

SEQUENCE LISTING

<110> University of Basel

<120> Bacteria-based protein delivery

<130> P5072PC00

<160> 224

<170> PatentIn version 3.5

<210> 1

<211> 219

<212> PRT

<213> Yersinia enterocolitica

<400> 1

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Gly Ser Gly Pro Leu Arg
130 135 140

Gly Ser Ile Thr Gln Cys Gln Gly Leu Met Gln Phe Cys Gly Gly Glu
145 150 155 160

Leu Gln Ala Glu Ala Ser Ala Ile Leu Asn Thr Pro Val Cys Gly Ile
165 170 175

Pro Phe Ser Gln Trp Gly Thr Val Gly Gly Ala Ala Ser Ala Tyr Val
180 185 190

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

Gly Gln Gln Met Gln Gln Leu Leu Ser Leu Met
210 215

<210> 2
<211> 138
<212> PRT
<213> *Yersinia enterocolitica*

<400> 2

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr
130 135

<210> 3
<211> 169
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138-MycHis

<400> 3

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Phe Glu
130 135 140

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

Ala Val Asp His His His His His His
165

<210> 4
<211> 348
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - IpgB1

<400> 4

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Asn Lys Ile Leu Pro Gln Val Glu Phe Ala Ile Pro Arg Pro Ser Phe
145 150 155 160

