

eolf-seq1.txt
SEQUENCE LISTING

<110> InterCell AG
 <120> Protective proteins of *S. agalactiae*, combinations thereof and methods of using the same
 <130> ICP057-PCT
 <150> EP07000602.8
 <151> 2007-01-12
 <160> 425
 <170> PatentIn version 3.5
 <210> 1
 <211> 295
 <212> PRT
 <213> *Streptococcus agalactiae*
 <400> 1

Leu Cys Leu Ala Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr
 1 5 10 15

Lys Lys Pro Gly His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr
 20 25 30

Glu Ser Ser Ile Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu
 35 40 45

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

Thr His Gln Ala Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg
 65 70 75 80

Tyr Thr Gly Thr Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys
 85 90 95

Asp Thr Lys Glu Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg
 100 105 110

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

Phe Met Val Thr Lys Glu Phe Ala Arg Gln Asn Lys Ile Thr Lys Ile
 130 135 140

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

Ser Trp Met Asn Arg Glu Gly Asp Gly Tyr Thr Asp Phe Ala Lys Thr
 165 170 175

Tyr Gly Phe Glu Phe Ser His Ile Tyr Pro Met Gln Ile Gly Leu Val
 180 185 190

eo1f-seq1.txt

Tyr Asp Ala Val Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser
195 200 205

Thr Asp Gly Arg Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp
210 215 220

Lys Lys Phe Phe Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser
225 230 235 240

Ile Ile Lys Lys Asp Pro Lys Leu Lys Lys Leu Leu His Arg Leu Asp
245 250 255

Gly Lys Ile Asn Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp
260 265 270

Asp Lys Leu Leu Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys
275 280 285

Asn His Tyr Phe Arg Gly Asp
290 295

<210> 2
<211> 319
<212> PRT
<213> Streptococcus agalactiae

<400> 2

Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu Glu Arg Arg
1 5 10 15

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
20 25 30

Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu Glu Arg Arg
35 40 45

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

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
65 70 75 80

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
85 90 95

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

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

eo1f-seq1.txt

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

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

Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu Glu Arg Arg
165 170 175

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

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
195 200 205

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

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
225 230 235 240

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
245 250 255

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

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
275 280 285

Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu Glu Arg Arg
290 295 300

Gln Arg Asp Ala Glu Asn Lys Ser Gln Val Gly Gln Leu Ile Gly
305 310 315

<210> 3
<211> 400
<212> PRT
<213> Streptococcus agalactiae
<400> 3

Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe Gly
1 5 10 15

Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr Arg
20 25 30

Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr Ser
35 40 45

Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro Tyr
50 55 60

eo1f-seq1.txt

Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile Thr
 65 70 75 80
 Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu Lys
 85 90 95
 Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg Lys
 100 105 110
 Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys Ser
 115 120 125
 Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe Val
 130 135 140
 Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu Gln
 145 150 155 160
 Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr Asn
 165 170 175
 Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr Ile
 180 185 190
 Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val Phe
 195 200 205
 Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe Trp
 210 215 220
 Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys Tyr
 225 230 235 240
 Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr Asn
 245 250 255
 Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile Cys
 260 265 270
 Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val Leu
 275 280 285
 Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser Asn
 290 295 300
 Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr Arg
 305 310 315 320
 Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr Met
 325 330 335

eo1f-seq1.txt

Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu Phe
340 345 350

Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser Phe
355 360 365

Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe Ser
370 375 380

Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile Lys
385 390 395 400

<210> 4

<211> 619

<212> PRT

<213> Streptococcus agalactiae

<400> 4

Asp Asp Val Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro
1 5 10 15

Gln Ala Ala Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp
20 25 30

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

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

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

Leu Glu Ala Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr
85 90 95

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

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

Ile Leu Ala Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu
130 135 140

Val Asn Asn Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn
145 150 155 160

Thr Glu Thr Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu
165 170 175

Asp Tyr Thr Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val
Page 5

eo1f-seq1.txt

180

185

190

Gly Asp Lys Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser
195 200 205

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

Phe Asn Asn Asn Val Lys Val Thr Leu Asp Gly Lys Asp Phe Pro Val
225 230 235 240

Leu Asn Tyr Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu
245 250 255

Asn Ala Thr Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp
260 265 270

Val Glu Ile Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr
275 280 285

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

Pro Thr Glu Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu
305 310 315 320

Ile Lys Val Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Val
325 330 335

Asn Val Ala Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp
340 345 350

Gly Thr Trp Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg
355 360 365

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

Val Glu Arg Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn
385 390 395 400

Gly Val Val Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro
405 410 415

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

Lys Thr Asn Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu
435 440 445

Val Lys Lys Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr
450 455 460

eo1f-seq1.txt

Ala Glu Ala Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu
465 470 475 480

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

Glu Gly Lys Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr
500 505 510

Asn Asp Ala Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp
515 520 525

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

Phe Glu Ile Thr Gly Leu Asp Lys Gly Thr Tyr Ser Leu Glu Glu Thr
545 550 555 560

Gln Ala Pro Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu
565 570 575

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

Asp Lys Gly Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys
595 600 605

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr
610 615

<210> 5
<211> 836
<212> PRT
<213> Streptococcus agalactiae

<400> 5

Glu Ser Thr Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys
1 5 10 15

Lys Thr Asp Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu
20 25 30

Lys Thr Thr Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu
35 40 45

Leu Thr Gly Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr
50 55 60

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

eo1f-seq1.txt

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

Gly Asp Lys Asn Ser Thr Ile Gly Gln Asn His Glu Glu Leu Asp Lys
100 105 110

Gln Tyr Pro Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys
115 120 125

Leu Glu His Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys
130 135 140

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

Glu Gly Thr Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His
165 170 175

Asn Lys Tyr Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys
180 185 190

Pro Val Asp Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn
195 200 205

Ser Asn Ser Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys
210 215 220

Ala Lys Lys Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu
225 230 235 240

Gly Ala Asn Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp
245 250 255

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

Asp Lys Tyr Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn
275 280 285

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

Ile Pro Thr Glu Ala Pro Arg Ala Lys Trp Gly Ser Thr Thr Asn Gly
305 310 315 320

Leu Thr Pro Glu Gln Gln Lys Gln Tyr Tyr Leu Ser Lys Val Gly Glu
325 330 335

Thr Phe Thr Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln
340 345 350

Val Asp Arg Asn Ser Gln Lys Ile Ile Val His Ile Thr Asp Gly Val

eo1f-seq1.txt

355

360

365

Pro Thr Arg Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr
 370 375 380

Glu Ser Gln Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser
 385 390 395 400

Asn Phe Leu Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu
 405 410 415

Ser Tyr Phe Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser
 420 425 430

Gly Asn Leu Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro
 435 440 445

Lys Gly Thr Ile Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro
 450 455 460

Thr Lys Leu Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe
 465 470 475 480

Asn Phe Gly Ile Asp Ile Ser Ala Phe Arg Gln Val Tyr Asn Glu Asp
 485 490 495

Tyr Lys Lys Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala
 500 505 510

Phe Glu Leu Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser
 515 520 525

Ser Lys Pro Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser
 530 535 540

Asn Asn Glu Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Val Leu
 545 550 555 560

Thr Lys Glu Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly
 565 570 575

Asp Lys Ile Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser
 580 585 590

Asp Tyr Thr Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile
 595 600 605

Ala Thr Gly Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys
 610 615 620

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

eo1f-seq1.txt

Glu Gly Gln Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser
645 650 655

Phe Ile Ser Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn
660 665 670

Pro Lys Ser Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys
675 680 685

Ile Arg Asp Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys
690 695 700

Lys Leu Gly Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys
705 710 715 720

Leu Leu Leu Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp
725 730 735

Tyr Lys Leu Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr
740 745 750

Gly Glu Asn Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr
755 760 765

Gln Leu Ile Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn
770 775 780

Lys Pro Ile Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile
785 790 795 800

Ile Ala Val Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys
805 810 815

His Leu Ile Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met
820 825 830

Thr Gly Gly Lys
835

<210> 6
<211> 577
<212> PRT
<213> Streptococcus agalactiae

<400> 6

Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys Lys Gln Val
1 5 10 15

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

eo1f-seq1.txt

Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn Asp Phe Asn
35 40 45

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

Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys Gln Asn Lys
65 70 75 80

Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu Leu Gly Lys
85 90 95

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
100 105 110

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
115 120 125

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
130 135 140

Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp Val Ala Leu
145 150 155 160

Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
165 170 175

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

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
195 200 205

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

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

Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu Asn Ser Ile
245 250 255

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
260 265 270

Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala Leu Ser Lys
275 280 285

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
290 295 300

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp

eof-seq1.txt

<210> 7
 <211> 885
 <212> DNA
 <213> Streptococcus agalactiae

<400> 7
 ctttgcttag ccctcttaac gatttctggt tgtcaattaa ccgatactaa aaaacctggt 60
 cataccacaa ttaagggttg tgcccaaagt tctacagagt ctagtatcat ggcaaatatt 120
 gtcaccgaat taattcatca cgaattagga tacaacacaa ctttaataag caatcttggt 180
 tcctctacgg ttactcacca agctttgctc cgtgggtgatg ctgacattgc tgccacacgt 240
 tatacaggaa cagacatcac aggaactctt ggcttaaaag ctgttaaaga cactaaagaa 300
 gcttctaaga ttgtaaaaac tgaattccaa aaacgctaca atcaaacttg gtatcctact 360
 tatggttttt ctgatactta tgcattcatg gttactaaag agtttgccag acagaataaa 420
 atcaccaaga tctctgatct caaaaagtta tcaacaacta tgaaggcagg ggttgatagt 480
 tcatggatga atcgcgaggg agatggatac actgatttcg ctaaaacata cggttttgaa 540
 ttttcacata tttaccctat gcaaattggc ttagtctatg atgcagttga aagtaacaaa 600
 atgcaatctg tattaggcta ctccactgac ggtcgtatct cgagctatga tttagaaatt 660
 ttaagggatg ataaaaaatt ctttcctcct tatgaagcct ctatggttgt caacaattct 720
 atcatcaaaa aagatcctaa actaaaaaaa ttactccatc gactcgatgg taaaatcaat 780
 ttaaaaacga tgcaaaacct taattatatg gtagatgata aacttttaga accttcagtt 840
 gttgccaac aattttttaga aaaaaacat tattttagag gagat 885

<210> 8
 <211> 957
 <212> DNA
 <213> Streptococcus agalactiae

<400> 8
 atggatagt ttggaaatca aagtcagggc aatgttttag agcgtcgtca acgtgatgca 60
 gaaaacagaa gccaaaggca tgttctagag cgtcgtcaac gcgatgttga gaataagagc 120
 caaggcaatg ttttagagcg tcgtcaacgt gatgcgaaa acaagagcca aggcaatgtt 180
 ttagagcgtc gtcaacgtga tgcagaaaac agaagccaag gcaatgttct agagcgtcgt 240
 caacgtgatg cagaaaacag aagccaaggc aatgttctag agcgtcgtca acgcgatgca 300
 gaaaacagaa gccaaaggta tgttctagag cgtcgtcaac gtgatgcaga aaacagaagc 360
 caaggtaatg ttctagagcg tcgtcaacgt gatgcagaaa acagaagcca aggtaatgtt 420
 ctagagcgtc gtcaacgcga tgttgagaat aagagccaag gcaatgtttt agagcgtcgt 480
 caacgtgatg cggaaaacaa gagccaaggc aatgttttag agcgtcgtca acgtgatgca 540
 gaaaacagaa gccaaaggca tgttttagag cgtcgtcaac gtgatgcaga aaacagaagc 600
 caaggcaatg ttctagagcg tcgtcaacgt gatgcagaaa acagaagcca aggcaatgtt 660
 ctagagcgtc gtcaacgtga tgcagaaaac agaagccaag gcaatgttct agagcgtcgt 720

eol-f-seq1.txt

caacgcgatg cagaaaacag aagccaaggt aatgttctag agcgtcgtca acgtgatgca	780
gaaaacagaa gccaaaggcaa tgttttagag cgtcgtcaac gtgatgcaga aaacagaagc	840
caaggcaatg ttttagagcg tcgtcaacgt gatgcagaaa acagaagcca aggcaatggt	900
ttagagcgtc gtcaacgtga tgcggaaaac aagagccaag taggtcaact tataggg	957

<210> 9
 <211> 1200
 <212> DNA
 <213> Streptococcus agalactiae

<400> 9	
agtgtaacct attcacagtc tgaacgtacg gttgttttct cttttggaga aataacattt	60
agtaggagtc gctggacaaa tggctttgaa actagaatac cagtagatga gtggttaggt	120
cttgaaaaat ataagagata ttcaatagaa ttcttatatc atgttgcaaa attggctaca	180
atgatgcctt atcgtcaagt ttgcaaagta atagatagca ctttgcaaac aatcataaca	240
aaagactgtg ttttaaaagc agtaaaattt gtagaaaaat tgttaaaaga aaaagaacgc	300
tatcgttttt atttggaaga gccacccgaa cgtaaaaaag tgaaaaaact gtatgttgag	360
ggtgatggag tcatgattaa aagcacagat tctagagagg aaagaaggta tttagattta	420
acacattttg ttattcatac aggctcaaaa aaagtttcta ctaaaagata tgaattgcag	480
gacaagcacg aaatattaca gcttaattat gataaagcta aatataatct tttagattat	540
atttataata actatgaagt agatgacgat actattttaa tcactaactc tgatatgggt	600
aaaggctata ctagtagagt ttttaaggaa ttaggaaaag cacttaaggt aaagaaacat	660
gagcattttt gggatatcta tcatgttaaa gaaaagttaa gttcatacct tagaaaatat	720
ccaattgaat taaccgattt tgcttttagat gcggtaaaaa aatataattc tgataagctt	780
gaattagttt ttgatactgt tgaatcactg atttgtgatg aacttgaaga tcaagaattt	840
cagaagttta agaaaaaagt attaaataat ttcaaatata taaaaccagc tcattcttaga	900
aatctttcaa atcgtgggtat tgggtatcatg gaatcacac acagaaagat aacgtataga	960
atgaagcgac gtggcatgta ttgggtcaaaag tggggaatct ccacaatggc aaatatgatt	1020
atacttgaaa gagctaacgg ttacgagaa ttatttttcg gttcttgag aaaggatac	1080
agtgagtata aagaaggttc atttagtgca gggcgacttt ttaaaaagac agatgaatta	1140
gataaatttt ctaagcccct tctaaaaaat ggcagaaaat ggagtataac aggaatcaaa	1200

<210> 10
 <211> 1857
 <212> DNA
 <213> Streptococcus agalactiae

<400> 10	
gacgacgtaa caactgatac tgtgaccttg cacaagattg tcatgccaca agctgcattt	60
gataacttta ctgaaggtag aaaaggtaag aatgatagcg attatgttgg taaacaaatt	120
aatgacctta aatcttattt tggctcaacc gatgctaaag aaattaaggg tgctttcttt	180
gttttcaaaa atgaaactgg tacaaaattc attactgaaa atggtaagga agtcgatact	240

eof-seq1.txt

ttggaagcta aagatgctga aggtggtgct gttctttcag ggttaacaaa agacactggt	300
tttgctttta acactgctaa gttaaaagga acttaccaaa tcgttgaatt gaaagaaaaa	360
tcaaactacg ataacaacgg ttctatcttg gctgattcaa aagcagttcc agttaaatac	420
actctgccat tggtaaaca ccaagggtgt gttaaagatg ctcacattta tccaaagaat	480
actgaaacaa aaccacaagt agataagaac tttgcagata aagatcttga ttatactgac	540
aaccgaaaag acaaagggtgt tgtctcagcg acagttggtg acaaaaaaga atacatagtt	600
ggaacaaaaa ttcttaaagg ctcagactat aagaaactgg tttggactga tagcatgact	660
aaaggtttga cgttcaacaa caacgttaaa gtaacattgg atggtaaaga ttttcctggt	720
ttaactaca aactcgtaac agatgacca ggtttccgtc ttgccttgaa tgcaacaggt	780
cttgacgag tagcagctgc tgcaaaagac aaagatgttg aaatcaagat cacttactca	840
gctacggtga acggctccac tactgttgaa gttccagaaa ccaatgatgt taaattggac	900
tatggtaata acccaacgga agaaagtga ccacaagaag gtactccagc taaccaagaa	960
attaaagtca ttaaagactg ggcagtagat ggtacaatta ctgatgttaa tgttgcagtt	1020
aaagctatct ttaccttgca agaaaaacaa acggatggta catgggtgaa cgttgcttca	1080
cacgaagcaa caaaaccatc acgctttgaa catactttca caggtttgga taatactaaa	1140
acttaccgcg ttgtcgaacg tgtagcggc tacactccag aatatgtatc atttaaaaat	1200
ggtgttgtga ctatcaagaa caacaaaaac tcaaatgatc caactccaat caacccatca	1260
gaacaaaaag tggtgactta tggacgtaaa tttgtgaaaa caaatcaagc taactactgaa	1320
cgcttggcag gagctacctt ccttggttaag aaagaaggaa aatacttggc acgtaaagca	1380
ggtgcagcaa ctgctgaagc aaaggcagct gtaaaaactg ctacttagc attggatgaa	1440
gctgttaaag cttataacga cttgactaaa gaaaaacaag aaggccaaga aggtaaaaca	1500
gcattggcta ctgttgatca aaaacaaaaa gcttacaatg acgcttttgt taaagctaac	1560
tactcatatg aatgggttgc agataaaaag gctgataatg ttgttaaatt gatctctaac	1620
gccggtggc aatttgaaat tactggtttg gataaaggca cttatagctt ggaagaaact	1680
caagcaccag caggttatgc gacattgtca ggtgatgtaa actttgaagt aactgccaca	1740
tcatatagca aaggggtac aactgacatc gcatatgata aaggatctgt aaaaaaagat	1800
gccaacaag ttcaaaacaa aaaagtaacc atcccacaaa cagggtggtat tggtaaca	1857

<210> 11
 <211> 2508
 <212> DNA
 <213> Streptococcus agalactiae

<400> 11	
gaaagtaccg taccgaaaa tggtgctaaa ggaaagttag ttgttaaaaa gacagatgac	60
cagaacaaac cactttcaaa agctaccttt gttttaaaaa ctactgctca tccagaaagt	120
aaaatagaaa aagtaactgc tgagctaaca ggtgaagcta cttttgataa tctcatacct	180
ggagattata ctttatcaga agaaacagcg cccgaagggt ataaaaagac taaccagact	240

eo1f-seq1.txt

tggcaagtta aggttgagag taatggaaaa actacgatac aaaatagtggtg tgataaaaaat	300
tccacaattg gacaaaatca cgaagaacta gataagcagt atccccccac aggaatttat	360
gaagatacaa aggaatctta taaacttgag catgttaaag gttcagttcc aaatggaaag	420
tcagaggcaa aagcagttaa cccatattca agtgaagggtg agcatataag agaaattcca	480
gagggaacat tatctaaacg tatttcagaa gtaggtgatt tagctcataa taaatataaa	540
attgagttaa ctgtcagtggtg aaaaaccata gtaaaaccag tggacaaaca aaagccgtta	600
gatgttgtct tcgtactcga taattctaac tcaatgaata acgatggccc aaattttcaa	660
aggcataata aagccaagaa agctgccgaa gctcttggtg cgcagtaaa agatatttta	720
ggagcaaaca gtgataatag ggttgcatga gttacctatg gttcagatat ttttgatggt	780
aggagtgtag atgtcgtaaa aggatttaaa gaagatgata aatattatgg cttcaaact	840
aagttcaciaa ttcagacaga gaattatagt cataaacaat taacaaataa tgctgaagag	900
attataaaaa ggattcctac agaagctcct agagctaaat ggggatcaac tacaacgga	960
cttactccag agcaacaaaa gcagtactat cttagtaaag taggggaaac atttactatg	1020
aaagccttca tggaggcaga tgatattttg agtcaagtag atcgaaatag tcaaaaaatt	1080
attgttcata taactgatgg tgttccaaca agatcatatg ctattaataa ttttaaattg	1140
ggtgcatcat atgaaagcca atttgaaca atgaaaaaaa atggatatct aaataaaagt	1200
aattttctac ttactgataa gcccaggat ataaaaggaa atggggagag ttactttttg	1260
tttcccttag atagttatca aacacagata atctctggaa acttacaaaa acttcattat	1320
ttagatttaa atcttaatta ccctaaagggt acaatttatc gaaatggacc agtaagagaa	1380
catggaacac caaccaaact ttatataaat agttttaaac agaaaaatta tgacatcttt	1440
aattttggtg tagatatatc tgcttttaga caagtttata atgaggatta taagaaaaat	1500
caagatggta cttttcaaaa attgaaagag gaagcttttg aactttcaga tggggaaata	1560
acagaactaa tgaagtcatt ctcttctaaa cctgagtatt ataccccgat agtaacttca	1620
tccgatgcat ctaacaatga aattttatct aaaattcagc aacaatttga aaaggtttta	1680
acaaaagaaa actcaattgt taatggaact atagaagatc ctatgggtga caaatcaat	1740
ttacagcttg gcaacggaca aacattgcaa ccaagtgtt atactttaca gggaaatgat	1800
ggaagtataa tgaaagatag cattgcaact ggtgggccta ataatgatgg tggaatactt	1860
aaaggggtta aattagaata catcaaaaat aaactctacg ttagaggttt gaacttaggg	1920
gagggacaaa aagtaacact cacatatgat gtgaaactag atgacagttt tataagtaac	1980
aaattctatg aactaatgg tagaacaaca ttgaatccta aatcagagga tcctaataca	2040
cttagagatt ttccaatccc taaaattcgt gatgtgagag aatattctac aataacgatt	2100
aaaaacgaga agaagttagg tgaaattgaa ttacaaaaag ttgataaaga taataataag	2160
ttgcttctca aaggagctac gtttgaactt caagaattta atgaagatta taaactttat	2220
ttaccaataa aaaataataa ttcaaaagta gtgacgggag aaaacggcaa aatttcttac	2280

eolf-seq1.txt

aaagatttga aagatggcaa atatcagtta atagaagcag tttcgccgaa ggattatcaa	2340
aaaattacta ataaaccaat ttttaactttt gaagttgtta aaggatcgat acaaaatata	2400
atagctgtta ataaacagat ttctgaatat catgaggaag gtgacaagca ttttaattacc	2460
aacacgcata ttccaccaaa aggaattatt cccgatgacag gtgggaaa	2508

<210> 12
 <211> 1731
 <212> DNA
 <213> Streptococcus agalactiae

<400> 12	
gatactagt	60
caggaatatc ggcttcaatt cctcataaga aacaagttaa tttagggg	
ggtactctga agaatttgat ttctaatat cgtggtaatg acaaagctat tgctatactt	120
tttaagtagag taaatgattt taatagagca tcacaggata cacttccaca attaattaat	180
agtactgaag cagaaattag aaatatTTTA tatcaaggac aaattggtaa gcaaaataaa	240
ccaagtgtaa ctacacatgc taaagttagt gatcaagaac taggtaagca gtcaagacgt	300
tctcaagata tcattaagtc attaggtttc ctttcatcag accaaaaaga tattttagtt	360
aaatctatta gctcttcaaa agattcgcaa cttattctta aatttgtaac tcaagccacg	420
caactgaata atgctgaatc aacaaaagct aagcaaatgg ctcaaaatga cgtggcctta	480
ataaaaaata taagccccga agtcttagaa gaatataaag aaaaaattca aagagctagc	540
actaagagtc aagttgatga gttttagtga gaagctaaaa aagttgttaa ttccaataaa	600
gaaacgttgg taaatcaggc caatggtaaa aagcaagaaa ttgctaagtt agaaaattta	660
tctaacgatg aaatgttgag atataatact gcaattgata atgtagtgaa acagtataat	720
gaaggtaagc tcaatattac tgctgcaatg aatgctttta atagtattaa gcaagcagca	780
caggaagttg cccagaaaaa cttacaaaag cagtatgcta aaaaaattga aagaataagt	840
tcaaaaggat tagcgttatc taaaaaggct aaagaaattt atgaaaagca taaaagtatt	900
ttgcctacac ctggatatta tgcagactct gtgggaactt atttgaatag gtttagagat	960
aaacaaactt tcggaaatag gagtgtttgg actgggtcaaa gtggacttga tgaagcaaaa	1020
aaaatgcttg atgaagtcaa aaagctttta aaagaacttc aagaccttac cagagg tact	1080
aaagaagata aaaaaccaga cgttaagcca gaagccaaac cagaggccaa accaaatatt	1140
caagtaccta aacaagcacc tacagaagct gcaaaaccag ctttgtcacc agaagccttg	1200
acaagattga ctacatggta taatcaagct aaagatctgc tttaagatga tcaagtaaag	1260
gacaaatacg tagatatact tgcagttcaa aaagctgttg accaagctta tgatcatgtg	1320
gaagagggaa aattttattac cactgatcaa gcaaatcaat tagctaacia gctacgtgat	1380
gctttacaaa gtttagaatt aaaagataaa aaagtagcca aaccagaagc caaaccagag	1440
gccaaaccag aagctaagcc agaagctaag ccagaagcta agccagaagc taagccagag	1500
gccaaaccag aagctaagcc agacgttaag ccagaagcta aaccagacgt taaaccagag	1560
gctaagccag aagctaaacc agaggctaag tcagaagcta aaccagaggc taagctagaa	1620

eolf-seq1.txt

gctaaaccag aggccaaacc agcaacaaaa aaatcgggta atactagcgg aaacttggcg 1680

gctaaaaaag ctattgaaaa caaaaagtat agtaaaaaat taccatcaac g 1731

<210> 13
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs0233 1

<400> 13
 gggggcaciaa ttctgttat 20

<210> 14
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs0233 2

<400> 14
 aaaaagtggg ggataaattg ttct 24

<210> 15
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1087 1

<400> 15
 cattgtaaat cttaatgtta gtatga 26

<210> 16
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1087 2

<400> 16
 tgactttgat ttccaacact atcc 24

<210> 17
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1087 3

<400> 17
 ggtttttagaa cttggaaatc agga 24

<210> 18
 <211> 26
 <212> DNA
 <213> Artificial Sequence

eof-seq1.txt

```

<220>
<223> Primer gbs1087 4

<400> 18
ggtctattag ctacattagt aacctg 26

<210> 19
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer gbs1087 5

<400> 19
agagaaaata atcactctag tcaagg 26

<210> 20
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer gbs1087 6

<400> 20
aaaaagtcac cctaaccaac c 21

<210> 21
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer gbs1309 1

<400> 21
aatcatcggg gaagtgcga 20

<210> 22
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer gbs1309 2

<400> 22
cgggtaattc aattgatat tttct 25

<210> 23
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer gbs1309 3

<400> 23
actctgatat gggtaaaggc tat 23

<210> 24

```

<211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1309 4

<400> 24
 cttgaattat tcttaaaaag accaaaa 27

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

<220>
 <223> Primer gbs1309 5

<400> 25
 ccagtagatg agtggttagg tcttg 25

<210> 26
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1309 6

<400> 26
 aagatgagct ggttttatat atttg 25

<210> 27
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 1

<400> 27
 ttgcaggtgg aatttatatt tgg 23

<210> 28
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 2

<400> 28
 ttcttatcta cttgtggttt tgtttca 27

<210> 29
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 3

<400> 29
 tcttggtga ttcaaaagca 20

eof-seq1.txt

<210> 30
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 4

<400> 30
 ggttctgatg ggttgattgg 20

<210> 31
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 5

<400> 31
 aatggctctt gcttatgac t 21

<210> 32
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 6

<400> 32
 tgtagcggc tacactccag 20

<210> 33
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 7

<400> 33
 ttgcaggtgg aatttatatt tgg 23

<210> 34
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 8

<400> 34
 caacttttgg ttcagttgg 19

<210> 35
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1477 9

eof-seq1.txt

<400> 35 cccattgtca aaccattt	18
<210> 36 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Primer gbs1477 10	
<400> 36 gctactgctg aaatcggtma	20
<210> 37 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Primer gbs1477 11	
<400> 37 catacatgat ctcagaacgt	20
<210> 38 <211> 21 <212> DNA <213> Artificial Sequence	
<220> <223> Primer gbs1477 12	
<400> 38 aatggctctt gcttatgac t	21
<210> 39 <211> 27 <212> DNA <213> Artificial Sequence	
<220> <223> Primer gbs1478 1	
<400> 39 tctaggatat tctgtatctg atcttag	27
<210> 40 <211> 21 <212> DNA <213> Artificial Sequence	
<220> <223> Primer gbs1478 2	
<400> 40 ccatcaaaaa tatctgaacc a	21
<210> 41 <211> 27 <212> DNA <213> Artificial Sequence	

eof-seq1.txt

<220>
 <223> Primer gbs1478 3
 <400> 41
 gagggaaacat tatctaaacg tatttca 27

<210> 42
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1478 4
 <400> 42
 ttcaattttt gaaaagtacc atcttg 26

<210> 43
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1478 5
 <400> 43
 gaacatggaa caccaaccaa 20

<210> 44
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1478 6
 <400> 44
 tcaatttcac ctaacttctt ctcg 24

<210> 45
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1478 7
 <400> 45
 ttttccaatc cctaaaattc g 21

<210> 46
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs1478 8
 <400> 46
 ttttcatttc tatctccttc ttattc 26

<210> 47

<211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 1

<400> 47
 aaaaggcaaa gttctgatga gg 22

<210> 48
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 2

<400> 48
 aaaaatgctt gatgaagtca aaa 23

<210> 49
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 3

<400> 49
 gtttggttc tggcttaacg 20

<210> 50
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 4

<400> 50
 tgatcaagaa ctaggtaagc agtca 25

<210> 51
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 5

<400> 51
 caaatttaag aataagttgc gaatc 25

<210> 52
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 6

<400> 52
 agagtaaatg attttaatag agcatca 27

eo1f-seq1.txt

<210> 53
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 7

<400> 53
 aaaatatttc taatttctgc ttcagt

26

<210> 54
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer gbs2018 8

<400> 54
 aattaaaata aacgtggtcc tatcc

25

<210> 55
 <211> 308
 <212> PRT
 <213> Streptococcus agalactiae

<400> 55

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
 20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
 35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
 50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
 65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
 85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
 115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
 130 135 140

eo1f-seq1.txt

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 56
<211> 308
<212> PRT
<213> Streptococcus agalactiae

<400> 56

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

eo1f-seq1.txt

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 57
 <211> 308
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 57

eo1f-seq1.txt

```

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20      25      30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35      40      45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50      55      60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65      70      75      80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85      90      95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115     120     125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130     135     140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165     170     175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210     215     220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225     230     235     240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245     250     255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu

```


eo1f-seq1.txt

275

280

285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 58
<211> 308
<212> PRT
<213> Streptococcus agalactiae

<400> 58

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

eo1f-seq1.txt

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 59
<211> 308
<212> PRT
<213> Streptococcus agalactiae
<400> 59

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
Page 30

eo1f-seq1.txt
140

130

135

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 60
<211> 308
<212> PRT
<213> Streptococcus agalactiae
<400> 60

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

eo1f-seq1.txt

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

<210> 61
 <211> 927
 <212> DNA
 <213> Streptococcus agalactiae

eof-seq1.txt

```

<400> 61
atgcttaaaa aatcgacttt ttacagata ttacacttt gcttagccct cttacgatt      60
tctggttgtc aattaaccga tactaaaaaa cctggtcata ccacaattaa gggttgctgca    120
caaagttcta cagagtctag tatcatggca aatattgtca ccgaattaat tcatcacgaa    180
ttaggataca acacaacttt aataagcaat cttggttcct ctacggttac tcaccaagct    240
ttgctccgtg gtgatgctga cattgctgcc acacgttata caggaacaga catcacagga    300
actcttggct taaaagctgt taaagaccct aaagaagctt ctaagattgt aaaaactgaa    360
ttccaaaaac gctacaatca aacttggtat cctacttatg gtttttctga tacttatgca    420
ttcatggtta ctaaagagtt tgccagacag aataaaatca ccaagatctc tgatctcaaa    480
aaattatcaa caactatgaa ggcagggggt gatagttcat ggatgaatcg cgaggagat     540
ggatacactg atttcgctaa aacatacggg tttgaatttt cacatattta ccctatgcaa    600
attggccttag tctatgatgc ggttgaaagt aacaaaatgc aatctgtatt aggctactcc    660
actgacggtc gtatttcgag ctatgattta gaaattttta gggatgataa aaaattcttt    720
cctccttatg aagcctctat ggttgtaaac aattctatca tcaaaaaaga tcctaaacta    780
aaaaaattac tccatcgact cgatggtaaa atcaatttta aaacgatgca aaaccttaat    840
tatatggtag atgataaact tttagaacct tcagttggtg ccaaacaatt tttagaaaaa    900
aaccattatt ttagaggaga taaataa                                     927

```

```

<210> 62
<211> 927
<212> DNA
<213> Streptococcus agalactiae

```

```

<400> 62
atgcttaaaa aatcgacttt ttacagata ttacacttt gcttagccct cttacgatt      60
tctggttgtc aattaaccga tactaaaaag tctggtcata ccacaattaa gggttgctgcc    120
caaagttcta cagagtctag tattatggca aatattatca ccgaattaat tcatcacgaa    180
ttaggataca acacaacttt aataagcaat cttggttcct ctacggttac tcaccaagct    240
ttgctccgtg gtgatgctga cattgctgcc acacgttata caggaacaga catcacaggg    300
actcttgggt taaaagctgt taaagaccct aaagaagctt ctaagattgt aaaaactgaa    360
ttccaaaaac gctacaatca aacttggtat cctacttatg gtttttctga tacttatgca    420
ttcatggtta ctaaagagtt tgccagacag aataaaatca ctaagatctc tgatcttaaa    480
aaattatcaa caactatgaa ggcagggggt gatagttcat ggatgaatcg cgaggagat     540
ggatacactg atttcgctaa aacatacggg tttgaatttt cacatattta ccctatgcaa    600
attggccttag tctatgatgc ggttgaaagt aacaaaatgc aatctgtatt aggctactcc    660
actgacggtc gtatttcgag ctatgattta gaaattttta gggatgataa aaaattcttt    720
cctccttatg aagcctctat ggttgtaaac aattctatca tcaaaaaaga tcctaaacta    780
aaaaaattac tccatcgact cgatggtaaa atcaatttta aaacgatgca aaaccttaat    840

```

eolf-seq1.txt

tatatggtag atgataaact tttagaacct tcagttggtg ccaaacaatt tttagaaaaa	900
aaccattatt ttagaggaga taaataa	927

<210> 63
 <211> 927
 <212> DNA
 <213> Streptococcus agalactiae

<400> 63 atgcttaaaa aatcgcaactt ttacagata ttacacttt gcttagccct cttacgatt	60
tctggttgtc aattaaccga tactaaaaag tctggtcata ccacaattaa gggtgctgcc	120
caaagttcta cagagtctag tattatggca aatattatca ccgaattaat tcatcacgaa	180
ttaggataca acacaacttt aataagcaat cttggttcct ctacggttac tcaccaagct	240
ttgctccgtg gtgatgctga cattgctgcc acacgttata caggaacaga catcacaggg	300
actcttggtt taaaagctgt taaagacct aaagaagctt ctaagattgt aaaaactgaa	360
ttccaaaaac gctacaatca aacttggtat cctacttatg gtttttctga tacttatgca	420
ttcatggtta ctaaagagtt tgccagacag aataaaatca ctaagatctc tgatcttaaa	480
aaattatcaa caactatgaa ggcagggggt gatagttcat ggatgaatcg cgaggagat	540
ggatacactg atttcgctaa aacatacggg tttgaatttt cacatattta ccctatgcaa	600
attggccttag tctatgatgc ggttgaaagt aacaaaatgc aatctgtatt aggctactcc	660
actgacggtc gtatttcgag ctatgattta gaaattttta gggatgataa aaaattcttt	720
cctccttatg aagcctctat ggttgtaaac aattctatca tcaaaaaaga tcctaaacta	780
aaaaaattac tccatcgact cgatggtaaa atcaatttaa aaacgatgca aaaccttaat	840
tatatggtag atgataaact tttagaacct tcagttggtg ccaaacaatt tttagaaaaa	900
aaccattatt ttagaggaga taaataa	927

<210> 64
 <211> 927
 <212> DNA
 <213> Streptococcus agalactiae

<400> 64 atgcttaaaa aatcgcaactt ttacagata ttacacttt gcttagccct cttacgatt	60
tctggttgtc aattaaccga tactaaaaaa cctggtcata ccacaattaa gggtgctgcc	120
caaagttcta cagagtctag tatcatggca aatattgtca ccgaattaat tcatcacgaa	180
ttaggataca acacaacttt aataagcaat cttggttcct ctacggttac tcaccaagct	240
ttgctccgtg gtgatgctga cattgctgcc acacgttata caggaacaga catcacagga	300
actcttggtt taaaagctgt taaagacct aaagaagctt ctaagattgt aaaaactgaa	360
ttccaaaaac gctacaatca aacttggtat cctacttatg gtttttctga tacttatgca	420
ttcatggtta ctaaagagtt tgccagacag aataaaatca ccaagatctc tgatctcaaa	480
aagttatcaa caactatgaa ggcagggggt gatagttcat ggatgaatcg cgaggagat	540
ggatacactg atttcgctaa aacatacggg tttgaatttt cacatattta ccctatgcaa	600

eof-seq1.txt

attggccttag tctatgatgc ggttgaaagt aacaaaatgc aatctgtatt aggctactcc	660
actgacggtc gtatttcgag ctatgattta gaaattttta gggatgataa aaaattcttt	720
cctccttatg aagcctctat ggttgcaac aattctatca tcaaaaaaga tcctaaacta	780
aaaaaattac tccatcgact cgatggtaaa atcaatttaa aaacgatgca aaaccttaat	840
tatatggtag atgataaact tttagaacct tcagttgttg ccaaacaatt tttagaaaaa	900
aaccattatt ttagaggaga taaataa	927

<210> 65
 <211> 927
 <212> DNA
 <213> Streptococcus agalactiae

<400> 65	
atgcttaaaa aatcgcaactt tttacagata tttacacttt gcttagccct cttaacgatt	60
tctggtgtgc aattaaccga tactaaaaag tctggtcata ccacaattaa ggttgctgcc	120
caaagttcta cagagtctag tattatggca aatattatca ccgaattaat tcatcacgaa	180
ttaggataca acacaacttt aataagcaat cttggttcct ctacggttac tcaccaagct	240
ttgctccgtg gtgatgctga cattgctgcc acacgttata caggaacaga catcacaggg	300
actcttggtt taaaagctgt taaagaccct aaagaagctt ctaagattgt aaaaactgaa	360
ttccaaaaac gctacaatca aacttggtat cctacttatg gtttttctga tacttatgca	420
ttcatgggta ctaaagagtt tgccagacag aataaaatca ctaagatctc tgatcttaaa	480
aaattatcaa caactatgaa ggcagggggt gatagttcat ggatgaatcg cgaggagat	540
ggatacactg atttcgctaa aacatacggc tttgaatttt cacatattta ccctatgcaa	600
attggccttag tctatgatgc ggttgaaagt aacaaaatgc aatctgtatt aggctactcc	660
actgacggtc gtatttcgag ctatgattta gaaattttta gggatgataa aaaattcttt	720
cctccttatg aagcctctat ggttgcaac aattctatca tcaaaaaaga tcctaaacta	780
aaaaaattac tccatcgact cgatggtaaa atcaatttaa aaacgatgca aaaccttaat	840
tatatggtag atgataaact tttagaacct tcagttgttg ccaaacaatt tttagaaaaa	900
aaccattatt ttagaggaga taaataa	927

<210> 66
 <211> 927
 <212> DNA
 <213> Streptococcus agalactiae

<400> 66	
atgcttaaaa aatcgcaactt tttacagata tttacacttt gcttagccct cttaacgatt	60
tctggtgtgc aattaaccga tactaaaaaa cctggtcata ccacaattaa ggttgctgcc	120
caaagttcta cagagtctag tatcatggca aatattgtca ccgaattaat tcatcacgaa	180
ttaggataca acacaacttt aataagcaat cttggttcct ctacggttac tcaccaagct	240
ttgctccgtg gtgatgctga cattgctgcc acacgttata caggaacaga catcacagga	300

eolf-seq1.txt

```

actcttggct taaaagctgt taaagacact aaagaagctt ctaagattgt aaaaactgaa      360
ttcaaaaaac gctacaatca aacttggtat cctacttatg gtttttctga tacttatgca      420
ttcatgggta ctaaagagtt tgccagacag aataaaatca ccaagatctc tgatctcaaa      480
aagttatcaa caactatgaa ggcagggggt gatagttcat ggatgaatcg cgaggagat      540
ggatacactg atttcgctaa aacatacggg tttgaatttt cacatattta ccctatgcaa      600
attggcttag tctatgatgc agttgaaagt aacaaaatgc aatctgtatt aggctactcc      660
actgacggtc gtatttcgag ctatgattta gaaattttta gggatgataa aaaattcttt      720
cctccttatg aagcctctat ggttgtaaac aattctatca tcaaaaaaga tcctaaacta      780
aaaaaattac tccatcgact cgatggtaaa atcaatttaa aaacgatgca aaaccttaat      840
tatatggtag atgataaact tttagaacct tcagttgttg ccaaacaatt tttagaaaaa      900
aaccattatt ttagaggaga taaataa                                           927

```

<210> 67
 <211> 186
 <212> PRT
 <213> Streptococcus agalactiae

<400> 67

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
 1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
 20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
 35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
 50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
 65 70 75 80

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

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Ile Ile Ser Arg Glu Asn
 100 105 110

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
 115 120 125

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
 130 135 140

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

eo1f-seq1.txt

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
165 170 175

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
180 185

<210> 68

<211> 250

<212> PRT

<213> Streptococcus agalactiae

<400> 68

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

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

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

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

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

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

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

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

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
165 170 175

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
180 185 190

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

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
Page 37

eo1f-seq1.txt
220

210

215

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
225 230 235 240

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
245 250

<210> 69

<211> 394

<212> PRT

<213> Streptococcus agalactiae

<400> 69

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
85 90 95

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

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

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
165 170 175

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

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

eo1f-seq1.txt

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

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Asn Asn Val Leu Ile Lys Ser Gln Asp Asn Val Leu
245 250 255

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

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
275 280 285

Glu Arg Arg Gln His Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
290 295 300

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
305 310 315 320

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
325 330 335

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

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
355 360 365

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
370 375 380

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
385 390

<210> 70
<211> 218
<212> PRT
<213> Streptococcus agalactiae

<400> 70

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
Page 39

eo1f-seq1.txt
60

50

55

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

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

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

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

Ile Gly Lys Asn Pro Leu Phe Ser Lys Pro Thr Val Ser Arg Glu Asn
130 135 140

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
145 150 155 160

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

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

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

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
210 215

<210> 71
<211> 442
<212> PRT
<213> Streptococcus agalactiae
<400> 71

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Asp Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Asp Leu
65 70 75 80

eo1f-seq1.txt

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

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

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

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

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

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

Glu Cys Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
245 250 255

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

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
275 280 285

Glu Arg Arg Gln Asn Asn Val Leu Ile Lys Ser Gln Asp Asn Val Leu
290 295 300

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
305 310 315 320

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
325 330 335

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
340 345 350

eo1f-seq1.txt

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
355 360 365

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
370 375 380

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
385 390 395 400

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
405 410 415

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
420 425 430

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
435 440

<210> 72
<211> 330
<212> PRT
<213> Streptococcus agalactiae

<400> 72

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
85 90 95

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

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

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
165 170 175

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

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

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Val Gly Gln Leu
225 230 235 240

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Ile Ile Ser Arg Glu Asn
245 250 255

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
260 265 270

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
275 280 285

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
290 295 300

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

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
325 330

<210> 73
<211> 561
<212> DNA
<213> Streptococcus agalactiae

<400> 73
ttgttcaata aaataggttt tagaacttgg aaatcaggaa agctttggct ttatatggga 60
gtgctaggat caactattat tttaggatca agtcctgtat ctgctatgga tagtgttgga 120
aatcaaagtc agggcaatgt tttagagcgt cgtcaacgcg atgcagaaaa cagaagccaa 180
ggtaatgttc tagagcgtcg tcaacgcgat gcagaaaaca gaagccaagg taatgttcta 240
gagcgtcgtc aacgtgatgc ggaaaacaag agccaagtag gtcaacttat agggaaaaat 300
ccacttcttt caaagtcaat tatatctaga gaaaataatc actctagtca aggtgactct 360
aacaacagct catttcttaa aaaagtatct caggttacta atgtagctaa tagaccgatg 420
ttaactaata attctagaac aatttcagtg ataaataaat tacctaaaac aggtgatgat 480
caaaatgtca tttttaaaact tgtaggtttt ggtttaattt tgtaacaag tcgctgcggt 540

eof-seq1.txt

ttgagacgca atgaaaatta a 561

<210> 74
 <211> 753
 <212> DNA
 <213> Streptococcus agalactiae

<400> 74
 ttgttcaata aaatagggtt tagaacttgg aaatcaggaa agctttggct ttatatggga 60
 gtgctaggat caactattat tttaggatca agtcctgtat ctgctatgga tagtgttgga 120
 aatcaaagtc aaggtaatgt tctagagcgt cgtcaacgtg atgcggataa caagagccaa 180
 ggtaatgttc tagaacgtcg tcaacgcgat gtggaaaaca aaagtcaggg caatgttcta 240
 gaacgtcgtc aacgtgatgt tgagaataag agccaaggca atgttctaga gcgtcgccaa 300
 cgtgatgcag aaaacaaaag tcagggtaat gttctagagc gtcgtcaacg cgatgcagat 360
 aacaagagcc aaggtaatgt tctagaacgt cgtcaacgcg atgtggaaaa caaaagtcag 420
 ggcaatgttc tagagcgtcg ccaacgtgat gttgagaaca agagccaagt aggtcaactt 480
 atagggaaaa atccacttct ttcaaagtca actatatcta gagaaaataa tcactctagt 540
 caaggtgact ctaacaaaca gtcattctct aaaaaagtat ctcaggttac taatgtagct 600
 aatagaccaa tggttaactaa taattctaga acaatttcag tgataaataa attacctaaa 660
 acaggtgatg atcaaaatgt catTTTTTaaa cttgtagggt ttggtttaat tttgttaaca 720
 agtcgctgcg gtttgagacg caatgaaaat taa 753

<210> 75
 <211> 1185
 <212> DNA
 <213> Streptococcus agalactiae

<400> 75
 ttgttcaata aaatagggtt tagaacttgg aaatcaggaa agctttggct ttatatggga 60
 gtgctaggat caactattat tttaggatca agtcctgtat ctgctatgga tagtgttgga 120
 aatcaaagtc agggcaatgt tttagagcgt cgtcaacgtg atgcagaaaa cagaagccaa 180
 ggtaatgttc tagagcgtcg tcaacgtgat gcagaaaaca gaagccaagg taatgttcta 240
 gagcgtcgtc aacgcgatgc agaaaacaga agccaaggta atgttctaga gcgtcgtcaa 300
 cgtgatgttg agaataagag ccaaggcaat gtttttagagc gtcgtcaacg cgatgttgag 360
 aataagagcc aaggtaatgt tctagagcgt cgtcaacgtg atgcggaaaa caagagccaa 420
 ggcaatgttc tagagcgtcg tcaacgtgat gcggaaaaca agagccaagg caatgttcta 480
 gagcgtcgtc aacgcgatgc agaaaacaga agccaaggta atgtttttaga acgtcgtcaa 540
 cgcgatgttg agaacaagag ccaaggtaac gttctagagc gtcgccaacg tgacgttgag 600
 aacaagagcc aaggtaatgt tttagagcgt cgccaacgcg atgcggataa caaaagtcag 660
 ggcaatgttt tagagcgtcg ccaacgtgat gttgagaaca agagccaagg taatgttcta 720
 gagcgtcgcc aaaataatgt cttattaag agtcaagata atgttctaga gcgccgccaa 780

eol-f-seq1.txt

cgatgatgcgg	ataacaagag	ccagggtaac	gttcttagagc	gtcgtcaacg	cgatgttgag	840
aataagagcc	aaggtaatgt	tttagagcgt	cgccaacatg	atgttgagaa	taagagtcaa	900
gtagggtcaac	ttatagggaa	aatccactt	ttttcaaagt	caactgtatc	tagagaaaat	960
aatcactcta	gtcaagggtga	ctctaacaaa	cagtcattct	ctaaaaaagt	atctcaggtt	1020
actaatgtag	ctaataagacc	gatgttaact	aataattcta	gaacaatttc	agtgataaat	1080
aaattaccta	aaacagggtga	tgatcaaaaat	gtcattttta	aacttgtagg	ttttggttta	1140
attttattaa	caagtctctg	cggtttgaga	cgcaatgaaa	attaa		1185

<210> 76
 <211> 657
 <212> DNA
 <213> Streptococcus agalactiae

<400> 76	
ttgttcaata	aaatagggttt tagaacttgg aaatcaggaa agctttggct ttatatggga 60
gtgctaggat	caactattat tttaggatca agtcctgtat ctgctatgga tagtgttgga 120
aatcaaagtc	aaggtaatgt ttttagagcgt cgccaacgtg atgcggaaaa caaaagtcag 180
ggtaatgttt	tagagcgtcg ccaacgtgat gcggaaaaca agagccaagg caatgtttta 240
gagcgtcgtc	aacgcgatgt tgagaataag agccaaggca atgttttaga gcgtcgtcaa 300
cgatgatgcgg	aaaacaaaag tcagggcaat gttcttagagc gccgccaacg tgatgcggat 360
aacaagagcc	aagtaggtca acttataggg aaaaatccac ttttttcaaa gccaaactgta 420
tctagagaaa	ataatcactc tagtcaaggt gactctaaca aacagtcatt ctctaaaaaa 480
gtatctcagg	ttactaatgt agctaataga ccgatgttaa ctaataattc tagaacaatt 540
tcagtataaa	ataaattacc taaaacagggt ggtgatcaaa atgtcatttt taaacttgta 600
ggttttggtt	taattttggtt aacaagtcgc tgcggtttga gacgcaatga aaattaa 657

<210> 77
 <211> 1329
 <212> DNA
 <213> Streptococcus agalactiae

<400> 77	
ttgttcaata	aaatagggttt tagaacttgg aaatcaggaa agctttggct ttatatggga 60
gtgctaggat	caactattat tttaggatca agtcctgttt ctgctatgga tagtgatgga 120
aatcaaagtc	agggcaatgt ttttagagcgt cgtcaacgtg atgcggaaaa caagagccaa 180
ggcaatgttc	tagagcgtcg tcaacgcgat gcagaaaaca gaagccaagg taatgatcta 240
gagcgtcgcc	aacgtgacgt tgagaacaag agccaaggta acgttctaga gcgtcgtcaa 300
cgatgatgcag	ataacaagag ccagggcaat gtttttagagc gtcgccaacg tgatgttgag 360
aacaagagcc	aaggtaatgt tctagagcgt cgccaaaata atgtccttat taagagtcaa 420
gataatgatc	tagagcgccg ccaacgtgat gcggataaca agagccaggg taacgttcta 480
gagcgtcgcc	aacgtgatgt tgagaacaag agccaaggta atgttctaga gcgccgcaa 540
cgatgatgcgg	ataacaagag ccagggtaac gttcttagagt gtcgccaacg tgatgttgag 600

eof-seq1.txt

aacaagagcc aaggtaatgt tctagagcgt cgtcaacgtg atgcggaaaa caagagccaa	660
ggcaatgttc tagagcgtcg tcaacgcgat gcagaaaaca gaagccaagg taatgttcta	720
gagcgtcgcc aacgtgacgt tgagaacaag agccaaggta acgttctaga gcgtcgtcaa	780
cgtgatgcag ataacaagag ccagggaat gttttagagc gtcgccaacg tgatgttgag	840
aacaagagcc aaggtaatgt tctagagcgt cgccaaaata atgtccttat taagagtcaa	900
gataatgttc tagagcgccg ccaacgtgat gcggataaca agagccaggg taacgttcta	960
gagcgtcgcc aacgtgatgt tgagaacaag agccaaggca atgttttaga gcgtcgtcaa	1020
cgcgatgttg agaataagag tcaagtaggt caacttatag ggaaaaatcc acttttttca	1080
aagtcaactg tatctagaga aaataatcac tctagtcaag gtgactctaa caaacagtca	1140
ttctctaaaa aagtatctca ggttactaat gtagctaata gaccgatgtt aactaataat	1200
tctagaacaa tttcagtgat aaataaatta cctaaaacag gtgatgatca aaatgtcatt	1260
tttaaacttg taggttttgg ttaattttta ttaacaagtc tctgcggttt gagacgcaat	1320
gaaaattaa	1329

<210> 78
 <211> 993
 <212> DNA
 <213> Streptococcus agalactiae

<400> 78	
ttgttcaata aaataggttt tagaacttgg aaatcaggaa agctttggct ttatatggga	60
gtgctaggat caactattat tttaggatca agtcctgtat ctgctatgga tagtgttgga	120
aatcaaagtc agggcaatgt tttagagcgt cgtcaacgcg atgttgagaa taagagccaa	180
ggtaatgttc tagagcgtcg tcaacgtgat gcggaaaaca agagccaagg caatgtttta	240
gagcgtcgtc aacgtgatgc agaaaacaga agccaaggca atgttttaga gcgtcgtcaa	300
cgtgatgcag aaaacagaag ccaaggcaat gtttttagagc gtcgtcaacg cgatgttgag	360
aataagagcc aaggtaatgt tctagagcgt cgtcaacgcg atgttgagaa taagagccaa	420
ggtaatgttc tagagcgtcg tcaacgtgat gcggaaaaca agagccaagg caatgtttta	480
gagcgtcgtc aacgtgatgc agaaaacaga agccaaggca atgttttaga gcgtcgtcaa	540
cgtgatgcag aaaacagaag ccaaggcaat gtttttagagc gtcgtcaacg cgatgttgag	600
aataagagcc aaggcaatgt tttagagcgt cgtcaacgtg atgcagaaaa cagaagccaa	660
ggcaatgttt tagagcgtcg tcaacgtgat gcagaaaaca gaagccaagt aggtcaactt	720
atagggaaaa atccacttct ttcaaagtca attatatcta gagaaaataa tcaacttagt	780
caaggtgact ctaacaaaca gtcatttctt aaaaaagtat ctcaggttac taatgtagct	840
aatagaccga tgtaactaa taattctaga acaatttcag tgataaataa attacctaaa	900
acaggatgat atcaaatgt catTTTTTaaa cttgtagggt ttggtttaat tttgttaaca	960
agtcgctgcg gtttgagacg caatgaaaat taa	993

eo1f-seq1.txt

<210> 79
 <211> 403
 <212> PRT

<213> Streptococcus agalactiae

<400> 79

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190

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

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Thr Leu Asp Ala Val Lys Lys Tyr
 245 250 255

eo1f-seq1.txt

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 80
<211> 403
<212> PRT
<213> Streptococcus agalactiae

<400> 80

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Cys Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

eo1f-seq1.txt

Thr Lys Asp Cys Val₈₅ Leu Lys Ala Val₉₀ Lys Phe Val₉₅ Glu Lys Leu Leu
Lys Glu Lys₁₀₀ Glu Arg Tyr Arg Phe₁₀₅ Leu Glu Glu Pro₁₁₀ Pro Glu Arg
Lys Lys Val₁₁₅ Lys Lys Leu Tyr Val₁₂₀ Glu Gly Asp Gly₁₂₅ Val Met Ile Lys
Ser Thr₁₃₀ Asp Ser Arg Glu₁₃₅ Glu Arg Arg Tyr Leu Asp₁₄₀ Leu Thr His Phe
Val₁₄₅ Ile His Thr Gly Ser₁₅₀ Lys Lys Val Ser Thr₁₅₅ Lys Arg Tyr Glu Leu₁₆₀
Gln Asp Lys His Glu₁₆₅ Ile Leu Gln Leu Asn₁₇₀ Tyr Asp Lys Ala Lys₁₇₅ Tyr
Asn Leu Leu Asp₁₈₀ Tyr Ile Tyr Asn Asn₁₈₅ Tyr Glu Val Asp₁₉₀ Asp Asp Thr
Ile Leu Ile₁₉₅ Thr Asn Ser Asp Met₂₀₀ Gly Lys Gly Tyr Thr₂₀₅ Ser Arg Val
Phe Lys₂₁₀ Glu Leu Gly Lys Ala₂₁₅ Leu Lys Val Lys₂₂₀ Lys His Glu His Phe
Trp Asp Ile Tyr His Val₂₃₀ Lys Glu Lys Leu Ser₂₃₅ Ser Tyr Leu Arg Lys₂₄₀
Tyr Pro Ile Glu Leu₂₄₅ Thr Asp Phe Ala Leu₂₅₀ Asp Ala Val Lys Lys₂₅₅ Tyr
Asn Ser Asp Lys₂₆₀ Leu Glu Leu Val Phe₂₆₅ Asp Thr Val Glu Ser₂₇₀ Leu Ile
Cys Asp Glu₂₇₅ Leu Glu Asp Gln Glu₂₈₀ Phe Gln Lys Phe Lys₂₈₅ Lys Lys Val
Leu Asn₂₉₀ Asn Phe Lys Tyr Ile₂₉₅ Lys Pro Ala His Leu₃₀₀ Arg Asn Leu Ser
Asn Arg Gly Ile Gly Ile₃₁₀ Met Glu Ser Gln His₃₁₅ Arg Lys Ile Thr Tyr₃₂₀
Arg Met Lys Arg Arg₃₂₅ Gly Met Tyr Trp Ser₃₃₀ Lys Trp Gly Ile Ser₃₃₅ Thr
Met Ala Asn Met₃₄₀ Ile Ile Phe Glu Arg₃₄₅ Ala Asn Gly Leu Arg₃₅₀ Glu Leu
Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser

eo1f-seq1.txt

355

360

365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Tyr Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 81

<211> 403

<212> PRT

<213> Streptococcus agalactiae

<400> 81

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

eo1f-seq1.txt

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

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 82
<211> 444
<212> PRT
<213> Streptococcus agalactiae

<400> 82

Met Glu Val Lys Lys Phe Ser Glu Lys Asp Phe Val Asn Glu Ile Asn
1 5 10 15

Lys Ile Lys Gln Lys Gln Phe Leu Ser Gln Ile Glu Gln Tyr Glu Ser
Page 51

eo1f-seq1.txt

20

25

30

Tyr Ile Ala₃₅ Pro Gln Met Arg Thr₄₀ Lys Gly Tyr Lys Arg₄₅ Ile Asn Gln
 Ser Glu₅₀ Arg Thr Val Val Phe₅₅ Ser Phe Gly Glu Ile₆₀ Thr Phe Ser Arg
 Ser Arg Trp Thr Asn Gly₇₀ Phe Glu Thr Arg Ile₇₅ Pro Val Asp Glu Trp₈₀
 Leu Gly Leu Glu Lys₈₅ Tyr Lys Arg Tyr Ser₉₀ Ile Glu Phe Leu Tyr₉₅ His
 Val Ala Lys₁₀₀ Leu Ala Thr Met Met₁₀₅ Pro Tyr Arg Gln Val Cys₁₁₀ Lys Val
 Ile Asp Ser₁₁₅ Thr Leu Gln Thr Ile₁₂₀ Ile Thr Lys Asp Cys₁₂₅ Val Leu Lys
 Ala Val₁₃₀ Lys Phe Val Glu Lys₁₃₅ Leu Leu Lys Glu Lys₁₄₀ Glu Arg Tyr Arg
 Phe Tyr Leu Glu Glu Pro₁₅₀ Pro Glu Arg Lys Lys₁₅₅ Val Lys Lys Leu Tyr₁₆₀
 Val Glu Gly Asp Gly₁₆₅ Val Met Ile Lys Ser₁₇₀ Thr Asp Ser Arg Glu₁₇₅ Glu
 Arg Arg Tyr Leu₁₈₀ Asp Leu Thr His Phe₁₈₅ Val Ile His Thr Gly₁₉₀ Ser Lys
 Lys Val Ser₁₉₅ Thr Lys Arg Tyr Glu₂₀₀ Leu Arg Asp Lys₂₀₅ His Glu Ile Leu
 Gln Leu₂₁₀ Asn Tyr Asp Lys Ala₂₁₅ Lys Tyr Asn Leu Leu₂₂₀ Asp Tyr Ile Tyr
 Asn Asn Tyr Glu Val Asp₂₃₀ Asp Asp Thr Ile Leu₂₃₅ Ile Thr Asn Ser Asp₂₄₀
 Met Gly Lys Gly Tyr₂₄₅ Thr Ser Arg Val Phe₂₅₀ Lys Glu Leu Gly Lys₂₅₅ Ala
 Leu Lys Val Lys₂₆₀ Lys His Glu His Phe₂₆₅ Trp Asp Ile Tyr His₂₇₀ Val Lys
 Glu Lys Leu₂₇₅ Ser Ser Tyr Leu Arg₂₈₀ Lys Tyr Pro Ile Glu₂₈₅ Leu Thr Asp
 Phe Ala₂₉₀ Leu Asp Ala Val Lys₂₉₅ Lys Tyr Asn Ser Asp₃₀₀ Lys Leu Glu Leu

eo1f-seq1.txt

Val Phe Asp Thr Val Glu Ser Leu Ile Cys Asp Glu Leu Glu Asp Gln
 305 310 315 320
 Glu Phe Gln Lys Phe Lys Lys Lys Val Leu Asn Asn Phe Lys Tyr Ile
 325 330 335
 Lys Pro Ala His Leu Arg Asn Leu Ser Asn Arg Gly Ile Gly Ile Met
 340 345 350
 Glu Ser Gln His Arg Lys Ile Thr Tyr Arg Met Lys Arg Arg Gly Met
 355 360 365
 Tyr Trp Ser Lys Trp Gly Ile Ser Thr Met Ala Asn Met Ile Ile Leu
 370 375 380
 Glu Arg Ala Asn Gly Leu Arg Glu Leu Phe Phe Gly Ser Trp Arg Lys
 385 390 395 400
 Val Tyr Ser Glu Tyr Lys Glu Gly Ser Phe Ser Ala Gly Arg Leu Phe
 405 410 415
 Lys Lys Thr Asp Glu Leu Asp Lys Phe Ser Lys Pro Leu Leu Lys Asn
 420 425 430
 Gly Arg Lys Trp Ser Ile Thr Gly Ile Lys Thr Lys
 435 440
 <210> 83
 <211> 403
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 83
 Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15
 Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25 30
 Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45
 Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60
 Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95

eolf-seq1.txt

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

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

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe

370 375 eolf-seql.txt 380
 Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
 385 390 395 400
 Lys Thr Lys
 <210> 84
 <211> 403
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 84
 Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15
 Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25
 Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45
 Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60
 Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95
 Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110
 Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205

eo1f-seq1.txt

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 85
<211> 1212
<212> DNA
<213> Streptococcus agalactiae

<400> 85
tttagtgtaa cctattcaca gtctgaacgt acggttggtt tctcttttgg agaaataaca 60
tttagtagga gtcgctggac aaatggcttt gaaactagaa taccagtaga tgagtgggta 120
ggctcttgaaa aatataagag atattcaata gaattcttat atcatgttgc aaaattggct 180
acaatgatgc cttatcgtca agtttgcaaa gtaatagata gcactttgca aacaatcata 240
acaaaagact gtgttttaaa agcagtaaaa tttgtagaaa aattgttaaa agaaaaagaa 300

eolf-seq1.txt

cgctatcgtt	tttatttgga	agagccaccc	gaacgtaaaa	aagtgaaaaa	actgtatggt	360
gagggtgatg	gagtcgatg	taaaagcaca	gattctagag	aggaaagaag	gtatttagat	420
ttaacacatt	ttgttattca	tacaggctca	aaaaaagttt	ctactaaaag	atatgaattg	480
caggacaagc	acgaaatatt	acagcttaat	tatgataaag	ctaaatataa	tcttttagat	540
tatatttata	ataactatga	agtagatgac	gatactat	taatcactaa	ctctgatatg	600
ggtaaaggct	atactagtag	agtttttaag	gaattaggaa	aagcacttaa	ggtaaagaaa	660
catgagcatt	tttgggatat	ctatcatggt	aaagaaaagt	taagttcata	ccttagaaaa	720
tatccaattg	aattaaccga	ttttacttta	gatgcggtaa	aaaaatataa	ttctgataag	780
cttgaattag	tttttgatac	tgttgaatca	ctgatttgtg	atgaacttga	agatcaagaa	840
tttcagaagt	ttaagaaaaa	agtattaaat	aatttcaa	atataaaacc	agctcatctt	900
agaaatcttt	caaatcgtgg	tattggtatc	atggaatcac	aacacagaaa	gataacgtat	960
agaatgaagc	gacgtggcat	gtattggtca	aagtggggaa	tctccacaat	ggcaaata	1020
attatatttg	aaagagctaa	cggtttacga	gaattatttt	tcggttcttg	gagaaaggta	1080
tacagtgagt	ataaagaagg	ttcatcttagt	gcagggcgac	tttttaaaaa	gacagatgaa	1140
ttagataaat	tttctaagcc	ccttctaaaa	aatggcagaa	aatggagtat	aacaggaatc	1200
aaaacaaaat	ag					1212

<210> 86
 <211> 1212
 <212> DNA
 <213> Streptococcus agalactiae

<400>	86			
tttagtgtaa	cctattcaca	gtctgaacgt acggttggtt tctcttttgg agaaataaca 60		
tttagtagga	gtcgtggac	aaatggcttt gaaactagaa taccagtaga tgagtgggta 120		
ggtcttgaaa	aatataagag	atattcaata gaattcttat atcatgttgc aaaattggct 180		
acaatgatgc	cttattgtca	agtttgcaaa gtaatagata gcactttgca aacaatcata 240		
acaaaagact	gtgtttttaa	agcagtaaaa tttgtagaaa aattgtttaa agaaaaagaa 300		
cgctatcgtt	tttatttgga	agagccaccc gaacgtaaaa aagtgaaaaa actgtatggt 360		
gagggtgatg	gagtcgatg	taaaagcaca gattctagag aggaaagaag gtatttagat 420		
ttaacacatt	ttgttattca	tacaggctca aaaaaagttt ctactaaaag atatgaattg 480		
caggacaagc	acgaaatatt	acagcttaat tatgataaag ctaaatataa tcttttagat 540		
tatatttata	ataactatga	agtagatgac gatactat	taatcactaa ctctgatatg 600	
ggtaaaggct	atactagtag	agtttttaag	gaattaggaa aagcacttaa ggtaaagaaa 660	
catgagcatt	tttgggatat	ctatcatggt	aaagaaaagt taagttcata ccttagaaaa 720	
tatccaattg	aattaaccga	ttttgcttta	gatgcggtaa aaaaatataa ttctgataag 780	
cttgaattag	tttttgatac	tgttgaatca	ctgatttgtg atgaacttga agatcaagaa 840	
tttcagaagt	ttaagaaaaa	agtattaaat	aatttcaa	atataaaacc agctcatctt 900

eol-f-seq1.txt

agaaatcttt caaatcgtgg tattggtatc atggaatcac aacacagaaa gataacgtat	960
agaatgaagc gacgtggcat gtatttgtca aagtggggaa tctccacaat ggcaaatatg	1020
attatatttg aaagagctaa cggtttacga gaattatttt tcggttcttg gagaaaggta	1080
tacagtgagt ataaagaagg ttcathtagt gcagggcgac tttttaaaaa gacagatgaa	1140
ttatataaat tttctaagcc ctttctaaaa aatggcagaa aatggagtat aacaggaatc	1200
aaaacaaaat ag	1212

<210> 87
 <211> 1212
 <212> DNA
 <213> Streptococcus agalactiae

<400> 87	
tttagtgtaa cctattcaca gtctgaacgt acggttggtt tctcttttgg agaaataaca	60
tttagtagga gtcgctggac aaatggcttt gaaactagaa taccagtaga tgagtgggta	120
ggctcttga aaatataagag atattcaata gaattcttat atcatgttgc aaaattggct	180
acaatgatgc cttatcgtca agtttgcaaa gtaatagata gcactttgca aacaatcata	240
acaaaagact gtgtttttaa agcagtaaaa tttgtagaaa aattgtttaa agaaaaagaa	300
cgctatcgtt tttatttgga agagccaccc gaacgtaaaa aagtgaaaaa actgtatgtt	360
gagggtgatg gagtcatgat taaaagcaca gattctagag aggaaagaag gtatttagat	420
ttaacacatt ttgttattca tacaggctca aaaaaagttt ctactaaaag atatgaattg	480
caggacaagc acgaaatatt acagcttaat tatgataaag ctaaatataa tcttttagat	540
tatatttata ataactatga agtagatgac gatactattt taatcactaa ctctgatatg	600
ggtaaaggct atactagtag agtttttaag gaattaggaa aagcacttaa ggtaaagaaa	660
catgagcatt tttgggatat ctatcatgtt aaagaaaagt taagttcata ccttagaaaa	720
tatccaattg aattaaccga ttttgcttta gatgcggtaa aaaaatataa ttctgataag	780
cttgaattag tttttgatac tgttgaatca ctgatttgtg atgaacttga agatcaagaa	840
tttcagaagt ttaagaaaaa agtattaaat aatttcaa atataaaacc agctcatctt	900
agaaatcttt caaatcgtgg tattggtatc atggaatcac aacacagaaa gataacgtat	960
agaatgaagc gacgtggcat gtatttgtca aagtggggaa tctccacaat ggcaaatatg	1020
attatacttg aaagagctaa cggtttacga gaattatttt tcggttcttg gagaaaggta	1080
tacagtgagt ataaagaagg ttcathtagt gcagggcgac tttttaaaaa gacagatgaa	1140
ttagataaat tttctaagcc ctttctaaaa aatggcagaa aatggagtat aacaggaatc	1200
aaaacaaaat ag	1212

<210> 88
 <211> 1335
 <212> DNA
 <213> Streptococcus agalactiae

<400> 88	
atggaagtta aaaaattctc ggaaaaagat tttgtaaatg aaataaataa aataaaacag	60

eof-seq1.txt

aaacaatttt taagtcaaat tgaacagtat gaaagctata tcgctcctca aatgagaacg	120
aaaggctata agaggatcaa tcagtctgaa cgtacggttg ttttctcttt tggagaaata	180
acatttagta ggagtcgctg gacaaatggc tttgaaacta gaataccagt agatgagtgg	240
ttaggtcttg aaaaatataa gagatattca atagaattct tatatcatgt tgcaaaattg	300
gctacaatga tgccttatcg tcaagtttgc aaagtaatag atagcacttt gcaaacaatc	360
ataacaaaag actgtgtttt aaaagcagta aaatttgtag aaaaattggtt aaaagaaaaa	420
gaacgctatc gtttttattt ggaagagcca cccgaacgta aaaaagtga aaaactgtat	480
gttgagggtg atggagtcac gattaaaagc acagattcta gagaggaaag aagggtattt	540
gatttaacac attttgttat tcatacaggc tcaaaaaaag tttctactaa aagatatgaa	600
ttgcgggaca agcacgaaat attacagctt aattatgata aagctaaata taatctttta	660
gattatattt ataataacta tgaagtagat gacgatacta ttttaatcac taactctgat	720
atgggtaaag gctatactag tagagttttt aaggaattag gaaaagcact taaggtaaag	780
aaacatgagc atttttggga tatctatcat gttaaagaaa agttaagttc ataccttaga	840
aaatatccaa ttgaattaac cgattttgct ttagatgcgg taaaaaata taattctgat	900
aagcttgaat tagtttttga tactgttgaa tcactgattt gtgatgaact tgaagatcaa	960
gaatttcaga agtttaagaa aaaagtatta aataatttca aatatataaa accagctcat	1020
cttagaaaac tttcaaatcg tggatttgg atcatggaat cacaacacag aaagataacg	1080
tatagaatga agcgacgtgg catgtattgg tcaaagtggg gaatctccac aatggcaa	1140
atgattatac ttgaaagagc taacggttta cgagaattat ttttcggttc ttggagaaag	1200
gtatacagtg agtataaaga aggttcattt agtgcagggc gactttttaaa aaagacagat	1260
gaattagata aattttctaa gccccttcta aaaaatggca gaaaatggag tataacagga	1320
atcaaaacaa aatag	1335

<210> 89
 <211> 1212
 <212> DNA
 <213> Streptococcus agalactiae

<400> 89	
tttagtgtaa cctattcaca gtctgaacgt acggttggtt tctcttttgg agaaataaca	60
tttagtagga gtcgctggac aaatggcttt gaaactagaa taccagtaga tgagtggtta	120
ggtcttgaaa aatataagag atattcaata gaattcttat atcatgttgc aaaattggct	180
acaatgatgc cttatcgtca agtttgcaaa gtaatagata gcactttgca aacaatcata	240
acaaaagact gtgttttaaa agcagtaaaa tttgtagaaa aattgttaaa agaaaaagaa	300
cgctatcggt tttatttggga agagccaccc gaacgtaaaa aagtgaaaaa actgtatgtt	360
gagggtgatg gagtcatgat taaaagcaca gattctagag aggaaagaag gtatttagat	420
ttaacacatt ttgttattca tacaggctca aaaaaagttt ctactaaaag atatgaattg	480
caggacaagc acgaaatatt acagcttaat tatgataaag ctaaataata tcttttagat	540

eof-seq1.txt

tatatttata ataactatga agtagatgac gatactat	600
taactactaa ctctgatatg	
ggtaaaggct atactagtag agtttttaag gaattaggaa aagcacttaa ggtaaagaaa	660
catgagcatt tttgggatat ctatcatggt aaagaaaagt taagttcata ccttagaaaa	720
tatccaattg aattaaccga ttttgcttta gatgcggtaa aaaaatataa ttctgataag	780
cttgaattag tttttgatac tggtgaatca ctgatttgtg atgaacttga agatcaagaa	840
tttcagaagt ttaagaaaaa agtattaaat aatttcaa atataaaacc agctcatctt	900
agaaatcttt caaatcgtgg tattgggtatc atggaatcac aacacagaaa gataacgtat	960
agaatgaagc gacgtggcat gtattggtca aagtggggaa tctccacaat ggcaaatatg	1020
attatacttg aaagagctaa cggtttacga gaattat	1080
tttttccttg gagaaaggta	
tacagtgagt ataaagaagg ttcatttagt gcagggcgac tttttaaaaa gacagatgaa	1140
ttagataaat tttctaagcc ctttctaaaa aatggcagaa aatggagtat aacaggaatc	1200
aaaacaaaat ag	1212

