Thr Gly Gln Thr Leu Leu
145 150 155 160

Ala Pro His Trp Ser Phe Met Pro Gly Thr Tyr Gln Gly Ala Glu Ala
165 170 175

Gly Ala Asn Phe Asp Tyr Gly Asp Ala Gly Ala Leu Ser Phe Ser Tyr
180 185 190

Met Trp Thr Asn Glu Tyr Lys Ala Pro Trp His Leu Glu Met Asp Glu
195 200 205

Phe Tyr Gln Asn Asp Lys Thr Thr Lys Val Asp Tyr Leu His Ser Phe
210 215 220

Gly Ala Lys Tyr Asp Phe Lys Asn Asn Phe Val Leu Glu Ala Ala Phe
225 230 235 240

Gly Gln Ala Glu Gly Tyr Ile Asp Gln Tyr Phe Ala Lys Ala Ser Tyr
245 250 255

Lys Phe Asp Ile Ala Gly Ser Pro Leu Thr Thr Ser Tyr Gln Phe Tyr
260 265 270

Gly Thr Arg Asp Lys Val Asp Asp Arg Ser Val Asn Asp Leu Tyr Asp
275 280 285

Gly Thr Ala Trp Leu Gln Ala Leu Thr Phe Gly Tyr Arg Ala Ala Asp
290 295 300

Val Val Asp Leu Arg Leu Glu Gly Thr Trp Val Lys Ala Asp Gly Gln
305 310 315 320

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Gln Gly Tyr Phe Leu 325 Gln Arg Met Thr 330 Thr Tyr Ala Ser Ser Asn 335