Asp Ser Leu Ser Arg Asn Lys Leu Val Lys Lys Ile Leu Ser Val Phe
165 170 175

Asn Leu Lys Gln Arg Phe Pro Gln Lys Asn Phe Gly Cys Pro Val Asn
180 185 190

Ile Asn Lys Ile Arg Asp Ser Val Ile Asp Lys Ile Lys Asp Ser Asn
195 200 205

Ser Gly Asn Gln Leu Phe Cys Trp Met Ser Gln Glu Arg Thr Thr Tyr
210 215 220

Val Ser Ser Met Ile Asn Arg Ser Ile Asp Glu Met Ala Ile His Asn
225 230 235 240

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

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

Ser Ile Ser His Thr Ala Leu Asn Glu Ile Ala Ser Ser Gly Leu Arg
275 280 285

Ala Lys Ile Leu Lys Arg Tyr Ser Ser Asp Met Asp Leu Phe Asn Thr
290 295 300

Gln Met Lys Asp Leu Thr Asn Leu Val Ser Ser Ser Val Tyr Asp Lys
305 310 315 320

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

Val Leu Lys Ala Val Tyr Arg Gln Ser Asn Thr Asn
340 345

<210> 5
<211> 380
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - SopE

<400> 5

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Val Thr Asn Ile
130 135 140

Thr Leu Ser Thr Gln His Tyr Arg Ile His Arg Ser Asp Val Glu Pro
145 150 155 160

Val Lys Glu Lys Thr Thr Glu Lys Asp Ile Phe Ala Lys Ser Ile Thr
165 170 175

Ala Val Arg Asn Ser Phe Ile Ser Leu Ser Thr Ser Leu Ser Asp Arg
180 185 190

Phe Ser Leu His Gln Gln Thr Asp Ile Pro Thr Thr His Phe His Arg
195 200 205

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

Asp Phe Met Leu Gln Lys Leu Asn Ser Leu Asp Ile Lys Gly Asn Ala
225 230 235 240

Ser Lys Asp Pro Ala Tyr Ala Arg Gln Thr Cys Glu Ala Ile Leu Ser
245 250 255

Ala Val Tyr Ser Asn Asn Lys Asp Gln Cys Cys Lys Leu Leu Ile Ser
260 265 270

Lys Gly Val Ser Ile Thr Pro Phe Leu Lys Glu Ile Gly Glu Ala Ala
275 280 285

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

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

Ser Ile Lys Tyr Pro His Met Phe Ile Asn His Asn Gln Gln Val Ser
325 330 335

Phe Lys Ala Tyr Ala Glu Lys Ile Val Met Lys Glu Val Thr Pro Leu
340 345 350

Phe Asn Lys Gly Thr Met Pro Thr Pro Gln Gln Phe Gln Leu Thr Ile
355 360 365

Glu Asn Ile Ala Asn Lys Tyr Leu Gln Asn Ala Ser
 370 375 380

<210> 6
 <211> 701
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - SopB

<400> 6

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
 115 120 125

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

Ser Phe Tyr His Ser Ala Ser Leu Lys Thr Gln Glu Ala Phe Lys Ser
 145 150 155 160

Leu Gln Lys Thr Leu Tyr Asn Gly Met Gln Ile Leu Ser Gly Gln Gly
165 170 175

Lys Ala Pro Ala Lys Ala Pro Asp Ala Arg Pro Glu Ile Ile Val Leu
180 185 190

Arg Glu Pro Gly Ala Thr Trp Gly Asn Tyr Leu Gln His Gln Lys Ala
195 200 205

Ser Asn His Ser Leu His Asn Leu Tyr Asn Leu Gln Arg Asp Leu Leu
210 215 220

Thr Val Ala Ala Thr Val Leu Gly Lys Gln Asp Pro Val Leu Thr Ser
225 230 235 240

Met Ala Asn Gln Met Glu Leu Ala Lys Val Lys Ala Asp Arg Pro Ala
245 250 255

Thr Lys Gln Glu Glu Ala Ala Ala Lys Ala Leu Lys Lys Asn Leu Ile
260 265 270

Glu Leu Ile Ala Ala Arg Thr Gln Gln Gln Asp Gly Leu Pro Ala Lys
275 280 285

Glu Ala His Arg Phe Ala Ala Val Ala Phe Arg Asp Ala Gln Val Lys
290 295 300

Gln Leu Asn Asn Gln Pro Trp Gln Thr Ile Lys Asn Thr Leu Thr His
305 310 315 320

Asn Gly His His Tyr Thr Asn Thr Gln Leu Pro Ala Ala Glu Met Lys
325 330 335

Ile Gly Ala Lys Asp Ile Phe Pro Ser Ala Tyr Glu Gly Lys Gly Val
340 345 350

Cys Ser Trp Asp Thr Lys Asn Ile His His Ala Asn Asn Leu Trp Met
355 360 365

Ser Thr Val Ser Val His Glu Asp Gly Lys Asp Lys Thr Leu Phe Cys
 370 375 380

Gly Ile Arg His Gly Val Leu Ser Pro Tyr His Glu Lys Asp Pro Leu
 385 390 395 400

Leu Arg His Val Gly Ala Glu Asn Lys Ala Lys Glu Val Leu Thr Ala
 405 410 415

Ala Leu Phe Ser Lys Pro Glu Leu Leu Asn Lys Ala Leu Ala Gly Glu
 420 425 430

Ala Val Ser Leu Lys Leu Val Ser Val Gly Leu Leu Thr Ala Ser Asn
 435 440 445

Ile Phe Gly Lys Glu Gly Thr Met Val Glu Asp Gln Met Arg Ala Trp
 450 455 460

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

Lys Asp Gly Asp Leu Gln Thr Val Lys Ile Lys Pro Asp Val Ala Ala
 485 490 495

Phe Asn Val Gly Val Asn Glu Leu Ala Leu Lys Leu Gly Phe Gly Leu
 500 505 510

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

Asn Asp Leu Arg Pro Glu Ala Arg Pro Gly Gly Trp Val Gly Glu Trp
 530 535 540

Leu Ala Gln Tyr Pro Asp Asn Tyr Glu Val Val Asn Thr Leu Ala Arg
 545 550 555 560

Gln Ile Lys Asp Ile Trp Lys Asn Asn Gln His His Lys Asp Gly Gly
 565 570 575

Glu Pro Tyr Lys Leu Ala Gln Arg Leu Ala Met Leu Ala His Glu Ile
580 585 590

Asp Ala Val Pro Ala Trp Asn Cys Lys Ser Gly Lys Asp Arg Thr Gly
595 600 605

Met Met Asp Ser Glu Ile Lys Arg Glu Ile Ile Ser Leu His Gln Thr
610 615 620

His Met Leu Ser Ala Pro Gly Ser Leu Pro Asp Ser Gly Gly Gln Lys
625 630 635 640

Ile Phe Gln Lys Val Leu Leu Asn Ser Gly Asn Leu Glu Ile Gln Lys
645 650 655

Gln Asn Thr Gly Gly Ala Gly Asn Lys Val Met Lys Asn Leu Ser Pro
660 665 670

Glu Val Leu Asn Leu Ser Tyr Gln Lys Arg Val Gly Asp Glu Asn Ile
675 680 685

Trp Gln Ser Val Lys Gly Ile Ser Ser Leu Ile Thr Ser
690 695 700

<210> 7
<211> 383
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - OspF

<400> 7

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Phe Glu
130 135 140

Met Pro Ile Lys Lys Pro Cys Leu Lys Leu Asn Leu Asp Ser Leu Asn
145 150 155 160

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

Lys Asn Asn Phe Asn Ile Leu Tyr Asn Gln Ile Arg Gln Tyr Pro Ala
180 185 190

Tyr Tyr Phe Lys Val Ala Ser Asn Val Pro Thr Tyr Ser Asp Ile Cys
195 200 205

Gln Ser Phe Ser Val Met Tyr Gln Gly Phe Gln Ile Val Asn His Ser
210 215 220

Gly Asp Val Phe Ile His Ala Cys Arg Glu Asn Pro Gln Ser Lys Gly
225 230 235 240

Asp Phe Val Gly Asp Lys Phe His Ile Ser Ile Ala Arg Glu Gln Val
245 250 255

Pro Leu Ala Phe Gln Ile Leu Ser Gly Leu Leu Phe Ser Glu Asp Ser
260 265 270

Pro Ile Asp Lys Trp Lys Ile Thr Asp Met Asn Arg Val Ser Gln Gln
275 280 285

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

Gln Glu Cys Ser Gln Tyr Ser Ala Leu Leu Leu His Lys Ile Arg Gln
305 310 315 320

Phe Ile Met Cys Leu Glu Ser Asn Leu Leu Arg Ser Lys Ile Ala Pro
325 330 335

Gly Glu Tyr Pro Ala Ser Asp Val Arg Pro Glu Asp Trp Lys Tyr Val
340 345 350

Ser Tyr Arg Asn Glu Leu Arg Ser Asp Arg Asp Gly Ser Glu Arg Gln
355 360 365

Glu Gln Met Leu Arg Glu Glu Pro Phe Tyr Arg Leu Met Ile Glu
370 375 380

<210> 8
<211> 685
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - SptP

<400> 8

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Leu
130 135 140

Lys Tyr Glu Glu Arg Lys Leu Asn Asn Leu Thr Leu Ser Ser Phe Ser
145 150 155 160

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

Thr Asp Lys Ala Tyr Val Ala Pro Glu Lys Phe Ser Ser Lys Val Leu
180 185 190

Thr Trp Leu Gly Lys Met Pro Leu Phe Lys Asn Thr Glu Val Val Gln
195 200 205

Lys His Thr Glu Asn Ile Arg Val Gln Asp Gln Lys Ile Leu Gln Thr
210 215 220

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

Ala Leu Leu Met Ser Arg Ile Asn Met Asn Lys Pro Leu Thr Gln Arg
245 250 255

Leu Ala Val Gln Ile Thr Glu Cys Val Lys Ala Ala Asp Glu Gly Phe
260 265 270

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

Leu Val Ile Lys Gly Gly Asp Thr Lys Val Ala Glu Lys Asn Asn Asp
290 295 300

Val Gly Ala Glu Ser Lys Gln Pro Leu Leu Asp Ile Ala Leu Lys Gly
305 310 315 320

Leu Lys Arg Thr Leu Pro Gln Leu Glu Gln Met Asp Gly Asn Ser Leu
325 330 335

Arg Glu Asn Phe Gln Glu Met Ala Ser Gly Asn Gly Pro Leu Arg Ser
340 345 350

Leu Met Thr Asn Leu Gln Asn Leu Asn Lys Ile Pro Glu Ala Lys Gln
355 360 365

Leu Asn Asp Tyr Val Thr Thr Leu Thr Asn Ile Gln Val Gly Val Ala
370 375 380

Arg Phe Ser Gln Trp Gly Thr Cys Gly Gly Glu Val Glu Arg Trp Val
385 390 395 400

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

Val Ile Ala Lys Glu Leu Lys Asn Val Thr Ala Glu Leu Glu Lys Ile
420 425 430

Glu Ala Gly Ala Pro Met Pro Gln Thr Met Ser Gly Pro Thr Leu Gly
435 440 445

Leu Ala Arg Phe Ala Val Ser Ser Ile Pro Ile Asn Gln Gln Thr Gln
450 455 460

Val Lys Leu Ser Asp Gly Met Pro Val Pro Val Asn Thr Leu Thr Phe

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

<210> 9
<211> 678
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - IpgD

<400> 9

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

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

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

165

170

175

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

Arg Leu Tyr Leu Gln Asn Gln Thr Ser Leu Thr Gly Lys Ser Leu Leu
 195 200 205

Phe Ala Arg Asp Lys Ala Glu Val Phe Cys Glu Ala Ile Lys Leu Ala
 210 215 220

Gly Gly Asp Thr Ser Lys Ile Lys Ala Met Met Glu Arg Leu Asp Thr
 225 230 235 240

Tyr Lys Leu Gly Glu Val Asn Lys Arg His Ile Asn Glu Leu Asn Lys
 245 250 255

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

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

Lys Asn Trp Gly Pro Val Asn Lys Asn Ile Ser His His Gly Lys Asn
 290 295 300

Tyr Ser Phe Gln Leu Thr Pro Ala Ser His Met Lys Ile Gly Asn Lys
 305 310 315 320

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

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

Asp Asp Glu Gly Lys Glu Ile Phe Ser Gly Ile Arg His Gly Val Ile
 355 360 365

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

Arg Asn Lys Ala Glu Glu Leu Val Ser Ala Ala Leu Tyr Ser Arg Pro
 385 390 395 400

Glu Leu Leu Ser Gln Ala Leu Ser Gly Lys Thr Val Asp Leu Lys Ile
 405 410 415

Val Ser Thr Ser Leu Leu Thr Pro Thr Ser Leu Thr Gly Gly Glu Glu
 420 425 430

Ser Met Leu Lys Asp Gln Val Ser Ala Leu Lys Gly Leu Asn Ser Lys
 435 440 445

Arg Gly Gly Pro Thr Lys Leu Leu Ile Arg Asn Ser Asp Gly Leu Leu
 450 455 460

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

Asn Glu Leu Ala Leu Lys Met Gly Leu Gly Trp Arg Asn Val Asp Lys
 485 490 495

Leu Asn Asp Glu Ser Ile Cys Ser Leu Leu Gly Asp Asn Phe Leu Lys
 500 505 510

Asn Gly Val Ile Gly Gly Trp Ala Ala Glu Ala Ile Glu Lys Asn Pro
 515 520 525

Pro Cys Lys Asn Asp Val Ile Tyr Leu Ala Asn Gln Ile Lys Glu Ile
 530 535 540

Val Asn Asn Lys Leu Gln Lys Asn Asp Asn Gly Glu Pro Tyr Lys Leu
 545 550 555 560

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

Trp Asn Cys Lys Ser Gly Lys Asp Arg Thr Gly Met Gln Asp Ala Glu
 580 585 590

Ile Lys Arg Glu Ile Ile Arg Lys His Glu Thr Gly Gln Phe Ser Gln
595 600 605

Leu Asn Ser Lys Leu Ser Ser Glu Glu Lys Arg Leu Phe Ser Thr Ile
610 615 620

Leu Met Asn Ser Gly Asn Met Glu Ile Gln Glu Met Asn Thr Gly Val
625 630 635 640

Pro Gly Asn Lys Val Met Lys Lys Leu Pro Leu Ser Ser Leu Glu Leu
645 650 655

Ser Tyr Ser Glu Arg Ile Gly Asp Pro Lys Ile Trp Asn Met Val Lys
660 665 670

Gly Tyr Ser Ser Phe Val
675

<210> 10
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - BepA

<400> 10

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Pro
130 135 140

Lys Ala Lys Ala Lys Thr Lys Asn Thr Glu Ile Ile Ser Pro His His
145 150 155 160

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

Asn Leu Asn Ala Phe Leu Glu Lys Cys Ser His Asp Thr Ala Lys Ala
180 185 190

Met Ile Asn Leu Arg Glu Glu Ser Leu Pro Glu Tyr Phe Asp Thr Ala
195 200 205

Tyr Leu Cys His Ile His Gln Gln Leu Phe Lys Asn Thr Phe Glu Trp
210 215 220

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

Ala Ala Met Pro Glu Met Lys Arg Thr Gly Trp Lys Asn Ala Phe Ala
245 250 255

Ile Gly Asp Glu Ile Gln Glu Gly Leu Gln Arg Leu Asp Gln Thr Leu
260 265 270

Ala Glu Lys Asn Asn Leu Gln Gly Leu Thr Arg Glu Glu Phe Asn Ser
275 280 285

Glu Ala Ile Glu Leu Phe Asn Ser Leu Asn Gln Leu His Pro Phe Arg
 290 295 300

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

Ala Ala Gly His Gln Leu Asn Phe Ser Leu Ile Thr Lys Glu Arg Met
 325 330 335

Met Val Ala Ser Val Ala Val Ala Glu Asn Gly Asp Leu Glu Pro Met
 340 345 350

Gln His Leu Phe Glu Asp Ile Ser Asn Pro Glu Lys Ile Arg Leu Leu
 355 360 365

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

Arg Pro Val Met Val Ala Lys Glu Gly Glu Thr Tyr Thr Gly Thr Tyr
 385 390 395 400

Arg Gly Ala Gly Leu Glu Gly Phe Ala Leu Asn Val Lys Gly Ala Tyr
 405 410 415

Ile Ile Gly Asn Ile Asp His Leu Pro Pro Glu Gln Leu Lys Ile Leu
 420 425 430

Lys Pro Gly Asp Lys Ile Thr Phe Thr Ala Pro Lys Ala Glu
 435 440 445

<210> 11

<211> 284

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - BepA E305-end

<400> 11

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Glu Gly
130 135 140

Asn Gly Arg Thr Gln Arg Leu Phe Phe Glu Asn Leu Ala Lys Ala Ala
145 150 155 160

Gly His Gln Leu Asn Phe Ser Leu Ile Thr Lys Glu Arg Met Met Val
165 170 175

Ala Ser Val Ala Val Ala Glu Asn Gly Asp Leu Glu Pro Met Gln His
180 185 190

Leu Phe Glu Asp Ile Ser Asn Pro Glu Lys Ile Arg Leu Leu Lys Glu
195 200 205

Phe Met His Thr Met Lys Asn Thr Gly Arg Asn Val Asn Asp Arg Pro
210 215 220

Val Met Val Ala Lys Glu Gly Glu Thr Tyr Thr Gly Thr Tyr Arg Gly
 225 230 235 240

Ala Gly Leu Glu Gly Phe Ala Leu Asn Val Lys Gly Ala Tyr Ile Ile
 245 250 255

Gly Asn Ile Asp His Leu Pro Pro Glu Gln Leu Lys Ile Leu Lys Pro
 260 265 270

Gly Asp Lys Ile Thr Phe Thr Ala Pro Lys Ala Glu
 275 280

<210> 12
 <211> 672
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - murine Traf6