<210> 90
 <211> 1212
 <212> DNA
 <213> Streptococcus agalactiae

<400> 90	
tttagtgtaa cctattcaca gtctgaacgt acggttg	60
tttcttttgg agaaataaca	
tttagtagga gtcgctggac aaatggcttt gaaactagaa taccagtaga tgagtggta	120
ggctctgaaa aatataagag atattcaata gaattcttat atcatgttgc aaaattggct	180
acaatgatgc cttatcgtca agtttgcaaa gtaatagata gcactttgca aacaatcata	240
acaaaagact gtgtttttaa agcagtaaaa tttgtagaaa aattgtttaa agaaaaagaa	300
cgctatcgtt tttatttggga agagccaccc gaacgtaaaa aagtgaaaaa actgtatgtt	360
gagggtgatg gagtcatgat taaaagcaca gattctagag aggaaagaag gtatttagat	420
ttaacacatt ttgttattca tacaggctca aaaaaagttt ctactaaaag atatgaattg	480
caggacaagc acgaaatatt acagcttaat tatgataaag ctaaatataa tcttttagat	540
tatatttata ataactatga agtagatgac gatactat	600
taactactaa ctctgatatg	
ggtaaaggct atactagtag agtttttaag gaattaggaa aagcacttaa ggtaaagaaa	660
catgagcatt tttgggatat ctatcatggt aaagaaaagt taagttcata ccttagaaaa	720
tatccaattg aattaaccga ttttgcttta gatgcggtaa aaaaatataa ttctgataag	780
cttgaattag tttttgatac tggtgaatca ctgatttgtg atgaacttga agatcaagaa	840
tttcagaagt ttaagaaaaa agtattaaat aatttcaa atataaaacc agctcatctt	900
agaaatcttt caaatcgtgg tattgggtatc atggaatcac aacacagaaa gataacgtat	960
agaatgaagc gacgtggcat gtattggtca aagtggggaa tctccacaat ggcaaatatg	1020
attatacttg aaagagctaa cggtttacga gaattat	1080
tttttccttg gagaaaggta	
tacagtgagt ataaagaagg ttcatttagt gcagggcgac tttttaaaaa gacagatgaa	1140

eof-seq1.txt

ttagataaat tttctaagcc ctttctaaaa aatggcagaa aatggagtat aacaggaatc 1200
 aaaacaaaat ag 1212

<210> 91
 <211> 682
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 91

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

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Glu Lys Glu
 20 25 30

Lys Thr Thr Glu Thr Val Thr Leu His Lys Ile Leu Gln Thr Asp Thr
 35 40 45

Asn Leu Lys Asn Ser Ala Phe Pro Gly Thr Lys Gly Leu Asp Gly Thr
 50 55 60

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

Asp Ser Lys Asp Ile Gly Gly Ala Tyr Phe Ile Leu Ala Asn Ser Lys
 85 90 95

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

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

Gly Leu Thr Glu Glu Asn Ala Gly Ile Lys Phe Glu Thr Thr Gly Leu
 130 135 140

Arg Gly Asp Phe Gln Ile Ile Glu Leu Lys Asp Lys Ser Thr Tyr Asn
 145 150 155 160

Asn Gly Gly Ala Ile Leu Ala Asp Ser Lys Ala Val Pro Val Lys Ile
 165 170 175

Thr Leu Pro Leu Ile Asn Lys Asp Gly Val Val Lys Asp Ala His Val
 180 185 190

Tyr Pro Lys Asn Thr Glu Thr Lys Pro Gln Ile Asp Lys Asn Phe Ala
 195 200 205

Asp Lys Asn Leu Asp Tyr Ile Asn Asn Gln Lys Asp Lys Gly Thr Ile
 210 215 220

eo1f-seq1.txt

Ser Ala Thr Val Gly Asp Val Lys Lys Tyr Thr Val Gly Thr Lys Ile
225 230 235 240

Leu Lys Gly Ser Asp Tyr Lys Lys Leu Val Trp Thr Asp Ser Met Thr
245 250 255

Lys Gly Leu Thr Phe Asn Asn Asp Val Thr Val Thr Leu Asp Gly Ala
260 265 270

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

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

Lys Thr Lys Asp Val Glu Ile Lys Ile Asn Tyr Ser Ala Thr Val Asn
305 310 315 320

Gly Ser Thr Val Val Glu Lys Ser Glu Asn Asn Asp Val Lys Leu Asp
325 330 335

Tyr Gly Asn Asn Pro Thr Thr Glu Asn Glu Pro Gln Thr Gly Asn Pro
340 345 350

Val Asn Lys Glu Ile Thr Val Arg Lys Thr Trp Ala Val Asp Gly Asn
355 360 365

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

Val Lys Asp Ser Asp Lys Trp Val Asn Val Asp Ser Ala Thr Ala Thr
385 390 395 400

Ala Ala Thr Asp Phe Lys Tyr Thr Phe Lys Asn Leu Asp Asn Ala Lys
405 410 415

Thr Tyr Arg Val Val Glu Arg Val Ser Gly Tyr Ala Pro Ala Tyr Val
420 425 430

Ser Phe Val Gly Gly Val Val Thr Ile Lys Asn Asn Lys Asn Ser Asn
435 440 445

Asp Pro Thr Pro Ile Asn Pro Ser Glu Pro Lys Val Val Thr Tyr Gly
450 455 460

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

Ala Thr Phe Leu Val Lys Asn Ser Gln Ser Gln Tyr Leu Ala Arg Lys
485 490 495

Ser Gly Val Ala Thr Asn Glu Ala His Lys Ala Val Thr Asp Ala Lys
Page 62

eo1f-seq1.txt

500

505

510

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

Gln Gln Glu Ser Gln Asp Gly Lys Ala Ala Leu Asn Leu Ile Asp Glu
530 535 540

Lys Gln Thr Ala Tyr Asn Glu Ala Phe Ala Lys Ala Asn Tyr Ser Tyr
545 550 555 560

Glu Trp Val Val Asp Lys Asn Ala Ala Asn Val Val Lys Leu Ile Ser
565 570 575

Asn Thr Ala Gly Lys Phe Glu Ile Thr Gly Leu Asn Ala Gly Glu Tyr
580 585 590

Ser Leu Glu Glu Thr Gln Ala Pro Thr Gly Tyr Ala Lys Leu Ser Ser
595 600 605

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

Asn Asp Ile Ala Tyr Asp Lys Asp Ser Gly Lys Thr Asp Ala Gln Lys
625 630 635 640

Val Val Asn Lys Lys Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr
645 650 655

Ile Leu Phe Thr Ile Ile Gly Leu Ser Ile Met Leu Gly Ala Val Val
660 665 670

Ile Met Lys Arg Arg Gln Ser Glu Glu Ala
675 680

<210> 92
<211> 675
<212> PRT
<213> Streptococcus agalactiae

<400> 92

Met Lys Lys Ile Asn Lys Tyr Phe Ala Val Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Val Thr Ser Leu Phe Ser Val Ala Pro Val Phe Ala Glu Glu Ala
20 25 30

Lys Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Arg Thr
35 40 45

Ala Phe Asp Gly Phe Thr Ala Gly Thr Lys Gly Lys Asp Asn Thr Asp
50 55 60

eo1f-seq1.txt

Tyr Val Gly Lys Gln Ile Glu Asp Leu Lys Thr Tyr Phe Gly Ser Gly
 65 70 75 80
 Glu Ala Lys Glu Ile Ala Gly Ala Tyr Phe Ala Phe Lys Asn Glu Ala
 85 90 95
 Gly Thr Lys Tyr Ile Thr Glu Asn Gly Glu Glu Val Asp Thr Leu Asp
 100 105 110
 Thr Thr Asp Ala Lys Gly Gly Ala Val Leu Lys Gly Leu Thr Thr Asp
 115 120 125
 Asn Gly Phe Lys Phe Asn Thr Ser Lys Leu Thr Gly Thr Tyr Gln Ile
 130 135 140
 Val Glu Leu Lys Glu Lys Ser Thr Tyr Asn Asn Asp Gly Ser Ile Leu
 145 150 155 160
 Ala Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn
 165 170 175
 Asp Asn Gly Val Val Lys Asp Ala His Val Tyr Pro Lys Asn Thr Glu
 180 185 190
 Thr Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Glu Leu Asp Tyr
 195 200 205
 Ala Asn Asn Lys Lys Asp Lys Gly Thr Val Ser Ala Ser Val Gly Asp
 210 215 220
 Val Lys Lys Tyr His Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr
 225 230 235 240
 Lys Lys Leu Ile Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn
 245 250 255
 Asn Asp Ile Ala Val Thr Leu Asp Gly Ala Thr Leu Asp Ala Thr Asn
 260 265 270
 Tyr Lys Leu Val Ala Asp Asp Gln Gly Phe Arg Leu Val Leu Thr Asp
 275 280 285
 Lys Gly Leu Glu Ala Val Ala Lys Ala Ala Lys Thr Lys Asp Val Glu
 290 295 300
 Ile Lys Ile Thr Tyr Ser Ala Thr Leu Asn Gly Ser Ala Val Val Glu
 305 310 315 320
 Val Leu Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr
 325 330 335

eo1f-seq1.txt

Ile Glu Asn Glu Pro Lys Glu Gly Ile Pro Val Asp Lys Lys Ile Thr
340 345 350

Val Asn Lys Thr Trp Ala Val Asp Gly Asn Glu Val Asn Lys Ala Asp
355 360 365

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

Trp Val Asn Val Asp Ser Ala Lys Ala Thr Ala Thr Ser Phe Lys
385 390 395 400

His Thr Phe Glu Asn Leu Asp Asn Ala Lys Thr Tyr Arg Val Ile Glu
405 410 415

Arg Val Ser Gly Tyr Ala Pro Glu Tyr Val Ser Phe Val Asn Gly Val
420 425 430

Val Thr Ile Lys Asn Asn Lys Asp Ser Asn Glu Pro Thr Pro Ile Asn
435 440 445

Pro Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr
450 455 460

Asn Lys Asp Gly Lys Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys
465 470 475 480

Lys Asp Gly Lys Tyr Leu Ala Arg Lys Ser Gly Val Ala Thr Asp Ala
485 490 495

Glu Lys Ala Ala Val Asp Ser Thr Lys Ser Ala Leu Asp Ala Ala Val
500 505 510

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

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

Ala Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Glu Asp Lys Asn
545 550 555 560

Ala Lys Asn Val Val Lys Leu Ile Ser Asn Asp Lys Gly Gln Phe Glu
565 570 575

Ile Thr Gly Leu Thr Glu Gly Gln Tyr Ser Leu Glu Glu Thr Gln Ala
580 585 590

Pro Thr Gly Tyr Ala Lys Leu Ser Gly Asp Val Ser Phe Asn Val Asn
595 600 605

Ala Thr Ser Tyr Ser Lys Gly Ser Ala Gln Asp Ile Glu Tyr Thr Gln

eo1f-seq1.txt
620

610

615

Gly Ser Lys Thr Lys Asp Ala Gln Gln Val Ile Asn Lys Lys Val Thr
625 630 635 640

Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Phe Phe Thr Ile Ile Gly
645 650 655

Leu Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser
660 665 670

Glu Glu Val
675

<210> 93
<211> 693
<212> PRT
<213> Streptococcus agalactiae

<400> 93

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Val Phe Ala Ala Glu Met
20 25 30

Gly Asn Ile Thr Lys Thr Val Thr Leu His Lys Ile Val Gln Thr Ser
35 40 45

Asp Asn Leu Ala Lys Pro Asn Phe Pro Gly Ile Asn Gly Leu Asn Gly
50 55 60

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

Gln Gly Ser Lys Glu Ile Ala Gly Ala Phe Phe Ala Val Met Asn Glu
85 90 95

Ser Gln Thr Lys Tyr Ile Thr Glu Ser Gly Thr Glu Val Glu Ser Ile
100 105 110

Asp Ala Ala Gly Val Leu Lys Gly Leu Thr Thr Glu Asn Gly Ile Thr
115 120 125

Phe Asn Thr Ala Asn Leu Lys Gly Thr Tyr Gln Ile Val Glu Leu Leu
130 135 140

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

Ala Val Pro Val Lys Ile Thr Leu Pro Leu Tyr Asn Glu Glu Gly Ile
165 170 175

eo1f-seq1.txt

Val Val Asp Ala Glu Val Tyr Pro Lys Asn Thr Glu Glu Ala Pro Gln
180 185 190

Ile Asp Lys Asn Phe Ala Lys Ala Asn Lys Leu Leu Asn Asp Ser Asp
195 200 205

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

Lys Ala Lys Ala Thr Ala Glu Ile Gly Gln Glu Ile Pro Tyr Glu Val
225 230 235 240

Lys Thr Lys Ile Gln Lys Gly Ser Lys Tyr Lys Asn Leu Ala Trp Val
245 250 255

Asp Thr Met Ser Asn Gly Leu Thr Met Gly Asn Thr Val Asn Leu Glu
260 265 270

Ala Ser Ser Gly Ser Phe Val Glu Gly Thr Asp Tyr Asn Val Glu Arg
275 280 285

Asp Asp Arg Gly Phe Thr Leu Lys Phe Thr Asp Thr Gly Leu Thr Lys
290 295 300

Leu Gln Lys Glu Ala Glu Thr Gln Ala Val Glu Phe Thr Leu Thr Tyr
305 310 315 320

Ser Ala Thr Val Asn Gly Ala Ala Ile Asp Asp Lys Pro Glu Ser Asn
325 330 335

Asp Ile Lys Leu Gln Tyr Gly Asn Lys Pro Gly Lys Lys Val Lys Glu
340 345 350

Ile Pro Val Thr Pro Ser Asn Gly Glu Ile Thr Val Ser Lys Thr Trp
355 360 365

Asp Lys Gly Ser Asp Leu Glu Asn Ala Asn Val Val Tyr Thr Leu Lys
370 375 380

Asp Gly Gly Thr Ala Val Ala Ser Val Ser Leu Thr Lys Thr Thr Pro
385 390 395 400

Asn Gly Glu Ile Asn Leu Gly Asn Gly Ile Lys Phe Thr Val Thr Gly
405 410 415

Ala Phe Ala Gly Lys Phe Ser Gly Leu Thr Asp Ser Lys Thr Tyr Met
420 425 430

Ile Ser Glu Arg Ile Ala Gly Tyr Gly Asn Thr Ile Thr Thr Gly Ala
435 440 445

eolf-seql.txt

Gly Ser Ala Ala Ile Thr Asn Thr Pro Asp Ser Asp Asn Pro Thr Pro
450 455 460

Leu Asn Pro Thr Glu Pro Lys Val Val Thr His Gly Lys Lys Phe Val
465 470 475 480

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

Val Lys Asp Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ser Ser Ala Thr
500 505 510

Ile Ser Ala Gln Thr Thr Ala Tyr Thr Asn Ala Lys Thr Ala Leu Asp
515 520 525

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

Thr Lys Gly Glu Thr Ala Lys Ala Glu Ile Lys Thr Ala Gln Asp Ala
545 550 555 560

Tyr Asn Ala Ala Phe Ile Val Ala Arg Thr Ala Tyr Glu Trp Val Thr
565 570 575

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

Gln Phe Glu Val Ser Gly Leu Ala Thr Gly Asp Tyr Lys Leu Glu Glu
595 600 605

Thr Gln Ala Pro Ala Gly Tyr Ala Lys Leu Ala Gly Asp Val Asp Phe
610 615 620

Lys Val Gly Asn Ser Ser Lys Ala Asp Asp Ser Gly Asn Ile Asp Tyr
625 630 635 640

Thr Ala Ser Ser Asn Lys Lys Asp Ala Gln Arg Ile Glu Asn Lys Lys
645 650 655

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile
660 665 670

Ile Gly Leu Ser Ile Met Leu Gly Ala Val Ile Ile Met Lys Arg Arg
675 680 685

Gln Ser Glu Glu Ala
690

<210> 94
<211> 704
<212> PRT
<213> Streptococcus agalactiae

eo1f-seq1.txt

<400> 94

```

Met Lys Lys Ile Asn Lys Tyr Phe Ala Val Phe Ser Ala Leu Leu Leu
1      5      10      15

Thr Val Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
      20      25      30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
      35      40      45

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Asp Asp
      50      55      60

Tyr Lys Gly Glu Ser Ile Ser Asp Leu Ala Glu Tyr Phe Gly Ser Gly
65      70      75      80

Ser Lys Glu Ile Asp Gly Ala Phe Phe Ala Leu Ala Leu Glu Glu Glu
      85      90      95

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

Thr Pro Asp Leu Ile Thr Lys Gly Thr Pro Ala Thr Thr Thr Lys Val
      115      120      125

Glu Glu Ala Val Gly Gly Leu Thr Thr Gly Thr Gly Ile Val Phe Asn
      130      135      140

Thr Ala Gly Leu Lys Gly Asn Phe Lys Ile Ile Glu Leu Lys Asp Lys
145      150      155      160

Ser Thr Tyr Asn Asn Asn Gly Ser Leu Leu Ala Ala Ser Lys Ala Val
      165      170      175

Pro Val Lys Ile Thr Leu Pro Leu Val Ser Lys Asp Gly Val Val Lys
      180      185      190

Asp Ala His Val Tyr Pro Lys Asn Thr Glu Thr Lys Pro Glu Val Asp
      195      200      205

Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Lys Asp Ala Thr
      210      215      220

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

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

Lys Val Leu Lys Gly Ser Lys Tyr Glu Lys Leu Val Trp Thr Asp Thr
      260      265      270

```

eo1f-seq1.txt

Met Ser Asn Gly Leu Thr Met Gly Asp Asp Val Asn Leu Ala Val Ser
275 280 285

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

Asp Asp Arg Gly Phe Thr Leu Lys Phe Lys Ala Thr Gly Leu Asp Lys
305 310 315 320

Leu Glu Glu Ala Ala Lys Ala Ser Asp Val Glu Phe Thr Leu Thr Tyr
325 330 335

Lys Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn Pro Glu Val Asn
340 345 350

Asp Ile Lys Leu Asp Tyr Gly Asn Lys Pro Gly Thr Asp Leu Ser Glu
355 360 365

Gln Pro Val Thr Pro Glu Asp Gly Glu Val Lys Val Thr Lys Thr Trp
370 375 380

Ala Ala Gly Ala Asn Lys Ala Asp Ala Lys Val Val Tyr Thr Leu Lys
385 390 395 400

Asn Ala Thr Lys Gln Val Val Ala Ser Val Ala Leu Thr Ala Ala Asp
405 410 415

Thr Lys Gly Thr Ile Asn Leu Gly Lys Gly Met Thr Phe Glu Ile Thr
420 425 430

Gly Ala Phe Ser Gly Thr Phe Lys Gly Leu Gln Asn Lys Ala Tyr Thr
435 440 445

Val Ser Glu Arg Val Ala Gly Tyr Thr Asn Ala Ile Asn Val Thr Gly
450 455 460

Asn Ala Val Ala Ile Thr Asn Thr Pro Asp Ser Asp Asn Pro Thr Pro
465 470 475 480

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

Lys Val Gly Asp Ala Asp Ala Arg Leu Ala Gly Ala Gln Phe Val Val
500 505 510

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

Ser Gly Ala Gln Thr Glu Leu Ala Thr Ala Lys Thr Asp Leu Asp Asn
530 535 540

eo1f-seq1.txt

Ala Ile Lys Ala Tyr Asn Gly Leu Thr Lys Ala Gln Gln Glu Gly Ala
545 550 555 560

Asp Gly Thr Ser Ala Lys Glu Leu Ile Asn Thr Lys Gln Ser Ala Tyr
565 570 575

Asp Ala Ala Phe Ile Lys Ala Arg Thr Ala Tyr Ile Trp Val Asp Glu
580 585 590

Lys Thr Lys Ala Ile Thr Phe Thr Ser Asn Asn Gln Gly Gln Phe Glu
595 600 605

Val Thr Gly Leu Glu Val Gly Ser Tyr Lys Leu Glu Glu Thr Leu Ala
610 615 620

Pro Ala Gly Tyr Ala Lys Leu Ser Gly Asp Ile Glu Phe Thr Val Gly
625 630 635 640

His Asp Ser Tyr Thr Ser Gly Asp Ile Lys Tyr Lys Thr Asp Asp Ala
645 650 655

Ser Asn Asn Ala Gln Lys Val Phe Asn Lys Lys Val Thr Ile Pro Gln
660 665 670

Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser Ile
675 680 685

Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Glu Glu Ala
690 695 700

<210> 95
<211> 682
<212> PRT
<213> Streptococcus agalactiae

<400> 95

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

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Glu Lys Glu
20 25 30

Lys Thr Thr Glu Thr Val Thr Leu His Lys Ile Leu Gln Thr Asp Thr
35 40 45

Asn Leu Lys Asn Ser Ala Phe Pro Gly Thr Lys Gly Leu Asp Gly Thr
50 55 60

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

Asp Ser Lys Asp Ile Gly Gly Ala Tyr Phe Ile Leu Ala Asn Ser Lys
85 90 95

eo1f-seq1.txt

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

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

Gly Leu Thr Glu Glu Asn Ala Gly Ile Lys Phe Glu Thr Thr Gly Leu
130 135 140

Arg Gly Asp Phe Gln Ile Ile Glu Leu Lys Asp Lys Ser Thr Tyr Asn
145 150 155 160

Asn Gly Gly Ala Ile Leu Ala Asp Ser Lys Ala Val Pro Val Lys Ile
165 170 175

Thr Leu Pro Leu Ile Asn Lys Asp Gly Val Val Lys Asp Ala His Val
180 185 190

Tyr Pro Lys Asn Thr Glu Thr Lys Pro Gln Ile Asp Lys Asn Phe Ala
195 200 205

Asp Lys Asn Leu Asp Tyr Ile Asn Asn Gln Lys Asp Lys Gly Thr Ile
210 215 220

Ser Ala Thr Val Gly Asp Val Lys Lys Tyr Thr Val Gly Thr Lys Ile
225 230 235 240

Leu Lys Gly Ser Asp Tyr Lys Lys Leu Val Trp Thr Asp Ser Met Thr
245 250 255

Lys Gly Leu Thr Phe Asn Asn Asp Val Thr Val Thr Leu Asp Gly Ala
260 265 270

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

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

Lys Thr Lys Asp Val Glu Ile Lys Ile Asn Tyr Ser Ala Thr Val Asn
305 310 315 320

Gly Ser Thr Val Val Glu Lys Ser Glu Asn Asn Asp Val Lys Leu Asp
325 330 335

Tyr Gly Asn Asn Pro Thr Thr Glu Asn Glu Pro Gln Thr Gly Asn Pro
340 345 350

Val Asn Lys Glu Ile Thr Val Arg Lys Thr Trp Ala Val Asp Gly Asn
355 360 365

eo1f-seq1.txt

Glu Val Asn Lys Gly Asp Glu Lys Val Asp Ala Val Phe Thr Leu Gln
 370 375 380
 Val Lys Asp Ser Asp Lys Trp Val Asn Val Asp Ser Ala Thr Ala Thr
 385 390 395 400
 Ala Ala Thr Asp Phe Lys Tyr Thr Phe Lys Asn Leu Asp Asn Ala Lys
 405 410 415
 Thr Tyr Arg Val Val Glu Arg Val Ser Gly Tyr Ala Pro Ala Tyr Val
 420 425 430
 Ser Phe Val Gly Gly Val Val Thr Ile Lys Asn Asn Lys Asn Ser Asn
 435 440 445
 Asp Pro Thr Pro Ile Asn Pro Ser Glu Pro Lys Val Val Thr Tyr Gly
 450 455 460
 Arg Lys Phe Val Lys Thr Asn Gln Asp Gly Ser Glu Arg Leu Ala Gly
 465 470 475 480
 Ala Thr Phe Leu Val Lys Asn Ser Gln Ser Gln Tyr Leu Ala Arg Lys
 485 490 495
 Ser Gly Val Ala Thr Asn Glu Ala His Lys Ala Val Thr Asp Ala Lys
 500 505 510
 Val Gln Leu Asp Glu Ala Val Lys Ala Tyr Asn Lys Leu Thr Lys Glu
 515 520 525
 Gln Gln Glu Ser Gln Asp Gly Lys Ala Ala Leu Asn Leu Ile Asp Glu
 530 535 540
 Lys Gln Thr Ala Tyr Asn Glu Ala Phe Ala Lys Ala Asn Tyr Ser Tyr
 545 550 555 560
 Glu Trp Val Val Asp Lys Asn Ala Ala Asn Val Val Lys Leu Ile Ser
 565 570 575
 Asn Thr Ala Gly Lys Phe Glu Ile Thr Gly Leu Asn Ala Gly Glu Tyr
 580 585 590
 Ser Leu Glu Glu Thr Gln Ala Pro Thr Gly Tyr Ala Lys Leu Ser Ser
 595 600 605
 Asp Val Ser Phe Lys Val Asn Asp Thr Ser Tyr Ser Glu Gly Ala Ser
 610 615 620
 Asn Asp Ile Ala Tyr Asp Lys Asp Ser Gly Lys Thr Asp Ala Gln Lys
 625 630 635 640

eolf-seq1.txt

Val Val Asn Lys Lys Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr
 645 650 655

Ile Leu Phe Thr Ile Ile Gly Leu Ser Ile Met Leu Gly Ala Val Val
 660 665 670

Ile Met Lys Arg Arg Gln Ser Glu Glu Ala
 675 680

<210> 96
 <211> 693
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 96

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
 1 5 10 15

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Val Phe Ala Ala Glu Met
 20 25 30

Gly Asn Ile Thr Lys Thr Val Thr Leu His Lys Ile Val Gln Thr Ser
 35 40 45

Asp Asn Leu Ala Lys Pro Asn Phe Pro Gly Ile Asn Gly Leu Asn Gly
 50 55 60

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

Gln Gly Ser Lys Glu Ile Ala Gly Ala Phe Phe Ala Val Met Asn Glu
 85 90 95

Ser Gln Thr Lys Tyr Ile Thr Glu Ser Gly Thr Glu Val Glu Ser Ile
 100 105 110

Asp Ala Ala Gly Val Leu Lys Gly Leu Thr Thr Glu Asn Gly Ile Thr
 115 120 125

Phe Asn Thr Ala Asn Leu Lys Gly Thr Tyr Gln Ile Val Glu Leu Leu
 130 135 140

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

Ala Val Pro Val Lys Ile Thr Leu Pro Leu Tyr Asn Glu Glu Gly Ile
 165 170 175

Ile Val Asp Ala Glu Val Tyr Pro Lys Asn Thr Glu Glu Ala Pro Gln
 180 185 190

Ile Asp Lys Asn Phe Ala Lys Ala Asn Lys Leu Leu Asn Asp Ser Asp
 195 200 205

eo1f-seq1.txt

Asn Ser Ala Ile Ala Gly Gly Ala Asp Tyr Asp Lys Tyr Gln Ala Glu
 210 215 220
 Lys Ala Lys Ala Thr Ala Glu Ile Gly Gln Glu Ile Pro Tyr Glu Val
 225 230 235 240
 Lys Thr Lys Ile Gln Lys Gly Ser Lys Tyr Lys Asn Leu Ala Trp Val
 245 250 255
 Asp Thr Met Ser Asn Gly Leu Thr Met Gly Asn Thr Val Asn Leu Glu
 260 265 270
 Ala Ser Ser Gly Ser Phe Val Glu Gly Thr Asp Tyr Asn Val Glu Arg
 275 280 285
 Asp Asp Arg Gly Phe Thr Leu Lys Phe Thr Asp Thr Gly Leu Thr Lys
 290 295 300
 Leu Gln Lys Glu Ala Glu Thr His Ala Val Glu Phe Thr Leu Thr Tyr
 305 310 315 320
 Ser Ala Thr Val Asn Gly Ala Ala Ile Asp Asp Lys Pro Glu Ser Asn
 325 330 335
 Asp Ile Lys Leu Gln Tyr Gly Asn Lys Pro Gly Lys Lys Val Lys Glu
 340 345 350
 Ile Pro Val Thr Pro Ser Asn Gly Glu Ile Thr Val Ser Lys Thr Trp
 355 360 365
 Asp Lys Gly Ser Asp Leu Glu Asn Ala Asn Val Val Tyr Thr Leu Lys
 370 375 380
 Asp Gly Gly Thr Ala Val Ala Ser Val Ser Leu Thr Lys Thr Thr Pro
 385 390 395 400
 Asn Gly Glu Ile Asn Leu Gly Asn Gly Ile Lys Phe Thr Val Thr Gly
 405 410 415
 Ala Phe Ala Gly Lys Phe Ser Gly Leu Thr Asp Ser Lys Thr Tyr Met
 420 425 430
 Ile Ser Glu Arg Ile Ala Gly Tyr Gly Asn Thr Ile Thr Thr Gly Ala
 435 440 445
 Gly Ser Ala Ala Ile Thr Asn Thr Pro Asp Ser Asp Asn Pro Thr Pro
 450 455 460
 Leu Asn Pro Thr Glu Pro Lys Val Val Thr His Gly Lys Lys Phe Val
 465 470 475 480

eo1f-seq1.txt

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

Val Lys Asp Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ser Ser Ala Thr
500 505 510

Ile Ser Ala Gln Thr Thr Ala Tyr Thr Asn Ala Lys Thr Ala Leu Asp
515 520 525

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

Thr Lys Gly Glu Thr Ala Lys Ala Glu Ile Lys Thr Ala Gln Asp Ala
545 550 555 560

Tyr Asn Ala Ala Phe Ile Val Ala Arg Thr Ala Tyr Glu Trp Val Thr
565 570 575

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

Gln Phe Glu Val Ser Gly Leu Ala Thr Gly Asp Tyr Lys Leu Glu Glu
595 600 605

Thr Gln Ala Pro Ala Gly Tyr Ala Lys Leu Ala Gly Asp Val Asp Phe
610 615 620

Lys Val Gly Asn Ser Ser Lys Ala Asp Asp Ser Gly Asn Ile Asp Tyr
625 630 635 640

Thr Ala Ser Ser Asn Lys Lys Asp Ala Gln Arg Ile Glu Asn Lys Lys
645 650 655

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile
660 665 670

Ile Gly Leu Ser Ile Met Leu Gly Ala Val Ile Ile Met Lys Arg Arg
675 680 685

Gln Ser Glu Glu Ala
690

<210> 97
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 97

Met Lys Lys Ile Asn Lys Cys Leu Thr Val Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Val
Page 76

eo1f-seq1.txt

20

25

30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Thr
115 120 125

Gly Phe Ala Phe Asn Thr Ala Lys Leu Lys Gly Thr Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

Asn Val Lys Val Thr Leu Asp Gly Lys Asp Phe Pro Val Leu Asn Tyr
260 265 270

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

eo1f-seq1.txt

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Val
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Val Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Thr Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460
 Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
 465 470 475 480
 Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
 485 490 495
 Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
 500 505 510
 Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Glu Gly Lys
 515 520 525
 Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
 530 535 540
 Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
 545 550 555 560
 Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
 565 570 575

eo1f-seq1.txt

Thr Gly Leu Asp Lys Gly Thr Tyr Ser Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Val Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 98
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 98

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
Page 79

eo1f-seq1.txt
140

130

135

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

eo1f-seq1.txt

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

eo1f-seq1.txt

<210> 99
 <211> 674
 <212> PRT
 <213> Streptococcus agalactiae

<400> 99

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
 1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
 20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
 35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
 50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
 85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
 115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
 130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 Page 82

eo1f-seq1.txt

245

250

255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

eo1f-seq1.txt

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 100
<211> 675
<212> PRT
<213> Streptococcus agalactiae

<400> 100

Met Lys Lys Ile Asn Lys Tyr Phe Ala Val Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Val Thr Ser Leu Phe Ser Val Ala Pro Val Phe Ala Glu Glu Ala
20 25 30

Lys Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Arg Thr
35 40 45

Ala Phe Asp Gly Phe Thr Ala Gly Thr Lys Gly Lys Asp Asn Thr Asp
50 55 60

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

eo1f-seq1.txt

Glu Ala Lys Glu Ile Ala Gly Ala Tyr Phe Ala Phe Lys Asn Glu Ala
85 90 95

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

Thr Thr Asp Ala Lys Gly Gly Ala Val Leu Lys Gly Leu Thr Thr Asp
115 120 125

Asn Gly Phe Lys Phe Asn Thr Ser Lys Leu Thr Gly Thr Tyr Gln Ile
130 135 140

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

Ala Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn
165 170 175

Asp Asn Gly Val Val Lys Asp Ala His Val Tyr Pro Lys Asn Thr Glu
180 185 190

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

Ala Asn Asn Lys Lys Asp Lys Gly Thr Val Ser Ala Ser Val Gly Asp
210 215 220

Val Lys Lys Tyr His Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr
225 230 235 240

Lys Lys Leu Ile Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn
245 250 255

Asn Asp Ile Ala Val Thr Leu Asp Gly Ala Thr Leu Asp Ala Thr Asn
260 265 270

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

Lys Gly Leu Glu Ala Val Ala Lys Ala Ala Lys Thr Lys Asp Val Glu
290 295 300

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

Val Leu Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr
325 330 335

Ile Glu Asn Glu Pro Lys Glu Gly Ile Pro Val Asp Lys Lys Ile Thr
340 345 350

Val Asn Lys Thr Trp Ala Val Asp Gly Asn Glu Val Asn Lys Ala Asp

eo1f-seq1.txt

355

360

365

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

Trp Val Asn Val Asp Ser Ala Lys Ala Thr Ala Ala Thr Ser Phe Lys
385 390 395 400

His Thr Phe Glu Asn Leu Asp Asn Ala Lys Thr Tyr Arg Val Ile Glu
405 410 415

Arg Val Ser Gly Tyr Ala Pro Glu Tyr Val Ser Phe Val Asn Gly Val
420 425 430

Val Thr Ile Lys Asn Asn Lys Asp Ser Asn Glu Pro Thr Pro Ile Asn
435 440 445

Pro Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr
450 455 460

Asn Lys Asp Gly Lys Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys
465 470 475 480

Lys Asp Gly Lys Tyr Leu Ala Arg Lys Ser Gly Val Ala Thr Asp Ala
485 490 495

Glu Lys Ala Ala Val Asp Ser Thr Lys Ser Ala Leu Asp Ala Ala Val
500 505 510

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

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

Ala Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Glu Asp Lys Asn
545 550 555 560

Ala Lys Asn Val Val Lys Leu Ile Ser Asn Asp Lys Gly Gln Phe Glu
565 570 575

Ile Thr Gly Leu Thr Glu Gly Gln Tyr Ser Leu Glu Glu Thr Gln Ala
580 585 590

Pro Thr Gly Tyr Ala Lys Leu Ser Gly Asp Val Ser Phe Asn Val Asn
595 600 605

Ala Thr Ser Tyr Ser Lys Gly Ser Ala Gln Asp Ile Glu Tyr Thr Gln
610 615 620

Gly Ser Lys Thr Lys Asp Ala Gln Gln Val Ile Asn Lys Lys Val Thr
625 630 635 640

eo1f-seq1.txt

Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Phe Phe Thr Ile Ile Gly
645 650 655

Leu Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser
660 665 670

Glu Glu Val
675

<210> 101
<211> 693
<212> PRT
<213> Streptococcus agalactiae
<400> 101

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Val Phe Ala Ala Glu Met
20 25 30

Gly Asn Ile Thr Lys Thr Val Thr Leu His Lys Ile Val Gln Thr Ser
35 40 45

Asp Asn Leu Ala Lys Pro Asn Phe Pro Gly Ile Asn Gly Leu Asn Gly
50 55 60

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

Gln Gly Ser Lys Glu Ile Ala Gly Ala Phe Phe Ala Val Met Asn Glu
85 90 95

Ser Gln Thr Lys Tyr Ile Thr Glu Ser Gly Thr Glu Val Glu Ser Ile
100 105 110

Asp Ala Ala Gly Val Leu Lys Gly Leu Thr Thr Glu Asn Gly Ile Thr
115 120 125

Phe Asn Thr Ala Asn Leu Lys Gly Thr Tyr Gln Ile Val Glu Leu Leu
130 135 140

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

Ala Val Pro Val Lys Ile Thr Leu Pro Leu Tyr Asn Glu Glu Gly Ile
165 170 175

Val Val Asp Ala Glu Val Tyr Pro Lys Asn Thr Glu Glu Ala Pro Gln
180 185 190

eo1f-seq1.txt

Ile Asp Lys₁₉₅ Asn Phe Ala Lys Ala₂₀₀ Asn Lys Leu Leu Asn₂₀₅ Asp Ser Asp
 Asn Ser₂₁₀ Ala Ile Ala Gly Gly₂₁₅ Ala Asp Tyr Asp Lys₂₂₀ Tyr Gln Ala Glu
 Lys₂₂₅ Ala Lys Ala Thr Ala₂₃₀ Glu Ile Gly Gln Glu₂₃₅ Ile Pro Tyr Glu Val₂₄₀
 Lys Thr Lys Ile Gln₂₄₅ Lys Gly Ser Lys Tyr₂₅₀ Lys Asn Leu Ala Trp Val₂₅₅
 Asp Thr Met Ser₂₆₀ Asn Gly Leu Thr Met₂₆₅ Gly Asn Thr Val Asn₂₇₀ Leu Glu
 Ala Ser Ser₂₇₅ Gly Ser Phe Val Glu₂₈₀ Gly Thr Asp Tyr Asn₂₈₅ Val Glu Arg
 Asp Asp₂₉₀ Arg Gly Phe Thr Leu₂₉₅ Lys Phe Thr Asp Thr₃₀₀ Gly Leu Thr Lys
 Leu₃₀₅ Gln Lys Glu Ala Glu₃₁₀ Thr Gln Ala Val Glu₃₁₅ Phe Thr Leu Thr Tyr₃₂₀
 Ser Ala Thr Val Asn₃₂₅ Gly Ala Ala Ile Asp₃₃₀ Asp Lys Pro Glu Ser₃₃₅ Asn
 Asp Ile Lys Leu₃₄₀ Gln Tyr Gly Asn Lys₃₄₅ Pro Gly Lys Lys Val₃₅₀ Lys Glu
 Ile Pro Val₃₅₅ Thr Pro Ser Asn Gly₃₆₀ Glu Ile Thr Val Ser₃₆₅ Lys Thr Trp
 Asp Lys₃₇₀ Gly Ser Asp Leu Glu₃₇₅ Asn Ala Asn Val Val₃₈₀ Tyr Thr Leu Lys
 Asp₃₈₅ Gly Gly Thr Ala Val₃₉₀ Ala Ser Val Ser Leu₃₉₅ Thr Lys Thr Thr Pro₄₀₀
 Asn Gly Glu Ile Asn₄₀₅ Leu Gly Asn Gly Ile₄₁₀ Lys Phe Thr Val Thr₄₁₅ Gly
 Ala Phe Ala Gly₄₂₀ Lys Phe Ser Gly Leu₄₂₅ Thr Asp Ser Lys Thr Tyr Met
 Ile Ser Glu₄₃₅ Arg Ile Ala Gly Tyr₄₄₀ Gly Asn Thr Ile Thr₄₄₅ Thr Gly Ala
 Gly Ser₄₅₀ Ala Ala Ile Thr Asn₄₅₅ Thr Pro Asp Ser Asp₄₆₀ Asn Pro Thr Pro
 Leu Asn Pro Thr Glu Pro Lys Val Val Thr His Gly Lys Lys Phe Val

eolf-seq1.txt

465 470 475 480

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

Val Lys Asp Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ser Ser Ala Thr
 500 505 510

Ile Ser Ala Gln Thr Thr Ala Tyr Thr Asn Ala Lys Thr Ala Leu Asp
 515 520 525

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

Thr Lys Gly Glu Thr Ala Lys Ala Glu Ile Lys Thr Ala Gln Asp Ala
545 550 555 560

Tyr Asn Ala Ala Phe Ile Val Ala Arg Thr Ala Tyr Glu Trp Val Thr
 565 570 575

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

Gln Phe Glu Val Ser Gly Leu Ala Thr Gly Asp Tyr Lys Leu Glu Glu
 595 600 605

Thr Gln Ala Pro Ala Gly Tyr Ala Lys Leu Ala Gly Asp Val Asp Phe
610 615 620

Lys Val Gly Asn Ser Ser Lys Ala Asp Asp Ser Gly Asn Ile Asp Tyr
625 630 635 640

Thr Ala Ser Ser Asn Lys Lys Asp Ala Gln Arg Ile Glu Asn Lys Lys
 645 650 655

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile
 660 665 670

Ile Gly Leu Ser Ile Met Leu Gly Ala Val Ile Ile Met Lys Arg Arg
 675 680 685

Gln Ser Glu Glu Ala
690

<210> 102
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 102

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

eo1f-seq1.txt

Ile Leu Thr Ser₂₀ Leu Phe Ser Val₂₅ Ala Pro Ala Phe Ala₃₀ Asp Asp Ala
 Thr Thr Asp₃₅ Thr Val Thr Leu His₄₀ Lys Ile Val Met₄₅ Pro Gln Ala Ala
 Phe Asp₅₀ Asn Phe Thr Glu Gly₅₅ Thr Lys Gly Lys₆₀ Asn Asp Ser Asp Tyr
 Val₆₅ Gly Lys Gln Ile Asn₇₀ Asp Leu Lys Ser Tyr₇₅ Phe Gly Ser Thr Asp₈₀
 Ala Lys Glu Ile Lys₈₅ Gly Ala Phe Phe Val₉₀ Phe Lys Asn Glu Thr Gly₉₅
 Thr Lys Phe Ile₁₀₀ Thr Glu Asn Gly Lys₁₀₅ Glu Val Asp Thr Leu₁₁₀ Glu Ala
 Lys Asp Ala₁₁₅ Glu Gly Gly Ala Val₁₂₀ Leu Ser Gly Leu Thr₁₂₅ Lys Asp Asn
 Gly Phe₁₃₀ Val Phe Asn Thr Ala₁₃₅ Lys Leu Lys Gly Ile₁₄₀ Tyr Gln Ile Val
 Glu₁₄₅ Leu Lys Glu Lys Ser₁₅₀ Asn Tyr Asp Asn Asn₁₅₅ Gly Ser Ile Leu Ala₁₆₀
 Asp Ser Lys Ala Val₁₆₅ Pro Val Lys Ile Thr₁₇₀ Leu Pro Leu Val Asn₁₇₅ Asn
 Gln Gly Val Val₁₈₀ Lys Asp Ala His Ile₁₈₅ Tyr Pro Lys Asn Thr Glu Thr
 Lys Pro Gln₁₉₅ Val Asp Lys Asn Phe Ala Asp Lys Asp Leu₂₀₅ Asp Tyr Thr
 Asp Asn₂₁₀ Arg Lys Asp Lys Gly₂₁₅ Val Val Ser Ala Thr₂₂₀ Val Gly Asp Lys
 Lys Glu Tyr Ile Val Gly₂₃₀ Thr Lys Ile Leu Lys₂₃₅ Gly Ser Asp Tyr Lys₂₄₀
 Lys Leu Val Trp Thr₂₄₅ Asp Ser Met Thr Lys₂₅₀ Gly Leu Thr Phe Asn₂₅₅ Asn
 Asn Val Lys Val₂₆₀ Thr Leu Asp Gly Glu₂₆₅ Asp Phe Pro Val Leu₂₇₀ Asn Tyr
 Lys Leu Val₂₇₅ Thr Asp Asp Gln Gly₂₈₀ Phe Arg Leu Ala Leu₂₈₅ Asn Ala Thr

eo1f-seq1.txt

Gly Leu Ala Ala Val Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile

eo1f-seq1.txt
570

565

575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 103
<211> 693
<212> PRT
<213> Streptococcus agalactiae

<400> 103

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Val Phe Ala Ala Glu Met
20 25 30

Gly Asn Ile Thr Lys Thr Val Thr Leu His Lys Ile Val Gln Thr Ser
35 40 45

Asp Asn Leu Ala Lys Pro Asn Phe Pro Gly Ile Asn Gly Leu Asn Gly
50 55 60

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

Gln Gly Ser Lys Glu Ile Ala Gly Ala Phe Phe Ala Val Met Asn Glu
85 90 95

Ser Gln Thr Lys Tyr Ile Thr Glu Ser Gly Thr Glu Val Glu Ser Ile
100 105 110

Asp Ala Ala Gly Val Leu Lys Gly Leu Thr Thr Glu Asn Gly Ile Thr
115 120 125

eo1f-seq1.txt

Phe Asn Thr Ala Asn Leu Lys Gly Thr Tyr Gln Ile Val Glu Leu Leu
 130 135 140
 Asp Lys Ser Asn Tyr Lys Asn Gly Asp Lys Val Leu Ala Asp Ser Lys
 145 150 155 160
 Ala Val Pro Val Lys Ile Thr Leu Pro Leu Tyr Asn Glu Glu Gly Ile
 165 170 175
 Val Val Asp Ala Glu Val Tyr Pro Lys Asn Thr Glu Glu Ala Pro Gln
 180 185 190
 Ile Asp Lys Asn Phe Ala Lys Ala Asn Lys Leu Leu Asn Asp Ser Asp
 195 200 205
 Asn Ser Ala Ile Ala Gly Gly Ala Asp Tyr Asp Lys Tyr Gln Ala Glu
 210 215 220
 Lys Ala Lys Ala Thr Ala Glu Ile Gly Gln Glu Ile Pro Tyr Glu Val
 225 230 235 240
 Lys Thr Lys Ile Gln Lys Gly Ser Lys Tyr Lys Asn Leu Ala Trp Val
 245 250 255
 Asp Thr Met Ser Asn Gly Leu Thr Met Gly Asn Thr Val Asn Leu Glu
 260 265 270
 Ala Ser Ser Gly Ser Phe Val Glu Gly Thr Asp Tyr Asn Val Glu Arg
 275 280 285
 Asp Asp Arg Gly Phe Thr Leu Lys Phe Thr Asp Thr Gly Leu Thr Lys
 290 295 300
 Leu Gln Lys Glu Ala Glu Thr His Ala Val Glu Phe Thr Leu Thr Tyr
 305 310 315 320
 Ser Ala Thr Val Asn Gly Ala Ala Ile Asp Asp Lys Pro Glu Ser Asn
 325 330 335
 Asp Ile Lys Leu Gln Tyr Gly Asn Lys Pro Gly Lys Lys Val Lys Glu
 340 345 350
 Ile Pro Val Thr Pro Ser Asn Gly Glu Ile Thr Val Ser Lys Thr Trp
 355 360 365
 Asp Lys Gly Ser Asp Leu Glu Asn Ala Asn Val Val Tyr Thr Leu Lys
 370 375 380
 Asp Gly Gly Thr Ala Val Ala Ser Val Ser Leu Thr Lys Thr Thr Pro
 385 390 395 400

eo1f-seq1.txt

Asn Gly Glu Ile Asn Leu Gly Asn Gly Ile Lys Phe Thr Val Thr Gly
405 410 415

Ala Phe Ala Gly Lys Phe Ser Gly Leu Thr Asp Ser Lys Thr Tyr Met
420 425 430

Ile Ser Glu Arg Ile Ala Gly Tyr Gly Asn Thr Ile Thr Thr Gly Ala
435 440 445

Gly Ser Ala Ala Ile Thr Asn Thr Pro Asp Ser Asp Asn Pro Thr Pro
450 455 460

Leu Asn Pro Thr Glu Pro Lys Val Val Thr His Gly Lys Lys Phe Val
465 470 475 480

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

Val Lys Asp Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ser Ser Ala Thr
500 505 510

Ile Ser Ala Gln Thr Thr Ala Tyr Thr Asn Ala Lys Thr Ala Leu Asp
515 520 525

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

Thr Lys Gly Glu Thr Ala Lys Ala Glu Ile Lys Thr Ala Gln Asp Ala
545 550 555 560

Tyr Asn Ala Ala Phe Ile Val Ala Arg Thr Ala Tyr Glu Trp Val Thr
565 570 575

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

Gln Phe Glu Val Ser Gly Leu Ala Thr Gly Asp Tyr Lys Leu Glu Glu
595 600 605

Thr Gln Ala Pro Ala Gly Tyr Ala Lys Leu Ala Gly Asp Val Asp Phe
610 615 620

Lys Val Gly Asn Ser Ser Lys Ala Asp Asp Ser Gly Asn Ile Asp Tyr
625 630 635 640

Thr Ala Ser Ser Asn Lys Lys Asp Ala Gln Arg Ile Glu Asn Lys Lys
645 650 655

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile
660 665 670

Ile Gly Leu Ser Ile Met Leu Gly Ala Val Ile Ile Met Lys Arg Arg

eo1f-seq1.txt

675

680

685

Gln Ser Glu Glu Ala
690

<210> 104

<211> 674

<212> PRT

<213> Streptococcus agalactiae

<400> 104

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

eo1f-seq1.txt

Lys Glu Tyr Ile Val Val Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460
 Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
 465 470 475 480
 Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
 485 490 495

eo1f-seq1.txt

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 105

<211> 674

<212> PRT

<213> Streptococcus agalactiae

<400> 105

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

eo1f-seq1.txt

Val Gly Lys Gln Ile Asn Asp Leu Lys Ser Tyr Phe Gly Ser Thr Asp
 65 70 75 80
 Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
 85 90 95
 Thr Lys Phe Ile Thr Glu Asn Gly Lys Glu Val Asp Thr Leu Glu Ala
 100 105 110
 Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
 115 120 125
 Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
 130 135 140
 Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160
 Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175
 Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190
 Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205
 Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220
 Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335

eo1f-seq1.txt

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460
 Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
 465 470 475 480
 Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
 485 490 495
 Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
 500 505 510
 Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Glu Gly Lys
 515 520 525
 Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
 530 535 540
 Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
 545 550 555 560
 Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
 565 570 575
 Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
 580 585 590
 Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
 595 600 605

eolf-seq1.txt

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 106
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 106

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

eo1f-seq1.txt

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

eo1f-seq1.txt

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 107

<211> 674

<212> PRT

<213> Streptococcus agalactiae

<400> 107

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
Page 102

eo1f-seq1.txt

1	5	10	15
Ile	Leu	Thr	Ser
	20	Leu	Phe
		Ser	Val
		Ala	Pro
		25	Ala
		Phe	Ala
		Asp	30
		Asp	Ala
Thr	Thr	Asp	Thr
	35	Val	Thr
		Leu	His
		40	Lys
		Ile	Val
		Met	Pro
		45	Gln
		Ala	Ala
Phe	Asp	Asn	Phe
	50	Thr	Glu
		Gly	55
		Thr	Lys
		Gly	Lys
		Asn	60
		Asp	Ser
		Asp	Tyr
Val	Gly	Lys	Gln
	65	Ile	Asn
		70	Asp
		Leu	Lys
		Ser	Tyr
		75	Phe
		Gly	Ser
		Thr	80
		Asp	
Ala	Lys	Glu	Ile
		85	Lys
		Gly	Ala
		Phe	Phe
		90	Val
		Phe	Lys
		Asn	Glu
		95	Thr
		Gly	
Thr	Lys	Phe	Ile
		100	Thr
		Glu	Asn
		Gly	105
		Lys	Glu
		Val	Asp
		Thr	110
		Leu	Glu
		Ala	
Lys	Asp	Ala	Glu
		115	Gly
		Gly	Gly
		Ala	Val
		120	Leu
		Ser	Gly
		Leu	Thr
		125	Lys
		Asp	Asn
Gly	Phe	Val	Phe
	130	Asn	Thr
		Ala	135
		Lys	Leu
		Lys	Gly
		Ile	140
		Tyr	Gln
		Ile	Val
Glu	Leu	Lys	Glu
	145	Lys	Ser
		150	Asn
		Tyr	Asp
		Asn	Asn
		155	Gly
		Ser	Ile
		Leu	Ala
		160	
Asp	Ser	Lys	Ala
		165	Val
		Pro	Val
		Lys	Ile
		170	Thr
		Leu	Pro
		Leu	Val
		175	Asn
		Asn	
Gln	Gly	Val	Val
		180	Lys
		Asp	Ala
		His	Ile
		185	Tyr
		Pro	Lys
		Asn	190
		Thr	Glu
		Thr	
Lys	Pro	Gln	Val
		195	Asp
		Lys	Asn
		200	Phe
		Ala	Asp
		Lys	Asp
		205	Leu
		Asp	Tyr
		Thr	
Asp	Asn	Arg	Lys
	210	Asp	Lys
		Gly	Val
		215	Val
		Ser	Ala
		220	Thr
		Val	Gly
		Asp	Lys
Lys	Glu	Tyr	Ile
	225	Val	Gly
		230	Thr
		Lys	Ile
		Leu	Lys
		235	Gly
		Ser	Asp
		Tyr	Lys
		240	
Lys	Leu	Val	Trp
		245	Thr
		Asp	Ser
		Met	Thr
		250	Lys
		Gly	Leu
		Thr	Phe
		255	Asn
		Asn	
Asn	Val	Lys	Val
		260	Thr
		Leu	Asp
		Gly	Glu
		265	Asp
		Phe	Pro
		Val	Leu
		270	Asn
		Tyr	
Lys	Leu	Val	Thr
		275	Asp
		Asp	Gln
		Gly	Phe
		280	Arg
		Leu	Ala
		Leu	285
		Asn	Ala
		Thr	

eo1f-seq1.txt

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

eo1f-seq1.txt

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 108
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 108

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
Page 105

eo1f-seq1.txt

115

120

125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

eo1f-seq1.txt

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

eo1f-seq1.txt

Glu Ala

<210> 109
 <211> 674
 <212> PRT
 <213> Streptococcus agalactiae

<400> 109

Met Lys Lys Ile Asn Lys Cys Leu Thr Val Phe Ser Thr Leu Leu Leu
 1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Val
 20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
 35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
 50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
 85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Thr
 115 120 125

Gly Phe Ala Phe Asn Thr Ala Lys Leu Lys Gly Thr Tyr Gln Ile Val
 130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 Page 108

eo1f-seq1.txt

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Ser Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Val Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 110
<211> 705
<212> PRT
<213> Streptococcus agalactiae

<400> 110

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
20 25 30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
35 40 45

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Lys Asp
50 55 60

eo1f-seq1.txt

Tyr Lys Gly Gly Ala Ile Ser Asp Leu Ala Gly Tyr Phe Gly Glu Gly
 65 70 75 80
 Ser Lys Glu Ile Glu Gly Ala Phe Phe Ala Leu Ala Leu Lys Glu Asp
 85 90 95
 Lys Ser Gly Lys Val Gln Tyr Val Lys Ala Lys Glu Gly Asn Lys Leu
 100 105 110
 Thr Pro Ala Leu Ile Asn Lys Asp Gly Thr Pro Glu Ile Thr Val Asn
 115 120 125
 Ile Asp Glu Ala Val Ser Gly Leu Thr Pro Glu Gly Asp Thr Gly Leu
 130 135 140
 Val Phe Asn Thr Lys Gly Leu Lys Gly Glu Phe Lys Ile Val Glu Val
 145 150 155 160
 Lys Ser Lys Ser Thr Tyr Asn Asn Asn Gly Ser Leu Leu Ala Ala Ser
 165 170 175
 Lys Ala Val Pro Val Asn Ile Thr Leu Pro Leu Val Asn Glu Asp Gly
 180 185 190
 Val Val Ala Asp Ala His Val Tyr Pro Lys Asn Thr Glu Glu Lys Pro
 195 200 205
 Glu Ile Asp Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Thr
 210 215 220
 Asp Val Asn Arg Leu Leu Thr Ala Gly Ala Asn Tyr Gly Asn Tyr Ala
 225 230 235 240
 Arg Asp Lys Ala Thr Ala Thr Ala Glu Ile Gly Lys Val Val Pro Tyr
 245 250 255
 Glu Val Lys Thr Lys Ile His Lys Gly Ser Lys Tyr Glu Asn Leu Val
 260 265 270
 Trp Thr Asp Ile Met Ser Asn Gly Leu Thr Met Gly Ser Thr Val Ser
 275 280 285
 Leu Lys Ala Ser Gly Thr Thr Glu Thr Phe Ala Lys Asp Thr Asp Tyr
 290 295 300
 Glu Leu Ser Ile Asp Ala Arg Gly Phe Thr Leu Lys Phe Thr Ala Asp
 305 310 315 320
 Gly Leu Gly Lys Leu Glu Lys Ala Ala Lys Thr Ala Asp Ile Glu Phe
 325 330 335
 Thr Leu Thr Tyr Ser Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn
 Page 111

eo1f-seq1.txt

340

345

350

Pro Glu Ser Asn Asp Ile Lys Leu Ser Tyr Gly Asn Lys Pro Gly Lys
355 360 365

Asp Leu Thr Glu Leu Pro Val Thr Pro Ser Lys Gly Glu Val Thr Val
370 375 380

Ala Lys Thr Trp Ser Asp Gly Ile Ala Pro Asp Gly Val Asn Val Val
385 390 395 400

Tyr Thr Leu Lys Asp Lys Asp Lys Thr Val Ala Ser Val Ser Leu Thr
405 410 415

Lys Thr Ser Lys Gly Thr Ile Asp Leu Gly Asn Gly Ile Lys Phe Glu
420 425 430

Val Ser Gly Asn Phe Ser Gly Lys Phe Thr Gly Leu Glu Asn Lys Ser
435 440 445

Tyr Met Ile Ser Glu Arg Val Ser Gly Tyr Gly Ser Ala Ile Asn Leu
450 455 460

Glu Asn Gly Lys Val Thr Ile Thr Asn Thr Lys Asp Ser Asp Asn Pro
465 470 475 480

Thr Pro Leu Asn Pro Thr Glu Pro Lys Val Glu Thr His Gly Lys Lys
485 490 495

Phe Val Lys Thr Asn Glu Gln Gly Asp Arg Leu Ala Gly Ala Gln Phe
500 505 510

Val Val Lys Asn Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ala Asp Gln
515 520 525

Ser Glu Gly Gln Lys Thr Leu Ala Ala Lys Lys Ile Ala Leu Asp Glu
530 535 540

Ala Ile Ala Ala Tyr Asn Lys Leu Ser Ala Thr Asp Gln Lys Gly Glu
545 550 555 560

Lys Gly Ile Thr Ala Lys Glu Leu Ile Lys Thr Lys Gln Ala Asp Tyr
565 570 575

Asp Ala Ala Phe Ile Glu Ala Arg Thr Ala Tyr Glu Trp Ile Thr Asp
580 585 590

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

Val Thr Gly Leu Ala Asp Gly Thr Tyr Asn Leu Glu Glu Thr Leu Ala
610 615 620

eo1f-seq1.txt

Pro Ala Gly Phe Ala Lys Leu Ala Gly Asn Ile Lys Phe Val Val Asn
625 630 635 640

Gln Gly Ser Tyr Ile Thr Gly Gly Asn Ile Asp Tyr Val Ala Asn Ser
645 650 655

Asn Gln Lys Asp Ala Thr Arg Val Glu Asn Lys Lys Val Thr Ile Pro
660 665 670

Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser
675 680 685

Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Lys Glu
690 695 700

Ala
705

<210> 111
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 111

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

eo1f-seq1.txt

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160
 Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175
 Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190
 Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205
 Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220
 Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 Page 114

eo1f-seq1.txt

420

430

Thr Ile Lys₄₃₅ Asn Asn Lys Asn Ser₄₄₀ Asn Asp Pro Thr Pro₄₄₅ Ile Asn Pro
 Ser Glu₄₅₀ Pro Lys Val Val Thr₄₅₅ Tyr Gly Arg Lys Phe₄₆₀ Val Lys Thr Asn
 Gln Ala Asn Thr Glu Arg₄₇₀ Leu Ala Gly Ala Thr₄₇₅ Phe Leu Val Lys Lys₄₈₀
 Glu Gly Lys Tyr Leu₄₈₅ Ala Arg Lys Ala Gly₄₉₀ Ala Ala Thr Ala Glu₄₉₅ Ala
 Lys Ala Ala Val₅₀₀ Lys Thr Ala Lys Leu₅₀₅ Ala Leu Asp Glu Ala₅₁₀ Val Lys
 Ala Tyr Asn₅₁₅ Asp Leu Thr Lys Glu₅₂₀ Lys Gln Glu Gly Gln₅₂₅ Glu Gly Lys
 Thr Ala₅₃₀ Leu Ala Thr Val Asp₅₃₅ Gln Lys Gln Lys Ala₅₄₀ Tyr Asn Asp Ala
 Phe Val Lys Ala Asn Tyr₅₅₀ Ser Tyr Glu Trp Val₅₅₅ Ala Asp Lys Lys Ala₅₆₀
 Asp Asn Val Val Lys₅₆₅ Leu Ile Ser Asn Ala₅₇₀ Gly Gly Gln Phe Glu₅₇₅ Ile
 Thr Gly Leu Asp₅₈₀ Lys Gly Thr Tyr Gly₅₈₅ Leu Glu Glu Thr Gln Ala Pro
 Ala Gly Tyr₅₉₅ Ala Thr Leu Ser Gly₆₀₀ Asp Val Asn Phe Glu₆₀₅ Val Thr Ala
 Thr Ser₆₁₀ Tyr Ser Lys Gly Ala₆₁₅ Thr Thr Asp Ile Ala₆₂₀ Tyr Asp Lys Gly
 Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn₆₃₅ Lys Lys Val Thr Ile₆₄₀
 Pro Gln Thr Gly Gly₆₄₅ Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly₆₅₅ Leu
 Ser Ile Met Leu₆₆₀ Gly Ala Val Val Ile₆₆₅ Met Lys Lys Arg Gln Ser Glu
 Glu Ala

<210> 112
 <211> 674

eof-seq1.txt

<212> PRT

<213> Streptococcus agalactiae

<400> 112

```

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
 1          5          10          15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
          20          25          30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
          35          40          45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
 50          55          60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
          85          90          95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
          115          120          125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
          130          135          140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
          145          150          155          160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
          165          170          175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
          180          185          190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
          195          200          205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
          210          215          220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
          225          230          235          240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
          245          250          255

```


eo1f-seq1.txt

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala

eo1f-seq1.txt
540

530

535

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 113
<211> 693
<212> PRT
<213> Streptococcus agalactiae

<400> 113

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Val Phe Ala Ala Glu Met
20 25 30

Gly Asn Ile Thr Lys Thr Val Thr Leu His Lys Ile Val Gln Thr Ser
35 40 45

Asp Asn Leu Ala Lys Pro Asn Phe Pro Gly Ile Asn Gly Leu Asn Gly
50 55 60

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

Gln Gly Ser Lys Glu Ile Ala Gly Ala Phe Phe Ala Val Met Asn Glu
85 90 95

eo1f-seq1.txt

Ser Gln Thr Lys Tyr Ile Thr Glu Ser Gly Thr Glu Val Glu Ser Ile
100 105 110

Asp Ala Ala Gly Val Leu Lys Gly Leu Thr Thr Glu Asn Gly Ile Thr
115 120 125

Phe Asn Thr Ala Asn Leu Lys Gly Thr Tyr Gln Ile Val Glu Leu Leu
130 135 140

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

Ala Val Pro Val Lys Ile Thr Leu Pro Leu Tyr Asn Glu Glu Gly Ile
165 170 175

Val Val Asp Ala Glu Val Tyr Pro Lys Asn Thr Glu Glu Ala Pro Gln
180 185 190

Ile Asp Lys Asn Phe Ala Lys Ala Asn Lys Leu Leu Asn Asp Ser Asp
195 200 205

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

Lys Ala Lys Ala Thr Ala Glu Ile Gly Gln Glu Ile Pro Tyr Glu Val
225 230 235 240

Lys Thr Lys Ile Gln Lys Gly Ser Lys Tyr Lys Asn Leu Ala Trp Val
245 250 255

Asp Thr Met Ser Asn Gly Leu Thr Met Gly Asn Thr Val Asn Leu Glu
260 265 270

Ala Ser Ser Gly Ser Phe Val Glu Gly Thr Asp Tyr Asn Val Glu Arg
275 280 285

Asp Asp Arg Gly Phe Thr Leu Lys Phe Thr Asp Thr Gly Leu Thr Lys
290 295 300

Leu Gln Lys Glu Ala Glu Thr Gln Ala Val Glu Phe Thr Leu Thr Tyr
305 310 315 320

Ser Ala Thr Val Asn Gly Ala Ala Ile Asp Asp Lys Pro Glu Ser Asn
325 330 335

Asp Ile Lys Leu Gln Tyr Gly Asn Lys Pro Gly Lys Lys Val Lys Glu
340 345 350

Ile Pro Val Thr Pro Ser Asn Gly Glu Ile Thr Val Ser Lys Thr Trp
355 360 365

eo1f-seq1.txt

Asp Lys Gly Ser Asp Leu Glu Asn Ala Asn Val Val Tyr Thr Leu Lys
370 375 380

Asp Gly Gly Thr Ala Val Ala Ser Val Ser Leu Thr Lys Thr Thr Pro
385 390 395 400

Asn Gly Glu Ile Asn Leu Gly Asn Gly Ile Lys Phe Thr Val Thr Gly
405 410 415

Ala Phe Ala Gly Lys Phe Ser Gly Leu Thr Asp Ser Lys Thr Tyr Met
420 425 430

Ile Ser Glu Arg Ile Ala Gly Tyr Gly Asn Thr Ile Thr Thr Gly Ala
435 440 445

Gly Ser Ala Ala Ile Thr Asn Thr Pro Asp Ser Asp Asn Pro Thr Pro
450 455 460

Leu Asn Pro Thr Glu Pro Lys Val Val Thr His Gly Lys Lys Phe Val
465 470 475 480

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

Val Lys Asp Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ser Ser Ala Thr
500 505 510

Ile Ser Ala Gln Thr Thr Ala Tyr Thr Asn Ala Lys Thr Ala Leu Asp
515 520 525

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

Thr Lys Gly Glu Thr Ala Lys Ala Glu Ile Lys Thr Ala Gln Asp Ala
545 550 555 560

Tyr Asn Ala Ala Phe Ile Val Ala Arg Thr Ala Tyr Glu Trp Val Thr
565 570 575

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

Gln Phe Glu Val Ser Gly Leu Ala Thr Gly Asp Tyr Lys Leu Glu Glu
595 600 605

Thr Gln Ala Pro Ala Gly Tyr Ala Lys Leu Ala Gly Asp Val Asp Phe
610 615 620

Lys Val Gly Asn Ser Ser Lys Ala Asp Asp Ser Gly Asn Ile Asp Tyr
625 630 635 640

Thr Ala Ser Ser Asn Lys Lys Asp Ala Gln Arg Ile Glu Asn Lys Lys

eo1f-seq1.txt

645

650

655

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile
660 665 670

Ile Gly Leu Ser Ile Met Leu Gly Ala Val Ile Ile Met Lys Arg Arg
675 680 685

Gln Ser Glu Glu Ala
690

<210> 114
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 114

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

eo1f-seq1.txt

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205
 Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220
 Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460

eo1f-seq1.txt

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 115
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 115

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

eo1f-seq1.txt

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

eo1f-seq1.txt

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460
 Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
 465 470 475 480
 Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
 485 490 495
 Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
 500 505 510
 Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Glu Gly Lys
 515 520 525
 Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
 530 535 540
 Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
 545 550 555 560
 Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
 565 570 575

eolf-seq1.txt

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 116
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 116

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

eo1f-seq1.txt

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160
 Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175
 Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190
 Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205
 Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220
 Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415

eo1f-seq1.txt

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

eo1f-seq1.txt

<210> 117

<211> 674

<212> PRT

<213> Streptococcus agalactiae

<400> 117

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

eo1f-seq1.txt

Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460
 Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
 465 470 475 480
 Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
 485 490 495
 Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
 500 505 510
 Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Glu Gly Lys
 515 520 525

eo1f-seq1.txt

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 118
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 118

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly

eo1f-seq1.txt

85

90

95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

eo1f-seq1.txt

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

eo1f-seq1.txt

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 119
<211> 705
<212> PRT
<213> Streptococcus agalactiae
<400> 119

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
20 25 30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
35 40 45

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Lys Asp
50 55 60

Tyr Lys Gly Gly Ala Ile Ser Asp Leu Ala Gly Tyr Phe Gly Glu Gly
65 70 75 80

Ser Lys Glu Ile Glu Gly Ala Phe Phe Ala Leu Ala Leu Lys Glu Asp
85 90 95

Lys Ser Gly Lys Val Gln Tyr Val Lys Ala Lys Glu Gly Asn Lys Leu
100 105 110

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

Ile Asp Glu Ala Val Ser Gly Leu Thr Pro Glu Gly Asp Thr Gly Leu
130 135 140

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

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

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

Val Val Ala Asp Ala His Val Tyr Pro Lys Asn Thr Glu Glu Lys Pro
Page 134

eo1f-seq1.txt

195

200

205

Glu Ile Asp Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Thr
 210 215 220

Asp Val Asn Arg Leu Leu Thr Ala Gly Ala Asn Tyr Gly Asn Tyr Ala
 225 230 235 240

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

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

Trp Thr Asp Ile Met Ser Asn Gly Leu Thr Met Gly Ser Thr Val Ser
 275 280 285

Leu Lys Ala Ser Gly Thr Thr Glu Thr Phe Ala Lys Asp Thr Asp Tyr
 290 295 300

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

Gly Leu Gly Lys Leu Glu Lys Ala Ala Lys Thr Ala Asp Ile Glu Phe
 325 330 335

Thr Leu Thr Tyr Ser Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn
 340 345 350

Pro Glu Ser Asn Asp Ile Lys Leu Ser Tyr Gly Asn Lys Pro Gly Lys
 355 360 365

Asp Leu Thr Glu Leu Pro Val Thr Pro Ser Lys Gly Glu Val Thr Val
 370 375 380

Ala Lys Thr Trp Ser Asp Gly Ile Ala Pro Asp Gly Val Asn Val Val
 385 390 395 400

Tyr Thr Leu Lys Asp Lys Asp Lys Thr Val Ala Ser Val Ser Leu Thr
 405 410 415

Lys Thr Ser Lys Gly Thr Ile Asp Leu Gly Asn Gly Ile Lys Phe Glu
 420 425 430

Val Ser Gly Asn Phe Ser Gly Lys Phe Thr Gly Leu Glu Asn Lys Ser
 435 440 445

Tyr Met Ile Ser Glu Arg Val Ser Gly Tyr Gly Ser Ala Ile Asn Leu
 450 455 460

Glu Asn Gly Lys Val Thr Ile Thr Asn Thr Lys Asp Ser Asp Asn Pro
 465 470 475 480

eo1f-seq1.txt

Thr Pro Leu Asn Pro Thr Glu Pro Lys Val Glu Thr His Gly Lys Lys
485 490 495

Phe Val Lys Thr Asn Glu Gln Gly Asp Arg Leu Ala Gly Ala Gln Phe
500 505 510

Val Val Lys Asn Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ala Asp Gln
515 520 525

Ser Glu Gly Gln Lys Thr Leu Ala Ala Lys Lys Ile Ala Leu Asp Glu
530 535 540

Ala Ile Ala Ala Tyr Asn Lys Leu Ser Ala Thr Asp Gln Lys Gly Glu
545 550 555 560

Lys Gly Ile Thr Ala Lys Glu Leu Ile Lys Thr Lys Gln Ala Asp Tyr
565 570 575

Asp Ala Ala Phe Ile Glu Ala Arg Thr Ala Tyr Glu Trp Ile Thr Asp
580 585 590

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

Val Thr Gly Leu Ala Asp Gly Thr Tyr Asn Leu Glu Glu Thr Leu Ala
610 615 620

Pro Ala Gly Phe Ala Lys Leu Ala Gly Asn Ile Lys Phe Val Val Asn
625 630 635 640

Gln Gly Ser Tyr Ile Thr Gly Gly Asn Ile Asp Tyr Val Ala Asn Ser
645 650 655

Asn Gln Lys Asp Ala Thr Arg Val Glu Asn Lys Lys Val Thr Ile Pro
660 665 670

Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser
675 680 685

Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Lys Glu
690 695 700

Ala
705

<210> 120
<211> 675
<212> PRT
<213> Streptococcus agalactiae
<400> 120

eo1f-seq1.txt

Met Lys Lys Ile Asn Lys Tyr Phe Ala Val Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Val Thr Ser Leu Phe Ser Val Ala Pro Val Phe Ala Glu Glu Ala
20 25 30

Lys Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Arg Thr
35 40 45

Ala Phe Asp Gly Phe Thr Ala Gly Thr Lys Gly Lys Asp Asn Thr Asp
50 55 60

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

Glu Ala Lys Glu Ile Ala Gly Ala Tyr Phe Ala Phe Lys Asn Glu Ala
85 90 95

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

Thr Thr Asp Ala Lys Gly Cys Ala Val Leu Lys Gly Leu Thr Thr Asp
115 120 125

Asn Gly Phe Lys Phe Asn Thr Ser Lys Leu Thr Gly Thr Tyr Gln Ile
130 135 140

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

Ala Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn
165 170 175

Asp Asn Gly Val Val Lys Asp Ala His Val Tyr Pro Lys Asn Thr Glu
180 185 190

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

Ala Asn Asn Lys Lys Asp Lys Gly Thr Val Ser Ala Ser Val Gly Asp
210 215 220

Val Lys Lys Tyr His Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr
225 230 235 240

Lys Lys Leu Ile Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn
245 250 255

Asn Asp Ile Ala Val Thr Leu Asp Gly Ala Thr Leu Asp Ala Thr Asn
260 265 270

Tyr Lys Leu Val Ala Asp Asp Gln Gly Phe Arg Leu Val Leu Thr Asp

eo1f-seq1.txt

275

280

285

Lys Gly Leu Glu Ala Val Ala Lys Ala Ala Lys Thr Lys Asp Val Glu
290 295 300
Ile Lys Ile Thr Tyr Ser Ala Thr Leu Asn Gly Ser Ala Val Val Glu
305 310 315 320
Val Leu Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr
325 330 335
Ile Glu Asn Glu Pro Lys Glu Gly Ile Pro Val Asp Lys Lys Ile Thr
340 345 350
Val Asn Lys Thr Trp Ala Val Asp Gly Asn Glu Val Asn Lys Ala Asp
355 360 365
Glu Thr Val Asp Ala Val Phe Thr Leu Gln Val Lys Asp Gly Asp Lys
370 375 380
Trp Val Asn Val Asp Ser Ala Lys Ala Thr Ala Ala Thr Ser Phe Lys
385 390 395 400
His Thr Phe Glu Asn Leu Asp Asn Ala Lys Thr Tyr Arg Val Ile Glu
405 410 415
Arg Val Ser Gly Tyr Ala Pro Glu Tyr Val Ser Phe Val Asn Gly Val
420 425 430
Val Thr Ile Lys Asn Asn Lys Asp Ser Asn Glu Pro Thr Pro Ile Asn
435 440 445
Pro Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr
450 455 460
Asn Lys Asp Gly Lys Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys
465 470 475 480
Lys Asp Gly Lys Tyr Leu Ala Arg Lys Ser Gly Val Ala Thr Asp Ala
485 490 495
Glu Lys Ala Ala Val Asp Ser Thr Lys Ser Ala Leu Asp Ala Ala Val
500 505 510
Lys Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Asp Gly
515 520 525
Lys Ser Ala Leu Ala Thr Val Ser Glu Lys Gln Lys Ala Tyr Asn Asp
530 535 540
Ala Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Glu Asp Lys Asn
545 550 555 560

eo1f-seq1.txt

Ala Lys Asn Val Val Lys Leu Ile Ser Asn Asp Lys Gly Gln Phe Glu
565 570 575

Ile Thr Gly Leu Thr Glu Gly Gln Tyr Ser Leu Glu Glu Thr Gln Ala
580 585 590

Pro Thr Gly Tyr Ala Lys Leu Ser Gly Asp Val Ser Phe Asn Val Asn
595 600 605

Ala Thr Ser Tyr Ser Lys Gly Ser Ala Gln Asp Ile Glu Tyr Thr Gln
610 615 620

Gly Ser Lys Thr Lys Asp Ala Gln Gln Val Ile Asn Lys Lys Val Thr
625 630 635 640

Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Phe Phe Thr Ile Ile Gly
645 650 655