Gly Arg Leu Asp 340 Ile Trp Trp Asp 345 Arg Ser Asp Phe Asn 350 Ala Asn

Gly Glu Lys 355 Ala Val Phe Phe Gly 360 Ala Met Tyr Asp Leu 365 Lys Asn Trp

Asn Leu 370 Pro Gly Phe Ala Ile 375 Gly Ala Ser Tyr Val 380 Tyr Ala Trp Asp

Ala 385 Lys Pro Ala Thr Trp 390 Gln Ser Asn Pro Asp 395 Ala Tyr Tyr Asp Lys 400

Asn Arg Thr Ile Glu 405 Glu Ser Ala Tyr Ser 410 Leu Asp Ala Val Tyr 415 Thr

Ile Gln Asp Gly 420 Arg Ala Lys Gly Thr 425 Met Phe Lys Leu His 430 Phe Thr

Glu Tyr Asp 435 Asn His Ser Asp Ile 440 Pro Ser Trp Gly Gly 445 Gly Tyr Gly

Asn Ile 450 Phe Gln Asp Glu Arg 455 Asp Val Lys Phe Met 460 Val Ile Ala Pro

Phe Thr Ile Phe 465

<210> 65
<211> 493
<212> PRT
<213> Escherichia coli

<400> 65

Met Lys Lys Leu 5 Leu Pro Ile Leu Ile Gly 10 Leu Ser Leu Ser Gly Phe 15

Ser Ser Leu Ser 20 Gln Ala Glu Asn 25 Leu Met Gln Val Tyr Gln Gln Ala 30

Arg Leu Ser 35 Asn Pro Glu Leu Arg 40 Lys Ser Ala Ala Asp 45 Arg Asp Ala

Ala Phe 50 Glu Lys Ile Asn 55 Glu Ala Arg Ser Pro 60 Leu Leu Pro Gln Leu

Gly Leu Gly Ala Asp 70 Tyr Thr Tyr Ser Asn 75 Gly Tyr Arg Asp Ala Asn 80

Gly Ile Asn Ser Asn Ala Thr Ser Ala Ser Leu Gln Leu Thr Gln Ser

Ile Phe Asp Met Ser Lys Trp Arg Ala Leu Thr Leu Gln Glu Lys Ala
100 105 110

Ala Gly Ile Gln Asp Val Thr Tyr Gln Thr Asp Gln Gln Thr Leu Ile
115 120 125

Leu Asn Thr Ala Thr Ala Tyr Phe Asn Val Leu Asn Ala Ile Asp Val
130 135 140

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

Gln Thr Thr Gln Arg Phe Asn Val Gly Leu Val Ala Ile Thr Asp Val
165 170 175

Gln Asn Ala Arg Ala Gln Tyr Asp Thr Val Leu Ala Asn Glu Val Thr
180 185 190

Ala Arg Asn Asn Leu Asp Asn Ala Val Glu Gln Leu Arg Gln Ile Thr
195 200 205

Gly Asn Tyr Tyr Pro Glu Leu Ala Ala Leu Asn Val Glu Asn Phe Lys
210 215 220

Thr Asp Lys Pro Gln Pro Val Asn Ala Leu Leu Lys Glu Ala Glu Lys
225 230 235 240

Arg Asn Leu Ser Leu Leu Gln Ala Arg Leu Ser Gln Asp Leu Ala Arg
245 250 255

Glu Gln Ile Arg Gln Ala Gln Asp Gly His Leu Pro Thr Leu Asp Leu