<400> 12

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Ser
130 135 140

Leu Leu Asn Cys Glu Asn Ser Cys Gly Ser Ser Gln Ser Ser Ser Asp
145 150 155 160

Cys Cys Ala Ala Met Ala Ala Ser Cys Ser Ala Ala Val Lys Asp Asp
165 170 175

Ser Val Ser Gly Ser Ala Ser Thr Gly Asn Leu Ser Ser Ser Phe Met
180 185 190

Glu Glu Ile Gln Gly Tyr Asp Val Glu Phe Asp Pro Pro Leu Glu Ser
195 200 205

Lys Tyr Glu Cys Pro Ile Cys Leu Met Ala Leu Arg Glu Ala Val Gln
210 215 220

Thr Pro Cys Gly His Arg Phe Cys Lys Ala Cys Ile Ile Lys Ser Ile
225 230 235 240

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

Asn Gln Leu Phe Pro Asp Asn Phe Ala Lys Arg Glu Ile Leu Ser Leu
260 265 270

Thr Val Lys Cys Pro Asn Lys Gly Cys Leu Gln Lys Met Glu Leu Arg
275 280 285

His Leu Glu Asp His Gln Val His Cys Glu Phe Ala Leu Val Asn Cys
290 295 300

Pro Gln Cys Gln Arg Pro Phe Gln Lys Cys Gln Val Asn Thr His Ile
305 310 315 320

Ile Glu Asp Cys Pro Arg Arg Gln Val Ser Cys Val Asn Cys Ala Val
325 330 335

Ser Met Ala Tyr Glu Glu Lys Glu Ile His Asp Gln Ser Cys Pro Leu
340 345 350

Ala Asn Ile Ile Cys Glu Tyr Cys Gly Thr Ile Leu Ile Arg Glu Gln
355 360 365

Met Pro Asn His Tyr Asp Leu Asp Cys Pro Thr Ala Pro Ile Pro Cys
370 375 380

Thr Phe Ser Val Phe Gly Cys His Gln Lys Met Gln Arg Asn His Leu
385 390 395 400

Ala Arg His Leu Gln Glu Asn Thr Gln Leu His Met Arg Leu Leu Ala
405 410 415

Gln Ala Val His Asn Val Asn Leu Ala Leu Arg Pro Cys Asp Ala Ala
420 425 430

Ser Pro Ser Arg Gly Cys Arg Pro Glu Asp Pro Asn Tyr Glu Glu Thr
435 440 445

Ile Lys Gln Leu Glu Ser Arg Leu Val Arg Gln Asp His Gln Ile Arg
450 455 460

Glu Leu Thr Ala Lys Met Glu Thr Gln Ser Met Tyr Val Gly Glu Leu
465 470 475 480

Lys Arg Thr Ile Arg Thr Leu Glu Asp Lys Val Ala Glu Met Glu Ala
485 490 495

Gln Gln Cys Asn Gly Ile Tyr Ile Trp Lys Ile Gly Lys Phe Gly Met
500 505 510

His Leu Lys Ser Gln Glu Glu Glu Arg Pro Val Val Ile His Ser Pro
515 520 525

Gly Phe Tyr Thr Gly Arg Pro Gly Tyr Lys Leu Cys Met Arg Leu His
 530 535 540

Leu Gln Leu Pro Thr Ala Gln Arg Cys Ala Asn Tyr Ile Ser Leu Phe
 545 550 555 560

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

Gln Gly Thr Ile Arg Leu Thr Ile Leu Asp Gln Ser Glu Ala Leu Ile
 580 585 590

Arg Gln Asn His Glu Glu Val Met Asp Ala Lys Pro Glu Leu Leu Ala
 595 600 605

Phe Gln Arg Pro Thr Ile Pro Arg Asn Pro Lys Gly Phe Gly Tyr Val
 610 615 620

Thr Phe Met His Leu Glu Ala Leu Arg Gln Gly Thr Phe Ile Lys Asp
 625 630 635 640

Asp Thr Leu Leu Val Arg Cys Glu Val Ser Thr Arg Phe Asp Met Gly
 645 650 655

Gly Leu Arg Lys Glu Gly Phe Gln Pro Arg Ser Thr Asp Ala Gly Val
 660 665 670

<210> 13
 <211> 326
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - TIFA

<400> 13

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Thr
130 135 140

Ser Phe Glu Asp Ala Asp Thr Glu Glu Thr Val Thr Cys Leu Gln Met
145 150 155 160

Thr Val Tyr His Pro Gly Gln Leu Gln Cys Gly Ile Phe Gln Ser Ile
165 170 175

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

Arg Asn Ser Asn Ile Cys His Tyr Thr Phe Gln Asp Lys Gln Val Ser
195 200 205

Arg Val Gln Phe Ser Leu Gln Leu Phe Lys Lys Phe Asn Ser Ser Val
210 215 220

Leu Ser Phe Glu Ile Lys Asn Met Ser Lys Lys Thr Asn Leu Ile Val
225 230 235 240

Asp Ser Arg Glu Leu Gly Tyr Leu Asn Lys Met Asp Leu Pro Tyr Arg
245 250 255

Cys Met Val Arg Phe Gly Glu Tyr Gln Phe Leu Met Glu Lys Glu Asp
260 265 270

Gly Glu Ser Leu Glu Phe Phe Glu Thr Gln Phe Ile Leu Ser Pro Arg
275 280 285

Ser Leu Leu Gln Glu Asn Asn Trp Pro Pro His Arg Pro Ile Pro Glu
290 295 300

Tyr Gly Thr Tyr Ser Leu Cys Ser Ser Gln Ser Ser Ser Pro Thr Glu
305 310 315 320

Met Asp Glu Asn Glu Ser
325

<210> 14
<211> 437
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Cdk1

<400> 14

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Thr Lys Ile Glu Lys Ile Gly Glu Gly Thr Tyr Gly Val Val Tyr Lys
145 150 155 160

Gly Arg His Lys Thr Thr Gly Gln Val Val Ala Met Lys Lys Ile Arg
165 170 175

Leu Glu Ser Glu Glu Glu Gly Val Pro Ser Thr Ala Ile Arg Glu Ile
180 185 190

Ser Leu Leu Lys Glu Leu Arg His Pro Asn Ile Val Ser Leu Gln Asp
195 200 205

Val Leu Met Gln Asp Ser Arg Leu Tyr Leu Ile Phe Glu Phe Leu Ser
210 215 220

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

Asp Ser Ser Leu Val Lys Ser Tyr Leu Tyr Gln Ile Leu Gln Gly Ile
245 250 255

Val Phe Cys His Ser Arg Arg Val Leu His Arg Asp Leu Lys Pro Gln
260 265 270

Asn Leu Leu Ile Asp Asp Lys Gly Thr Ile Lys Leu Ala Asp Phe Gly
275 280 285

Leu Ala Arg Ala Phe Gly Ile Pro Ile Arg Val Tyr Thr His Glu Val
290 295 300

Val Thr Leu Trp Tyr Arg Ser Pro Glu Val Leu Leu Gly Ser Ala Arg
305 310 315 320

Tyr Ser Thr Pro Val Asp Ile Trp Ser Ile Gly Thr Ile Phe Ala Glu
325 330 335

Leu Ala Thr Lys Lys Pro Leu Phe His Gly Asp Ser Glu Ile Asp Gln
340 345 350

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

Pro Glu Val Glu Ser Leu Gln Asp Tyr Lys Asn Thr Phe Pro Lys Trp
370 375 380

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

Leu Asp Leu Leu Ser Lys Met Leu Ile Tyr Asp Pro Ala Lys Arg Ile
405 410 415

Ser Gly Lys Met Ala Leu Asn His Pro Tyr Phe Asn Asp Leu Asp Asn
420 425 430

Gln Ile Lys Lys Met
435

<210> 15
<211> 347
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Mad2

<400> 15

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Ala
130 135 140

Leu Gln Leu Ser Arg Glu Gln Gly Ile Thr Leu Arg Gly Ser Ala Glu
145 150 155 160

Ile Val Ala Glu Phe Phe Ser Phe Gly Ile Asn Ser Ile Leu Tyr Gln
165 170 175

Arg Gly Ile Tyr Pro Ser Glu Thr Phe Thr Arg Val Gln Lys Tyr Gly
180 185 190

Leu Thr Leu Leu Val Thr Thr Asp Leu Glu Leu Ile Lys Tyr Leu Asn
195 200 205

Asn Val Val Glu Gln Leu Lys Asp Trp Leu Tyr Lys Cys Ser Val Gln
210 215 220

Lys Leu Val Val Val Ile Ser Asn Ile Glu Ser Gly Glu Val Leu Glu
225 230 235 240

Arg Trp Gln Phe Asp Ile Glu Cys Asp Lys Thr Ala Lys Asp Asp Ser
245 250 255

Ala Pro Arg Glu Lys Ser Gln Lys Ala Ile Gln Asp Glu Ile Arg Ser
260 265 270

Val Ile Arg Gln Ile Thr Ala Thr Val Thr Phe Leu Pro Leu Leu Glu
275 280 285

Val Ser Cys Ser Phe Asp Leu Leu Ile Tyr Thr Asp Lys Asp Leu Val
290 295 300

Val Pro Glu Lys Trp Glu Glu Ser Gly Pro Gln Phe Ile Thr Asn Ser
305 310 315 320

Glu Glu Val Arg Leu Arg Ser Phe Thr Thr Thr Ile His Lys Val Asn
325 330 335

Ser Met Val Ala Tyr Lys Ile Pro Val Asn Asp
340 345

<210> 16
<211> 298
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Ink4A

<400> 16

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Glu
130 135 140

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

Ala Ala Ala Arg Gly Arg Val Glu Glu Val Arg Ala Leu Leu Glu Ala
165 170 175

Gly Ala Leu Pro Asn Ala Pro Asn Ser Tyr Gly Arg Arg Pro Ile Gln
180 185 190

Val Met Met Met Gly Ser Ala Arg Val Ala Glu Leu Leu Leu His
195 200 205

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

His Asp Ala Ala Arg Glu Gly Phe Leu Asp Thr Leu Val Val Leu His
225 230 235 240

Arg Ala Gly Ala Arg Leu Asp Val Arg Asp Ala Trp Gly Arg Leu Pro
245 250 255

Val Asp Leu Ala Glu Glu Leu Gly His Arg Asp Val Ala Arg Tyr Leu
260 265 270

Arg Ala Ala Ala Gly Gly Thr Arg Gly Ser Asn His Ala Arg Ile Asp
275 280 285

Ala Ala Glu Gly Pro Ser Asp Ile Pro Asp
290 295

<210> 17
<211> 280
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Ink4B

<400> 17

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Arg
 130 135 140

Glu Glu Asn Lys Gly Met Pro Ser Gly Gly Gly Ser Asp Glu Gly Leu
 145 150 155 160

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

Glu Ala Gly Ala Asp Pro Asn Gly Val Asn Arg Phe Gly Arg Arg Ala
 180 185 190

Ile Gln Val Met Met Met Gly Ser Ala Arg Val Ala Glu Leu Leu Leu
 195 200 205

Leu His Gly Ala Glu Pro Asn Cys Ala Asp Pro Ala Thr Leu Thr Arg
 210 215 220

Pro Val His Asp Ala Ala Arg Glu Gly Phe Leu Asp Thr Leu Val Val
 225 230 235 240

Leu His Arg Ala Gly Ala Arg Leu Asp Val Arg Asp Ala Trp Gly Arg
 245 250 255

Leu Pro Val Asp Leu Ala Glu Glu Arg Gly His Arg Asp Val Ala Gly
 260 265 270

Tyr Leu Arg Thr Ala Thr Gly Asp
 275 280

<210> 18
 <211> 310
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - Ink4C

<400> 18

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Ala
130 135 140

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

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

Asn Gly Phe Gly Arg Thr Ala Leu Gln Val Met Lys Leu Gly Asn Pro
180 185 190

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

Asp Arg Thr Gly Phe Ala Val Ile His Asp Ala Ala Arg Ala Gly Phe
210 215 220

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

Glu Asp Asn Glu Gly Asn Leu Pro Leu His Leu Ala Ala Lys Glu Gly
 245 250 255

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

Gly His Arg Asn His Lys Gly Asp Thr Ala Cys Asp Leu Ala Arg Leu
 275 280 285

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

Gly Ala Thr Asn Leu Gln
 305 310

<210> 19
 <211> 329
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - z-Bid

<400> 19

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Asp
130 135 140

Phe Asn Arg Asn Phe Asp His Ile Pro His Thr Ser Leu Val Leu Leu
145 150 155 160

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

Phe Asp Tyr Arg Glu Asp Asn Leu Ser Thr Asn His Ile Asp Ser Asp
180 185 190

Gly Asp Ile Glu Thr Asp Gly His Ser Pro Pro Ala Thr Tyr Arg Asp
195 200 205

Leu Leu His Glu Leu Gln His Glu Val Gln Pro Gly Leu Ser Val Asn
210 215 220

Ala Glu Glu Ala Arg Ala Ala Arg Glu Met Ala Ala Glu Leu Ile Arg
225 230 235 240

Ile Ala Asp Leu Leu Glu Gln Ser Val Leu Ser Gln Ala Ala Glu Ser
245 250 255

Leu Thr Lys Lys Leu Arg Ser Phe Gln Glu Gln Val Trp Ala Ser His
260 265 270

Leu Ser Lys Gly Val Gln Thr Leu Leu Gln His Val Ala Ala Ala Lys
275 280 285

Glu Phe Lys Lys Glu Leu Val Glu Met Ala Phe Thr Phe Met Leu Met
 290 295 300

Lys Thr Val Cys Glu Arg Thr Pro Asp Phe Leu Phe Gly Leu Tyr Gly
 305 310 315 320

Thr Val Val Gln Phe Phe Gly Ser Asn
 325

<210> 20
 <211> 273
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - z-t-Bid

<400> 20

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
 115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Gly His
130 135 140

Ser Pro Pro Ala Thr Tyr Arg Asp Leu Leu His Glu Leu Gln His Glu
145 150 155 160

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

Glu Met Ala Ala Glu Leu Ile Arg Ile Ala Asp Leu Leu Glu Gln Ser
180 185 190

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

Gln Glu Gln Val Trp Ala Ser His Leu Ser Lys Gly Val Gln Thr Leu
210 215 220

Leu Gln His Val Ala Ala Ala Lys Glu Phe Lys Lys Glu Leu Val Glu
225 230 235 240

Met Ala Phe Thr Phe Met Leu Met Lys Thr Val Cys Glu Arg Thr Pro
245 250 255

Asp Phe Leu Phe Gly Leu Tyr Gly Thr Val Val Gln Phe Phe Gly Ser
260 265 270

Asn

<210> 21
<211> 318
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - z-BIM

<400> 21

Met Lys Ile Ser Ser Phe Ile Ser Thr Ser Leu Pro Leu Pro Ala Ser

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

Pro Leu Met Pro Asn Ile Ser Glu Ala Gln Asp Gly Gln Asn Asp Glu
 225 230 235 240

Val Trp Leu Ser Glu His Ser His Gln His Leu Gln Met Ala Ala Pro
 245 250 255

Val Ala Ala Leu Pro Pro Glu Met Val Val Ala Arg Glu Leu Arg Arg
 260 265 270

Ile Gly Asp Glu Phe Asn Arg Leu Tyr Cys Glu Ala Gly Ala Gly Val
 275 280 285

Asn Gln Leu Arg Ala Pro Asn Glu His Ala Ile Val Leu Trp Met Asn
 290 295 300

Val Ile Ile Gly Arg Leu Val His Phe Phe Leu Arg Arg Arg
 305 310 315

<210> 22
 <211> 289
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - Caspase3 p17