Leu Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser
660 665 670

Glu Glu Val
675

<210> 121
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 121

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

eo1f-seq1.txt

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

eolf-seq1.txt

385		390		395		400
Thr	Phe	Thr	Gly	Leu	Asp	Asn
				405		
				410		
				415		
Val	Ser	Gly	Tyr	Thr	Pro	Glu
			420			
				425		
				430		
Thr	Ile	Lys	Asn	Asn	Lys	Asn
		435				
				440		
				445		
Ser	Glu	Pro	Lys	Val	Val	Thr
	450					
				455		
				460		
Gln	Ala	Asn	Thr	Glu	Arg	Leu
465				470		
				475		
				480		
Glu	Gly	Lys	Tyr	Leu	Ala	Arg
				485		
				490		
				495		
Lys	Ala	Ala	Val	Lys	Thr	Ala
			500			
				505		
				510		
Ala	Tyr	Asn	Asp	Leu	Thr	Lys
		515				
				520		
				525		
Thr	Ala	Leu	Ala	Thr	Val	Asp
	530					
				535		
				540		
Phe	Val	Lys	Ala	Asn	Tyr	Ser
545				550		
				555		
				560		
Asp	Asn	Val	Val	Lys	Leu	Ile
				565		
				570		
				575		
Thr	Gly	Leu	Asp	Lys	Gly	Thr
			580			
				585		
				590		
Ala	Gly	Tyr	Ala	Thr	Leu	Ser
		595				
				600		
				605		
Thr	Ser	Tyr	Ser	Lys	Gly	Ala
	610					615
						620
Ser	Val	Lys	Lys	Asp	Ala	Gln
625					630	
					635	
Pro	Gln	Thr	Gly	Gly	Ile	Gly
				645		
				650		
				655		
Ser	Ile	Met	Leu	Gly	Ala	Val
			660			
				665		
				670		

eo1f-seq1.txt

Glu Ala

<210> 122
 <211> 674
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 122

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

eo1f-seq1.txt

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
Page 143

eo1f-seq1.txt

500

505

510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 123
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 123

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

eo1f-seq1.txt

Val Gly Lys Gln Ile Asn Asp Leu Lys Ser Tyr Phe Gly Ser Thr Asp
 65 70 75 80
 Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
 85 90 95
 Thr Lys Phe Ile Thr Glu Asn Gly Lys Glu Val Asp Thr Leu Glu Ala
 100 105 110
 Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
 115 120 125
 Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
 130 135 140
 Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160
 Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175
 Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190
 Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205
 Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220
 Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335

eo1f-seq1.txt

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
Page 146

eo1f-seq1.txt
620

610

615

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 124
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 124

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

eo1f-seq1.txt

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

eo1f-seq1.txt

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 125
<211> 705
<212> PRT
<213> Streptococcus agalactiae

<400> 125

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

eo1f-seq1.txt

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

eo1f-seq1.txt

Leu Lys Ala Ser Gly Thr Thr Glu Thr Phe Ala Lys Asp Thr Asp Tyr
 290 295 300
 Glu Leu Ser Ile Asp Ala Arg Gly Phe Thr Leu Lys Phe Thr Ala Asp
 305 310 315 320
 Gly Leu Gly Lys Leu Glu Lys Ala Ala Lys Thr Ala Asp Ile Glu Phe
 325 330 335
 Thr Leu Thr Tyr Ser Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn
 340 345 350
 Pro Glu Ser Asn Asp Ile Lys Leu Ser Tyr Gly Asn Lys Pro Gly Lys
 355 360 365
 Asp Leu Thr Glu Leu Pro Val Thr Pro Ser Lys Gly Glu Val Thr Val
 370 375 380
 Ala Lys Thr Trp Ser Asp Gly Ile Ala Pro Asp Gly Val Asn Val Val
 385 390 395 400
 Tyr Thr Leu Lys Asp Lys Asp Lys Thr Val Ala Ser Val Ser Leu Thr
 405 410 415
 Lys Thr Ser Lys Gly Thr Ile Asp Leu Gly Asn Gly Ile Lys Phe Glu
 420 425 430
 Val Ser Gly Asn Phe Ser Gly Lys Phe Thr Gly Leu Glu Asn Lys Ser
 435 440 445
 Tyr Met Ile Ser Glu Arg Val Ser Gly Tyr Gly Ser Ala Ile Asn Leu
 450 455 460
 Glu Asn Gly Lys Val Thr Ile Thr Asn Thr Lys Asp Ser Asp Asn Pro
 465 470 475 480
 Thr Pro Leu Asn Pro Thr Glu Pro Lys Val Glu Thr His Gly Lys Lys
 485 490 495
 Phe Val Lys Thr Asn Glu Gln Gly Asp Arg Leu Ala Gly Ala Gln Phe
 500 505 510
 Val Val Lys Asn Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ala Asp Gln
 515 520 525
 Ser Glu Gly Gln Lys Thr Leu Ala Ala Lys Lys Ile Ala Leu Asp Glu
 530 535 540
 Ala Ile Ala Ala Tyr Asn Lys Leu Ser Ala Thr Asp Gln Lys Gly Glu
 545 550 555 560

eo1f-seq1.txt

Lys Gly Ile Thr Ala Lys Glu Leu Ile Lys Thr Lys Gln Ala Asp Tyr
565 570 575

Asp Ala Ala Phe Ile Glu Ala Arg Thr Ala Tyr Glu Trp Ile Thr Asp
580 585 590

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

Val Thr Gly Leu Ala Asp Gly Thr Tyr Asn Leu Glu Glu Thr Leu Ala
610 615 620

Pro Ala Gly Phe Ala Lys Leu Ala Gly Asn Ile Lys Phe Val Val Asn
625 630 635 640

Gln Gly Ser Tyr Ile Thr Gly Gly Asn Ile Asp Tyr Val Ala Asn Ser
645 650 655

Asn Gln Lys Asp Ala Thr Arg Val Glu Asn Lys Lys Val Thr Ile Pro
660 665 670

Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser
675 680 685

Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Lys Glu
690 695 700

Ala
705

<210> 126
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 126

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

eo1f-seq1.txt

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

eo1f-seq1.txt

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

eo1f-seq1.txt

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 127

<211> 704

<212> PRT

<213> Streptococcus agalactiae

<400> 127

Met Lys Lys Ile Asn Lys Tyr Phe Ala Val Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Val Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
20 25 30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
35 40 45

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Asp Asp
50 55 60

Tyr Lys Gly Glu Ser Ile Ser Asp Leu Ala Glu Tyr Phe Gly Ser Gly
65 70 75 80

Ser Lys Glu Ile Asp Gly Ala Phe Phe Ala Leu Ala Leu Glu Glu Glu
85 90 95

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

Thr Pro Asp Leu Ile Thr Lys Gly Thr Pro Ala Thr Thr Thr Lys Val
115 120 125

Glu Glu Ala Val Gly Gly Leu Thr Thr Gly Thr Gly Ile Val Phe Asn
130 135 140

Thr Ala Gly Leu Lys Gly Asn Phe Lys Ile Ile Glu Leu Lys Asp Lys
145 150 155 160

Ser Thr Tyr Asn Asn Asn Gly Ser Leu Leu Ala Ala Ser Lys Ala Val
165 170 175

Pro Val Lys Ile Thr Leu Pro Leu Val Ser Lys Asp Gly Val Val Lys
180 185 190

Asp Ala His Val Tyr Pro Lys Asn Thr Glu Thr Lys Pro Glu Val Asp
195 200 205

eo1f-seq1.txt

Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Lys Asp Ala Thr
 210 215 220
 Leu Leu Lys Ala Gly Ala Asp Tyr Lys Asn Tyr Ser Ala Thr Lys Ala
 225 230 235 240
 Thr Val Thr Ala Glu Ile Gly Lys Val Ile Pro Tyr Glu Val Lys Thr
 245 250 255
 Lys Val Leu Lys Gly Ser Lys Tyr Glu Lys Leu Val Trp Thr Asp Thr
 260 265 270
 Met Ser Asn Gly Leu Thr Met Gly Asp Asp Val Asn Leu Ala Val Ser
 275 280 285
 Gly Thr Thr Thr Thr Phe Ile Lys Asp Ile Asp Tyr Thr Leu Ser Ile
 290 295 300
 Asp Asp Arg Gly Phe Thr Leu Lys Phe Lys Ala Thr Gly Leu Asp Lys
 305 310 315 320
 Leu Glu Glu Ala Ala Lys Ala Ser Asp Val Glu Phe Thr Leu Thr Tyr
 325 330 335
 Lys Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn Pro Glu Val Asn
 340 345 350
 Asp Ile Lys Leu Asp Tyr Gly Asn Lys Pro Gly Thr Asp Leu Ser Glu
 355 360 365
 Gln Pro Val Thr Pro Glu Asp Gly Glu Val Lys Val Thr Lys Thr Trp
 370 375 380
 Ala Ala Gly Ala Asn Lys Ala Asp Ala Lys Val Val Tyr Thr Leu Lys
 385 390 395 400
 Asn Ala Thr Lys Gln Val Val Ala Ser Val Ala Leu Thr Ala Ala Asp
 405 410 415
 Thr Lys Gly Thr Ile Asn Leu Gly Lys Gly Met Thr Phe Glu Ile Thr
 420 425 430
 Gly Ala Phe Ser Gly Thr Phe Lys Gly Leu Gln Asn Lys Ala Tyr Thr
 435 440 445
 Val Ser Glu Arg Val Ala Gly Tyr Thr Asn Ala Ile Asn Val Thr Gly
 450 455 460
 Asn Ala Val Ala Ile Thr Asn Thr Pro Asp Ser Asp Asn Pro Thr Pro
 465 470 475 480

eo1f-seq1.txt

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

Lys Val Gly Asp Ala Asp Ala Arg Leu Ala Gly Ala Gln Phe Val Val
500 505 510

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

Ser Gly Ala Gln Thr Glu Leu Ala Thr Ala Lys Thr Asp Leu Asp Asn
530 535 540

Ala Ile Lys Ala Tyr Asn Gly Leu Thr Lys Ala Gln Gln Glu Gly Ala
545 550 555 560

Asp Gly Thr Ser Ala Lys Glu Leu Ile Asn Thr Lys Gln Ser Ala Tyr
565 570 575

Asp Ala Ala Phe Ile Lys Ala Arg Thr Ala Tyr Thr Trp Val Asp Glu
580 585 590

Lys Thr Lys Ala Ile Thr Phe Thr Ser Asn Asn Gln Gly Gln Phe Glu
595 600 605

Val Thr Gly Leu Glu Val Gly Ser Tyr Lys Leu Glu Glu Thr Leu Ala
610 615 620

Pro Ala Gly Tyr Ala Lys Leu Ser Gly Asp Ile Glu Phe Thr Val Gly
625 630 635 640

His Asp Ser Tyr Thr Ser Gly Asp Ile Lys Tyr Lys Thr Asp Asp Ala
645 650 655

Ser Asn Asn Ala Gln Lys Val Phe Asn Lys Lys Val Thr Ile Pro Gln
660 665 670

Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser Ile
675 680 685

Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Glu Glu Ala
690 695 700

<210> 128
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 128

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
Page 157

eo1f-seq1.txt

20

25

30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

eo1f-seq1.txt

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460
 Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
 465 470 475 480
 Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
 485 490 495
 Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
 500 505 510
 Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Glu Gly Lys
 515 520 525
 Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
 530 535 540
 Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
 545 550 555 560
 Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
 565 570 575

eo1f-seq1.txt

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 129

<211> 705

<212> PRT

<213> Streptococcus agalactiae

<400> 129

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
20 25 30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
35 40 45

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Lys Asp
50 55 60

Tyr Lys Gly Gly Ala Ile Ser Asp Leu Ala Gly Tyr Phe Gly Glu Gly
65 70 75 80

Ser Lys Glu Ile Glu Gly Ala Phe Phe Ala Leu Ala Leu Lys Glu Asp
85 90 95

Lys Ser Gly Lys Val Gln Tyr Val Lys Ala Lys Glu Gly Asn Lys Leu
100 105 110

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

Ile Asp Glu Ala Val Ser Gly Leu Thr Pro Glu Gly Asp Thr Gly Leu
Page 160

eo1f-seq1.txt
140

130

135

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

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

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

Val Val Ala Asp Ala His Val Tyr Pro Lys Asn Thr Glu Glu Lys Pro
195 200 205

Glu Ile Asp Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Thr
210 215 220

Asp Val Asn Arg Leu Leu Thr Ala Gly Ala Asn Tyr Gly Asn Tyr Ala
225 230 235 240

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

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

Trp Thr Asp Ile Met Ser Asn Gly Leu Thr Met Gly Ser Thr Val Ser
275 280 285

Leu Lys Ala Ser Gly Thr Thr Glu Thr Phe Ala Lys Asp Thr Asp Tyr
290 295 300

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

Gly Leu Gly Lys Leu Glu Lys Ala Ala Lys Thr Ala Asp Ile Glu Phe
325 330 335

Thr Leu Thr Tyr Ser Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn
340 345 350

Pro Glu Ser Asn Asp Ile Lys Leu Ser Tyr Gly Asn Lys Pro Gly Lys
355 360 365

Asp Leu Thr Glu Leu Pro Val Thr Pro Ser Lys Gly Glu Val Thr Val
370 375 380

Ala Lys Thr Trp Ser Asp Gly Ile Ala Pro Asp Gly Val Asn Val Val
385 390 395 400

Tyr Thr Leu Lys Asp Lys Asp Lys Thr Val Ala Ser Val Ser Leu Thr
405 410 415

eo1f-seq1.txt

Lys Thr Ser Lys Gly Thr Ile Asp Leu Gly Asn Gly Ile Lys Phe Glu
 420 425 430
 Val Ser Gly Asn Phe Ser Gly Lys Phe Thr Gly Leu Glu Asn Lys Ser
 435 440 445
 Tyr Met Ile Ser Glu Arg Val Ser Gly Tyr Gly Ser Ala Ile Asn Leu
 450 455 460
 Glu Asn Gly Lys Val Thr Ile Thr Asn Thr Lys Asp Ser Asp Asn Pro
 465 470 475 480
 Thr Pro Leu Asn Pro Thr Glu Pro Lys Val Glu Thr His Gly Lys Lys
 485 490 495
 Phe Val Lys Thr Asn Glu Gln Gly Asp Arg Leu Ala Gly Ala Gln Phe
 500 505 510
 Val Val Lys Asn Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ala Asp Gln
 515 520 525
 Ser Glu Gly Gln Lys Thr Leu Ala Ala Lys Lys Ile Ala Leu Asp Glu
 530 535 540
 Ala Ile Ala Ala Tyr Asn Lys Leu Ser Ala Thr Asp Gln Lys Gly Glu
 545 550 555 560
 Lys Gly Ile Thr Ala Lys Glu Leu Ile Lys Thr Lys Gln Ala Asp Tyr
 565 570 575
 Asp Ala Ala Phe Ile Glu Ala Arg Thr Ala Tyr Glu Trp Ile Thr Asp
 580 585 590
 Lys Ala Arg Ala Ile Thr Tyr Thr Ser Asn Asp Gln Gly Gln Phe Glu
 595 600 605
 Val Thr Gly Leu Ala Asp Gly Thr Tyr Asn Leu Glu Glu Thr Leu Ala
 610 615 620
 Pro Ala Gly Phe Ala Lys Leu Ala Gly Asn Ile Lys Phe Val Val Asn
 625 630 635 640
 Gln Gly Ser Tyr Ile Thr Gly Gly Asn Ile Asp Tyr Val Ala Asn Ser
 645 650 655
 Asn Gln Lys Asp Ala Thr Arg Val Glu Asn Lys Lys Val Thr Ile Pro
 660 665 670
 Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser
 675 680 685

eo1f-seq1.txt

Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Lys Glu
690 695 700

Ala
705

<210> 130
<211> 674
<212> PRT
<213> Streptococcus agalactiae

<400> 130

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys

eo1f-seq1.txt

210

215

220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

eo1f-seq1.txt

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 131
<211> 705
<212> PRT
<213> Streptococcus agalactiae
<400> 131

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
20 25 30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
35 40 45

eo1f-seq1.txt

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Lys Asp
50 55 60

Tyr Lys Gly Gly Ala Ile Ser Asp Leu Ala Gly Tyr Phe Gly Glu Gly
65 70 75 80

Ser Lys Glu Ile Glu Gly Ala Phe Phe Ala Leu Ala Leu Lys Glu Asp
85 90 95

Lys Ser Gly Lys Val Gln Tyr Val Lys Ala Lys Glu Gly Asn Lys Leu
100 105 110

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

Ile Asp Glu Ala Val Ser Gly Leu Thr Pro Glu Gly Asp Thr Gly Leu
130 135 140

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

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

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

Val Val Ala Asp Ala His Val Tyr Pro Lys Asn Thr Glu Glu Lys Pro
195 200 205

Glu Ile Asp Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Thr
210 215 220

Asp Val Asn Arg Leu Leu Thr Ala Gly Ala Asn Tyr Gly Asn Tyr Ala
225 230 235 240

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

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

Trp Thr Asp Ile Met Ser Asn Gly Leu Thr Met Gly Ser Thr Val Ser
275 280 285

Leu Lys Ala Ser Gly Thr Thr Glu Thr Phe Ala Lys Asp Thr Asp Tyr
290 295 300

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

Gly Leu Gly Lys Leu Glu Lys Ala Ala Lys Thr Ala Asp Ile Glu Phe

eo1f-seq1.txt

325

330

335

Thr Leu Thr Tyr Ser Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn
340 345 350

Pro Glu Ser Asn Asp Ile Lys Leu Ser Tyr Gly Asn Lys Pro Gly Lys
355 360 365

Asp Leu Thr Glu Leu Pro Val Thr Pro Ser Lys Gly Glu Val Thr Val
370 375 380

Ala Lys Thr Trp Ser Asp Gly Ile Ala Pro Asp Gly Val Asn Val Val
385 390 395 400

Tyr Thr Leu Lys Asp Lys Asp Lys Thr Val Ala Ser Val Ser Leu Thr
405 410 415

Lys Thr Ser Lys Gly Thr Ile Asp Leu Gly Asn Gly Ile Lys Phe Glu
420 425 430

Val Ser Gly Asn Phe Ser Gly Lys Phe Thr Gly Leu Glu Asn Lys Ser
435 440 445

Tyr Met Ile Ser Glu Arg Val Ser Gly Tyr Gly Ser Ala Ile Asn Leu
450 455 460

Glu Asn Gly Lys Val Thr Ile Thr Asn Thr Lys Asp Ser Asp Asn Pro
465 470 475 480

Thr Pro Leu Asn Pro Thr Glu Pro Lys Val Glu Thr His Gly Lys Lys
485 490 495

Phe Val Lys Thr Asn Glu Gln Gly Asp Arg Leu Ala Gly Ala Gln Phe
500 505 510

Val Val Lys Asn Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ala Asp Gln
515 520 525

Ser Glu Gly Gln Lys Thr Leu Ala Ala Lys Lys Ile Ala Leu Asp Glu
530 535 540

Ala Ile Ala Ala Tyr Asn Lys Leu Ser Ala Thr Asp Gln Lys Gly Glu
545 550 555 560

Lys Gly Ile Thr Ala Lys Glu Leu Ile Lys Thr Lys Gln Ala Asp Tyr
565 570 575

Asp Ala Ala Phe Ile Glu Ala Arg Thr Ala Tyr Glu Trp Ile Thr Asp
580 585 590

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

eo1f-seq1.txt

Val Thr Gly Leu Ala Asp Gly Thr Tyr Asn Leu Glu Glu Thr Leu Ala
610 615 620

Pro Ala Gly Phe Ala Lys Leu Ala Gly Asn Ile Lys Phe Val Val Asn
625 630 635 640

Gln Gly Ser Tyr Ile Thr Gly Gly Asn Ile Asp Tyr Val Ala Asn Ser
645 650 655

Asn Gln Lys Asp Ala Thr Arg Val Glu Asn Lys Lys Val Thr Ile Pro
660 665 670

Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser
675 680 685

Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Lys Glu
690 695 700

Ala
705

<210> 132
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 132

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

eolf-seql.txt

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

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

eo1f-seq1.txt

405

410

415

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

eof-seq1.txt

<210> 133
 <211> 2049
 <212> DNA
 <213> Streptococcus agalactiae

```

<400> 133
atgaaaaaaaa tcaacaaatt ttttgtggcg ttctcagcgt tgttactgat tttaacgtca      60
ttgctctcag ttgcaccagc gtttgcggaa aaagaaaaaa caactgagac tgttactttg      120
cataaaatTT tacaactga tacaacctt aagaatagtg ctttccctgg taaaaaggg      180
ctagatggaa ctgaatatga cgggaaagct attgataaat tggatagcta ctttggcaat      240
gactcaaaag atattggtgg ggcttacttt atattggcaa atagcaaggg tgaatatatc      300
aaagctaata ataaaaata attaaagcct gagtttagtg ggaacactcc gaaaacgacc      360
ctcaatatta gtgaagctgt aggtggtttg acagaagaaa acgcagggtat taagtttgaa      420
accactggtt taagagggga tttccagatt attgaattga aagacaagtc aacttacaat      480
aatggtgggg ccatcttggc tgattcaaaa gcggttccag tgaaaatcac tcttcattg      540
ataaacaagg atggtgttgt taaagatgca cacgtctatc caaagaacac tgaaacaaaa      600
ccgcaaattg acaagaactt tgctgataaa aatcttgatt atattaacaa caaaaagac      660
aaaggtacta tatcagcaac tgttggtgat gttaaaaaat atactgttgg gacaaaaatc      720
cttaaaggat ctgactataa aaaattagtt tggaccgata gcatgacgaa aggattgacg      780
tttaacaacg atgttactgt aacattggat ggtgcaaatt ttgaacaatc aaattacacc      840
ttagtagctg atgaccaagg tttccgtctt gtcttgaatg caacagggtct ttctaaagta      900
gcagaagctg caaaaacaaa agatgttgaa atcaaatca actattcagc tacagtaaac      960
ggttctactg tcgttgaaaa gtcagaaaat aatgatgtca aactagatta tggtaacaac     1020
ccaacaactg aaaacgaacc acaactggt aatccagtta acaaagaaat cacagttcga     1080
aagacttggg cagtggatgg taatgaagtg aataaggag atgaaaaagt tgacgctgtc     1140
ttcacgttgc aagttaaaga tagtgacaaa tgggtgaatg tcgattcagc aacagcaaca     1200
gcagcaactg acttcaaata cactttcaa aacttgata atgccaaaac ttaccgtgtt     1260
gtagaacgtg ttagcggcta cgctccagcc tacgtttcat ttgtgggtgg agttgtgact     1320
attaagaata aaaaaactc aaatgaccca actccaatca atccatcaga accaaaagtt     1380
gtgacttatg gacgtaaatt tgtgaaaaca aatcaagatg gctctgaacg tctagcagga     1440
gctactttcc ttgttaagaa ctacaaaagt caatacttgg cacgtaaatc aggtgttgca     1500
actaatgaag ctacaaaagc agtaacagat gctaaagtac aactggatga agctgttaaa     1560
gcttataaca aattgactaa agaacaacaa gaaagtcaag atggtaaagc agcattgaat     1620
cttattgatg aaaaacaaac agcttacaat gaagcttttg ctaaagcaaa ctactcatat     1680
gaatgggttg tagataaaaa cgctgcaaac gttgttaaata tgatttctaa tacagctggt     1740
aaatttgaaa ttacaggttt gaatgcaggc gagtatagtt tggaagagac tcaagcacca     1800
acaggttatg ctaaattgtc aagtgatgta tcatttaaag taaatgatac atcgtatagc     1860

```

eof-seq1.txt

gaaggggctt caaatgatat tgcatacgat aaagactccg gtaaaacaga tgcacaaaaa	1920
gttgtcaaca aaaaagtaac aatcccacaa acaggtggta ttggtacaat tcttttcaca	1980
attattggtt taagcattat gcttggagcg gtagttatca tgaaaagacg tcaatcagag	2040
gaagcttaa	2049

<210> 134
 <211> 2028
 <212> DNA
 <213> Streptococcus agalactiae

<400> 134 atgaaaaaaa tcaacaaata ttttgcagtc ttctcggcat tgctactgac cgtaacatca	60
ttgttctcag ttgcaccagt gtttgcggaa gaagcaaaaa ctactgacac agtgaccttg	120
cacaagattg tcatgcctcg aactgcattt gacggtttta ctgctggtac aaagggttaag	180
gataatactg actacgttgg taaacaaatc gaagacctta aaacttactt tggctcaggc	240
gaagcgaaag aaatcgcagg tgcttacttt gctttcaaaa atgaagctgg tactaaatac	300
atcactgaaa atggtgaaga agttgatact ttggatacaa cagatgccaa aggtggtgct	360
gttcttaaag gtttaacaac agacaatggt ttcaaattta acacttctaa attaacagga	420
acttaccaaa tcgttgaatt gaaagaaaaa tctacataca acaacgatgg ttctatcttg	480
gctgattcaa aagcagttcc agttaaatac actcttccat tggtaaacga caatggtggt	540
gttaaagacg ctacggttta tccaaagaac actgaaacaa aaccacaagt agataagaac	600
ttcgcagata aagaacttga ttatgcgaac aacaaaaaag acaaaggac tgtctcagca	660
tctgttggtg atgttaaaaa atatcatggt ggaacaaaaa tccttaaagg ttcagactat	720
aagaaattaa tctggaccga tagcatgacc aaagggttga ctttcaacaa cgatattgct	780
gtaacattgg atggtgcaac tcttgatgct acaaattaca aacttgtagc agatgaccaa	840
ggtttccgcc ttgtcttgac tgacaaaggc cttgaagcag tggcaaaagc cgcaaaaaca	900
aaagatgttg aaatcaagat cacttactca gctactttga acggttctgc tgtcgttgaa	960
gttctagaaa ccaatgatgt taaattggac tacggcaaca acccaacaat tgaaaatgaa	1020
ccaaaagaag gtattccagt tgataagaaa atcactgtta acaaaacatg ggcagtagat	1080
ggcaatgaag tgaataaagc agatgaaaca gttgatgctg tcttcacctt gcaagttaaa	1140
gatggtgaca aatgggtgaa tgttgattca gctaaagcaa cagctgcaac tagcttcaaa	1200
cacacttttg aaaacttgga taatgctaaa acttaccgcg ttatcgaacg tgtagcggc	1260
tacgtccag aatacgtctc atttgtaa atggcgttgtaa ccatcaagaa caacaaagac	1320
tcaaatgagc caactccaat caaccatca gaaccaaag tggtgactta tggacgtaaa	1380
tttgtgaaaa caaataaaga tggaaaagaa cgcttggcag gagctacctt ccttggttaag	1440
aaagatggca agtacttggc acgtaaatca ggtgttgcaa cagatgcaga aaaagctgct	1500
gtagattcaa ctaaatcagc attggatgct gctgttaaag cttacaatga ttgactaaa	1560
gaaaaacaag aaggtcaaga tggtaaatac gcattggcta ccgttagtga aaaacaaaaa	1620

eof-seq1.txt

gcttacattg atgcctttgt taaagctaac tactcatacg aatgggttga agataaaaat	1680
gctaagaatg ttgttaaatt gatttctaac gataaagggtc aatttgaaat tactggcttg	1740
actgaagggtc aatactcatt ggaagaaaca caagcaccaa ctgggttatgc taaattatca	1800
gggtgatgtt cgtttaatgt taatgctact tcatacagta aagggttctgc tcaagatatt	1860
gagtataccc aagggttctaa aactaaagat gcacaacaag ttatcaataa gaagggttact	1920
attccacaaa cagggtggtat tgggtacaatt tttttcacaa ttattggatt aagtattatg	1980
cttggagcgg tagttatcat gaaaagacgt caatcagagg aagtttaa	2028

<210> 135
 <211> 2082
 <212> DNA
 <213> Streptococcus agalactiae

<400> 135 atgaaaagaa tcaacaaata ttttgcaatg ttctcggcat tgttattaat ttaacatcg	60
ttgttatcgg tagctccggg atttgctgct gagatgggaa atatcactaa aacagtaacc	120
ttacacaaaa ttgttcaaac atccgataat ttgggctaagc caaatctccc aggaataaat	180
ggattgaatg gaacgaagta tatgggtcaa aaacttactg acatttcagg atattttggg	240
caagggttcta aagaaatcgc cgggtgctttc tttgcgggta tgaatgaaag tcagacaaaa	300
tatatcacag aaagtggtag tgaagtagaa agtatcgatg cagcagggtg ccttaaagggt	360
ttgacaactg aaaacggcat tacatttaat actgcaaact taaaaggaac ataccaaatc	420
gttgagtgtc ttgacaaatc taattataaa aatgggtgaca aagttcttgc tgactcaaaa	480
gctgtcccag tgaaaatcac tcttcctttg tataacgaag aaggaattgt cgtggacgct	540
gaagtgtatc caaagaatac agaagaagca ccacaaatcg acaaaaaactt tgctaaagca	600
aataaattgt tgaatgacag tgataattca gctattgcag gtggggcaga ctacgacaaa	660
tatcaggcag aaaaagcaaa agctactgct gaaatcgggtc aagaaatccc ttacgaagtt	720
aaaacaaaaa tccaaaaagg gtctaataac aaaaaccttg cttgggtcga taccatgtca	780
aatgggttga caatgggtaa cactgttaac ttagaagcat cgtcagggtc tttttagtaa	840
ggtacagatt acaatgttga acgtgatgac cgtgggttca ctttgaaatt cacagataca	900
ggtttgacta agctacaaaa agaagcggaa acacaagctg ttgaattcac attgacatat	960
agcgcaacag ttaacgggtg ggctattgat gacaagccag aaagcaatga tatcaaactt	1020
caatacggta acaaacaggg taaaaaagta aaagaaatcc cagtaacacc gtcaaatggc	1080
gaaatcactg ttagcaaaac ttgggacaaa gggttcagatt tagagaatgc gaatgttggt	1140
tataccctta aagatgggtg aacagctgtt gcctcagttt cattgacaaa aacaacacca	1200
aatggcgaaa tcaacttagg taatgggtatt aaatttacag ttactggagc gtttgctggt	1260
aaattcagtg gtctgactga tagtaaaaca tacatgatct cagaacgtat cgctgggtat	1320
ggtaatacaa tcaactactg tgctggtagt gcagctatca ccaatactcc agattcagac	1380
aaccaaacac cacttaatcc aactgaacca aaagttgtga cacacggtaa aaaattcgtc	1440

eof-seq1.txt

aaaacaagtt cgactgaaac agaacgcttg caaggtgcac agttcgttgt taaagattca	1500
gctggtaaat accttgcat t gaaatcatct gcgacaatat cagctcaaac aacagcttac	1560
acaaatgcta aaactgctct tgacgctaaa atcgagcgtt acaacaaact ttcagcagac	1620
gatcaaaaag gtactaaagg tgaacagct aaagcagaaa tcaaaactgc tcaagacgct	1680
tacaatgcag ctttcatcgt agctcgta ca gcttacgagt gggtactaa taaagaagat	1740
gctaacgttg ttaaagtgac ttcaaagcgt gacgggtcaat ttgaagttag cgggtcttgca	1800
actggtgatt ataaacttga agaaacacaa gctccagctg gttacgctaa attagcaggt	1860
gatgttgatt tcaaagttgg aaacagctca aaagcagacg actcaggtaa cattgattac	1920
actgctagca gcaataaaaa agacgctcaa cgcatagaaa acaaaaaagt gactattcca	1980
caaacaggtg gtattggtac aattcttttc acaattattg gtttaagcat tatgcttgga	2040
gcggttaatta tcatgaaaag acgtcaatca gaggaagctt aa	2082

<210> 136
 <211> 2115
 <212> DNA
 <213> Streptococcus agalactiae

<400> 136	
atgaaaaaaaa tcaacaaata ttttgcagtc ttctcggcct tgctactgac cgtaacatca	60
ttgctctcag ttgcaccagc gtttgcggac gaagcaacaa ctaatacagt gactttgcac	120
aagatcttgc aaactgaatc aaatcttaat aaaagtaact tcccaggaac tacaggcctt	180
aacggagatg actataaagg tgaatctatt tctgaccttg ctgaataactt tggatcaggt	240
tctaaagaaa ttgacggtgc tttctttgct ttggcttttag aagaggaaaa agatggtgtc	300
gtacaatatg ttaaggcaaa agcaaatgac aaattaacac cagacttaat tactaaaggt	360
acacctgcaa caacaacaaa agttgaagaa gctgtaggtg gtttgacaac tggtaggggt	420
attgttttca atacagctgg tttgaaaggt aatttcaaaa ttattgaatt gaaagacaaa	480
tcaacttaca acaataatgg ttccctctta gcagcttcaa aagcagttcc ggtgaaaatc	540
actcttccat tggtaagcaa agatggtggt gttaaagatg cacacgttta tccaaagaac	600
actgaaacaa aaccagaagt agacaagaac ttcgctaaaa caaacgattt gacagctctc	660
aaagacgcta ctcttcttaa ggctggtgca gactacaaaa actattcagc gactaaagct	720
actgtaacag ctgaaatcgg taaagttatc ccttacgaag ttaaaacaaa agttcttaaa	780
ggttctaaat acgaaaaact ggtttggacc gataccatgt caaatgggtt gacaatgggt	840
gatgatgtta accttgcagt ttcagggact acaacaactt tcattaaaga tatagattac	900
actcttagca ttgatgaccg tggtttcaca ttgaaattca aagctactgg attggacaaa	960
ttggaagaag cagctaaagc atctgatggt gaatttacat tgacttataa agctactggt	1020
aatggccaag caattattga caaccagaa gtcaatgaca tcaaattgga ctatggtaat	1080
aaacctggtg cagatttatc agaacaacct gtgacacctg aagatgggtg agttaagtc	1140
actaaaacat gggcagcagg tgctaataaa gcagacgcta aagttgtcta cacacttaaa	1200

eof-seq1.txt

aatgctacta aacaagtcgt agcttctgtc gcattgaccg cagctgatac aaaagggtacg	1260
attaatcttg gtaaaggcat gacctttgaa atcacaggag ctttctcagg tacattcaaa	1320
ggccttcaaa ataaagctta cactgtttct gaacgtgttg caggttatac taatgctatt	1380
aatgttactg gtaatgctgt tgctatcacc aatacaccag acagtgacaa tccaacgcc	1440
cttaacccaa ctcaacccaa agttgaaaca catggtaaga aatttgtaa agttggcgat	1500
gcagatgccc gcttagctgg tgcacaattc gttgtgaaaa attcagctgg taaattcctt	1560
gctcttaaag aagatgcagc tgtatcagga gctcaaactg aattggcaac tgctaaaaca	1620
gacttggata atgccatcaa agcttacaac ggtttgacaa aagcgcagca agaagggtct	1680
gatggtacat cagcaaaaga acttatcaac actaaacagt cagcttacga cgcagccttc	1740
atcaaagcac gtacagctta tatatgggta gatgaaaaaa cttaaagctat taccttcact	1800
tcaataatc aaggtcaatt tgaagttact ggtcttgaag taggttctta caaacttgaa	1860
gaaactcttg caccagcagg ttatgctaaa ttgtcaggcg acattgagtt tacagttgga	1920
cacgattctt acacaagtgg tgacatcaag tacaagacag atgatgctag caacaatgca	1980
caaaaagttt tcaataaaaa agtaaccatc ccacaaacag gtggtattgg tacaattctt	2040
ttcacaatta ttggtttaag cattatgctt ggagcggtag ttatcatgaa aagacgtcaa	2100
tcagaggaag cttaa	2115

<210> 137
 <211> 2049
 <212> DNA
 <213> Streptococcus agalactiae

<400> 137	
atgaaaaaaa tcaacaaatt ttttgtggcg ttctcagcgt tgttactgat tttaacgtca	60
ttgctctcag ttgcaccagc gtttgcggaa aaagaaaaaa caactgagac tgttactttg	120
cataaaatth tacaactga tacaacctt aagaatagtg ctttccctgg taaaaaggg	180
ctagatggaa ctgaatatga cgggaaagct attgataaat tggatagcta ctttggcaat	240
gactcaaaag atattgggtg ggcttacttt atattggcaa atagcaaggg tgaatatatc	300
aaagctaattg ataaaaataa attaaagcct gagtttagtg ggaacactcc gaaaacgacc	360
ctcaatatta gtgaagctgt aggtggtttg acagaagaaa acgcagggtat taagtttgaa	420
accactggtt taagagggga tttccagatt attgaattga aagacaagtc aacttacaat	480
aatggtgggg ccatcttggc tgattcaaaa gcggttccag tgaaaatcac tcttccattg	540
ataaacaagg atggtgttgt taaagatgca cacgtctatc caaagaacac tgaaacaaaa	600
ccgcaaatg acaagaactt tgctgataaa aatcttgatt atattaacaa ccaaaaagac	660
aaaggacta tatcagcaac tgttgggtgat gttaaaaaat atactgttgg gacaaaaatc	720
cttaaaggat ctgactataa aaaattagtt tggaccgata gcatgacgaa aggattgacg	780
tttaacaacg atgttactgt aacattggat ggtgcaaat ttgaacaatc aaattacacc	840
ttagtagctg atgaccaagg tttccgtctt gtcttgaatg caacagggtct ttctaaagta	900

eof-seq1.txt

gcagaagctg caaaaacaaa agatgttgaa atcaaatca actattcagc tacagtaaac	960
ggttctactg tcgttgaaaa gtcagaaaaat aatgatgtca aactagatta tggtaacaac	1020
ccaacaactg aaaacgaacc acaactggt aatccagtta acaaagaaat cacagttcga	1080
aagacttggg cagtggatgg taatgaagtg aataaggag atgaaaaagt tgacgtgtc	1140
ttcacgttgc aagttaaaga tagtgacaaa tgggtgaatg tcgattcagc aacagcaaca	1200
gcagcaactg acttcaaata cactttcaaa aacttgata atgccaaaac ttaccgtgtt	1260
gtagaacgtg ttagcggcta cgctccagcc tacgtttcat ttgtgggtgg agttgtgact	1320
attaagaata acaaaaactc aaatgaccca actccaatca atccatcaga accaaaagtt	1380
gtgacttatg gacgtaaatt tgtgaaaaca aatcaagatg gctctgaacg tctagcagga	1440
gctactttcc ttgttaagaa ctacaaaagt caatacttgg cacgtaaatc aggtgttgca	1500
actaatgaag ctacaaaagc agtaacagat gctaaagtac aactggatga agctgttaaa	1560
gcttataaca aattgactaa agaacaacaa gaaagtcaag atggtaaagc agcattgaat	1620
cttattgatg aaaaacaaac agcttacaat gaagcttttg cttaaagcaa ctactcatat	1680
gaatgggttg tagataaaaa cgctgcaaac gttgttaaatt tgatttctaa tacagctggt	1740
aaatttgaaa ttacaggttt gaatgcaggc gagtatagtt tggaagagac tcaagcacca	1800
acaggttatg ctaaattgtc aagtgatgta tcatttaaag taaatgatac atcgtatagc	1860
gaaggggctt caaatgatat tgcatacgat aaagactccg gtaaaacaga tgcacaaaaa	1920
gttgtcaaca aaaaagtaac aatcccacaa acagggtgta ttggtacaat tcttttcaca	1980
attattggtt taagcattat gcttgagcgc gtagttatca tgaaaagacg tcaatcagag	2040
gaagcttaa	2049

<210> 138
 <211> 2082
 <212> DNA
 <213> Streptococcus agalactiae

<400> 138	
atgaaaagaa tcaacaaata ttttgcaatg ttctcggcat tgttattaat ttaacatcg	60
ttgttatcgg tagctccggt atttgctgct gagatgggaa atatcactaa aacagtaacc	120
ttacacaaaa ttgttcaaac atccgataat ttggctaagc caaatttccc aggaataaat	180
ggattgaatg gaacgaagta tatgggtcaa aaacttactg acatttcagg atattttggg	240
caaggttcta aagaaatcgc cggtgctttc ttgcggtta tgaatgaaag tcagacaaaa	300
tatatcacag aaagtggtag tgaagtagaa agtatcgatg cagcagggtg ccttaaagg	360
ttgacaactg aaaacggcat tacatttaaat actgcaaaact taaaaggaac ataccaa	420
gttgagttgc ttgacaaatc taattataaa aatgggtgaca aagttcttgc tgactcaaaa	480
gctgtcccag tgaaaatcac tcttcctttg tataacgaag aaggaattat cgtggacgct	540
gaagtgtatc caaagaatac agaagaagca ccacaaatcg acaaaaactt tgctaaagca	600
aataaattgt tgaatgacag tgataattca gctattgcag gtggggcaga ctacgacaaa	660

eof-seq1.txt

tatcaggcag	aaaaagcaaa	agctactgct	gaaatcggtc	aagaaatccc	ttacgaagtt	720
aaaacaaaaa	tccaaaaagg	gtctaaatac	aaaaaccttg	cttgggtcga	taccatgtca	780
aatggtttga	caatgggtaa	cactgttaac	ttagaagcat	cgtcaggctc	ttttgtagaa	840
ggtacagatt	acaatgttga	acgtgatgac	cgtggtttca	ctttgaaatt	cacagataca	900
ggtttgacta	agctacaaaa	agaagcggaa	acacacgctg	ttgaattcac	attgacatat	960
agcgcaacag	ttaacggtgc	ggctattgat	gacaagccag	aaagcaatga	tatcaaactt	1020
caatacggta	acaaaccagg	taaaaaagta	aaagaaatcc	cagtaacacc	gtcaaatggc	1080
gaaatcactg	ttagcaaaac	ttgggacaaa	ggttcagatt	tagagaatgc	gaatgttggt	1140
tataccctta	aagatgggtg	aacagctggt	gcctcagttt	cattgacaaa	aacaacacca	1200
aatggcgaaa	tcaacttagg	taatggtatt	aaatttacag	ttactggagc	gtttgctggt	1260
aaattcagtg	gtctgactga	tagtaaaaca	tacatgatct	cagaacgtat	cgctggttat	1320
ggtaatacaa	tcactactgg	tgctggtagt	gcagctatca	ccaatactcc	agattcagac	1380
aaccaaacac	cacttaatcc	aactgaacca	aaagttgtga	cacacggtaa	aaaattcgtc	1440
aaaacaagtt	cgactgaaac	agaacgcttg	caaggtgcac	agttcgttgt	taaagattca	1500
gctggtaaat	accttgcatt	gaaatcatct	gcgacaatat	cagctcaaac	aacagcttac	1560
acaaatgcta	aaactgctct	tgacgctaaa	atcgagctt	acaacaaact	ttcagcagac	1620
gatcaaaaag	gtactaaagg	tgaacagct	aaagcagaaa	tcaaaactgc	tcaagacgct	1680
tacaatgcag	ccttcacgt	agctcgta	gcttacgagt	gggtaactaa	taaagaagat	1740
gctaacgttg	ttaaagtgac	ttcaaacgct	gacgggtcaat	ttgaagttag	cggtcttgca	1800
actggtgatt	ataaacttga	agaaacacaa	gctccagctg	gttacgctaa	attagcaggt	1860
gatgttgatt	tcaaagttgg	aaacagctca	aaagcagacg	actcaggtaa	cattgattac	1920
actgctagca	gcaataaaaa	agacgctcaa	cgcatagaaa	acaaaaaagt	gactattcca	1980
caaacaggtg	gtattggtac	aattcttttc	acaattattg	gtttaagcat	tatgcttgga	2040
gcggtaatta	tcattgaaaag	acgtcaatca	gaggaagctt	aa		2082

<210> 139
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 139	
atgaaaaaaa	tcaacaaatg tcttacagtg ttctcgacac tgctattgat cttaacgtca 60
ctattctcag	ttgcaccagc gtttgcggac gacgtaacaa ctgatactgt gaccttgcac 120
aagattgtca	tgccacaagc tgcatTTgat aactttactg aaggtaacaaa aggttaagaat 180
gatagcgatt	atgttggttaa acaaattaat gaccttaaatt cttatttttg ctcaaccgat 240
gctaaagaaa	ttaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt 300
actgaaaatg	gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt 360
ctttcagggg	taacaaaaga cactgggttt gcttttaaca ctgctaagtt aaaaggaact 420

eof-seq1.txt

taccaa	atcg	ttgaattgaa	agaaaaatca	aactacgata	acaacggttc	tatcttggct	480
gattc	aaaag	cagttccagt	taaaatcact	ctgccattgg	taaacaacca	aggtgttgtt	540
aaagat	gctc	acatttatcc	aaagaatact	gaaacaaaac	cacaagtaga	taagaacttt	600
gcagata	aaag	atcttgatta	tactgacaac	cgaaaagaca	aaggtgttgt	ctcagcgaca	660
gttgg	tgaca	aaaaagaata	catagttgga	acaaaaattc	ttaaaggctc	agactataag	720
aaact	ggttt	ggactgatag	catgactaaa	ggtttgacgt	tcaacaacaa	cgttaaagta	780
acatt	ggatg	gtaaagattt	tcctgtttta	aactacaaac	tcgtaacaga	tgaccaaggt	840
ttccg	tcttg	ccttgaatgc	aacaggtcct	gcagcagtag	cagctgctgc	aaaagacaaa	900
gatgt	tgtaaa	tcaagatcac	ttactcagct	acgggtgaacg	gctccactac	tgttgaagtt	960
ccagaa	acca	atgatgttaa	attggactat	ggtaataacc	caacggaaga	aagtgaacca	1020
caaga	aggt	ctccagctaa	ccaagaaatt	aaagtcatta	aagactgggc	agtagatgg	1080
acaatt	actg	atgttaatgt	tgcaagttaa	gctatcttta	ccttgcaaga	aaaacaaacg	1140
gatgg	tacat	gggtgaacgt	tgcttcacac	gaagcaacaa	aaccatcacg	ctttgaacat	1200
acttt	cacag	gtttggataa	tactaaaact	taccgcgttg	tcgaacgtgt	tagcggctac	1260
actcc	agaat	atgtatcatt	taaaaatgg	gttgtgacta	tcaagaacaa	caaaaactca	1320
aatgat	ccaa	ctccaatcaa	cccacagaa	ccaaaagtgg	tgacttatgg	acgtaaattt	1380
gtgaaa	acaa	atcaagctaa	cactgaacgc	ttggcaggag	ctaccttcct	tgtaaagaaa	1440
gaagg	aaaat	acttggcacg	taaagcaggt	gcagcaactg	ctgaagcaaa	ggcagctgta	1500
aaaact	gcta	aactagcatt	ggatgaagct	gttaaagctt	ataacgactt	gactaaagaa	1560
aaaca	agaag	gccagaagg	taaaacagca	ttggctactg	ttgatcaaaa	acaaaaagct	1620
tacaat	gacg	cttttgttaa	agctaactac	tcatatgaat	gggttcgaga	taaaaaggct	1680
gataat	gttg	ttaaattgat	ctctaacgcc	ggtggtcaat	ttgaaattac	tggtttggat	1740
aaagg	cactt	atagcttgg	agaaactcaa	gcaccagcag	gttatgacg	attgtcaggt	1800
gatgt	aaact	ttgaagtaac	tgccacatca	tatagcaaag	gggctacaac	tgacatcgca	1860
tatgata	aaag	gatctgtaaa	aaaagatgcc	caacaagttc	aaaacaaaaa	agtaaccatc	1920
ccacaa	acag	gtggtattgg	tacaattcct	ttcacaaata	ttggtttaag	cattatgctt	1980
ggagc	agtag	ttgtcatgaa	aaaacgtcaa	tcagaggaag	cttaa		2025

<210> 140
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400>	140	atgaaaaaaa	tcaacaaatg	tcttacaatg	ttctcgacac	tgctattgat	cttaacgtca	60
		ctattctcag	ttgcaccagc	gtttgcggac	gacgcaacaa	ctgatactgt	gaccttgac	120
		aagattgtca	tgccacaagc	tgcatTTgat	aactttactg	aaggtacaaa	aggtagaat	180
		gatagcgatt	atgttggtaa	acaaattaat	gaccttaa	attttttgg	ctcaaccgat	240

eof-seq1.txt

gctaaagaaa tcaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcaggggt taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactcg ttgaattgaa agaaaaatca aactacgata acaacgggttc tatcttggct	480
gattcaaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgtt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aaggtgttgt ctcagcgaca	660
gttggtgaca aaaagaata catagtggga acaaaaattc ttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgtaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggctct gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattg tgcaagttaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaat	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaaagaa	1440
gaaggcaaat acttggcacg taaagcagg gtgagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttgat	1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaacgtcaa tcagaggaag cttaa	2025

<210> 141

<211> 2025

<212> DNA

<213> Streptococcus agalactiae

<400> 141

atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
---	----

eo1f-seq1.txt

ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatttgat aactttactg aagggtacaaa aggtagaagt	180
gatagcgatt atgttggtaa acaaattaat gaccttaaatt cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcaggggt taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtt tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgtt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttg ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc tttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ctttgaatgc aacaggctct gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatgg	1080
acaattactg atgctaattg tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgttaagaaa	1440
gaaggcaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa acaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgacga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtgggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcaacatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

eof-seq1.txt

<211> 2028

<212> DNA

<213> Streptococcus agalactiae

<400> 142

atgaaaaaaa tcaacaaata ttttgcagtc ttctcggcat tgctactgac cgtaacatca	60
ttgtttctcag ttgcaccagt gtttgcggaa gaagcaaaaa ctactgacac agtgaccttg	120
cacaagattg tcatgcctcg aactgcattt gacggtttta ctgctggtac aaagggttaag	180
gataatactg actacgttgg taaacaaatc gaagacctta aaacttactt tggctcaggc	240
gaagcgaaag aaatcgcagg tgcttacttt gctttcaaaa atgaagctgg tactaaatac	300
atcactgaaa atggtgaaga agttgatact ttggatacaa cagatgccaa aggtggtgct	360
gttctttaaag gtttaacaac agacaatggt ttcaaattta acacttctaa attaacagga	420
acttaccaa tcgttgaatt gaaagaaaaa tctacataca acaacgatgg ttctatcttg	480
gctgattcaa aagcagttcc agttaaatac actcttccat tggtaaacga caatggtggt	540
gttaaagacg ctcacgttta tccaaagaac actgaaacaa aaccacaagt agataagaac	600
ttcgcagata aagaacttga ttatgcgaac aacaaaaaag acaaagggac tgtctcagca	660
tctgttggtg atgttaaaaa atatcatggt ggaacaaaaa tccttaaagg ttcagactat	720
aagaaattaa tctggaccga tagcatgacc aaaggtttga ctttcaacaa cgatattgct	780
gtaacattgg atggtgcaac tcttgatgct acaaattaca aacttgtagc agatgaccaa	840
ggtttccgcc ttgtcttgac tgacaaaggc cttgaagcag tggcaaaagc cgcaaaaaca	900
aaagatgttg aaatcaagat cacttactca gctactttga acggttctgc tgtcgttgaa	960
gttctagaaa ccaatgatgt taaattggac tacggcaaca acccaacaat tgaaaaatgaa	1020
ccaaaagaag gtattccagt tgataagaaa atcactgtta acaaaacatg ggtagtagat	1080
ggcaatgaag tgaataaagc agatgaaaca gttgatgctg tcttcacctt gcaagttaaa	1140
gatggtgaca aatgggtgaa tgttgattca gctaaagcaa cagctgcaac tagcttcaaa	1200
cacacttttg aaaacttggg taatgctaaa acttaccgcg ttatcgaacg tgtagcggc	1260
tacgctccag aatacgtctc atttgtaaat ggcgttgtaa ccatcaagaa caacaaagac	1320
tcaaatgagc caactccaat caacccatca gaaccaaagc tggtgactta tggacgtaaa	1380
tttgtgaaaa caaataaaga tggaaaagaa cgcttgagc gagctacctt ccttggttaag	1440
aaagatggca agtacttggc acgtaaatca ggtgttgcaa cagatgcaga aaaagctgct	1500
gtagattcaa ctaaatacagc attggatgct gctgttaaag cttacaatga tttgactaaa	1560
gaaaaacaag aagggtcaaga tggtaaatac gcattggcta ccgttagtga aaaacaaaaa	1620
gcttacaatg atgcctttgt taaagctaac tactcatagc aatgggttga agataaaaat	1680
gctaagaatg ttgttaaatt gatttctaac gataaaggct aatttgaaat tactggcttg	1740
actgaaggct aatactcatt ggaagaaaca caagcaccaa ctggttatgc taaattatca	1800
ggtgatgttt cgtttaattg taatgctact tcatacagta aaggttctgc tcaagatatt	1860
gagtataccc aaggttctaa aactaaagat gcacaacaag ttatcaataa gaaggttact	1920

eol-f-seq1.txt

attccacaaa	caggtggtat	tggtacaatt	tttttcacaa	ttattggatt	aagtattatg	1980
cttggagcgg	tagttatcat	gaaaagacgt	caatcagagg	aagtttaa		2028

<210> 143
 <211> 2082
 <212> DNA
 <213> Streptococcus agalactiae

<400> 143		
atgaaaagaa	tcaacaaata ttttgcaatg ttctcggcat tgttattaat tttaacatcg	60
ttgttatcgg	tagctccggt atttgctgct gagatgggaa atatcactaa aacagtaacc	120
ttacacaaaa	ttgttcaaac atccgataat ttggctaagc caaatttccc aggaataaat	180
ggattgaatg	gaacgaagta tatgggtcaa aaacttactg acatttcagg atattttggg	240
caaggttcta	aagaaatcgc cgggtgctttc tttgcggtta tgaatgaaag tcagacaaaa	300
tatatcacag	aaagtggtag tgaagtagaa agtatcgatg cagcagggtgt ccttaaagggt	360
ttgacaactg	aaaacggcat tacatttaaat actgcaaact taaaaggaac ataccaaatc	420
gttgagttgc	ttgacaaatc taattataaa aatgggtgaca aagttcttgc tgactcaaaa	480
gctgtcccag	tgaaaatcac tcttcctttg tataacgaag aaggaattgt cgtggacgct	540
gaagtgtatc	caaagaatac agaagaagca ccacaaatcg acaaaaactt tgctaaagca	600
aataaattgt	tgaatgacag tgataattca gctattgcag gtggggcaga ctacgacaaa	660
tatcaggcag	aaaaagcaaa agctactgct gaaatcggtc aagaaatccc ttacgaagtt	720
aaaacaaaaa	tccaaaaagg gtctaaatac aaaaaccttg cttgggtcga taccatgtca	780
aatggtttga	caatgggtaa cactgttaac ttagaagcat cgtcaggctc tttttagtaa	840
ggtacagatt	acaatgttga acgtgatgac cgtggtttca ctttgaaatt cacagataca	900
ggtttgacta	agctacaaaa agaagcggaa acacaagctg ttgaattcac attgacatat	960
agcgcaacag	ttaacggtgc ggctattgat gacaagccag aaagcaatga tatcaaactt	1020
caatacggta	acaaaccagg taaaaaagta aaagaaatcc cagtaacacc gtcaaattggc	1080
gaaatcactg	ttagcaaaac ttgggacaaa gggttcagatt tagagaatgc gaatgttggt	1140
tataccctta	aagatggtgg aacagctggt gcctcagttt cattgacaaa aacaacacca	1200
aatggcgaaa	tcaacttagg taatggtatt aaatttacag ttactggagc gtttgctggt	1260
aaattcagtg	gtctgactga tagtaaaaca tacatgatct cagaacgtat cgctgggttat	1320
ggtaatacaa	tcactactgg tgctggtagt gcagctatca ccaatactcc agattcagac	1380
aaccaacac	cacttaatcc aactgaacca aaagttgtga cacacggtaa aaaattcgtc	1440
aaaacaagtt	cgactgaaac agaacgcttg caaggtgcac agttcgttgt taaagattca	1500
gctggtaaat	accttgcatc gaaatcatct gcgacaatat cagctcaaac aacagcttac	1560
acaatgcta	aaactgctct tgacgctaaa atcgcagctt acaacaaact ttcagcagac	1620
gatcaaaaag	gtactaaagg tgaacagct aaagcagaaa tcaaaactgc tcaagacgct	1680
tacaatgcag	ccttcacgtg agctcgtaca gcttacgagt gggtaactaa taaagaagat	1740

eol-f-seq1.txt

gctaacgttg ttaaagtgac ttcaaacgct gacgggtcaat ttgaagttag cggtcttgca	1800
actggtgatt ataaacttga agaaacacaa gctccagctg gttacgctaa attagcaggt	1860
gatgttgatt tcaaagttgg aaacagctca aaagcagacg actcaggtaa cattgattac	1920
actgctagca gcaataaaaa agacgctcaa cgcatagaaa acaaaaaagt gactattcca	1980
caaacagggtg gtattggtac aattcttttc acaattattg gtttaagcat tatgcttgga	2040
gcggttaatta tcatgaaaag acgtcaatca gaggaagctt aa	2082

<210> 144
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 144	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aagggtacaaa aggtagaagt	180
gatagcgatt atgttggttaa acaaattaat gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggt taacaaaaga caatggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactc ttgaattgaa agaaaaatca aactacgata acaacgggtt tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttg ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacagggtctt gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggg	1080
acaattactg atgctaattg tgcaagttaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaagaaa	1440
gaaggcaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta	1500

eolf-seq1.txt

aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccaagaagg taaaacagca ttggctactg ttgatcaaaa acaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgcgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattcct ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 145
 <211> 2082
 <212> DNA
 <213> Streptococcus agalactiae

<400> 145

atgaaaagaa tcaacaaata ttttgcaatg ttctcggcat tgttattaat tttaacatcg	60
ttgttatcgg tagctccggt atttgctgct gagatgggaa atatcactaa aacagtaacc	120
ttacacaaaa ttgttcaaac atccgataat ttggctaagc caaatttccc aggaataaat	180
ggattgaatg gaacgaagta tatgggtcaa aaacttactg acatttcagg atattttggg	240
caaggttcta aagaaatcgc cgggtgctttc tttgcggtta tgaatgaaag tcagacaaaa	300
tatatcacag aaagtggtag tgaagtagaa agtatcgatg cagcagggtg ccttaaagggt	360
ttgacaactg aaaacggcat tacatttaat actgcaaact taaaaggaac ataccaaatc	420
gttgagttgc ttgacaaatc taattataaa aatggtgaca aagttcttgc tgactcaaaa	480
gctgtcccag tgaaaatcac tcttcctttg tataacgaag aaggaattgt cgtggacgct	540
gaagtgtatc caaagaatac agaagaagca ccacaaatcg acaaaaactt tgctaaagca	600
aataaattgt tgaatgacag tgataattca gctattgcag gtggggcaga ctacgacaaa	660
tatcaggcag aaaaagcaaa agctactgct gaaatcggtc aagaaatccc ttacgaagtt	720
aaaacaaaaa tccaaaaagg gtctaaatac aaaaaccttg cttgggtcga taccatgtca	780
aatggtttga caatgggtaa cactgttaac ttagaagcat cgtcaggctc tttttagtaa	840
ggtacagatt acaatgttga acgtgatgac cgtggtttca ctttgaaatt cacagataca	900
ggtttgacta agctacaaaa agaagcggaa acacacgctg ttgaattcac attgacatat	960
agcgcaacag ttaacggtgc ggctattgat gacaagccag aaagcaatga tatcaaactt	1020
caatacggta acaaacaggg taaaaaagta aaagaaatcc cagtaacacc gtcaaatggc	1080
gaaatcactg ttagcaaaac ttgggacaaa ggttcagatt tagagaatgc gaatgttgtt	1140
tataccctta aagatggtgg aacagctgtt gcctcagttt cattgacaaa aacaacacca	1200
aatggcgaaa tcaacttagg taatgggtatt aaatttacag ttactggagc gtttgctggt	1260
aaattcagtg gtctgactga tagtaaaaca tacatgatct cagaacgtat cgctggttat	1320

eolf-seq1.txt

ggtaatacaa	tcactactgg	tgctggtagt	gcagctatca	ccaatactcc	agattcagac	1380
aaccaaacac	cacttaatcc	aactgaacca	aaagttgtga	cacacggtaa	aaaattcgtc	1440
aaaacaagtt	cgactgaaac	agaacgcttg	caaggtgcac	agttcgttgt	taaagattca	1500
gctggtaaat	accttgcat	gaaatcatct	gcgacaatat	cagctcaaac	aacagcttac	1560
acaatgcta	aaactgctct	tgacgctaaa	atcgagctt	acaacaaact	ttcagcagac	1620
gatcaaaaag	gtactaaagg	tgaacagct	aaagcagaaa	tcaaaactgc	tcaagacgct	1680
tacaatgcag	ccttcacgt	agctcgtaga	gcttacgagt	gggtaactaa	taaagaagat	1740
gctaacgttg	ttaaagtgac	ttcaaacgct	gacggccaat	ttgaagttag	cggtcttgca	1800
actggtgatt	ataaacttga	agaaacacaa	gctccagctg	gttacgctaa	attagcaggt	1860
gatgttgatt	tcaaagttgg	aaacagctca	aaagcagacg	actcaggtaa	cattgattac	1920
actgctagca	gcaataaaaa	agacgctcaa	cgcatagaaa	acaaaaaagt	gactattcca	1980
caaacaggtg	gtattggtag	aattcttttc	acaattattg	gtttaagcat	tatgcttggg	2040
gcggaatta	tcataaaaag	acgtcaatca	gaggaagctt	aa		2082

<210> 146
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 146						
atgaaaaaaa	tcaacaaatg	tcttacaatg	ttctcgacac	tgctattgat	cttaacgtca	60
ctattctcag	ttgcaccagc	gtttgcggac	gacgcaacaa	ctgatactgt	gaccttgac	120
aagattgtca	tgccacaagc	tgcatTTgat	aactttactg	aaggtagaaa	aggtaagaat	180
gatagcgatt	atgttggtaa	acaaattaat	gaccttaa	cttattttgg	ctcaaccgat	240
gctaaagaaa	tcaaggggtg	tttctttgtt	ttcaaaaatg	aaactggtag	aaaattcatt	300
actgaaaatg	gtaaggaagt	cgatactttg	gaagctaaag	atgctgaagg	tggtgctgtt	360
ctttcagggg	taacaaaaga	caatggTTTT	gtttttaaca	ctgctaagtt	aaaaggaatt	420
taccaaactg	ttgaattgaa	agaaaaatca	aactacgata	acaacggttc	tatcttggct	480
gattcaaaag	cagttccagt	taaaatcact	ctgccattgg	taaacaacca	agggtgtgtt	540
aaagatgctc	acatttatcc	aaagaatact	gaaacaaaac	cacaagtaga	taagaacttt	600
gcagataaa	atcttgatta	tactgacaac	cgaaaagaca	aagggtgtgt	ctcagcgaca	660
gttggtgaca	aaaaagaata	catagttgta	acaaaaattc	ttaaaggctc	agactataag	720
aaactggttt	ggactgatag	catgactaaa	ggtttgacgt	tcaacaacaa	cgttaaagta	780
acattggatg	gtgaagattt	tcctgtttta	aactacaaac	tcgtaacaga	tgaccaaggt	840
ttccgtcttg	ccttgaatgc	aacaggctct	gcagcagtag	cagcagctgc	aaaagacaaa	900
gatgttgaaa	tcaagatcac	ttactcagct	acgggtgaacg	gctccactac	tggtgaaatt	960
ccagaaacca	atgatgttaa	attggactat	ggtaataacc	caacggaaga	aagtgaacca	1020
caagaaggta	ctccagctaa	ccaagaaatt	aaagtcatta	aagactgggc	agtagatggt	1080

eol-f-seq1.txt

acaattactg atgctaattgt tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttggataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaat	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaagaaa	1440
gaaggcaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccaagaagg taaaacagca ttggctactg ttgatcaaaa acaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttggg agaaactcaa gcaccagcag gttatgacgac attgtcagggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaacgtcaa tcagaggaag cttaa	2025

<210> 147
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 147	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aaggtaacaa aggtagaat	180
gatagcgatt atgttggtaa acaaatatga gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaagggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggt taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgtt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttgt ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactgggtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgtaaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaagggt	840
ttccgtcttg ctttgaatgc aacagggtctt gcagcagtag cagcagctgc aaaagacaaa	900

eolf-seq1.txt

gatgttgaaa tcaagatcac ttactcagct acggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggg	1080
acaattactg atgctaattg tgcaagttaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaaagaaa	1440
gaaggcaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtgggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttggg agaaactcaa gcaccagcag gttatgcgac attgtcagggt	1800
gatgtaaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattcct ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 148
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 148	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aaggtaacaa aggtagaat	180
gatagcgatt atgttggtta acaaatattat gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggt taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttgt ctacgcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720

eolf-seq1.txt

aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggtctt gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaat tcaagatcac ttactcagct acggtgaacg gctccactac tgttgaat	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattg tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggt gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaaagaa	1440
gaaggcaaat acttggcacg taaagcaggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggt	1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 149
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 149	
atgaaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aaggtaacaa aggtagaat	180
gatagcgatt atgttggtta acaaattaat gaccttaaatt cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggt taacaaaaga caatggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacggttc tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540

eolf-seq1.txt

aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaaag atcttgatta tactgacaac cgaaaagaca aagggtgttg ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc tttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagatth tctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggctct gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatgg	1080
acaattactg atgctaattg tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatgg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaagaaa	1440
gaaggcaa atctggcacg taaagcagg gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa acaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat ggggtgcaga taaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttgat	1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 150
 <211> 2028
 <212> DNA
 <213> Streptococcus agalactiae

<400> 150	
atgaaaaaaa tcaacaaata ttttgacgtc ttctcggcat tgctactgac cgtaacatca	60
ttgttctcag ttgcaccagt gtttgcgga gaagcaaaaa ctactgacac agtgaccttg	120
cacaagattg tcatgcctcg aactgcattt gacggtttta ctgctggtac aaagggtgaa	180
gataatactg actacgttgg taaacaaatc gaagacctta aaacttactt tggctcaggc	240
gaagcgaaag aaatcgcagg tgcttacttt gctttcaaaa atgaagctgg tactaaatac	300
atcactgaaa atggtgaaga agttgatact ttggatacaa cagatgccaa aggtggtgct	360

eol-f-seq1.txt

gttcttaaag gtttaacaac agacaatggt ttcaaattta acacttctaa attaacagga	420
acttaccaaa tcgttgaatt gaaagaaaaa tctacataca acaacgatgg ttctatcttg	480
gctgattcaa aagcagttcc agttaaaatc actcttccat tggtaaacga caatggtggt	540
gttaaagacg ctcacgttta tccaaagaac actgaaacaa aaccacaagt agataagaac	600
ttcgcagata aagaacttga ttatgcgaac aacaaaaaag acaaagggac tgtctcagca	660
tctgttggtg atgttaaaaa atatcatggt ggaacaaaaa tccttaaagg ttcagactat	720
aagaaattaa tctggaccga tagcatgacc aaaggtttga ctttcaacaa cgatattgct	780
gtaacattgg atggtgcaac tcttgatgct acaaattaca aacttgtagc agatgaccaa	840
ggtttccgcc ttgtcttgac tgacaaagggt cttgaagcag tggcaaaagc cgcaaaaaca	900
aaagatgttg aaatcaagat cacttactca gctactttga acggttctgc tgtcgttgaa	960
gttctagaaa ccaatgatgt taaattggac tacggcaaca acccaacaat tgaaaaatgaa	1020
ccaaaagaag gtattccagt tgataagaaa atcactgtta acaaaacatg ggcagtagat	1080
ggcaatgaag tgaataaagc agatgaaaca gttgatgctg tcttcacctt gcaagttaaa	1140
gatggtgaca aatgggtgaa tgttgattca gctaaagcaa cagctgcaac tagcttcaaa	1200
cacacttttg aaaacttggg taatgctaaa acttaccgcg ttatcgaacg tgtagcggc	1260
tacgctccag aatacgtctc atttgtaaat ggcgttgtaa ccatcaagaa caacaaagac	1320
tcaaatgagc caactccaat caaccatca gaaccaaag tggtgactta tggacgtaaa	1380
tttgtgaaaa caaataaaga tggaaaagaa cgcttggcag gagctacctt ccttgtaag	1440
aaagatggca agtacttggc acgtaaatca ggtgttgcaa cagatgcaga aaaagctgct	1500
gtagattcaa ctaaatacagc attggatgct gctgttaaag cttacaatga tttgactaaa	1560
gaaaaacaag aaggtcaaga tggtaaatca gcattggcta ccgttagtga aaaacaaaaa	1620
gcttacaatg atgcctttgt taaagctaac tactcatagc aatgggttga agataaaaat	1680
gctaagaatg ttgttaaatt gatttctaac gataaaggct aatttgaaat tactggcttg	1740
actgaaggct aatactcatt ggaagaaca caagcaccaa ctggttatgc taaattatca	1800
ggtgatgttt cgtttaatgt taatgctact tcatacagta aaggttctgc tcaagatatt	1860
gagtataccc aaggttctaa aactaaagat gcacaacaag ttatcaataa gaaggttact	1920
attccacaaa cagggtgtat tggtaacaatt tttttcacia ttattggatt aagtattatg	1980
cttgagcgg tagttatcat gaaaagacgt caatcagagg aagtttaa	2028

<210> 151
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 151	
atgaaaaaaa tcaacaaatg tcttacagtg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgtaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatttgat aactttactg aaggtaacaaa aggtaagaat	180

eolf-seq1.txt

gatagcgatt atgttggttaa acaaattaat gaccttaaat cttattttgg ctcaaccgat	240
gctaaagaaa ttaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcaggggt taacaaaaga cactgggtttt gcttttaaca ctgctaagtt aaaaggaact	420
taccaaactcg ttgaattgaa agaaaaatca aactacgata acaacggttc tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttgt ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtaaagattt tctgttttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ctttgaatgc aacaggctctt gcagcagtag cagctgctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaagtt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatgggt	1080
acaattactg atgttaatgt tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttggataa tactaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat atgtatcatt taaaaatgggt gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct tgttaagaaa	1440
gaaggaaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtgggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atagcttgga agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gatctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttgtcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 152
 <211> 2118
 <212> DNA
 <213> Streptococcus agalactiae
 <400> 152

eolf-seq1.txt						
atgaaaagaa	tcaacaaata	ttttgcaatg	ttctcggcat	tgttactgac	tttaacgtca	60
ttgctctcag	ttgcaccagc	gtttgcggat	gaagcaacaa	ctaatacagt	gactttgcac	120
aagattttgc	aaaccgaatc	aaatcttaac	aaaagtaact	tcccaggaac	tacaggtctt	180
aacggaaaag	actacaaagg	tggagctatt	tctgaccttg	ctggttactt	tggcgaggga	240
tctaaagaaa	tcaaggtgac	gttctttgct	ttagctttga	aagaagataa	aagtggtaaa	300
gtgcaatatg	ttaaggcaaa	agaaggtaac	aaattaacac	cagccttaat	taataaagat	360
ggtactcctg	aaataacagt	aaatattgat	gaggccgtgt	ctggattgac	accagaggga	420
gatactggac	ttgttttcaa	caccaaagga	ttgaaaggcg	agtttaaaat	tggtgaagtt	480
aaatcaaaat	ctacttacaa	caataatggt	tccctcctgg	ctgcttcaaa	agcggttcca	540
gttaacatca	ctcttccatt	ggtaaatgaa	gatggtggtg	ttgctgatgc	ccatgtttat	600
ccaaagaaca	ctgaagaaaa	accagaaatt	gataaaaact	ttgctaaaac	aaacgatttg	660
acagcattga	cagatgttaa	tagacttttg	acagctggcg	caaattatgg	taattatgca	720
cgtgacaaag	caactgctac	tgctgaaatc	ggtaaagttg	ttccttatga	agttaaaaca	780
aaaattcaca	aaggtttcta	atacgaaaac	ttggtttgga	cagatataat	gtcaaatggt	840
ttgacaatgg	gttcaactgt	tagccttaaa	gcttcaggaa	ctacagaaac	ttttgctaag	900
gatacagact	atgaacttag	cattgatgcc	cgtggtttca	cattaaaatt	cacagctgat	960
ggattgggca	aattggaaaa	agcagctaaa	acagctgata	ttgaatttac	attgacttat	1020
agtgtactg	ttaatggtca	agcaattatt	gataatccag	aatccaatga	tatcaaattg	1080
tcgtatggta	acaaaccagg	taaagacttg	actgaacttc	ctgttacacc	ttcaaagggt	1140
gaagtaacag	ttgctaaaac	ttggtctgac	ggaattgcac	ctgatggtgt	aaacgttggt	1200
tacacattga	aagataaaga	taaaactggt	gcttcagtat	cattgacaaa	aacatctaaa	1260
ggtacaatcg	accttggaag	tggtatcaaa	tttgaagtat	ctggtaactt	ctcgggtaaa	1320
ttcactggtc	tagaaaacaa	atcatacatg	atctcagaac	gtgtttctgg	ttacggaagt	1380
gcaataaatc	tagaaaatgg	taaagtaacc	attaccaata	ccaaagattc	tgataacca	1440
acaccattga	acccaactga	accaaaagtt	gaaactcatg	gtaagaaatt	tgtcaaaact	1500
aatgaacaag	gtgaccgttt	ggctgggtgca	caattcgttg	tgaaaaactc	agcaggtaaa	1560
taccttgctc	ttaaagcaga	tcaatcagaa	ggtcaaaaaa	ctttagctgc	taagaaaata	1620
gcttttagatg	aagctatcgc	tgcttataac	aagttgtctg	caacagacca	aaaaggtgaa	1680
aaaggaatta	ctgcaaaaga	acttatcaaa	actaaacaag	cagattacga	tgacgccttc	1740
attgaggctc	gtacagctta	tgagtggata	acagataagg	ctagagccat	tacctacact	1800
tcaaacgatac	aagggtcaatt	tgaagttaca	ggtcttgtag	acggtactta	caaccttgaa	1860
gaaacacttg	ctccagcagg	atttgctaag	ttggcaggta	atattaagtt	tgtagttaat	1920
caagggtcat	acataacagg	tggtaacatt	gactacgttg	ctaacagcaa	ccaaaaagat	1980
gcgacacgtg	tagaaaataa	aaaggtaaca	atcccacaaa	cagggtggtat	tggtacaatt	2040
cttttcacaa	ttattgggtt	aagcattatg	cttggagcag	tagttatcat	gaaaagacgc	2100

eof-seq1.txt

caatcaaagg aagcttaa 2118

<210> 153
<211> 2025
<212> DNA
<213> Streptococcus agalactiae

<400> 153
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca 60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgac 120
aagattgtca tgccacaagc tgcatttgat aactttactg aaggtacaaa aggtagaat 180
gatagcgatt atgttggtaa acaaattaat gaccttaaatt cttattttgg ctcaaccgat 240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt 300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt 360
ctttcagggt taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt 420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggct 480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgtt 540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt 600
gcagataaag atcttgatta tactgacaac cgaaaagaca aaggtgttgt ctgagcgaca 660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag 720
aaactgggtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta 780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt 840
ttccgtcttg ccttgaatgc aacaggtctt gcagcagtag cagcagctgc aaaagacaaa 900
gatgttgaat tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt 960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca 1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt 1080
acaattactg atgctaattg tgcaagtaaa gctatcttta ccttgcaaga aaaacaaacg 1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat 1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac 1260
actccagaat acgtatcatt taaaaatggt gttgtgacta tcaagaacaa caaaaactca 1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt 1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaagaaa 1440
gaaggcaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta 1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa 1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct 1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaggct 1680
gataatgttg ttaaatgtat ctctaacgcc ggtgggtcaat ttgaaattac tggtttgat 1740
aaaggcactt atggcttggg agaaactcaa gcaccagcag gttatgcgac attgtcaggt 1800

eof-seq1.txt

gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 154
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 154	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aagggtacaaa aggtagaagt	180
gatagcgatt atgttggtaa acaaatatga gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggg taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaatcg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggtc	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttg ctacgcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc tttaaaggctc agactataag	720
aaactgggtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tctgttttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggctct gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattg tgcaattaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacg tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaaagaaa	1440
gaaggcaaat acttggcacg taaagcaggg gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa acaaaaagct	1620

eof-seq1.txt

tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttggg agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtatttg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 155
 <211> 2082
 <212> DNA
 <213> Streptococcus agalactiae