260 265 270

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

Arg Gly Ala Ala Gly Thr Gln Tyr Asp Asp Ser Asn Met Gly Gln Asn
290 295 300

Lys Val Gly Leu Ser Phe Ser Leu Pro Ile Tyr Gln Gly Gly Met Val
305 310 315 320

Asn Ser Gln Val Lys Gln Ala Gln Tyr Asn Phe Val Gly Ala Ser Glu
325 330 335

Gln Leu Glu Ser Ala His Arg Ser Val Val Gln Thr Val Arg Ser Ser
340 345 350

Phe Asn Asn Ile Asn Ala Ser Ile Ser Ser Ile Asn Ala Tyr Lys Gln
355 360 365

Ala Val Val Ser Ala Gln Ser Ser Leu Asp Ala Met Glu Ala Gly Tyr
370 375 380

Ser Val Gly Thr Arg Thr Ile Val Asp Val Leu Asp Ala Thr Thr Thr
385 390 395 400

Leu Tyr Asn Ala Lys Gln Glu Leu Ala Asn Ala Arg Tyr Asn Tyr Leu
405 410 415

Ile Asn Gln Leu Asn Ile Lys Ser Ala Leu Gly Thr Leu Asn Glu Gln
420 425 430

Asp Leu Leu Ala Leu Asn Asn Ala Leu Ser Lys Pro Val Ser Thr Asn
435 440 445

Pro Glu Asn Val Ala Pro Gln Thr Pro Glu Gln Asn Ala Ile Ala Asp
450 455 460

Gly Tyr Ala Pro Asp Ser Pro Ala Pro Val Val Gln Gln Thr Ser Ala
465 470 475 480

Arg Thr Thr Thr Ser Asn Gly His Asn Pro Phe Arg Asn
485 490

<210> 66
<211> 86
<212> PRT
<213> Escherichia coli
<400> 66

Met Thr Thr Thr Gly Leu Arg Pro Arg Leu Asn Val Arg Gln Arg Lys
1 5 10 15

Asp Thr Gly Tyr Leu Pro His Ser Ser Pro Phe Ser Leu Gln Phe Arg
20 25 30

Pro Ala Ile Leu Tyr Ser Asp Gly Tyr Leu Pro Leu Val Pro Glu Asp
35 40 45

Lys Asn Glu Thr Asp Lys Ile His Thr Pro Arg Ile Val Pro Gln Lys
50 55 60

Leu Glu Arg Thr Pro Ser Asp Thr Ser Arg Ser Arg Gly Cys His Cys
65 70 75 80

Phe Tyr Ala Gly Trp Leu
85

<210> 67
<211> 72
<212> PRT
<213> Escherichia coli

<400> 67

Met Ser Arg Tyr Gln His Thr Lys Gly Gln Ile Lys Asp Asn Ala Ile
1 5 10 15
Glu Ala Leu Leu His Asp Pro Leu Phe Arg Gln Arg Val Glu Lys Asn
20 25 30
Lys Lys Gly Lys Gly Ser Tyr Met Arg Lys Gly Lys His Gly Asn Arg
35 40 45
Gly Asn Trp Glu Ala Ser Gly Lys Lys Val Asn His Phe Phe Thr Thr
50 55 60
Gly Leu Leu Leu Ser Gly Ala Cys
65 70