<400> 22

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu

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

Asp

<210> 23
<211> 242
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Caspase3 p10/12

<400> 23

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Asp Asp Met Ala Cys His Lys Ile Pro Val Glu Ala Asp Phe Leu Tyr

145 150 155 160
 Ala Tyr Ser Thr Ala Pro Gly Tyr Tyr Ser Trp Arg Asn Ser Lys Asp
 165 170 175
 Gly Ser Trp Phe Ile Gln Ser Leu Cys Ala Met Leu Lys Gln Tyr Ala
 180 185 190
 Asp Lys Leu Glu Phe Met His Ile Leu Thr Arg Val Asn Arg Lys Val
 195 200 205
 Ala Thr Glu Phe Glu Ser Phe Ser Phe Asp Ala Thr Phe His Ala Lys
 210 215 220
 Lys Gln Ile Pro Cys Ile Val Ser Met Leu Thr Lys Glu Leu Tyr Phe
 225 230 235 240

Tyr His

<210> 24
 <211> 337
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> YopE1-138 - human Bid

 <400> 24

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

 Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

 Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Asp
130 135 140

Cys Glu Val Asn Asn Gly Ser Ser Leu Arg Asp Glu Cys Ile Thr Asn
145 150 155 160

Leu Leu Val Phe Gly Phe Leu Gln Ser Cys Ser Asp Asn Ser Phe Arg
165 170 175

Arg Glu Leu Asp Ala Leu Gly His Glu Leu Pro Val Leu Ala Pro Gln
180 185 190

Trp Glu Gly Tyr Asp Glu Leu Gln Thr Asp Gly Asn Arg Ser Ser His
195 200 205

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

Ile Arg Asn Ile Ala Arg His Leu Ala Gln Val Gly Asp Ser Met Asp
225 230 235 240

Arg Ser Ile Pro Pro Gly Leu Val Asn Gly Leu Ala Leu Gln Leu Arg
245 250 255

Asn Thr Ser Arg Ser Glu Glu Asp Arg Asn Arg Asp Leu Ala Thr Ala
260 265 270

Leu Glu Gln Leu Leu Gln Ala Tyr Pro Arg Asp Met Glu Lys Glu Lys

275

280

285

Thr Met Leu Val Leu Ala Leu Leu Leu Ala Lys Lys Val Ala Ser His
 290 295 300

Thr Pro Ser Leu Leu Arg Asp Val Phe His Thr Thr Val Asn Phe Ile
 305 310 315 320

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

Asp

<210> 25

<211> 277

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - human t-Bid

<400> 25

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Gly Asn
130 135 140

Arg Ser Ser His Ser Arg Leu Gly Arg Ile Glu Ala Asp Ser Glu Ser
145 150 155 160

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

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

Leu Gln Leu Arg Asn Thr Ser Arg Ser Glu Glu Asp Arg Asn Arg Asp
195 200 205

Leu Ala Thr Ala Leu Glu Gln Leu Leu Gln Ala Tyr Pro Arg Asp Met
210 215 220

Glu Lys Glu Lys Thr Met Leu Val Leu Ala Leu Leu Leu Ala Lys Lys
225 230 235 240

Val Ala Ser His Thr Pro Ser Leu Leu Arg Asp Val Phe His Thr Thr
245 250 255

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

Arg Asn Gly Met Asp
275

<210> 26

<211> 327

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - Rac1 Q61E

<400> 26

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

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

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

Asp Asn Tyr Ser Ala Asn Val Met Val Asp Gly Lys Pro Val Asn Leu
180 185 190

Gly Leu Trp Asp Thr Ala Gly Glu Glu Asp Tyr Asp Arg Leu Arg Pro
 195 200 205

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

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

Arg His His Cys Pro Asn Thr Pro Ile Ile Leu Val Gly Thr Lys Leu
 245 250 255

Asp Leu Arg Asp Asp Lys Asp Thr Ile Glu Lys Leu Lys Glu Lys Lys
 260 265 270

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

Gly Ala Val Lys Tyr Leu Glu Cys Ser Ala Leu Thr Gln Arg Gly Leu
 290 295 300

Lys Thr Val Phe Asp Glu Ala Ile Arg Ala Val Leu Cys Pro Pro Pro
 305 310 315 320

Val Lys Lys Arg Lys Arg Lys
 325

<210> 27
 <211> 333
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - RhoA Q63L

<400> 27

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
 115 120 125

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

Arg Lys Lys Leu Val Ile Val Gly Asp Gly Ala Cys Gly Lys Thr Cys
 145 150 155 160

Leu Leu Ile Val Phe Ser Lys Asp Gln Phe Pro Glu Val Tyr Val Pro
 165 170 175

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

Val Glu Leu Ala Leu Trp Asp Thr Ala Gly Leu Glu Asp Tyr Asp Arg
 195 200 205

Leu Arg Pro Leu Ser Tyr Pro Asp Thr Asp Val Ile Leu Met Cys Phe
 210 215 220

Ser Ile Asp Ser Pro Asp Ser Leu Glu Asn Ile Pro Glu Lys Trp Thr
 225 230 235 240

Pro Glu Val Lys His Phe Cys Pro Asn Val Pro Ile Ile Leu Val Gly
245 250 255

Asn Lys Lys Asp Leu Arg Asn Asp Glu His Thr Arg Arg Glu Leu Ala
260 265 270

Lys Met Lys Gln Glu Pro Val Lys Pro Glu Glu Gly Arg Asp Met Ala
275 280 285

Asn Arg Ile Gly Ala Phe Gly Tyr Met Glu Cys Ser Ala Lys Thr Lys
290 295 300

Asp Gly Val Arg Glu Val Phe Glu Met Ala Thr Arg Ala Ala Leu Gln
305 310 315 320

Ala Arg Arg Gly Lys Lys Lys Ser Gly Cys Leu Val Leu
325 330

<210> 28
<211> 350
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - FADD

<400> 28

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Asp
130 135 140

Pro Phe Leu Val Leu Leu His Ser Val Ser Ser Ser Leu Ser Ser Ser
145 150 155 160

Glu Leu Thr Glu Leu Lys Phe Leu Cys Leu Gly Arg Val Gly Lys Arg
165 170 175

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

Glu Gln Asn Asp Leu Glu Pro Gly His Thr Glu Leu Leu Arg Glu Leu
195 200 205

Leu Ala Ser Leu Arg Arg His Asp Leu Leu Arg Arg Val Asp Asp Phe
210 215 220

Glu Ala Gly Ala Ala Ala Gly Ala Ala Pro Gly Glu Glu Asp Leu Cys
225 230 235 240

Ala Ala Phe Asn Val Ile Cys Asp Asn Val Gly Lys Asp Trp Arg Arg
245 250 255

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

Asp Arg Tyr Pro Arg Asn Leu Thr Glu Arg Val Arg Glu Ser Leu Arg
275 280 285

Ile Trp Lys Asn Thr Glu Lys Glu Asn Ala Thr Val Ala His Leu Val
 290 295 300

Gly Ala Leu Arg Ser Cys Gln Met Asn Leu Val Ala Asp Leu Val Gln
 305 310 315 320

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

Pro Met Ser Trp Asn Ser Asp Ala Ser Thr Ser Glu Ala Ser
 340 345 350

<210> 29
 <211> 308
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - Bad

<400> 29

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Pro Glu Phe Glu Pro Ser Glu Gln Glu Asp Ser Ser Ser Ala Glu Arg
145 150 155 160

Gly Leu Gly Pro Ser Pro Ala Gly Asp Gly Pro Ser Gly Ser Gly Lys
165 170 175

His His Arg Gln Ala Pro Gly Leu Leu Trp Asp Ala Ser His Gln Gln
180 185 190

Glu Gln Pro Thr Ser Ser Ser His His Gly Gly Ala Gly Ala Val Glu
195 200 205

Ile Arg Ser Arg His Ser Ser Tyr Pro Ala Gly Thr Glu Asp Asp Glu
210 215 220

Gly Met Gly Glu Glu Pro Ser Pro Phe Arg Gly Arg Ser Arg Ser Ala
225 230 235 240

Pro Pro Asn Leu Trp Ala Ala Gln Arg Tyr Gly Arg Glu Leu Arg Arg
245 250 255

Met Ser Asp Glu Phe Val Asp Ser Phe Lys Lys Gly Leu Pro Arg Pro
260 265 270

Lys Ser Ala Gly Thr Ala Thr Gln Met Arg Gln Ser Ser Ser Trp Thr
275 280 285

Arg Val Phe Gln Ser Trp Trp Asp Arg Asn Leu Gly Arg Gly Ser Thr
290 295 300

Ala Pro Ser Gln
305

<210> 30
<211> 309
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - GPCR GNA12

<400> 30

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Met Ser Gly Val
130 135 140

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

Ser Gln Arg Gln Lys Trp Phe Gln Cys Phe Asp Gly Ile Thr Ser Ile
165 170 175

Leu Phe Met Val Ser Ser Ser Glu Tyr Asp Gln Val Leu Met Glu Asp
180 185 190

Arg Arg Thr Asn Arg Leu Val Glu Ser Met Asn Ile Phe Glu Thr Ile
195 200 205

Val Asn Asn Lys Leu Phe Phe Asn Val Ser Ile Ile Leu Phe Leu Asn
210 215 220

Lys Met Asp Leu Leu Val Glu Lys Val Lys Thr Val Ser Ile Lys Lys
225 230 235 240

His Phe Pro Asp Phe Arg Gly Asp Pro His Arg Leu Glu Asp Val Gln
245 250 255

Arg Tyr Leu Val Gln Cys Phe Asp Arg Lys Arg Arg Asn Arg Ser Lys
260 265 270

Pro Leu Phe His His Phe Thr Thr Ala Ile Asp Thr Glu Asn Val Arg
275 280 285

Phe Val Phe His Ala Val Lys Asp Thr Ile Leu Gln Glu Asn Leu Lys
290 295 300

Asp Ile Met Leu Gln
305

<210> 31
<211> 259
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - VhH4 nanobody recognizing EGFP

<400> 31

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Asp
130 135 140

Gln Val Gln Leu Val Glu Ser Gly Gly Ala Leu Val Gln Pro Gly Gly
145 150 155 160

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

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

Ala Gly Met Ser Ser Ala Gly Asp Arg Ser Ser Tyr Glu Asp Ser Val
195 200 205

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ala Arg Asn Thr Val Tyr
210 215 220

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

Asn Val Asn Val Gly Phe Glu Tyr Trp Gly Gln Gly Thr Gln Val Thr
245 250 255

Val Ser Ser

<210> 32
<211> 458
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Slmb1-VhH4