<400> 155 atgaaaagaa tcaacaaata ttttgcaatg ttctcggcat tgttattaat ttaacatcg	60
ttgttatcgg tagctccggg atttgctgct gagatgggaa atatcactaa aacagtaacc	120
ttacacaaaa ttgttcaaac atccgataat ttggctaagc caaatctccc aggaataaat	180
ggattgaatg gaacgaagta tatgggtcaa aaacttactg acatttcagg atattttggg	240
caaggttcta aagaaatcgc cggtgctttc tttgcgggta tgaatgaaag tcagacaaaa	300
tatatcacag aaagtggtag tgaagtagaa agtatcgatg cagcagggtg ccttaaagg	360
ttgacaactg aaaacggcat tacatttaac actgcaaact taaaagggaac ataccaaatc	420
gttgagtgtc ttgacaaatc taattataaa aatgggtgaca aagttcttgc tgactcaaaa	480
gctgtcccag tgaaaatcac tcttcctttg tataacgaag aaggaattgt cgtggacgct	540
gaagtgtatc caaagaatac agaagaagca ccacaaatcg acaaaaaactt tgctaaagca	600
aataaattgt tgaatgacag tgataattca gctattgcag gtggggcaga ctacgacaaa	660
tatcaggcag aaaaagcaaa agctactgct gaaatcggtc aagaaatccc ttacgaagtt	720
aaaacaaaaa tccaaaaagg gtctaataac aaaaaccttg cttgggtcga taccatgtca	780
aatggtttga caatgggtaa cactgttaac ttagaagcat cgtcaggctc tttttagaaa	840
ggtacagatt acaatgttga acgtgatgac cgtggtttca ctttgaaatt cacagataca	900
ggtttgacta agctacaaaa agaagcggaa acacaagctg ttgaattcac attgacatat	960
agcgcaacag ttaacggtag ggctattgat gacaagccag aaagcaatga tatcaaactt	1020
caatacggta acaaacaggg taaaaaagta aaagaaatcc cagtaacacc gtcaaatggc	1080
gaaatcactg ttagcaaaac ttgggacaaa gggttcagatt tagagaatgc gaatgttggt	1140
tataccctta aagatggtag aacagctgtt gcctcagttt cattgacaaa aacaacacca	1200
aatggcgaaa tcaacttagg taatgggtatt aaatttacag ttactggagc gtttgctggt	1260
aaattcagtg gtctgactga tagtaaaaca tacatgatct cagaacgtat cgctgggtat	1320
ggtaatacaa tcaactactg tgctggtagt gcagctatca ccaatactcc agattcagac	1380
aaccaaacac cacttaatcc aactgaacca aaagttgtga cacacggtaa aaaattcgtc	1440

eof-seq1.txt

aaaacaagtt cgactgaaac agaacgcttg caaggtgcac agttcgttgt taaagattca	1500
gctggtaaat accttgcat t gaaatcatct gcgacaatat cagctcaaac aacagcttac	1560
acaaatgcta aaactgctct tgacgctaaa atcgagcgtt acaacaaact ttcagcagac	1620
gatcaaaaag gtactaaagg tgaacagct aaagcagaaa tcaaaactgc tcaagacgct	1680
tacaatgcag ctttcatcgt agctcgta ca gcttacgagt gggtactaa taaagaagat	1740
gctaacgttg ttaaagtgc ttcaaagcgt gacgggtcaat ttgaagttag cgggtcttgc	1800
actggtgatt ataaacttga agaaacacaa gctccagctg gttacgctaa attagcaggt	1860
gatgttgatt tcaaagttgg aaacagctca aaagcagacg actcaggtaa cattgattac	1920
actgctagca gcaataaaaa agacgctcaa cgcatagaaa acaaaaaagt gactattcca	1980
caaacaggtg gtattggtac aattcttttc acaattattg gtttaagcat tatgcttgga	2040
gcggttaatta tcatgaaaag acgtcaatca gaggaagctt aa	2082

<210> 156
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 156	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgac	120
aagattgtca tgccacaagc tgcatttgat aactttactg aaggtacaaa aggtagaat	180
gatagcgatt atgttggtaa acaaatatg gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggt taacaaaaga caatggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggt	480
gattcaaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aaggtgttgt ctgagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaagggtc agactataag	720
aaactgggtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgtaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ctttgaatgc aacagggtct gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattg tgagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200

eof-seq1.txt

actttcacag gtttggataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaaagaaa	1440
gaaggcaaat acttggcacg taaagcaggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttggg agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattcctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaacgtcaa tcagaggaag cttaa	2025

<210> 157
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 157	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aaggtaacaaa aggtagaagt	180
gatagcgatt atgttggtaa acaaatatga gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggg taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactc ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttgt ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaagggtc agactataag	720
aaactgggtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgtaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggtcct gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020

eof-seq1.txt

caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattgt tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggt gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaaagaaa	1440
gaaggcaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggt	1740
aaaggcactt atggcttggga agaaactcaa gcaccagcag gttatgacgac attgtcagggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtatttg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaacgtcaa tcagaggaag cttaa	2025

<210> 158
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 158	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aaggtaacaaa aggtagaagt	180
gatagcgatt atgttggttaa acaaattaat gaccttaaatt cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggt taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
tacaaatcg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggct	480
gattcaaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttgt ctacgacgaca	660
gttggtgaca aaaaagaata catagtgtga acaaaaattc ttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgtaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840

eof-seq1.txt

ttccgtcttg ccttgaatgc aacaggtctt gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaat tcaagatcac ttactcagct acggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggg	1080
acaattactg atgctaattg tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttggataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaagaaa	1440
gaaggcaaat acttggcacg taaagcaggg gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccaagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttggg agaaactcaa gcaccagcag gttatgacgac attgtcagg	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgttaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattcct ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaacgtcaa tcagaggaag cttaa	2025

<210> 159
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 159	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgac	120
aagattgtca tgccacaagc tgcatcttgat aactttactg aaggtaacaa aggtagaat	180
gatagcgatt atgttggtta acaaatatg gaccttaaatt cttatttttg ctcaaccgat	240
gctaaagaaa tcaagggtgc tttctttgtt ttcaaaaatg aaactggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggt taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaatcg ttgaattgaa agaaaaatca aactacgata acaacgggtt tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgtgt ctcagcgaca	660

eof-seq1.txt

gttggtgaca	aaaaagaata	catagttgga	acaaaaattc	ttaaaggctc	agactataag	720
aaactggttt	ggactgatag	catgactaaa	ggtttgacgt	tcaacaacaa	cgttaaagta	780
acattggatg	gtgaagatth	tcctgtttta	aactacaaac	tcgtaacaga	tgaccaaggt	840
ttccgtcttg	ccttgaatgc	aacaggctct	gcagcagtag	cagcagctgc	aaaagacaaa	900
gatgttgaaa	tcaagatcac	ttactcagct	acgggtgaacg	gctccactac	tggtgaaatt	960
ccagaaacca	atgatgttaa	attggactat	ggtaataacc	caacggaaga	aagtgaacca	1020
caagaaggta	ctccagctaa	ccaagaaatt	aaagtcatta	aagactgggc	agtagatggt	1080
acaattactg	atgctaattg	tgagttataa	gctatcttta	ccttgcaaga	aaaacaaacg	1140
gatggtacat	gggtgaacgt	tgcttcacac	gaagcaacaa	aaccatcacg	ctttgaacat	1200
actttcacag	gtttggataa	tgctaaaact	taccgcgttg	tcgaacgtgt	tagcggctac	1260
actccagaat	acgtatcatt	taaaaatgg	gttgtgacta	tcaagaacaa	caaaaactca	1320
aatgatccaa	ctccaatcaa	cccatcagaa	ccaaaagtgg	tgacttatgg	acgtaaattt	1380
gtgaaaacaa	atcaagctaa	cactgaacgc	ttggcaggag	ctaccttcct	cgtaaagaaa	1440
gaaggcaaat	acttggcacg	taaagcaggt	gcagcaactg	ctgaagcaaa	ggcagctgta	1500
aaaactgcta	aactagcatt	ggatgaagct	gttaaagctt	ataacgactt	gactaaagaa	1560
aaacaagaag	gccagaag	taaaacagca	ttggctactg	ttgatcaaaa	acaaaaagct	1620
tacaatgacg	cttttgttaa	agctaactac	tcatatgaat	gggttgacga	taaaaaggct	1680
gataatgttg	ttaaattgat	ctctaacgcc	ggtggtcaat	ttgaaattac	tggtttggat	1740
aaaggcactt	atggcttgga	agaaactcaa	gcaccagcag	gttatgacg	attgtcaggt	1800
gatgtaaact	ttgaagtaac	tgccacatca	tatagcaaag	gggctacaac	tgacatcgca	1860
tatgataaag	gctctgtaaa	aaaagatgcc	caacaagttc	aaaacaaaaa	agtaaccatc	1920
ccacaaacag	gtggtattgg	tacaattctt	ttcacaatta	ttggtttaag	cattatgctt	1980
ggagcagtag	ttatcatgaa	aaaacgtcaa	tcagaggaag	cttaa		2025

<210> 160
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 160						
atgaaaaaaa	tcaacaaatg	tcttacaatg	ttctcgacac	tgctattgat	cttaacgtca	60
ctattctcag	ttgcaccagc	gtttgcggac	gacgcaacaa	ctgatactgt	gaccttgac	120
aagattgtca	tgccacaagc	tgcatthgat	aactthactg	aaggtaaaaa	aggtaagaat	180
gatagcgatt	atgttggtta	acaaattaat	gaccttaaat	cttatttttg	ctcaaccgat	240
gctaaagaaa	tcaagggtgc	tttctttgtt	ttcaaaaatg	aaactgggtac	aaaattcatt	300
actgaaaaatg	gtaaggaagt	cgatactttg	gaagctaaag	atgctgaagg	tggtgctgtt	360
ctttcagggt	taacaaaaga	caatggthtt	gtttttaaca	ctgctaagtt	aaaagggaatt	420
taccaaactg	ttgaattgaa	agaaaaatca	aactacgata	acaacgggtc	tatcttggtc	480

eof-seq1.txt

gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgtt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aaggtgttgt ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggtctt gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaat tcaagatcac ttactcagct acggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattg tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaatgggt gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgttaagaaa	1440
gaaggcaaat acttggcacg taaagcaggt gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttggg agaaactcaa gcaccagcag gttatgacgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 161
 <211> 2118
 <212> DNA
 <213> Streptococcus agalactiae

<400> 161	
atgaaaagaa tcaacaaata ttttgcaatg ttctcggcat tgttactgac tttaacgtca	60
ttgctctcag ttgcaccagc gtttgcggat gaagcaacaa ctaatacagt gactttgcac	120
aagattttgc aaaccgaatc aaatcttaac aaaagtaact tcccaggaac tacaggtctt	180
aacggaaaag actacaaagg tggagctatt tctgaccttg ctggttactt tggcgaggga	240
tctaaagaaa tcgaaggtgc gttctttgct ttagctttga aagaagataa aagtggtaaa	300

eof-seq1.txt

gtgcaatatg ttaaggcaaa agaaggtaac aaattaacac cagccttaat taataaagat	360
ggtactcctg aaataacagt aaatattgat gaggccgtgt ctggattgac accagaggga	420
gatactggac ttgttttcaa caccaaagga ttgaaaggcg agtttaaaat tgttgaagtt	480
aaatcaaaat ctacttaca caataatggt tccctcctgg ctgcttcaa agcggttcca	540
gttaacatca ctcttcatt ggtaaatgaa gatggtgttg ttgctgatgc ccatgtttat	600
ccaagaaca ctgaagaaaa accagaaatt gataaaaact ttgctaaaac aaacgatttg	660
acagcattga cagatgttaa tagacttttg acagctggcg caaattatgg taattatgca	720
cgtgacaaag caactgctac tgcagaaatc ggtaaggttg ttccttatga agttaaaca	780
aaaattcaca aaggttctaa atacgaaaac ttggtttgga cagatataat gtcaaatggt	840
ttgacaatgg gttcaactgt tagccttaa gcttcaggaa ctacagaaac ttttgctaag	900
gatacagact atgaacttag cattgatgcc cgtggtttca cattaaaatt cacagctgat	960
ggattgggca aattggaaaa agcagctaaa acagctgata ttgaatttac attgacttat	1020
agtgtactg ttaatggtca agcaattatt gataatccag aatccaatga tatcaaattg	1080
tcgtatggt acaaacagg taaagacttg actgaacttc ctgttacacc ttcaaagggt	1140
gaagtaacag ttgctaaaac ttggtctgac ggaattgcac ctgatggtgt aaacgttggt	1200
tacacattga aagataaaga taaaactggt gcttcagtat cattgacaaa aacatctaaa	1260
ggtacaatcg accttggaat tggtatcaaa tttgaagtat ctggtaactt ctcggtgtaa	1320
ttcactggtc tagaaaaca atcatatg atctcagaac gtgtttctgg ttacggaagt	1380
gcaataaatc tagaaaatgg taaagtaacc attaccaata ccaaagattc tgataacca	1440
acaccattga acccaactga accaaaagtt gaaactcatg gtaagaaatt tgtcaaaact	1500
aatgaacaag gtgaccgttt ggctggtgca caattcgttg tgaaaaactc agcaggtaaa	1560
taccttgctc ttaaagcaga tcaatcagaa ggtcaaaaaa ctttagctgc taagaaaata	1620
gcttttagatg aagctatcgc tgcttataac aagttgtctg caacagacca aaaagggtgaa	1680
aaaggaatta ctgcaaaaga acttatcaaa actaaacaag cagattacga tgcagccttc	1740
attgaggctc gtacagctta tgagtggata acagataagg ctagagccat tacctacact	1800
tcaaacgatc aaggtcaatt tgaagttaca ggtcttgag acggtactta caaccttgaa	1860
gaaacacttg ctccagcagg atttgctaag ttggcaggta atattaagtt tgtagttaat	1920
caagggcat acataacagg tggtaacatt gactacgttg ctaacagcaa ccaaaaagat	1980
gcgacacgtg tagaaaataa aaaggtaaca atcccacaaa cagggtggtat tggtaacatt	2040
cttttcacaa ttattggttt aagcattatg cttggagcag tagttatcat gaaaagacgc	2100
caatcaaagg aagcttaa	2118

<210> 162
 <211> 2028
 <212> DNA
 <213> Streptococcus agalactiae

eo1f-seq1.txt

```

<400> 162
atgaaaaaaaa tcaacaaata ttttgcagtc ttctcggcat tgctactgac cgtaacatca      60
ttgtttctcag ttgcaccagt gtttgcggaa gaagcaaaaa ctactgacac agtgaccttg      120
cacaagattg tcatgcctcg aactgcattt gacggtttta ctgctggtac aaagggttaag      180
gataaactg actacgttgg taaacaaatc gaagacctta aaacttactt tggctcaggc      240
gaagcgaaag aaatcgcagg tgcttacttt gctttcaaaa atgaagctgg tactaaatac      300
atcactgaaa atggtgaaga agttgatact ttggatacaa cagatgccaa aggttgtgct      360
gttctttaaag gtttaacaac agacaatggt ttcaaattta acacttctaa attaacagga      420
acttaccaaa tcgttgaatt gaaagaaaaa tctacataca acaacgatgg ttctatcttg      480
gctgattcaa aagcagttcc agttaaaatc actcttccat tggtaaacga caatggtggt      540
gttaaagacg ctcacgttta tccaaagaac actgaaacaa aaccacaagt agataagaac      600
ttcgcagata aagaacttga ttatgcgaac aacaaaaaag acaaagggac tgtctcagca      660
tctgttggtg atgttaaaaa ataccatggt ggaacaaaaa tccttaaagg ttcagactat      720
aagaaattaa tctggaccga tagcatgacc aaagggttga ctttcaacaa cgatattgct      780
gtaacattgg atggtgcaac tcttgatgct acaaattaca aacttgtagc agatgaccaa      840
ggtttccgcc ttgtcttgac tgacaaaggc cttgaagcag tggcaaaagc cgcaaaaaca      900
aaagatgttg aaatcaagat cacttactca gctactttga acggttctgc tgtcgttgaa      960
gttctagaaa ccaatgatgt taaattggac tacggcaaca acccaacaat tgaaaatgaa     1020
ccaaaagaag gtattccagt tgataagaaa atcactgtta acaaaacatg ggcagtagat     1080
ggcaatgaag tgaataaagc agatgaaaca gttgatgctg tcttcacctt gcaagttaaa     1140
gatggtgaca aatgggtgaa tgttgattca gctaaagcaa cagctgcaac tagcttcaaa     1200
cacacttttg aaaacttgga taatgctaaa acttaccgcg ttatcgaacg tgtagcggc     1260
tacgtccag aatacgtctc atttgtaaat ggcgttgtaa ccatcaagaa caacaaagac     1320
tcaaatgagc caactccaat caacctatca gaaccaaagc tggtgactta tggacgtaaa     1380
tttgtgaaaa caaataaaga tggaaaagaa cgcttggcag gagctacctt ccttgttaag     1440
aaagatggca agtacttggc acgtaaatca ggtgttgcaa cagatgcaga aaaagctgct     1500
gtagattcaa ctaaatacagc attggatgct gctgttaaag cttacaatga tttgactaaa     1560
gaaaaacaag aaggtcaaga tggtaaatac gcattggcta ccgttagtga aaaacaaaaa     1620
gcttacaatg atgcctttgt taaagctaac tactcatagc aatgggttga agataaaaaa     1680
gctaagaatg ttgttaaatt gatttctaac gataaaggct aatttgaaat tactggcttg     1740
actgaaggct aatactcatt ggaagaaaca caagcaccaa ctggttatgc taaattatca     1800
ggtgatgttt cgtttaatgt taatgctact tcatacagta aagggttctgc tcaagatatt     1860
gagtataccc aaggttctaa aactaaagat gcacaacaag ttatcaataa gaaggttact     1920
attccacaaa cagggtggtat tgggtacaatt tttttcacia ttattggatt aagtattatg     1980
cttggagcgg tagttatcat gaaaagacgt caatcagagg aagtttaa     2028

```

eo1f-seq1.txt

<210> 163
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

```

<400> 163
atgaaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca      60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac      120
aagattgtca tgccacaagc tgcatTTgat aactttactg aaggTacaaa aggtAagaat      180
gatagcgatt atgttggtaa acaaattaat gaccttaaT cttattttgg ctcaaccgat      240
gctaaagaaa tcaagggTgc tttctttgtt ttcaaaaatg aaactggTac aaaattcatt      300
actgaaaaTg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tggTgctgtt      360
ctttcagggt taacaaaaga caatggTTTT gtttttaaca ctgctaagtt aaaaggaatt      420
taccaaTcg ttgaattgaa agaaaaatca aactacgata acaacggTtc tatcttggct      480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgtt      540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt      600
gcagataaag atcttgatta tactgacaac cgaaaagaca aaggTgttgt ctcagcgaca      660
gttggtgaca aaaaagaata catagtTgga acaaaaattc ttaaaggctc agactataag      720
aaactggTtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgTtaaagta      780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt      840
ttccgtcttg ccttgaatgc aacaggTctt gcagcagtag cagcagctgc aaaagacaaa      900
gatgttgaT tcaagatcac ttactcagct acggTgaacg gctccactac tgttgaatt      960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca     1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggT     1080
acaattactg atgctaattg tgcagtTaaa gctatcttta ccttgcaaga aaaacaaacg     1140
gatggtacat gggTgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat     1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac     1260
actccagaat acgtatcatt taaaatggT gttgtgacta tcaagaacaa caaaaactca     1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagTgg tgacttatgg acgtaaattt     1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgTtaagaaa     1440
gaaggcaaT acttggcacg taaagcaggT gcagcaactg ctgaagcaaa ggcagctgta     1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa     1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaagct     1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggTtgcaga taaaaaggct     1680
gataatgttg ttaaattgat ctctaacgcc ggtggTcaat ttgaaattac tggTttggat     1740
aaaggcactt atggcttTga agaaactcaa gcaccagcag gttatgcgac attgtcaggT     1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca     1860
    
```


	eol-f-seq1.txt	
tatgataaag gctctgtaaa aaaagatgcc	caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattcctt	ttcacaaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa	tcagaggaag cttaa	2025

<210> 164
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 164		
atgaaaaaaa tcaacaaatg tcttacaatg	ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac	gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatttgat	aactttactg aaggtaacaaa aggtagaat	180
gatagcgatt atgttggtaa acaaatat	gaccttaaat cttattttgg ctcaaccgat	240
gctaaagaaa tcaagggatgc tttctttgtt	ttcaaaaatg aaactggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg	gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcaggggt taacaaaaga caatgggtttt	gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca	aactacgata acaacgggttc tatcttggct	480
gattcaaaaag cagttccagt taaaatcact	ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact	gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac	cgaaaagaca aagggtgttg ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga	acaaaaattc ttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa	ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tcctgtttta	aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggctct	gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct	acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat	ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt	aaagtcatta aagactgggc agtagatgg	1080
acaattactg atgctaattg tgcagttaaa	gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac	gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact	taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatgg	gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa	ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc	ttggcaggag ctaccttcct cgtaagaaa	1440
gaaggcaaat acttggcacg taaagcagg	gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct	gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca	ttggctactg ttgatcaaaa aaaaaagct	1620
tacaatgacg cttttgttaa agctaactac	tcatatgaat gggttgcaga taaaaaggct	1680

eol-f-seq1.txt

gataatgttg ttaaattgat ctctaacgcc ggtgggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgcgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtgggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 165
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 165	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctatttctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatttgat aactttactg aaggtaacaa aggtagaat	180
gatagcgatt atgttggtta acaaattaat gaccttaaatt cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcaggggt taacaaaaga caatggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactc ttgaattgaa agaaaaatca aactacgata acaacgggtt tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttg ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacagggtctt gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatgggt	1080
acaattactg atgctaattg tgcaagttaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaagaaa	1440
gaaggcaaat acttggcacg taaagcagggt gcagcaactg ctgaagcaaa ggcagctgta	1500

eolf-seq1.txt

aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccaagaagg taaaacagca ttggctactg ttgatcaaaa acaaaaagct	1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgcgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtattgg tacaattcct ttcacaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa	2025

<210> 166
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 166

atgaaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac	120
aagattgtca tgccacaagc tgcatTTgat aactttactg aaggTacaaa aggtAagaat	180
gatagcgatt atgttggtaa acaaattaat gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaagggTgc tttctttgtt ttcaaaaatg aaactggTac aaaattcatt	300
actgaaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tggTgctgtt	360
ctttcagggt taacaaaaga caatggTTTT gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaTcg ttgaattgaa agaaaaatca aactacgata acaacggTtc tatcttggtc	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgTt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aaggTgttgT ctCagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactggTtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgTtaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggT	840
ttccgtcttg ccttgaatgc aacaggTctt gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acggTgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggT	1080
acaattactg atgctaattg tgcaTtaaa gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat gggTgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggT gttgtgacta tcaagaacaa caaaaactca	1320

eolf-seq1.txt

aatgatccaa	ctccaatcaa	cccatcagaa	ccaaaagtgg	tgacttatgg	acgtaaattt	1380
gtgaaaacaa	atcaagctaa	cactgaacgc	ttggcaggag	ctaccttcct	cgtaaagaaa	1440
gaaggcaaat	acttggcacg	taaagcaggt	gcagcaactg	ctgaagcaaa	ggcagctgta	1500
aaaactgcta	aactagcatt	ggatgaagct	gttaaagctt	ataacgactt	gactaaagaa	1560
aaacaagaag	gccagaag	taaaacagca	ttggctactg	ttgatcaaaa	acaaaaagct	1620
tacaatgacg	cttttgttaa	agctaactac	tcatatgaat	gggttgacga	taaaaaggct	1680
gataatgttg	ttaaattgat	ctctaacgcc	ggtggtcaat	ttgaaattac	tggtttggat	1740
aaaggcactt	atggcttggg	agaaactcaa	gcaccagcag	gttatgacgac	attgtcaggt	1800
gatgtaaact	ttgaagtaac	tgccacatca	tatagcaaag	gggctacaac	tgacatcgca	1860
tatgataaag	gctctgtaaa	aaaagatgcc	caacaagttc	aaaacaaaaa	agtaaccatc	1920
ccacaaacag	gtggtattgg	tacaattcct	ttcacaatta	ttggtttaag	cattatgctt	1980
ggagcagtag	ttatcatgaa	aaaacgtcaa	tcagaggaag	cttaa		2025

<210> 167
 <211> 2118
 <212> DNA
 <213> Streptococcus agalactiae

<400> 167

atgaaaagaa	tcaacaaata	ttttgcaatg	ttctcggcat	tgttactgac	tttaacgtca	60
ttgctctcag	ttgcaccagc	gtttgcggat	gaagcaacaa	ctaatacagt	gactttgcac	120
aagattttgc	aaaccgaatc	aatctttaac	aaaagtaact	tcccaggaac	tacaggctctt	180
aacggaaaag	actacaaagg	tggagctatt	tctgaccttg	ctggttactt	tggcgaggga	240
tctaaagaaa	tcgaagggtgc	gttctttgct	ttagctttga	aagaagataa	aagtggtaaa	300
gtgcaatatg	ttaaggcaaa	agaaggtaac	aaattaacac	cagccttaat	taataaagat	360
ggtactcctg	aaataacagt	aatattgat	gaggccgtgt	ctggattgac	accagaggga	420
gatactggac	ttgttttcaa	caccaaagga	ttgaaaggcg	agtttaaaat	tgttgaagtt	480
aaatcaaaat	ctacttacaa	caataatggg	tccctcctgg	ctgcttcaaa	agcggttcca	540
gttaacatca	ctcttccatt	ggtaaatgaa	gatggtgttg	ttgctgatgc	ccatgtttat	600
caaagaaca	ctgaagaaaa	accagaaatt	gataaaaact	ttgctaaaac	aaacgatttg	660
acagcattga	cagatgttaa	tagacttttg	acagctggcg	caaattatgg	taattatgca	720
cgtgacaaag	caactgctac	tgctgaaatc	ggtaaagttg	ttccttatga	agttaaaaca	780
aaaattcaca	aaggttctaa	atacgaaaac	ttggtttgga	cagatataat	gtcaaatggg	840
ttgacaatgg	gttcaactgt	tagccttaaa	gcttcaggaa	ctacagaaac	ttttgctaag	900
gatacagact	atgaacttag	cattgatgcc	cgtggtttca	cattaaaatt	cacagctgat	960
ggattgggca	aattggaaaa	agcagctaaa	acagctgata	ttgaatttac	attgacttat	1020
agtgtacttg	ttaatgggtca	agcaattatt	gataatccag	aatccaatga	tatcaaattg	1080
tcgtatggta	acaaaccagg	taaagacttg	actgaacttc	ctgttacacc	ttcaaagggt	1140

eol-f-seq1.txt

gaagtaacag ttgctaaaac ttggtctgac ggaattgcac ctgatggtgt aaacgttggt	1200
tacacattga aagataaaga taaaactggt gcttcagtat cattgacaaa aacatctaaa	1260
ggtacaatcg accttggaag ttggtatcaaa tttgaagtat ctggtaactt ctcgggtaaa	1320
ttcactggtc tagaaaacaa atcatacatg atctcagaac gtgtttcttg ttacggaagt	1380
gcaataaatc tagaaaatgg taaagtaacc attaccaata ccaaagattc tgataaccca	1440
acaccattga acccaactga accaaaagtt gaaactcatg gtaagaaatt tgtcaaaact	1500
aatgaacaag gtgaccgttt ggctggtgca caattcgttg tgaaaaactc agcaggtaaa	1560
taccttgctc ttaaagcaga tcaatcagaa ggtcaaaaaa ctttagctgc taagaaaata	1620
gcttttagatg aagctatcgc tgcttataac aagttgtctg caacagacca aaaagggtgaa	1680
aaaggaatta ctgcaaaaga acttatcaaa actaaacaag cagattacga tgcagccttc	1740
attgaggctc gtacagctta tgagtggata acagataagg ctagagccat tacctacact	1800
tcaaacgatc aagggtcaatt tgaagttaca ggtcttgacg acggtactta caaccttgaa	1860
gaaacacttg ctccagcagg atttgctaag ttggcaggta atattaagtt tgtagttaat	1920
caagggtcat acataacagg ttgtaacatt gactacgttg ctaacagcaa ccaaaaagat	1980
gcgacacgtg tagaaaataa aaaggtaaca atcccacaaa cagggtggtat tggtaacaatt	2040
cttttcacaa ttattggttt aagcattatg cttggagcag tagttatcat gaaaagacgc	2100
caatcaaagg aagcttaa	2118

<210> 168
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 168	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcgac gacgcaacaa ctgatactgt gaccttgac	120
aagattgtca tgccacaagc tgcatattgat aactttactg aaggtaacaaa aggtagaagt	180
gatagcgatt atgttggtta acaaatatga gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtg tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgt	360
ctttcagggt taacaaaaga caatgggttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttg ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactgggtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840

eol-f-seq1.txt

ttccgtcttg ccttgaatgc aacaggtcct	gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct	acgggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat	ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt	aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattgt tgcagttaaa	gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac	gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact	taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggt	gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa	ccaaaagtgg tgacttatgg acgtaaattt	1380
gtgaaaacaa atcaagctaa cactgaacgc	ttggcaggag ctaccttcct cgtaaagaaa	1440
gaaggcaaat acttggcacg taaagcaggt	gcagcaactg ctgaagcaaa ggcagctgta	1500
aaaactgcta aactagcatt ggatgaagct	gttaaagctt ataacgactt gactaaagaa	1560
aaacaagaag gccagaagg taaaacagca	ttggctactg ttgatcaaaa acaaaaagct	1620
tacaatgacg cttttgttaa agctaactac	tcatatgaat gggttgcaga taaaaaggct	1680
gataatgttg ttaaattgat ctctaacgcc	gggtgtcaat ttgaaattac tggtttggat	1740
aaaggcactt atggcttggg agaaactcaa	gcaccagcag gttatgcgac attgtcaggt	1800
gatgtaaact ttgaagtaac tgccacatca	tatagcaaag gggctacaac tgacatcgca	1860
tatgataaag gctctgtaaa aaaagatgcc	caacaagttc aaaacaaaaa agtaaccatc	1920
ccacaaacag gtggtatttg tacaattcct	ttcacaaatta ttggtttaag cattatgctt	1980
ggagcagtag ttatcatgaa aaaacgtcaa	tcagaggaag cttaa	2025

<210> 169
 <211> 2115
 <212> DNA
 <213> Streptococcus agalactiae

<400> 169		
atgaaaaaaaa tcaacaaata ttttgcagtc	ttctcggcct tgctactgac cgtaacatca	60
ttgctctcag ttgcaccagc gtttgcggac	gaagcaacaa ctaatacagt gactttgcac	120
aagatcttgc aaactgaatc aaatcttaat	aaaagtaact tcccaggaac tacaggcctt	180
aacggagatg actataaagg tgaatctatt	tctgaccttg ctgaataactt tggatcaggt	240
tctaaagaaa ttgacggtgc tttctttgct	ttggcttttag aagaggaaaa agatggtgtc	300
gtacaatatg ttaaggcaaa agcaaatgac	aaattaacac cagacttaat tactaaaggt	360
acacctgcaa caacaacaaa agttgaagaa	gctgtaggty gtttgacaac tggtaggggt	420
attgttttca atacagctgg tttgaaaggt	aatttcaaaa ttattgaatt gaaagacaaa	480
tcaacttaca acaataatgg ttccctctta	gcagcttcaa aagcagttcc ggtgaaaatc	540
actcttccat tggtaagcaa agatgggtgtt	gttaaagatg cacacgttta tccaaagaac	600
actgaaacaa aaccagaagt agacaagaac	ttcgctaaaa caaacgattt gacagctctc	660

eolf-seq1.txt

aaagacgcta	ctcttcttaa	ggctggtgca	gactacaaaa	actattcagc	gactaaagct	720
actgtaacag	ctgaaatcgg	taaagttatc	ccttacgaag	ttaaaacaaa	agttcttaaa	780
ggttctaaat	acgaaaaact	ggtttggacc	gataccatgt	caaatggttt	gacaatgggt	840
gatgatgtta	accttgcagt	ttcaggggact	acaacaactt	tcattaaaga	tatagattac	900
actccttagca	ttgatgaccg	tggtttcaca	ttgaaattca	aagctactgg	attggacaaa	960
ttggaagaag	cagctaaagc	atctgatgtt	gaatttacat	tgacttataa	agctactgtt	1020
aatggccaag	caattattga	caaccagaa	gtcaatgaca	tcaaattgga	ctatggtaat	1080
aaacctggta	cagatttatc	agaacaacct	gtgacacctg	aagatgggtga	agttaaagtc	1140
actaaaacat	gggcagcagg	tgctaataaa	gcagacgcta	aagttgtcta	cacacttaaa	1200
aatgctacta	aacaagtcgt	agcttctgtc	gcattgaccg	cagctgatac	aaaaggtagc	1260
attaatcttg	gtaaaggcat	gacctttgaa	atcacaggag	ctttctcagg	tacattcaaa	1320
ggccttcaaa	ataaagctta	cactgtttct	gaacgtgttg	cagggtatac	taatgtctatt	1380
aatgttactg	gtaatgctgt	tgctatcacc	aatacaccag	acagtgacaa	tccaacgcca	1440
cttaacccaa	ctcaacccaa	agttgaaaca	catggtaaga	aatttgtcaa	agttggcgat	1500
gcagatgccc	gcttagctgg	tgcaacaattc	gttgtgaaaa	attcagctgg	taaattcctt	1560
gctcttaaag	aagatgcagc	tgtatcagga	gctcaaactg	aattggcaac	tgctaaaaca	1620
gacttgata	atgccatcaa	agcttacaac	ggtttgacaa	aagcgcagca	agaaggtagc	1680
gatggtacat	cagcaaaaga	acttatcaac	actaaacagt	cagcttacga	cgcagccttc	1740
atcaaagcac	gtacagctta	tacatgggta	gatgaaaaaa	ctaaagctat	taccttcaact	1800
tcaataatc	aagggtcaatt	tgaagttact	ggtcttgaag	taggttctta	caaacttgaa	1860
gaaactcttg	caccagcagg	ttatgctaaa	ttgtcaggcg	acattgagtt	tacagttgga	1920
cacgattctt	acacaagtgg	tgacatcaag	tacaagacag	atgatgctag	caacaatgca	1980
caaaaagttt	tcaataaaaa	agtaaccatc	ccacaaacag	gtggatttgg	tacaattctt	2040
ttcacaatta	ttggtttaag	cattatgctt	ggagcggtag	ttatcatgaa	aagacgtcaa	2100
tcagaggaag	cttaa					2115

<210> 170
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 170	
atgaaaaaaa	tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca 60
ctattctcag	ttgcaccagc gtttgcgac gacgcaacaa ctgatactgt gaccttgac 120
aagattgtca	tgccacaagc tgcatthgat aactttactg aaggtaacaa aggtaagaat 180
gatagcgatt	atgttggtaa acaaattaat gaccttaaat cttattttgg ctcaaccgat 240
gctaaagaaa	tcaaggggtgc tttctttgtt ttcaaaaatg aaactgggtac aaaattcatt 300
actgaaaaatg	gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt 360

eolf-seq1.txt

ctttcagggg	taacaaaaga	caatgggtttt	gtttttaaca	ctgctaagtt	aaaaggaatt	420
taccaaactg	ttgaattgaa	agaaaaatca	aactacgata	acaacgggtc	tatcttggct	480
gattcaaaag	cagttccagt	taaaatcact	ctgccattgg	taaacaacca	aggtgttggt	540
aaagatgctc	acatttatcc	aaagaatact	gaaacaaaac	cacaagtaga	taagaacttt	600
gcagataaag	atcttgatta	tactgacaac	cgaaaagaca	aaggtgttgt	ctcagcgaca	660
gttggtgaca	aaaaagaata	catagttgga	acaaaaattc	ttaaaggctc	agactataag	720
aaactgggtt	ggactgatag	catgactaaa	ggtttgacgt	tcaacaacaa	cgttaaagta	780
acattggatg	gtgaagattt	tcctgtttta	aactacaaac	tcgtaacaga	tgaccaaggt	840
ttccgtcttg	ccttgaatgc	aacaggtcct	gcagcagtag	cagcagctgc	aaaagacaaa	900
gatgttgaaa	tcaagatcac	ttactcagct	acgggtgaacg	gctccactac	tgttgaaatt	960
ccagaaacca	atgatgttaa	attggactat	ggtaataacc	caacggaaga	aagtgaacca	1020
caagaaggta	ctccagctaa	ccaagaaatt	aaagtcatta	aagactgggc	agtagatggg	1080
acaattactg	atgctaattg	tgagttaaa	gctatcttta	ccttgcaaga	aaaacaaacg	1140
gatggtacat	gggtgaacgt	tgcttcacac	gaagcaacaa	aaccatcacg	ctttgaacat	1200
actttcacag	gtttggataa	tgctaaaact	taccgcgttg	tcgaacgtgt	tagcggctac	1260
actccagaat	acgtatcatt	taaaaatggg	gttgtgacta	tcaagaacaa	caaaaactca	1320
aatgatccaa	ctccaatcaa	cccacagaa	ccaaaagtgg	tgacttatgg	acgtaaattt	1380
gtgaaaacaa	atcaagctaa	cactgaacgc	ttggcaggag	ctaccttcct	cgttaagaaa	1440
gaaggcaaat	acttggcacg	taaagcaggt	gcagcaactg	ctgaagcaaa	ggcagctgta	1500
aaaactgcta	aactagcatt	ggatgaagct	gttaaagctt	ataacgactt	gactaaagaa	1560
aaacaagaag	gccagaagg	taaaacagca	ttggctactg	ttgatcaaaa	acaaaaagct	1620
tacaatgacg	cttttgttaa	agctaactac	tcatatgaat	gggttgacga	taaaaaggct	1680
gataatgttg	ttaaattgat	ctctaacgcc	ggtggtcaat	ttgaaattac	tggtttggat	1740
aaaggcactt	atggcttgga	agaaactcaa	gcaccagcag	gttatgacgac	attgtcaggt	1800
gatgtaaact	ttgaagtaac	tgccacatca	tatagcaaag	gggctacaac	tgacatcgca	1860
tatgataaag	gctctgtaaa	aaaagatgcc	caacaagttc	aaaacaaaaa	agtaaccatc	1920
ccacaaacag	gtggtattgg	tacaattcct	ttcacaatta	ttggtttaag	cattatgctt	1980
ggagcagtag	ttatcatgaa	aaaacgtcaa	tcagaggaag	cttaa		2025

<210> 171
 <211> 2118
 <212> DNA
 <213> Streptococcus agalactiae

<400> 171						
atgaaaagaa	tcaacaaata	ttttgcaatg	ttctcggcat	tgttactgac	tttaacgtca	60
ttgctctcag	ttgcaccagc	gtttgcggat	gaagcaacaa	ctaatacagt	gactttgcac	120
aagatthttgc	aaaccgaatc	aatcttaac	aaaagtaact	tcccaggaac	tacaggtcct	180

eolf-seq1.txt

aacggaaaag	actacaaagg	tgagctatt	tctgaccttg	ctggttactt	tggcgaggga	240
tctaaagaaa	tcgaagggtgc	gttctttgct	ttagctttga	aagaagataa	aagtggtaaa	300
gtgcaatatg	ttaaggcaaa	agaaggtaac	aaattaacac	cagccttaat	taataaagat	360
ggtactcctg	aaataacagt	aaatatgtat	gaggccgtgt	ctggattgac	accagaggga	420
gatactggac	ttgttttcaa	caccaaagga	ttgaaaggcg	agtttaaaat	tggtgaagtt	480
aaatcaaaat	ctacttacia	caataatggt	tccctcctgg	ctgcttcaaa	agcggttcca	540
gttaacatca	ctcttccatt	ggtaaatgaa	gatgggtgtg	ttgctgatgc	ccatgtttat	600
ccaaagaaca	ctgaagaaaa	accagaaatt	gataaaaact	ttgctaaaac	aaacgatttg	660
acagcattga	cagatgttaa	tagacttttg	acagctggcg	caaattatgg	taattatgca	720
cgtgacaaaag	caactgctac	tgctgaaatc	ggtaaagttg	ttccttatga	agttaaaaca	780
aaaattcaca	aagggttctaa	atacgaaaac	ttggtttgga	cagatataat	gtcaaatggt	840
ttgacaatgg	gttcaactgt	tagccttaaa	gcttcaggaa	ctacagaaac	tttgctaaag	900
gatacagact	atgaacttag	cattgatgcc	cgtggtttca	cattaaaatt	cacagctgat	960
ggattgggca	aattggaaaa	agcagctaaa	acagctgata	ttgaatttac	attgacttat	1020
agtgtactg	ttaatgggtca	agcaattatt	gataatccag	aatccaatga	tatcaaattg	1080
tcgtatggta	acaaccagg	taaagacttg	actgaacttc	ctgttacacc	ttcaaagggt	1140
gaagtaacag	ttgctaaaac	ttggtctgac	ggaattgcac	ctgatgggtg	aaacgttggt	1200
tacacattga	aagataaaga	taaaactggt	gcttcagtat	cattgacaaa	aacatctaaa	1260
ggtacaatcg	accttggaag	tggtatcaaa	tttgaagtat	ctggtaactt	ctcgggtaaa	1320
ttcactgggtc	tagaaaacaa	atcatacatg	atctcagaac	gtgtttctgg	ttacggaagt	1380
gcaataaatc	tagaaaatgg	taaagtaacc	attaccaata	ccaaagattc	tgataaccca	1440
acaccattga	acccaactga	accaaaggtt	gaaactcatg	gtaagaaatt	tgtcaaaact	1500
aatgaacaag	gtgaccgttt	ggctggtgca	caattcgttg	tgaaaaactc	agcaggtaaa	1560
taccttgctc	ttaaagcaga	tcaatcagaa	ggtaaaaaaa	ctttagctgc	taagaaaata	1620
gcttttagatg	aagctatcgc	tgcttataac	aagttgtctg	caacagacca	aaaagggtgaa	1680
aaaggaatta	ctgcaaaaag	acttatcaaa	actaaacaag	cagattacga	tgagccttc	1740
attgaggctc	gtacagctta	tgagtggata	acagataagg	ctagagccat	tacctacact	1800
tcaaacgatc	aagggtcaatt	tgaagttaca	ggctctgcag	acgggtactta	caaccttgaa	1860
gaaacacttg	ctccagcagg	atttgctaag	ttggcaggta	atattaagtt	tgtagttaat	1920
caagggtcat	acataacagg	tggtaacatt	gactacgttg	ctaacagcaa	ccaaaaagat	1980
gcgacacgtg	tagaaaataa	aaaggtaaca	atcccacaaa	cagggtggat	tggtacaatt	2040
cttttcacaa	ttattgggtt	aagcattatg	cttgagcag	tagttatcat	gaaaagacgc	2100
caatcaaagg	aagcttaa					2118

<210> 172
<211> 2025

eof-seq1.txt

<212> DNA

<213> Streptococcus agalactiae

<400> 172

```

atgaaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca      60
ctattctcag ttgaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgcac      120
aagattgtca tgccacaagc tgcatttgat aactttactg aaggtaacaa aggtaagaat      180
gatagcgatt atgttggtta acaaattaat gaccttaaat cttattttgg ctcaaccgat      240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt      300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt      360
ctttcagggg taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt      420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtt tatcttggct      480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttggt      540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt      600
gcagataaa atcttgatta tactgacaac cgaaaagaca aagggtgttg ctcagcgaca      660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag      720
aaactggttt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta      780
acattggatg gtgaagattt tctgttttta aactacaaac tcgtaacaga tgaccaaggt      840
ttccgtcttg ctttgaatgc aacagggtct gcagcagtag cagcagctgc aaaagacaaa      900
gatgttgaaa tcaagatcac ttactcagct acgggtgaac gctccactac tgttgaaatt      960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca     1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggg     1080
acaattactg atgctaattg tgcagttaaa gctatcttta ccttgcaaga aaaacaaacg     1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat     1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac     1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca     1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaattt     1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgttaagaaa     1440
gaaggcaaat acttggcacg taaagcaggg gcagcaactg ctgaagcaaa ggcagctgta     1500
aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa     1560
aaacaagaag gccagaagg taaaacagca ttggctactg ttgatcaaaa acaaaaagct     1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct     1680
gataatgttg ttaaattgat ctctaacgcc ggtgggtcaat ttgaaattac tggtttggat     1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgcgac attgtcaggt     1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca     1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc     1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt     1980

```

eof-seq1.txt

ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa 2025

<210> 173
<211> 2118
<212> DNA
<213> Streptococcus agalactiae

<400> 173
atgaaaagaa tcaacaaata ttttgcaatg ttctcggcat tgttactgac tttaacgtca 60
ttgctctcag ttgcaccagc gtttgcggat gaagcaacaa ctaatacagt gactttgcac 120
aagatthttgc aaaccgaatc aaatcttaac aaaagtaact tcccaggaac tacaggctctt 180
aacggaaaag actacaaagg tggagctatt tctgaccttg ctggttactt tggcgaggga 240
tctaaagaaa tcgaagggtgc gttctttgct ttagctttga aagaagataa aagtggtaaa 300
gtgcaatatg ttaaggcaaa agaaggtaac aaattaacac cagccttaat taataaagat 360
ggtactcctg aaataacagt aaatattgat gaggccgtgt ctggattgac accagaggga 420
gatactggac ttgttttcaa caccaaagga ttgaaaggcg agtttaaaat tgttgaagtt 480
aaatcaaaat ctacttacia caataatggt tccctcctgg ctgcttcaaa agcggttcca 540
gttaacatca ctcttccatt ggtaaatgaa gatggtggtt ttgctgatgc ccatgtttat 600
ccaaagaaca ctgaagaaaa accagaaatt gataaaaact ttgctaaaac aaacgatttg 660
acagcattga cagatgttaa tagacttttg acagctggcg caaattatgg taattatgca 720
cgtgacaaag caactgctac tgctgaaatc ggtaaagttg ttccttatga agttaaaaca 780
aaaattcaca aaggttctaa atacgaaaac ttggtttgga cagatataat gtcaaatggt 840
ttgacaatgg gttcaactgt tagccttaaa gcttcaggaa ctacagaaac ttttgctaag 900
gatacagact atgaacttag cattgatgcc cgtggtttca cattaaaatt cacagctgat 960
ggattgggca aattggaaaa agcagctaaa acagctgata ttgaatttac attgacttat 1020
agtgtactg ttaatggtca agcaattatt gataatccag aatccaatga tatcaaattg 1080
tcgtatggta acaaacagg taaagacttg actgaacttc ctgttacacc ttcaaagggt 1140
gaagtaacag ttgctaaaac ttggtctgac ggaattgcac ctgatggtgt aaacgttggt 1200
tacacattga aagataaaga taaaactggt gcttcagtat cattgacaaa aacatctaaa 1260
ggtacaatcg accttggaat tggtatcaaa tttgaagtat ctggtaactt ctcgggtaaa 1320
ttcactggtc tagaaaacaa atcatacatg atctcagaac gtgtttctgg ttacggaagt 1380
gcaataaatc tagaaaatgg taaagtaacc attaccaata ccaaagattc tgataacca 1440
acaccattga acccaactga accaaaagtt gaaactcatg gtaagaaatt tgtcaaaact 1500
aatgaacaag gtgaccgttt ggctgggtgca caattcgttg tgaaaaactc agcaggtaaa 1560
taccttgctc ttaaagcaga tcaatcagaa ggtcaaaaaa cttagctgc taagaaaata 1620
gcttagatg aagctatcgc tgcttataac aagttgtctg caacagacca aaaagggtgaa 1680
aaaggaatta ctgcaaaaga acttatcaaa actaaacaag cagattacga tgcagccttc 1740
attgaggctc gtacagctta tgagtggata acagataagg ctagagccat tacctacact 1800

eo1f-seq1.txt

tcaaacgatc aaggtcaatt tgaagttaca ggtcttgacg acggtactta caaccttgaa	1860
gaaacacttg ctccagcagg atttgctaag ttggcaggta atattaagtt tgtagttaat	1920
caagggtcat acataacagg tggtaacatt gactacgttg ctaacagcaa ccaaaaagat	1980
gcgacacgtg tagaaaataa aaaggtaaca atcccacaaa cagggtggtat tgggtacaatt	2040
cttttcacaa ttattggttt aagcattatg cttggagcag tagttatcat gaaaagacgc	2100
caatcaaagg aagcttaa	2118

<210> 174
 <211> 2025
 <212> DNA
 <213> Streptococcus agalactiae

<400> 174	
atgaaaaaaa tcaacaaatg tcttacaatg ttctcgacac tgctattgat cttaacgtca	60
ctattctcag ttgcaccagc gtttgcggac gacgcaacaa ctgatactgt gaccttgac	120
aagattgtca tgccacaagc tgcatttgat aactttactg aaggtaacaaa aggtagaat	180
gatagcgatt atgttggttaa acaaatatg gaccttaaat cttatttttg ctcaaccgat	240
gctaaagaaa tcaaggggtgc tttctttggt ttcaaaaatg aaactgggtac aaaattcatt	300
actgaaaatg gtaaggaagt cgatactttg gaagctaaag atgctgaagg tgggtgctgtt	360
ctttcagggg taacaaaaga caatgggtttt gtttttaaca ctgctaagtt aaaaggaatt	420
taccaaactg ttgaattgaa agaaaaatca aactacgata acaacgggtc tatcttggct	480
gattcaaaag cagttccagt taaaatcact ctgccattgg taaacaacca aggtgttgtt	540
aaagatgctc acatttatcc aaagaatact gaaacaaaac cacaagtaga taagaacttt	600
gcagataaag atcttgatta tactgacaac cgaaaagaca aagggtgttgt ctcagcgaca	660
gttggtgaca aaaaagaata catagttgga acaaaaattc ttaaaggctc agactataag	720
aaactgggtt ggactgatag catgactaaa ggtttgacgt tcaacaacaa cgttaaagta	780
acattggatg gtgaagattt tcctgtttta aactacaaac tcgtaacaga tgaccaaggt	840
ttccgtcttg ccttgaatgc aacaggtctt gcagcagtag cagcagctgc aaaagacaaa	900
gatgttgaaa tcaagatcac ttactcagct acggtgaacg gctccactac tgttgaaatt	960
ccagaaacca atgatgttaa attggactat ggtaataacc caacggaaga aagtgaacca	1020
caagaaggta ctccagctaa ccaagaaatt aaagtcatta aagactgggc agtagatggt	1080
acaattactg atgctaattg tgcaagttta gctatcttta ccttgcaaga aaaacaaacg	1140
gatggtacat ggggtgaacgt tgcttcacac gaagcaacaa aaccatcacg ctttgaacat	1200
actttcacag gtttgataa tgctaaaact taccgcgttg tcgaacgtgt tagcggctac	1260
actccagaat acgtatcatt taaaaatggg gttgtgacta tcaagaacaa caaaaactca	1320
aatgatccaa ctccaatcaa cccatcagaa ccaaaagtgg tgacttatgg acgtaaat	1380
gtgaaaacaa atcaagctaa cactgaacgc ttggcaggag ctaccttcct cgtaagaaa	1440
gaaggcaaat acttggcacg taaagcaggt gcagcaactg ctgaagcaaa ggcagctgta	1500

eof-seq1.txt

```

aaaactgcta aactagcatt ggatgaagct gttaaagctt ataacgactt gactaaagaa 1560
aaacaagaag gccaagaagg taaaacagca ttggctactg ttgatcaaaa aaaaaaagct 1620
tacaatgacg cttttgttaa agctaactac tcatatgaat gggttgcaga taaaaaggct 1680
gataatgttg ttaaattgat ctctaacgcc ggtggtcaat ttgaaattac tggtttggat 1740
aaaggcactt atggcttgga agaaactcaa gcaccagcag gttatgcgac attgtcaggt 1800
gatgtaaact ttgaagtaac tgccacatca tatagcaaag gggctacaac tgacatcgca 1860
tatgataaag gctctgtaaa aaaagatgcc caacaagttc aaaacaaaaa agtaaccatc 1920
ccacaaacag gtggtattgg tacaattctt ttcacaatta ttggtttaag cattatgctt 1980
ggagcagtag ttatcatgaa aaaacgtcaa tcagaggaag cttaa 2025

```

```

<210> 175
<211> 816
<212> PRT
<213> Streptococcus agalactiae

```

<400> 175

```

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

```

```

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
      20     25     30

```

```

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
      35     40     45

```

```

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
      50     55     60

```

```

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

```

```

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

```

```

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
      100    105    110

```

```

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

```

```

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
      130    135    140

```

```

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145      150    155    160

```

```

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
      165    170    175

```

eo1f-seq1.txt

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445

eo1f-seq1.txt

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460
 Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575
 Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
 580 585 590
 Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
 595 600 605
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
 610 615 620
 Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
 625 630 635 640
 Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
 645 650 655
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
 660 665 670
 Val Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
 675 680 685
 Val Lys Pro Glu Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu
 690 695 700
 Ala Arg Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
 705 710 715 720

eo1f-seq1.txt

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
725 730 735

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
740 745 750

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
755 760 765

Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 176

<211> 800

<212> PRT

<213> Streptococcus agalactiae

<400> 176

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

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

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

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

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

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

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

eo1f-seq1.txt

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 165 170 175
 Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Gly Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430

eo1f-seq1.txt

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

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

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
610 615 620

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
625 630 635 640

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Asp
645 650 655

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
660 665 670

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
690 695 700

eo1f-seq1.txt

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
705 710 715 720

Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
725 730 735

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
740 745 750

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
755 760 765

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
770 775 780

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
785 790 795 800

<210> 177

<211> 772

<212> PRT

<213> Streptococcus agalactiae

<400> 177

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

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

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

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

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

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

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

eo1f-seq1.txt

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 165 170 175
 Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430

eo1f-seq1.txt

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

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

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Phe Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Ile Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Gly Lys Pro Glu
595 600 605

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
625 630 635 640

Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu
645 650 655

Val Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
660 665 670

Ala Arg Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
675 680 685

Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
690 695 700

eo1f-seq1.txt

Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser
705 710 715 720

Gly Asn Leu Ala Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys
725 730 735

Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val
740 745 750

Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys
755 760 765

His Lys Lys Asn
770

<210> 178
<211> 820
<212> PRT
<213> Streptococcus agalactiae
<400> 178

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

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

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

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

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

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

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

eo1f-seq1.txt

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Gly Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445

eo1f-seq1.txt

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460
 Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575
 Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
 580 585 590
 Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
 595 600 605
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
 610 615 620
 Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
 625 630 635 640
 Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
 645 650 655
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
 660 665 670
 Val Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
 675 680 685
 Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu
 690 695 700
 Val Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
 705 710 715 720

eo1f-seq1.txt

Ala Arg Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
725 730 735

Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
740 745 750

Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser
755 760 765

Gly Asn Leu Ala Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys
770 775 780

Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val
785 790 795 800

Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys
805 810 815

His Lys Lys Asn
820

<210> 179
<211> 643
<212> PRT
<213> Streptococcus agalactiae
<400> 179

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

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

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

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

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

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

eo1f-seq1.txt

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Tyr Ile Ser Ser
 145 150 155 160
 Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
 165 170 175
 Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
 180 185 190
 Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
 195 200 205
 Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Asp Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285
 Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400
 Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
 405 410 415

eo1f-seq1.txt

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
515 520 525

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
545 550 555 560

Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu Ala
565 570 575

Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly
580 585 590

Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys
595 600 605

Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser
610 615 620

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
625 630 635 640

Lys Lys Asn

<210> 180
<211> 2451
<212> DNA
<213> Streptococcus agalactiae

<400> 180
atgaataata acgaaaaaaa agtaaaatac tttttaagaa aaacagctta tggtttggcc

eol-f-seq1.txt						
tcaatgtcag	cagcgtttgc	tgtatgtagt	ggattgtgtac	acgcggatac	tagttcagga	120
atatcggatt	caattcctca	taagaaacaa	gttaatttag	gggcggttac	tctgaagaat	180
ttgatttcta	aatatcgtgg	taatgacaaa	gctattgcta	tacttctaag	tagagtagat	240
gattttaata	gagcatcaca	ggatacactt	ccacaattaa	ttaatagtac	tgaagcagaa	300
attaacaata	ctttacctca	gggacgaatt	attaacaga	gtataccagt	cgtaagatta	360
aaagttgaga	gattgggaag	tggtgcaatt	aaggctgagt	cgattaataa	tattaaagct	420
gaatcaatta	ataaaattca	gggtaaatca	actaatacaa	ttaaggctga	gtccattaat	480
aaaattaaag	tagagtctat	taatacaatc	aaagccgaat	caattaataa	aattcaagct	540
aagccaatta	acacaatcaa	agccgagtct	attaatacaa	ttaaggctga	atcaattcat	600
aaaattaaac	ctcaatcaat	aaaaagtact	agtgctacac	atgttaaagt	tagtgatcaa	660
gaactagcta	agcagtcaag	acgttctcaa	gatatcatta	aatcattagg	tttcctttca	720
tcagacccaaa	aagatatttt	agttaaatct	attagctctt	caaaagattc	gcaacttatt	780
cttaaatttg	taacacaagc	cacgcaactg	aataatgctg	aatcaacaaa	agctaagcac	840
atggctcaaa	atgacgtggc	ttcaataaaa	aatataagcc	tcgaagtctt	agaagaatat	900
aaagaaaaaa	ttcaaagagc	tagcactaag	agtcaagttg	atgagcttgt	agcagaagct	960
aaaaaagttg	ttaattccaa	taaagaaaca	ttggtaaadc	aggccaatgg	taaaaagcaa	1020
gaaattgcta	agttagaaaa	tttatctaac	gatgaaatgt	tgagatataa	tactgcaatt	1080
gataatgtag	tgaaacagta	taatgaaggc	aagctcaata	ttactgatgc	aatgaatgct	1140
ttaaatagta	ttaagcaagc	agcacaggaa	gttgcccaga	aaaacttaca	aaagcagtat	1200
gctaaaaaaa	ttgaaagaat	aagtttaaaa	ggattagcgt	tatccaaaaa	ggctaaagaa	1260
atztatgaaa	agcataaaag	tattttgcct	acacctggat	attatgcaga	ctctgtggga	1320
acttatattga	ataggttttag	agataaacga	actttcggaa	atagaagtgt	ttggactggc	1380
caaagtggac	ttgatgaagc	aaaaaaaatg	cttgatgaag	tcaaaaagct	tttaaaagaa	1440
cttcaagacc	ttaccagagg	tactaaagaa	gataaaaaac	cagacgttaa	gccagaagcc	1500
aaaccagagg	ccaaacccaa	tattcaagta	cctaaacaag	cacctacaga	agctgcaaaa	1560
ccagctttgt	caccagaagc	cttgacaaga	ttgactacat	ggtataatca	agctaaagat	1620
ctgcttaaaag	atgatcaagt	aaaggacaaa	tatgtagata	tacttgacgt	tcaaaaagct	1680
gttgaccaag	cttatgatca	tgtggaagag	ggaaaattta	ttaccactga	tcaagcaaat	1740
caattagcta	acaagctacg	tgatgcttta	caaagtttag	aattaaaaga	taaaaaagta	1800
gccaaaccag	aagctaagcc	agaagttaaa	ccagaagcca	aaccagatgt	taagccagac	1860
gttaagccag	aagctaagcc	agaagccaaa	ccagaggcca	aaccagaagc	caaaccagag	1920
gccaaaccag	aagccaaacc	agaggctaag	ccagaagtta	aaccagacgt	taagccagag	1980
gccaaaccag	acgttaagcc	agaagccaaa	ccagacgtta	agccagaggc	taagccagaa	2040
gttaaaccag	acgttaagcc	agaagttaaa	ccagaggcta	aaccagaaat	taaaccagac	2100
gttaagccag	aggccagacc	agaggctaag	ccagaagtta	aaccagacgt	taagccagag	2160

eof-seq1.txt

gccaaaccag aagttaaacc agacgttaag ccagaggcca aaccagaggc taagccagaa	2220
gttaaaccag acgttaagcc agaggctaaa ccagaagcca aaccagcaac caaaaaatcg	2280
gttaatacta gcggaaactt ggcggtctaaa aaagctattg aaaacaaaaa gtatagtaaa	2340
aaattaccat caacgggtga agccgcaagt ccactcttag caattgtatc actaattggt	2400
atgttaagtg caggtcttat tacgatagtt ttaaagcata aaaaaaatta a	2451

<210> 181
 <211> 2403
 <212> DNA
 <213> Streptococcus agalactiae

<400> 181	
atgaataata acgaaaaaaaa agtaaaatac tttttaagaa aaacagctta tggtttggcc	60
tcaatgtcag cagcgtttgc tgtatgtagt ggtattgtac acgcggatac tagttcagga	120
atatcggatt caattcctca taagaaacaa gttaatttag gggcggttac tctgaagaat	180
ttgatttcta aatatcgtgg taatgacaaa gctattgcta tacttttaag tagagtaaat	240
gattttaata gagcatcaca ggatacactt ccacaattaa ttaatagtac tgaagcagaa	300
attaacaata ctttacctca gggacgaatt attaaacaga gtataccagt cgtaagatta	360
aaagttgaga gattgggaag tggtgcaatt aaggctgagt cgattaataa tattaaagct	420
gaatcaatta ataaaattca gggtaaatca actaatataa ttaaggctga gtccattaat	480
aaaattaaag tagagtctat taatacaatc aaagccgaat caattaataa aattcaagct	540
aagccaatta acacaatcaa agccgagtct attaatataa ttaaggctga atcaattcat	600
aaaattaaac ctcaatcaat aaaaagtact agtgctacac atgttaaagt tagtgatcaa	660
gaactaggtg agcagtcaag acgttctcaa gatatcatta aatcattagg tttcctttca	720
tcagaccaa aagatatttt agttaaatct attagctctt caaaagattc gcaacttatt	780
cttaaatttg taacacaagc cacgcaactg aataatgctg aatcaacaaa agctaagcac	840
atggctcaaa atgacgtggc ttcaataaaa aatataagcc tcgaagtctt agaagaatat	900
aaagaaaaaa ttcaaagagc tagcactaag agtcaagttg atgagcttgt agcagaagct	960
aaaaaagttg ttaattccaa taaagaaaca ttggtaaadc aggccaatgg taaaaagcaa	1020
gaaattgcta agttagaaaa tttatctaac gatgaaatgt tgagatataa tactgcaatt	1080
gataatgtag tgaacagta taatgaaggc aagctcaata ttactgatgc aatgaatgct	1140
ttaaataagta ttaagcaagc agcacaggaa gttgccaga aaaacttaca aaagcagtat	1200
gctaaaaaaaa ttgaaagaat aagtttaaaa ggattagcgt tatccaaaaa ggctaaagaa	1260
atttatgaaa agcataaaag tattttgctt acacctggat attatgcaga ctctgtggga	1320
acttatttga ataggttttag agataaacga actttcggaa atagaagtgt ttggactggc	1380
caaagtggac ttgatgaagc aaaaaaatg cttgatgaag tcaaaaagct tttaaaagaa	1440
cttcaagacc ttaccagagg tactaaagaa gataaaaaac cagacgttaa gccagaagcc	1500
aaaccagagg ccaaaccaaa tattcaagta cctaaacaag cacctacaga agctgcaaaa	1560

eof-seq1.txt

ccagctttgt caccagaagc cttgacaaga ttgactacat ggtataatca agctaaagat	1620
ctgcttaaaag atgatcaagt aaaggacaaa tatgtagata tacttgacgt tcaaaaagct	1680
gttgaccaag cttatgatca tgtggaagag ggaaaattta ttaccactga tcaagcaaat	1740
caattagcta acaagctacg tgatgcttta caaagtttag aattaaaaga taaaaaagta	1800
gccaaaccag aagctaagcc agaagttaaa ccagaagcca aaccagaggc caaaccagaa	1860
gccaaaccag aggctaagcc agaagttaaa ccagacgtta agccagaggc caaaccagac	1920
gttaagccag aagccaaacc agacgttaag ccagaagtta aaccagacgt taagccagag	1980
gccaaaccag acgttaagcc agaagctaag ccagacgtta agccagaagt taaaccagag	2040
gctaagccag aagccaaacc agaggctaaa ccagaaatta aaccagacgt taagccagag	2100
gccagaccag aggctaagcc agaagttaaa ccagacgtta agccagaggc caaaccagag	2160
gttaagccag aagttaaaacc agacgttaag ccagaggcta aaccagaagc caaaccagca	2220
acaaaaaat cggttaatac tagcggaaac ttggcggtta aaaaagctat tgaaaacaaa	2280
aagtatagta aaaaattacc atcaacgggt gaagccgcaa gtccactctt agcaattgta	2340
tcactaattg ttatgttaag tgcaggctctt attacgatag ttttaaagca taaaaaaat	2400
taa	2403

<210> 182
 <211> 2319
 <212> DNA
 <213> Streptococcus agalactiae

<400> 182	
atgaataata acgaaaaaaa agtaaaatac tttttaagaa aaacagctta tggtttggcc	60
tcaatgtcag cagcgtttgc tgtatgtagt ggtattgtac acgcggatac tagttcagga	120
atatcggatt caattcctca taagaaacaa gttaatttag gggcggttac tctgaagaat	180
ttgatttcta aatatcgtgg taatgacaaa gctattgcta tacttctaag tagagtagat	240
gattttaata gagcatcaca ggatacactt ccacaattaa ttaatagtac tgaagcagaa	300
attaacaata ctttacctca gggacgaatt attaaacaga gtataccagt cgtaagatta	360
aaagttgaga gattgggaag tgggtcaatt aaggctgagt cgattaataa tattaagct	420
gaatcaatta ataaaattca gggtaaatca actaatacaa ttaaggctga gtccattaat	480
aaaattaaag tagagtctat taatacaatc aaagccgaat caattaataa aattcaagct	540
aagccaatta acacaatcaa agccgagtct attaatacaa ttaaggctga atcaattcat	600
aaaattaaac ctcaatcaat aaaaagtact agtgctacac atgttaaagt tagtgatcaa	660
gaactagcta agcagtcaag acgttctcaa gatatcatta aatcattagg tttcctttca	720
tcagacaaaa aagatatttt agttaaatct attagctctt caaaagattc gcaacttatt	780
cttaaatttg taacacaagc cacgcaactg aataatgctg aatcaacaaa agctaagcac	840
atggctcaaa atgacgtggc ttcaataaaa aatataagcc tcgaagtctt agaagaatat	900
aaagaaaaaa ttcaaagagc tagcactaag agtcaagttg atgagcttgt agcagaagct	960

eof-seq1.txt

aaaaaagttg ttaattccaa taaagaaaca ttggtaaatc aggccaatgg taaaaagcaa	1020
gaaattgcta agttagaaaa tttatctaac gatgaaatgt tgagatataa tactgcaatt	1080
gataatgtag tgaaacagta taatgaaggt aagctcaata ttactgatgc aatgaatgct	1140
ttaaatagta ttaagcaagc agcacaggaa gttgcccaga aaaacttaca aaagcagtat	1200
gctaaaaaaaa ttgaaagaat aagtttaaaa ggattagcgt tatccaaaaa ggctaaagaa	1260
atztatgaaa agcataaaag tattttgctt acacctggat attatgcaga ctctgtggga	1320
acttatttga ataggttttag agataaacga actttcggaa atagaagtgt ttggactggt	1380
caaagtggac ttgatgaagc aaaaaaatg cttgatgaag tcaaaaagct tttaaaagaa	1440
cttcaagacc ttaccagagg tactaaagaa gataaaaaac cagacgttaa gccagaagcc	1500
aaaccagagg ccaaaccaaa tattcaagta cctaaacaag cacctacaga agctgcaaaa	1560
ccagctttgt caccagaagc cttgacaaga ttgactacat ggtataatca agctaaagat	1620
ctgcttaaaag atgatcaagt aaaggacaaa tatgtagata tatttgcagt tcaaaaagct	1680
gttgaccaag cttatgatca tgtggaagag ggaaaattta ttaccactga tcaagcaa	1740
caattagcta acaagatacg tgatgcttta caaagtttag aattaaaaga taaaaagta	1800
gccaaaccag agggtaagcc agaagttaaa ccagacgtta agccagaggc caaaccagac	1860
gttaagccag aagccaaacc agacgttaag ccagaagtta aaccagacgt taagccagag	1920
gccaaaccag acgttaagcc agaagctaag ccagacgtta agccagaagt taaaccagag	1980
gctaagccag aagttaaacc agacgttaag ccagaggcca gaccagaggc taagccagaa	2040
gttaaaccag acgttaagcc agaggccaaa ccagaggcta agccagaagt taaaccagac	2100
gttaagccag aggctaaacc agaagccaaa ccagcaacca aaaaatcggt taatactagc	2160
ggaaacttgg cggttaaaaa agctattgaa aacaaaaagt atagtaaaaa attaccatca	2220
acgggtgaag ccgcaagtcc actcttagca attgtatcac taattgttat gttaagtga	2280
ggtcttatta cgatagtttt aaagcataaa aaaaattaa	2319