<210> 68

<211> 136

<212> PRT

<213> Escherichia coli

<400> 68

Met Ser Ile Ile Lys Glu Phe Arg Glu Phe Ala Met Arg Gly Asn Val
1 5 10 15
Val Asp Leu Ala Val Gly Val Ile Ile Gly Ala Ala Phe Gly Lys Ile
20 25 30
Val Ser Ser Leu Val Ala Asp Ile Ile Met Pro Pro Leu Gly Leu Leu
35 40 45
Ile Gly Gly Ile Asp Phe Lys Gln Phe Ala Val Thr Leu Arg Asp Ala
50 55 60
Gln Gly Asp Ile Pro Ala Val Val Met His Tyr Gly Val Phe Ile Gln
65 70 75 80
Asn Val Phe Asp Phe Leu Ile Val Ala Phe Ala Ile Phe Met Ala Ile
85 90 95
Lys Leu Ile Asn Lys Leu Asn Arg Lys Lys Glu Glu Pro Ala Ala Ala
100 105 110
Pro Ala Pro Thr Lys Glu Glu Val Leu Leu Thr Glu Ile Arg Asp Leu
115 120 125
Leu Lys Glu Gln Asn Asn Arg Ser
130 135

<210> 69

<211> 201

<212> PRT

<213> Escherichia coli

<400> 69

Met Gly Lys Ile Ile Gly Ile Thr Gly Gly Ile Ala Ser Gly Lys Ser
1 5 10 15

Thr Val Thr Asn Phe Leu Arg Gln Gln Gly Phe Gln Ala Val Asp Ala
20 25 30

Asp Ala Val Val His Gln Leu Gln Lys Pro Gly Gly Arg Leu Phe Glu
35 40 45

Ala Leu Val Gln His Phe Gly Gln Glu Ile Ile Leu Glu Asn Gly Glu
50 55 60

Leu Asn Arg Pro Leu Leu Ala Ser Leu Ile Phe Ser Asn Pro Glu Glu
65 70 75 80

Gln Lys Trp Ser Asn Gln Ile Gln Gly Glu Ile Ile Arg Glu Glu Leu
85 90 95

Ala Thr Leu Arg Glu Gln Leu Ala Gln Thr Glu Glu Ile Phe Phe Met
100 105 110

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

Thr Trp Leu Val Tyr Val Asp Arg Asp Ala Gln Val Glu Arg Leu Met
130 135 140

Lys Arg Asp Gln Leu Ser Lys Asp Glu Ala Glu Ser Arg Leu Ala Ala
145 150 155 160

Gln Trp Pro Leu Glu Lys Lys Lys Asp Leu Ala Ser Gln Val Leu Asp
165 170 175

Asn Asn Gly Asn Gln Asn Gln Leu Leu Asn Gln Val His Ile Leu Leu
180 185 190

Glu Gly Gly Arg Gln Asp Asp Arg Asp
195 200

<210> 70

<211> 399

<212> PRT

<213> Escherichia coli

<400> 70

Met Thr Glu Ile Asn Trp Lys Asp Asn Leu Arg Ile Ala Trp Phe Gly
1 5 10 15

Asn Phe Leu Thr Gly Ala Ser Ile Ser Leu Val Val Pro Phe Met Pro
20 25 30

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Ile Phe Val₃₅ Glu Asn Leu Gly Val₄₀ Gly Ser Gln Gln Val₄₅ Ala Phe Tyr
Ala Gly₅₀ Leu Ala Ile Ser Val₅₅ Ser Ala Ile Ser Ala₆₀ Ala Leu Phe Ser
Pro Ile Trp Gly Ile Leu₇₀ Ala Asp Lys Tyr Gly₇₅ Arg Lys Pro Met Met₈₀
Ile Arg Ala Gly Leu₈₅ Ala Met Thr Ile Thr₉₀ Met Gly Gly Leu Ala₉₅ Phe
Val Pro Asn Ile₁₀₀ Tyr Trp Leu Ile Phe₁₀₅ Leu Arg Leu Leu Asn₁₁₀ Gly Val
Phe Ala Gly₁₁₅ Phe Val Pro Asn Ala₁₂₀ Thr Ala Leu Ile Ala₁₂₅ Ser Gln Val
Pro Lys₁₃₀ Glu Lys Ser Gly Ser₁₃₅ Ala Leu Gly Thr Leu₁₄₀ Ser Thr Gly Val
Val Ala Gly Thr Leu Thr₁₅₀ Gly Pro Phe Ile Gly₁₅₅ Gly Phe Ile Ala Glu₁₆₀
Leu Phe Gly Ile Arg₁₆₅ Thr Val Phe Leu Leu₁₇₀ Val Gly Ser Phe Leu₁₇₅ Phe
Leu Ala Ala Ile₁₈₀ Leu Thr Ile Cys Phe₁₈₅ Ile Lys Glu Asp Phe₁₉₀ Gln Pro
Val Ala Lys₁₉₅ Glu Lys Ala Ile Pro Thr Lys Glu Leu Phe₂₀₅ Thr Ser Val
Lys Tyr₂₁₀ Pro Tyr Leu Leu Leu₂₁₅ Asn Leu Phe Leu Thr₂₂₀ Ser Phe Val Ile
Gln Phe Ser Ala Gln Ser₂₃₀ Ile Gly Pro Ile Leu₂₃₅ Ala Leu Tyr Val Arg₂₄₀
Asp Leu Gly Gln Thr₂₄₅ Glu Asn Leu Leu Phe₂₅₀ Val Ser Gly Leu Ile₂₅₅ Val
Ser Ser Met Gly₂₆₀ Phe Ser Ser Met Met₂₆₅ Ser Ala Gly Val Met₂₇₀ Gly Lys
Leu Gly Asp₂₇₅ Lys Val Gly Asn His₂₈₀ Arg Leu Leu Val Val₂₈₅ Ala Gln Phe
Tyr Ser₂₉₀ Val Ile Ile Tyr Leu₂₉₅ Leu Cys Ala Asn Ala₃₀₀ Ser Ser Pro Leu

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Gln Leu Gly Leu Tyr Arg Phe Leu Phe Gly Leu Gly Thr Gly Ala Leu
305 310 315 320