<400> 32

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Lys Met
130 135 140

Met Lys Met Glu Thr Asp Lys Ile Met Asp Glu Thr Asn Ser Asn Ala
 145 150 155 160

Gln Ala Phe Thr Thr Thr Met Leu Tyr Asp Pro Val Arg Lys Lys Asp
 165 170 175

Ser Ser Pro Thr Tyr Gln Thr Glu Arg Glu Leu Cys Phe Gln Tyr Phe
 180 185 190

Thr Gln Trp Ser Glu Ser Gly Gln Val Asp Phe Val Glu His Leu Leu
 195 200 205

Ser Arg Met Cys His Tyr Gln His Gly Gln Ile Asn Ala Tyr Leu Lys
 210 215 220

Pro Met Leu Gln Arg Asp Phe Ile Thr Leu Leu Pro Ile Lys Gly Leu
 225 230 235 240

Asp His Ile Ala Glu Asn Ile Leu Ser Tyr Leu Asp Ala Glu Ser Leu
 245 250 255

Lys Ser Ser Glu Leu Val Cys Lys Glu Trp Leu Arg Val Ile Ser Glu
 260 265 270

Gly Met Leu Trp Lys Lys Leu Ile Glu Arg Lys Val Arg Thr Asp Ser
 275 280 285

Leu Trp Arg Gly Leu Ala Glu Arg Arg Asn Trp Met Gln Tyr Leu Phe
 290 295 300

Lys Pro Arg Pro Gly Gln Thr Gln Arg Pro His Ser Phe His Arg Glu
 305 310 315 320

Leu Phe Pro Lys Ile Met Asn Asp Ile Asp Ser Ile Glu Asn Asn Trp
 325 330 335

Arg Thr Gly Arg His Met Asp Gln Val Gln Leu Val Glu Ser Gly Gly
 340 345 350

Ala Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser
355 360 365

Gly Phe Pro Val Asn Arg Tyr Ser Met Arg Trp Tyr Arg Gln Ala Pro
370 375 380

Gly Lys Glu Arg Glu Trp Val Ala Gly Met Ser Ser Ala Gly Asp Arg
385 390 395 400

Ser Ser Tyr Glu Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
405 410 415

Asp Ala Arg Asn Thr Val Tyr Leu Gln Met Asn Ser Leu Lys Pro Glu
420 425 430

Asp Thr Ala Val Tyr Tyr Cys Asn Val Asn Val Gly Phe Glu Tyr Trp
435 440 445

Gly Gln Gly Thr Gln Val Thr Val Ser Ser
450 455

<210> 33
<211> 470
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - NLS-Slmb1-VhH4

<400> 33

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Pro Pro
130 135 140

Lys Lys Lys Arg Lys Val Gln Phe Lys Met Met Lys Met Glu Thr Asp
145 150 155 160

Lys Ile Met Asp Glu Thr Asn Ser Asn Ala Gln Ala Phe Thr Thr Thr
165 170 175

Met Leu Tyr Asp Pro Val Arg Lys Lys Asp Ser Ser Pro Thr Tyr Gln
180 185 190

Thr Glu Arg Glu Leu Cys Phe Gln Tyr Phe Thr Gln Trp Ser Glu Ser
195 200 205

Gly Gln Val Asp Phe Val Glu His Leu Leu Ser Arg Met Cys His Tyr
210 215 220

Gln His Gly Gln Ile Asn Ala Tyr Leu Lys Pro Met Leu Gln Arg Asp
225 230 235 240

Phe Ile Thr Leu Leu Pro Ile Lys Gly Leu Asp His Ile Ala Glu Asn
245 250 255

Ile Leu Ser Tyr Leu Asp Ala Glu Ser Leu Lys Ser Ser Glu Leu Val
260 265 270

Cys Lys Glu Trp Leu Arg Val Ile Ser Glu Gly Met Leu Trp Lys Lys
275 280 285

Leu Ile Glu Arg Lys Val Arg Thr Asp Ser Leu Trp Arg Gly Leu Ala
290 295 300

Glu Arg Arg Asn Trp Met Gln Tyr Leu Phe Lys Pro Arg Pro Gly Gln
305 310 315 320

Thr Gln Arg Pro His Ser Phe His Arg Glu Leu Phe Pro Lys Ile Met
325 330 335

Asn Asp Ile Asp Ser Ile Glu Asn Asn Trp Arg Thr Gly Arg His Leu
340 345 350

Glu Met Asp Gln Val Gln Leu Val Glu Ser Gly Gly Ala Leu Val Gln
355 360 365

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Pro Val
370 375 380

Asn Arg Tyr Ser Met Arg Trp Tyr Arg Gln Ala Pro Gly Lys Glu Arg
385 390 395 400

Glu Trp Val Ala Gly Met Ser Ser Ala Gly Asp Arg Ser Ser Tyr Glu
405 410 415

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

Thr Val Tyr Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val
435 440 445

Tyr Tyr Cys Asn Val Asn Val Gly Phe Glu Tyr Trp Gly Gln Gly Thr
450 455 460

Gln Val Thr Val Ser Ser
465 470

<210> 34
 <211> 466
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - Slmb1-VhH4-NLS

<400> 34

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
 115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Lys Met
 130 135 140

Met Lys Met Glu Thr Asp Lys Ile Met Asp Glu Thr Asn Ser Asn Ala
 145 150 155 160

Gln Ala Phe Thr Thr Thr Met Leu Tyr Asp Pro Val Arg Lys Lys Asp
 165 170 175

Ser Ser Pro Thr Tyr Gln Thr Glu Arg Glu Leu Cys Phe Gln Tyr Phe
180 185 190

Thr Gln Trp Ser Glu Ser Gly Gln Val Asp Phe Val Glu His Leu Leu
195 200 205

Ser Arg Met Cys His Tyr Gln His Gly Gln Ile Asn Ala Tyr Leu Lys
210 215 220

Pro Met Leu Gln Arg Asp Phe Ile Thr Leu Leu Pro Ile Lys Gly Leu
225 230 235 240

Asp His Ile Ala Glu Asn Ile Leu Ser Tyr Leu Asp Ala Glu Ser Leu
245 250 255

Lys Ser Ser Glu Leu Val Cys Lys Glu Trp Leu Arg Val Ile Ser Glu
260 265 270

Gly Met Leu Trp Lys Lys Leu Ile Glu Arg Lys Val Arg Thr Asp Ser
275 280 285

Leu Trp Arg Gly Leu Ala Glu Arg Arg Asn Trp Met Gln Tyr Leu Phe
290 295 300

Lys Pro Arg Pro Gly Gln Thr Gln Arg Pro His Ser Phe His Arg Glu
305 310 315 320

Leu Phe Pro Lys Ile Met Asn Asp Ile Asp Ser Ile Glu Asn Asn Trp
325 330 335

Arg Thr Gly Arg His Met Asp Gln Val Gln Leu Val Glu Ser Gly Gly
340 345 350

Ala Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser
355 360 365

Gly Phe Pro Val Asn Arg Tyr Ser Met Arg Trp Tyr Arg Gln Ala Pro
370 375 380

Gly Lys Glu Arg Glu Trp Val Ala Gly Met Ser Ser Ala Gly Asp Arg
 385 390 395 400

Ser Ser Tyr Glu Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
 405 410 415

Asp Ala Arg Asn Thr Val Tyr Leu Gln Met Asn Ser Leu Lys Pro Glu
 420 425 430

Asp Thr Ala Val Tyr Tyr Cys Asn Val Asn Val Gly Phe Glu Tyr Trp
 435 440 445

Gly Gln Gly Thr Gln Val Thr Val Ser Ser Pro Pro Lys Lys Lys Arg
 450 455 460

Lys Val
 465

<210> 35
 <211> 246
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - Akt PH-domain

<400> 35

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Ala Ile
130 135 140

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

Arg Pro Arg Tyr Phe Leu Leu Lys Asn Asp Gly Thr Phe Ile Gly Tyr
165 170 175

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

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

Asn Thr Phe Ile Ile Arg Cys Leu Gln Trp Thr Thr Val Ile Glu Arg
210 215 220

Thr Phe His Val Glu Thr Pro Glu Glu Arg Glu Glu Trp Thr Thr Ala
225 230 235 240

Ile Gln Thr Val Ala Asp
245

<210> 36
<211> 465
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - ET1

<400> 36

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Pro
130 135 140

Arg Pro Lys Leu Lys Ser Asp Asp Glu Val Leu Glu Ala Ala Thr Val
145 150 155 160

Val Leu Lys Arg Cys Gly Pro Ile Glu Phe Thr Leu Ser Gly Val Ala
165 170 175

Lys Glu Val Gly Leu Ser Arg Ala Ala Leu Ile Gln Arg Phe Thr Asn
180 185 190

Arg Asp Thr Leu Leu Val Arg Met Met Glu Arg Gly Val Glu Gln Val
195 200 205

Arg His Tyr Leu Asn Ala Ile Pro Ile Gly Ala Gly Pro Gln Gly Leu
210 215 220

Trp Glu Phe Leu Gln Val Leu Val Arg Ser Met Asn Thr Arg Asn Asp
225 230 235 240

Phe Ser Val Asn Tyr Leu Ile Ser Trp Tyr Glu Leu Gln Val Pro Glu
245 250 255

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

Arg Lys Arg Leu Pro Pro Gly Ala Pro Ala Ala Ala Glu Leu Leu Leu
275 280 285

His Ser Val Ile Ala Gly Ala Thr Met Gln Trp Ala Val Asp Pro Asp
290 295 300

Gly Glu Leu Ala Asp His Val Leu Ala Gln Ile Ala Ala Ile Leu Cys
305 310 315 320

Leu Met Phe Pro Glu His Asp Asp Phe Gln Leu Leu Gln Ala His Ala
325 330 335

Ser Ala Tyr Ser Arg Ala Arg Thr Lys Asn Asn Tyr Gly Ser Thr Ile
340 345 350

Glu Gly Leu Leu Asp Leu Pro Asp Asp Ala Pro Glu Glu Ala Gly
355 360 365

Leu Ala Ala Pro Arg Leu Ser Phe Leu Pro Ala Gly His Thr Arg Arg
370 375 380

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

Leu Asp Gly Glu Asp Val Ala Met Ala His Ala Asp Ala Leu Asp Asp
405 410 415

Phe Asp Leu Asp Met Leu Gly Asp Gly Asp Ser Pro Gly Pro Gly Phe
420 425 430

Thr Pro His Asp Ser Ala Pro Tyr Gly Ala Leu Asp Met Ala Asp Phe
435 440 445

Glu Phe Glu Gln Met Phe Thr Asp Ala Leu Gly Ile Asp Glu Tyr Gly
450 455 460

Gly
465

<210> 37
<211> 381
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - EGFP

<400> 37

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Met Val
130 135 140

Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu
145 150 155 160

Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly
165 170 175

Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr
180 185 190

Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr
195 200 205

Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His
210 215 220

Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr
225 230 235 240

Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys
245 250 255

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

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

Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile
290 295 300

Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln
305 310 315 320

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

Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys
340 345 350

Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr
355 360 365

Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
370 375 380

<210> 38

<211> 402

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - 2xTEVsite - NLS - EGFP

<400> 38

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Glu Asn
130 135 140

Leu Tyr Phe Gln Ser Glu Asn Leu Tyr Phe Gln Ser Pro Pro Lys Lys
145 150 155 160

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

Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser
180 185 190

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

Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu
210 215 220

Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp
225 230 235 240

His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr
245 250 255

Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr
260 265 270

Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu
275 280 285

Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys
290 295 300

Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys
305 310 315 320

Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu
325 330 335

Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile
340 345 350

Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln
355 360 365

Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu
370 375 380

Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu
385 390 395 400

Tyr Lys

<210> 39
<211> 402
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - 2xTEVsite - EGFP - NLS

<400> 39

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Glu Asn
130 135 140

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

Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly
165 170 175

Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp
180 185 190

Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys
195 200 205

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

Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe
225 230 235 240

Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe
245 250 255

Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly
260 265 270

Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu
275 280 285

Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His
 290 295 300

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

Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp
 325 330 335

His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro
 340 345 350

Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn
 355 360 365

Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly
 370 375 380

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

Lys Val

<210> 40
 <211> 324
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - 2x TEVsite - INK4C