<210> 183
 <211> 2463
 <212> DNA
 <213> Streptococcus agalactiae

<400> 183	
atgaataata acgaaaaaaaa agtaaaatac tttttaagaa aaacagctta tggtttgcc	60
tcaatgtcag cagcgtttgc tgtatgtagt ggtattgtac acgcggatac tagttcagga	120
atatcggatt caattcctca taagaaacaa gttaatttag gggcggttac tctgaagaat	180
ttgatttcta aatatcgtgg taatgacaaa gctattgcta tacttctaag tagagtagat	240
gattttaata gagcatcaca ggatacactt ccacaattaa ttaatagtac tgaagcagaa	300
attaacaata ctttacctca gggacgaatt attaaacaga gtataccagt cgtaagatta	360
aaagttgaga gattgggaag tgggtcaatt aaggctgagt cgattaataa tattaaagct	420
gaatcaatta ataaaattca gggtaaatca actaatataa ttaaggctga gtccattaat	480

eo1f-seq1.txt

aaaattaaag tagagtctat taatacaatc aaagccgaat caattaataa aattcaagct	540
aagccaatta acacaatcaa agccgagtcct attaatacaa ttaaggctga atcaattcat	600
aaaattaaac ctcaatcaat aaaaagtact agtgctacac atgttaaagt tagtgatcaa	660
gaactaggtga agcagtcaag acgttctcaa gatatcatta aatcattagg tttcctttca	720
tcagaccaa aagatatttt agttaaatct attagctctt caaaagattc gcaacttatt	780
cttaaatttg taacacaagc cacgcaactg aataatgctg aatcaacaaa agctaagcac	840
atggctcaaa atgacgtggc ttcaataaaa aatataagcc tcgaagtctt agaagaatat	900
aaagaaaaaa ttcaaagagc tagcactaag agtcaagttg atgagcttgt agcagaagct	960
aaaaaagttg ttaattccaa taaagaaaca ttggtaaadc aggccaatgg taaaaagcaa	1020
gaaattgcta agttagaaaa tttatctaac gatgaaatgt tgagatataa tactgcaatt	1080
gataatgtag tgaaacagta taatgaaggt aagctcaata ttactgatgc aatgaatgct	1140
ttaaatagta ttaagcaagc agcacaggaa gttgcccaga aaaacttaca aaagcagtat	1200
gctaaaaaaa ttgaaagaat aagtttaaaa ggattagcgt tatccaaaaa ggctaaagaa	1260
atztatgaaa agcataaaag tattttgctt acacctggat attatgcaga ctctgtggga	1320
acttatttga ataggttttag agataaacga actttcggaa atagaagtgt ttggactggt	1380
caaagtggac ttgatgaagc aaaaaaatg cttgatgaag tcaaaaagct tttaaaagaa	1440
cttcaagacc ttaccagagg tactaaagaa gataaaaaac cagacgttaa gccagaagcc	1500
aaaccagagg ccaaaccaaa tattcaagta cctaaacaag cacctacaga agctgcaaaa	1560
ccagctttgt caccagaagc cttgacaaga ttgactacat ggtataatca agctaaagat	1620
ctgcttaaag atgatcaagt aaaggacaaa tatgtagata tacttgacgt tcaaaaagct	1680
gttgaccaag cttatgatca tgtggaagag ggaaaattta ttaccactga tcaagcaaat	1740
caattagcta acaagctacg tgatgcttta caaagtttag aattaaaaga taaaaaagta	1800
gccaaaccag aagctaagcc agaagttaaa ccagaagcca aaccagatgt taagccagac	1860
gttaagccag aagctaagcc agaagccaaa ccagaggcca aaccagaagc caaaccagag	1920
gccaaaccag aagccaaacc agaggctaag ccagaagtta aaccagacgt taagccagag	1980
gccaaaccag acgttaagcc agaagccaaa ccagacgtta agccagaggc taagccagaa	2040
gttaaaccag acgttaagcc agaggccaaa ccagacgtta agccagaagc taagccagac	2100
gttaagccag aagttaaacc agaggctaag ccagaagtta aaccagacgt taagccagag	2160
gccagaccag aggctaagcc agaagttaaa ccagacgtta agccagaggc caaaccagag	2220
gctaagccag aagttaaacc agacgttaag ccagaggcta aaccagaagc taaaccagca	2280
acaaaaaat cggttaatac tagcggaac ttggcggtta aaaaagctat tgaaaacaaa	2340
aagtatagta aaaaattacc atcaacgggt gaagccgcaa gtccactctt agcaattgta	2400
tcactaattg ttatgttaag tgcaggtctt attacgatag ttttaaagca taaaaaaaat	2460
taa	2463

eo1f-seq1.txt

<210> 184
 <211> 1932
 <212> DNA
 <213> Streptococcus agalactiae

```

<400> 184
atgaataata acgaaaaaaaa agtaaaatac tttttaagaa aaacagctta tggtttggcc      60
tcaatgtcag cagcgtttgc tgtatgtagt ggtattgtac acgcggatac tagttcagga      120
atatcggcctt caattcctca taagaaacaa gttaatttag gggcgggttac tctgaagaat      180
ttgatttcta aatatcgtgg taatgacaaa gctattgcta tacttttaag tagagtaaata      240
gattttaata gagcatcaca ggatacactt ccacaattaa ttaatagtag tgaagcagaa      300
attagaaata ttttatatca aggacaaatt ggtaagcaaa ataaaccaag tgtaactaca      360
catgctaaag ttagtgatca agaactaggt aagcagtcaa gacgttctca agatatcatt      420
aagtcattag gtttcctttc atcagaccaa aaagatattt tagttaaata tattagctct      480
tcaaaagatt cgcaacttat tcttaaatTT gtaactcaag ccacgcaact gaataatgct      540
gaatcaacaa aagctaagca aatggctcaa aatgacgtgg ccttaataaa aaatataagc      600
cccgaagtct tagaagaata taaagaaaaa attcaaagag ctacgactaa gagtcaagtt      660
gatgagtttg tagcagaagc taaaaaagtt gttaattcca ataaagaaac gttggtaaata      720
caggccaatg gtaaaaagca agaaattgat aagttagaaa atttatctaa cgatgaaatg      780
ttgagatata atactgcaat tgataatgta gtgaaacagt ataatgaagg taagctcaat      840
attactgctg caatgaatgc tttaaatagt attaagcaag cagcacagga agttgccag      900
aaaaacttac aaaagcagta tgctaaaaaa attgaaagaa taagttcaaa aggattagcg      960
ttatctaaaa aggctaaaga aatttatgaa aagcataaaa gtattttgcc tacacctgga     1020
tattatgcag actctgtggg aacttatTTg aataggTTta gagataaaca aactttcgga     1080
aataggagtg tttggactgg tcaaagtTga cttgatgaag caaaaaaaat gcttgatgaa     1140
gtcaaaaagc ttttaaaaga acttcaagac cttaccagag gtactaaaga agataaaaaa     1200
ccagacgTta agccagaagc caaaccagag gccaaaccaa atattcaagt acctaaacaa     1260
gcacctacag aagctgcaaa accagctTTg tcaccagaag ccttgacaag attgactaca     1320
tggtataatc aagctaaaga tctgcttaaa gatgatcaag taaaggacaa atacgtagat     1380
atacttgCag ttcaaaaagc tgttgaccaa gcttatgata atgtggaaga gggaaaattt     1440
attaccactg atcaagcaaa tcaattagct aacaagctac gtgatgcttt acaaagTTta     1500
gaattaaaag ataaaaaagt agccaaacca gaagccaaac cagaggccaa accagaagct     1560
aagccagaag ctaagccaga agctaagcca gaagctaagc cagaggccaa accagaagct     1620
aagccagacg ttaagccaga agctaaacca gacgttaaac cagaggctaa gccagaagct     1680
aaaccagagg ctaagtcaga agctaaacca gaggctaagc tagaagctaa accagaggcc     1740
aaaccagcaa ccaaaaaatc ggTTaatact agcggaaact tggcggctaa aaaagctatt     1800
gaaaacaaaa agtatagtaa aaaattacca tcaacgggtg aagccgcaag tccactctta     1860
    
```

eof-seq1.txt

gcaattgtat cactaattgt tatgttaagt gcaggctcta ttacgatagt tttaaagcat 1920
 aaaaaaatt aa 1932

<210> 185
 <211> 896
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 185

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
 1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
 20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
 35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Pro Thr
 50 55 60

Ser His Ser Glu Ser Lys Val Glu Lys Val Thr Thr Glu Val Thr Gly
 65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Thr Gln Thr Trp Gln Val
 100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Asp Asp Lys
 115 120 125

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

Leu Thr Gly Ala Tyr Glu Asp Thr Lys Glu Ser Tyr Asn Leu Glu His
 145 150 155 160

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

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Gln Glu Gly Thr
 180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Asn Asp Leu Asp His Asn Lys Tyr
 195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Ser Ile Ile Lys Thr Ile Asn
 210 215 220

Lys Asp Glu Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser

eolf-seq1.txt

225		230		235		240
Met	Lys	Asn	Asn	Gly ₂₄₅	Lys	Asn
					Asn	Lys
				Ala ₂₅₀	Lys	Lys
					Ala	Gly
					Glu ₂₅₅	Ala
Val	Glu	Thr	Ile ₂₆₀	Ile	Lys	Asp
					Val	Leu ₂₆₅
					Gly	Ala
					Asn	Val
					Glu ₂₇₀	Asn
					Arg	
Ala	Ala	Leu ₂₇₅	Val	Thr	Tyr	Gly
						Ser ₂₈₀
					Asp	Ile
					Phe	Asp
					Gly ₂₈₅	Arg
					Thr	Val
Lys	Val ₂₉₀	Ile	Lys	Gly	Phe	Lys ₂₉₅
					Glu	Asp
					Pro	Tyr
					Tyr ₃₀₀	Gly
					Leu	Glu
					Thr	
Ser ₃₀₅	Phe	Thr	Val	Gln	Thr ₃₁₀	Asn
					Asp	Tyr
					Ser	Tyr ₃₁₅
					Lys	Lys
					Phe	Thr
					Asn ₃₂₀	
Ile	Ala	Ala	Asp	Ile ₃₂₅	Ile	Lys
					Lys	Ile
					Pro ₃₃₀	Lys
					Glu	Ala
					Pro	Glu ₃₃₅
					Ala	
Lys	Trp	Gly	Gly ₃₄₀	Thr	Ser	Leu
					Gly	Leu ₃₄₅
					Thr	Pro
					Glu	Lys
					Lys ₃₅₀	Arg
					Glu	
Tyr	Asp	Leu ₃₅₅	Ser	Lys	Val	Gly
					Glu ₃₆₀	Thr
					Phe	Thr
					Met	Lys ₃₆₅
					Ala	Phe
					Met	
Glu	Ala ₃₇₀	Asp	Thr	Leu	Leu	Ser ₃₇₅
					Ser	Ile
					Gln	Arg
					Lys ₃₈₀	Ser
					Arg	Lys
					Ile	
Ile ₃₈₅	Val	His	Leu	Thr	Asp ₃₉₀	Gly
					Val	Pro
					Thr	Arg ₃₉₅
					Ser	Tyr
					Ala	Ile
					Asn ₄₀₀	
Ser	Phe	Val	Lys	Gly ₄₀₅	Ser	Thr
					Tyr	Ala
					Asn ₄₁₀	Gln
					Phe	Glu
					Arg	Ile ₄₁₅
					Lys	
Glu	Lys	Gly	Tyr ₄₂₀	Leu	Asp	Lys
					Asn	Asn ₄₂₅
					Tyr	Phe
					Ile	Thr
					Asp ₄₃₀	Asp
					Pro	
Glu	Lys	Ile ₄₃₅	Lys	Gly	Asn	Gly
					Glu ₄₄₀	Ser
					Tyr	Phe
					Leu	Phe ₄₄₅
					Pro	Leu
					Asp	
Ser	Tyr ₄₅₀	Gln	Thr	Gln	Ile	Ile ₄₅₅
					Ser	Gly
					Asn	Leu
					Gln ₄₆₀	Lys
					Leu	His
					Tyr	
Leu ₄₆₅	Asp	Leu	Asn	Leu	Asn ₄₇₀	Tyr
					Pro	Lys
					Gly	Thr ₄₇₅
					Ile	Tyr
					Arg	Asn
					Gly ₄₈₀	
Pro	Val	Arg	Glu	His ₄₈₅	Gly	Thr
					Pro	Thr
					Lys ₄₉₀	Leu
					Tyr	Ile
					Asn	Ser
					Leu ₄₉₅	
Lys	Gln	Lys	Asn ₅₀₀	Tyr	Asp	Ile
					Phe	Asn ₅₀₅
					Phe	Gly
					Ile	Asp
					Ile ₅₁₀	Ser
					Gly	

eo1f-seq1.txt

Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys Asn Gln Asp Gly Thr
 515 520 525
 Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu Ser Asp Gly Glu Ile
 530 535 540
 Thr Glu Leu Met Asn Ser Phe Ser Ser Lys Pro Glu Tyr Tyr Thr Pro
 545 550 555 560
 Ile Val Thr Ser Ala Asp Val Ser Asn Asn Glu Ile Leu Ser Lys Ile
 565 570 575
 Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu Asn Ser Ile Val Asn
 580 585 590
 Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile Asn Leu His Leu Gly
 595 600 605
 Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr Leu Gln Gly Asn Asp
 610 615 620
 Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly Gly Pro Asn Asn Asp
 625 630 635 640
 Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr Ile Lys Asn Lys Leu
 645 650 655
 Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln Lys Val Thr Leu Thr
 660 665 670
 Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser Asn Lys Phe Tyr Asp
 675 680 685
 Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser Glu Glu Pro Asp Thr
 690 695 700
 Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg Glu Tyr Pro
 705 710 715 720
 Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly Glu Ile Glu Phe Thr
 725 730 735
 Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Lys Gly Ala Thr Phe
 740 745 750
 Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu Tyr Leu Pro Ile Lys
 755 760 765
 Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn Gly Lys Ile Ser Tyr
 770 775 780

eof-seq1.txt

Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile Glu Ala Val Ser Pro
785 790 795 800

Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile Leu Thr Phe Glu Val
805 810 815

Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val Asn Lys Gln Ile Ser
820 825 830

Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile Thr Asn Thr His Ile
835 840 845

Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly Lys Gly Ile Leu Ser
850 855 860

Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile Ala Gly Gly Ile Tyr
865 870 875 880

Ile Trp Lys Arg His Lys Lys Ser Ser Asp Ala Ser Ile Glu Lys Asp
885 890 895

<210> 186

<211> 901

<212> PRT

<213> Streptococcus agalactiae

<400> 186

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
Page 241

eo1f-seq1.txt
140

130

135

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

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

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

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

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

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

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

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

eo1f-seq1.txt

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685

eo1f-seq1.txt

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

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 187
<211> 890
<212> PRT
<213> Streptococcus agalactiae

<400> 187

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
1 5 10 15

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
Page 244

eo1f-seq1.txt

20

25

30

Asp Thr Asn₃₅ Gln Ala Leu Gly Lys₄₀ Val Ile Val Lys Lys₄₅ Thr Gly Asp

Asn Ala Thr Pro Leu Gly Lys₅₅ Ala Thr Phe Val Leu Lys Asn Asp Asn

Asp Lys Ser Glu Thr Ser₇₀ His Glu Thr Val Glu₇₅ Gly Ser Gly Glu Ala₈₀

Thr Phe Glu Asn Ile₈₅ Lys Pro Gly Asp Tyr₉₀ Thr Leu Arg Glu Glu₉₅ Thr

Ala Pro Ile Gly₁₀₀ Tyr Lys Lys Thr Asp₁₀₅ Lys Thr Trp Lys Val₁₁₀ Lys Val

Ala Asp Asn₁₁₅ Gly Ala Thr Ile Ile₁₂₀ Glu Gly Met Asp Ala₁₂₅ Asp Lys Ala

Glu Lys₁₃₀ Arg Lys Glu Val Leu₁₃₅ Asn Ala Gln Tyr Pro₁₄₀ Lys Ser Ala Ile

Tyr Glu Asp Thr Lys Glu₁₅₀ Asn Tyr Pro Leu Val₁₅₅ Asn Val Glu Gly Ser₁₆₀

Lys Val Gly Glu Gln₁₆₅ Tyr Lys Ala Leu Asn₁₇₀ Pro Ile Asn Gly Lys₁₇₅ Asp

Gly Arg Arg Glu₁₈₀ Ile Ala Glu Gly Trp₁₈₅ Leu Ser Lys Lys Ile₁₉₀ Thr Gly

Val Asn Asp₁₉₅ Leu Asp Lys Asn Lys₂₀₀ Tyr Lys Ile Glu Leu₂₀₅ Thr Val Glu

Gly Lys₂₁₀ Thr Thr Val Glu Thr₂₁₅ Lys Glu Leu Asn Gln₂₂₀ Pro Leu Asp Val

Val Val Leu Leu Asp Asn₂₃₀ Ser Asn Ser Met Asn₂₃₅ Asn Glu Arg Ala Asn₂₄₀

Asn Ser Gln Arg Ala₂₄₅ Leu Lys Ala Gly Glu₂₅₀ Ala Val Glu Lys Leu₂₅₅ Ile

Asp Lys Ile Thr₂₆₀ Ser Asn Lys Asp Asn₂₆₅ Arg Val Ala Leu Val₂₇₀ Thr Tyr

Ala Ser Thr₂₇₅ Ile Phe Asp Gly Thr₂₈₀ Glu Ala Thr Val Ser₂₈₅ Lys Gly Val

Ala Asp Gln Asn Gly Lys Ala₂₉₅ Leu Asn Asp Ser Val₃₀₀ Ser Trp Asp Tyr

eo1f-seq1.txt

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
 305 310 315 320
 Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
 325 330 335
 Lys Glu Ala Glu His Ile Asn Gly Asp Arg Thr Leu Tyr Gln Phe Gly
 340 345 350
 Ala Thr Phe Thr Gln Lys Ala Leu Met Lys Ala Asn Glu Ile Leu Glu
 355 360 365
 Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
 370 375 380
 Gly Val Pro Thr Met Ser Tyr Ala Ile Asn Phe Asn Pro Tyr Ile Ser
 385 390 395 400
 Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
 405 410 415
 Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
 420 425 430
 Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
 435 440 445
 Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
 450 455 460
 Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
 465 470 475 480
 Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
 485 490 495
 Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
 500 505 510
 Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
 515 520 525
 Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
 530 535 540
 Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
 545 550 555 560
 Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
 565 570 575

eo1f-seq1.txt

Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
 580 585 590
 Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
 595 600 605
 Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
 610 615 620
 Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
 625 630 635 640
 Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln
 645 650 655
 Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
 660 665 670
 Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
 675 680 685
 Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
 690 695 700
 Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
 705 710 715 720
 Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
 725 730 735
 Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
 740 745 750
 Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
 755 760 765
 Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
 770 775 780
 Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
 785 790 795 800
 Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
 805 810 815
 Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
 820 825 830
 Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile
 835 840 845

eo1f-seq1.txt

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 188

<211> 896

<212> PRT

<213> Streptococcus agalactiae

<400> 188

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Val Thr Gly
65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Thr Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Asp Asp Lys
115 120 125

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

Leu Thr Gly Ala Tyr Glu Asp Thr Lys Glu Ser Tyr Asn Leu Glu His
145 150 155 160

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

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Gln Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Asn Asp Leu Asp His Asn Lys Tyr
195 200 205

eo1f-seq1.txt

Lys Ile Glu Leu Thr Val Ser Gly Lys Ser Ile Ile Lys Thr Ile Asn
 210 215 220
 Lys Asp Glu Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Lys Asn Asn Gly Lys Asn Asn Lys Ala Lys Lys Ala Gly Glu Ala
 245 250 255
 Val Glu Thr Ile Ile Lys Asp Val Leu Gly Ala Asn Val Glu Asn Arg
 260 265 270
 Ala Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp Gly Arg Thr Val
 275 280 285
 Lys Val Ile Lys Gly Phe Lys Glu Asp Pro Tyr Tyr Gly Leu Glu Thr
 290 295 300
 Ser Phe Thr Val Gln Thr Asn Asp Tyr Ser Tyr Lys Lys Phe Thr Asn
 305 310 315 320
 Ile Ala Ala Asp Ile Ile Lys Lys Ile Pro Lys Glu Ala Pro Glu Ala
 325 330 335
 Lys Trp Gly Gly Thr Ser Leu Gly Leu Thr Pro Glu Lys Lys Arg Glu
 340 345 350
 Tyr Asp Leu Ser Lys Val Gly Glu Thr Phe Thr Met Lys Ala Phe Met
 355 360 365
 Glu Ala Asp Thr Leu Leu Ser Ser Ile Gln Arg Lys Ser Arg Lys Ile
 370 375 380
 Ile Val His Leu Thr Asp Gly Val Pro Thr Arg Ser Tyr Ala Ile Asn
 385 390 395 400
 Ser Phe Val Thr Gly Ser Thr Tyr Ala Asn Gln Phe Glu Arg Ile Lys
 405 410 415
 Glu Lys Gly Tyr Leu Asp Lys Asn Asn Tyr Phe Ile Thr Asp Asp Pro
 420 425 430
 Glu Lys Ile Lys Gly Asn Gly Glu Ser Tyr Phe Leu Phe Pro Leu Asp
 435 440 445
 Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu Gln Lys Leu His Tyr
 450 455 460
 Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr Ile Tyr Arg Asn Gly
 465 470 475 480

eo1f-seq1.txt

Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu Tyr Ile Asn Ser Leu
485 490 495

Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly Ile Asp Ile Ser Gly
500 505 510

Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys Asn Gln Asp Gly Thr
515 520 525

Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu Ser Asp Gly Glu Ile
530 535 540

Thr Glu Leu Met Asn Ser Phe Ser Ser Lys Pro Glu Tyr Tyr Thr Pro
545 550 555 560

Ile Val Thr Ser Ala Asp Val Ser Asn Asn Glu Ile Leu Ser Lys Ile
565 570 575

Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu Asn Ser Ile Val Asn
580 585 590

Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile Asn Leu His Leu Gly
595 600 605

Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr Leu Gln Gly Asn Asp
610 615 620

Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly Gly Pro Asn Asn Asp
625 630 635 640

Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr Ile Lys Asn Lys Leu
645 650 655

Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln Lys Val Thr Leu Thr
660 665 670

Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser Asn Lys Phe Tyr Asp
675 680 685

Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser Glu Glu Pro Asp Thr
690 695 700

Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg Glu Tyr Pro
705 710 715 720

Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly Glu Ile Glu Phe Thr
725 730 735

Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu Lys Gly Ala Thr Phe
740 745 750

eo1f-seq1.txt

Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu Tyr Leu Pro Ile Lys
755 760 765

Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn Gly Lys Ile Ser Tyr
770 775 780

Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile Glu Ala Val Ser Pro
785 790 795 800

Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile Leu Thr Phe Glu Val
805 810 815

Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val Asn Lys Gln Ile Ser
820 825 830

Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile Thr Asn Thr His Ile
835 840 845

Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly Lys Gly Ile Leu Ser
850 855 860

Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile Ala Gly Gly Ile Tyr
865 870 875 880

Ile Trp Lys Arg His Lys Lys Ser Ser Asp Ala Ser Ile Glu Lys Asp
885 890 895

<210> 189

<211> 890

<212> PRT

<213> Streptococcus agalactiae

<400> 189

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
1 5 10 15

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
20 25 30

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

Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
50 55 60

Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
65 70 75 80

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

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

eo1f-seq1.txt

Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
115 120 125

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

Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
145 150 155 160

Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
165 170 175

Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly
180 185 190

Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
195 200 205

Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
210 215 220

Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
225 230 235 240

Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
245 250 255

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

Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
275 280 285

Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
290 295 300

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
305 310 315 320

Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
325 330 335

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

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

Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
370 375 380

eo1f-seq1.txt

Gly Val Pro Thr Met Ser Tyr Ala Ile Asn Phe Asn Pro Tyr Ile Ser
 385 390 395 400
 Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
 405 410 415
 Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
 420 425 430
 Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
 435 440 445
 Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
 450 455 460
 Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
 465 470 475 480
 Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
 485 490 495
 Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
 500 505 510
 Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
 515 520 525
 Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
 530 535 540
 Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
 545 550 555 560
 Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
 565 570 575
 Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
 580 585 590
 Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
 595 600 605
 Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
 610 615 620
 Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
 625 630 635 640
 Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln
 645 650 655

eo1f-seq1.txt

Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
660 665 670

Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
675 680 685

Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
690 695 700

Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
705 710 715 720

Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
725 730 735

Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
740 745 750

Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
755 760 765

Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
770 775 780

Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
785 790 795 800

Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
805 810 815

Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
820 825 830

Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile
835 840 845

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 190

<211> 890

<212> PRT

<213> Streptococcus agalactiae

<400> 190

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
1 5 10 15

eo1f-seq1.txt

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
20 25 30

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

Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
50 55 60

Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
65 70 75 80

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

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

Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
115 120 125

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

Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
145 150 155 160

Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
165 170 175

Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly
180 185 190

Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
195 200 205

Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
210 215 220

Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
225 230 235 240

Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
245 250 255

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

Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
275 280 285

eo1f-seq1.txt

Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
290 295 300

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
305 310 315 320

Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
325 330 335

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

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

Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
370 375 380

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

Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
405 410 415

Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
420 425 430

Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
435 440 445

Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
450 455 460

Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
465 470 475 480

Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
485 490 495

Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
500 505 510

Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
515 520 525

Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
530 535 540

Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
545 550 555 560

eo1f-seq1.txt

Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
565 570 575

Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
580 585 590

Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
595 600 605

Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
610 615 620

Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
625 630 635 640

Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln
645 650 655

Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
660 665 670

Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
675 680 685

Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
690 695 700

Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
705 710 715 720

Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
725 730 735

Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
740 745 750

Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
755 760 765

Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
770 775 780

Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
785 790 795 800

Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
805 810 815

Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
820 825 830

Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile

eo1f-seq1.txt

835

840

845

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 191

<211> 890

<212> PRT

<213> Streptococcus agalactiae

<400> 191

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
1 5 10 15

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
20 25 30

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

Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
50 55 60

Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
65 70 75 80

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

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

Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
115 120 125

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

Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
145 150 155 160

Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
165 170 175

Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly
180 185 190

eo1f-seq1.txt

Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
195 200 205

Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
210 215 220

Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
225 230 235 240

Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
245 250 255

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

Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
275 280 285

Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
290 295 300

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
305 310 315 320

Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
325 330 335

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

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

Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
370 375 380

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

Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
405 410 415

Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
420 425 430

Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
435 440 445

Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
450 455 460

eo1f-seq1.txt

Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
465 470 475 480

Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
485 490 495

Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
500 505 510

Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
515 520 525

Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
530 535 540

Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
545 550 555 560

Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
565 570 575

Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
580 585 590

Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
595 600 605

Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
610 615 620

Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
625 630 635 640

Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln
645 650 655

Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
660 665 670

Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
675 680 685

Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
690 695 700

Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
705 710 715 720

Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
725 730 735

Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
740 745 750 755 760 765 770 775

eo1f-seq1.txt

740

745

750

Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
755 760 765

Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
770 775 780

Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
785 790 795 800

Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
805 810 815

Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
820 825 830

Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile
835 840 845

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 192

<211> 890

<212> PRT

<213> Streptococcus agalactiae

<400> 192

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
1 5 10 15

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
20 25 30

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

Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
50 55 60

Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
65 70 75 80

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

eo1f-seq1.txt

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

Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
115 120 125

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

Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
145 150 155 160

Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
165 170 175

Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly
180 185 190

Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
195 200 205

Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
210 215 220

Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
225 230 235 240

Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
245 250 255

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

Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
275 280 285

Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
290 295 300

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
305 310 315 320

Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
325 330 335

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

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

eo1f-seq1.txt

Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
370 375 380

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

Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
405 410 415

Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
420 425 430

Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
435 440 445

Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
450 455 460

Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
465 470 475 480

Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
485 490 495

Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
500 505 510

Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
515 520 525

Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
530 535 540

Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
545 550 555 560

Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
565 570 575

Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
580 585 590

Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
595 600 605

Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
610 615 620

Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
625 630 635 640

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

eo1f-seq1.txt

645

650

655

Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
660 665 670

Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
675 680 685

Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
690 695 700

Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
705 710 715 720

Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
725 730 735

Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
740 745 750

Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
755 760 765

Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
770 775 780

Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
785 790 795 800

Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
805 810 815

Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
820 825 830

Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile
835 840 845

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 193

<211> 890

<212> PRT

<213> Streptococcus agalactiae

<400> 193

eo1f-seq1.txt

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
1 5 10 15

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
20 25 30

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

Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
50 55 60

Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
65 70 75 80

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

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

Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
115 120 125

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

Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
145 150 155 160

Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
165 170 175

Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Asn Thr Gly
180 185 190

Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
195 200 205

Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
210 215 220

Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
225 230 235 240

Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
245 250 255

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

eolf-seql.txt

Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
275 280 285

Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
290 295 300

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
305 310 315 320

Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
325 330 335

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

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

Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
370 375 380

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

Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
405 410 415

Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
420 425 430

Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
435 440 445

Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
450 455 460

Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
465 470 475 480

Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
485 490 495

Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
500 505 510

Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
515 520 525

Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
530 535 540

Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr

eolf-seq1.txt

545		550		555		560
Glu	Asn	Tyr	Thr	Asn 565	Val	Asp
			Asp	Thr	Asn 570	Lys
				Ile	Tyr	Asp
					Glu 575	Leu
Asn	Lys	Tyr	Phe 580	Lys	Thr	Ile
				Val	Glu 585	Glu
					Lys	His
					Ser	Ile
						Val
						Asp
Gly	Asn	Val 595	Thr	Asp	Pro	Met
					Gly 600	Glu
					Met	Ile
					Glu	Phe
						Gln
						Leu
						Lys
Asn	Gly 610	Gln	Ser	Phe	Thr	His 615
					Asp	Asp
					Tyr	Val
						Leu
						Val
						Gly
						Asn
						Asp
Gly	Ser	Gln	Leu	Lys	Asn 630	Gly
625					Val	Ala
						Leu
						Gly 635
						Gly
						Pro
						Asn
						Ser
						Asp
Gly	Gly	Ile	Leu	Lys 645	Asp	Val
					Thr	Val
						Thr 650
						Tyr
						Asp
						Lys
						Thr
						Ser 655
						Gln
Thr	Ile	Lys	Ile 660	Asn	His	Leu
						Asn
						Leu 665
						Gly
						Ser
						Gly
						Gln
						Lys
						Val
						Val
Leu	Thr	Tyr 675	Asp	Val	Arg	Leu
						Lys
						Asp
						Asn
						Tyr
						Ile
						Ser
						Asn
						Lys
						Phe
Tyr	Asn 690	Thr	Asn	Asn	Arg	Thr
						Thr 695
						Leu
						Ser
						Pro
						Lys 700
						Ser
						Glu
						Lys
						Glu
Pro	Asn	Thr	Ile	Arg	Asp 710	Phe
705						Pro
						Ile
						Pro
						Lys 715
						Ile
						Arg
						Asp
						Val
						Arg 720
Glu	Phe	Pro	Val	Leu 725	Thr	Ile
					Ser	Asn
						Gln 730
						Lys
						Lys
						Met
						Gly
						Glu 735
						Val
Glu	Phe	Ile	Lys 740	Val	Asn	Lys
					Asp	Lys 745
						His
						Ser
						Glu
						Ser
						Leu 750
						Leu
						Gly
Ala	Lys	Phe 755	Gln	Leu	Gln	Ile
						Glu 760
						Lys
						Asp
						Phe
						Ser
						Gly 765
						Tyr
						Lys
						Gln
Phe	Val 770	Pro	Glu	Gly	Ser	Asp 775
						Val
						Thr
						Thr
						Lys
						Asn 780
						Asp
						Gly
						Lys
						Ile
Tyr	Phe	Lys	Ala	Leu	Gln 790	Asp
785						Gly
						Asn
						Tyr
						Lys 795
						Leu
						Tyr
						Glu
						Ile
						Ser 800
Ser	Pro	Asp	Gly	Tyr 805	Ile	Glu
						Val
						Lys
						Thr 810
						Lys
						Pro
						Val
						Val
						Thr 815
						Phe
Thr	Ile	Gln	Asn 820	Gly	Glu	Val
						Thr
						Asn 825
						Leu
						Lys
						Ala
						Asp
						Pro
						Asn 830
						Ala

eo1f-seq1.txt

Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile
835 840 845

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 194
<211> 890
<212> PRT
<213> Streptococcus agalactiae
<400> 194

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
1 5 10 15

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
20 25 30

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

Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
50 55 60

Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
65 70 75 80

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

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

Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
115 120 125

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

Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
145 150 155 160

Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
165 170 175

eolf-seql.txt

Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly
180 185 190

Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
195 200 205

Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
210 215 220

Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
225 230 235 240

Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
245 250 255

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

Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
275 280 285

Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
290 295 300

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
305 310 315 320

Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
325 330 335

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

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

Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
370 375 380

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

Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
405 410 415

Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
420 425 430

Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
435 440 445

Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro

eo1f-seq1.txt
460

450

455

Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
465 470 475 480

Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
485 490 495

Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
500 505 510

Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
515 520 525

Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
530 535 540

Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
545 550 555 560

Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
565 570 575

Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
580 585 590

Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
595 600 605

Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
610 615 620

Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
625 630 635 640

Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln
645 650 655

Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
660 665 670

Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
675 680 685

Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
690 695 700

Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
705 710 715 720

Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
725 730 735

eo1f-seq1.txt

Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
740 745 750

Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
755 760 765

Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
770 775 780

Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
785 790 795 800

Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
805 810 815

Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
820 825 830

Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile
835 840 845

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 195
<211> 901
<212> PRT
<213> Streptococcus agalactiae

<400> 195

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala Gln Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

eo1f-seq1.txt

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

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

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

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

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

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

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

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
Page 272

eo1f-seq1.txt

355

360

365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380
Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400
Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415
Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430
Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445
Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460
Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480
Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495
Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510
Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525
Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540
Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560
Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575
Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
580 585 590
Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605
Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620
Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

eo1f-seq1.txt

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

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

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

eo1f-seq1.txt

<210> 196
 <211> 890
 <212> PRT
 <213> Streptococcus agalactiae

<400> 196

Met Lys Lys Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu
 1 5 10 15

Ile Leu Ser Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln
 20 25 30

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

Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
 50 55 60

Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
 65 70 75 80

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

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

Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
 115 120 125

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

Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
 145 150 155 160

Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
 165 170 175

Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly
 180 185 190

Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
 195 200 205

Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
 210 215 220

Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
 225 230 235 240

Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
 Page 275

eo1f-seq1.txt

245

250

255

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

Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
275 280 285

Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
290 295 300

His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
305 310 315 320

Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
325 330 335

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

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

Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
370 375 380

Gly Val Pro Thr Met Ser Tyr Ala Ile Asn Phe Asn Pro Tyr Ile Ser
385 390 400

Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
405 410 415

Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
420 425 430

Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
435 440 445

Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
450 455 460

Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
465 470 475 480

Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
485 490 495

Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
500 505 510

Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
515 520 525

eo1f-seq1.txt

Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
 530 535 540
 Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
 545 550 555 560
 Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
 565 570 575
 Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
 580 585 590
 Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
 595 600 605
 Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
 610 615 620
 Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
 625 630 635 640
 Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln
 645 650 655
 Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
 660 665 670
 Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
 675 680 685
 Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
 690 695 700
 Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
 705 710 715 720
 Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
 725 730 735
 Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
 740 745 750
 Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
 755 760 765
 Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
 770 775 780
 Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
 785 790 795 800

eo1f-seq1.txt

Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
805 810 815

Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
820 825 830

Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile
835 840 845

Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly
850 855 860

Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu
865 870 875 880

Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu
885 890

<210> 197

<211> 901

<212> PRT

<213> Streptococcus agalactiae

<400> 197

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

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

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His

eolf-seq1.txt

145		150		155		160
Val	Lys	Gly	Ser	Val ₁₆₅	Pro	Asn
				Gly	Lys	Ser ₁₇₀
				Glu	Ala	Lys
				Ala	Lys	Val ₁₇₅
				Asn		
Pro	Tyr	Ser	Ser ₁₈₀	Glu	Gly	Glu
				His	Ile ₁₈₅	Arg
				Glu	Ile	Pro
				Glu	Gly	Thr
Leu	Ser	Lys ₁₉₅	Arg	Ile	Ser	Glu
				Val ₂₀₀	Gly	Asp
				Leu	Ala	His
				Asn	Lys	Tyr
Lys	Ile ₂₁₀	Glu	Leu	Thr	Val	Ser ₂₁₅
				Gly	Lys	Thr
				Ile	Val ₂₂₀	Lys
				Pro	Val	Asp
Lys	Gln	Lys	Pro	Leu	Asp ₂₃₀	Val
₂₂₅				Val	Phe	Val
				Leu ₂₃₅	Asp	Asn
				Ser	Asn	Ser
				₂₄₀		
Met	Asn	Asn	Asp	Gly ₂₄₅	Pro	Asn
				Phe	Gln	Arg
				₂₅₀	His	Asn
				Lys	Ala	Lys
				₂₅₅	Lys	
Ala	Ala	Glu	Ala ₂₆₀	Leu	Gly	Thr
				Ala	Val ₂₆₅	Lys
				Asp	Ile	Leu
				Gly ₂₇₀	Ala	Asn
Ser	Asp	Asn ₂₇₅	Arg	Val	Ala	Leu
				Val ₂₈₀	Thr	Tyr
				Gly	Ser	Asp
				₂₈₅	Ile	Phe
				Asp	Lys	Tyr
Gly	Arg ₂₉₀	Ser	Val	Asp	Val	Val ₂₉₅
				Lys	Gly	Phe
				Lys	Glu ₃₀₀	Asp
				Asp	Lys	Tyr
Tyr	Gly	Leu	Gln	Thr	Lys ₃₁₀	Phe
₃₀₅				Thr	Ile	Gln
				Thr ₃₁₅	Glu	Asn
				Tyr	Ser	His
				₃₂₀		
Lys	Gln	Leu	Thr	Asn ₃₂₅	Asn	Ala
				Glu	Glu	Ile
				₃₃₀	Ile	Lys
				Arg	Ile	Pro
				₃₃₅	Thr	
Glu	Ala	Pro	Arg ₃₄₀	Ala	Lys	Trp
				Gly	Ser ₃₄₅	Thr
				Thr	Asn	Gly
				₃₅₀	Leu	Thr
				Pro		
Glu	Gln	Gln ₃₅₅	Lys	Gln	Tyr	Tyr
				Leu ₃₆₀	Ser	Lys
				Val	Gly	Glu
				₃₆₅	Thr	Phe
				Thr		
Met	Lys ₃₇₀	Ala	Phe	Met	Glu	Ala
				₃₇₅	Asp	Asp
				Ile	Leu	Ser
				₃₈₀	Gln	Val
				Asp	Arg	
Asn	Ser	Gln	Lys	Ile	Ile ₃₉₀	Val
₃₈₅				His	Ile	Thr
				₃₉₅	Gly	Val
				Pro	Thr	Arg
				₄₀₀		
Ser	Tyr	Ala	Ile	Asn ₄₀₅	Asn	Phe
				Lys	Leu	Gly
				₄₁₀	Ala	Ser
				Tyr	Glu	Ser
				₄₁₅	Gln	
Phe	Glu	Gln	Met ₄₂₀	Lys	Lys	Asn
				Gly	Tyr ₄₂₅	Leu
				Asn	Lys	Ser
				₄₃₀	Asn	Phe
				Leu		

eo1f-seq1.txt

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Ile Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Ala Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Val Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700

eo1f-seq1.txt

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 198
<211> 896
<212> PRT
<213> Streptococcus agalactiae

<400> 198

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
Page 281

eo1f-seq1.txt

35

40

45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Pro Thr
50 55 60

Ser His Ser Glu Ser Lys Val Glu Lys Val Thr Thr Glu Val Thr Gly
65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Thr Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Asp Asp Lys
115 120 125

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

Leu Thr Gly Ala Tyr Glu Asp Thr Lys Glu Ser Tyr Asn Leu Glu His
145 150 155 160

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

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Gln Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Asn Asp Leu Asp His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Ser Ile Ile Lys Thr Ile Asn
210 215 220

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

Met Lys Asn Asn Gly Lys Asn Asn Lys Ala Lys Lys Ala Gly Glu Ala
245 250 255

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

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

Lys Val Ile Lys Gly Phe Lys Glu Asp Pro Tyr Tyr Gly Leu Glu Thr
290 295 300

Ser Phe Thr Val Gln Thr Asn Asp Tyr Ser Tyr Lys Lys Phe Thr Asn
305 310 315 320

eo1f-seq1.txt

Ile Ala Ala Asp Ile Ile Lys Lys Ile Pro Lys Glu Ala Pro Glu Ala
325 330 335

Lys Trp Gly Gly Thr Ser Leu Gly Leu Thr Pro Glu Lys Lys Arg Glu
340 345 350

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

Glu Ala Asp Thr Leu Leu Ser Ser Ile Gln Arg Lys Ser Arg Lys Ile
370 375 380

Ile Val His Leu Thr Asp Gly Val Pro Thr Arg Ser Tyr Ala Ile Asn
385 390 395 400

Ser Phe Val Lys Gly Ser Thr Tyr Ala Asn Gln Phe Glu Arg Ile Lys
405 410 415

Glu Lys Gly Tyr Leu Asp Lys Asn Asn Tyr Phe Ile Thr Asp Asp Pro
420 425 430

Glu Lys Ile Lys Gly Asn Gly Glu Ser Tyr Phe Leu Phe Pro Leu Asp
435 440 445

Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu Gln Lys Leu His Tyr
450 455 460

Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr Ile Tyr Arg Asn Gly
465 470 475 480

Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu Tyr Ile Asn Ser Leu
485 490 495

Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly Ile Asp Ile Ser Gly
500 505 510

Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys Asn Gln Asp Gly Thr
515 520 525

Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu Ser Asp Gly Glu Ile
530 535 540

Thr Glu Leu Met Asn Ser Phe Ser Ser Lys Pro Glu Tyr Tyr Thr Pro
545 550 555 560

Ile Val Thr Ser Ala Asp Val Ser Asn Asn Glu Ile Leu Ser Lys Ile
565 570 575

Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu Asn Ser Ile Val Asn
580 585 590

eo1f-seq1.txt

Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile Asn Leu His Leu Gly
595 600 605

Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr Leu Gln Gly Asn Asp
610 615 620

Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly Gly Pro Asn Asn Asp
625 630 635 640

Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr Ile Lys Asn Lys Leu
645 650 655

Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln Lys Val Thr Leu Thr
660 665 670

Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser Asn Lys Phe Tyr Asp
675 680 685

Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser Glu Glu Pro Asp Thr
690 695 700

Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg Glu Tyr Pro
705 710 715 720

Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly Glu Ile Glu Phe Thr
725 730 735

Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu Lys Gly Ala Thr Phe
740 745 750

Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu Tyr Leu Pro Ile Lys
755 760 765

Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn Gly Lys Ile Ser Tyr
770 775 780

Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile Glu Ala Val Ser Pro
785 790 795 800

Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile Leu Thr Phe Glu Val
805 810 815

Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val Asn Lys Gln Ile Ser
820 825 830

Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile Thr Asn Thr His Ile
835 840 845

Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly Lys Gly Ile Leu Ser
850 855 860

eo1f-seq1.txt

Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile Ala Gly Gly Ile Tyr
865 870 875 880

Ile Trp Lys Arg His Lys Lys Ser Ser Asp Ala Ser Ile Glu Lys Asp
885 890 895

<210> 199

<211> 901

<212> PRT

<213> Streptococcus agalactiae

<400> 199

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

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

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

eo1f-seq1.txt

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
 485 490 495

eo1f-seq1.txt

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700
 Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
 705 710 715 720
 Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
 725 730 735
 Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
 740 745 750
 Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
 755 760 765

eolf-seql.txt

Tyr Leu Pro Ile Lys Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 200
<211> 901
<212> PRT
<213> Streptococcus agalactiae

<400> 200

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala Gln Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

eo1f-seq1.txt

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

eo1f-seq1.txt

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655

eolf-seql.txt

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

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

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 201
<211> 901
<212> PRT
<213> Streptococcus agalactiae

eo1f-seq1.txt

<400> 201

```

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
 1          5          10          15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
      20          25          30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
      35          40          45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
 50          55          60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65          70          75          80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
      100          105          110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
      115          120          125

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

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
      145          150          155          160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
      165          170          175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
      180          185          190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
      195          200          205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
      210          215          220

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

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
      245          250          255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
      260          265          270

```


eo1f-seq1.txt

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

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

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

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

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

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

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

eo1f-seq1.txt

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

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

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val

eo1f-seq1.txt

820

830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 202
<211> 901
<212> PRT
<213> Streptococcus agalactiae

<400> 202

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

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

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

eo1f-seq1.txt

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

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

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

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

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

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

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

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

eo1f-seq1.txt

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

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

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

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

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp

eo1f-seq1.txt

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

eo1f-seq1.txt

Ile Ala Ala Asp Ile Ile Lys Lys Ile Pro Lys Glu Ala Pro Glu Ala
325 330 335

Lys Trp Gly Gly Thr Ser Leu Gly Leu Thr Pro Glu Lys Lys Arg Glu
340 345 350

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

Glu Ala Asp Thr Leu Leu Ser Ser Ile Gln Arg Lys Ser Arg Lys Ile
370 375 380

Ile Val His Leu Thr Asp Gly Val Pro Thr Arg Ser Tyr Ala Ile Asn
385 390 395 400

Ser Phe Val Thr Gly Ser Thr Tyr Ala Asn Gln Phe Glu Arg Ile Lys
405 410 415

Glu Lys Gly Tyr Leu Asp Lys Asn Asn Tyr Phe Ile Thr Asp Asp Pro
420 425 430

Glu Lys Ile Lys Gly Asn Gly Glu Ser Tyr Phe Leu Phe Pro Leu Asp
435 440 445

Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu Gln Lys Leu His Tyr
450 455 460

Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr Ile Tyr Arg Asn Gly
465 470 475 480

Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu Tyr Ile Asn Ser Leu
485 490 495

Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly Ile Asp Ile Ser Gly
500 505 510

Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys Asn Gln Asp Gly Thr
515 520 525

Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu Ser Gly Gly Glu Ile
530 535 540

Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro Glu Tyr Tyr Thr Pro
545 550 555 560

Ile Val Thr Ser Ala Asp Val Ser Asn Asn Glu Ile Leu Ser Lys Ile
565 570 575

Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu Asn Ser Ile Val Asn
580 585 590

Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile Asn Leu Gln Leu Gly

eo1f-seq1.txt

595

600

605

Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr Leu Gln Gly Asn Asp
610 615 620

Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly Gly Pro Asn Asn Asp
625 630 635 640

Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr Ile Lys Asn Lys Leu
645 650 655

Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln Lys Val Thr Leu Thr
660 665 670

Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser Asn Lys Phe Tyr Asp
675 680 685

Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser Glu Glu Pro Asp Thr
690 695 700

Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg Glu Tyr Pro
705 710 715 720

Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly Glu Ile Glu Phe Thr
725 730 735

Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu Lys Gly Ala Thr Phe
740 745 750

Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu Tyr Leu Pro Ile Lys
755 760 765

Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn Gly Lys Ile Ser Tyr
770 775 780

Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile Glu Ala Val Ser Pro
785 790 795 800

Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile Leu Thr Phe Glu Val
805 810 815

Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val Asn Lys Gln Ile Ser
820 825 830

Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile Thr Asn Thr His Ile
835 840 845

Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly Lys Gly Ile Leu Ser
850 855 860

Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile Ala Gly Gly Ile Tyr
865 870 875 880

eof-seq1.txt

Ile Trp Lys Lys His Lys Lys Ser Ser Asp Ala Ser Ile Glu Lys Asp
885 890 895

<210> 204
<211> 2691
<212> DNA
<213> Streptococcus agalactiae

```
<400> 204
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa      60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga      120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttgtt      180
ttaaaaccta cttcacactc agaaaacaaa gtagaaaaag taactactga ggtaacaggt      240
gaagctactt ttgataatct cacacctgga gattacactt tatcagaaga aacggcaccc      300
gaaggatata aaaagactac ccagacttgg caagttaagg ttgagagtaa tggaaaaact      360
acgatacaaa atagtgatga taaaaaatct ataattgaac aaaggcaaga ggaactagat      420
aagcagtatc cccttacagg agcttatgaa gatacaaaag aatcttataa tcttgagcat      480
gttaaaaaatt caattccaaa tgggaaatta gaggcacaaag cagttaatcc atattcaagt      540
gaaggtgagc acataagaga aattcaagag ggaacattat ctacacgtat ttcagaagta      600
aatgatttgg atcataataa atataaaatt gagttaactg ttagcggtaa atccataata      660
aaaactataa ataaagatga acctctggat gttgtttttg ttcttgataa ttcaaattct      720
atgaagaata atggaaaaaa taacaaggca aaaaaggcag gtgaagcagt agaaacaatt      780
ataaaagatg ttttaggagc aaatgttgaa aaccgagcag ctttagttac ttatggttca      840
gatatttttg atggaaggac agttaaaagt ataaaagggt ttaaagagga tccttattat      900
ggacttgaat ctagtttcac agttcagaca aatgattata gctataaaaa gttcactaat      960
attgctgctg atattataaa aaagatccct aaagaagctc cagaagctaa gtgggggggg      1020
acaagtctag gattaactcc agaaaaaaag agggaatatg atttaagtaa agtaggtgag      1080
acctttacaa tgaaagcttt tatggaggca gataccttgt taagtagtat acagcgtaag      1140
agtagaaaaga ttattgttca tctaactgac ggtgttccaa caagatcata tgccattaat      1200
agttttgtaa aagggttcaac atacgcaaat caatttgaga gaataaaaga aaaagggttat      1260
ttagacaaaa ataattattt tataactgat gatccagaaa agatcaaagg caatggggag      1320
agttactttt tgtttccctt agatagttat caaacacaga taatttctgg aaacttacia      1380
aaacttcatt atttagatth aaatcttaat taccctaaag gtacaattta tagaaatgga      1440
ccagtaagag aacatggaac accaaccaaa ctttatataa atagttttaa acagaaaaat      1500
tatgacatct ttaatttttg tatagatata tctggtttta gacaagttha taatgaggat      1560
tataagaaaa atcaagatgg tacttttcaa aaattgaagg aggaagcttt tgaactttca      1620
gatggggaaa taacagaact aatgaattca ttctcttcta aacctgagta ttataccccc      1680
atagtaactt cagctgatgt atctaataat gaaattttat ctaaaattca gcaacaattt      1740
```

eo1f-seq1.txt

gaaaagattt taacaaagga aaactcaatt gttaatggaa ctatagaaga tcctatgggt	1800
gataaaatca atttacatct tggcaacgga caaacattgc aaccaagtga ttatacttta	1860
cagggaaatg atggaagtat aatgaaagat agcattgcaa ctggagggcc taataatgat	1920
ggtgggatac ttaaaggggt taaattagaa tacatcaaaa ataaactcta cgtagaggt	1980
ttgaacttag gggaggggca aaaagtaaca ctcacatatg atgtgaaact agatgacagt	2040
tttattagta acaaatctta tgacactaat ggtagaacaa cattgaatcc taaatcagag	2100
gaacccgata cacttagaga tttccaatc cctaaaattc gtgatgtgag agaatacct	2160
acaataacga ttaaaaacga gaagaagtta ggtgaaattg aatttacaaa agttgataaa	2220
gataataata agttgcttct caaaggagct acatttgaac ttcaagaatt taatgaagat	2280
tataaacttt atttaccat aaaaaataat aattcaaaag tagtgacggg agaaaacggc	2340
aaaatttctt acaagattt gaaagatggc aaatatcagt taatagaagc agtttcgccg	2400
aaggattatc aaaaaattac taataaacca attttaactt ttgaagttgt taaaggatcg	2460
atacaaaata taatagctgt taataaacag atttctgaat atcatgagga aggtgacaag	2520
catttaatta ccaacacgca tattccacca aaaggaatta ttccgatgac aggtgggaaa	2580
ggaattctat ctttcatttt aataggtgga gctatgatgt ctattgcagg tggaatttat	2640
atgttgaaaa gacataagaa atctagtgat gcatcaatcg agaaagatta a	2691

<210> 205
 <211> 2706
 <212> DNA
 <213> Streptococcus agalactiae

<400> 205	
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaaatgg tgctaaagga	120
aagttagtgt ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttgtt	180
ttaaaaacta ctgctcatcc agaaagtaaa atagaaaaag taactgctga gctaacaggt	240
gaagctactt ttgataatct catacctgga gattataactt tatcagaaga aacagcgccc	300
gaagggtata aaaagactaa ccagacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgggtga taaaaattcc acaattggac aaaatcagga agaactagat	420
aagcagtatc cccccacagg aatttatgaa gatacaaagg aatcttataa acttgagcat	480
gttaaagggt cagttccaaa tggaaagtca gagggcaaaag cagttaaccc atattcaagt	540
gaaggtgagc atataagaga aattccagag ggaacattat ctaaacgtat ttcagaagta	600
ggtgatttag ctcataataa atataaaatt gagttaactg tcagtggaaa aaccatagta	660
aaaccagtgg acaaacaaaa gccgttagat gttgtcttcg tactcgataa ttctaactca	720
atgaataacg atggcccaaa ttttcaaagg cataataaag ccaagaaagc tgccgaagct	780
cttgggaccg cagtaaaaga tatttttagga gcaaacagtg ataataagggt tgcattagtt	840
acctatgggt cagatatttt tgatggtagg agtgtagatg tcgtaaaagg atttaaagaa	900

eof-seq1.txt

gatgataaat attatggcct tcaaactaag ttcacaattc agacagagaa ttatagtcac	960
aaacaattaa caaataatgc tgaagagatt ataaaaagga ttccgacaga agctcctaaa	1020
gctaagtggg gatctactac caatggatta actccagagc aacaaaagga gtactatctt	1080
agtaaagtag gagaaacatt tactatgaaa gccttcattg aggcagatga tattttgagt	1140
caagtaaatc gaaatagtca aaaaattatt gttcatgtaa ctgatggtgt tcctacgaga	1200
tcatatgcta ttaataatth taaactgggt gcatcatatg aaagccaatt tgaacaaatg	1260
aaaaaaaaatg gatatctaaa taaaagtaat tttctactta ctgataagcc cgaggatata	1320
aaaggaaatg gggagagtta ctttttgttt cccttagata gttatcaaac acagataatc	1380
tctggaaact taaaaaact tcattattta gatttaaadc ttaattacc taaaggtaca	1440
ttttatcgaa atggaccagt aagagaacat ggaacaccaa ccaaacttta tataaatagt	1500
ttaaaacaga aaaattatga catctttaat ttgggtatag atatatctgg ttttagacaa	1560
gtttataatg aggattataa gaaaaatcaa gatggtactt ttcaaaaatt gaaagaggaa	1620
gcttttgaac ttccagatgg ggaaataaca gaactaatga agtcattctc ttctaaacct	1680
gagtattata ccccgatagt aacttcatcc gatgcatcta acaatgaaat tttatctaaa	1740
attcagcaac aatttgaaaa gattttaaca aaagaaaact caattgttaa tggaactata	1800
gaagatccta tgggtgacaa aatcaattta cagcttggca acggacaaac attgcaacca	1860
agtgattata ctttacaggg aatgatgga agtataatga aagatagcat tgcaactggt	1920
gggcctaata atgatggtgg aatacttaaa ggggttaaat tagaatacat caaaaataaa	1980
ctctacgta gaggtttgaa cttaggggag ggacaaaaag taacactcac atatgatgtg	2040
aaactagatg acagttttat aagtaacaaa ttctatgaca ctaatggtag aacaacattg	2100
aatcctaaat cagaggatcc taatacactt agagattttc caatccctaa aattcgtgat	2160
gtgagagaat atcctacaat aacgattaaa aacgagaaga agttaggatga aattgaattt	2220
acaaaagttg ataaagataa taataagttg cttctcaaag gagctacgtt tgaacttcaa	2280
gaatttaatg aagattataa actttattta ccaataaaaa ataataattc aaaagtagtg	2340
acgggagaaa acggcaaaat ttcttacaaa gatttgaaag atggcaaata tcagttaata	2400
gaagcagttt cgccgaagga ttatcaaaaa attactaata aaccaatttt aacttttgaa	2460
gttgttaaag gatcgataca aaatataata gctgttaata aacagatttc tgaatatcat	2520
gaggaaggtg acaagcattt aattaccaac acgcatattc caccaaaagg aattattccg	2580
atgacaggtg ggaaaggaat tctatctttc attttaatag gtggatctat gatgtctatt	2640
gcaggtggaa tttatatthg gaaaagatat aagaaatcta gtgatatatc tagagaaaaa	2700
gattaa	2706

<210> 206
 <211> 2673
 <212> DNA
 <213> Streptococcus agalactiae

eo1f-seq1.txt

```

<400> 206
atgaaaaaga gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa      60
attccatttg gtatattggg acaaggtgaa acccaagata ccaatcaagc acttgga      120
gtaattgtta aaaaaacggg agacaatgct acaccattag gcaaagcgac ttttgtgtta      180
aaaaatgaca atgataagtc agaaacaagt cacgaaacgg tagaggggttc tggagaagca      240
acctttgaaa acataaaacc tggagactac acattaagag aagaaacagc accaattggg      300
tataaaaaaa ctgataaaac ctggaaaagt aaagttgcag ataacggagc aacaataatc      360
gagggtatgg atgcagataa agcagagaaa cgaaaagaag ttttgaatgc ccaatatcca      420
aaatcagcta tttatgagga tacaaaagaa aattacccat tagttaatgt agaggggtcc      480
aaagttggtg aacaatacaa agcattgaat ccaataaatg gaaaagatgg tcgaagagag      540
attgctgaag gttggttatc aaaaaaatt acaggggtca atgatctcga taagaataaa      600
tataaaattg aattaactgt tgagggtaaa accactgttg aaacgaaaga acttaatcaa      660
ccactagatg tcgttgtgct attagataat tcaaatagta tgaataatga aagagccaat      720
aattctcaaa gagcattaaa agctggggaa gcagttgaaa agctgattga taaaattaca      780
tcaaataaag acaatagagt agctcttggt acatatgcct caaccatttt tgatggtact      840
gaagcgaccg tatcaaaggg agttgccgat caaaatggta aagcgctgaa tgatagtgt      900
tcatgggatt atcataaaac tactttttaca gcaactacac ataattacag ttatttaa      960
ttaacaaatg atgctaacga agttaatatt ctaaagtcaa gaattccaaa ggaagcggag     1020
catataaatg gggatcgcac gctctatcaa tttggtgcga catttactca aaaagctcta     1080
atgaaagcaa atgaaatttt agagacacaa agttctaatt ctagaaaaaa acttattttt     1140
cacgtaactg atggtgtccc tacgatgtct tatgccataa attttaatcc ttatatatca     1200
acatcttacc aaaaccagtt taattctttt ttaaataaaa taccagatag aagtggattt     1260
ctccaagagg attttataat caatgggtgat gattatcaaa tagtaaaagg agatggagag     1320
agtttttaac tgttttcggg tagaaaagtt cctgttactg gaggaacgac acaagcagct     1380
tatcgagtac cgcaaaatca actctctgta atgagtaatg agggatatgc aattaatagt     1440
ggatatattt atctctattg gagagattac aactgggtct atccatttga tcctaagaca     1500
aagaaagttt ctgcaacgaa acaaatcaaa actcatggtg agccaacaac attatacttt     1560
aatggaaata taagacctaa aggttatgac atttttactg ttgggattgg tgtaaacgga     1620
gatcctggtg caactcctct tgaagctgag aaatttatgc aatcaatatc aagtaaaaca     1680
gaaaattata ctaatgttga tgatacaaat aaaatttatg atgagctaaa taaatacttt     1740
aaaacaattg ttgaggaaaa acattctatt gttgatggaa atgtgactga tcctatggga     1800
gagatgattg aattccaatt aaaaaatggt caaagtttta cacatgatga ttacgttttg     1860
gttggaatg atggcagtca attaaaaaat ggtgtggctc ttggtggacc aaacagtgat     1920
gggggaatth taaaagatgt tacagtgact tatgataaga catctcaaac catcaaaatc     1980
aatcatttga acttaggaag tggacaaaaa gtagttctta cctatgatgt acgtttaaaa     2040

```

eol-f-seq1.txt

gataactata taagtaacaa attttacaat acaaataatc gtacaacgct aagtccgaag	2100
agtgaaaaag aaccaaatac tattcgtgat ttcccaattc ccaaaattcg tgatgttcgt	2160
gagtttccgg tactaaccat cagtaatcag aagaaaatgg gtgagggtga atttattaaa	2220
gttaataaaag acaaacattc agaatcgctt ttggggagcta agtttcaact tcagatagaa	2280
aaagattttt ctgggtataa gcaatttggt ccagagggaa gtgatgttac aacaaagaat	2340
gatggtaaaa tttattttta agcacttcaa gatggtaact ataaattata tgaaatttca	2400
agtcagatg gctatataga gggtaaaacg aaacctgttg tgacatttac aattcaaaat	2460
ggagaagtta cgaacctgaa agcagatcca aatgctaata aaaatcaa atcggtatctt	2520
gaaggaaaatg gtaaacatct tattaccaac actcccaaac gccaccagg tgtttttcct	2580
aaaacagggg gaattggtac aattgtctat atattagttg gttctacttt tatgatactt	2640
accatttggt ctttccgtcg taaacaattg taa	2673

<210> 207
 <211> 2691
 <212> DNA
 <213> Streptococcus agalactiae

<400> 207	
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga	120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttggt	180
ttaaaaacta ctgctcatcc agaaagtaaa atagaaaaag taactgctga ggtaacaggt	240
gaagctactt ttgataatct cacacctgga gattacactt tatcagaaga aacggcaccc	300
gaaggataca aaaagactac ccagacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgtatga taaaaaatct ataattgaac aaaggcaaga ggaactagat	420
aagcagtatc cccttacagg agcttatgaa gatacaaaag aatcttataa tcttgagcat	480
gttaaaaatt caattccaaa tgggaaatta gaggcaaaag cagttaatcc atattcaagt	540
gaaggtgagc acataagaga aattcaagag ggaacattat cttaaactgt ttcagaagta	600
aatgatttgg atcataataa atataaaatt gagttaactg ttagcggtaa atccataata	660
aaaactataa ataaagatga acctctggat gttgtttttg ttcttgataa ttcaaattct	720
atgaagaata atggaaaaaa taacaaggca aaaaaggcag gtgaagcagt agaaacaatt	780
ataaaagatg ttttaggagc aaatgttgaa aaccgagcag ctttagttac ttatgggtca	840
gatatttttg atggaaggac agttaaggtt ataaaagggt ttaaagagga tccttattat	900
ggacttgaaa ctagtttcac agttcagaca aatgattata gctataaaaa gttcactaat	960
attgctgctg atattataaa aaagatccct aaagaagctc cagaagctaa gtgggggggg	1020
acaagtctag gattaactcc agaaaaaaag agggaatatg atttaagtaa agtaggtgag	1080
acctttacaa tgaaagcttt tatggaggca gataccttgt taagtagtat acagcgtaag	1140
agtagaaaaga ttattgttca tctaactgac ggtgttccaa caagatcata tgccattaat	1200

eol-f-seq1.txt

agttttgtaa caggttcaac atacgcaaat caatttgaga gaataaaaga aaaaggttat	1260
ttagacaaaa ataattatntt tataactgat gatccagaaa agatcaaagg caatggggag	1320
agttactntt tgnttccctt agatagttat caaacacaga taatttctgg aaacttacaa	1380
aaacttcatt atttagatntt aaatcttaat taccctaaag gtacaattta tagaaatgga	1440
ccagtaagag aacatggaac accaaccaaa ctttatataa atagttntaa acagaaaaat	1500
tatgacatct ttaattnttg tatagatata tctggntnta gacaagntta taatgaggat	1560
tataagaaaa atcaagatgg tactnttcaa aaattgaagg aggaagctnt tgaactntca	1620
gatggggaaa taacagaact aatgaattca ttctctntca aacctgagta ttataccccg	1680
atagtaactt cagctgatgt atctaataat gaaatntntat ctaaaattca gcaacaattt	1740
gaaaagatnt taacaaagga aaactcaatt gntaatggaa ctatagaaga tcctatgggt	1800
gataaaatca atttacatct tggcaacgga caaacattgc aaccaagtga ttatactnta	1860
cagggaaatg atggaagtat aatgaaagat agcattgcaa ctggagggcc taataatgat	1920
ggtgggatac ttaaaggggt taaattagaa tacatcaaaa ataaactcta cgntagaggt	1980
ttgaacttag gggaggggca aaaagtaaca ctacatatg atgtgaaact agatgacagt	2040
tttattagta acaaattcta tgacactaat ggtagaacaa cattgaatcc taaatcagag	2100
gaacccgata cacttagaga tnttccaatc cctaaaattc gtgatgtgag agaatatcct	2160
acaataacga ttaaaaacga gaagaagtta ggtgaaattg aatttacaaa agttgataaa	2220
gataataata agttgctntc caaaggagct acattntgaa ttcaagaatt taatgaagat	2280
tataaactnt atttaccaat aaaaaataat aattcaaaaag tagtgacggg agaaaacggc	2340
aaaatntctt acaaagatnt gaaagatggc aaatatcagt taatagaagc agnttcgccg	2400
aaggattatc aaaaaattac taataaacca attntaactt ttgaagntgt taaaggatcg	2460
atacaaaaata taatagctgt taataaacag attntctgaa atcatgagga aggtgacaag	2520
catttaatta ccaacacgca tattccacca aaaggaatta ttccgatgac aggtgggaaa	2580
ggaattctat ctttcatntt aataggtgga gctatgatgt ctattgcagg tggaatntat	2640
atnttgaaaa gacataagaa atctagtgat gcatcaatcg agaaagatta a	2691

<210> 208
 <211> 2673
 <212> DNA
 <213> Streptococcus agalactiae

<400> 208	
atgaaaaaga gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa	60
attccatttg gtatattggg acaagggtgaa acccaagata ccaatcaagc acttgaaaa	120
gtaattgtta aaaaaacggg agacaatgct acaccattag gcaaagcgac tnttgtgnta	180
aaaaatgaca atgataagtc agaaacaagt cacgaaacgg tagagggntc tggagaagca	240
acctntgaaa acataaaacc tggagactac acattaagag aagaaacagc accaattggg	300
tataaaaaaa ctgataaaac ctggaaagnt aaagntgcag ataacggagc aacaataatc	360

eolf-seq1.txt

gagggatatgg atgcagataa agcagagaaa cgaaaagaag ttttgaatgc ccaatatcca	420
aaatcagcta tttatgagga tacaaaagaa aattacccat tagttaatgt agaggggtcc	480
aaagttggtg aacaatacaa agcattgaat ccaataaatg gaaaagatgg tcgaagagag	540
attgctgaag gttggttatc aaaaaaaatt acaggggtca atgatctcga taagaataaa	600
tataaaattg aattaactgt tgagggtaaa accactgttg aaacgaaaga acttaatcaa	660
ccactagatg tcgttgtgct attagataat tcaaatagta tgaataatga aagagccaat	720
aattctcaaa gagcattaaa agctggggaa gcagttgaaa agctgattga taaaattaca	780
tcaaataaag acaatagagt agctcttggtg acatatgcct caaccatttt tgatggtact	840
gaagcgaccg tatcaaaggg agttgccgat caaaatggta aagcgctgaa tgatagtgtg	900
tcattgggatt atcataaaac tactttttaca gcaactacac ataattacag ttattttaa	960
ttacaaaatg atgctaacga agttaatatt cttaaagtcaa gaattccaaa ggaagcggag	1020
catataaatg gggatcgcac gctctatcaa tttggtgcca catttactca aaaagctcta	1080
atgaaagcaa atgaaatttt agagacacaa agttctaattg ctagaaaaaa acttattttt	1140
cacgtaactg atgggtgtccc tacgatgtct tatgccataa attttaatcc ttatatatca	1200
acatcttacc aaaaccagtt taattctttt ttaaataaaa taccagatag aagtggatt	1260
ctccaagagg attttataat caatggtgat gattatcaaa tagtaaaagg agatggagag	1320
agttttaaac tgttttcggg tagaaaagtt cctgttactg gaggaacgac acaagcagct	1380
tatcgagtac cgcaaatca actctctgta atgagtaattg agggatatgc aattaatagt	1440
ggatatattt atctctattg gagagattac aactgggtct atccatttga tcctaagaca	1500
aagaaagttt ctgcaacgaa acaaatcaaa actcatggtg agccaacaac attatacttt	1560
aatggaaata taagacctaa aggttatgac atttttactg ttgggattgg tgtaaacgga	1620
gatcctggtg caactcctct tgaagctgag aaatttatgc aatcaatatc aagtaaaaca	1680
gaaaattata ctaatgttga tgatacaaat aaaatttatg atgagctaaa taaatacttt	1740
aaaacaattg ttgaggaaaa acattctatt gttgatggaa atgtgactga tcctatggga	1800
gagatgattg aattccaatt aaaaaatggt caaagtttta cacatgatga ttacgttttg	1860
gttggaatg atggcagtca attaaaaaat ggtgtggctc ttggtggacc aaacagtgat	1920
gggggaattt taaaagatgt tacagtgact tatgataaga catctcaaac catcaaaatc	1980
aatcatttga acttaggaag tggacaaaaa gtagttctta cctatgatgt acgtttaaaa	2040
gataactata taagtaacaa attttacaat acaataatc gtacaacgct aagtccgaag	2100
agtgaaaaag aaccaaatc tattcgtgat ttccaattc ccaaaattcg tgatgttcgt	2160
gagtttccgg tactaaccat cagtaatcag aagaaaatgg gtgagggtga atttattaaa	2220
gttaataaag acaaacattc agaatcgctt ttgggagcta agtttcaact tcagatagaa	2280
aaagattttt ctgggtataa gcaatttggt ccagagggaa gtgatgttac aacaaagaat	2340
gatggtaaaa tttattttta agcacttcaa gatggtaact ataaattata tgaaatttca	2400
agtccagatg gctatataga ggtaaaaacg aaacctgttg tgacatttac aattcaaaat	2460

eof-seq1.txt

ggagaagtta cgaacctgaa agcagatcca aatgctaata aaaatcaa	cggtatctt	2520
gaaggaaatg gtaaacatct tattaccaac actcccaa	gcccaccagg tgtttttcct	2580
aaaacagggg gaattggtac aattgtctat atattagttg gttctacttt	tatgatactt	2640
accatttggt ctttcgctg taaacaattg taa		2673

<210> 209
 <211> 2673
 <212> DNA
 <213> Streptococcus agalactiae

<400> 209	
atgaaaaaga gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa	60
attccatttg gtatatgttg acaaggtgaa acccaagata ccaatcaagc acttgaaaaa	120
gtaattgtta aaaaaacggg agacaatgct acaccattag gcaaagcgac ttttgtgtta	180
aaaaatgaca atgataagtc agaacaagt cacgaaacgg tagaggggttc tggagaagca	240
acctttgaaa acataaaacc tggagactac acattaagag aagaaacagc accaattggt	300
tataaaaaaa ctgataaaac ctggaaagt aaagttgcag ataacggagc aacaataatc	360
gagggtatgg atgcagataa agcagagaaa cgaaaagaag ttttgaatgc ccaatatcca	420
aaatcagcta tttatgagga tacaaaagaa aattacccat tagttaatgt agaggggtcc	480
aaagttggtg aacaatacaa agcattgaat ccaataaatg gaaaagatgg tcgaagagag	540
attgctgaag gttggttatc aaaaaaatt acaggggtca atgatctcga taagaataaa	600
tataaaattg aattaactgt tgagggtaaa accactgttg aaacgaaaga acttaataca	660
ccactagatg tcgttgtgct attagataat tcaaatagta tgaataatga aagagccaat	720
aattctcaaa gagcattaaa agctggggaa gcagttgaaa agctgattga taaaattaca	780
tcaaataaag acaatagagt agctcttgtg acatatgcct caaccatfff tgatggtact	840
gaagcgaccg tatcaaaggg agttgccgat caaatggta aagcgctgaa tgatagtgtg	900
tcattgggatt atcataaaac tacttttaca gcaactacac ataattacag ttatttaaat	960
ttaacaaatg atgctaacga agttaatatt ctaaagtcaa gaattccaaa ggaagcggag	1020
catataaatg gggatcgac gctctatcaa tttggtgcga catttactca aaaagctcta	1080
atgaaagcaa atgaaatfff agagacacaa agttctaatt ctagaaaaaa acttatfff	1140
cacgtaactg atggtgtccc tacgatgtct tatgccataa attttaatcc ttatatatca	1200
acattctacc aaaaccagtt taattctfff ttaaataaaa taccagatag aagtgttatt	1260
ctccaagagg attttataat caatggtgat gattatcaaa tagtaaaagg agatggagag	1320
agttttaaac tgttttcggg tagaaaagt cctgttactg gaggaacgac acaagcagct	1380
tatcgagtac cgcaaaatca actctctgta atgagtaatg agggatatgc aattaatagt	1440
ggatatatff atctctattg gagagattac aactgggtct atccatttga tcctaagaca	1500
aagaaagttt ctgcaacgaa acaaatcaaa actcatggtg agccaacaac attatactff	1560
aatggaaata taagacctaa aggttatgac atttttactg ttgggattgg tgtaaacgga	1620

eof-seq1.txt

gacacctggtg caactcctct tgaagctgag aaattttatgc aatcaatatac aagtaaaaca	1680
gaaaattata ctaatgttga tgatacaaat aaaattttatg atgagctaaa taaatacttt	1740
aaaacaattg ttgaggaaaa acattctatt gttgatggaa atgtgactga tcctatggga	1800
gagatgattg aattccaatt aaaaaatggt caaagtttta cacatgatga ttacgttttg	1860
gttggaatg atggcagtca attaaaaaat ggtgtggctc ttggtggacc aaacagtgat	1920
gggggaattt taaaagatgt tacagtgact tatgataaga catctcaaac catcaaaatc	1980
aatcatttga acttaggaag tggacaaaaa gtagttctta cctatgatgt acgtttaaaa	2040
gataactata taagtaacaa attttacaat acaaataatc gtacaacgct aagtccgaag	2100
agtgaaaaag aaccaatac tattcgtgat ttcccaattc ccaaattcg tgatgttcgt	2160
gagtttccgg tactaaccat cagtaatcag aagaaaatgg gtgaggttga atttattaaa	2220
gttaataaag acaaacattc agaatcgctt ttgggagcta agtttcaact tcagatagaa	2280
aaagattttt ctgggtataa gcaatttggt ccagagggaa gtgatgttac aacaaagaat	2340
gatggtaaaa tttattttta agcacttcaa gatggtaact ataaattata tgaaatttca	2400
agtccagatg gctatataga ggtaaaaacg aaacctgttg tgacatttac aattcaaaat	2460
ggagaagtta cgaacctgaa agcagatcca aatgctaata aaaatcaa atcggtatctt	2520
gaaggaaatg gtaaacatct tattaccaac actcccaaac gccaccagg tgtttttcct	2580
aaaacagggg gaattggtac aattgtctat atattagttg gttctacttt tatgatactt	2640
accatttggt ctttcgctcg taaacaattg taa	2673

<210> 210
 <211> 2673
 <212> DNA
 <213> Streptococcus agalactiae

<400> 210	
atgaaaaaga gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa	60
attccatttg gtatattggt acaagggtgaa acccaagata ccaatcaagc acttggaata	120
gtaattgtta aaaaaacggg agacaatgct acaccattag gcaaagcgac ttttgtgtta	180
aaaaatgaca atgataagtc agaaacaagt cacgaaacgg tagaggggttc tggagaagca	240
acctttgaaa acataaaacc tggagactac acattaagag aagaaacagc accaattggt	300
tataaaaaaa ctgataaaac ctggaaagtt aaagttgcag ataacggagc aacaataatc	360
gagggtatgg atgcagataa agcagagaaa cgaaaagaag ttttgaatgc ccaatatcca	420
aaatcagcta tttatgagga taaaaagaa aattacccat tagttaatgt agaggggtcc	480
aaagttggtg aacaatacaa agcattgaat ccaataaatg gaaaagatgg tcgaagagag	540
attgctgaag gttggttatc aaaaaaaatt acaggggtca atgatctcga taagaataaa	600
tataaaattg aattaactgt tgagggtaaa accactgttg aaacgaaaga acttaataca	660
ccactagatg tcgttgtgct attagataat tcaaatagta tgaataatga aagagccaat	720
aattctcaaa gagcattaaa agctggggaa gcagttgaaa agctgattga taaaattaca	780

eo1f-seq1.txt

tcaaataaag acaatagagt agctcttggtg acatatgcct caaccatttt tgatggtact	840
gaagcgaccg tatcaaaggg agttgccgat caaaatggta aagcgctgaa tgatagtgtgta	900
tcatgggatt atcataaaac tactttttaca gcaactacac ataattacag ttattttaa	960
ttacaaaatg atgctaacga agttaatatt cttaaagtcaa gaattccaaa ggaagcggag	1020
catataaatg gggatcgcac gctctatcaa tttggtgcga catttactca aaaagctcta	1080
atgaaagcaa atgaaatttt agagacacaa agtttctaag ctagaaaaaa acttattttt	1140
cacgtaactg atgggtgtccc tacgatgtct tatgccataa attttaatcc ttatatatca	1200
acatcttacc aaaaccagtt taattctttt ttaaataaaa taccagatag aagtgggtatt	1260
ctccaagagg attttataat caatgggtgat gattatcaaa tagtaaaagg agatggagag	1320
agtttttaac tgttttcggg tagaaaagtt cctgttactg gaggaacgac acaagcagct	1380
tatcgagtac cgcaaaatca actctctgta atgagtaatg agggatatgc aattaatagt	1440
ggatatattt atctctattg gagagattac aactgggtct atccatttga tcctaagaca	1500
aagaaagttt ctgcaacgaa acaaatcaaa actcatgggtg agccaacaac attatacttt	1560
aatggaaata taagacctaa aggttatgac atttttactg ttgggattgg tgtaaacgga	1620
gatcctgggtg caactcctct tgaagctgag aaatttatgc aatcaatatc aagtaaaaca	1680
gaaaattata ctaatgttga tgatacaaat aaaatttatg atgagctaaa taaatacttt	1740
aaaacaattg ttgaggaaaa acattctatt gttgatggaa atgtgactga tcctatggga	1800
gagatgattg aattccaatt aaaaaatggg caaagtttta cacatgatga ttacgttttg	1860
gttggaatg atggcagtc attaaaaaat ggtgtggctc ttggtggacc aaacagtgat	1920
gggggaattt taaaagatgt tacagtgact tatgataaga catctcaaac catcaaaatc	1980
aatcatttga acttaggaag tggacaaaaa gtagttctta cctatgatgt acgtttaaaa	2040
gataactata taagtaacaa attttacaat acaaataatc gtacaacgct aagtccgaag	2100
agtgaaaaag aaccaatac tattcgtgat ttccaattc ccaaaattcg tgatgttcgt	2160
gagtttccgg tactaaccat cagtaatcag aagaaaatgg gtgagggtga atttattaaa	2220
gttaataaag acaaacattc agaatcgctt ttgggagcta agtttcaact tcagatagaa	2280
aaagattttt ctgggtataa gcaatttggt ccagaggga gtgatgttac aacaaagaat	2340
gatggtaaaa tttattttta agcacttcaa gatggtaact ataaattata tgaaatttca	2400
agtccagatg gctatataga ggttaaaacg aaacctgttg tgacatttac aattcaaaat	2460
ggagaagtta cgaacctgaa agcagatcca aatgctaata aaaatcaaat cgggtatctt	2520
gaaggaaatg gtaaacatct tattaccaac actcccaaac gccaccagg tgtttttcct	2580
aaaacagggg gaattggtac aattgtctat atattagttg gttctacttt tatgatactt	2640
accatttggt ctttccgtcg taaacaattg taa	2673