Ile Pro Gly Val Asn Ala Leu Leu Ser Lys Met Thr Pro Lys Ala Gly
325 330 335

Ile Ser Arg Val Phe Ala Phe Asn Gln Val Phe Phe Tyr Leu Gly Gly
340 345 350

Val Val Gly Pro Met Ala Gly Ser Ala Val Ala Gly Gln Phe Gly Tyr
355 360 365

His Ala Val Phe Tyr Ala Thr Ser Leu Cys Val Ala Phe Ser Cys Leu
370 375 380

Phe Asn Leu Ile Gln Phe Arg Thr Leu Leu Lys Val Lys Glu Ile
385 390 395

<210> 71
<211> 285
<212> PRT
<213> Escherichia coli
<400> 71

Met Ala Thr Lys Leu Gln Asp Gly Asn Thr Pro Cys Leu Ala Ala Thr
1 5 10 15

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

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

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

Glu Ala Phe Ile Val Glu Arg Val Val Ala Ile Val Thr Ala Val Gln
65 70 75 80

Glu Arg Tyr Pro Leu Ala Leu Ala Val Val Ala Cys Asn Thr Ala Ser
85 90 95

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

Gly Val Val Pro Ala Ile Lys Pro Ala Ala Arg Leu Thr Ala Asn Gly
115 120 125

Ile Val Gly Leu Leu Ala Thr Arg Gly Thr Val Lys Arg Ser Tyr Thr
130 135 140

His Glu Leu Ile Ala Arg Phe Ala Asn Glu Cys Gln Ile Glu Met Leu
Seite 96

145 150 155 160

Gly Ser Ala Glu Met Val Glu Leu Ala Glu Ala Lys Leu His Gly Glu
165 170 175

Asp Val Ser Leu Asp Ala Leu Lys Arg Ile Leu Arg Pro Trp Leu Arg
180 185 190

Met Lys Glu Pro Pro Asp Thr Val Val Leu Gly Cys Thr His Phe Pro
195 200 205

Leu Leu Gln Glu Glu Leu Leu Gln Val Leu Pro Glu Gly Thr Arg Leu
210 215 220

Val Asp Ser Gly Ala Ala Ile Ala Arg Arg Thr Ala Trp Leu Leu Glu
225 230 235 240

His Glu Ala Pro Asp Ala Lys Ser Ala Asp Ala Asn Ile Ala Phe Cys
245 250 255

Met Ala Met Thr Pro Gly Ala Glu Gln Leu Leu Pro Val Leu Gln Arg
260 265 270

Tyr Gly Phe Glu Thr Leu Glu Lys Leu Ala Val Leu Gly
275 280 285

<210> 72
<211> 614
<212> PRT
<213> Escherichia coli

<400> 72

Met Ile Lys Lys Ala Ser Leu Leu Thr Ala Cys Ser Val Thr Ala Phe
1 5 10 15

Ser Ala Trp Ala Gln Asp Thr Ser Pro Asp Thr Leu Val Val Thr Ala
20 25 30

Asn Arg Phe Glu Gln Pro Arg Ser Thr Val Leu Ala Pro Thr Thr Val
35 40 45

Val Thr Arg Gln Asp Ile Asp Arg Trp Gln Ser Thr Ser Val Asn Asp
50 55 60

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

Gly Gln Leu Ser Ser Ile Phe Ile Arg Gly Thr Asn Ala Ser His Val
85 90 95

Leu Val Leu Ile Asp Gly Val Arg Leu Asn Leu Ala Gly Val Ser Gly
100 105 110

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Ser Ala Asp₁₁₅ Leu Ser Gln Phe₁₂₀ Pro Ile Ala Leu Val₁₂₅ Gln Arg Val Glu