<400> 40

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Glu Asn
130 135 140

Leu Tyr Phe Gln Ser Glu Asn Leu Tyr Phe Gln Ser Met Ala Glu Pro
145 150 155 160

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

Leu Thr Ser Leu Leu Gln Asn Asn Val Asn Val Asn Ala Gln Asn Gly
180 185 190

Phe Gly Arg Thr Ala Leu Gln Val Met Lys Leu Gly Asn Pro Glu Ile
195 200 205

Ala Arg Arg Leu Leu Leu Arg Gly Ala Asn Pro Asp Leu Lys Asp Arg
210 215 220

Thr Gly Phe Ala Val Ile His Asp Ala Ala Arg Ala Gly Phe Leu Asp
225 230 235 240

Thr Leu Gln Ala Leu Pro Glu Phe Gln Ala Asp Val Asn Ile Glu Asp
245 250 255

Asn Glu Gly Asn Leu Pro Leu His Leu Ala Ala Lys Glu Gly His Leu
260 265 270

Arg Val Val Glu Phe Leu Val Lys His Thr Ala Ser Asn Val Gly His
275 280 285

Arg Asn His Lys Gly Asp Thr Ala Cys Asp Leu Ala Arg Leu Tyr Gly
290 295 300

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

Thr Asn Leu Gln

<210> 41
<211> 479
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - 2x TEVsite - ET1

<400> 41

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Glu Asn
130 135 140

Leu Tyr Phe Gln Ser Glu Asn Leu Tyr Phe Gln Ser Met Pro Arg Pro
145 150 155 160

Lys Leu Lys Ser Asp Asp Glu Val Leu Glu Ala Ala Thr Val Val Leu
165 170 175

Lys Arg Cys Gly Pro Ile Glu Phe Thr Leu Ser Gly Val Ala Lys Glu
180 185 190

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

Thr Leu Leu Val Arg Met Met Glu Arg Gly Val Glu Gln Val Arg His
210 215 220

Tyr Leu Asn Ala Ile Pro Ile Gly Ala Gly Pro Gln Gly Leu Trp Glu
225 230 235 240

Phe Leu Gln Val Leu Val Arg Ser Met Asn Thr Arg Asn Asp Phe Ser
245 250 255

Val Asn Tyr Leu Ile Ser Trp Tyr Glu Leu Gln Val Pro Glu Leu Arg
260 265 270

Thr Leu Ala Ile Gln Arg Asn Arg Ala Val Val Glu Gly Ile Arg Lys
275 280 285

Arg Leu Pro Pro Gly Ala Pro Ala Ala Ala Glu Leu Leu Leu His Ser
290 295 300

Val Ile Ala Gly Ala Thr Met Gln Trp Ala Val Asp Pro Asp Gly Glu
 305 310 315 320

Leu Ala Asp His Val Leu Ala Gln Ile Ala Ala Ile Leu Cys Leu Met
 325 330 335

Phe Pro Glu His Asp Asp Phe Gln Leu Leu Gln Ala His Ala Ser Ala
 340 345 350

Tyr Ser Arg Ala Arg Thr Lys Asn Asn Tyr Gly Ser Thr Ile Glu Gly
 355 360 365

Leu Leu Asp Leu Pro Asp Asp Asp Ala Pro Glu Glu Ala Gly Leu Ala
 370 375 380

Ala Pro Arg Leu Ser Phe Leu Pro Ala Gly His Thr Arg Arg Leu Ser
 385 390 395 400

Thr Ala Pro Pro Thr Asp Val Ser Leu Gly Asp Glu Leu His Leu Asp
 405 410 415

Gly Glu Asp Val Ala Met Ala His Ala Asp Ala Leu Asp Asp Phe Asp
 420 425 430

Leu Asp Met Leu Gly Asp Gly Asp Ser Pro Gly Pro Gly Phe Thr Pro
 435 440 445

His Asp Ser Ala Pro Tyr Gly Ala Leu Asp Met Ala Asp Phe Glu Phe
 450 455 460

Glu Gln Met Phe Thr Asp Ala Leu Gly Ile Asp Glu Tyr Gly Gly
 465 470 475

<210> 42

<211> 380

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - TEV protease S219V

<400> 42

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Glu Ser Leu Phe
130 135 140

Lys Gly Pro Arg Asp Tyr Asn Pro Ile Ser Ser Thr Ile Cys His Leu
145 150 155 160

Thr Asn Glu Ser Asp Gly His Thr Thr Ser Leu Tyr Gly Ile Gly Phe
165 170 175

Gly Pro Phe Ile Ile Thr Asn Lys His Leu Phe Arg Arg Asn Asn Gly
180 185 190

Thr Leu Leu Val Gln Ser Leu His Gly Val Phe Lys Val Lys Asn Thr
195 200 205

Thr Thr Leu Gln Gln His Leu Ile Asp Gly Arg Asp Met Ile Ile Ile
 210 215 220

Arg Met Pro Lys Asp Phe Pro Pro Phe Pro Gln Lys Leu Lys Phe Arg
 225 230 235 240

Glu Pro Gln Arg Glu Glu Arg Ile Cys Leu Val Thr Thr Asn Phe Gln
 245 250 255

Thr Lys Ser Met Ser Ser Met Val Ser Asp Thr Ser Cys Thr Phe Pro
 260 265 270

Ser Ser Asp Gly Ile Phe Trp Lys His Trp Ile Gln Thr Lys Asp Gly
 275 280 285

Gln Cys Gly Ser Pro Leu Val Ser Thr Arg Asp Gly Phe Ile Val Gly
 290 295 300

Ile His Ser Ala Ser Asn Phe Thr Asn Thr Asn Asn Tyr Phe Thr Ser
 305 310 315 320

Val Pro Lys Asn Phe Met Glu Leu Leu Thr Asn Gln Glu Ala Gln Gln
 325 330 335

Trp Val Ser Gly Trp Arg Leu Asn Ala Asp Ser Val Leu Trp Gly Gly
 340 345 350

His Lys Val Phe Met Val Lys Pro Glu Glu Pro Phe Gln Pro Val Lys
 355 360 365

Glu Ala Thr Gln Leu Met Asn Arg Arg Arg Arg Arg
 370 375 380

<210> 43
 <211> 332
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138 - 2x TEVsite - Flag - INK4C

<400> 43

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
 115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Glu Asn
 130 135 140