<210> 211
 <211> 2673
 <212> DNA

<213> Streptococcus agalactiae

<400> 211

```

atgaaaaaga gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa      60
attccatttg gtatatgttg acaagggtgaa acccaagata ccaatcaagc acttgaaaaa     120
gtaattgtta aaaaaacggg agacaatgct acaccattag gcaaagcgac ttttgtgtta     180
aaaaatgaca atgataagtc agaaacaagt cacgaaacgg tagaggggttc tggagaagca     240
acctttgaaa acataaaacc tggagactac acattaagag aagaaacagc accaattggt      300
tataaaaaaa ctgataaaac ctggaaaagt aaagttgcag ataacggagc aacaataatc     360
gagggatagg atgcagataa agcagagaaa cgaaaagaag ttttgaatgc ccaatatcca     420
aaatcagcta tttatgagga taaaaagaa aattacccat tagttaatgt agaggggtcc     480
aaagttggtg aacaatacaa agcattgaat ccaataaatg gaaaagatgg tcgaagagag     540
attgctgaag gttggttatc aaaaaaatt acaggggtca atgatctcga taagaataaa     600
tataaaattg aattaactgt tgagggtaaa accactgttg aaacgaaaga acttaatcaa     660
ccactagatg tcgttgtgct attagataat tcaaatagta tgaataatga aagagccaat     720
aattctcaa gagcattaaa agctggggaa gcagttgaaa agctgattga taaaattaca     780
tcaaataaag acaatagagt agctcttggt acatatgcct caaccatttt tgatggtact     840
gaagcgaccg tatcaaaggg agttgccgat caaaatggta aagcgctgaa tgatagtgtg     900
tcatgggatt atcataaaac tacttttaca gcaactacac ataattacag ttatttaaatt     960
ttaacaaatg atgctaacga agttaatatt ctaaagtcaa gaattccaaa ggaagcggag    1020
catataaatg gggatcgcac gctctatcaa tttggtgcga catttactca aaaagctcta    1080
atgaaagcaa atgaaatttt agagacacaa agttctaatt ctagaaaaaa acttattttt    1140
cacgtaactg atgggtgtcc tacgatgtct tatgccataa attttaatcc ttatatatca    1200
acatcttacc aaaaccagtt taattctttt ttaaataaaa taccagatag aagtggattt    1260
ctccaagagg attttataat caatgggtgat gattatcaaa tagtaaaagg agatggagag    1320
agttttaaac tgttttcggg tagaaaagtt cctgttactg gaggaacgac acaagcagct    1380
tatcgagtac cgcaaatca actctctgta atgagtaatg agggatatgc aattaatagt    1440
ggatatattt atctctattg gagagattac aactgggtct atccatttga tcctaagaca    1500
aagaaagttt ctgcaacgaa acaaatcaaa actcatggtg agccaacaac attatacttt    1560
aatggaaata taagacctaa aggttatgac atttttactg ttgggattgg tgtaaacgga    1620
gatcctggtg caactcctct tgaagctgag aaatttatgc aatcaatatc aagtaaaaca    1680
gaaaattata ctaatgttga tgatacaaat aaaatttatg atgagctaaa taaatacttt    1740
aaaacaattg ttgaggaaaa acattctatt gttgatggaa atgtgactga tcctatggga    1800
gagatgattg aattccaatt aaaaaatggt caaagtttta cacatgatga ttacgttttg    1860
gttggaatg atggcagtca attaaaaaat ggtgtggctc ttggtggacc aaacagtgat    1920
gggggaatth taaaagatgt tacagtgact tatgataaga catctcaaac catcaaaatc    1980

```

eol-f-seq1.txt

aatcatttga	acttaggaag	tggacaaaaa	gtagttccta	cctatgatgt	acgtttaaaa	2040
gataactata	taagtaacaa	attttacaat	acaaataatc	gtacaacgct	aagtccgaag	2100
agtgaaaaag	aaccaaatac	tattcgtgat	ttcccaattc	ccaaaattcg	tgatgttcgt	2160
gagtttccgg	tactaaccat	cagtaatcag	aagaaaatgg	gtgagggtga	atttattaaa	2220
gttaataaaag	acaacatttc	agaatcgctt	ttgggagcta	agtttcaact	tcagatagaa	2280
aaagatTTTT	ctgggtataa	gcaatttggt	ccagagggaa	gtgatgttac	aacaaagaat	2340
gatggtaaaa	tttattttta	agcacttcaa	gatggtaact	ataaattata	tgaaatttca	2400
agtccagatg	gctatataga	ggttaaaacg	aaacctgttg	tgacatttac	aattcaaaat	2460
ggagaagtta	cgaacctgaa	agcagatcca	aatgctaata	aaaatcaaat	cgggtatcct	2520
gaaggaaatg	gtaaacatct	tattaccaac	actcccaaac	gcccaccagg	tgtttttcct	2580
aaaacagggg	gaattggtac	aattgtctat	atattagttg	gttctacttt	tatgatactt	2640
accatttggt	ctttccgtcg	taaacaattg	taa			2673

<210> 212
 <211> 2673
 <212> DNA
 <213> Streptococcus agalactiae

<400> 212	
atgaaaaaga	gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa 60
attccatttg	gtatattgggt acaaggtgaa acccaagata ccaatcaagc acttggaaaa 120
gtaattgtta	aaaaaacggg agacaatgct acaccattag gcaaagcgac ttttgtgtta 180
aaaaatgaca	atgataagtc agaacaagt cacgaaacgg tagaggggttc tggagaagca 240
acctttgaaa	acataaaacc tggagactac acattaagag aagaaacagc accaattgggt 300
tataaaaaaa	ctgataaaac ctggaaagt aaagttgcag ataacggagc aacaataatc 360
gagggtatgg	atgcagataa agcagagaaa cgaaaagaag ttttgaatgc ccaatatcca 420
aatcagcta	tttatgagga tacaaaagaa aattacccat tagttaatgt agaggggttc 480
aaagttgggtg	aacaatacaa agcattgaat ccaataaatg gaaaagatgg tcgaagagag 540
attgctgaag	gttggttatc aaaaaaaat acaggggtca atgatctcga taagaataaa 600
tataaaattg	aattaactgt tgagggtaaa accactgttg aaacgaaaga acttaataca 660
ccactagatg	tcgttgtgct attagataat tcaaatagta tgaataatga aagagccaat 720
aattctcaaa	gagcattaaa agctggggaa gcagttgaaa agctgattga taaaattaca 780
tcaaataaaag	acaatagagt agctcttggtg acatatgcct caaccatttt tgatggtact 840
gaagcgaccg	tatcaaaggg agttgccgat caaaatggta aagcgctgaa tgatagtgtta 900
tcattgggatt	atcataaaac tactttttaca gcaactacac ataattacag ttattttaa 960
ttaacaaatg	atgctaacga agttaatatt ctaaagtcaa gaattccaaa ggaagcggag 1020
catataaatg	gggatcgcac gctctatcaa ttgtgtgcga catttactca aaaagctcta 1080
atgaaagcaa	atgaaatttt agagacacaa agttctaatt ctagaaaaaa acttattttt 1140

eolf-seq1.txt

cacgtaactg atggtgtccc tacgatgtct tatgccataa attttaatcc ttatatatca	1200
acatcttacc aaaaccagtt taattctttt ttaaataaaa taccagatag aagtggattt	1260
ctccaagagg attttataat caatgggtgat gattatcaaa tagtaaaagg agatggagag	1320
agttttaaac tgttttcgga tagaaaagtt cctgttactg gaggaacgac acaagcagct	1380
tatcgagtac cgcaaaatca actctctgta atgagtaatg agggatatgc aattaatagt	1440
ggatatattt atctctattg gagagattac aactgggtct atccatttga tcctaagaca	1500
aagaaagttt ctgcaacgaa acaaatcaaa actcatgggtg agccaacaac attatacttt	1560
aatggaaata taagacctaa aggttatgac atttttactg ttgggattgg tgtaaacgga	1620
gatcctgggtg caactcctct tgaagctgag aaatttatgc aatcaatatc aagtaaaaca	1680
gaaaattata ctaatgttga tgatacaaat aaaatttatg atgagctaaa taaatacttt	1740
aaaacaattg ttgaggaaaa acattctatt gttgatggaa atgtgactga tcctatggga	1800
gagatgattg aattccaatt aaaaaatggt caaagtttta cacatgatga ttacgttttg	1860
gttggaatg atggcagtc attaaaaaat ggtgtggctc ttggtggacc aaacagtgat	1920
gggggaattt taaaagatgt tacagtgact tatgataaga catctcaaac catcaaaatc	1980
aatcatttga acttaggaag tggacaaaaa gtagttctta cctatgatgt acgtttaaaa	2040
gataactata taagtaacaa attttacaat acaataatc gtacaacgct aagtccgaag	2100
agtgaaaaag aaccaatac tattcgtgat ttccaattc ccaaattcg tgatgttcgt	2160
gagtttccgg tactaaccat cagtaatcag aagaaaatgg gtgaggttga atttattaaa	2220
gttaataaag acaaacattc agaatcgctt ttgggagcta agtttcaact tcagatagaa	2280
aaagattttt ctgggtataa gcaatttggt ccagagggaa gtgatgttac aacaaagaat	2340
gatggtaaaa tttattttta agcacttcaa gatggtaact ataaattata tgaaatttca	2400
agtccagatg gctatataga ggtaaaaacg aaacctgttg tgacatttac aattcaaat	2460
ggagaagtta cgaacctgaa agcagatcca aatgctaata aaaatcaaat cgggtatctt	2520
gaaggaaatg gtaaacatct tattaccaac actcccaaac gccaccagg tgtttttcct	2580
aaaacagggg gaattggtac aattgtctat atattagttg gttctacttt tatgatactt	2640
accatttggt ctttcgctcg taaacaattg taa	2673

<210> 213
 <211> 2673
 <212> DNA
 <213> Streptococcus agalactiae

<400> 213	
atgaaaaaga gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa	60
attccatttg gtatattggt acaagggtgaa acccaagata ccaatcaagc acttgga	120
gtaattgtta aaaaaacggg agacaatgct acaccattag gcaaagcgac ttttgtgta	180
aaaaatgaca atgataagtc agaacaagt cacgaaacgg tagagggttc tggagaagca	240
acctttgaaa acataaaacc tggagactac acattaagag aagaaacagc accaattggt	300

eol-f-seq1.txt						
tataaaaaaa	ctgataaaac	ctggaaaagt	aaagttgcag	ataacggagc	aacaataatc	360
gagggtatgg	atgcagataa	agcagagaaa	cgaaaagaag	ttttgaatgc	ccaatatcca	420
aaatcagcta	tttatgagga	tacaaaagaa	aattacccat	tagttaatgt	agaggggtcc	480
aaagttggtg	aacaatacaa	agcattgaat	ccaataaatg	gaaaagatgg	tcgaagagag	540
attgctgaag	gttggttatc	aaaaaaaaatt	acaggggtca	atgatctcga	taagaataaaa	600
tataaaattg	aattaactgt	tgagggtaaa	accactgttg	aaacgaaaga	acttaatcaa	660
ccactagatg	tcgtttgtgct	attagataat	tcaaatagta	tgaataatga	aagagccaat	720
aattctcaaa	gagcattaaa	agctggggaa	gcagttgaaa	agctgattga	taaaattaca	780
tcaaataaag	acaatagagt	agctcttggt	acatatgcct	caaccatttt	tgatgggtact	840
gaagcgaccg	tatcaaaggg	agttgccgat	caaaatggta	aagcgctgaa	tgatagtgtg	900
tcatgggatt	atcataaaac	tactttttaca	gcaactacac	ataattacag	ttattttaaat	960
ttaacaaatg	atgctaacga	agttaatat	ctaaagtcaa	gaattccaaa	ggaagcggag	1020
catataaatg	gggatcgac	gctctatcaa	tttggtgcga	cattttactca	aaaagctcta	1080
atgaaagcaa	atgaaatttt	agagacacaa	agttctaatg	ctagaaaaaa	acttattttt	1140
cacgtaactg	atggtgtccc	tacgatgtct	tatgccataa	attttaatcc	ttatatatca	1200
acatcttacc	aaaaccagtt	taattctttt	ttaaataaaa	taccagatag	aagtgggtatt	1260
ctccaagagg	atttttataat	caatggtgat	gattatcaaa	tagtaaaagg	agatggagag	1320
agtttttaac	tgttttcggg	tagaaaagtt	cctgttactg	gaggaacgac	acaagcagct	1380
tatcgagtac	cgcaaaatca	actctctgta	atgagtaatg	agggatatgc	aattaatagt	1440
ggatatattt	atctctattg	gagagattac	aactgggtct	atccatttga	tcctaagaca	1500
aagaaagttt	ctgcaacgaa	acaaatcaaa	actcatggtg	agccaacaac	attatacttt	1560
aatggaaata	taagacctaa	aggttatgac	atttttactg	ttgggattgg	tgtaaacgga	1620
gatcctggtg	caactcctct	tgaagctgag	aaatttatgc	aatcaatatc	aagtaaaaca	1680
gaaaattata	ctaattgttg	tgatacaaat	aaaatttatg	atgagctaaa	taaatacttt	1740
aaaacaattg	ttgaggaaaa	acattctatt	gttgatggaa	atgtgactga	tcctatggga	1800
gagatgattg	aattccaatt	aaaaaatggt	caaagtttta	cacatgatga	ttacgttttg	1860
gttggaatg	atggcagtc	attaaaaaat	ggtgtggctc	ttggtggacc	aaacagtgat	1920
gggggaattt	taaaagatgt	tacagtgact	tatgataaga	catctcaaac	catcaaaatc	1980
aatcatttga	acttaggaag	tggacaaaaa	gtagttctta	cctatgatgt	acgtttaaaa	2040
gataactata	taagtaacaa	attttacaat	acaaataatc	gtacaacgct	aagtccgaag	2100
agtgaaaaag	aaccaaatat	tattcgtgat	ttcccaattc	ccaaaattcg	tgatgttcgt	2160
gagtttccgg	tactaaccat	cagtaatcag	aagaaaatgg	gtgaggttga	atttattaaa	2220
gttaataaag	acaaacattc	agaatcgctt	ttgggagcta	agtttcaact	tcagatagaa	2280
aaagattttt	ctgggtataa	gcaatttggt	ccagagggaa	gtgatgttac	aacaaagaat	2340
gatggtaaaa	tttattttta	agcacttcaa	gatggtaact	ataaattata	tgaaatttca	2400

eof-seq1.txt

agtccagatg gctatataga gggtaaaacg aaacctgttg tgacatttac aattcaaaat	2460
ggagaagtta cgaacctgaa agcagatcca aatgctaata aaaatcaaat cgggtatcctt	2520
gaaggaaatg gtaaacatct tattaccaac actcccaaac gcccaccagg tgtttttcct	2580
aaaacagggg gaattggtac aattgtctat atattagttg gttctacttt tatgatactt	2640
accatttggt ctttcgctcg taaacaattg taa	2673

<210> 214
 <211> 2706
 <212> DNA
 <213> Streptococcus agalactiae

<400> 214	
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga	120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttggt	180
ttaaaaacta ctgctcaacc agaaagtaaa atagaaaaag taactgctga gctaacaggt	240
gaagctactt ttgataatct catacctgga gattatactt tatcagaaga aacagcgccc	300
gaaggttata aaaagactaa ccgacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgggtga taaaaattcc acaattggac aaaatcagga agaactagat	420
aagcagtatc cccccacagg aatttatgaa gatacaaagg aatcttataa acttgagcat	480
gttaaagggt cagttccaaa tggaaagtca gaggcaaaag cagttaaccc atattcaagt	540
gaaggtagc atataagaga aattccagag ggaacattat ctacacgtat ttcagaagta	600
ggtgatttag ctcataataa atataaaatt gagttaactg tcagtggaaa aaccatagta	660
aaaccagtgg acaaacaaaa gccgttagat gttgtcttcg tactcgataa ttctaactca	720
atgaataacg atggcccaaa tttcaaagg cataataaag ccaagaaagc tgccgaagct	780
cttgggaccg cagtaaaaga tatttttagga gcaaacagt ataataagggt tgcattagtt	840
acctatggtt cagatatttt tgatggtagg agtgtagatg tcgtaaaagg atttaaagaa	900
gatgataaat attatggcct tcaaactaag ttcacaattc agacagagaa ttatagtcac	960
aaacaattaa caaataatgc tgaagagatt ataaaaagga ttccgacaga agctcctaaa	1020
gctaagtggg gatctactac caatggatta actccagagc aacaaaagga gtactatcctt	1080
agtaaagtag gagaaacatt tactatgaaa gccttcattg aggcagatga tattttgagt	1140
caagtaaatc gaaatagtca aaaaattatt gttcatgtaa ctgatgggtg tcctacgaga	1200
tcatatgcta ttaataatct taaactgggt gcatcatatg aaagccaatt tgaacaaatg	1260
aaaaaaaaatg gatattctaa taaaagtaat tttctactta ctgataagcc cgaggatata	1320
aaaggaaatg gggagagtta ctttttggtt cccttagata gttatcaaac acagataatc	1380
tctggaaact tacaaaaact tcattattta gatttaaact ttaattacc taaagggtaca	1440
ttttatcgaa atggaccagt aagagaacat ggaacaccaa ccaaacttta tataaatagt	1500
ttaaaacaga aaaattatga catctttaat ttgggtatag atatatctgg ttttagacaa	1560

eof-seq1.txt

gtttataatg aggattataa gaaaaatcaa gatggtactt ttcaaaaatt gaaagaggaa	1620
gcttttgaac tttcagatgg ggaaataaca gaactaatga agtcattctc ttctaaacct	1680
gagtattata ccccgatagt aacttcatcc gatgcatcta acaatgaaat tttatctaaa	1740
attcagcaac aatttgaaaa gattttaaca aaagaaaact caattgttaa tggaactata	1800
gaagatccta tgggtgacaa aatcaattta cagcttggca acggacaaac attgcaacca	1860
agtgattata ctttacaggg aaatgatgga agtataatga aagatagcat tgcaactggg	1920
gggcctaata atgatggtgg aatacttaaa ggggttaaata tagaatacat caaaaataaa	1980
ctctacgta gaggtttgaa cttaggggag ggacaaaaag taacactcac atatgatgtg	2040
aaactagatg acagttttat aagtaacaaa ttctatgaca ctaatggtag aacaacattg	2100
aatcctaaat cagaggatcc taatacactt agagattttc caatccctaa aattcgtgat	2160
gtgagagaat atcctacaat aacgattaaa aacgagaaga agttaggtga aattgaattt	2220
acaaaagttg ataaagataa taataagttg cttctcaaag gagctacggt tgaacttcaa	2280
gaatttaatg aagattataa actttattta ccaataaaaa ataataattc aaaagtagtg	2340
acgggagaaa acggcaaaat ttcttacaaa gatttgaaag atggcaaata tcagttaata	2400
gaagcagttt cgccgaagga ttatcaaaaa attactaata aaccaatttt aacttttgaa	2460
gttgttaaag gatcgataca aaatataata gctgttaata aacagatttc tgaatatcat	2520
gaggaaggtg acaagcattt aattaccaac acgcatattc caccaaaagg aattattccg	2580
atgacaggtg ggaaaggaat tctatctttc attttaatag gtggatctat gatgtctatt	2640
gcaggtggaa tttatatattg gaaaagatat aagaaatcta gtgatatatc tagagaaaaa	2700
gattaa	2706

<210> 215
 <211> 2673
 <212> DNA
 <213> Streptococcus agalactiae

<400> 215	
atgaaaaaga gacaaaaaat atggagaggg ttatcagtta ctttactaat cctgtcccaa	60
attccatttg gtatatgttg acaaggtgaa acccaagata ccaatcaagc acttggaata	120
gtaattgtta aaaaaacggg agacaatgct acaccattag gcaaagcgac ttttgtgtta	180
aaaaatgaca atgataagtc agaaacaagt cacgaaacgg tagagggttc tggagaagca	240
acctttgaaa acataaaacc tggagactac acattaagag aagaaacagc accaattggg	300
tataaaaaaa ctgataaaac ctggaaagtt aaagttgcag ataacggagc aacaataatc	360
gaggggtatg atgcagataa agcagagaaa cgaaaagaag ttttgaatgc ccaatatcca	420
aatcagcta tttatgagga tacaaaagaa aattacccat tagttaatgt agagggttcc	480
aaagttggtg aacaatacaa agcattgaat ccaataaatg gaaaagatgg tcgaagagag	540
attgctgaag gttgggttatc aaaaaaatt acaggggtca atgatctcga taagaataaa	600
tataaaattg aattaactgt tgagggtaaa accactgttg aaacgaaaga acttaatcaa	660

eo1f-seq1.txt

ccactagatg tcgttgtgct attagataat tcaaatagta tgaataatga aagagccaat	720
aattctcaaa gagcattaaa agctggggaa gcagttgaaa agctgattga taaaattaca	780
tcaaataaag acaatagagt agctcttggtg acatatgcct caaccatttt tgatggtact	840
gaagcgaccg tatcaaaggg agttgccgat caaaatggta aagcgctgaa tgatagtgtg	900
tcattgggatt atcataaaac tactttttaca gcaactacac ataattacag ttattttaa	960
ttacaacaaatg atgctaacga agttaatat cttaaagtcaa gaattccaaa ggaagcggag	1020
catataaagtg gggatcgac gctctatcaa tttgggtgca catttactca aaaagctcta	1080
atgaaagcaa atgaaatttt agagacacaa agttctaata ctagaaaaaa acttattttt	1140
cacgtaactg atgggtgtccc tacgatgtct tatgccataa attttaatcc ttatatatca	1200
acatcttacc aaaaccagtt taattctttt ttaaataaaa taccagatag aagtggatt	1260
ctccaagagg attttataat caatgggtgat gattatcaaa tagtaaaagg agatggagag	1320
agtttttaac tgttttcggg tagaaaagtt cctgttactg gaggaacgac acaagcagct	1380
tatcgagtac cgcaaaatca actctctgta atgagtaatg agggatatgc aattaatagt	1440
ggatatattt atctctattg gagagattac aactgggtct atccatttga tcctaagaca	1500
aagaaagttt ctgcaacgaa acaaatcaaa actcatggtg agccaacaac attatacttt	1560
aatggaaata taagacctaa aggttatgac atttttactg ttgggattgg tgtaaacgga	1620
gatcctggtg caactcctct tgaagctgag aaatttatgc aatcaatatc aagtaaaaca	1680
gaaaattata ctaatgttga tgatacaaat aaaatttatg atgagctaaa taaatacttt	1740
aaaacaattg ttgaggaaaa acattctatt gttgatggaa atgtgactga tcctatggga	1800
gagatgattg aattccaatt aaaaaatgg caaagtttta cacatgatga ttacgttttg	1860
gttggaatg atggcagtc attaaaaaat ggtgtggctc ttggtggacc aaacagtgat	1920
gggggaattt taaaagatgt tacagtgact tatgataaga catctcaaac catcaaaatc	1980
aatcatttga acttaggaag tggacaaaaa gtagttctta cctatgatgt acgtttaaaa	2040
gataactata taagtaacaa attttacaat acaataatc gtacaacgct aagtccgaag	2100
agtgaaaaag aaccaatac tattcgtgat ttccaattc ccaaaattcg tgatgttcgt	2160
gagtttccgg tactaaccat cagtaatcag aagaaaatgg gtgaggttga atttattaaa	2220
gttaataaag acaaacattc agaatcgctt ttgggagcta agtttcaact tcagatagaa	2280
aaagattttt ctgggtataa gcaatttggt ccagagggaa gtgatgttac aacaaagaat	2340
gatggtaaaa tttattttta agcacttcaa gatggtaact ataaattata tgaaatttca	2400
agtccagatg gctatataga ggtaaaaacg aaacctgttg tgacatttac aattcaaaat	2460
ggagaagtta cgaacctgaa agcagatcca aatgctaata aaaatcaaat cgggtatctt	2520
gaaggaaatg gtaaacatct tattaccaac actcccaaac gccaccagg tgtttttcct	2580
aaaacagggg gaattggtac aattgtctat atattagttg gttctacttt tatgatactt	2640
accatttggt ctttccgtcg taaacaattg taa	2673

eof-seq1.txt

<210> 216
 <211> 2706
 <212> DNA
 <213> Streptococcus agalactiae

```

<400> 216
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa      60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga      120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttgtt      180
ttaaaaacta ctgctcatcc agaaaagtaa atagaaaaag taactgctga gctaacaggt      240
gaagctactt ttgataatct catacctgga gattatactt tatcagaaga aacagcgccc      300
gaaggttata aaaagactaa ccagacttgg caagttaagg ttgagagtaa tggaaaaact      360
acgatacaaa atagtgggtga taaaaattcc acaattggac aaaatcacga agaactagat      420
aagcagtatc cccccacagg aatttatgaa gatacaaagg aatcttataa acttgagcat      480
gttaaagggt cagttccaaa tggaaagtca gaggcaaaag cagttaaccc atattcaagt      540
gaaggtgagc atataagaga aattccagag ggaacattat ctaaacgtat ttcagaagta      600
ggtgatattag ctcataataa atataaaatt gagttaactg tcagtggaaa aaccatagta      660
aaaccagtgg acaaacaaaa gccgttagat gttgtcttcg tactcgataa ttctaactca      720
atgaataacg atggcccaaa ttttcaaagg cataataaag ccaagaaagc tgccgaagct      780
cttgggaccg cagtaaaaga tatttttagga gcaaacagtg ataatagggg tgcattagtt      840
acctatggtt cagatatattt tgatggtagg agtgtagatg tcgtaaaagg atttaaagaa      900
gatgataaat attatggcct tcaaactaag ttcacaattc agacagagaa ttatagtcat      960
aaacaattaa caaataatgc tgaagagatt ataaaaagga ttcctacaga agctcctaga     1020
gctaaatggg gatcaactac aaacggactt actccagagc aacaaaagca gtactatctt     1080
agtaaagtag gggaaacatt tactatgaaa gccttcatgg aggcagatga tattttgagt     1140
caagtagatc gaaatagtca aaaaattatt gttcatataa ctgatgggtg tccaacaaga     1200
tcatatgcta ttaataatth taaattgggt gcatcatatg aaagccaatt tgaacaaatg     1260
aaaaaaaaatg gatatctaaa taaaagtaat tttctactta ctgataagcc cgaggatata     1320
aaagggaaatg gggagagtta ctttttggtt cccttagata gttatcaaac acagataatc     1380
tctggaaact taaaaaaact tcattattta gatttaaadc ttaattaccc taaagggtaca     1440
atztatcgaa atggaccagt aagagaacat ggaacaccaa ccaaacttta tataaatagt     1500
ttaaaacaga aaaattatga catctttaat tttggtatag atatatctgc ttttagacaa     1560
gtttataatg aggattataa gaaaaatcaa gatggtactt ttcaaaaatt gaaagaggaa     1620
gcttttgaac tttcagatgg ggaaataaca gaactaatga agtcattctc ttctaaacct     1680
gagtattata ccccgatagt aacttcatcc gatgcatcta acaatgaaat tttatctaaa     1740
attcagcaac aatttgaaaa ggttttaaca aaagaaaact caattgttaa tggaactata     1800
gaagatccta tgggtgacaa aatcaattta cagcttggca acggacaaac attgcaacca     1860
    
```

eol-f-seq1.txt

agtgattata ctttacaggg aaatgatgga agtataatga aagatagcat tgcaactggt	1920
gggcctaata atgatggtgg aatacttaaa ggggttaaata tagaatacat caaaaataaa	1980
ctctacgtta gaggtttgaa cttaggggag ggacaaaaag taacactcac atatgatgtg	2040
aaactagatg acagttttat aagtaacaaa ttctatgaca ctaatggtag aacaacattg	2100
aatcctaaat cagaggatcc taatacactt agagattttc caatccctaa aattcgtgat	2160
gtgagagaat atcctacaat aacgattaaa aacgagaaga agttagggtga aattgaattt	2220
acaaaagtgt ataaagataa taataagttg cttctcaaag gagctacgtt tgaacttcaa	2280
gaatttaatg aagattataa actttattta ccaataaaaa ataataattc aaaagtagtg	2340
acgggagaaa acggcaaaat ttcttacaaa gatttgaaag atggcaaata tcagttaata	2400
gaagcagttt cgccgaagga ttatcaaaaa attactaata aaccaatttt aacttttgaa	2460
gttggttaaag gatcgataca aaatataata gctgttaata aacagatttc tgaatatcat	2520
gaggaaggtg acaagcattt aattaccaac acgcatattc caccaaaagg aattattccg	2580
atgacaggtg ggaaaggaat tctatctttc attttaatag gtggatctat gatgtctatt	2640
gcaggtggaa tttatatattg gaaaagatat aagaaatcta gtgatatatc tagagaaaaa	2700
gattaa	2706

<210> 217
 <211> 2691
 <212> DNA
 <213> Streptococcus agalactiae

<400> 217

atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga	120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaagc tacctttggt	180
ttaaaacctt cttcacactc agaaagcaaa gtagaaaaag taactactga ggtaacaggt	240
gaagctactt ttgataatct cacacctgga gattacactt tatcagaaga aacggcaccc	300
gaaggataca aaaagactac ccagacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgatga taaaaaatct ataattgaac aaaggcaaga ggaactagat	420
aagcagtatc cccttacagg agcttatgaa gatacaaaag aatcttataa tcttgagcat	480
gttaaaaatt caattccaaa tgggaaatta gaggcaaaag cagttaatcc atattcaagt	540
gaaggtgagc acataagaga aattcaagag ggaacattat ctaaacgtat ttcagaagta	600
aatgattttg atcataataa atataaaaatt gagttaactg ttagcggtaa atccataata	660
aaaactataa ataaagatga acctctggat gttgtttttg ttcttgataa ttcaaatctt	720
atgaagaata atggaaaaaa taacaaggca aaaaaggcag gtgaagcagt agaaacaatt	780
ataaaagatg ttttaggagc aaatgttgaa aaccgagcag ctttagttac ttatggttca	840
gatatttttg atggaaggac agttaagtt ataaaagggtt ttaaagagga tccttattat	900
ggacttgaaa ctagtttcac agttcagaca aatgattata gctataaaaa gttcactaat	960

eolf-seq1.txt

attgctgctg atattataaa aaagatccct aaagaagctc cagaagctaa gtgggggggg	1020
acaagtctag gattaactcc agaaaaaaag agggaatatg atttaagtaa agtaggtgag	1080
acctttacaa tgaaagcttt tatggaggca gataccttgt taagtagtat acagcgtaag	1140
agtagaaaga ttattgttca tctaactgac ggtgttccaa caagatcata tgccattaat	1200
agttttgtaa aaggttcaac atacgcaaat caatttgaga gaataaaaga aaaaggttat	1260
ttagacaaaa ataattattt tataactgat gatccagaaa agatcaaagg caatggggag	1320
agttactttt tgtttccctt agatagttat caaacacaga taatttctgg aaacttacia	1380
aaacttcatt atttagatth aaatcttaat taccctaaag gtacaattta tagaaatgga	1440
ccagtaagag aacatggaac accaaccaaa ctttatataa atagttttaa acagaaaaat	1500
tatgacatct ttaatttttg tatagatata tctggtttta gacaagttta taatgaggat	1560
tataagaaaa atcaagatgg tacttttcaa aaattgaagg aggaagcttt tgaactttca	1620
gatggggaaa taacagaact aatgaattca ttctcttcta aacctgagta ttataccccg	1680
atagtaactt cagctgatgt atctaataat gaaatthtat ctaaaattca gcaacaattt	1740
gaaaagatth taacaaagga aaactcaatt gttaatggaa ctatagaaga tcctatgggt	1800
gataaaatca atttacatct tggcaacgga caaacattgc aaccaagtga ttatacttta	1860
cagggaaatg atggaagtat aatgaaagat agcattgcaa ctggagggcc taataatgat	1920
ggtgggatac ttaaaggggt taaattagaa tacatcaaaa ataaactcta cgttagaggt	1980
ttgaacttag gggaggggca aaaagtaaca ctacatatg atgtgaaact agatgacagt	2040
tttattagta acaaatctta tgacactaat ggtagaacaa cattgaatcc taaatcagag	2100
gaacccgata cacttagaga tttccaatc cctaaaattc gtgatgtgag agaatacct	2160
acaataacga ttaaaaacga gaagaagtta ggtgaaattg aatttacaaa agttgataaa	2220
gataataata agttgcttct caaaggagct acatttgaac ttcaagaatt taatgaagat	2280
tataaacttt atttaccaat aaaaaataat aattcaaaag tagtgacggg agaaaacggc	2340
aaaatttctt acaagatth gaaagatggc aaatatcagt taatagaagc agtttcgccg	2400
aaggattatc aaaaaattac taataaacca attttaactt ttgaagttgt taaaggatcg	2460
atacaaaata taatagctgt taataaacag atttctgaat atcatgagga aggtgacaag	2520
catttaatta ccaacacgca tattccacca aaaggaatta ttccgatgac aggtgggaaa	2580
ggaattctat ctttcatttt aataggtgga gctatgatgt ctattgcagg tggaatttat	2640
atttggaata gacataagaa atctagtgat gcatcaatcg agaaagatta a	2691

<210> 218
 <211> 2706
 <212> DNA
 <213> Streptococcus agalactiae

<400> 218	
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaatatgg tgctaaagga	120

eolf-seq1.txt

aagttagttg	ttaaaaagac	agatgaccag	aacaaaccac	tttcaaaagc	tacctttgtt	180
ttaaaaacta	ctgctcatcc	agaaaagtaa	atagaaaaag	taactgctga	gctaacaggt	240
gaagctactt	ttgataatct	catacctgga	gattatactt	tatcagaaga	aacagcgccc	300
gaaggttata	aaaagactaa	ccagacttgg	caagttaagg	ttgagagtaa	tggaaaaact	360
acgatacaaa	atagtgggtga	taaaaattcc	acaattggac	aaaatcagga	agaactagat	420
aagcagtatc	ccccacaggg	aatttatgaa	gatacaaagg	aatcttataa	acttgagcat	480
gttaaagggt	cagttccaaa	tggaaagtca	gaggcaaaag	cagttaaccc	atattcaagt	540
gaaggtgagc	atataagaga	aattccagag	ggaacattat	ctaaacgtat	ttcagaagta	600
ggtgatttag	ctcataataa	atataaaatt	gagtttaactg	tcagtggaaa	aaccatagta	660
aaaccagtgg	acaacaaaaa	gccgttagat	gttgtcttcg	tactcgataa	ttctaactca	720
atgaataacg	atggcccaaa	ttttcaaagg	cataataaag	ccaagaaagc	tgccgaagct	780
cttgggaccg	cagtaaaaga	tatttttagga	gcaaacagtg	ataatagggt	tgcattagtt	840
acctatggtt	cagatatttt	tgatggtagg	agtgtagatg	tcgtaaaagg	atttaaagaa	900
gatgataaat	attatggcct	tcaaactaag	ttcacatttc	agacagagaa	ttatagtcat	960
aaacaattaa	caaataatgc	tgaagagatt	ataaaaagga	ttccgacaga	agctcctaaa	1020
gctaagtggg	gatctactac	caatggatta	actccagagc	aacaaaagga	gtactatctt	1080
agtaaagtag	gagaaacatt	tactatgaaa	gccttcatgg	aggcagatga	tattttgagt	1140
caagtaaadc	gaaatagtca	aaaaattatt	gttcatgtaa	ctgatgggtgt	tcctacgaga	1200
tcatatgcta	ttaataatth	taaactgggt	gcatcatatg	aaagccaatt	tgaacaaatg	1260
aaaaaaaaatg	gatattctaaa	taaaagtaat	tttctactta	ctgataagcc	cgaggatata	1320
aaaggaaaatg	gggagagtta	ctttttgttt	cccttagata	gttatcaaac	acagataatc	1380
tctggaaaact	tacaaaaact	tcattattta	gattttaaadc	ttaattaccc	taaaggatca	1440
ttttatcgaa	atggaccagt	aagagaacat	ggaacaccaa	ccaaacttta	tataaatagt	1500
ttaaaacaga	aaaattatga	catctttaat	tttggtatag	atatatctgg	ttttagacaa	1560
gtttataatg	aggattataa	gaaaaatcaa	gatggtactt	ttcaaaaatt	gaaagaggaa	1620
gcttttgaac	tttcagatgg	ggaaataaca	gaactaatga	agtcattctc	ttctaaacct	1680
gagtattata	ccccgatagt	aacttcatcc	gatgcatcta	acaatgaaat	tttatctaaa	1740
attcagcaac	aatttgaaaa	gattttaaca	aaagaaaact	caattgttaa	tggaactata	1800
gaagatccta	tgggtgacaa	aatcaattta	cagcttggca	acggacaaac	attgcaacca	1860
agtgattata	ctttacaggg	aatgatgga	agtataatga	aagatagcat	tgcaactggt	1920
gggcctaata	atgatgggtg	aatacttaaa	ggggttaaat	tagaatacat	caaaaataaa	1980
ctctacgtta	gaggtttgaa	cttaggggag	ggacaaaaag	taacactcac	atatgatgtg	2040
aaactagatg	acagttttat	aagtaacaaa	ttctatgaca	ctaatggtag	aacaacattg	2100
aatcctaaat	cagaggatcc	taatacactt	agagattttc	caatccctaa	aattcgtgat	2160
gtgagagaat	atcctacaat	aacgattaaa	aacgagaaga	agttagggtga	aattgaattt	2220

eof-seq1.txt

acaaaagttg ataaagataa taataagttg cttctcaaag gagctacgtt tgaacttcaa	2280
gaatttaatg aagattataa actttattta ccaataaaaa ataataattc aaaagtagtg	2340
acgggagaaa acggcaaaat ttcttacaaa gatttgaaag atggcaaata tcagttaata	2400
gaagcagttt cgccgaagga ttatcaaaaa attactaata aaccaatttt aacttttgaa	2460
gttgttaaag gatcgataca aaatataata gctgttaata aacagatttc tgaatatcat	2520
gaggaaggtg acaagcattt aattaccaac acgcatattc caccaaaagg aattattccg	2580
atgacaggtg ggaaaggaat tctatctttc attttaatag gtggatctat gatgtctatt	2640
gcaggtggaa tttatatttg gaaaagatat aagaaatcta gtgatatatc tagagaaaaa	2700
gattaa	2706

<210> 219
 <211> 2706
 <212> DNA
 <213> Streptococcus agalactiae

<400> 219	
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga	120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaagc tacctttggt	180
ttaaaaacta ctgctcaacc agaaagtaaa atagaaaaag taactgctga gctaacaggt	240
gaagctactt ttgataatct catacctgga gattatactt tatcagaaga aacagcgccc	300
gaaggttata aaaagactaa ccagacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgggtga taaaaattcc acaattggac aaaatcagga agaactagat	420
aagcagtatc cccccacagg aatttatgaa gatacaaagg aatcttataa acttgagcat	480
gttaaagggt cagttccaaa tggaaagtca gagggaaaag cagttaaccc atattcaagt	540
gaaggtgagc atataagaga aattccagag ggaacattat ctaaacgtat ttcagaagta	600
ggtgatthag ctcataataa atataaaatt gagttaactg tcagtggaaa aaccatagta	660
aaaccagtgg acaaacaaaa gccgttagat gttgtcttcg tactcgataa ttctaactca	720
atgaataacg atggcccaaa ttttcaaagg cataataaag ccaagaaagc tgccgaagct	780
cttgggaccg cagtaaaaga tatttttagga gcaaacagtg ataatagggg tgcattagtt	840
acctatggtt cagatatttt tgatggtagg agtgtagatg tcgtaaaagg atttaaagaa	900
gatgataaat attatggcct tcaaactaag ttcacaattc agacagagaa ttatagtcac	960
aaacaattaa caaataatgc tgaagagatt ataaaaagga ttccgacaga agctcctaaa	1020
gctaagtggt gatctactac caatggatta actccagagc aacaaaagga gtactatctt	1080
agtaaagtag gagaaacatt tactatgaaa gccttcatgg aggcagatga tattttgagt	1140
caagtaaatc gaaatagtca aaaaattatt gttcatgtaa ctgatgggtg tcctacgaga	1200
tcatatgcta ttaataattt taaactgggt gcatcatatg aaagccaatt tgaacaaatg	1260
aaaaaaaaatg gatattctaaa taaaagtaat tttctactta ctgataagcc cgaggatata	1320

eof-seq1.txt

aaaggaaatg gggagagtta ctttttgttt cccttagata gttatcaaac acagataatc	1380
tctggaaact tacaaaaact tcattattta gatttaaadc ttaattacc taaaggatca	1440
ttttatcgaa atggaccagt aagagaacat ggaacaccaa ccaaacttta tataaatagt	1500
ttaaaacaga aaaattatga catctttaat tttggtatag atatatctgg ttttagacaa	1560
gtttataatg aggattataa gaaaaatcaa gatggtactt ttcaaaaatt gaaagaggaa	1620
gcttttgaac tttcagatgg ggaaataaca gaactaatga agtcattctc ttctaaacct	1680
gagtattata ccccgatagt aacttcatcc gatgcatcta acaatgaaat tttatctaaa	1740
attcagcaac aatttgaaaa gattttaaca aaagaaaact caattgttaa tggaactata	1800
gaagatccta tgggtgacaa aatcaattta cagcttggca acggacaaac attgcaacca	1860
agtgattata ctttacaggg aaatgatgga agtataatga aagatagcat tgcaactggt	1920
gggcctaata atgatggtgg aataacttaa ggggttaaat tagaatacat caaaaataaa	1980
ctctacgtta gaggtttgaa cttaggggag ggacaaaaag taacactcac atatgatgtg	2040
aaactagatg acagttttat aagtaacaaa ttctatgaca ctaatggtag aacaacattg	2100
aatcctaaat cagaggatcc taatacactt agagattttc caatccctaa aattcgtgat	2160
gtgagagaat atcctacaat aacgattaaa aacgagaaga agttagggtga aattgaattt	2220
acaaaagtgt ataaagataa taataagttg cttctcaaag gagctacgtt tgaacttcaa	2280
gaatttaatg aagattataa actttattta ccaataaaaa ataataattc aaaagtagtg	2340
acgggagaaa acggcaaaat ttcttacaaa gatttgaaag atggcaaata tcagttaata	2400
gaagcagttt cgccgaagga ttatcaaaaa attactaata aaccaatttt aacttttgaa	2460
gttgttaaag gatcgataca aaatataata gctgttaata aacagatttc tgaatatcat	2520
gaggaaggtg acaagcattt aattaccaac acgcatattc caccaaaagg aattattccg	2580
atgacaggtg ggaaaggaat tctatctttc attttaatag gtggatctat gatgtctatt	2640
gcaggtggaa tttatatattg gaaaagatat aagaaatcta gtgatatatc tagagaaaaa	2700
gattaa	2706

<210> 220
 <211> 2706
 <212> DNA
 <213> Streptococcus agalactiae

<400> 220	
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga	120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttgtt	180
ttaaaaacta ctgctcatcc agaaagtaaa atagaaaaag taactgctga gctaacaggt	240
gaagctactt ttgataatct cttacctgga gattatactt tatcagaaga aacagcgccc	300
gaaggttata aaaagactaa ccagacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgggtga taaaaattcc acaattggac aaaatcagga agaactagat	420

eof-seq1.txt

aagcagtatc	ccccacag	aatttatgaa	gatacaaagg	aatcttataa	acttgagcat	480
gttaaagggt	cagttccaaa	tggaaagtca	gaggcaaaag	cagttaaccc	atattcaagt	540
gaaggtgagc	atataagaga	aattccagag	ggaacattat	ctaaacgtat	ttcagaagta	600
ggtgatttag	ctcataataa	atataaaatt	gagttaactg	tcagtggaaa	aaccatagta	660
aaaccagtgg	acaaacaaaa	gccgttagat	gttgtcttcg	tactcgataa	ttctaactca	720
atgaataacg	atggcccaaa	ttttcaaagg	cataataaag	ccaagaaagc	tgccgaagct	780
cttgggaccg	cagtaaaaga	tatttttagga	gcaaacagtg	ataatagggg	tgcattagtt	840
acctatgggt	cagatatctt	tgatggtagg	agtgtagatg	tcgtaaaagg	atttaaagaa	900
gatgataaat	attatggcct	tcaaactaag	ttcacatttc	agacagagaa	ttatagtcac	960
aaacaattaa	caaataatgc	tgaagagatt	ataaaaagga	ttccgacaga	agctcctaaa	1020
gctaagtggg	gatctactac	caatggatta	actccagagc	aacaaaagga	gtactatctt	1080
agtaaagtag	gagaaacatt	tactatgaaa	gccttcatgg	aggcagatga	tattttgagt	1140
caagtaaatc	gaaatagtca	aaaaattatt	gttcatgtaa	ctgatgggtg	tcctacgaga	1200
tcatatgcta	ttaataatct	taaactgggt	gcatcatatg	aaagccaatt	tgaacaaatg	1260
aaaaaaaaatg	gatatctaaa	taaaagtaat	tttctactta	ctgataagcc	cgaggatata	1320
aaaggaaaatg	gggagagtta	ctttttgttt	cccttagata	gttatcaaac	acagataatc	1380
tctggaaact	tacaaaaact	tcattattta	gatttaaata	ttaattaccc	taaaggatca	1440
ttttatcgaa	atggaccagt	aagagaacat	ggaacaccaa	ccaaacttta	tataaatagt	1500
ttaaaacaga	aaaattatga	catctttaat	tttggtatag	atatatctgg	ttttagacaa	1560
gtttataatg	aggattataa	gaaaaatcaa	gatggtactt	ttcaaaaatt	gaaagaggaa	1620
gcttttgaac	tttcagatgg	ggaaataaca	gaactaatga	agtcattctc	ttctaaacct	1680
gagtattata	ccccgatagt	aacttcatcc	gatgcatcta	acaatgaaat	tttatctaaa	1740
attcagcaac	aatttgaaaa	gattttaaca	aaagaaaact	caattgttaa	tggaactata	1800
gaagatccta	tgggtgacaa	aatcaattta	cagcttggca	acggacaaac	attgcaacca	1860
agtgattata	ctttacaggg	aaatgatgga	agtataatga	aagatagcat	tgcaactggg	1920
gggcctaata	atgatgggtg	aataacttaa	gggggttaaa	tagaatacat	caaaaaataa	1980
ctctacgtta	gaggtttgaa	cttagggggg	ggacaaaaag	taacactcac	atatgatgtg	2040
aaactagatg	acagttttat	aagtaacaaa	ttctatgaca	ctaattggtag	aacaacattg	2100
aatcctaata	cagaggatcc	taatacactt	agagattttc	caatccctaa	aattcgtgat	2160
gtgagagaat	atcctacaat	aacgattaaa	aacgagaaga	agttagggtga	aattgaattt	2220
acaaaagtgt	ataaagataa	taataagttg	cttctcaaag	gagctacgtt	tgaacttcaa	2280
gaatttaaatg	aagattataa	actttattta	ccaataaaaa	ataataattc	aaaagtagtg	2340
acggggagaaa	acggcaaaat	ttcttacaaa	gatttgaaag	atggcaaaata	tcagttaata	2400
gaagcagttt	cgccgaagga	ttatcaaaaa	attactaata	aaccaatctt	aacttttgaa	2460

eol-f-seq1.txt

gttggttaaag gatcgataca aaatataata gctgttaata aacagatttc tgaatatcat	2520
gaggaaggtg acaagcattt aattaccaac acgcatattc caccaaaagg aattattccg	2580
atgacaggtg ggaaaggaat tctatctttc attttaatag gtggatctat gatgtctatt	2640
gcaggtggaa tttatatattg gaaaagatat aagaaatcta gtgatataatc tagagaaaaa	2700
gattaa	2706

<210> 221
 <211> 2706
 <212> DNA
 <213> Streptococcus agalactiae

<400> 221

atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga	120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttggt	180
ttaaaaacta ctgctcatcc agaaagtaaa atagaaaaag taactgctga gctaacaggt	240
gaagctactt ttgataatct catacctgga gattatactt tatcagaaga aacagcgccc	300
gaaggttata aaaagactaa ccagacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgggtga taaaaattcc acaattggac aaaatcagga agaactagat	420
aagcagtatc cccccacagg aatttatgaa gatacaaagg aatcttataa acttgagcat	480
gttaaagggt cagttccaaa tggaaagtca gaggcaaaag cagttaaccc atattcaagt	540
gaaggtgagc atataagaga aattccagag ggaacattat ctaaacgtat ttcagaagta	600
ggtgatttag ctcataataa atataaaatt gagttaactg tcagtggaaa aaccatagta	660
aaaccagtgg acaaacaaaa gccgttagat gttgtcttcg tactcgataa ttctaactca	720
atgaataacg atggcccaaa ttttcaaagg cataataaag ccaagaaagc tgccgaagct	780
cttgggaccg cagtaaaaga tatttttagga gcaaacagtg ataataggggt tgcattagtt	840
acctatggtt cagatatattt tgatggtagg agtgtagatg tcgtaaaagg atttaaagaa	900
gatgataaat attatggcct tcaaaactaa ttcacaattc agacagagaa ttatagtcac	960
aaacaattaa caaataatgc tgaagagatt ataaaaagga ttccgacaga agctcctaaa	1020
gctaagtggg gatctactac caatggatta actccagagc aacaaaagga gtactatctt	1080
agtaaagtag gagaaacatt tactatgaaa gccttcatgg aggagatga tattttgagt	1140
caagtaaadc gaaatagtca aaaaattatt gttcatgtaa ctgatgggtg tcctacgaga	1200
tcatatgcta ttaataatth taaactgggt gcatcatatg aaagccaatt tgaacaaatg	1260
aaaaaaaaat gatatctaaa taaaagtaat ttttacttta ctgataagcc cgaggatata	1320
aaaggaaaat gggagagtta ctttttgttt cccttagata gttatcaaac acagataatc	1380
tctggaaact tacaaaaact tcattattta gatttaaadc ttaattacc taaaggatca	1440
ttttatcgaa atggaccagt aagagaacat ggaacaccaa ccaaacttta tataaatagt	1500
ttaaaacaga aaaattatga catctttaat tttggtatag atatatctgg ttttagacaa	1560

eol-f-seq1.txt

gtttataatg aggattataa gaaaaatcaa gatgggtactt ttcaaaaatt gaaagaggaa	1620
gcttttgaac tttcagatgg ggaaataaca gaactaatga agtcattctc ttctaaacct	1680
gagtattata ccccgatagt aacttcatcc gatgcatcta acaatgaaat tttatctaaa	1740
attcagcaac aatttgaaaa gattttaaca aaagaaaact caattgttaa tggaactata	1800
gaagatccta tgggtgacaa aatcaattta cagcttggca acggacaaac attgcaacca	1860
agtgattata ctttacaggg aatgatgga agtataatga aagatagcat tgcaactggg	1920
gggcctaata atgatgggtg aatacttaaa ggggttaaat tagaatacat caaaaataaa	1980
ctctacgta gaggtttgaa cttaggggag ggacaaaaag taacactcac atatgatgtg	2040
aaactagatg acagttttat aagtaacaaa ttctatgaca ctaatggtag aacaacattg	2100
aatcctaaat cagaggatcc taatacactt agagattttc caatccctaa aattcgtgat	2160
gtgagagaat atcctacaat aacgattaaa aacgagaaga agttagggtga aattgaattt	2220
acaaaagttg ataaagataa taataagttg cttctcaaag gagctacgtt tgaacttcaa	2280
gaatttaatg aagattataa actttattta ccaataaaaa ataataattc aaaagtagtg	2340
acgggagaaa acggcaaaat ttcttacaaa gatttgaaag atggcaaata tcagttaata	2400
gaagcagttt cgccgaagga ttatcaaaaa attactaata aaccaatttt aacttttgaa	2460
gttgttaaag gatcgatata aaatataata gctgttaata aacagatttc tgaatatcat	2520
gaggaaggtg acaagcattt aattaccaac acgcatattc caccaaaagg aattattccg	2580
atgacaggtg ggaaaggaat tctatctttc attttaatag gtggatctat gatgtctatt	2640
gcaggtggaa tttatatttg gaaaagatat aagaaatcta gtgatatatc tagagaaaaa	2700
gattaa	2706

<210> 222
 <211> 2691
 <212> DNA
 <213> Streptococcus agalactiae

<400> 222	
atgagaaaat accaaaaatt ttctaaaata ttgacgttaa gtcttttttg tttgtcgcaa	60
ataccgctta ataccaatgt tttaggggaa agtaccgtac cggaaaatgg tgctaaagga	120
aagttagttg ttaaaaagac agatgaccag aacaaaccac tttcaaaagc tacctttgtt	180
ttaaaaacta ctgctcatcc agaaagtaaa atagaaaaag taactgctga ggtaacaggt	240
gaagctactt ttgataatct cacacctgga gattacactt tatcagaaga aacggcaccc	300
gaaggatata aaaagactac ccagacttgg caagttaagg ttgagagtaa tggaaaaact	360
acgatacaaa atagtgatga taaaaaatct ataattgaac aaaggcaaga ggaactagat	420
aagcagtatc cccttacagg agcttatgaa gatacaaaag aatcttataa tcttgagcat	480
gttaaaaatt caattccaaa tgggaaatta gaggcaaaag cagttaatcc atattcaagt	540
gaaggtgagc acataagaga aattcaagag ggaacattat ctaaacgtat ttcagaagta	600
aatgattttg atcataataa atataaaaatt gagttaactg ttagcggtaa atccataata	660

eol-f-seq1.txt

aaaactataa	ataaagatga	acctctggat	gttggtttttg	ttcttgataa	ttcaaattct	720
atgaagaata	atggaaaaaa	taacaaggca	aaaaaggcag	gtgaagcagt	agaaacaatt	780
ataaaagatg	ttttaggagc	aatgttgaa	aaccgagcag	ctttagttac	ttatggttca	840
gatatttttg	atggaaggac	agttaaagtt	ataaaagggt	ttaaagagga	tccttatcat	900
ggacttgaaa	ctagtttcac	agttcagaca	aatgattata	gctataaaaa	gttcactaat	960
attgctgctg	atattataaa	aaagatccct	aaagaagctc	cagaagctaa	gtgggggggg	1020
acaagtctag	gattaactcc	agaaaaaaag	agggaatatg	atttaagtaa	agtaggtgag	1080
acctttacaa	tgaaagcttt	tatggaggca	gataccttgt	taagtagtat	acagcgtaag	1140
agtagaaaag	ttattgttca	tctaactgac	ggtgttccaa	caagatcata	tgctattaat	1200
agttttgtaa	caggttcaac	atacgcaaat	caatttgaga	gaataaaaga	aaaaggttat	1260
ttagacaaaa	ataattattt	tataactgat	gatccagaaa	agatcaaagg	caatggggag	1320
agttactttt	tgtttccctt	agatagttat	caaacacaga	taatttctgg	aaacttacia	1380
aaacttcatt	atthagatth	aaatcttaat	taccctaaag	gtacaattta	tagaaatgga	1440
ccagtaagag	aacatggaac	accaaccaaa	ctttatataa	atagtttaaa	acagaaaaat	1500
tatgacatct	ttaatttttg	tatagatata	tctggtttta	gacaagttha	taatgaggat	1560
tataagaaaa	atcaagatgg	tacttttcaa	aaattgaaag	aggaagcttt	tgaactttca	1620
ggtggggaaa	taacagaact	aatgaagtca	ttctcttcta	aacctgagta	ttataccccc	1680
atagtaactt	cagctgatgt	atctaataat	gaaattttat	ctaaaattca	gcaacaattt	1740
gaaaagatth	taacaaagga	aaactcaatt	gttaatggaa	ctatagaaga	tcctatgggt	1800
gataaaatca	atthacagct	tggcaacgga	caaacattgc	aaccaagtga	ttatacttta	1860
cagggaaatg	atggaagtat	aatgaaagat	agcattgcaa	ctggtggggc	taataatgat	1920
ggcgggatac	ttaaaggggt	taaattagaa	tacatcaaaa	ataaactcta	cgttagaggt	1980
ttgaacttag	gggaggggca	aaaagtaaca	ctcacatatg	atgtgaaact	agatgacagt	2040
tttattagta	acaaattcta	tgacactaat	ggtagaacaa	cattgaatcc	taaatcagag	2100
gaacctgata	cacttagaga	ttttccaatc	cctaaaattc	gtgatgtgag	agaatatcct	2160
acaataacga	ttaaaaacga	gaagaagtta	ggtgaaattg	aattttacaaa	agttgataaa	2220
gataataata	agttgcttct	caaaggagct	acatttgaac	ttcaagaatt	taatgaagat	2280
tataaacttt	atthaccaat	aaaaaataat	aattcaaaag	tagtgacggg	agaaaacggc	2340
aaaatttctt	acaaagatth	gaaagatggc	aaatatcagt	taatagaagc	agtttcgccg	2400
aaggattatc	aaaaaattac	taataaacca	atthtaactt	ttgaagttgt	taaaggatcg	2460
atacaaaata	taatagctgt	taataaacag	atthctgaat	atcatgagga	aggtgacaag	2520
catttaatta	ccaacacgca	tattccacca	aaaggaatta	ttccgatgac	aggtgggaaa	2580
ggaattctat	ctttcattht	aatagggtga	gctatgatgt	ctattgcagg	tggaatttat	2640
atthggaaaa	aacataagaa	atctagtgat	gcatcaatcg	agaaagatta	a	2691

eo1f-seq1.txt

<210> 223

<211> 674

<212> PRT

<213> Streptococcus agalactiae

<400> 223

Met Lys Lys Ile Asn Lys Cys Leu Thr Val Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Val
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Thr
115 120 125

Gly Phe Ala Phe Asn Thr Ala Lys Leu Lys Gly Thr Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

eo1f-seq1.txt

Asn Val Lys Val Thr Leu Asp Gly Lys Asp Phe Pro Val Leu Asn Tyr
260 265 270

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

Gly Leu Ala Ala Val Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Val
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Val Asn Val Ala
355 360 365

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

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

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

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

eo1f-seq1.txt

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Ser Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Val Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 224
<211> 674
<212> PRT
<213> Streptococcus agalactiae
<400> 224

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
Page 331

eo1f-seq1.txt

85

90

95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
115 120 125

Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
130 135 140

Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
145 150 155 160

Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
165 170 175

Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
180 185 190

Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
195 200 205

Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
210 215 220

Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
225 230 235 240

Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
245 250 255

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

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

Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
290 295 300

Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
305 310 315 320

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

eo1f-seq1.txt

Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400
 Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
 405 410 415
 Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
 420 425 430
 Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
 435 440 445
 Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
 450 455 460
 Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
 465 470 475 480
 Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
 485 490 495
 Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
 500 505 510
 Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Glu Gly Lys
 515 520 525
 Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
 530 535 540
 Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
 545 550 555 560
 Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
 565 570 575
 Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
 580 585 590
 Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
 595 600 605
 Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
 610 615 620
 Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
 625 630 635 640

eo1f-seq1.txt

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 225
<211> 675
<212> PRT
<213> Streptococcus agalactiae
<400> 225

Met Lys Lys Ile Asn Lys Tyr Phe Ala Val Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Val Thr Ser Leu Phe Ser Val Ala Pro Val Phe Ala Glu Glu Ala
20 25 30

Lys Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Arg Thr
35 40 45

Ala Phe Asp Gly Phe Thr Ala Gly Thr Lys Gly Lys Asp Asn Thr Asp
50 55 60

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

Glu Ala Lys Glu Ile Ala Gly Ala Tyr Phe Ala Phe Lys Asn Glu Ala
85 90 95

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

Thr Thr Asp Ala Lys Gly Cys Ala Val Leu Lys Gly Leu Thr Thr Asp
115 120 125

Asn Gly Phe Lys Phe Asn Thr Ser Lys Leu Thr Gly Thr Tyr Gln Ile
130 135 140

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

Ala Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn
165 170 175

Asp Asn Gly Val Val Lys Asp Ala His Val Tyr Pro Lys Asn Thr Glu
180 185 190

Thr Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Glu Leu Asp Tyr
Page 334

eo1f-seq1.txt

195

200

205

Ala Asn Asn Lys Lys Asp Lys Gly Thr Val Ser Ala Ser Val Gly Asp
 210 215 220

Val Lys Lys Tyr His Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr
 225 230 235 240

Lys Lys Leu Ile Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn
 245 250 255

Asn Asp Ile Ala Val Thr Leu Asp Gly Ala Thr Leu Asp Ala Thr Asn
 260 265 270

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

Lys Gly Leu Glu Ala Val Ala Lys Ala Ala Lys Thr Lys Asp Val Glu
 290 295 300

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

Val Leu Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr
 325 330 335

Ile Glu Asn Glu Pro Lys Glu Gly Ile Pro Val Asp Lys Lys Ile Thr
 340 345 350

Val Asn Lys Thr Trp Ala Val Asp Gly Asn Glu Val Asn Lys Ala Asp
 355 360 365

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

Trp Val Asn Val Asp Ser Ala Lys Ala Thr Ala Ala Thr Ser Phe Lys
 385 390 395 400

His Thr Phe Glu Asn Leu Asp Asn Ala Lys Thr Tyr Arg Val Ile Glu
 405 410 415

Arg Val Ser Gly Tyr Ala Pro Glu Tyr Val Ser Phe Val Asn Gly Val
 420 425 430

Val Thr Ile Lys Asn Asn Lys Asp Ser Asn Glu Pro Thr Pro Ile Asn
 435 440 445

Pro Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr
 450 455 460

Asn Lys Asp Gly Lys Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys
 465 470 475 480

eo1f-seq1.txt

Lys Asp Gly Lys Tyr Leu Ala Arg Lys Ser Gly Val Ala Thr Asp Ala
485 490 495

Glu Lys Ala Ala Val Asp Ser Thr Lys Ser Ala Leu Asp Ala Ala Val
500 505 510

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

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

Ala Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Glu Asp Lys Asn
545 550 555 560

Ala Lys Asn Val Val Lys Leu Ile Ser Asn Asp Lys Gly Gln Phe Glu
565 570 575

Ile Thr Gly Leu Thr Glu Gly Gln Tyr Ser Leu Glu Glu Thr Gln Ala
580 585 590

Pro Thr Gly Tyr Ala Lys Leu Ser Gly Asp Val Ser Phe Asn Val Asn
595 600 605

Ala Thr Ser Tyr Ser Lys Gly Ser Ala Gln Asp Ile Glu Tyr Thr Gln
610 615 620

Gly Ser Lys Thr Lys Asp Ala Gln Gln Val Ile Asn Lys Lys Val Thr
625 630 635 640

Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Phe Phe Thr Ile Ile Gly
645 650 655

Leu Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser
660 665 670

Glu Glu Val
675

<210> 226
<211> 693
<212> PRT
<213> Streptococcus agalactiae

<400> 226

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Val Phe Ala Ala Glu Met
20 25 30

eo1f-seq1.txt

Gly Asn Ile Thr Lys Thr Val Thr Leu His Lys Ile Val Gln Thr Ser
35 40 45

Asp Asn Leu Ala Lys Pro Asn Phe Pro Gly Ile Asn Gly Leu Asn Gly
50 55 60

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

Gln Gly Ser Lys Glu Ile Ala Gly Ala Phe Phe Ala Val Met Asn Glu
85 90 95

Ser Gln Thr Lys Tyr Ile Thr Glu Ser Gly Thr Glu Val Glu Ser Ile
100 105 110

Asp Ala Ala Gly Val Leu Lys Gly Leu Thr Thr Glu Asn Gly Ile Thr
115 120 125

Phe Asn Thr Ala Asn Leu Lys Gly Thr Tyr Gln Ile Val Glu Leu Leu
130 135 140

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

Ala Val Pro Val Lys Ile Thr Leu Pro Leu Tyr Asn Glu Glu Gly Ile
165 170 175

Val Val Asp Ala Glu Val Tyr Pro Lys Asn Thr Glu Glu Ala Pro Gln
180 185 190

Ile Asp Lys Asn Phe Ala Lys Ala Asn Lys Leu Leu Asn Asp Ser Asp
195 200 205

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

Lys Ala Lys Ala Thr Ala Glu Ile Gly Gln Glu Ile Pro Tyr Glu Val
225 230 235 240

Lys Thr Lys Ile Gln Lys Gly Ser Lys Tyr Lys Asn Leu Ala Trp Val
245 250 255

Asp Thr Met Ser Asn Gly Leu Thr Met Gly Asn Thr Val Asn Leu Glu
260 265 270

Ala Ser Ser Gly Ser Phe Val Glu Gly Thr Asp Tyr Asn Val Glu Arg
275 280 285

Asp Asp Arg Gly Phe Thr Leu Lys Phe Thr Asp Thr Gly Leu Thr Lys
290 295 300

Leu Gln Lys Glu Ala Glu Thr Gln Ala Val Glu Phe Thr Leu Thr Tyr

eolf-seq1.txt

305		310		315		320
Ser	Ala	Thr	Val	Asn 325	Gly	Ala
					Ala	Ile
					Asp 330	Asp
					Lys	Pro
					Glu	Ser
					Asn 335	
Asp	Ile	Lys	Leu 340	Gln	Tyr	Gly
					Asn	Lys 345
					Pro	Gly
					Lys	Lys
					Val	Lys
					Glu 350	
Ile	Pro	Val 355	Thr	Pro	Ser	Asn
					Gly 360	Glu
					Ile	Thr
					Val	Ser
					Lys 365	Thr
					Trp	
Asp	Lys 370	Gly	Ser	Asp	Leu	Glu 375
					Asn	Ala
					Asn	Val
					Val 380	Tyr
					Thr	Leu
					Lys	
Asp 385	Gly	Gly	Thr	Ala	Val 390	Ala
					Ser	Val
					Ser	Leu
					Thr 395	Lys
					Thr	Thr
					Thr	Pro
						400
Asn	Gly	Glu	Ile	Asn 405	Leu	Gly
					Asn	Gly
					Ile 410	Lys
					Phe	Thr
					Val	Thr
					Gly 415	
Ala	Phe	Ala	Gly 420	Lys	Phe	Ser
					Gly	Leu
					Thr 425	Asp
					Ser	Lys
					Thr 430	Tyr
					Met	
Ile	Ser	Glu 435	Arg	Ile	Ala	Gly
					Tyr 440	Gly
					Asn	Thr
					Ile	Thr
					Thr 445	Gly
					Ala	
Gly	Ser 450	Ala	Ala	Ile	Thr	Asn
					Thr 455	Pro
					Asp	Ser
					Asp 460	Asn
					Pro	Thr
					Pro	
Leu 465	Asn	Pro	Thr	Glu	Pro 470	Lys
					Val	Val
					Thr	His 475
					Gly	Lys
					Lys	Phe
					Val 480	
Lys	Thr	Ser	Ser	Thr 485	Glu	Thr
					Glu	Arg
					Leu 490	Gln
					Gly	Ala
					Gln	Phe
					Val 495	
Val	Lys	Asp	Ser 500	Ala	Gly	Lys
					Tyr	Leu
					Ala 505	Leu
					Lys	Ser
					Ser 510	Ala
					Thr	
Ile	Ser	Ala 515	Gln	Thr	Thr	Ala
					Tyr 520	Thr
					Asn	Ala
					Lys	Thr
					Thr 525	Ala
					Leu	Asp
Ala	Lys 530	Ile	Ala	Ala	Tyr	Asn
					Asn 535	Lys
					Leu	Ser
					Ala	Asp
					Asp 540	Gln
					Lys	Gly
Thr 545	Lys	Gly	Glu	Thr	Ala 550	Lys
					Ala	Glu
					Ile	Lys 555
					Thr	Ala
					Gln	Asp
					Ala 560	
Tyr	Asn	Ala	Ala	Phe 565	Ile	Val
					Ala	Arg
					Thr 570	Ala
					Tyr	Glu
					Trp	Val
					Thr 575	
Asn	Lys	Glu	Asp 580	Ala	Asn	Val
					Val	Lys 585
					Val	Thr
					Ser	Asn
					Ala 590	Asp
					Gly	

eof-seq1.txt

Gln Phe Glu Val Ser Gly Leu Ala Thr Gly Asp Tyr Lys Leu Glu Glu
595 600 605

Thr Gln Ala Pro Ala Gly Tyr Ala Lys Leu Ala Gly Asp Val Asp Phe
610 615 620

Lys Val Gly Asn Ser Ser Lys Ala Asp Asp Ser Gly Asn Ile Asp Tyr
625 630 635 640

Thr Ala Ser Ser Asn Lys Lys Asp Ala Gln Arg Ile Glu Asn Lys Lys
645 650 655

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile
660 665 670

Ile Gly Leu Ser Ile Met Leu Gly Ala Val Ile Ile Met Lys Arg Arg
675 680 685

Gln Ser Glu Glu Ala
690

<210> 227
<211> 705
<212> PRT
<213> Streptococcus agalactiae
<400> 227

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
20 25 30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
35 40 45

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Lys Asp
50 55 60

Tyr Lys Gly Gly Ala Ile Ser Asp Leu Ala Gly Tyr Phe Gly Glu Gly
65 70 75 80

Ser Lys Glu Ile Glu Gly Ala Phe Phe Ala Leu Ala Leu Lys Glu Asp
85 90 95

Lys Ser Gly Lys Val Gln Tyr Val Lys Ala Lys Glu Gly Asn Lys Leu
100 105 110

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

eo1f-seq1.txt

Ile Asp Glu Ala Val Ser Gly Leu Thr Pro Glu Gly Asp Thr Gly Leu
130 135 140

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

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

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

Val Val Ala Asp Ala His Val Tyr Pro Lys Asn Thr Glu Glu Lys Pro
195 200 205

Glu Ile Asp Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Thr
210 215 220

Asp Val Asn Arg Leu Leu Thr Ala Gly Ala Asn Tyr Gly Asn Tyr Ala
225 230 235 240

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

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

Trp Thr Asp Ile Met Ser Asn Gly Leu Thr Met Gly Ser Thr Val Ser
275 280 285

Leu Lys Ala Ser Gly Thr Thr Glu Thr Phe Ala Lys Asp Thr Asp Tyr
290 295 300

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

Gly Leu Gly Lys Leu Glu Lys Ala Ala Lys Thr Ala Asp Ile Glu Phe
325 330 335

Thr Leu Thr Tyr Ser Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn
340 345 350

Pro Glu Ser Asn Asp Ile Lys Leu Ser Tyr Gly Asn Lys Pro Gly Lys
355 360 365

Asp Leu Thr Glu Leu Pro Val Thr Pro Ser Lys Gly Glu Val Thr Val
370 375 380

Ala Lys Thr Trp Ser Asp Gly Ile Ala Pro Asp Gly Val Asn Val Val
385 390 395 400

Tyr Thr Leu Lys Asp Lys Asp Lys Thr Val Ala Ser Val Ser Leu Thr

eo1f-seq1.txt

405

410

415

Lys Thr Ser Lys Gly Thr Ile Asp Leu Gly Asn Gly Ile Lys Phe Glu
420 425 430

Val Ser Gly Asn Phe Ser Gly Lys Phe Thr Gly Leu Glu Asn Lys Ser
435 440 445

Tyr Met Ile Ser Glu Arg Val Ser Gly Tyr Gly Ser Ala Ile Asn Leu
450 455 460

Glu Asn Gly Lys Val Thr Ile Thr Asn Thr Lys Asp Ser Asp Asn Pro
465 470 475 480

Thr Pro Leu Asn Pro Thr Glu Pro Lys Val Glu Thr His Gly Lys Lys
485 490 495

Phe Val Lys Thr Asn Glu Gln Gly Asp Arg Leu Ala Gly Ala Gln Phe
500 505 510

Val Val Lys Asn Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ala Asp Gln
515 520 525

Ser Glu Gly Gln Lys Thr Leu Ala Ala Lys Lys Ile Ala Leu Asp Glu
530 535 540

Ala Ile Ala Ala Tyr Asn Lys Leu Ser Ala Thr Asp Gln Lys Gly Glu
545 550 555 560

Lys Gly Ile Thr Ala Lys Glu Leu Ile Lys Thr Lys Gln Ala Asp Tyr
565 570 575

Asp Ala Ala Phe Ile Glu Ala Arg Thr Ala Tyr Glu Trp Ile Thr Asp
580 585 590

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

Val Thr Gly Leu Ala Asp Gly Thr Tyr Asn Leu Glu Glu Thr Leu Ala
610 615 620

Pro Ala Gly Phe Ala Lys Leu Ala Gly Asn Ile Lys Phe Val Val Asn
625 630 635 640

Gln Gly Ser Tyr Ile Thr Gly Gly Asn Ile Asp Tyr Val Ala Asn Ser
645 650 655

Asn Gln Lys Asp Ala Thr Arg Val Glu Asn Lys Lys Val Thr Ile Pro
660 665 670

Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser
675 680 685

eof-seq1.txt

Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Lys Glu
690 695 700

Ala
705

<210> 228
<211> 705
<212> PRT
<213> Streptococcus agalactiae

<400> 228

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Leu Thr Ser Leu Leu Ser Val Ala Pro Ala Phe Ala Asp Glu Ala
20 25 30