Tyr Ile₁₃₀ Arg Gly Pro Arg Ser₁₃₅ Ala Val Tyr Gly Ser₁₄₀ Asp Ala Ile Gly

Gly Val Val Asn Ile₁₅₀ Ile Thr Thr Arg Asp₁₅₅ Glu Pro Gly Thr Glu Ile₁₆₀

Ser Ala Gly Trp Gly₁₆₅ Ser Asn Ser Tyr Gln₁₇₀ Asn Tyr Asp Val Ser₁₇₅ Thr

Gln Gln Gln₁₈₀ Leu Gly Asp Lys Thr Arg₁₈₅ Val Thr Leu Leu Gly₁₉₀ Asp Tyr

Ala His Thr₁₉₅ His Gly Tyr Asp Val₂₀₀ Val Ala Tyr Gly Asn₂₀₅ Thr Gly Thr

Gln Ala Gln Thr Asp Asn Asp₂₁₅ Gly Phe Leu Ser Lys₂₂₀ Thr Leu Tyr Gly

Ala Leu Glu His Asn Phe₂₃₀ Thr Asp Ala Trp Ser₂₃₅ Gly Phe Val Arg Gly₂₄₀

Tyr Gly Tyr Asp₂₄₅ Asn Arg Thr Asn Tyr Asp₂₅₀ Ala Tyr Tyr Ser₂₅₅ Pro Gly

Ser Pro Leu Leu₂₆₀ Asp Thr Arg Lys Leu₂₆₅ Tyr Ser Gln Ser Trp₂₇₀ Asp Ala

Gly Leu Arg₂₇₅ Tyr Asn Gly Glu Leu₂₈₀ Ile Lys Ser Gln Leu₂₈₅ Ile Thr Ser

Tyr Ser₂₉₀ His Ser Lys Asp Tyr₂₉₅ Asn Tyr Asp Pro His₃₀₀ Tyr Gly Arg Tyr

Asp₃₀₅ Ser Ser Ala Thr Leu₃₁₀ Asp Glu Met Lys Gln₃₁₅ Tyr Thr Val Gln Trp₃₂₀

Ala Asn Asn Val Ile₃₂₅ Val Gly His Gly Ser₃₃₀ Ile Gly Ala Gly Val₃₃₅ Asp

Trp Gln Lys Gln₃₄₀ Thr Thr Thr Pro Gly₃₄₅ Thr Gly Tyr Val Glu₃₅₀ Asp Gly

Tyr Asp Gln₃₅₅ Arg Asn Thr Gly Ile₃₆₀ Tyr Leu Thr Gly Leu₃₆₅ Gln Gln Val

Gly Asp₃₇₀ Phe Thr Phe Glu Gly₃₇₅ Ala Ala Arg Ser Asp₃₈₀ Asp Asn Ser Gln

Phe Gly Arg His Gly Thr Trp Gln Thr Ser Ala Gly Trp Glu Phe Ile
385 390 395 400

Glu Gly Tyr Arg Phe Ile Ala Ser Tyr Gly Thr Ser Tyr Lys Ala Pro
405 410 415

Asn Leu Gly Gln Leu Tyr Gly Phe Tyr Gly Asn Pro Asn Leu Asp Pro
420 425 430

Glu Lys Ser Lys Gln Trp Glu Gly Ala Phe Glu Gly Leu Thr Ala Gly
435 440 445

Val Asn Trp Arg Ile Ser Gly Tyr Arg Asn Asp Val Ser Asp Leu Ile
450 455 460

Asp Tyr Asp Asp His Thr Leu Lys Tyr Tyr Asn Glu Gly Lys Ala Arg
465 470 475 480

Ile Lys Gly Val Glu Ala Thr Ala Asn Phe Asp Thr Gly Pro Leu Thr
485 490 495

His Thr Val Ser Tyr Asp Tyr Val Asp Ala Arg Asn Ala Ile Thr Asp
500 505 510

Thr Pro Leu Leu Arg Arg Ala Lys Gln Gln Val Lys Tyr Gln Leu Asp
515 520 525

Trp Gln Leu Tyr Asp Phe Asp Trp Gly Ile Thr Tyr Gln Tyr Leu Gly
530 535 540

Thr Arg Tyr Asp Lys Asp Tyr Ser Ser Tyr Pro Tyr Gln Thr Val Lys
545 550 555 560

Met Gly Gly Val Ser Leu Trp Asp Leu Ala Val Ala Tyr Pro Val Thr
565 570 575

Ser His Leu Thr Val Arg Gly Lys Ile Ala Asn Leu Phe Asp Lys Asp
580 585 590

Tyr Glu Thr Val Tyr Gly Tyr Gln Thr Ala Gly Arg Glu Tyr Thr Leu
595 600 605

Ser Gly Ser Tyr Thr Phe
610

<210> 73
<211> 538
<212> PRT
<213> Escherichia coli

<400> 73

Met Phe Arg Arg Asn Leu Ile Thr Ser Ala Ile Leu Leu Met Ala Pro
1 5 10 15

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Leu Ala Phe Ser Ala Gln Ser Leu Ala Glu Ser Leu Thr Val Glu Gln
 20 25 30
 Arg Leu Glu Leu Leu Glu Lys Ala Leu Arg Glu Thr Gln Ser Glu Leu
 35 40 45