Leu Tyr Phe Gln Ser Glu Asn Leu Tyr Phe Gln Ser Asp Tyr Lys Asp
 145 150 155 160

Asp Asp Asp Lys Met Ala Glu Pro Trp Gly Asn Glu Leu Ala Ser Ala
 165 170 175

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

Val Asn Val Asn Ala Gln Asn Gly Phe Gly Arg Thr Ala Leu Gln Val
 195 200 205

Met Lys Leu Gly Asn Pro Glu Ile Ala Arg Arg Leu Leu Leu Arg Gly
 210 215 220

Ala Asn Pro Asp Leu Lys Asp Arg Thr Gly Phe Ala Val Ile His Asp
 225 230 235 240

Ala Ala Arg Ala Gly Phe Leu Asp Thr Leu Gln Ala Leu Pro Glu Phe
 245 250 255

Gln Ala Asp Val Asn Ile Glu Asp Asn Glu Gly Asn Leu Pro Leu His
 260 265 270

Leu Ala Ala Lys Glu Gly His Leu Arg Val Val Glu Phe Leu Val Lys
 275 280 285

His Thr Ala Ser Asn Val Gly His Arg Asn His Lys Gly Asp Thr Ala
 290 295 300

Cys Asp Leu Ala Arg Leu Tyr Gly Arg Asn Glu Val Val Ser Leu Met
 305 310 315 320

Gln Ala Asn Gly Ala Gly Gly Ala Thr Asn Leu Gln
 325 330

<210> 44
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer No. : Si_285

<400> 44
 cataccatgg gagtgagcaa gggcgag

27

<210> 45
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer No. : Si_286

<400> 45

ggaagatctt tacttgtaca gctcgtccat 30

<210> 46
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_287

<400> 46
cgggggtacct caactaaatg accgtggtg 29

<210> 47
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_288

<400> 47
gttaaagctt ttcgaatcta gactcgagcg tggcgaactg gtc 43

<210> 48
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_292

<400> 48
cagtctcgag caaattctaa acaaaatact tccac 35

<210> 49
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_293

<400> 49
cagtttcgaa ttaatttgta ttgctttgac gg 32

<210> 50
<211> 34

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_296

 <400> 50
 cagtctcgag actaacataa cactatccac ccag 34

<210> 51
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_297

 <400> 51
 gttaaagctt tcaggaggca ttctgaag 28

<210> 52
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_299

 <400> 52
 cagtctcgag caggccatca agtgtgtg 28

<210> 53
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_300

 <400> 53
 cagtttcgaa tcattttctc ttctcttct tca 33

<210> 54
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_301

<400> 54
cagtctcgag gctgccatcc ggaa 24

<210> 55
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_302

<400> 55
cagtttcgaa tcacaagaca aggcaccc 28

<210> 56
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_306

<400> 56
gttaaagctt ggaggcattc tgaagatact tatt 34

<210> 57
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_307

<400> 57
cagtctcgag caaatacaga gcttctatca ctcag 35

<210> 58
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_308

<400> 58
gttaaagctt tcaagatgtg attaatagaag aaatg 35

<210> 59
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_317

 <400> 59
 cagtttcgaa cccataaaaa agccctgtc 29

<210> 60
 <211> 37
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_318

 <400> 60
 gttaaagctt ctactctatc atcaaacgat aaaatgg 37

<210> 61
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_324

 <400> 61
 cagtctcgag ttactcaag aaacgcaaa 29

<210> 62
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_339

 <400> 62
 cagtttcgaa ttttctcttc ctcttcttca cg 32

<210> 63
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer No. : Si_341

 <400> 63
 cgtatctaga aaaatgatga aaatggagac tg 32

 <210> 64
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_342

 <400> 64
 gttaaagctt ttagctggag acggtgac 28

 <210> 65
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_346

 <400> 65
 cagtctcgag ttccagatcc cagagtttg 29

 <210> 66
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_347

 <400> 66
 gttaaagctt tcactgggag gggg 24

 <210> 67
 <211> 45
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_351

 <400> 67
 cagtctcgag ctcgagttat ctactcatag aaactacttt tgcag 45

<210> 68
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_352

 <400> 68
 cgcggatcct cagtgtctct gcggcatta 29

 <210> 69
 <211> 43
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_353

 <400> 69
 catttattcc tcctagttag tcacagcaac tgctgctcct ttc 43

 <210> 70
 <211> 43
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_354

 <400> 70
 gaaaggagca gcagttgctg tgactaacta ggaggaataa atg 43

 <210> 71
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_355

 <400> 71
 cgattcacgg attgctttct cattattccc tccaggtact a 41

 <210> 72
 <211> 41
 <212> DNA

<213> Artificial Sequence

 <220>
 <223> Primer No. : Si_356

 <400> 72
 tagtacctgg agggaataat gagaaagcaa tccgtgaatc g 41

 <210> 73
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_357

 <400> 73
 cgtatctaga cggctttaag tgcgacattc 30

 <210> 74
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_364

 <400> 74
 cgtatctaga ctaaagtatg aggagagaaa attgaa 36

 <210> 75
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_365

 <400> 75
 gttaaagctt tcagcttgcc gtcgt 25

 <210> 76
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_367

<400> 76
cgtatctaga gacccgttcc tgggtgc 26

<210> 77
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_369

<400> 77
cgtatctaga cccccaaga agaagc 26

<210> 78
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_373

<400> 78
gttaaagctt gctggagacg gtgacc 26

<210> 79
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_386

<400> 79
cgtatctaga tcaggacgct tcggaggtag 30

<210> 80
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_387

<400> 80
cgtatctaga atggactgtg aggtcaacaa 30

<210> 81

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

 <220>
 <223> Primer No. : Si_389

 <400> 81
 cgatatctaga ggcaaccgca gca 23

<210> 82
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_391

 <400> 82
 gttaaagctt tcagtccatc ccatttctg 29

<210> 83
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_403

 <400> 83
 cgatatctaga tctggaatat ccctggaca 29

<210> 84
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_406

 <400> 84
 gttaaagctt gtctgtctca atgccacagt 30

<210> 85
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>

<223> Primer No. : Si_410

<400> 85
cagtctcgag atgtccgggg tggtg 25

<210> 86
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_413

<400> 86
cagtttcgaa tcactgcagc atgatgtc 28

<210> 87
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_417

<400> 87
cagtctcgag agtggtgttg atgatgacat g 31

<210> 88
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_420

<400> 88
cagtttcgaa ttagtgataa aaatagagtt cttttgtgag 40

<210> 89
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_423

<400> 89
cagtctcgag atgcacataa ctaatttggg att 33

<210> 90
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_424

 <400> 90
 cagtttcgaa ttatacaaat gacgaatacc cttt 34

 <210> 91
 <211> 52
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_425

 <400> 91
 gttaaagctt ttacaccttg cgcttcttct tgggcgggct ggagacggtg ac 52

 <210> 92
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_428

 <400> 92
 cgtatctaga atggacttca acaggaactt t 31

 <210> 93
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_429

 <400> 93
 cgtatctaga ggacatagtc caccagcg 28

 <210> 94
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer No. : Si_430

 <400> 94
 gttaaagctt tcagttggat ccgaaaaac 29

 <210> 95
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_433

 <400> 95
 cgtatctaga gaattaaaaa aaacactcat ccca 34

 <210> 96
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_434

 <400> 96
 cgtatctaga ccaaaggcaa aagcaaaaa 29

 <210> 97
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_435

 <400> 97
 gttaaagctt ttagctagcc atggcaagc 29

 <210> 98
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_436

 <400> 98

cgtatctaga atgccccgcc cc 22

<210> 99
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_437

<400> 99
gttaaagctt ctaccaccg tactcgtcaa t 31

<210> 100
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_438

<400> 100
cgtatctaga atgtctgaca cgtccagaga g 31

<210> 101
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_439

<400> 101
gttaaagctt tcattcttctt cgcaggaaaa ag 32

<210> 102
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_445

<400> 102
cgcggatcct tatgggttct cacagcaaaa 30

<210> 103
<211> 43

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_446

 <400> 103
 catttattcc tcctagttag tcaaggcaac agccaatcaa gag 43

 <210> 104
 <211> 43
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_447

 <400> 104
 ctcttgattg gctgttgcct tgactaacta ggaggaataa atg 43

 <210> 105
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_448

 <400> 105
 ttgattgcag tgacatggtg cattattccc tccaggtact a 41

 <210> 106
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_449

 <400> 106
 tagtacctgg aggaataat gcacatgctc actgcaatca a 41

 <210> 107
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_450

<400> 107
cgtatctaga tagccgcaga tgttggtatg 30

<210> 108
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_451

<400> 108
cgtatctaga gatcaagtcc aactggtgg 29

<210> 109
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_463

<400> 109
cagtctcgag gaaagcttgt ttaaggggc 29

<210> 110
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_464

<400> 110
cagtttcgaa ttagcgacgg cgacg 25

<210> 111
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_476

<400> 111
gttaaagctt ttacttgtac agctcgtcca t 31

<210> 112
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_477

 <400> 112
 cgtatctaga gtgagcaagg gcgag 25

<210> 113
 <211> 37
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_478

 <400> 113
 cagtctcgag atggaagatt ataccaaaat agagaaa 37

<210> 114
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_479

 <400> 114
 gttaaagctt ctacatcttc ttaatctgat tgtcca 36

<210> 115
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_482

 <400> 115
 cgtatctaga atggcgctgc agct 24

<210> 116
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer No. : Si_483

 <400> 116
 gttaaagctt tcagtcattg acaggaattt tg 32

 <210> 117
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_486

 <400> 117
 cgtatctaga atggagccgg cggcg 25

 <210> 118
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_487

 <400> 118
 gttaaagctt tcaatcgggg atgtctg 27

 <210> 119
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_492

 <400> 119
 cgtatctaga atgcgcgagg agaacaaggg 30

 <210> 120
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_493

 <400> 120
 gttaaagctt tcagtcccct gtggctgtgc 30

<210> 121
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_494

 <400> 121
 cgtatctaga atggccgagc cttg 24

 <210> 122
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_495

 <400> 122
 gttaaagctt ttattgaaga tttgtggctc c 31

 <210> 123
 <211> 64
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_504

 <400> 123
 cgtatctaga gaaaatctgt attttcaaag tgaaaatctg tattttcaaa gtatgccccg 60
 cccc 64

 <210> 124
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_505

 <400> 124
 gttaaagctt cccaccgtac tcgtcaattc 30

 <210> 125

<211> 66
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_508

 <400> 125
 cgtatctaga gaaaatctgt attttcaaag tgaaaatctg ttttttcaaa gtatggccga 60
 gccttg 66

 <210> 126
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_509

 <400> 126
 gttaaagctt ttgaagattt gtggctccc 29

 <210> 127
 <211> 67
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_511

 <400> 127
 cgtatctaga gaaaatctgt attttcaaag tgaaaatctg ttttttcaaa gtgtgagcaa 60
 gggcgag 67

 <210> 128
 <211> 91
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_512

 <400> 128
 cgtatctaga gaaaatctgt attttcaaag tgaaaatctg ttttttcaaa gtccgccgaa 60
 aaaaaaacgt aaagttgtga gcaagggcga g 91

<210> 129
 <211> 55
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_513

 <400> 129
 gttaaagctt ttaaacttta cgtttttttt tcggcggctt gtacagctcg tccat 55

 <210> 130
 <211> 90
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_515

 <400> 130
 cgatatctaga gaaaatctgt attttcaaag tgaaaatctg tattttcaaa gtgattataa 60
 agatgatgat gataaaatgg ccgagccttg 90

 <210> 131
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_558

 <400> 131
 cgatatctaga atgaccagtt ttgaagatgc 30

 <210> 132
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_559

 <400> 132
 gttaaagctt tcatgactca ttttcatcca t 31

 <210> 133
 <211> 36
 <212> DNA

<213> Artificial Sequence

<220>

<223> Primer No. : Si_561

<400> 133

cgtatctaga atgagtctct taaactgtga gaacag

36

<210> 134

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer No. : Si_562

<400> 134

gttaaagctt ctacaccccc gcatca

26

<210> 135

<211> 405

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - SopE - MycHis

<400> 135

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Val Thr Asn Ile
130 135 140

Thr Leu Ser Thr Gln His Tyr Arg Ile His Arg Ser Asp Val Glu Pro
145 150 155 160

Val Lys Glu Lys Thr Thr Glu Lys Asp Ile Phe Ala Lys Ser Ile Thr
165 170 175

Ala Val Arg Asn Ser Phe Ile Ser Leu Ser Thr Ser Leu Ser Asp Arg
180 185 190

Phe Ser Leu His Gln Gln Thr Asp Ile Pro Thr Thr His Phe His Arg
195 200 205

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

Asp Phe Met Leu Gln Lys Leu Asn Ser Leu Asp Ile Lys Gly Asn Ala
225 230 235 240

Ser Lys Asp Pro Ala Tyr Ala Arg Gln Thr Cys Glu Ala Ile Leu Ser
245 250 255

Ala Val Tyr Ser Asn Asn Lys Asp Gln Cys Cys Lys Leu Leu Ile Ser
260 265 270

Lys Gly Val Ser Ile Thr Pro Phe Leu Lys Glu Ile Gly Glu Ala Ala
275 280 285

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

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

Ser Ile Lys Tyr Pro His Met Phe Ile Asn His Asn Gln Gln Val Ser
325 330 335

Phe Lys Ala Tyr Ala Glu Lys Ile Val Met Lys Glu Val Thr Pro Leu
340 345 350

Phe Asn Lys Gly Thr Met Pro Thr Pro Gln Gln Phe Gln Leu Thr Ile
355 360 365

Glu Asn Ile Ala Asn Lys Tyr Leu Gln Asn Ala Ser Lys Leu Gly Pro
370 375 380

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

His His His His His
405

<210> 136
<211> 435
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - BepG 715-end

<400> 136

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Thr Gln Lys Met Leu Ile Glu Lys Glu Ile Ile Pro Pro Leu Ser Tyr
145 150 155 160

Val Asp Val Ala Ser Lys Ile Arg Glu Ser Glu Val Val Lys Ser Ser
165 170 175

Met Gln Lys Ile Lys Thr Leu Cys Gly Val Val Tyr Gly Asn Pro Asp
180 185 190

Ile Leu Glu Gly Lys Met Pro Lys Met Gly Ile Pro Val Thr Asn Lys
195 200 205

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

Ser Ser Cys Gly Lys Ile Val Gly Phe Ser Phe Leu Gly Ile Lys Ser
225 230 235 240

Glu Ala Arg Ala His Ala Glu Glu Asn Phe Leu Pro Leu Ser His Ala
245 250 255

Ile Phe Ser Tyr Ala His Asn Val Lys Gln Ala Glu Lys Asp Ile Leu
260 265 270

Glu Ala Tyr Phe Lys Glu Gln Glu Arg Cys Ala Gln Ser Val Glu Thr
275 280 285

Pro Ser Glu Glu Ile Thr Asn Leu Leu Ser Phe Thr Gln Glu Gln Gln
290 295 300

Lys Glu Ile Leu Ser Asn Ser Pro Lys Leu Arg Thr Gln Val Lys Ala
305 310 315 320

Tyr Ser Gln Lys Leu His Asn Arg Leu Ser Pro Asn Asp Leu Gln Ala
325 330 335

Ile Ser Glu Arg Ser His Thr Lys Leu Ala Glu Ser Leu Gly Thr Ser
340 345 350

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

Val Val Gln Ile Leu Gln Gln Gln Glu Lys Leu Gly Leu Tyr Gln Ser
370 375 380

Ile Met Lys Gly Asp Gly Arg Glu Thr Ala Lys Val Asn Met Ser Ala
385 390 395 400

Ile Lys Ala Thr Gln Met Thr Thr Lys Val Thr Ser Leu Lys Ala Val
405 410 415

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

Met Ser Arg
435

<210> 137
<211> 354
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Rac1 Q61E - MycHis

<400> 137

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

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

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

Asp Asn Tyr Ser Ala Asn Val Met Val Asp Gly Lys Pro Val Asn Leu
180 185 190

Gly Leu Trp Asp Thr Ala Gly Glu Glu Asp Tyr Asp Arg Leu Arg Pro
195 200 205

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

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

Arg His His Cys Pro Asn Thr Pro Ile Ile Leu Val Gly Thr Lys Leu
 245 250 255

Asp Leu Arg Asp Asp Lys Asp Thr Ile Glu Lys Leu Lys Glu Lys Lys
 260 265 270

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

Gly Ala Val Lys Tyr Leu Glu Cys Ser Ala Leu Thr Gln Arg Gly Leu
 290 295 300

Lys Thr Val Phe Asp Glu Ala Ile Arg Ala Val Leu Cys Pro Pro Pro
 305 310 315 320

Val Lys Lys Arg Lys Arg Lys Phe Glu Lys Leu Gly Pro Glu Gln Lys
 325 330 335

Leu Ile Ser Glu Glu Asp Leu Asn Ser Ala Val Asp His His His His
 340 345 350

His His

<210> 138

<211> 163

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - Y. enterocolitica codon optimized murine BID BH3 part