Thr Thr Asn Thr Val Thr Leu His Lys Ile Leu Gln Thr Glu Ser Asn
35 40 45

Leu Asn Lys Ser Asn Phe Pro Gly Thr Thr Gly Leu Asn Gly Lys Asp
50 55 60

Tyr Lys Gly Gly Ala Ile Ser Asp Leu Ala Gly Tyr Phe Gly Glu Gly
65 70 75 80

Ser Lys Glu Ile Glu Gly Ala Phe Phe Ala Leu Ala Leu Lys Glu Asp
85 90 95

Lys Ser Gly Lys Val Gln Tyr Val Lys Ala Lys Glu Gly Asn Lys Leu
100 105 110

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

Ile Asp Glu Ala Val Ser Gly Leu Thr Pro Glu Gly Asp Thr Gly Leu
130 135 140

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

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

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

Val Val Ala Asp Ala His Val Tyr Pro Lys Asn Thr Glu Glu Lys Pro
195 200 205

eo1f-seq1.txt

Glu Ile Asp Lys Asn Phe Ala Lys Thr Asn Asp Leu Thr Ala Leu Thr
 210 215 220
 Asp Val Asn Arg Leu Leu Thr Ala Gly Ala Asn Tyr Gly Asn Tyr Ala
 225 230 235 240
 Arg Asp Lys Ala Thr Ala Thr Ala Glu Ile Gly Lys Val Val Pro Tyr
 245 250 255
 Glu Val Lys Thr Lys Ile His Lys Gly Ser Lys Tyr Glu Asn Leu Val
 260 265 270
 Trp Thr Asp Ile Met Ser Asn Gly Leu Thr Met Gly Ser Thr Val Ser
 275 280 285
 Leu Lys Ala Ser Gly Thr Thr Glu Thr Phe Ala Lys Asp Thr Asp Tyr
 290 295 300
 Glu Leu Ser Ile Asp Ala Arg Gly Phe Thr Leu Lys Phe Thr Ala Asp
 305 310 315 320
 Gly Leu Gly Lys Leu Glu Lys Ala Ala Lys Thr Ala Asp Ile Glu Phe
 325 330 335
 Thr Leu Thr Tyr Ser Ala Thr Val Asn Gly Gln Ala Ile Ile Asp Asn
 340 345 350
 Pro Glu Ser Asn Asp Ile Lys Leu Ser Tyr Gly Asn Lys Pro Gly Lys
 355 360 365
 Asp Leu Thr Glu Leu Pro Val Thr Pro Ser Lys Gly Glu Val Thr Val
 370 375 380
 Ala Lys Thr Trp Ser Asp Gly Ile Ala Pro Asp Gly Val Asn Val Val
 385 390 395 400
 Tyr Thr Leu Lys Asp Lys Asp Lys Thr Val Ala Ser Val Ser Leu Thr
 405 410 415
 Lys Thr Ser Lys Gly Thr Ile Asp Leu Gly Asn Gly Ile Lys Phe Glu
 420 425 430
 Val Ser Gly Asn Phe Ser Gly Lys Phe Thr Gly Leu Glu Asn Lys Ser
 435 440 445
 Tyr Met Ile Ser Glu Arg Val Ser Gly Tyr Gly Ser Ala Ile Asn Leu
 450 455 460
 Glu Asn Gly Lys Val Thr Ile Thr Asn Thr Lys Asp Ser Asp Asn Pro
 465 470 475 480
 Thr Pro Leu Asn Pro Thr Glu Pro Lys Val Glu Thr His Gly Lys Lys
 Page 343

eo1f-seq1.txt

485

490

495

Phe Val Lys Thr Asn Glu Gln Gly Asp Arg Leu Ala Gly Ala Gln Phe
500 505 510

Val Val Lys Asn Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ala Asp Gln
515 520 525

Ser Glu Gly Gln Lys Thr Leu Ala Ala Lys Lys Ile Ala Leu Asp Glu
530 535 540

Ala Ile Ala Ala Tyr Asn Lys Leu Ser Ala Thr Asp Gln Lys Gly Glu
545 550 555 560

Lys Gly Ile Thr Ala Lys Glu Leu Ile Lys Thr Lys Gln Ala Asp Tyr
565 570 575

Asp Ala Ala Phe Ile Glu Ala Arg Thr Ala Tyr Glu Trp Ile Thr Asp
580 585 590

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

Val Thr Gly Leu Ala Asp Gly Thr Tyr Asn Leu Glu Glu Thr Leu Ala
610 615 620

Pro Ala Gly Phe Ala Lys Leu Ala Gly Asn Ile Lys Phe Val Val Asn
625 630 635 640

Gln Gly Ser Tyr Ile Thr Gly Gly Asn Ile Asp Tyr Val Ala Asn Ser
645 650 655

Asn Gln Lys Asp Ala Thr Arg Val Glu Asn Lys Lys Val Thr Ile Pro
660 665 670

Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu Ser
675 680 685

Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser Lys Glu
690 695 700

Ala
705

<210> 229
<211> 308
<212> PRT
<213> Streptococcus agalactiae

<400> 229

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

eo1f-seq1.txt

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

eolf-seq1.txt

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
 290 295 300

Arg Gly Asp Lys
 305

<210> 230
 <211> 442
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 230

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

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
 20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
 35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
 50 55 60

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

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

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

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

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
 145 150 155 160

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
 165 170 175

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 195 200 205

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

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
245 250 255

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

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
275 280 285

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
290 295 300

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
305 310 315 320

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
325 330 335

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Val Gly Gln Leu
340 345 350

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Ile Ile Ser Arg Glu Asn
355 360 365

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
370 375 380

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
385 390 395 400

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
405 410 415

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
420 425 430

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
435 440

<210> 231
<211> 403
<212> PRT
<213> Streptococcus agalactiae

<400> 231

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

eo1f-seq1.txt

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

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

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser

eo1f-seq1.txt

290

295

300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 232

<211> 674

<212> PRT

<213> Streptococcus agalactiae

<400> 232

Met Lys Lys Ile Asn Lys Cys Leu Thr Val Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Val
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
50 55 60

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

Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
85 90 95

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

Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Thr
115 120 125

eo1f-seq1.txt

Gly Phe Ala Phe Asn Thr Ala Lys Leu Lys Gly Thr Tyr Gln Ile Val
 130 135 140
 Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160
 Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175
 Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190
 Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205
 Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220
 Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Lys Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Val
 305 310 315 320
 Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
 325 330 335
 Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
 340 345 350
 Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Val Asn Val Ala
 355 360 365
 Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
 370 375 380
 Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
 385 390 395 400

eo1f-seq1.txt

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

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

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

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

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Ser Leu Glu Glu Thr Gln Ala Pro
580 585 590

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Val Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

eo1f-seq1.txt

<210> 233
 <211> 901
 <212> PRT
 <213> Streptococcus agalactiae
 <400> 233

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
 1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
 20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
 35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
 50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
 65 70 75 80

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

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
 100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
 115 120 125

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

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
 145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220

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

eo1f-seq1.txt

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

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

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

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

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

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

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asp Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Ile Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

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

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Ile Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

eo1f-seq1.txt

Ile Asp Ile Ser Ala Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Val Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

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

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
Page 354

[illegible]

Met 1	Asn	Asn	Asn	Glu 5	Lys	Lys	Val	Lys	Tyr 10	Phe	Leu	Arg	Lys	Thr 15	Ala
Tyr	Gly	Leu	Ala 20	Ser	Met	Ser	Ala	Ala 25	Phe	Ala	Val	Cys	Ser 30	Gly	Ile
Val	His	Ala 35	Asp	Thr	Ser	Ser	Gly 40	Ile	Ser	Ala	Ser	Ile 45	Pro	His	Lys
Lys	Gln 50	Val	Asn	Leu	Gly	Ala 55	Val	Thr	Leu	Lys	Asn 60	Leu	Ile	Ser	Lys
Tyr 65	Arg	Gly	Asn	Asp	Lys 70	Ala	Ile	Ala	Ile	Leu 75	Leu	Ser	Arg	Val	Asn 80
Asp	Phe	Asn	Arg	Ala 85	Ser	Gln	Asp	Thr	Leu 90	Pro	Gln	Leu	Ile	Asn 95	Ser
Thr	Glu	Ala	Glu 100	Ile	Arg	Asn	Ile	Leu 105	Tyr	Gln	Gly	Gln	Ile 110	Gly	Lys
Gln	Asn	Lys 115	Pro	Ser	Val	Thr	Thr 120	His	Ala	Lys	Val	Ser 125	Asp	Gln	Glu

eo1f-seq1.txt

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
 130 135 140
 Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
 145 150 155 160
 Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
 165 170 175
 Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
 180 185 190
 Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
 195 200 205
 Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285
 Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400

eolf-seq1.txt

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
405 410 415

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
515 520 525

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
545 550 555 560

Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu Ala
565 570 575

Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly
580 585 590

Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys
595 600 605

Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser
610 615 620

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
625 630 635 640

Lys Lys Asn

<210> 235
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC97(III)

eo1f-seq1.txt

<400> 235

```

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20      25      30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35      40      45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50      55      60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65      70      75      80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85      90      95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115     120     125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130     135     140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165     170     175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210     215     220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225     230     235     240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245     250     255

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

```

eo1f-seq1.txt

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 236

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC98(II)

<400> 236

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

Phe Ser His Ile Tyr Pro Met Gln Ile Gly Leu Val Tyr Asp Ala Val
Page 359

eo1f-seq1.txt

195

200

205

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 237

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC108(III)

<400> 237

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

eo1f-seq1.txt

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 238

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC216(Ib)

<400> 238

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
Page 361

eo1f-seq1.txt
60

50

55

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 239
<211> 308

eo1f-seq1.txt

<212> PRT

<213> Streptococcus agalactiae IC244(III)

<400> 239

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

eo1f-seq1.txt

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 240

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC245(Ib)

<400> 240

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

eof-seq1.txt

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 241
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC246(III)
<400> 241

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

eo1f-seq1.txt

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 242

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC247(III)

<400> 242

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

eo1f-seq1.txt

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

eo1f-seq1.txt

<210> 243
 <211> 308
 <212> PRT
 <213> Streptococcus agalactiae IC250(Ib)

<400> 243

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
 20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
 35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
 50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
 65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
 85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
 115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
 130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
 165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
 210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
 225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys

eo1f-seq1.txt

245

250

255

Asp Pro Lys Leu₂₆₀ Lys Lys Leu Leu His₂₆₅ Arg Leu Asp Gly Lys₂₇₀ Ile Asn

Leu Lys Thr₂₇₅ Met Gln Asn Leu Asn₂₈₀ Tyr Met Val Asp Asp₂₈₅ Lys Leu Leu

Glu Pro₂₉₀ Ser Val Val Ala Lys₂₉₅ Gln Phe Leu Glu Lys₃₀₀ Asn His Tyr Phe

Arg Gly Asp Lys₃₀₅

<210> 244

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC251(V)

<400> 244

Met Leu Lys Lys Ser₅ His Phe Leu Gln Ile₁₀ Phe Thr Leu Cys Leu₁₅ Ala

Leu Leu Thr₂₀ Ile Ser Gly Cys Gln₂₅ Leu Thr Asp Thr Lys Lys₃₀ Ser Gly

His Thr Thr₃₅ Ile Lys Val Ala₄₀ Ala Gln Ser Ser Thr₄₅ Glu Ser Ser Ile

Met Ala₅₀ Asn Ile Ile Thr₅₅ Glu Leu Ile His His₆₀ Glu Leu Gly Tyr Asn

Thr Thr Leu Ile Ser₇₀ Asn Leu Gly Ser Ser Thr₇₅ Val Thr His Gln Ala₈₀

Leu Leu Arg Gly Asp₈₅ Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly₉₅ Thr

Asp Ile Thr Gly₁₀₀ Thr Leu Gly Leu Lys₁₀₅ Ala Val Lys Asp Pro₁₁₀ Lys Glu

Ala Ser Lys₁₁₅ Ile Val Lys Thr Glu₁₂₀ Phe Gln Lys Arg Tyr₁₂₅ Asn Gln Thr

Trp Tyr Pro Thr Tyr Gly₁₃₅ Phe Ser Asp Thr Tyr Ala₁₄₀ Phe Met Val Thr

Lys Glu Phe Ala Arg Gln₁₅₀ Asn Lys Ile Thr Lys₁₅₅ Ile Ser Asp Leu Lys₁₆₀

Lys Leu Ser Thr Thr₁₆₅ Met Lys Ala Gly Val₁₇₀ Asp Ser Ser Trp Met₁₇₅ Asn

eo1f-seq1.txt

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 245

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC252(III)

<400> 245

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

Arg Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys Asp Thr Lys Glu
Page 370

eolf-seq1.txt

100 105 110

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 246
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC253(III)

<400> 246

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

eo1f-seq1.txt

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys Asp Thr Lys Glu
100 105 110

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

eo1f-seq1.txt

Arg Gly Asp Lys
305

<210> 247
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC254(II)
<400> 247

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

eo1f-seq1.txt

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 248

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC255(V)

<400> 248

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

eo1f-seq1.txt

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 249
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC287(V)
<400> 249

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

eo1f-seq1.txt

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 250
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC288(Ia)

<400> 250

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

eo1f-seq1.txt

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe

290 295 eolf-seql.txt 300

Arg Gly Asp Lys
305

<210> 251
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC289(Ib)
<400> 251

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

eo1f-seq1.txt

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 252
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC290(III)
<400> 252

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

Lys Glu Phe Ala Arg Gln Asn Lys Ile Thr Lys Ile Ser Asp Leu Lys
Page 379

eolf-seq1.txt

145 150 155 160

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
 165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
 210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
 245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
 275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
 290 295 300

Arg Gly Asp Lys
305

<210> 253
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC291(V)
<400> 253

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
 20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
 35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
 50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

eof-seq1.txt

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 254
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC304(V)

<400> 254

Met Leu Lys Lys Ser His Phe Leu Gln Ile Phe Thr Leu Cys Leu Ala
Page 381

eo1f-seq1.txt

```

1              5              10              15
Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
      20      25      30
His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
      35      40      45
Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
      50      55      60
Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
      65      70      75      80
Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
      85      90      95
Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys Asp Pro Lys Glu
      100      105      110
Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
      115      120      125
Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
      130      135      140
Lys Glu Phe Ala Arg Gln Asn Lys Ile Thr Lys Ile Ser Asp Leu Lys
      145      150      155      160
Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
      165      170      175
Arg Glu Gly Asp Gly Tyr Thr Asp Phe Ala Lys Thr Tyr Gly Phe Glu
      180      185      190
Phe Ser His Ile Tyr Pro Met Gln Ile Gly Leu Val Tyr Asp Ala Val
      195      200      205
Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
      210      215      220
Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
      225      230      235      240
Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
      245      250      255
Asp Pro Lys Leu Lys Lys Leu Leu His Arg Leu Asp Gly Lys Ile Asn
      260      265      270
Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
      275      280      285

```

eo1f-seq1.txt

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 255
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC305(II)

<400> 255

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

eolf-seql.txt

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 256
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC306(Ib)
<400> 256

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

eo1f-seq1.txt

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 257
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC361(Ib)

<400> 257

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

eolf-seq1.txt

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 258
 <211> 308
 <212> PRT
 <213> Streptococcus agalactiae IC363(III)

eo1f-seq1.txt

<400> 258

```

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20      25      30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35      40      45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50      55      60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65      70      75      80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85      90      95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115     120     125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130     135     140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165     170     175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210     215     220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225     230     235     240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245     250     255

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

```

eo1f-seq1.txt

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 259

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC364(III)

<400> 259

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

Phe Ser His Ile Tyr Pro Met Gln Ile Gly Leu Val Tyr Asp Ala Val
Page 388

eo1f-seq1.txt

195

200

205

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 260

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC365(Ia)

<400> 260

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

eo1f-seq1.txt

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 261
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC366(n.t.)

<400> 261

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
Page 390

eo1f-seq1.txt
60

50

55

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys Asp Thr Lys Glu
100 105 110

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 262
<211> 308

eo1f-seq1.txt

<212> PRT

<213> Streptococcus agalactiae IC367(II)

<400> 262

```

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
 20          25          30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
 35          40          45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
 50          55          60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
 65          70          75          80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
 85          90          95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115          120          125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130          135          140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165          170          175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210          215          220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225          230          235          240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245          250          255

```

eo1f-seq1.txt

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 263

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC368(Ia)

<400> 263

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

eof-seq1.txt

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 264
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC377(V)
<400> 264

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

eo1f-seq1.txt

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 265

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC379(Ib)

<400> 265

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

eo1f-seq1.txt

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

eo1f-seq1.txt

<210> 266
 <211> 308
 <212> PRT
 <213> Streptococcus agalactiae IC432(Ib)

<400> 266

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
 20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
 35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
 50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
 65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
 85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
 115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
 130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
 165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
 210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
 225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
 Page 397

eo1f-seq1.txt

245

250

255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 267

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC434(III)

<400> 267

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

eo1f-seq1.txt

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 268

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC455(III)

<400> 268

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys Asp Pro Lys Glu
Page 399

eolf-seq1.txt

100 105 110

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 269
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC457(II)

<400> 269

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

eo1f-seq1.txt

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

eo1f-seq1.txt

Arg Gly Asp Lys
305

<210> 270

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC459(Ib)

<400> 270

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

eo1f-seq1.txt

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 271

<211> 308

<212> PRT

<213> Streptococcus agalactiae IC460(II)

<400> 271

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

eo1f-seq1.txt

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 272
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC461(Ib)
<400> 272

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

eo1f-seq1.txt

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 273
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC462(II)

<400> 273

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

eo1f-seq1.txt

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe

290 295 eolf-seql.txt 300

Arg Gly Asp Lys
305

<210> 274
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC463(Ib)
<400> 274

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

eo1f-seq1.txt

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 275
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC469(V)
<400> 275

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

Lys Glu Phe Ala Arg Gln Asn Lys Ile Thr Lys Ile Ser Asp Leu Lys
Page 408

eolf-seq1.txt

145 150 155 160

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
 165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
 210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
 245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
 275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
 290 295 300

Arg Gly Asp Lys
305

<210> 276
<211> 308
<212> PRT
<213> Streptococcus agalactiae IC470(V)

<400> 276

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
 20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
 35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
 50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

eo1f-seq1.txt

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

<210> 277
 <211> 308
 <212> PRT
 <213> Streptococcus agalactiae 126H4A(Ia)

<400> 277

Met Leu Lys Lys Ser His Phe Leu Gln Ile Phe Thr Leu Cys Leu Ala
 Page 410

eo1f-seq1.txt

```

1              5              10              15
Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
      20      25      30
His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
      35      40      45
Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
      50      55      60
Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
      65      70      75      80
Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
      85      90      95
Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys Asp Thr Lys Glu
      100      105      110
Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
      115      120      125
Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
      130      135      140
Lys Glu Phe Ala Arg Gln Asn Lys Ile Thr Lys Ile Ser Asp Leu Lys
      145      150      155      160
Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
      165      170      175
Arg Glu Gly Asp Gly Tyr Thr Asp Phe Ala Lys Thr Tyr Gly Phe Glu
      180      185      190
Phe Ser His Ile Tyr Pro Met Gln Ile Gly Leu Val Tyr Asp Ala Val
      195      200      205
Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
      210      215      220
Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
      225      230      235      240
Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
      245      250      255
Asp Pro Lys Leu Lys Lys Leu Leu His Arg Leu Asp Gly Lys Ile Asn
      260      265      270
Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
      275      280      285

```

eo1f-seq1.txt

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 278
<211> 308
<212> PRT
<213> Streptococcus agalactiae 5095S2(Ib)

<400> 278

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

eolf-seq1.txt

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 279
<211> 308
<212> PRT
<213> Streptococcus agalactiae 6313(III)
<400> 279

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

Asp Ile Thr Gly Thr Leu Gly Leu Lys Ala Val Lys Asp Thr Lys Glu
100 105 110

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

eo1f-seq1.txt

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 280
<211> 308
<212> PRT
<213> Streptococcus agalactiae 12351(IV)

<400> 280

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

eo1f-seq1.txt

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 281
<211> 308
<212> PRT
<213> Streptococcus agalactiae 12403/2(III)

eo1f-seq1.txt

<400> 281

```

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20      25      30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35      40      45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50      55      60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65      70      75      80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85      90      95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115     120     125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130     135     140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165     170     175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210     215     220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225     230     235     240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245     250     255

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

```

eo1f-seq1.txt

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 282

<211> 308

<212> PRT

<213> Streptococcus agalactiae A909(Ia/c)

<400> 282

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

Phe Ser His Ile Tyr Pro Met Gln Ile Gly Leu Val Tyr Asp Ala Val
Page 417

eo1f-seq1.txt

195

200

205

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 283

<211> 308

<212> PRT

<213> Streptococcus agalactiae C388/90(Ia/c)

<400> 283

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

eo1f-seq1.txt

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 284

<211> 308

<212> PRT

<213> Streptococcus agalactiae BAA22(III)

<400> 284

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
Page 419

eo1f-seq1.txt
60

50

55

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 285
<211> 308

eo1f-seq1.txt

<212> PRT

<213> Streptococcus agalactiae 2603V/R(V)

<400> 285

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Ser Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Ile Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

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

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

eolf-seq1.txt

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 286
<211> 308
<212> PRT
<213> Streptococcus agalactiae 49447(V)

<400> 286

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

Leu Leu Thr Ile Ser Gly Cys Gln Leu Thr Asp Thr Lys Lys Pro Gly
20 25 30

His Thr Thr Ile Lys Val Ala Ala Gln Ser Ser Thr Glu Ser Ser Ile
35 40 45

Met Ala Asn Ile Val Thr Glu Leu Ile His His Glu Leu Gly Tyr Asn
50 55 60

Thr Thr Leu Ile Ser Asn Leu Gly Ser Ser Thr Val Thr His Gln Ala
65 70 75 80

Leu Leu Arg Gly Asp Ala Asp Ile Ala Ala Thr Arg Tyr Thr Gly Thr
85 90 95

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

Ala Ser Lys Ile Val Lys Thr Glu Phe Gln Lys Arg Tyr Asn Gln Thr
115 120 125

Trp Tyr Pro Thr Tyr Gly Phe Ser Asp Thr Tyr Ala Phe Met Val Thr
130 135 140

Lys Glu Phe Ala Lys Gln Asn Lys Ile Thr Lys Ile Ser Asp Leu Lys
145 150 155 160

Lys Leu Ser Thr Thr Met Lys Ala Gly Val Asp Ser Ser Trp Met Asn
165 170 175

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

eof-seq1.txt

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

Glu Ser Asn Lys Met Gln Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg
210 215 220

Ile Ser Ser Tyr Asp Leu Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe
225 230 235 240

Pro Pro Tyr Glu Ala Ser Met Val Val Asn Asn Ser Ile Ile Lys Lys
245 250 255

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

Leu Lys Thr Met Gln Asn Leu Asn Tyr Met Val Asp Asp Lys Leu Leu
275 280 285

Glu Pro Ser Val Val Ala Lys Gln Phe Leu Glu Lys Asn His Tyr Phe
290 295 300

Arg Gly Asp Lys
305

<210> 287
<211> 234
<212> PRT
<213> Streptococcus agalactiae IC98(II)
<400> 287

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

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

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

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

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

eolf-seql.txt

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

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

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
145 150 155 160

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
165 170 175

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
180 185 190

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
195 200 205

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
210 215 220

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
225 230

<210> 288
<211> 234
<212> PRT
<213> Streptococcus agalactiae IC108(III)
<400> 288

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

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

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

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

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

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

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Val Gly Gln Leu
130 135 140

Ile Gly Lys Asn Pro Leu Phe Ser Lys Pro Thr Val Ser Arg Glu Asn
145 150 155 160

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
165 170 175

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
180 185 190

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Gly Asp
195 200 205

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
210 215 220

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
225 230

<210> 289
<211> 346
<212> PRT
<213> Streptococcus agalactiae IC216(Ib)

<400> 289

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 290

<211> 346

<212> PRT

<213> Streptococcus agalactiae IC245(Ib)

<400> 290

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

eo1f-seq1.txt

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

eo1f-seq1.txt

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 291
<211> 170
<212> PRT
<213> Streptococcus agalactiae IC246(III)
<400> 291

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Val Gly Gln Leu
65 70 75 80

Ile Gly Lys Asn Pro Leu Phe Ser Lys Pro Thr Val Ser Arg Glu Asn
85 90 95

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
100 105 110

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
115 120 125

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Gly Asp
130 135 140

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
145 150 155 160

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
165 170

<210> 292
<211> 346
<212> PRT
<213> Streptococcus agalactiae IC250(Ib)

eo1f-seq1.txt

<400> 292

```

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1      5      10      15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
      20      25      30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
      35      40      45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
      50      55      60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
      65      70      75      80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
      85      90      95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
      100     105     110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
      115     120     125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
      130     135     140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
      145     150     155     160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
      165     170     175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
      180     185     190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
      195     200     205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
      210     215     220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
      225     230     235     240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
      245     250     255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
      260     265     270

```

eo1f-seq1.txt

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 293
<211> 298
<212> PRT
<213> Streptococcus agalactiae IC252(III)

<400> 293

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
Page 430

eo1f-seq1.txt

165

170

175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Val Gly Gln Leu
195 200 205

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Ile Ile Ser Arg Glu Asn
210 215 220

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
225 230 235 240

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
245 250 255

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
260 265 270

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
275 280 285

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
290 295

<210> 294

<211> 298

<212> PRT

<213> Streptococcus agalactiae IC253(III)

<400> 294

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
100 105 110

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Val Gly Gln Leu
195 200 205

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Ile Ile Ser Arg Glu Asn
210 215 220

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
225 230 235 240

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
245 250 255

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
260 265 270

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
275 280 285

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
290 295

<210> 295

<211> 234

<212> PRT

<213> Streptococcus agalactiae IC255(V)

<400> 295

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
Page 432

eo1f-seq1.txt
60

50

55

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln His Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
130 135 140

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
145 150 155 160

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
165 170 175

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
180 185 190

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
195 200 205

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
210 215 220

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
225 230

<210> 296

<211> 234

<212> PRT

<213> Streptococcus agalactiae IC289(Ib)

<400> 296

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
130 135 140

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
145 150 155 160

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
165 170 175

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
180 185 190

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
195 200 205

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
210 215 220

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
225 230

<210> 297
<211> 154
<212> PRT
<213> Streptococcus agalactiae IC290(III)

<400> 297

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Val Gly Gln Leu
50 55 60

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
Page 434

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln His Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
180 185 190

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
195 200 205

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
210 215 220

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
225 230 235 240

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
245 250 255

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
260 265 270

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
275 280

<210> 299
<211> 234
<212> PRT
<213> Streptococcus agalactiae IC304(V)

<400> 299

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Asn Asn Val Leu Ile Lys Ser Gln Asp Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
Page 436

eo1f-seq1.txt

115

120

125

Glu Arg Arg Gln His Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
130 135 140

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
145 150 155 160

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
165 170 175

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
180 185 190

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
195 200 205

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
210 215 220

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
225 230

<210> 300

<211> 234

<212> PRT

<213> Streptococcus agalactiae IC305(II)

<400> 300

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
130 135 140

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
145 150 155 160

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
165 170 175

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
180 185 190

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
195 200 205

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
210 215 220

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
225 230

<210> 301

<211> 346

<212> PRT

<213> Streptococcus agalactiae IC306(Ib)

<400> 301

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu

eo1f-seq1.txt
140

130

135

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 302

<211> 346

<212> PRT

<213> Streptococcus agalactiae IC361(Ib)

<400> 302

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

eo1f-seq1.txt

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

eof-seq1.txt

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 303

<211> 218

<212> PRT

<213> Streptococcus agalactiae IC364(III)

<400> 303

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Val Gly Gln Leu
115 120 125

Ile Gly Lys Asn Pro Leu Phe Ser Lys Pro Thr Val Ser Arg Glu Asn
130 135 140

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
145 150 155 160

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
165 170 175

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Gly Asp
180 185 190

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
195 200 205

eo1f-seq1.txt

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
210 215

<210> 304
<211> 314
<212> PRT
<213> Streptococcus agalactiae IC365(Ia)
<400> 304

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Asp Asn Arg Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Ala Asp Asn Arg Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
210 215 220

eo1f-seq1.txt

Ile Glu Lys Asn Pro Leu Leu Ser Lys Ser Thr Val Ser Arg Glu Asn
225 230 235 240

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
245 250 255

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
260 265 270

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
275 280 285

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
290 295 300

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
305 310

<210> 305

<211> 346

<212> PRT

<213> Streptococcus agalactiae IC368(Ia)

<400> 305

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 306

<211> 330

<212> PRT

<213> Streptococcus agalactiae IC377(V)

<400> 306

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Asn Asn Val Leu Ile Lys Ser Gln Asp Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Asn Asn Val Leu Ile Lys Ser Gln Asp Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln His Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
225 230 235 240

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
245 250 255

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
260 265 270

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
275 280 285

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
290 295 300

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
305 310 315 320

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn

325

eolf-seql.txt
330

<210> 307
 <211> 346
 <212> PRT
 <213> Streptococcus agalactiae IC379(Ib)
 <400> 307

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
 1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
 20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
 35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
 65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 225 230 235 240

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 308

<211> 218

<212> PRT

<213> Streptococcus agalactiae IC434(III)

<400> 308

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Val Gly Gln Leu
115 120 125

Ile Gly Lys Asn Pro Leu Phe Ser Lys Pro Thr Val Ser Arg Glu Asn

eolf-seql.txt															
130				135				140							
Asn 145	His	Ser	Ser	Gln	Gly 150	Asp	Ser	Asn	Lys	Gln 155	Ser	Phe	Ser	Lys	Lys 160
Val	Ser	Gln	Val	Thr 165	Asn	Val	Ala	Asn	Arg 170	Pro	Met	Leu	Thr	Asn 175	Asn
Ser	Arg	Thr	Ile 180	Ser	Val	Ile	Asn	Lys 185	Leu	Pro	Lys	Thr	Gly 190	Gly	Asp
Gln	Asn	Val 195	Ile	Phe	Lys	Leu	Val 200	Gly	Phe	Gly	Leu	Ile 205	Leu	Leu	Thr
Ser	Arg 210	Cys	Gly	Leu	Arg	Arg 215	Asn	Glu	Asn						
<210>		309													
<211>		186													
<212>		PRT													
<213>		Streptococcus agalactiae IC457(II)													
<400>		309													
Leu 1	Phe	Asn	Lys	Ile 5	Gly	Phe	Arg	Thr	Trp 10	Lys	Ser	Gly	Lys	Leu 15	Trp
Leu	Tyr	Met	Gly 20	Val	Leu	Gly	Ser	Thr 25	Ile	Ile	Leu	Gly	Ser 30	Ser	Pro
Val	Ser	Ala 35	Met	Asp	Ser	Val	Gly 40	Asn	Gln	Ser	Gln	Gly 45	Asn	Val	Leu
Glu	Arg 50	Arg	Gln	Arg	Asp	Ala 55	Asp	Asn	Lys	Ser	Gln 60	Gly	Asn	Val	Leu
Glu 65	Arg	Arg	Gln	Arg	Asp 70	Val	Glu	Asn	Arg	Ser 75	Gln	Gly	Asn	Val	Leu 80
Glu	Arg	Arg	Gln	Arg 85	Asp	Val	Glu	Asn	Lys 90	Ser	Gln	Val	Gly	Gln 95	Leu
Ile	Gly	Lys	Asn 100	Pro	Leu	Leu	Ser	Lys 105	Ser	Thr	Ile	Ser	Arg 110	Glu	Asn
Asn	His	Ser 115	Ser	Gln	Gly	Asp	Ser 120	Asn	Lys	Gln	Ser	Phe 125	Ser	Lys	Lys
Val	Ser 130	Gln	Val	Thr	Asn	Val 135	Ala	Asn	Arg	Pro	Met 140	Leu	Thr	Asn	Asn
Ser 145	Arg	Thr	Ile	Ser	Val 150	Ile	Asn	Lys	Leu	Pro 155	Lys	Thr	Gly	Asp	Asp 160

eo1f-seq1.txt

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
165 170 175

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
180 185

<210> 310

<211> 346

<212> PRT

<213> Streptococcus agalactiae IC461(Ib)

<400> 310

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu

eo1f-seq1.txt
220

210

215

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 311

<211> 442

<212> PRT

<213> Streptococcus agalactiae IC469(V)

<400> 311

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Val Asp Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 115 120 125
 Glu Arg Arg Gln Arg Asp Val Leu Ile Lys Ser Gln Gly Asn Asp Leu
 130 135 140
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 145 150 155 160
 Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
 165 170 175
 Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 180 185 190
 Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 195 200 205
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 210 215 220
 Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 225 230 235 240
 Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 245 250 255
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 260 265 270
 Glu Arg Arg Gln Arg Asp Val Asp Asn Lys Ser Gln Gly Asn Val Leu
 275 280 285
 Glu Arg Arg Gln Asn Asn Val Leu Ile Lys Ser Gln Asp Asn Val Leu
 290 295 300
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 305 310 315 320
 Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 325 330 335
 Glu Arg Arg Gln His Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
 340 345 350
 Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
 355 360 365
 Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
 370 375 380

eo1f-seq1.txt

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
385 390 395 400

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
405 410 415

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
420 425 430

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
435 440

<210> 312

<211> 346

<212> PRT

<213> Streptococcus agalactiae A909(Ia/c)

<400> 312

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
245 250 255

Ile Gly Lys Asn Pro Leu Leu Ser Lys Ser Thr Ile Ser Arg Glu Asn
260 265 270

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
275 280 285

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
290 295 300

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
305 310 315 320

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
325 330 335

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
340 345

<210> 313
<211> 298
<212> PRT
<213> Streptococcus agalactiae C388/90(Ia/c)
<400> 313

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Asp Asn Arg Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
195 200 205

Ile Glu Lys Asn Pro Leu Leu Ser Lys Ser Thr Val Ser Arg Glu Asn
210 215 220

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
225 230 235 240

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
245 250 255

Ser Arg Thr Ile Pro Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
260 265 270

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
275 280 285

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
290 295

<210> 314

<211> 218

<212> PRT

<213> Streptococcus agalactiae BAA22(III)

<400> 314

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

eo1f-seq1.txt

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Val Gly Gln Leu
115 120 125

Ile Gly Lys Asn Pro Leu Phe Ser Lys Pro Thr Val Ser Arg Glu Asn
130 135 140

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
145 150 155 160

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
165 170 175

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Gly Asp
180 185 190

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
195 200 205

Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn
210 215

<210> 315
<211> 570
<212> PRT
<213> Streptococcus agalactiae 2603V/R(V)
<400> 315

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
1 5 10 15

Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
20 25 30

Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
35 40 45

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
50 55 60

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
65 70 75 80

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
85 90 95

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
100 105 110

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
115 120 125

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
130 135 140

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
145 150 155 160

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
165 170 175

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
180 185 190

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
195 200 205

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
210 215 220

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
225 230 235 240

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
245 250 255

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
260 265 270

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
275 280 285

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
290 295 300

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
305 310 315 320

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
Page 456

eo1f-seq1.txt

325

330

335

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
340 345 350

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
355 360 365

Glu Arg Arg Gln Arg Asp Ala Glu Asn Arg Ser Gln Gly Asn Val Leu
370 375 380

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
385 390 395 400

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
405 410 415

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
420 425 430

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
435 440 445

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
450 455 460

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Val Gly Gln Leu
465 470 475 480

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
485 490 495

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
500 505 510

Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn
515 520 525

Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Asp Asp
530 535 540

Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr
545 550 555 560

Ser Leu Cys Gly Leu Arg Arg Asn Glu Asn
565 570

<210> 316

<211> 602

<212> PRT

<213> Streptococcus agalactiae 49447(V)

<400> 316

eo1f-seq1.txt

Leu Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp
 1 5 10 15
 Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro
 20 25 30
 Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu
 35 40 45
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 50 55 60
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 65 70 75 80
 Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 85 90 95
 Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 100 105 110
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 115 120 125
 Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 130 135 140
 Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 145 150 155 160
 Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
 165 170 175
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 180 185 190
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 195 200 205
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 210 215 220
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 225 230 235 240
 Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
 245 250 255
 Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
 260 265 270

eo1f-seq1.txt

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
275 280 285

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
290 295 300

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
305 310 315 320

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu
325 330 335

Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu
340 345 350

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
355 360 365

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
370 375 380

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
385 390 395 400

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
405 410 415

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
420 425 430

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
435 440 445

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
450 455 460

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
465 470 475 480

Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Gly Asn Val Leu
485 490 495

Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Val Gly Gln Leu
500 505 510

Ile Gly Lys Asn Pro Leu Phe Ser Lys Ser Thr Val Ser Arg Glu Asn
515 520 525

Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys
530 535 540

Ile Ser Gln Val Thr Asn Val Ala Asn Gly Pro Met Leu Thr Asn Asn
Page 459

eo1f-seq1.txt

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 318

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC216(Ib)

<400> 318

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
Page 461

eo1f-seq1.txt

20

25

30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

eo1f-seq1.txt

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 319

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC244(III)

<400> 319

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

eo1f-seq1.txt

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Ser Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

eo1f-seq1.txt

```

<210> 320
<211> 403
<212> PRT
<213> Streptococcus agalactiae IC245(Ib)
<400> 320
Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1          5          10
Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20          25
Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35          40          45
Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50          55          60
Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65          70          75          80
Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85          90          95
Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100          105          110
Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115          120          125
Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130          135          140
Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145          150          155          160
Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165          170          175
Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180          185          190
Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195          200          205
Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210          215          220
Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225          230          235          240

```

eo1f-seq1.txt

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 321

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC247(III)

<400> 321

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile

eo1f-seq1.txt

```

65                               70                               75                               80
Thr Lys Asp Cys Val85 Leu Lys Ala Val90 Lys Phe Val95 Glu Lys Leu95 Leu
Lys Glu Lys Glu100 Arg Tyr Arg Phe Tyr105 Leu Glu Glu Pro110 Pro Glu Arg
Lys Lys Val115 Lys Lys Leu Tyr Val120 Glu Gly Asp Gly125 Val Met Ile Lys
Ser Thr130 Asp Ser Arg Glu Glu135 Arg Arg Tyr Leu Asp140 Leu Thr His Phe
Val145 Ile His Thr Gly Ser150 Lys Lys Val Ser155 Thr Lys Arg Tyr Glu Leu160
Gln Asp Lys His Glu165 Ile Leu Gln Leu Asn170 Tyr Asp Lys Ala Lys175 Tyr
Asn Leu Leu Asp180 Tyr Ile Tyr Asn Asn185 Tyr Glu Val Asp190 Asp Asp Thr
Ile Leu Ile195 Thr Asn Ser Asp Met200 Gly Lys Gly Tyr Thr205 Ser Arg Val
Phe Lys210 Glu Leu Gly Lys Ala215 Leu Lys Val Lys220 Lys His Glu His Phe
Trp Asp Ile Tyr His Val230 Lys Glu Lys Leu Ser235 Ser Tyr Leu Arg Lys240
Tyr Pro Ile Glu Leu245 Thr Asp Phe Ala Ser250 Asp Ala Val Lys255 Lys Tyr
Asn Ser Asp Lys260 Leu Glu Leu Val Phe265 Asp Thr Val Glu Ser270 Leu Ile
Cys Asp Glu275 Leu Glu Asp Gln Glu280 Phe Gln Lys Phe Lys285 Lys Lys Val
Leu Asn290 Asn Phe Lys Tyr Ile295 Lys Pro Ala His Leu300 Arg Asn Leu Ser
Asn Arg Gly Ile Gly Ile310 Met Glu Ser Gln His315 Arg Lys Ile Thr Tyr320
Arg Met Lys Arg Arg325 Gly Met Tyr Trp Ser330 Lys Trp Gly Ile Ser335 Thr
Met Ala Asn Met340 Ile Ile Leu Glu Arg345 Ala Asn Gly Leu Arg350 Glu Leu

```

eo1f-seq1.txt

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 322
<211> 403
<212> PRT
<213> Streptococcus agalactiae IC250(Ib)
<400> 322

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

eo1f-seq1.txt

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 323

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC251(V)

<400> 323

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

eo1f-seq1.txt

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

eo1f-seq1.txt

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 324

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC252(III)

<400> 324

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys

eo1f-seq1.txt

115

120

125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

eo1f-seq1.txt

Lys Thr Lys

<210> 325

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC253(III)

<400> 325

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

eo1f-seq1.txt

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 326

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC255(V)

<400> 326

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

eo1f-seq1.txt

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95
 Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110
 Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Gly Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270
 Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
 275 280 285
 Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
 290 295 300
 Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
 305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335

eo1f-seq1.txt

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 327

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC287(V)

<400> 327

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr

eo1f-seq1.txt

165

170

175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 328

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC288(Ia)

<400> 328

eo1f-seq1.txt

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15
 Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25 30
 Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45
 Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60
 Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95
 Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110
 Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270

eolf-seq1.txt

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 329
<211> 403
<212> PRT
<213> Streptococcus agalactiae IC289(Ib)
<400> 329

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Cys Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

eo1f-seq1.txt

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270
 Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
 275 280 285
 Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
 290 295 300
 Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
 305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335
 Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
 340 345 350
 Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
 355 360 365
 Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
 370 375 380

eo1f-seq1.txt

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 330

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC290(III)

<400> 330

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe

eo1f-seq1.txt
220

210

215

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Ser Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 331

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC291(V)

<400> 331

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

eo1f-seq1.txt

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

eo1f-seq1.txt

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 332

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC304(V)

<400> 332

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

eo1f-seq1.txt

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 333
<211> 403
<212> PRT

<213> Streptococcus agalactiae IC305(II)

<400> 333

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
Page 486

260 eolf-seql.txt 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
 275 280 285
 Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
 290 295 300
 Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
 305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335
 Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
 340 345 350
 Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
 355 360 365
 Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
 370 375 380
 Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
 385 390 395 400
 Lys Thr Lys

<210> 334
 <211> 403
 <212> PRT
 <213> Streptococcus agalactiae IC306(Ib)
 <400> 334

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15
 Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25 30
 Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45
 Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60
 Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95

eo1f-seq1.txt

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110
 Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270
 Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
 275 280 285
 Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
 290 295 300
 Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
 305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335
 Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
 340 345 350
 Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
 355 360 365

eo1f-seq1.txt

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 335

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC361(Ib)

<400> 335

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

eo1f-seq1.txt

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 336

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC363(III)

<400> 336

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

eo1f-seq1.txt

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Ser Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr

305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335
 Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
 340 345 350
 Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
 355 360 365
 Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
 370 375 380
 Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
 385 390 395 400
 Lys Thr Lys

```
<210> 337
<211> 403
<212> PRT
<213> Streptococcus agalactiae IC364(III)
<400> 337
```

Phe 1	Ser	Val	Thr 5	Tyr	Ser	Gln	Ser	Glu 10	Arg	Thr	Val	Val	Phe 15	Ser	Phe
Gly	Glu	Ile	Thr 20	Phe	Ser	Arg	Ser	Arg 25	Trp	Thr	Asn	Gly	Phe 30	Glu	Thr
Arg	Ile	Pro 35	Val	Asp	Glu	Trp	Leu 40	Gly	Leu	Glu	Lys	Tyr 45	Lys	Arg	Tyr
Ser	Ile 50	Glu	Phe	Leu	Tyr	His 55	Val	Ala	Lys	Leu	Ala 60	Thr	Met	Met	Pro
Tyr 65	Arg	Gln	Val	Cys	Lys 70	Val	Ile	Asp	Ser	Thr 75	Leu	Gln	Thr	Ile	Ile 80
Thr	Lys	Asp	Cys	Val 85	Leu	Lys	Ala	Val	Lys 90	Phe	Val	Glu	Lys	Leu 95	Leu
Lys	Glu	Lys	Glu 100	Arg	Tyr	Arg	Phe	Tyr 105	Leu	Glu	Glu	Pro	Pro 110	Glu	Arg
Lys	Lys	Val 115	Lys	Lys	Leu	Tyr	Val 120	Glu	Gly	Asp	Gly	Val 125	Met	Ile	Lys
Ser	Thr 130	Asp	Ser	Arg	Glu	Glu 135	Arg	Arg	Tyr	Leu	Asp 140	Leu	Thr	His	Phe

eo1f-seq1.txt

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270
 Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
 275 280 285
 Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
 290 295 300
 Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
 305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335
 Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
 340 345 350
 Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
 355 360 365
 Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
 370 375 380
 Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
 385 390 395 400
 Lys Thr Lys

eo1f-seq1.txt

<210> 338

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC365(Ia)

<400> 338

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

eo1f-seq1.txt

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 339

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC366(n.t.)

<400> 339

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

eo1f-seq1.txt

Thr Lys Asp Cys Val₈₅ Leu Lys Ala Val₉₀ Lys Phe Val₉₅ Glu Lys Leu Leu
Lys Glu Lys₁₀₀ Glu Arg Tyr Arg Phe₁₀₅ Leu Glu Glu Pro₁₁₀ Pro Glu Arg
Lys Lys Val₁₁₅ Lys Lys Leu Tyr Val₁₂₀ Glu Gly Asp Gly₁₂₅ Val Met Ile Lys
Ser Thr₁₃₀ Asp Ser Arg Glu₁₃₅ Glu Arg Arg Tyr Leu Asp₁₄₀ Leu Thr His Phe
Val₁₄₅ Ile His Thr Gly Ser₁₅₀ Lys Lys Val Ser Thr₁₅₅ Lys Arg Tyr Glu Leu₁₆₀
Gln Asp Lys His Glu₁₆₅ Ile Leu Gln Leu Asn₁₇₀ Tyr Asp Lys Ala Lys₁₇₅ Tyr
Asn Leu Leu Asp₁₈₀ Tyr Ile Tyr Asn Asn₁₈₅ Tyr Glu Val Asp₁₉₀ Asp Asp Thr
Ile Leu Ile₁₉₅ Thr Asn Ser Asp Met₂₀₀ Gly Lys Gly Tyr Thr₂₀₅ Ser Arg Val
Phe Lys₂₁₀ Glu Leu Gly Lys Ala₂₁₅ Leu Lys Val Lys₂₂₀ Lys His Glu His Phe
Trp Asp Ile Tyr His Val₂₃₀ Lys Glu Lys Leu Ser₂₃₅ Ser Tyr Leu Arg Lys₂₄₀
Tyr Pro Ile Glu Leu₂₄₅ Thr Asp Phe Ala Leu₂₅₀ Asp Ala Val Lys Lys₂₅₅ Tyr
Asn Ser Asp Lys₂₆₀ Leu Glu Leu Val Phe₂₆₅ Asp Thr Val Glu Ser₂₇₀ Leu Ile
Cys Asp Glu₂₇₅ Leu Glu Asp Gln Glu₂₈₀ Phe Gln Lys Phe Lys₂₈₅ Lys Lys Val
Leu Asn₂₉₀ Asn Phe Lys Tyr Ile₂₉₅ Lys Pro Ala His Leu₃₀₀ Arg Asn Leu Ser
Asn Arg Gly Ile Gly Ile₃₁₀ Met Glu Ser Gln His₃₁₅ Arg Lys Ile Thr Tyr₃₂₀
Arg Met Lys Arg Arg₃₂₅ Gly Met Tyr Trp Ser₃₃₀ Lys Trp Gly Ile Ser₃₃₅ Thr
Met Ala Asn Met₃₄₀ Ile Ile Leu Glu Arg₃₄₅ Ala Asn Gly Leu Arg₃₅₀ Glu Leu
Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser

eo1f-seq1.txt

355

360

365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 340

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC368(Ia)

<400> 340

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

eo1f-seq1.txt

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 341
<211> 403
<212> PRT
<213> Streptococcus agalactiae IC377(V)

<400> 341

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
Page 498

eo1f-seq1.txt

20

25

30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45
Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60
Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80
Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95
Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110
Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125
Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140
Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160
Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175
Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190
Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205
Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220
Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240
Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255
Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270
Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285
Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

eo1f-seq1.txt

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 342

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC379(Ib)

<400> 342

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

eo1f-seq1.txt

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

eo1f-seq1.txt

```

<210> 343
<211> 403
<212> PRT
<213> Streptococcus agalactiae IC432(Ib)
<400> 343
Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1          5          10
Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20          25
Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35          40          45
Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50          55          60
Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65          70          75          80
Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85          90          95
Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100          105          110
Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115          120          125
Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130          135          140
Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145          150          155          160
Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165          170          175
Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180          185          190
Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195          200          205
Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210          215          220
Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225          230          235          240

```

eo1f-seq1.txt

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 344

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC455(III)

<400> 344

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
Page 503

eo1f-seq1.txt

```

65                               70                               75                               80
Thr Lys Asp Cys Val85 Leu Lys Ala Val90 Lys Phe Val95 Glu Lys Leu95 Leu
Lys Glu Lys Glu100 Arg Tyr Arg Phe Tyr105 Leu Glu Glu Pro110 Pro Glu Arg
Lys Lys Val115 Lys Lys Leu Tyr Val120 Glu Gly Asp Gly125 Val Met Ile Lys
Ser Thr130 Asp Ser Arg Glu Glu135 Arg Arg Tyr Leu Asp140 Leu Thr His Phe
Val145 Ile His Thr Gly Ser150 Lys Lys Val Ser155 Thr Lys Arg Tyr Glu Leu160
Gln Asp Lys His Glu165 Ile Leu Gln Leu Asn170 Tyr Asp Lys Ala Lys175 Tyr
Asn Leu Leu Asp180 Tyr Ile Tyr Asn Asn185 Tyr Glu Val Asp190 Asp Asp Thr
Ile Leu Ile195 Thr Asn Ser Asp Met200 Gly Lys Gly Tyr Thr205 Ser Arg Val
Phe Lys210 Glu Leu Gly Lys Ala215 Leu Lys Val Lys220 Lys His Glu His Phe
Trp Asp Ile Tyr His Val230 Lys Glu Lys Leu Ser235 Ser Tyr Leu Arg Lys240
Tyr Pro Ile Glu Leu245 Thr Asp Phe Ala Ser250 Asp Ala Val Lys255 Lys Tyr
Asn Ser Asp Lys260 Leu Glu Leu Val Phe265 Asp Thr Val Glu Ser270 Leu Ile
Cys Asp Glu275 Leu Glu Asp Gln Glu280 Phe Gln Lys Phe Lys285 Lys Lys Val
Leu Asn290 Asn Phe Lys Tyr Ile295 Lys Pro Ala His Leu300 Arg Asn Leu Ser
Asn Arg Gly Ile Gly Ile310 Met Glu Ser Gln His315 Arg Lys Ile Thr Tyr320
Arg Met Lys Arg Arg325 Gly Met Tyr Trp Ser330 Lys Trp Gly Ile Ser335 Thr
Met Ala Asn Met340 Ile Ile Leu Glu Arg345 Ala Asn Gly Leu Arg350 Glu Leu

```

eo1f-seq1.txt

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 345

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC457(II)

<400> 345

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

eo1f-seq1.txt

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 346

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC459(Ib)

<400> 346

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

eo1f-seq1.txt

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

eo1f-seq1.txt

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 347

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC460(II)

<400> 347

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys

eo1f-seq1.txt

115

120

125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

eo1f-seq1.txt

Lys Thr Lys

<210> 348

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC461(Ib)

<400> 348

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

eo1f-seq1.txt

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 349

<211> 403

<212> PRT

<213> Streptococcus agalactiae IC463(Ib)

<400> 349

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

eo1f-seq1.txt

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95
 Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110
 Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270
 Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
 275 280 285
 Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
 290 295 300
 Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
 305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335

eo1f-seq1.txt

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 350
<211> 403
<212> PRT
<213> Streptococcus agalactiae IC469(V)

<400> 350

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
Page 513

eo1f-seq1.txt

165

170

175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 351

<211> 403

<212> PRT

<213> Streptococcus agalactiae 126H4A(Ia)

<400> 351

eo1f-seq1.txt

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15
 Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25 30
 Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45
 Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60
 Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95
 Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110
 Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270

eolf-seq1.txt

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 352
<211> 403
<212> PRT
<213> Streptococcus agalactiae 6313(III)
<400> 352

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

eo1f-seq1.txt

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270
 Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
 275 280 285
 Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
 290 295 300
 Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
 305 310 315 320
 Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
 325 330 335
 Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
 340 345 350
 Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
 355 360 365
 Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
 370 375 380

eo1f-seq1.txt

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 353

<211> 403

<212> PRT

<213> Streptococcus agalactiae 12351(IV)

<400> 353

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe

eo1f-seq1.txt
220

210

215

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 354

<211> 403

<212> PRT

<213> Streptococcus agalactiae 12403/2(III)

<400> 354

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

eo1f-seq1.txt

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

eo1f-seq1.txt

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 355

<211> 403

<212> PRT

<213> Streptococcus agalactiae A909(Ia/c)

<400> 355

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

eo1f-seq1.txt

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 356
<211> 403
<212> PRT

<213> Streptococcus agalactiae C388/90(Ia/c)

<400> 356

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60

Tyr Cys Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 Page 523

eo1f-seq1.txt

260

265

270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Phe Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Tyr Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 357

<211> 444

<212> PRT

<213> Streptococcus agalactiae BAA22(III)

<400> 357

Met Glu Val Lys Lys Phe Ser Glu Lys Asp Phe Val Asn Glu Ile Asn
1 5 10 15

Lys Ile Lys Gln Lys Gln Phe Leu Ser Gln Ile Glu Gln Tyr Glu Ser
20 25 30

Tyr Ile Ala Pro Gln Met Arg Thr Lys Gly Tyr Lys Arg Ile Asn Gln
35 40 45

Ser Glu Arg Thr Val Val Phe Ser Phe Gly Glu Ile Thr Phe Ser Arg
50 55 60

Ser Arg Trp Thr Asn Gly Phe Glu Thr Arg Ile Pro Val Asp Glu Trp
65 70 75 80

Leu Gly Leu Glu Lys Tyr Lys Arg Tyr Ser Ile Glu Phe Leu Tyr His
85 90 95

eo1f-seq1.txt

Val Ala Lys Leu Ala Thr Met Met Pro Tyr Arg Gln Val Cys Lys Val
100 105 110

Ile Asp Ser Thr Leu Gln Thr Ile Ile Thr Lys Asp Cys Val Leu Lys
115 120 125

Ala Val Lys Phe Val Glu Lys Leu Leu Lys Glu Lys Glu Arg Tyr Arg
130 135 140

Phe Tyr Leu Glu Glu Pro Pro Glu Arg Lys Lys Val Lys Lys Leu Tyr
145 150 155 160

Val Glu Gly Asp Gly Val Met Ile Lys Ser Thr Asp Ser Arg Glu Glu
165 170 175

Arg Arg Tyr Leu Asp Leu Thr His Phe Val Ile His Thr Gly Ser Lys
180 185 190

Lys Val Ser Thr Lys Arg Tyr Glu Leu Arg Asp Lys His Glu Ile Leu
195 200 205

Gln Leu Asn Tyr Asp Lys Ala Lys Tyr Asn Leu Leu Asp Tyr Ile Tyr
210 215 220

Asn Asn Tyr Glu Val Asp Asp Asp Thr Ile Leu Ile Thr Asn Ser Asp
225 230 235 240

Met Gly Lys Gly Tyr Thr Ser Arg Val Phe Lys Glu Leu Gly Lys Ala
245 250 255

Leu Lys Val Lys Lys His Glu His Phe Trp Asp Ile Tyr His Val Lys
260 265 270

Glu Lys Leu Ser Ser Tyr Leu Arg Lys Tyr Pro Ile Glu Leu Thr Asp
275 280 285

Phe Ala Leu Asp Ala Val Lys Lys Tyr Asn Ser Asp Lys Leu Glu Leu
290 295 300

Val Phe Asp Thr Val Glu Ser Leu Ile Cys Asp Glu Leu Glu Asp Gln
305 310 315 320

Glu Phe Gln Lys Phe Lys Lys Lys Val Leu Asn Asn Phe Lys Tyr Ile
325 330 335

Lys Pro Ala His Leu Arg Asn Leu Ser Asn Arg Gly Ile Gly Ile Met
340 345 350

Glu Ser Gln His Arg Lys Ile Thr Tyr Arg Met Lys Arg Arg Gly Met
355 360 365

eo1f-seq1.txt

Tyr Trp Ser Lys Trp Gly Ile Ser Thr Met Ala Asn Met Ile Ile Leu
370 375 380

Glu Arg Ala Asn Gly Leu Arg Glu Leu Phe Phe Gly Ser Trp Arg Lys
385 390 395 400

Val Tyr Ser Glu Tyr Lys Glu Gly Ser Phe Ser Ala Gly Arg Leu Phe
405 410 415

Lys Lys Thr Asp Glu Leu Asp Lys Phe Ser Lys Pro Leu Leu Lys Asn
420 425 430

Gly Arg Lys Trp Ser Ile Thr Gly Ile Lys Thr Lys
435 440

<210> 358

<211> 403

<212> PRT

<213> Streptococcus agalactiae 2603V/R(V)

<400> 358

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
1 5 10 15

Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
20 25 30

Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
35 40 45

Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
50 55 60

Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
65 70 75 80

Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
85 90 95

Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
100 105 110

Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
115 120 125

Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
130 135 140

Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
145 150 155 160

Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
165 170 175

eo1f-seq1.txt

Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
180 185 190

Ile Leu Ile Thr Asn Ser Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
195 200 205

Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
210 215 220

Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
225 230 235 240

Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
245 250 255

Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
260 265 270

Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
275 280 285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 359
<211> 403
<212> PRT
<213> Streptococcus agalactiae 49447(V)
<400> 359

eo1f-seq1.txt

Phe Ser Val Thr Tyr Ser Gln Ser Glu Arg Thr Val Val Phe Ser Phe
 1 5 10 15
 Gly Glu Ile Thr Phe Ser Arg Ser Arg Trp Thr Asn Gly Phe Glu Thr
 20 25 30
 Arg Ile Pro Val Asp Glu Trp Leu Gly Leu Glu Lys Tyr Lys Arg Tyr
 35 40 45
 Ser Ile Glu Phe Leu Tyr His Val Ala Lys Leu Ala Thr Met Met Pro
 50 55 60
 Tyr Arg Gln Val Cys Lys Val Ile Asp Ser Thr Leu Gln Thr Ile Ile
 65 70 75 80
 Thr Lys Asp Cys Val Leu Lys Ala Val Lys Phe Val Glu Lys Leu Leu
 85 90 95
 Lys Glu Lys Glu Arg Tyr Arg Phe Tyr Leu Glu Glu Pro Pro Glu Arg
 100 105 110
 Lys Lys Val Lys Lys Leu Tyr Val Glu Gly Asp Gly Val Met Ile Lys
 115 120 125
 Ser Thr Asp Ser Arg Glu Glu Arg Arg Tyr Leu Asp Leu Thr His Phe
 130 135 140
 Val Ile His Thr Gly Ser Lys Lys Val Ser Thr Lys Arg Tyr Glu Leu
 145 150 155 160
 Gln Asp Lys His Glu Ile Leu Gln Leu Asn Tyr Asp Lys Ala Lys Tyr
 165 170 175
 Asn Leu Leu Asp Tyr Ile Tyr Asn Asn Tyr Glu Val Asp Asp Asp Thr
 180 185 190
 Ile Leu Ile Thr Asn Phe Asp Met Gly Lys Gly Tyr Thr Ser Arg Val
 195 200 205
 Phe Lys Glu Leu Gly Lys Ala Leu Lys Val Lys Lys His Glu His Phe
 210 215 220
 Trp Asp Ile Tyr His Val Lys Glu Lys Leu Ser Ser Tyr Leu Arg Lys
 225 230 235 240
 Tyr Pro Ile Glu Leu Thr Asp Phe Ala Leu Asp Ala Val Lys Lys Tyr
 245 250 255
 Asn Ser Asp Lys Leu Glu Leu Val Phe Asp Thr Val Glu Ser Leu Ile
 260 265 270
 Cys Asp Glu Leu Glu Asp Gln Glu Phe Gln Lys Phe Lys Lys Lys Val
 Page 528

eo1f-seq1.txt

275

280

285

Leu Asn Asn Phe Lys Tyr Ile Lys Pro Ala His Leu Arg Asn Leu Ser
290 295 300

Asn Arg Gly Ile Gly Ile Met Glu Ser Gln His Arg Lys Ile Thr Tyr
305 310 315 320

Arg Met Lys Arg Arg Gly Met Tyr Trp Ser Lys Trp Gly Ile Ser Thr
325 330 335

Met Ala Asn Met Ile Ile Leu Glu Arg Ala Asn Gly Leu Arg Glu Leu
340 345 350

Phe Phe Gly Ser Trp Arg Lys Val Tyr Ser Glu Tyr Lys Glu Gly Ser
355 360 365

Phe Ser Ala Gly Arg Leu Phe Lys Lys Thr Asp Glu Leu Asp Lys Phe
370 375 380

Ser Lys Pro Leu Leu Lys Asn Gly Arg Lys Trp Ser Ile Thr Gly Ile
385 390 395 400

Lys Thr Lys

<210> 360

<211> 675

<212> PRT

<213> Streptococcus agalactiae IC252/2(III)

<400> 360

Met Lys Lys Ile Asn Lys Tyr Phe Ala Val Phe Ser Ala Leu Leu Leu
1 5 10 15

Thr Val Thr Ser Leu Phe Ser Val Ala Pro Val Phe Ala Glu Glu Ala
20 25 30

Lys Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Arg Thr
35 40 45

Ala Phe Asp Gly Phe Thr Ala Gly Thr Lys Gly Lys Asp Asn Thr Asp
50 55 60

Tyr Val Gly Lys Gln Ile Glu Asp Leu Lys Thr Tyr Phe Gly Ser Gly
65 70 75 80

Glu Ala Lys Glu Ile Ala Gly Ala Tyr Phe Ala Phe Lys Asn Glu Ala
85 90 95

Gly Thr Lys Tyr Ile Thr Glu Asn Gly Glu Glu Val Asp Thr Leu Asp
100 105 110

eo1f-seq1.txt

Thr Thr Asp Ala Lys Gly Gly Ala Val Leu Lys Gly Leu Thr Thr Asp
115 120 125

Asn Gly Phe Lys Phe Asn Thr Ser Lys Leu Thr Gly Thr Tyr Gln Ile
130 135 140

Val Glu Leu Lys Glu Lys Ser Thr Tyr Asn Asn Asp Gly Ser Ile Leu
145 150 155 160

Ala Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn
165 170 175

Asp Asn Gly Val Val Lys Asp Ala His Val Tyr Pro Lys Asn Thr Glu
180 185 190

Thr Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Glu Leu Asp Tyr
195 200 205

Ala Asn Asn Lys Lys Asp Lys Gly Thr Val Ser Ala Ser Val Gly Asp
210 215 220

Val Lys Lys Tyr His Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr
225 230 235 240

Lys Lys Leu Ile Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn
245 250 255

Asn Asp Ile Ala Val Thr Leu Asp Gly Ala Thr Leu Asp Ala Thr Asn
260 265 270

Tyr Lys Leu Val Ala Asp Asp Gln Gly Phe Arg Leu Val Leu Thr Asp
275 280 285

Lys Gly Leu Glu Ala Val Ala Lys Ala Ala Lys Thr Lys Asp Val Glu
290 295 300

Ile Lys Ile Thr Tyr Ser Ala Thr Leu Asn Gly Ser Ala Val Val Glu
305 310 315 320

Val Leu Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr
325 330 335

Ile Glu Asn Glu Pro Lys Glu Gly Ile Pro Val Asp Lys Lys Ile Thr
340 345 350

Val Asn Lys Thr Trp Ala Val Asp Gly Asn Glu Val Asn Lys Ala Asp
355 360 365

Glu Thr Val Asp Ala Val Phe Thr Leu Gln Val Lys Asp Gly Asp Lys
370 375 380

eo1f-seq1.txt

Trp Val Asn Val Asp Ser Ala Lys Ala Thr Ala Ala Thr Ser Phe Lys
385 390 395 400

His Thr Phe Glu Asn Leu Asp Asn Ala Lys Thr Tyr Arg Val Ile Glu
405 410 415

Arg Val Ser Gly Tyr Ala Pro Glu Tyr Val Ser Phe Val Asn Gly Val
420 425 430

Val Thr Ile Lys Asn Asn Lys Asp Ser Asn Glu Pro Thr Pro Ile Asn
435 440 445

Pro Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr
450 455 460

Asn Lys Asp Gly Lys Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys
465 470 475 480

Lys Asp Gly Lys Tyr Leu Ala Arg Lys Ser Gly Val Ala Thr Asp Ala
485 490 495

Glu Lys Ala Ala Val Asp Ser Thr Lys Ser Ala Leu Asp Ala Ala Val
500 505 510

Lys Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Asp Gly
515 520 525

Lys Ser Ala Leu Ala Thr Val Ser Glu Lys Gln Lys Ala Tyr Asn Asp
530 535 540

Ala Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Glu Asp Lys Asn
545 550 555 560

Ala Lys Asn Val Val Lys Leu Ile Ser Asn Asp Lys Gly Gln Phe Glu
565 570 575

Ile Thr Gly Leu Thr Glu Gly Gln Tyr Ser Leu Glu Glu Thr Gln Ala
580 585 590

Pro Thr Gly Tyr Ala Lys Leu Ser Gly Asp Val Ser Phe Asn Val Asn
595 600 605

Ala Thr Ser Tyr Ser Lys Gly Ser Ala Gln Asp Ile Glu Tyr Thr Gln
610 615 620

Gly Ser Lys Thr Lys Asp Ala Gln Gln Val Ile Asn Lys Lys Val Thr
625 630 635 640

Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Phe Phe Thr Ile Ile Gly
645 650 655

Leu Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Arg Arg Gln Ser
Page 531

Glu Glu Val
675

<210> 361
<211> 693
<212> PRT
<213> Streptococcus agalactiae 12403/2(III)
<400> 361

Met Lys Arg Ile Asn Lys Tyr Phe Ala Met Phe Ser Ala Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Leu Ser Val Ala Pro Val Phe Ala Ala Glu Met
20 25 30

Gly Asn Ile Thr Lys Thr Val Thr Leu His Lys Ile Val Gln Thr Ser
35 40 45

Asp Asn Leu Ala Lys Pro Asn Phe Pro Gly Ile Asn Gly Leu Asn Gly
50 55 60

Thr Lys Tyr Met Gly Gln Lys Leu Thr Asp Ile Ser Gly Tyr Phe Gly
65 70 75 80

Gln Gly Ser Lys Glu Ile Ala Gly Ala Phe Phe Ala Val Met Asn Glu
85 90 95

Ser Gln Thr Lys Tyr Ile Thr Glu Ser Gly Thr Glu Val Glu Ser Ile
100 105 110

Asp Ala Ala Gly Val Leu Lys Gly Leu Thr Thr Glu Asn Gly Ile Thr
115 120 125

Phe Asn Thr Ala Asn Leu Lys Gly Thr Tyr Gln Ile Val Glu Leu Leu
130 135 140

Asp Lys Ser Asn Tyr Lys Asn Gly Asp Lys Val Leu Ala Asp Ser Lys
145 150 155 160

Ala Val Pro Val Lys Ile Thr Leu Pro Leu Tyr Asn Glu Glu Gly Ile
165 170 175

Val Val Asp Ala Glu Val Tyr Pro Lys Asn Thr Glu Glu Ala Pro Gln
180 185 190

Ile Asp Lys Asn Phe Ala Lys Ala Asn Lys Leu Leu Asn Asp Ser Asp
195 200 205

Asn Ser Ala Ile Ala Gly Gly Ala Asp Tyr Asp Lys Tyr Gln Ala Glu
210 215 220

eo1f-seq1.txt

Lys Ala Lys Ala Thr Ala Glu Ile Gly Gln Glu Ile Pro Tyr Glu Val
 225 230 235 240
 Lys Thr Lys Ile Gln Lys Gly Ser Lys Tyr Lys Asn Leu Ala Trp Val
 245 250 255
 Asp Thr Met Ser Asn Gly Leu Thr Met Gly Asn Thr Val Asn Leu Glu
 260 265 270
 Ala Ser Ser Gly Ser Phe Val Glu Gly Thr Asp Tyr Asn Val Glu Arg
 275 280 285
 Asp Asp Arg Gly Phe Thr Leu Lys Phe Thr Asp Thr Gly Leu Thr Lys
 290 295 300
 Leu Gln Lys Glu Ala Glu Thr Gln Ala Val Glu Phe Thr Leu Thr Tyr
 305 310 315 320
 Ser Ala Thr Val Asn Gly Ala Ala Ile Asp Asp Lys Pro Glu Ser Asn
 325 330 335
 Asp Ile Lys Leu Gln Tyr Gly Asn Lys Pro Gly Lys Lys Val Lys Glu
 340 345 350
 Ile Pro Val Thr Pro Ser Asn Gly Glu Ile Thr Val Ser Lys Thr Trp
 355 360 365
 Asp Lys Gly Ser Asp Leu Glu Asn Ala Asn Val Val Tyr Thr Leu Lys
 370 375 380
 Asp Gly Gly Thr Ala Val Ala Ser Val Ser Leu Thr Lys Thr Thr Pro
 385 390 395 400
 Asn Gly Glu Ile Asn Leu Gly Asn Gly Ile Lys Phe Thr Val Thr Gly
 405 410 415
 Ala Phe Ala Gly Lys Phe Ser Gly Leu Thr Asp Ser Lys Thr Tyr Met
 420 425 430
 Ile Ser Glu Arg Ile Ala Gly Tyr Gly Asn Thr Ile Thr Thr Gly Ala
 435 440 445
 Gly Ser Ala Ala Ile Thr Asn Thr Pro Asp Ser Asp Asn Pro Thr Pro
 450 455 460
 Leu Asn Pro Thr Glu Pro Lys Val Val Thr His Gly Lys Lys Phe Val
 465 470 475 480
 Lys Thr Ser Ser Thr Glu Thr Glu Arg Leu Gln Gly Ala Gln Phe Val
 485 490 495

eo1f-seq1.txt

Val Lys Asp Ser Ala Gly Lys Tyr Leu Ala Leu Lys Ser Ser Ala Thr
500 505 510

Ile Ser Ala Gln Thr Thr Ala Tyr Thr Asn Ala Lys Thr Ala Leu Asp
515 520 525

Ala Lys Ile Ala Ala Tyr Asn Lys Leu Ser Ala Asp Asp Gln Lys Gly
530 535 540

Thr Lys Gly Glu Thr Ala Lys Ala Glu Ile Lys Thr Ala Gln Asp Ala
545 550 555 560

Tyr Asn Ala Ala Phe Ile Val Ala Arg Thr Ala Tyr Glu Trp Val Thr
565 570 575

Asn Lys Glu Asp Ala Asn Val Val Lys Val Thr Ser Asn Ala Asp Gly
580 585 590

Gln Phe Glu Val Ser Gly Leu Ala Thr Gly Asp Tyr Lys Leu Glu Glu
595 600 605

Thr Gln Ala Pro Ala Gly Tyr Ala Lys Leu Ala Gly Asp Val Asp Phe
610 615 620

Lys Val Gly Asn Ser Ser Lys Ala Asp Asp Ser Gly Asn Ile Asp Tyr
625 630 635 640

Thr Ala Ser Ser Asn Lys Lys Asp Ala Gln Arg Ile Glu Asn Lys Lys
645 650 655

Val Thr Ile Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile
660 665 670

Ile Gly Leu Ser Ile Met Leu Gly Ala Val Ile Ile Met Lys Arg Arg
675 680 685

Gln Ser Glu Glu Ala
690

<210> 362

<211> 674

<212> PRT

<213> Streptococcus agalactiae 2603V/R(V)

<400> 362

Met Lys Lys Ile Asn Lys Cys Leu Thr Met Phe Ser Thr Leu Leu Leu
1 5 10 15

Ile Leu Thr Ser Leu Phe Ser Val Ala Pro Ala Phe Ala Asp Asp Ala
20 25 30

Thr Thr Asp Thr Val Thr Leu His Lys Ile Val Met Pro Gln Ala Ala
35 40 45

eo1f-seq1.txt

Phe Asp Asn Phe Thr Glu Gly Thr Lys Gly Lys Asn Asp Ser Asp Tyr
 50 55 60
 Val Gly Lys Gln Ile Asn Asp Leu Lys Ser Tyr Phe Gly Ser Thr Asp
 65 70 75 80
 Ala Lys Glu Ile Lys Gly Ala Phe Phe Val Phe Lys Asn Glu Thr Gly
 85 90 95
 Thr Lys Phe Ile Thr Glu Asn Gly Lys Glu Val Asp Thr Leu Glu Ala
 100 105 110
 Lys Asp Ala Glu Gly Gly Ala Val Leu Ser Gly Leu Thr Lys Asp Asn
 115 120 125
 Gly Phe Val Phe Asn Thr Ala Lys Leu Lys Gly Ile Tyr Gln Ile Val
 130 135 140
 Glu Leu Lys Glu Lys Ser Asn Tyr Asp Asn Asn Gly Ser Ile Leu Ala
 145 150 155 160
 Asp Ser Lys Ala Val Pro Val Lys Ile Thr Leu Pro Leu Val Asn Asn
 165 170 175
 Gln Gly Val Val Lys Asp Ala His Ile Tyr Pro Lys Asn Thr Glu Thr
 180 185 190
 Lys Pro Gln Val Asp Lys Asn Phe Ala Asp Lys Asp Leu Asp Tyr Thr
 195 200 205
 Asp Asn Arg Lys Asp Lys Gly Val Val Ser Ala Thr Val Gly Asp Lys
 210 215 220
 Lys Glu Tyr Ile Val Gly Thr Lys Ile Leu Lys Gly Ser Asp Tyr Lys
 225 230 235 240
 Lys Leu Val Trp Thr Asp Ser Met Thr Lys Gly Leu Thr Phe Asn Asn
 245 250 255
 Asn Val Lys Val Thr Leu Asp Gly Glu Asp Phe Pro Val Leu Asn Tyr
 260 265 270
 Lys Leu Val Thr Asp Asp Gln Gly Phe Arg Leu Ala Leu Asn Ala Thr
 275 280 285
 Gly Leu Ala Ala Val Ala Ala Ala Ala Lys Asp Lys Asp Val Glu Ile
 290 295 300
 Lys Ile Thr Tyr Ser Ala Thr Val Asn Gly Ser Thr Thr Val Glu Ile
 305 310 315 320

eo1f-seq1.txt

Pro Glu Thr Asn Asp Val Lys Leu Asp Tyr Gly Asn Asn Pro Thr Glu
325 330 335

Glu Ser Glu Pro Gln Glu Gly Thr Pro Ala Asn Gln Glu Ile Lys Val
340 345 350

Ile Lys Asp Trp Ala Val Asp Gly Thr Ile Thr Asp Ala Asn Val Ala
355 360 365

Val Lys Ala Ile Phe Thr Leu Gln Glu Lys Gln Thr Asp Gly Thr Trp
370 375 380

Val Asn Val Ala Ser His Glu Ala Thr Lys Pro Ser Arg Phe Glu His
385 390 395 400

Thr Phe Thr Gly Leu Asp Asn Ala Lys Thr Tyr Arg Val Val Glu Arg
405 410 415

Val Ser Gly Tyr Thr Pro Glu Tyr Val Ser Phe Lys Asn Gly Val Val
420 425 430

Thr Ile Lys Asn Asn Lys Asn Ser Asn Asp Pro Thr Pro Ile Asn Pro
435 440 445

Ser Glu Pro Lys Val Val Thr Tyr Gly Arg Lys Phe Val Lys Thr Asn
450 455 460

Gln Ala Asn Thr Glu Arg Leu Ala Gly Ala Thr Phe Leu Val Lys Lys
465 470 475 480

Glu Gly Lys Tyr Leu Ala Arg Lys Ala Gly Ala Ala Thr Ala Glu Ala
485 490 495

Lys Ala Ala Val Lys Thr Ala Lys Leu Ala Leu Asp Glu Ala Val Lys
500 505 510

Ala Tyr Asn Asp Leu Thr Lys Glu Lys Gln Glu Gly Gln Glu Gly Lys
515 520 525

Thr Ala Leu Ala Thr Val Asp Gln Lys Gln Lys Ala Tyr Asn Asp Ala
530 535 540

Phe Val Lys Ala Asn Tyr Ser Tyr Glu Trp Val Ala Asp Lys Lys Ala
545 550 555 560

Asp Asn Val Val Lys Leu Ile Ser Asn Ala Gly Gly Gln Phe Glu Ile
565 570 575

Thr Gly Leu Asp Lys Gly Thr Tyr Gly Leu Glu Glu Thr Gln Ala Pro
580 585 590

eo1f-seq1.txt

Ala Gly Tyr Ala Thr Leu Ser Gly Asp Val Asn Phe Glu Val Thr Ala
595 600 605

Thr Ser Tyr Ser Lys Gly Ala Thr Thr Asp Ile Ala Tyr Asp Lys Gly
610 615 620

Ser Val Lys Lys Asp Ala Gln Gln Val Gln Asn Lys Lys Val Thr Ile
625 630 635 640

Pro Gln Thr Gly Gly Ile Gly Thr Ile Leu Phe Thr Ile Ile Gly Leu
645 650 655

Ser Ile Met Leu Gly Ala Val Val Ile Met Lys Lys Arg Gln Ser Glu
660 665 670

Glu Ala

<210> 363

<211> 901

<212> PRT

<213> Streptococcus agalactiae IC365(Ia)