 Lys Lys Tyr Lys Asp Glu Glu Lys Lys Lys Tyr Thr Pro Ala Thr Val
 50 55 60
 Asn Arg Ser Val Ser Thr Asn Asp Gln Gly Tyr Ala Ala Asn Pro Phe
 65 70 75 80
 Pro Thr Ser Ser Ala Ala Lys Pro Asp Ala Val Leu Val Lys Asn Glu
 85 90 95
 Glu Lys Asn Ala Ser Glu Thr Gly Ser Ile Tyr Ser Ser Met Thr Leu
 100 105 110
 Lys Asp Phe Ser Lys Phe Val Lys Asp Glu Ile Gly Phe Ser Tyr Asn
 115 120 125
 Gly Tyr Tyr Arg Ser Gly Trp Gly Thr Ala Ser His Gly Ser Pro Lys
 130 135 140
 Ser Trp Ala Ile Gly Ser Leu Gly Arg Phe Gly Asn Glu Tyr Ser Gly
 145 150 155 160
 Trp Phe Asp Leu Gln Leu Lys Gln Arg Val Tyr Asn Glu Asn Gly Lys
 165 170 175
 Arg Val Asp Ala Val Val Met Met Asp Gly Asn Val Gly Gln Gln Tyr
 180 185 190
 Ser Thr Gly Trp Phe Gly Asp Asn Ala Gly Gly Glu Asn Tyr Met Gln
 195 200 205
 Phe Ser Asp Met Tyr Val Thr Thr Lys Gly Phe Leu Pro Phe Ala Pro
 210 215 220
 Glu Ala Asp Phe Trp Val Gly Lys His Gly Ala Pro Lys Ile Glu Ile
 225 230 235 240
 Gln Met Leu Asp Trp Lys Thr Gln Arg Thr Asp Ala Ala Ala Gly Val
 245 250 255
 Gly Leu Glu Asn Trp Lys Val Gly Pro Gly Lys Ile Asp Ile Ala Leu
 260 265 270
 Val Arg Glu Asp Val Asp Asp Tyr Asp Arg Ser Leu Gln Asn Lys Gln
 275 280 285

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Gln Ile Asn Thr Asn Thr Ile Asp Leu Arg Tyr Lys Asp Ile Pro Leu
290 295 300

Trp Asp Lys Ala Thr Leu Met Val Ser Gly Arg Tyr Val Thr Ala Asn
305 310 315 320

Glu Ser Ala Ser Glu Lys Asp Asn Gln Asp Asn Asn Gly Tyr Tyr Asp
325 330 335

Trp Lys Asp Thr Trp Met Phe Gly Thr Ser Leu Thr Gln Lys Phe Asp
340 345 350

Lys Gly Gly Phe Asn Glu Phe Ser Phe Leu Val Ala Asn Asn Ser Ile
355 360 365

Ala Ser Asn Phe Gly Arg Tyr Ala Gly Ala Ser Pro Phe Thr Thr Phe
370 375 380

Asn Gly Arg Tyr Tyr Gly Asp His Thr Gly Gly Thr Ala Val Arg Leu
385 390 395 400

Thr Ser Gln Gly Glu Ala Tyr Ile Gly Asp His Phe Ile Val Ala Asn
405 410 415

Ala Ile Val Tyr Ser Phe Gly Asn Asp Ile Tyr Ser Tyr Glu Thr Gly
420 425 430

Ala His Ser Asp Phe Glu Ser Ile Arg Ala Val Val Arg Pro Ala Tyr
435 440 445

Ile Trp Asp Gln Tyr Asn Gln Thr Gly Val Glu Leu Gly Tyr Phe Thr
450 455 460

Gln Gln Asn Lys Asp Ala Asn Ser Asn Lys Phe Asn Glu Ser Gly Tyr
465 470 475 480

Lys Thr Thr Leu Phe His Thr Phe Lys Val Asn Thr Ser Met Leu Thr
485 490 495

Ser Arg Pro Glu Ile Arg Phe Tyr Ala Thr Tyr Ile Lys Ala Leu Glu
500 505 510

Asn Glu Leu Asp Gly Phe Thr Phe Glu Asp Asn Lys Asp Asp Gln Phe
515 520 525

Ala Val Gly Ala Gln Ala Glu Ile Trp Trp
530 535

<210> 74
<211> 398
<212> PRT
<213> Escherichia coli

<400> 74

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Met Glu Leu Asn Glu Arg Asn Ile Thr Met Asn Ile Lys Ile Ala Ala
 1      5      10      15