<400> 363

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

eo1f-seq1.txt

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430

eo1f-seq1.txt

Leu Thr Asp Lys Pro Asp Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Lys Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Ile Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700

eo1f-seq1.txt

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Lys Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Met
885 890 895

Ser Ile Lys Lys Asp
900

<210> 364
<211> 896
<212> PRT
<213> Streptococcus agalactiae IC366(n.t.)
<400> 364

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

eo1f-seq1.txt

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
 50 55 60
 Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Val Thr Gly
 65 70 75 80
 Glu Ala Thr Phe Asp Asn Leu Thr Pro Gly Asp Tyr Thr Leu Ser Glu
 85 90 95
 Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Thr Gln Thr Trp Gln Val
 100 105 110
 Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Asp Asp Lys
 115 120 125
 Lys Ser Ile Ile Glu Gln Arg Gln Glu Glu Leu Asp Lys Gln Tyr Pro
 130 135 140
 Leu Thr Gly Ala Tyr Glu Asp Thr Lys Glu Ser Tyr Asn Leu Glu His
 145 150 155 160
 Val Lys Asn Ser Ile Pro Asn Gly Lys Leu Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Gln Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Asn Asp Leu Asp His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Ser Ile Ile Lys Thr Ile Asn
 210 215 220
 Lys Asp Glu Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Lys Asn Asn Gly Lys Asn Asn Lys Ala Lys Lys Ala Gly Glu Ala
 245 250 255
 Val Glu Thr Ile Ile Lys Asp Val Leu Gly Ala Asn Val Glu Asn Arg
 260 265 270
 Ala Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp Gly Arg Thr Val
 275 280 285
 Lys Val Ile Lys Gly Phe Lys Glu Asp Pro Tyr His Gly Leu Glu Thr
 290 295 300
 Ser Phe Thr Val Gln Thr Asn Asp Tyr Ser Tyr Lys Lys Phe Thr Asn
 305 310 315 320

eo1f-seq1.txt

Ile Ala Ala Asp Ile Ile Lys Lys Ile Pro Lys Glu Ala Pro Glu Ala
325 330 335

Lys Trp Gly Gly Thr Ser Leu Gly Leu Thr Pro Glu Lys Lys Arg Glu
340 345 350

Tyr Asp Leu Ser Lys Val Gly Glu Thr Phe Thr Met Lys Ala Phe Met
355 360 365

Glu Ala Asp Thr Leu Leu Ser Ser Ile Gln Arg Lys Ser Arg Lys Ile
370 375 380

Ile Val His Leu Thr Asp Gly Val Pro Thr Arg Ser Tyr Ala Ile Asn
385 390 395 400

Ser Phe Val Thr Gly Ser Thr Tyr Ala Asn Gln Phe Glu Arg Ile Lys
405 410 415

Glu Lys Gly Tyr Leu Asp Lys Asn Asn Tyr Phe Ile Thr Asp Asp Pro
420 425 430

Glu Lys Ile Lys Gly Asn Gly Glu Ser Tyr Phe Leu Phe Pro Leu Asp
435 440 445

Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu Gln Lys Leu His Tyr
450 455 460

Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr Ile Tyr Arg Asn Gly
465 470 475 480

Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu Tyr Ile Asn Ser Leu
485 490 495

Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly Ile Asp Ile Ser Gly
500 505 510

Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys Asn Gln Asp Gly Thr
515 520 525

Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu Ser Gly Gly Glu Ile
530 535 540

Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro Glu Tyr Tyr Thr Pro
545 550 555 560

Ile Val Thr Ser Ala Asp Val Ser Asn Asn Glu Ile Leu Ser Lys Ile
565 570 575

Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu Asn Ser Ile Val Asn
580 585 590

eof-seq1.txt

Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile Asn Leu Gln Leu Gly
595 600

Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr Leu Gln Gly Asn Asp
610 615 620

Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly Gly Pro Asn Asn Asp
625 630 635 640

Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr Ile Lys Asn Lys Leu
645 650 655

Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln Lys Val Thr Leu Thr
660 665 670

Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser Asn Lys Phe Tyr Asp
675 680 685

Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser Glu Glu Pro Asp Thr
690 695 700

Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg Glu Tyr Pro
705 710 715 720

Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly Glu Ile Glu Phe Thr
725 730 735

Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu Lys Gly Ala Thr Phe
740 745 750

Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu Tyr Leu Pro Ile Lys
755 760 765

Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn Gly Lys Ile Ser Tyr
770 775 780

Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile Glu Ala Val Ser Pro
785 790 795 800

Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile Leu Thr Phe Glu Val
805 810 815

Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val Asn Lys Gln Ile Ser
820 825 830

Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile Thr Asn Thr His Ile
835 840 845

Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly Lys Gly Ile Leu Ser
850 855 860

Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile Ala Gly Gly Ile Tyr

eolf-seql.txt																	
865	870										875				880		
Ile	Trp	Lys	Lys	His	Lys	Lys	Ser	Ser	Asp	Ala	Ser	Ile	Glu	Lys	Asp		
				885					890					895			
<210>		365															
<211>		901															
<212>		PRT															
<213>		Streptococcus agalactiae IC367(II)															
<400>		365															
Met	Arg	Lys	Tyr	Gln	Lys	Phe	Ser	Lys	Ile	Leu	Thr	Leu	Ser	Leu	Phe		
1				5					10					15			
Cys	Leu	Ser	Gln	Ile	Pro	Leu	Asn	Thr	Asn	Val	Leu	Gly	Glu	Ser	Thr		
			20					25					30				
Val	Pro	Glu	Asn	Gly	Ala	Lys	Gly	Lys	Leu	Val	Val	Lys	Lys	Thr	Asp		
		35					40					45					
Asp	Gln	Asn	Lys	Pro	Leu	Ser	Lys	Ala	Thr	Phe	Val	Leu	Lys	Thr	Thr		
	50					55					60						
Ala	His	Pro	Glu	Ser	Lys	Ile	Glu	Lys	Val	Thr	Ala	Glu	Leu	Thr	Gly		
65					70					75					80		
Glu	Ala	Thr	Phe	Asp	Asn	Leu	Ile	Pro	Gly	Asp	Tyr	Thr	Leu	Ser	Glu		
				85					90					95			
Glu	Thr	Ala	Pro	Glu	Gly	Tyr	Lys	Lys	Thr	Asn	Gln	Thr	Trp	Gln	Val		
			100					105					110				
Lys	Val	Glu	Ser	Asn	Gly	Lys	Thr	Thr	Ile	Gln	Asn	Ser	Gly	Asp	Lys		
		115					120					125					
Asn	Ser	Thr	Ile	Gly	Gln	Asn	Gln	Glu	Glu	Leu	Asp	Lys	Gln	Tyr	Pro		
	130					135					140						
Pro	Thr	Gly	Ile	Tyr	Glu	Asp	Thr	Lys	Glu	Ser	Tyr	Lys	Leu	Glu	His		
145					150					155					160		
Val	Lys	Gly	Ser	Val	Pro	Asn	Gly	Lys	Ser	Glu	Ala	Lys	Ala	Val	Asn		
				165					170					175			
Pro	Tyr	Ser	Ser	Glu	Gly	Glu	His	Ile	Arg	Glu	Ile	Pro	Glu	Gly	Thr		
			180					185					190				
Leu	Ser	Lys	Arg	Ile	Ser	Glu	Val	Gly	Asp	Leu	Ala	His	Asn	Lys	Tyr		
		195					200					205					
Lys	Ile	Glu	Leu	Thr	Val	Ser	Gly	Lys	Thr	Ile	Val	Lys	Pro	Val	Asp		
	210					215					220						

eo1f-seq1.txt

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
 485 490 495

eo1f-seq1.txt

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700
 Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
 705 710 715 720
 Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
 725 730 735
 Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
 740 745 750
 Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
 755 760 765
 Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
 Page 546

eo1f-seq1.txt
780

770

775

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 366

<211> 901

<212> PRT

<213> Streptococcus agalactiae IC377(V)

<400> 366

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala Gln Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

eo1f-seq1.txt

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
 115 120 125
 Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
 130 135 140
 Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
 145 150 155 160
 Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380

eo1f-seq1.txt

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670 675

eo1f-seq1.txt

660

665

670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
690 695 700

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 367

<211> 901

<212> PRT

<213> Streptococcus agalactiae IC379(Ib)

<400> 367

eo1f-seq1.txt

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
225 230 235 240

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

eo1f-seq1.txt

Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
290 295 300

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
355 360 365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro

eo1f-seq1.txt

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 368
<211> 901
<212> PRT
<213> Streptococcus agalactiae IC432(Ib)

<400> 368

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

eo1f-seq1.txt

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
225 230 235 240

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
290 295 300

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
355 360 365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe

eo1f-seq1.txt

435

440

445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
690 695 700

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

eo1f-seq1.txt

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 369
<211> 901
<212> PRT
<213> Streptococcus agalactiae IC455(III)
<400> 369

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

eo1f-seq1.txt

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
225 230 235 240

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
290 295 300

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr

eo1f-seq1.txt

325

330

335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
355 360 365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Lys Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

eo1f-seq1.txt

Asn Leu Gln Leu Gly Asn Gly Gln Ile Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700
 Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
 705 710 715 720
 Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
 725 730 735
 Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
 740 745 750
 Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
 755 760 765
 Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
 770 775 780
 Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
 785 790 795 800
 Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
 805 810 815
 Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val
 820 825 830
 Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
 835 840 845
 Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
 850 855 860
 Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile
 865 870 875 880

eo1f-seq1.txt

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Met
885 890 895

Ser Ile Lys Lys Asp
900

<210> 370

<211> 901

<212> PRT

<213> Streptococcus agalactiae IC457(II)

<400> 370

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp

eo1f-seq1.txt

210

215

220

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
225 230 235 240

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
290 295 300

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
355 360 365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

eo1f-seq1.txt

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700
 Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
 705 710 715 720
 Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
 725 730 735
 Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
 740 745 750
 Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
 755 760 765

eof-seq1.txt

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 371
<211> 901
<212> PRT
<213> Streptococcus agalactiae IC459(Ib)
<400> 371

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
Page 564

eo1f-seq1.txt

100

105

110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
225 230 235 240

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
290 295 300

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
355 360 365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

eo1f-seq1.txt

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655

eo1f-seq1.txt

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
690 695 700

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 372

<211> 901

<212> PRT

<213> Streptococcus agalactiae IC460(II)

eo1f-seq1.txt

<400> 372

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
225 230 235 240

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

eo1f-seq1.txt

Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
290 295 300

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
355 360 365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Lys Leu
530 535 540

eo1f-seq1.txt

Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
690 695 700

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Met Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

eo1f-seq1.txt

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Met
885 890 895

Ser Ile Lys Lys Asp
900

<210> 373

<211> 901

<212> PRT

<213> Streptococcus agalactiae IC461(Ib)

<400> 373

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

eo1f-seq1.txt

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430

eo1f-seq1.txt

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700

eo1f-seq1.txt

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 374
<211> 901
<212> PRT
<213> Streptococcus agalactiae IC462(II)
<400> 374

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

eo1f-seq1.txt

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
 50 55 60
 Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
 65 70 75 80
 Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
 85 90 95
 Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
 100 105 110
 Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
 115 120 125
 Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
 130 135 140
 Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
 145 150 155 160
 Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Leu Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320

eo1f-seq1.txt

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Lys Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu
 580 585 590

eo1f-seq1.txt

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
690 695 700

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
755 760 765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile

eolf-seq1.txt

865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Met
 885 890 895

Ser Ile Lys Lys Asp
 900

<210> 375
 <211> 901
 <212> PRT
 <213> Streptococcus agalactiae IC469(V)

<400> 375

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
 1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
 20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
 35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
 50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
 65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
 85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
 100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
 115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
 130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
 145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205

eo1f-seq1.txt

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480

eo1f-seq1.txt

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
645 650 655

Ile Lys Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
660 665 670

Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
675 680 685

Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
690 695 700

Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
705 710 715 720

Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
725 730 735

Glu Ile Glu Phe Thr Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
740 745 750

Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu

eo1f-seq1.txt

755

760

765

Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
770 775 780

Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
785 790 795 800

Glu Ala Val Ser Pro Lys Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
805 810 815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Gln Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ser Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Ile
885 890 895

Ser Arg Glu Lys Asp
900

<210> 376

<211> 901

<212> PRT

<213> Streptococcus agalactiae IC470(V)

<400> 376

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

eo1f-seq1.txt

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
 100 105 110
 Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
 115 120 125
 Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
 130 135 140
 Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
 145 150 155 160
 Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365

eo1f-seq1.txt

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Phe Tyr Arg Asn Gly Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Asp Tyr Lys Lys
515 520 525

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Glu Leu
530 535 540

Ser Asp Gly Glu Ile Thr Glu Leu Met Lys Ser Phe Ser Ser Lys Pro
545 550 555 560

Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ser Asp Ala Ser Asn Asn Glu
565 570 575

Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Lys Ile Leu Thr Lys Glu
580 585 590

Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
595 600 605

Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
610 615 620

Leu Gln Gly Asn Asp Gly Ser Ile Met Lys Asp Ser Ile Ala Thr Gly
625 630 635 640

Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr

eo1f-seq1.txt

645

650

655

Ile Lys Asn Lys₆₆₀ Leu Tyr Val Arg Gly₆₆₅ Leu Asn Leu Gly Glu₆₇₀ Gly Gln

Lys Val Thr₆₇₅ Leu Thr Tyr Asp Val₆₈₀ Lys Leu Asp Asp Ser₆₈₅ Phe Ile Ser

Asn Lys₆₉₀ Phe Tyr Asp Thr Asn₆₉₅ Gly Arg Thr Thr Leu₇₀₀ Asn Pro Lys Ser

Glu₇₀₅ Asp Pro Asn Thr Leu₇₁₀ Arg Asp Phe Pro Ile₇₁₅ Pro Lys Ile Arg Asp₇₂₀

Val Arg Glu Tyr Pro₇₂₅ Thr Ile Thr Ile Lys₇₃₀ Asn Glu Lys Lys Leu₇₃₅ Gly

Glu Ile Glu Phe₇₄₀ Thr Lys Val Asp Lys₇₄₅ Asp Asn Asn Lys Leu₇₅₀ Leu Leu

Lys Gly Ala₇₅₅ Thr Phe Glu Leu Gln₇₆₀ Glu Phe Asn Glu Asp₇₆₅ Tyr Lys Leu

Tyr Leu₇₇₀ Pro Ile Lys Asn Asn₇₇₅ Asn Ser Lys Val Val₇₈₀ Thr Gly Glu Asn

Gly₇₈₅ Lys Ile Ser Tyr Lys₇₉₀ Asp Leu Lys Asp Gly₇₉₅ Lys Tyr Gln Leu Ile₈₀₀

Glu Ala Val Ser₈₀₅ Pro Lys Asp Tyr Gln Lys₈₁₀ Ile Thr Asn Lys Pro₈₁₅ Ile

Leu Thr Phe Glu₈₂₀ Val Val Lys Gly Ser₈₂₅ Ile Gln Asn Ile Ile₈₃₀ Ala Val

Asn Lys Gln₈₃₅ Ile Ser Glu Tyr His₈₄₀ Glu Glu Gly Asp Lys₈₄₅ His Leu Ile

Thr Asn₈₅₀ Thr His Ile Pro Pro₈₅₅ Lys Gly Ile Ile Pro₈₆₀ Met Thr Gly Gly

Lys Gly Ile Leu Ser Phe₈₇₀ Ile Leu Ile Gly Gly₈₇₅ Ser Met Met Ser Ile₈₈₀

Ala Gly Gly Ile Tyr₈₈₅ Ile Trp Lys Arg Tyr₈₉₀ Lys Lys Ser Ser Asp₈₉₅ Ile

Ser Arg Glu Lys₉₀₀ Asp

<210> 377

<211> 518

eof-seq1.txt

<212> PRT

<213> Streptococcus agalactiae 0176H4A(II)

<400> 377

```

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
 1          5          10          15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
          20          25          30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
          35          40          45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Pro Thr
          50          55          60

Ser His Ser Glu Ser Lys Val Glu Lys Val Thr Thr Glu Val Thr Gly
65          70          75          80

Glu Ala Thr Phe Asp Asn Leu Thr Pro Gly Asp Tyr Thr Leu Ser Glu
          85          90          95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Thr Gln Thr Trp Gln Val
          100          105          110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Asp Asp Lys
          115          120          125

Lys Ser Ile Ile Glu Gln Arg Gln Glu Glu Leu Asp Lys Gln Tyr Pro
          130          135          140

Leu Thr Gly Ala Tyr Glu Asp Thr Lys Glu Ser Tyr Asn Leu Glu His
          145          150          155          160

Val Lys Asn Ser Ile Pro Asn Gly Lys Leu Glu Ala Lys Ala Val Asn
          165          170          175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Gln Glu Gly Thr
          180          185          190

Leu Ser Lys Arg Ile Ser Glu Val Asn Asp Leu Asp His Asn Lys Tyr
          195          200          205

Lys Ile Glu Leu Thr Val Ser Gly Lys Ser Ile Ile Lys Thr Ile Asn
          210          215          220

Lys Asp Glu Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
          225          230          235          240

Met Lys Asn Asn Gly Lys Asn Asn Lys Ala Lys Lys Ala Gly Glu Ala
          245          250          255

```

eolf-seq1.txt

Val Glu Thr Ile Ile Lys Asp Val Leu Gly Ala Asn Val Glu Asn Arg
260 265 270

Ala Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp Gly Arg Thr Val
275 280 285

Lys Val Ile Lys Gly Phe Lys Glu Asp Pro Tyr Tyr Gly Leu Glu Thr
290 295 300

Ser Phe Thr Val Gln Thr Asn Asp Tyr Ser Tyr Lys Lys Phe Thr Asn
305 310 315 320

Ile Ala Ala Asp Ile Ile Lys Lys Ile Pro Lys Glu Ala Pro Glu Ala
325 330 335

Lys Trp Gly Gly Thr Ser Leu Gly Leu Thr Pro Glu Lys Lys Arg Glu
340 345 350

Tyr Asp Leu Ser Lys Val Gly Glu Thr Phe Thr Met Lys Ala Phe Met
355 360 365

Glu Ala Asp Thr Leu Leu Ser Ser Ile Gln Arg Lys Ser Arg Lys Ile
370 375 380

Ile Val His Leu Thr Asp Gly Val Pro Thr Arg Ser Tyr Ala Ile Asn
385 390 395 400

Ser Phe Val Thr Gly Ser Thr Tyr Ala Asn Gln Phe Glu Arg Ile Lys
405 410 415

Glu Lys Gly Tyr Leu Asp Lys Asn Asn Tyr Phe Ile Thr Asp Asp Pro
420 425 430

Glu Lys Ile Lys Gly Asn Gly Glu Ser Tyr Phe Leu Phe Pro Leu Asp
435 440 445

Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu Gln Lys Leu His Tyr
450 455 460

Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr Ile Tyr Arg Asn Gly
465 470 475 480

Pro Val Arg Glu His Gly Thr Pro Thr Lys Leu Tyr Ile Asn Ser Leu
485 490 495

Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly Ile Asp Ile Ser Gly
500 505 510

Phe Arg Gln Val Tyr Asn
515

<210> 378

eo1f-seq1.txt

<211> 901

<212> PRT

<213> Streptococcus agalactiae 2603V/R(V)

<400> 378

Met Arg Lys Tyr Gln Lys Phe Ser Lys Ile Leu Thr Leu Ser Leu Phe
1 5 10 15

Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr
20 25 30

Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
35 40 45

Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
50 55 60

Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
65 70 75 80

Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
85 90 95

Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
100 105 110

Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
115 120 125

Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
130 135 140

Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
145 150 155 160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
165 170 175

Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
180 185 190

Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
195 200 205

Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
210 215 220

Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
225 230 235 240

Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
245 250 255

eo1f-seq1.txt

Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
260 265 270

Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
290 295 300

Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
305 310 315 320

Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
325 330 335

Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
340 345 350

Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
355 360 365

Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
370 375 380

Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
385 390 395 400

Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
405 410 415

Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
420 425 430

Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
435 440 445

Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
450 455 460

Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
465 470 475 480

Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu
485 490 495

Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
500 505 510

Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys
515 520 525

eo1f-seq1.txt

Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Lys Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700
 Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
 705 710 715 720
 Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly
 725 730 735
 Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu
 740 745 750
 Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu
 755 760 765
 Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn
 770 775 780
 Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile
 785 790 795 800
 Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile
 Page 589

eo1f-seq1.txt

805

810

815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val
820 825 830

Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
835 840 845

Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
850 855 860

Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile
865 870 875 880

Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Met
885 890 895

Ser Ile Lys Lys Asp
900

<210> 379

<211> 748

<212> PRT

<213> Streptococcus agalactiae IC97(III)

<400> 379

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

eo1f-seq1.txt

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
 145 150 155 160
 Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 165 170 175
 Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415

eo1f-seq1.txt

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Arg Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu Ala Lys Pro Glu
645 650 655

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
660 665 670

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Ala
675 680 685

Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Val Lys Lys Ala

eo1f-seq1.txt
700

690

695

Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala
705 710 715 720

Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala
725 730 735

Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745

<210> 380

<211> 752

<212> PRT

<213> Streptococcus agalactiae IC98(II)

<400> 380

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

eo1f-seq1.txt

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445
 Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460

eo1f-seq1.txt

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
Page 595

<210> 381
<211> 752
<212> PRT
<213> Streptococcus agalactiae IC216(Ib)
<400> 381

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

eo1f-seq1.txt

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

eo1f-seq1.txt

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 382

<211> 630

<212> PRT

<213> Streptococcus agalactiae IC244(III)

<400> 382

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

eo1f-seq1.txt

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
 20 25 30
 Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
 35 40 45
 Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
 50 55 60
 Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
 65 70 75 80
 Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85 90 95
 Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
 100 105 110
 Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
 115 120 125
 Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
 130 135 140
 Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
 145 150 155 160
 Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
 165 170 175
 Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
 180 185 190
 Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
 195 200 205
 Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285

eo1f-seq1.txt

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400
 Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys
 405 410 415
 Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
 420 425 430
 Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
 435 440 445
 Pro Glu Ala Lys Pro Asp Val Lys Pro Lys Ala Lys Pro Asp Val Lys
 450 455 460
 Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp Val Lys
 465 470 475 480
 Pro Glu Ala Lys Pro Glu Asp Lys Pro Asp Val Lys Pro Asp Val Lys
 485 490 495
 Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys
 500 505 510
 Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys
 515 520 525
 Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys
 530 535 540
 Pro Glu Ala Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys
 545 550 555 560

eo1f-seq1.txt

Leu Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn
565 570 575

Thr Ser Gly Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr
580 585 590

Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala
595 600 605

Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val
610 615 620

Leu Lys His Lys Lys Asn
625 630

<210> 383
<211> 752
<212> PRT
<213> Streptococcus agalactiae IC245(Ib)
<400> 383

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

eo1f-seq1.txt

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445

eo1f-seq1.txt

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460
 Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575
 Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
 580 585 590
 Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
 595 600 605
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
 610 615 620
 Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
 625 630 635 640
 Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
 645 650 655
 Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
 660 665 670
 Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
 675 680 685
 Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
 690 695 700
 Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
 705 710 715 720

eo1f-seq1.txt

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 384

<211> 630

<212> PRT

<213> Streptococcus agalactiae IC247(III)

<400> 384

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

eo1f-seq1.txt

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
275 280 285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
340 345 350

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
370 375 380

Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
385 390 395 400

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys
405 410 415

Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
420 425 430

Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
435 440 445

Pro Glu Ala Lys Pro Asp Val Lys Pro Lys Ala Lys Pro Asp Val Lys
450 455 460

Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp Val Lys
465 470 475 480

Pro Glu Ala Lys Pro Glu Asp Lys Pro Asp Val Lys Pro Asp Val Lys
485 490 495

eo1f-seq1.txt

Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys
500 505 510

Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys
515 520 525

Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys
530 535 540

Pro Glu Ala Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys
545 550 555 560

Leu Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn
565 570 575

Thr Ser Gly Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr
580 585 590

Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala
595 600 605

Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val
610 615 620

Leu Lys His Lys Lys Asn
625 630

<210> 385
<211> 752
<212> PRT
<213> Streptococcus agalactiae IC250(Ib)

<400> 385

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
Page 606

eo1f-seq1.txt

100

105

110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

eo1f-seq1.txt

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445
 Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460
 Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575
 Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
 580 585 590
 Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
 595 600 605
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
 610 615 620
 Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
 625 630 635 640
 Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
 645 650 655

eo1f-seq1.txt

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 386
<211> 816
<212> PRT
<213> Streptococcus agalactiae IC251(V)
<400> 386

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
Page 609

eolf-seq1.txt

145		150		155		160
Lys	Ile	Lys	Val	Glu	Ser	Ile
				165		170
						175
Lys	Ile	Gln	Ala	Lys	Pro	Ile
		180				185
						190
Thr	Ile	Lys	Ala	Glu	Ser	Ile
		195				200
						205
Ser	Thr	Ser	Ala	Thr	His	Val
	210					215
						220
Gln	Ser	Arg	Arg	Ser	Gln	Asp
225					230	
						235
Ser	Asp	Gln	Lys	Asp	Ile	Leu
			245			250
						255
Ser	Gln	Leu	Ile	Leu	Lys	Phe
		260				265
						270
Ala	Glu	Ser	Thr	Lys	Ala	Lys
		275				280
						285
Ile	Lys	Asn	Ile	Ser	Leu	Glu
	290					295
						300
Gln	Arg	Ala	Ser	Thr	Lys	Ser
305					310	
						315
Lys	Lys	Val	Val	Asn	Ser	Asn
				325		330
						335
Gly	Lys	Lys	Gln	Glu	Ile	Ala
			340			345
						350
Met	Leu	Arg	Tyr	Asn	Thr	Ala
	355					360
						365
Glu	Gly	Lys	Leu	Asn	Ile	Thr
	370					375
						380
Lys	Gln	Ala	Ala	Gln	Glu	Val
385					390	
						395
Ala	Lys	Lys	Ile	Glu	Arg	Ile
				405		
						410
Lys	Ala	Lys	Glu	Ile	Tyr	Glu
			420			425
						430

eo1f-seq1.txt

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
645 650 655

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
660 665 670

Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
675 680 685

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Glu
690 695 700

eo1f-seq1.txt

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
705 710 715 720

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
725 730 735

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
740 745 750

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
755 760 765

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 387

<211> 643

<212> PRT

<213> Streptococcus agalactiae IC252(III)

<400> 387

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
Page 612

eo1f-seq1.txt
140

130

135

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
275 280 285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
340 345 350

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
370 375 380

Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
385 390 395 400

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
405 410 415

eo1f-seq1.txt

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
515 520 525

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
545 550 555 560

Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu Ala
565 570 575

Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly
580 585 590

Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys
595 600 605

Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser
610 615 620

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
625 630 635 640

Lys Lys Asn

<210> 388
<211> 643
<212> PRT
<213> Streptococcus agalactiae IC253(III)
<400> 388

eo1f-seq1.txt

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu

eo1f-seq1.txt

275

280

285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
340 345 350

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
370 375 380

Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
385 390 395 400

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
405 410 415

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
515 520 525

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
545 550 555 560

eo1f-seq1.txt

Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu Ala
565 570 575

Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly
580 585 590

Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys
595 600 605

Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser
610 615 620

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
625 630 635 640

Lys Lys Asn

<210> 389
<211> 735
<212> PRT
<213> Streptococcus agalactiae IC254(II)

<400> 389

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

eo1f-seq1.txt

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
 145 150 155 160
 Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
 165 170 175
 Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
 180 185 190
 Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
 195 200 205
 Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285
 Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400
 Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
 405 410 415
 Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
 Page 618

eo1f-seq1.txt

420

430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
515 520 525

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
545 550 555 560

Lys Pro Lys Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
565 570 575

Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Asp
580 585 590

Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
595 600 605

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
610 615 620

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala
625 630 635 640

Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
645 650 655

Lys Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu Ala Lys Pro Glu Ala
660 665 670

Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Ala
675 680 685

Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr
690 695 700

eof-seq1.txt

Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met
705 710 715 720

Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
725 730 735

<210> 390
<211> 816
<212> PRT
<213> Streptococcus agalactiae IC255(V)

<400> 390

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

eo1f-seq1.txt

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val

eo1f-seq1.txt
490

485

495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
645 650 655

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
660 665 670

Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
675 680 685

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Glu
690 695 700

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
705 710 715 720

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
725 730 735

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
740 745 750

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
755 760 765

eof-seq1.txt

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 391

<211> 816

<212> PRT

<213> Streptococcus agalactiae IC287(V)

<400> 391

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

eo1f-seq1.txt

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu

eolf-seq1.txt

465		470		475		480
Leu	Gln	Asp	Leu	Thr 485	Arg	Gly
						Thr
					Lys	Glu
						490
					Asp	Lys
						Lys
					Pro	Asp
						495
						Val
Lys	Pro	Glu	Ala	Lys	Pro	Glu
			500			Ala
					Lys	Pro
					505	Asn
						Ile
						Gln
						Val
						510
						Pro
						Lys
Gln	Ala	Pro	Thr	Glu	Ala	Ala
		515				Lys
						520
					Pro	Ala
						Leu
						Ser
					Pro	Glu
					525	Ala
						Leu
Thr	Arg	Leu	Thr	Thr	Trp	Tyr
	530					535
					Asn	Gln
						Ala
					Lys	Asp
						540
					Leu	Leu
						Lys
						Asp
Asp	Gln	Val	Lys	Asp	Lys	Tyr
545					550	Val
						Asp
						Ile
					Leu	Ala
					555	Val
						Gln
						Lys
						Ala
						560
Val	Asp	Gln	Ala	Tyr	Asp	His
				565		Val
						Glu
						570
					Glu	Gly
						Lys
					Phe	Ile
						575
						Thr
						Thr
Asp	Gln	Ala	Asn	Gln	Leu	Ala
			580			Asn
					Lys	Leu
					585	Arg
						Asp
						Ala
						Leu
						590
						Gln
						Ser
Leu	Glu	Leu	Lys	Asp	Lys	Lys
		595				Val
						600
					Ala	Lys
						Pro
					Glu	Ala
						605
						Lys
						Pro
						Glu
Val	Lys	Pro	Glu	Ala	Lys	Pro
	610					615
					Asp	Val
						Lys
						Pro
						Asp
						620
					Val	Lys
						Pro
						Glu
Ala	Lys	Pro	Glu	Ala	Lys	Pro
625					630	Glu
						Ala
						Lys
						Pro
						Glu
						640
Ala	Lys	Pro	Glu	Ala	Lys	Pro
						645
						Glu
						Ala
						Lys
						Pro
						655
						Asp
Val	Lys	Pro	Glu	Ala	Lys	Pro
			660			665
						Lys
						Pro
						Glu
						Ala
						Lys
						Pro
						Asp
Val	Lys	Pro	Glu	Val	Lys	Pro
						675
						680
						Val
						Lys
						Pro
						Glu
						Ala
						Lys
						Pro
						Asp
Val	Lys	Pro	Glu	Ala	Lys	Pro
						695
						Asp
						Val
						Lys
						Pro
						Glu
						700
						Val
						Lys
						Pro
						Glu
						720
Ala	Lys	Pro	Glu	Val	Lys	Pro
705						710
						Asp
						Val
						Lys
						Pro
						Glu
						Ala
						Arg
						Pro
						Glu
						725
Ala	Lys	Pro	Glu	Val	Lys	Pro
						730
						Asp
						Val
						Lys
						Pro
						Glu
						Ala
						Lys
						Pro
						Glu
						735
Ala	Lys	Pro	Glu	Val	Lys	Pro
						740
						Asp
						Val
						745
						Lys
						Pro
						Glu
						Ala
						Lys
						Pro
						Glu
						750

eo1f-seq1.txt

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
755 760 765

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 392

<211> 720

<212> PRT

<213> Streptococcus agalactiae IC289(Ib)

<400> 392

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

eo1f-seq1.txt

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
Page 627

eo1f-seq1.txt
460

450

455

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
610 615 620

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
645 650 655

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
660 665 670

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
675 680 685

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
690 695 700

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
705 710 715 720

<210> 393
<211> 634

eo1f-seq1.txt

<212> PRT

<213> Streptococcus agalactiae IC290(III)

<400> 393

```

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
 1      5      10      15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
 20      25      30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
 35      40      45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
 50      55      60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
 65      70      75      80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85      90      95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100      105      110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115      120      125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130      135      140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145      150      155      160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165      170      175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180      185      190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195      200      205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210      215      220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225      230      235      240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245      250      255

```

eo1f-seq1.txt

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
275 280 285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
340 345 350

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
370 375 380

Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Tyr Met Lys Ala Glu Leu
385 390 395 400

Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val Lys
405 410 415

Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys
420 425 430

Pro Asp Val Lys Ser Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys
435 440 445

Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Lys Ala Lys
450 455 460

Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys
465 470 475 480

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Asp Lys Pro Asp Val Lys
485 490 495

Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys
500 505 510

Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys
515 520 525

Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
530 535 540

eo1f-seq1.txt
540

530

535

Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Ser Glu Ala Lys
545 550 555 560

Pro Glu Ala Lys Leu Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys
565 570 575

Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Ala Lys Lys Ala Ile Glu
580 585 590

Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser
595 600 605

Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu
610 615 620

Ile Thr Ile Val Leu Lys His Lys Lys Asn
625 630

<210> 394

<211> 647

<212> PRT

<213> Streptococcus agalactiae IC291(V)

<400> 394

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

eo1f-seq1.txt

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
 145 150 155 160
 Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 165 170 175
 Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415

eo1f-seq1.txt

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Asp Val
500 505 510

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
515 520 525

Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Arg Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val
545 550 555 560

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val
565 570 575

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val
580 585 590

Asn Thr Ser Gly Asn Leu Ala Val Lys Lys Ala Ile Glu Asn Lys Lys
595 600 605

Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu
610 615 620

Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile
625 630 635 640

Val Leu Lys His Lys Lys Asn
645

<210> 395

<211> 687

<212> PRT

<213> Streptococcus agalactiae IC304(V)

<400> 395

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

eo1f-seq1.txt

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
 20 25 30
 Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
 35 40 45
 Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
 50 55 60
 Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
 65 70 75 80
 Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85 90 95
 Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
 100 105 110
 Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
 115 120 125
 Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
 130 135 140
 Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
 145 150 155 160
 Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 165 170 175
 Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285

eo1f-seq1.txt

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val
515 520 525

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
545 550 555 560

eo1f-seq1.txt

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Glu Ala
565 570 575

Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu Ala
580 585 590

Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
595 600 605

Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
610 615 620

Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Val
625 630 635 640

Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr
645 650 655

Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met
660 665 670

Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
675 680 685

<210> 396
<211> 623
<212> PRT
<213> Streptococcus agalactiae IC305(II)
<400> 396

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

eo1f-seq1.txt

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

eo1f-seq1.txt

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu Ala
515 520 525

Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
530 535 540

Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
545 550 555 560

Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Val
565 570 575

Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr
580 585 590

Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met
595 600 605

Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
610 615 620

<210> 397
<211> 752
<212> PRT
<213> Streptococcus agalactiae IC306(Ib)

<400> 397

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
Page 638

eo1f-seq1.txt

20

25

30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

eo1f-seq1.txt

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Phe Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445
 Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460
 Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575

eo1f-seq1.txt

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 398

<211> 748

<212> PRT

<213> Streptococcus agalactiae IC361(Ib)

<400> 398

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
Page 641

eo1f-seq1.txt

```

65              70              75              80
Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
      85              90              95
Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
      100             105             110
Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
      115             120             125
Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
      130             135             140
Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
      145             150             155             160
Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
      165             170             175
Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
      180             185             190
Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
      195             200             205
Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
      210             215             220
Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
      225             230             235             240
Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
      245             250             255
Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
      260             265             270
Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
      275             280             285
Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
      290             295             300
Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
      305             310             315             320
Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
      325             330             335
Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
      340             345             350

```

eo1f-seq1.txt

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

eo1f-seq1.txt

Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu Ala Lys Pro Glu
645 650 655

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
660 665 670

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Ala
675 680 685

Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Val Lys Lys Ala
690 695 700

Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala
705 710 715 720

Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala
725 730 735

Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745

<210> 399

<211> 630

<212> PRT

<213> Streptococcus agalactiae IC363(III)

<400> 399

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
Page 644

eo1f-seq1.txt

115

120

125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
275 280 285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
340 345 350

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
370 375 380

Leu Lys Glu Leu Lys Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
385 390 395 400

eo1f-seq1.txt

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys
405 410 415

Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
420 425 430

Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
435 440 445

Pro Glu Ala Lys Pro Asp Val Lys Pro Lys Ala Lys Pro Asp Val Lys
450 455 460

Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp Val Lys
465 470 475 480

Pro Glu Ala Lys Pro Glu Asp Lys Pro Asp Val Lys Pro Asp Val Lys
485 490 495

Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys
500 505 510

Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys
515 520 525

Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys
530 535 540

Pro Glu Ala Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys
545 550 555 560

Leu Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn
565 570 575

Thr Ser Gly Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr
580 585 590

Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala
595 600 605

Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val
610 615 620

Leu Lys His Lys Lys Asn
625 630

<210> 400
<211> 727
<212> PRT
<213> Streptococcus agalactiae IC365(Ia)
<400> 400

eo1f-seq1.txt

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu

eo1f-seq1.txt

275

280

285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Asn Ala Asp Glu Val Lys Lys Leu
 370 375 380

Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
 405 410 415

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
 420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
 435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
 450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
 465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
 485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
 500 505 510

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
 515 520 525

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
 530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
 545 550 555 560

eo1f-seq1.txt

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Lys Ala Lys Pro Asp Val
565 570 575

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp Val
580 585 590

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val
595 600 605

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
610 615 620

Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala
625 630 635 640

Lys Pro Glu Ala Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala
645 650 655

Lys Leu Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val
660 665 670

Asn Thr Ser Gly Asn Leu Ala Val Lys Lys Ala Ile Glu Asn Lys Lys
675 680 685

Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu
690 695 700

Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile
705 710 715 720

Val Leu Lys His Lys Lys Asn
725

<210> 401
<211> 643
<212> PRT
<213> Streptococcus agalactiae IC366(n.t.)

<400> 401

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

eo1f-seq1.txt

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
 65 70 75 80
 Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85 90 95
 Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
 100 105 110
 Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
 115 120 125
 Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
 130 135 140
 Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
 145 150 155 160
 Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
 165 170 175
 Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
 180 185 190
 Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
 195 200 205
 Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285
 Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg

eo1f-seq1.txt

340

345

350

Phe Arg Asp₃₅₅ Lys Gln Thr Phe Gly₃₆₀ Asn Arg Ser Val Trp₃₆₅ Thr Gly Gln

Ser Gly₃₇₀ Leu Asp Glu Ala Lys₃₇₅ Lys Met Leu Asp Glu₃₈₀ Val Lys Lys Leu

Leu Lys Glu Leu Gln Asp₃₉₀ Leu Thr Arg Gly Thr₃₉₅ Lys Glu Asp Lys Lys₄₀₀

Pro Asp Val Lys Pro₄₀₅ Glu Ala Lys Pro Glu₄₁₀ Ala Lys Pro Asn Ile₄₁₅ Gln

Val Pro Lys Gln₄₂₀ Ala Pro Thr Glu Ala₄₂₅ Ala Lys Pro Ala Leu Ser Pro₄₃₀

Glu Ala Leu₄₃₅ Thr Arg Leu Thr Thr₄₄₀ Trp Tyr Asn Gln Ala₄₄₅ Lys Asp Leu

Leu Lys₄₅₀ Asp Asp Gln Val Lys₄₅₅ Asp Lys Tyr Val Asp₄₆₀ Ile Leu Ala Val

Gln Lys Ala Val Asp Gln₄₇₀ Ala Tyr Asp His Val₄₇₅ Glu Glu Gly Lys Phe₄₈₀

Ile Thr Thr Asp Gln₄₈₅ Ala Asn Gln Leu Ala₄₉₀ Asn Lys Leu Arg Asp₄₉₅ Ala

Leu Gln Ser Leu₅₀₀ Glu Leu Lys Asp Lys₅₀₅ Lys Val Ala Lys Pro Glu Ala₅₁₀

Lys Pro Glu₅₁₅ Ala Lys Pro Glu Ala₅₂₀ Lys Pro Glu Ala Lys₅₂₅ Pro Glu Ala

Lys Pro Glu Ala Lys Pro Glu₅₃₅ Ala Lys Pro Glu Ala₅₄₀ Lys Pro Asp Val

Lys Pro Glu Ala Lys Pro₅₅₀ Asp Val Lys Pro Glu₅₅₅ Ala Lys Pro Glu Ala₅₆₀

Lys Pro Glu Ala Lys₅₆₅ Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu₅₇₅ Ala

Lys Pro Glu Ala₅₈₀ Lys Pro Ala Thr Lys₅₈₅ Lys Ser Val Asn Thr₅₉₀ Ser Gly

Asn Leu Ala₅₉₅ Ala Lys Lys Ala Ile₆₀₀ Glu Asn Lys Lys Tyr₆₀₅ Ser Lys Lys

Leu Pro₆₁₀ Ser Thr Gly Glu Ala₆₁₅ Ala Ser Pro Leu Leu₆₂₀ Ala Ile Val Ser

eo1f-seq1.txt

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
625 630 635 640

Lys Lys Asn

<210> 402
<211> 752
<212> PRT
<213> Streptococcus agalactiae IC367(II)

<400> 402

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

eo1f-seq1.txt

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val

eo1f-seq1.txt
490

485

495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 403
<211> 820

eo1f-seq1.txt

<212> PRT

<213> Streptococcus agalactiae IC368(Ia)

<400> 403

```

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
 1      5      10      15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
      20      25      30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
      35      40      45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
      50      55      60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65      70      75      80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
      85      90      95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
      100      105      110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
      115      120      125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
      130      135      140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
      145      150      155      160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
      165      170      175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
      180      185      190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
      195      200      205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Gly Lys
      210      215      220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
      225      230      235      240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
      245      250      255

```

eo1f-seq1.txt

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp

eo1f-seq1.txt
540

530

535

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
645 650 655

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
660 665 670

Val Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
675 680 685

Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu
690 695 700

Val Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
705 710 715 720

Ala Arg Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
725 730 735

Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
740 745 750

Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser
755 760 765

Gly Asn Leu Ala Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys
770 775 780

Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val
785 790 795 800

Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys
805 810 815

eof-seq1.txt

His Lys Lys Asn
820

<210> 404
<211> 816
<212> PRT
<213> Streptococcus agalactiae IC377(V)
<400> 404

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

eo1f-seq1.txt

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys

eo1f-seq1.txt

500

505

510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
645 650 655

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
660 665 670

Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
675 680 685

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Glu
690 695 700

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
705 710 715 720

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
725 730 735

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
740 745 750

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
755 760 765

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

eo1f-seq1.txt

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 405

<211> 752

<212> PRT

<213> Streptococcus agalactiae IC379(Ib)

<400> 405

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

eo1f-seq1.txt

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val

eo1f-seq1.txt
490

485

495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Cys Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 406
<211> 752

eo1f-seq1.txt

<212> PRT

<213> Streptococcus agalactiae IC432(Ib)

<400> 406

```

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
 1      5      10      15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
 20      25      30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
 35      40      45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
 50      55      60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
 65      70      75      80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85      90      95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100      105      110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115      120      125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130      135      140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145      150      155      160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165      170      175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180      185      190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195      200      205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210      215      220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225      230      235      240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245      250      255

```

eo1f-seq1.txt

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp

eo1f-seq1.txt
540

530

535

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 407

<211> 630

<212> PRT

<213> Streptococcus agalactiae IC455(III)

<400> 407

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

eo1f-seq1.txt

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
275 280 285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

eo1f-seq1.txt

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400
 Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys
 405 410 415
 Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
 420 425 430
 Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys
 435 440 445
 Pro Glu Ala Lys Pro Asp Val Lys Pro Lys Ala Lys Pro Asp Val Lys
 450 455 460
 Pro Glu Ala Lys Leu Asp Val Lys Pro Asp Val Lys Pro Asp Val Lys
 465 470 475 480
 Pro Glu Ala Lys Pro Glu Asp Lys Pro Asp Val Lys Pro Asp Val Lys
 485 490 495
 Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys
 500 505 510
 Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys
 515 520 525
 Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys
 530 535 540
 Pro Glu Ala Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys
 545 550 555 560
 Leu Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn
 565 570 575
 Thr Ser Gly Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr
 Page 668

580 eolf-seql.txt 590
585

Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala
595 600 605

Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val
610 615 620

Leu Lys His Lys Lys Asn
625 630

<210> 408
<211> 748
<212> PRT
<213> Streptococcus agalactiae IC457(II)
<400> 408

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

eo1f-seq1.txt

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445
 Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460

eo1f-seq1.txt

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu Ala Lys Pro Glu
645 650 655

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
660 665 670

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Ala
675 680 685

Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Val Lys Lys Ala
690 695 700

Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala
705 710 715 720

Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala
725 730 735

Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
Page 671

740 eolf-seq1.txt
745

<210> 409
<211> 752
<212> PRT
<213> Streptococcus agalactiae IC459(Ib)
<400> 409

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

eo1f-seq1.txt

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

eo1f-seq1.txt

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 410

<211> 723

<212> PRT

<213> Streptococcus agalactiae IC460(II)

<400> 410

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

eo1f-seq1.txt

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
 20 25 30
 Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
 35 40 45
 Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
 50 55 60
 Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
 65 70 75 80
 Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85 90 95
 Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
 100 105 110
 Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
 115 120 125
 Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
 130 135 140
 Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
 145 150 155 160
 Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
 165 170 175
 Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
 180 185 190
 Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
 195 200 205
 Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285

eo1f-seq1.txt

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400
 Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
 405 410 415
 Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
 420 425 430
 Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
 435 440 445
 Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
 450 455 460
 Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
 465 470 475 480
 Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
 485 490 495
 Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
 500 505 510
 Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val
 515 520 525
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
 530 535 540
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val
 545 550 555 560

eo1f-seq1.txt

Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala
565 570 575

Lys Pro Asp Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala
580 585 590

Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val
595 600 605

Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala
610 615 620

Arg Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala
625 630 635 640

Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala
645 650 655

Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly
660 665 670

Asn Leu Ala Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys
675 680 685

Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser
690 695 700

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
705 710 715 720

Lys Lys Asn

<210> 411

<211> 752

<212> PRT

<213> Streptococcus agalactiae IC461(Ib)

<400> 411

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

eo1f-seq1.txt

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85 90 95
 Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
 100 105 110
 Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
 115 120 125
 Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
 130 135 140
 Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
 145 150 155 160
 Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 165 170 175
 Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350

eo1f-seq1.txt

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

eo1f-seq1.txt

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 412

<211> 735

<212> PRT

<213> Streptococcus agalactiae IC462(II)

<400> 412

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

eo1f-seq1.txt

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
 130 135 140
 Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
 145 150 155 160
 Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
 165 170 175
 Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
 180 185 190
 Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
 195 200 205
 Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285
 Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400

eo1f-seq1.txt

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
405 410 415

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
515 520 525

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
545 550 555 560

Lys Pro Lys Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
565 570 575

Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Asp
580 585 590

Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
595 600 605

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
610 615 620

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala
625 630 635 640

Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
645 650 655

Lys Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu Ala Lys Pro Glu Ala
660 665 670

eo1f-seq1.txt

Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Val
675 680 685

Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr
690 695 700

Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met
705 710 715 720

Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
725 730 735

<210> 413

<211> 740

<212> PRT

<213> Streptococcus agalactiae IC463(Ib)

<400> 413

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

eo1f-seq1.txt

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Arg Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445
 Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460

eo1f-seq1.txt

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575
 Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
 580 585 590
 Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
 595 600 605
 Ile Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
 610 615 620
 Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu
 625 630 635 640
 Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
 645 650 655
 Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu
 660 665 670
 Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser
 675 680 685
 Gly Asn Leu Ala Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys
 690 695 700
 Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val
 705 710 715 720
 Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys
 725 730 735

eof-seq1.txt

His Lys Lys Asn
740

<210> 414

<211> 816

<212> PRT

<213> Streptococcus agalactiae IC469(V)

<400> 414

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

eo1f-seq1.txt

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

eo1f-seq1.txt

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
645 650 655

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
660 665 670

Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
675 680 685

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Glu
690 695 700

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
705 710 715 720

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
725 730 735

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
740 745 750

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
755 760 765

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

eo1f-seq1.txt

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 415

<211> 816

<212> PRT

<213> Streptococcus agalactiae IC470(V)

<400> 415

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

eo1f-seq1.txt

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320
 Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445
 Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460
 Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495

eo1f-seq1.txt

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575
 Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
 580 585 590
 Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
 595 600 605
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
 610 615 620
 Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
 625 630 635 640
 Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
 645 650 655
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
 660 665 670
 Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
 675 680 685
 Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Glu
 690 695 700
 Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
 705 710 715 720
 Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
 725 730 735
 Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
 740 745 750
 Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
 755 760 765

eo1f-seq1.txt

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 416

<211> 643

<212> PRT

<213> Streptococcus agalactiae 126H4A(Ia)

<400> 416

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

eo1f-seq1.txt

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
 210 215 220
 Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
 225 230 235 240
 Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
 245 250 255
 Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
 260 265 270
 Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
 275 280 285
 Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
 290 295 300
 Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
 305 310 315 320
 Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
 325 330 335
 Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
 340 345 350
 Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
 355 360 365
 Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
 370 375 380
 Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
 385 390 395 400
 Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
 405 410 415
 Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
 420 425 430
 Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
 435 440 445
 Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
 450 455 460
 Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
 465 470 475 480

eo1f-seq1.txt

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
515 520 525

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala
545 550 555 560

Lys Pro Glu Ala Lys Ser Glu Ala Lys Pro Glu Ala Lys Leu Glu Ala
565 570 575

Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly
580 585 590

Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys
595 600 605

Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser
610 615 620

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
625 630 635 640

Lys Lys Asn

<210> 417

<211> 752

<212> PRT

<213> Streptococcus agalactiae 5095S2(Ib)

<400> 417

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
Page 694

eo1f-seq1.txt

```

65              70              75              80
Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
      85              90              95
Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
      100             105             110
Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
      115             120             125
Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
      130             135             140
Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
      145             150             155             160
Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
      165             170             175
Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
      180             185             190
Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
      195             200             205
Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
      210             215             220
Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
      225             230             235             240
Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
      245             250             255
Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
      260             265             270
Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
      275             280             285
Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
      290             295             300
Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
      305             310             315             320
Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
      325             330             335
Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
      340             345             350

```

eo1f-seq1.txt

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Cys Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

eo1f-seq1.txt

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 418
<211> 643
<212> PRT
<213> Streptococcus agalactiae 6313(III)
<400> 418

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
Page 697

eo1f-seq1.txt

115

120

125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
275 280 285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
340 345 350

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
370 375 380

Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
385 390 395 400

eo1f-seq1.txt

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
405 410 415

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
515 520 525

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
545 550 555 560

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Ser Glu Ala
565 570 575

Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly
580 585 590

Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys
595 600 605

Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser
610 615 620

Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His
625 630 635 640

Lys Lys Asn

<210> 419
<211> 752
<212> PRT

<213> Streptococcus agalactiae 12351(IV)

<400> 419

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
Page 700

eo1f-seq1.txt

260

265

270

Ala Glu Ser Thr Lys Ala Arg His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
305 310 315 320

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
325 330 335

Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
340 345 350

Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
355 360 365

Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
370 375 380

Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
385 390 395 400

Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
405 410 415

Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
420 425 430

Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
435 440 445

Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
450 455 460

Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
465 470 475 480

Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
485 490 495

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
500 505 510

Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
515 520 525

Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
530 535 540

eo1f-seq1.txt

Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
545 550 555 560

Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
565 570 575

Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
580 585 590

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp
610 615 620

Val Lys Pro Glu Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
645 650 655

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
660 665 670

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
675 680 685

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
690 695 700

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
705 710 715 720

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
725 730 735

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745 750

<210> 420

<211> 748

<212> PRT

<213> Streptococcus agalactiae 12403/2(III)

<400> 420

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

eof-seq1.txt

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
65 70 75 80

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
100 105 110

Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
115 120 125

Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
130 135 140

Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
145 150 155 160

Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
165 170 175

Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
180 185 190

Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
195 200 205

Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
210 215 220

Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
225 230 235 240

Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
245 250 255

Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
260 265 270

Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
275 280 285

Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
290 295 300

Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
Page 703

eolf-seq1.txt

305		310		315		320
Lys	Lys	Val	Val	Asn 325	Ser	Asn
					Lys	Glu
					Thr 330	Leu
					Val	Asn
					Gln	Ala 335
					Asn	
Gly	Lys	Lys	Gln 340	Glu	Ile	Ala
					Lys	Leu 345
					Glu	Asn
					Leu	Ser
					Asn 350	Asp
					Glu	
Met	Leu	Arg 355	Tyr	Asn	Thr	Ala
					Ile 360	Asp
					Asn	Val
					Val	Lys
					Gln	Tyr
					Asn	
Glu	Gly 370	Lys	Leu	Asn	Ile	Thr 375
					Asp	Ala
					Met	Asn
					Ala 380	Leu
					Asn	Ser
					Ile	
Lys 385	Gln	Ala	Ala	Gln	Glu 390	Val
					Ala	Gln
					Lys	Asn 395
					Leu	Gln
					Lys	Gln
					Tyr 400	
Ala	Lys	Lys	Ile 405	Glu	Arg	Ile
					Ser	Leu
					Lys 410	Gly
					Leu	Ala
					Leu	Ser 415
					Lys	
Lys	Ala	Lys	Glu 420	Ile	Tyr	Glu
					Lys	His 425
					Lys	Ser
					Ile	Leu
					Pro 430	Thr
					Pro	
Gly	Tyr	Tyr 435	Ala	Asp	Ser	Val
					Gly 440	Thr
					Tyr	Leu
					Asn	Arg 445
					Phe	Arg
					Asp	
Lys	Arg 450	Thr	Phe	Gly	Asn	Arg 455
					Ser	Val
					Trp	Thr
					Gly 460	Gln
					Ser	Gly
					Leu	
Asp 465	Glu	Ala	Lys	Lys	Met 470	Leu
					Asp	Glu
					Val	Lys 475
					Lys	Leu
					Leu	Lys
					Glu 480	
Leu	Gln	Asp	Leu	Thr 485	Arg	Gly
					Thr	Lys
					Glu 490	Asp
					Lys	Lys
					Pro	Asp 495
					Val	
Lys	Pro	Glu	Ala 500	Lys	Pro	Glu
					Ala	Lys 505
					Pro	Asn
					Ile	Gln
					Val 510	Pro
					Lys	
Gln	Ala	Pro 515	Thr	Glu	Ala	Ala
					Lys 520	Pro
					Ala	Leu
					Ser	Pro 525
					Glu	Ala
					Leu	
Thr	Arg 530	Leu	Thr	Thr	Trp	Tyr 535
					Asn	Gln
					Ala	Lys
					Asp 540	Leu
					Leu	Lys
					Asp	
Asp 545	Gln	Val	Lys	Asp	Lys 550	Tyr
					Val	Asp
					Ile	Leu 555
					Ala	Val
					Gln	Lys
					Ala 560	
Val	Asp	Gln	Ala	Tyr 565	Asp	His
					Val	Glu
					Glu 570	Gly
					Lys	Phe
					Ile	Thr 575
					Thr	
Asp	Gln	Ala	Asn 580	Gln	Leu	Ala
					Asn	Lys 585
					Leu	Arg
					Asp	Ala
					Leu 590	Gln
					Ser	

eo1f-seq1.txt

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Arg Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ile Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu Ala Lys Pro Glu
645 650 655

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
660 665 670

Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Ala
675 680 685

Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala Val Lys Lys Ala
690 695 700

Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala
705 710 715 720

Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala
725 730 735

Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
740 745

<210> 421
<211> 522
<212> PRT
<213> Streptococcus agalactiae COH1(III)

<400> 421

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ile Val Cys Ser Gly Ile
20 25 30

Val Asn Thr Pro Thr Val Ser Ala Asp Ser Pro Asp Thr Leu Lys Val
35 40 45

Glu Lys Leu Gly Lys Leu Lys Asp Val Lys Ser Val His Glu Leu Thr
50 55 60

Pro Ile Ser Ile Pro Asn Glu Leu Lys Gly Ala Lys Glu Gln Ala Leu
65 70 75 80

eo1f-seq1.txt

Ser Ser Ile Ile Ser His Pro Asn Ile Thr Asn Ser Glu Val Asp Lys
85 90 95

Leu Ala Ser Asp Tyr Ser Phe Arg Ile Asn Thr Ser Asn Asp Val Asn
100 105 110

Asp Val Lys Arg Leu Leu Asn Glu Phe Tyr Asn Ala Val Ala Arg Lys
115 120 125

Gln Leu Asp Thr Asn Ser Ala Asp Tyr Arg Ser Lys Ile Asp Asn Ile
130 135 140

Ser Thr Thr Gly Leu Ala Ile Ala Leu Glu Ala Lys Glu Ile Tyr Glu
145 150 155 160

Ala Asn Lys Ser Ile Leu Pro His Arg Tyr Lys Asp Ser Val Gly Thr
165 170 175

Tyr Val Asn Ser Phe Glu Glu Arg Arg Ser Pro Gly Lys Phe Asn Ile
180 185 190

Trp Asn Gly Gln Glu Gly Phe Asn Ala Ala Gln Lys Leu Leu Glu Asp
195 200 205

Val Lys Lys Leu Leu Leu Glu Leu Gln Asn Leu Thr Lys Asn Asn Lys
210 215 220

Pro Asn Ile Gln Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro
225 230 235 240

Ala Leu Ser Pro Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln
245 250 255

Ala Lys Asp Leu Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp
260 265 270

Ile Leu Ser Val Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu
275 280 285

Glu Gly Lys Phe Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys
290 295 300

Leu Arg Asp Ala Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala
305 310 315 320

Lys Pro Val Ala Lys Gly Thr Tyr Asp Val Lys Tyr Val Asp Thr Glu
325 330 335

Gly Lys Glu Val Ala Lys Ser Arg His Phe Glu Gly Glu Glu Gly Ala
340 345 350

Ala Phe Val Thr Ser Ala Lys Glu Val Ala Gly Tyr Lys Leu Val Arg

eo1f-seq1.txt

355

360

365

Thr Glu Gly Ala Val Ser Asn Val Phe Thr Ala Gly Ala Gln Val Arg
370 375 380

Thr Tyr Val Tyr Glu Lys Val Lys Pro Glu Val Lys Pro Asp Val Lys
385 390 395 400

Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys
405 410 415

Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Ser Asp Val Lys
420 425 430

Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys
435 440 445

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys
450 455 460

Lys Ser Val Asn Thr Ser Gly Asn Leu Val Ala Lys Lys Ala Ile Glu
465 470 475 480

Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser
485 490 495

Pro Leu Leu Ala Ile Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu
500 505 510

Ile Thr Ile Val Leu Lys His Lys Lys Asn
515 520

<210> 422

<211> 743

<212> PRT

<213> Streptococcus agalactiae C388/90(Ia/c)

<400> 422

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Ala Ser Ile Pro His Lys
35 40 45

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
50 55 60

Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asn
65 70 75 80

eo1f-seq1.txt

Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
85 90 95

Thr Glu Ala Glu Ile Arg Asn Ile Leu Tyr Gln Gly Gln Ile Gly Lys
100 105 110

Gln Asn Lys Pro Ser Val Thr Thr His Ala Lys Val Ser Asp Gln Glu
115 120 125

Leu Gly Lys Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly
130 135 140

Phe Leu Ser Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser
145 150 155 160

Ser Lys Asp Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln
165 170 175

Leu Asn Asn Ala Glu Ser Thr Lys Ala Lys Gln Met Ala Gln Asn Asp
180 185 190

Val Ala Leu Ile Lys Asn Ile Ser Pro Glu Val Leu Glu Glu Tyr Lys
195 200 205

Glu Lys Ile Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Phe Val
210 215 220

Ala Glu Ala Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn
225 230 235 240

Gln Ala Asn Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser
245 250 255

Asn Asp Glu Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys
260 265 270

Gln Tyr Asn Glu Gly Lys Leu Asn Ile Thr Ala Ala Met Asn Ala Leu
275 280 285

Asn Ser Ile Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln
290 295 300

Lys Gln Tyr Ala Lys Lys Ile Glu Arg Ile Ser Ser Lys Gly Leu Ala
305 310 315 320

Leu Ser Lys Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu
325 330 335

Pro Thr Pro Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg
340 345 350

eo1f-seq1.txt

Phe Arg Asp Lys Gln Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln
355 360 365

Ser Gly Leu Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu
370 375 380

Leu Lys Glu Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys
385 390 395 400

Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln
405 410 415

Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro
420 425 430

Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu
435 440 445

Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val
450 455 460

Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe
465 470 475 480

Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala
485 490 495

Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala
500 505 510

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
515 520 525

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
530 535 540

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
545 550 555 560

Lys Pro Lys Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp Val
565 570 575

Lys Pro Asp Val Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu Ala
580 585 590

Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu Ala
595 600 605

Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala
610 615 620

Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala

eo1f-seq1.txt

Gln Leu Asp Thr Asn Ser Ala Asp Tyr Arg Ser Lys Ile Asp Asn Ile
130 135 140

Ser Thr Thr Gly Leu Ala Ile Ala Leu Glu Ala Lys Glu Ile Tyr Glu
145 150 155 160

Ala Asn Lys Ser Ile Leu Pro His Arg Tyr Lys Asp Ser Val Gly Thr
165 170 175

Tyr Val Asn Ser Phe Glu Glu Arg Arg Ser Pro Gly Lys Phe Asn Ile
180 185 190

Trp Asn Gly Gln Glu Gly Phe Asn Ala Ala Gln Lys Leu Leu Glu Asp
195 200 205

Val Lys Lys Leu Leu Leu Glu Leu Gln Asn Leu Thr Lys Asn Asn Lys
210 215 220

Pro Asn Ile Gln Val Pro Lys Gln Ala Pro Thr Glu Ala Ala Lys Pro
225 230 235 240

Ala Leu Ser Pro Glu Ala Leu Thr Arg Leu Thr Thr Trp Tyr Asn Gln
245 250 255

Ala Lys Asp Leu Leu Lys Asp Asp Gln Val Lys Asp Lys Tyr Val Asp
260 265 270

Ile Leu Ser Val Gln Lys Ala Val Asp Gln Ala Tyr Asp His Val Glu
275 280 285

Glu Gly Lys Phe Ile Thr Thr Asp Gln Ala Asn Gln Leu Ala Asn Lys
290 295 300

Leu Arg Asp Ala Leu Gln Ser Leu Glu Leu Lys Asp Lys Lys Val Ala
305 310 315 320

Lys Pro Val Ala Lys Gly Thr Tyr Asp Val Lys Tyr Val Asp Thr Glu
325 330 335

Gly Lys Glu Val Ala Lys Ser Arg His Phe Glu Gly Glu Glu Gly Ala
340 345 350

Ala Phe Val Thr Ser Ala Lys Glu Val Ala Gly Tyr Lys Leu Val Arg
355 360 365

Thr Glu Gly Ala Val Ser Asn Val Phe Thr Ala Gly Ala Gln Val Arg
370 375 380

Thr Tyr Val Tyr Glu Lys Val Ala Lys Pro Val Ala Lys Gly Thr Tyr
385 390 395 400

eolf-seq1.txt

Asp Val Lys Tyr Val Asp Thr Glu Gly Lys Glu Val Ala Lys Ser Arg
405 410 415

His Phe Glu Gly Glu Glu Gly Ala Ala Phe Val Thr Ser Ala Lys Glu
420 425 430

Val Ala Gly Tyr Lys Leu Val Arg Thr Glu Gly Ala Val Ser Asn Val
435 440 445

Phe Thr Ala Gly Ala Gln Val Arg Thr Tyr Val Tyr Glu Lys Val Lys
450 455 460

Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys
465 470 475 480

Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys
485 490 495

Pro Glu Val Lys Ser Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys
500 505 510

Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys
515 520 525

Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn
530 535 540

Leu Val Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu
545 550 555 560

Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu
565 570 575

Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys
580 585 590

Lys Asn

<210> 424
<211> 816
<212> PRT
<213> Streptococcus agalactiae 2603V/R(V)
<400> 424

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Thr Ala
1 5 10 15

Tyr Gly Leu Ala Ser Met Ser Ala Ala Phe Ala Val Cys Ser Gly Ile
20 25 30

Val His Ala Asp Thr Ser Ser Gly Ile Ser Asp Ser Ile Pro His Lys
35 40 45

eo1f-seq1.txt

Lys Gln Val Asn Leu Gly Ala Val Thr Leu Lys Asn Leu Ile Ser Lys
 50 55 60
 Tyr Arg Gly Asn Asp Lys Ala Ile Ala Ile Leu Leu Ser Arg Val Asp
 65 70 75 80
 Asp Phe Asn Arg Ala Ser Gln Asp Thr Leu Pro Gln Leu Ile Asn Ser
 85 90 95
 Thr Glu Ala Glu Ile Asn Asn Thr Leu Pro Gln Gly Arg Ile Ile Lys
 100 105 110
 Gln Ser Ile Pro Val Val Arg Leu Lys Val Glu Arg Leu Gly Ser Gly
 115 120 125
 Ala Ile Lys Ala Glu Ser Ile Asn Asn Ile Lys Ala Glu Ser Ile Asn
 130 135 140
 Lys Ile Gln Gly Lys Ser Thr Asn Thr Ile Lys Ala Glu Ser Ile Asn
 145 150 155 160
 Lys Ile Lys Val Glu Ser Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 165 170 175
 Lys Ile Gln Ala Lys Pro Ile Asn Thr Ile Lys Ala Glu Ser Ile Asn
 180 185 190
 Thr Ile Lys Ala Glu Ser Ile His Lys Ile Lys Pro Gln Ser Ile Lys
 195 200 205
 Ser Thr Ser Ala Thr His Val Lys Val Ser Asp Gln Glu Leu Ala Lys
 210 215 220
 Gln Ser Arg Arg Ser Gln Asp Ile Ile Lys Ser Leu Gly Phe Leu Ser
 225 230 235 240
 Ser Asp Gln Lys Asp Ile Leu Val Lys Ser Ile Ser Ser Ser Lys Asp
 245 250 255
 Ser Gln Leu Ile Leu Lys Phe Val Thr Gln Ala Thr Gln Leu Asn Asn
 260 265 270
 Ala Glu Ser Thr Lys Ala Lys His Met Ala Gln Asn Asp Val Ala Ser
 275 280 285
 Ile Lys Asn Ile Ser Leu Glu Val Leu Glu Glu Tyr Lys Glu Lys Ile
 290 295 300
 Gln Arg Ala Ser Thr Lys Ser Gln Val Asp Glu Leu Val Ala Glu Ala
 305 310 315 320

eo1f-seq1.txt

Lys Lys Val Val Asn Ser Asn Lys Glu Thr Leu Val Asn Gln Ala Asn
 325 330 335
 Gly Lys Lys Gln Glu Ile Ala Lys Leu Glu Asn Leu Ser Asn Asp Glu
 340 345 350
 Met Leu Arg Tyr Asn Thr Ala Ile Asp Asn Val Val Lys Gln Tyr Asn
 355 360 365
 Glu Gly Lys Leu Asn Ile Thr Asp Ala Met Asn Ala Leu Asn Ser Ile
 370 375 380
 Lys Gln Ala Ala Gln Glu Val Ala Gln Lys Asn Leu Gln Lys Gln Tyr
 385 390 395 400
 Ala Lys Lys Ile Glu Arg Ile Ser Leu Lys Gly Leu Ala Leu Ser Lys
 405 410 415
 Lys Ala Lys Glu Ile Tyr Glu Lys His Lys Ser Ile Leu Pro Thr Pro
 420 425 430
 Gly Tyr Tyr Ala Asp Ser Val Gly Thr Tyr Leu Asn Arg Phe Arg Asp
 435 440 445
 Lys Arg Thr Phe Gly Asn Arg Ser Val Trp Thr Gly Gln Ser Gly Leu
 450 455 460
 Asp Glu Ala Lys Lys Met Leu Asp Glu Val Lys Lys Leu Leu Lys Glu
 465 470 475 480
 Leu Gln Asp Leu Thr Arg Gly Thr Lys Glu Asp Lys Lys Pro Asp Val
 485 490 495
 Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Asn Ile Gln Val Pro Lys
 500 505 510
 Gln Ala Pro Thr Glu Ala Ala Lys Pro Ala Leu Ser Pro Glu Ala Leu
 515 520 525
 Thr Arg Leu Thr Thr Trp Tyr Asn Gln Ala Lys Asp Leu Leu Lys Asp
 530 535 540
 Asp Gln Val Lys Asp Lys Tyr Val Asp Ile Leu Ala Val Gln Lys Ala
 545 550 555 560
 Val Asp Gln Ala Tyr Asp His Val Glu Glu Gly Lys Phe Ile Thr Thr
 565 570 575
 Asp Gln Ala Asn Gln Leu Ala Asn Lys Leu Arg Asp Ala Leu Gln Ser
 580 585 590

eof-seq1.txt

Leu Glu Leu Lys Asp Lys Lys Val Ala Lys Pro Glu Ala Lys Pro Glu
595 600 605

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Asp Val Lys Pro Glu
610 615 620

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu
625 630 635 640

Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp
645 650 655

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
660 665 670

Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Asp
675 680 685

Val Lys Pro Glu Ala Lys Pro Asp Val Lys Pro Glu Val Lys Pro Glu
690 695 700

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Arg Pro Glu
705 710 715 720

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
725 730 735

Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu
740 745 750

Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr Ser Gly Asn Leu Ala
755 760 765

Val Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser Lys Lys Leu Pro Ser
770 775 780

Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile Val Ser Leu Ile Val
785 790 795 800

Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu Lys His Lys Lys Asn
805 810 815

<210> 425

<211> 533

<212> PRT

<213> Streptococcus agalactiae 49447(V)

<400> 425

Met Asn Asn Asn Glu Lys Lys Val Lys Tyr Phe Leu Arg Lys Ser Ala
1 5 10 15

Tyr Gly Leu Val Ser Met Ser Ala Ala Phe Ile Val Cys Ser Gly Ile
20 25 30

eo1f-seq1.txt

Val Asn Thr Pro Thr Val Ser Ala Glu Ser Val Gly Ile Asp Ala Lys
 35 40 45
 Pro Ile Asn Arg Ile Glu Ala Lys Ser Val Asn Thr Ile Asn Ala Ile
 50 55 60
 Ser Ile Pro Lys Gln Leu Thr Glu Ala Lys Asn Arg Ala Tyr Val Lys
 65 70 75 80
 Ile Asn Thr His Pro Ser Met Ser Asp Gln Ser Val Gln Ser Leu Ala
 85 90 95
 Asp Ile Tyr Arg Ser Lys Val Tyr Lys Ala Val Ser Val Asp Glu Val
 100 105 110
 Asp Arg Leu Val Glu Gln Phe Tyr Asn Glu Ile Asn Arg Lys Lys Thr
 115 120 125
 Asp Val Thr Pro Glu Glu Ala Ser Gln Lys Ile Asp Glu Leu Ser Val
 130 135 140
 Thr Gly Leu Thr Met Met Val Glu Ala Asp Glu Ile Tyr Gln Lys His
 145 150 155 160
 Lys Asp Leu Leu His Ser His Tyr Lys Asp Ser Ile Gly Thr Tyr Thr
 165 170 175
 Asn Leu Phe Thr Asn Arg Gly Gly Val Thr Pro Trp Val Gly Ala Glu
 180 185 190
 Gly Leu Lys Asp Ala Gln Glu Ala Phe Arg Lys Ala Lys Val Leu Leu
 195 200 205
 Ala Asn Leu Lys Ala Leu Gln Glu Gln Ile Glu Lys Thr Gln Lys Lys
 210 215 220
 Pro Val Ala Lys Gly Thr Tyr Asp Val Lys Tyr Val Asp Thr Glu Gly
 225 230 235 240
 Lys Glu Val Ala Lys Ser Arg His Phe Glu Gly Glu Glu Gly Ala Ala
 245 250 255
 Phe Val Ile Ser Ala Lys Glu Val Ala Gly Tyr Lys Leu Val Arg Thr
 260 265 270
 Glu Gly Ala Val Ser Asn Val Phe Thr Ala Gly Ala Gln Val Arg Thr
 275 280 285
 Tyr Val Tyr Glu Lys Val Ala Lys Pro Val Ala Lys Gly Thr Tyr Asp
 290 295 300

eo1f-seq1.txt

Val Lys Tyr Val Asp Thr Glu Gly Lys Glu Val Ala Lys Ser Arg His
 305 310 315 320
 Phe Glu Gly Glu Glu Gly Ala Ala Phe Val Thr Ser Ala Lys Glu Val
 325 330 335
 Ala Gly Tyr Lys Leu Val Arg Thr Glu Gly Ala Val Leu Asn Val Phe
 340 345 350
 Thr Ala Gly Ala Gln Val Arg Thr Tyr Val Tyr Glu Lys Val Lys Pro
 355 360 365
 Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro
 370 375 380
 Glu Ala Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro
 385 390 395 400
 Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro
 405 410 415
 Glu Val Lys Pro Asp Val Lys Pro Glu Ala Lys Pro Glu Ala Lys Pro
 420 425 430
 Glu Val Lys Pro Glu Val Lys Pro Glu Val Lys Pro Asp Val Lys Pro
 435 440 445
 Glu Ala Lys Pro Glu Ala Lys Pro Glu Val Lys Pro Asp Val Lys Pro
 450 455 460
 Glu Ala Lys Pro Glu Ala Lys Pro Ala Thr Lys Lys Ser Val Asn Thr
 465 470 475 480
 Ser Gly Asn Leu Ala Ala Lys Lys Ala Ile Glu Asn Lys Lys Tyr Ser
 485 490 495
 Lys Lys Leu Pro Ser Thr Gly Glu Ala Ala Ser Pro Leu Leu Ala Ile
 500 505 510
 Val Ser Leu Ile Val Met Leu Ser Ala Gly Leu Ile Thr Ile Val Leu
 515 520 525
 Lys His Lys Lys Asn
 530