Leu Thr Leu Ala Ile Ala Ser Gly Ile Ser Ala Gln Trp Ala Ile Ala
 20      25      30

Ala Asp Met Pro Ala Ser Pro Ala Pro Thr Ile Pro Val Lys Gln Tyr
 35      40      45

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

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

Asn Ile His Pro Met Thr Lys Asp Glu Ala Gly Val Trp Ser Trp Arg
 85      90      95

Thr Pro Ile Leu Lys Gly Asn Leu Tyr Glu Tyr Phe Phe Asn Val Asp
100      105      110

Gly Val Arg Ser Ile Asp Thr Gly Thr Ala Met Thr Asn Pro Gln Arg
115      120      125

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

Arg Ser Val Ala His Gly Asp Leu Ile Ala Ile Thr Tyr His Ser Asn
145      150      155      160

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

Thr Gly Met Gly Glu Pro Leu Pro Val Leu Tyr Phe Tyr His Gly Phe
180      185      190

Gly Asp Thr Gly Arg Ser Ala Ile Asp Gln Gly Arg Ile Pro Gln Ile
195      200      205

Met Asp Asn Leu Leu Ala Glu Gly Lys Ile Lys Pro Met Leu Val Val
210      215      220

Ile Pro Asp Thr Glu Thr Asp Ala Lys Gly Ile Ile Pro Glu Asp Phe
225      230      235      240

Val Pro Gln Glu Arg Arg Lys Val Phe Tyr Pro Leu Asn Ala Lys Ala
245      250      255

Ala Asp Arg Glu Leu Met Asn Asp Ile Ile Pro Leu Ile Ser Lys Arg
260      265      270

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Phe Asn Val Arg Lys Asp Ala Asp Gly Arg Ala Leu Ala Gly Leu Ser
275 280 285

Gln Gly Gly Tyr Gln Ala Leu Val Ser Gly Met Asn His Leu Glu Ser
290 295 300

Phe Gly Trp Leu Ala Thr Phe Ser Gly Val Thr Thr Thr Thr Val Pro
305 310 315 320

Asp Glu Gly Val Ala Ala Arg Leu Asn Asp Pro Ala Ala Ile Asn Gln
325 330 335

Gln Leu Arg Asn Phe Thr Val Val Val Gly Asp Lys Asp Val Val Thr
340 345 350

Gly Lys Asp Ile Ala Gly Leu Lys Thr Glu Leu Glu Gln Lys Lys Ile
355 360 365

Asn Phe Asp Tyr Gln Glu Tyr Pro Gly Leu Asn His Glu Met Asp Val
370 375 380

Trp Arg Pro Ala Tyr Ala Ala Phe Val Gln Lys Leu Phe Lys
385 390 395

<210> 75
<211> 33
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 75
accggaattc cggatggcgc gttccaaaac tgc

33

<210> 76
<211> 40
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 76
catgccatgg ctcgagttag aaacggaagg ttgcggttgc

40

<210> 77
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 77
agcaggcccc catgctgcct gtgcataaac

30

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<210> 78
<211> 29
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 78
ctttttgaat cggcgttgcc tgtgcataa                29

<210> 79
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 79
agcgcttctt ttaccgatgc ctgtgcataa                30

<210> 80
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 80
cttcaggcca ttcagtcct gtgcataaac                30

<210> 81
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 81
ctgaacttct ttcagtcct gtgcataaac                30

<210> 82
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 82
gtttatgcac aggcagcatg ggggcctgct                30

<210> 83
<211> 31
<212> DNA
<213> Artificial

<220>
<223> Primer

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<400> 83	
gtttatgcac aggcaacgcc gattcaaaa g	31
<210> 84	
<211> 30	
<212> DNA	
<213> Artificial	
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<223> Primer	
<400> 84	
ttatgcacag gcatcggtaa aagaagcgct	30
<210> 85	
<211> 30	
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