<400> 138

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Phe Glu
130 135 140

Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly Asp Glu
145 150 155 160

Met Asp His

<210> 139

<211> 156

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - Y. enterocolitica codon optimized murine Bax BH3 part

<400> 139

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Lys Lys Leu Ser
130 135 140

Glu Cys Leu Arg Arg Ile Gly Asp Glu Leu Asp Ser
145 150 155

<210> 140
<211> 20
<212> PRT
<213> Salmonella enterica

<220>
<223> SteA1-20

<400> 140

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

Lys Leu Pro His

<210> 141
 <211> 210
 <212> PRT
 <213> Salmonella enterica

<220>
 <223> SteA

<400> 141

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

Lys Leu Pro His Val Ala Ala Gly Asp Tyr Glu Asn Lys Leu Ser Thr
 20 25 30

Lys Ile Met Lys Gly Ile Leu Tyr Val Leu Thr Ala Gly Leu Ala Tyr
 35 40 45

Gly Phe Thr Arg Val Ile Glu His Tyr Cys Asn Val Thr Pro Lys Val
 50 55 60

Ala Glu Phe Cys Ala Asn Ala Gly Asn Ile His Asn His Leu Ala Asp
 65 70 75 80

Ala Val Arg Asp Gly Leu Phe Thr Ile Asp Val Glu Leu Ser Asp Gly
 85 90 95

Arg Met Leu Thr Phe Glu Gln Leu Ser Leu Ile Ala Glu Gly Lys Pro
 100 105 110

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

Phe Glu Glu Ile Cys Met Arg Leu Glu Glu Gly Phe Phe Glu Ala Pro
 130 135 140

Ala Tyr Tyr Asp Tyr Asp Ile Asp Glu Lys Tyr Lys Thr Val Arg Glu
 145 150 155 160

Arg Met Ala Ala Tyr Asn Ala Leu Pro Gln Ala Leu Gly Ala Ile Pro
165 170 175

Cys Leu Glu Tyr Tyr Ile Ala Arg Ala Ser Asn Met Gln Glu Ala Lys
180 185 190

Ala Gln Trp Ala Ala Asp Ile Lys Ala Arg Tyr His Asn Tyr Leu Asp
195 200 205

Asn Tyr
210

<210> 142
<211> 81
<212> PRT
<213> Salmonella enterica

<220>
<223> SopE1-81

<400> 142

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
65 70 75 80

Lys

<210> 143
<211> 105
<212> PRT
<213> Salmonella enterica

<220>

<223> SopE1-105

<400> 143

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
65 70 75 80

Lys Val Val Lys Asp Phe Met Leu Gln Thr Leu Asn Asp Ile Asp Ile
85 90 95

Arg Gly Ser Ala Ser Lys Asp Pro Ala
100 105

<210> 144

<211> 158

<212> PRT

<213> Artificial Sequence

<220>

<223> SteA1-20 - *S. enterica* codon optimized murine t-BID

<400> 144

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

Lys Leu Pro His Gly Thr Gly Ser Gln Ala Ser Arg Ser Phe Asn Gln
20 25 30

Gly Arg Ile Glu Pro Asp Ser Glu Ser Gln Glu Glu Ile Ile His Asn

35

40

45

Ile Ala Arg His Leu Ala Gln Ile Gly Asp Glu Met Asp His Asn Ile
 50 55 60

Gln Pro Thr Leu Val Arg Gln Leu Ala Ala Gln Phe Met Asn Gly Ser
 65 70 75 80

Leu Ser Glu Glu Asp Lys Arg Asn Cys Leu Ala Lys Ala Leu Asp Glu
 85 90 95

Val Lys Thr Ala Phe Pro Arg Asp Met Glu Asn Asp Lys Ala Met Leu
 100 105 110

Ile Met Thr Met Leu Leu Ala Lys Lys Val Ala Ser His Ala Pro Ser
 115 120 125

Leu Leu Arg Asp Val Phe His Thr Thr Val Asn Phe Ile Asn Gln Asn
 130 135 140

Leu Phe Ser Tyr Val Arg Asn Leu Val Arg Asn Glu Met Asp
 145 150 155

<210> 145

<211> 348

<212> PRT

<213> Artificial Sequence

<220>

<223> SteA - *S. enterica* codon optimized murine t-BID

<400> 145

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

Lys Leu Pro His Val Ala Ala Gly Asp Tyr Glu Asn Lys Leu Ser Thr
 20 25 30

Lys Ile Met Lys Gly Ile Leu Tyr Val Leu Thr Ala Gly Leu Ala Tyr
 35 40 45

Gly Phe Thr Arg Val Ile Glu His Tyr Cys Asn Val Thr Pro Lys Val
50 55 60

Ala Glu Phe Cys Ala Asn Ala Gly Asn Ile His Asn His Leu Ala Asp
65 70 75 80

Ala Val Arg Asp Gly Leu Phe Thr Ile Asp Val Glu Leu Ser Asp Gly
85 90 95

Arg Met Leu Thr Phe Glu Gln Leu Ser Leu Ile Ala Glu Gly Lys Pro
100 105 110

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

Phe Glu Glu Ile Cys Met Arg Leu Glu Glu Gly Phe Phe Glu Ala Pro
130 135 140

Ala Tyr Tyr Asp Tyr Asp Ile Asp Glu Lys Tyr Lys Thr Val Arg Glu
145 150 155 160

Arg Met Ala Ala Tyr Asn Ala Leu Pro Gln Ala Leu Gly Ala Ile Pro
165 170 175

Cys Leu Glu Tyr Tyr Ile Ala Arg Ala Ser Asn Met Gln Glu Ala Lys
180 185 190

Ala Gln Trp Ala Ala Asp Ile Lys Ala Arg Tyr His Asn Tyr Leu Asp
195 200 205

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

Ile Glu Pro Asp Ser Glu Ser Gln Glu Glu Ile Ile His Asn Ile Ala
225 230 235 240

Arg His Leu Ala Gln Ile Gly Asp Glu Met Asp His Asn Ile Gln Pro
245 250 255

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

260

265

270

Glu Glu Asp Lys Arg Asn Cys Leu Ala Lys Ala Leu Asp Glu Val Lys
 275 280 285

Thr Ala Phe Pro Arg Asp Met Glu Asn Asp Lys Ala Met Leu Ile Met
 290 295 300

Thr Met Leu Leu Ala Lys Lys Val Ala Ser His Ala Pro Ser Leu Leu
 305 310 315 320

Arg Asp Val Phe His Thr Thr Val Asn Phe Ile Asn Gln Asn Leu Phe
 325 330 335

Ser Tyr Val Arg Asn Leu Val Arg Asn Glu Met Asp
 340 345

<210> 146

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> SopE1-81 - S. enterica codon optimized murine t-BID

<400> 146

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
 1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
 20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
 50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
 65 70 75 80

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

Glu Pro Asp Ser Glu Ser Gln Glu Glu Ile Ile His Asn Ile Ala Arg
100 105 110

His Leu Ala Gln Ile Gly Asp Glu Met Asp His Asn Ile Gln Pro Thr
115 120 125

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

Glu Asp Lys Arg Asn Cys Leu Ala Lys Ala Leu Asp Glu Val Lys Thr
145 150 155 160

Ala Phe Pro Arg Asp Met Glu Asn Asp Lys Ala Met Leu Ile Met Thr
165 170 175

Met Leu Leu Ala Lys Lys Val Ala Ser His Ala Pro Ser Leu Leu Arg
180 185 190

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

Tyr Val Arg Asn Leu Val Arg Asn Glu Met Asp
210 215

<210> 147
<211> 243
<212> PRT
<213> Artificial Sequence

<220>
<223> SopE1-105 - S. enterica codon optimized murine t-BID

<400> 147

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
65 70 75 80

Lys Val Val Lys Asp Phe Met Leu Gln Thr Leu Asn Asp Ile Asp Ile
85 90 95

Arg Gly Ser Ala Ser Lys Asp Pro Ala Gly Thr Gly Ser Gln Ala Ser
100 105 110

Arg Ser Phe Asn Gln Gly Arg Ile Glu Pro Asp Ser Glu Ser Gln Glu
115 120 125

Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly Asp Glu
130 135 140

Met Asp His Asn Ile Gln Pro Thr Leu Val Arg Gln Leu Ala Ala Gln
145 150 155 160

Phe Met Asn Gly Ser Leu Ser Glu Glu Asp Lys Arg Asn Cys Leu Ala
165 170 175

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

Asp Lys Ala Met Leu Ile Met Thr Met Leu Leu Ala Lys Lys Val Ala
195 200 205

Ser His Ala Pro Ser Leu Leu Arg Asp Val Phe His Thr Thr Val Asn
210 215 220

Phe Ile Asn Gln Asn Leu Phe Ser Tyr Val Arg Asn Leu Val Arg Asn
225 230 235 240

Glu Met Asp

<210> 148
<211> 82
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_677

<400> 148
ttactattcg aagaaattat tcataatatt gcccgccatc tggcccaaat tggatgatgaa 60
atggatcatt aagcttggag ta 82

<210> 149
<211> 82
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_678

<400> 149
tactccaagc ttaatgatcc atttcatcac caatttgggc cagatggcgg gcaatattat 60
gaataatttc ttcgaatagt aa 82

<210> 150
<211> 73
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_682

<400> 150
ttactactcg agaaaaaact gagcgaatgt ctgcgccgca ttggtgatga actggatagc 60
taagcttgga gta 73

<210> 151
<211> 73
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_683

<400> 151
tactccaagc ttagctatcc agttcatcac caatgcggcg cagacattcg ctcagttttt 60
tctcgagtag taa 73

<210> 152
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_580

<400> 152
catgccatgg atttatgggtc atagatatga cctc 34

<210> 153
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_612

<400> 153
cggggtacca tgaggtagct tatttcctga taaag 35

<210> 154
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_613

<400> 154
cggggtacca taattgtcca aatagttatg gtagc 35

<210> 155
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_614

<400> 155
catgccatggc ggcaaggctc ctc 24

<210> 156
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_615

<400> 156
cggggtacct ttatttgtca acactgccc

29

<210> 157
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_616

<400> 157
cggggtacct gcggggtctt tactcg

26

<210> 158
<211> 164
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138-Y. enterocolitica codon optimized Ink4A 84-103

<400> 158

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu

65					70						75				80
Gly	Ser	His	Lys	Pro	Val	Val	Thr	Pro	Ala	Leu	Thr	Pro	Ala	Gln	Met
				85					90					95	
Pro	Ser	Pro	Thr	Ser	Phe	Ser	Asp	Ser	Ile	Lys	Gln	Leu	Ala	Ala	Glu
			100					105					110		
Thr	Leu	Pro	Lys	Tyr	Met	Gln	Gln	Leu	Ser	Ser	Leu	Asp	Ala	Glu	Thr
		115					120					125			
Leu	Gln	Lys	Asn	His	Asp	Gln	Phe	Ala	Thr	Leu	Glu	Gly	Ala	Ile	Asp
	130					135					140				
Asp	Ala	Ala	Arg	Glu	Gly	Phe	Leu	Asp	Thr	Leu	Val	Val	Leu	His	Arg
145					150					155					160

Ala Gly Ala Arg

<210> 159
 <211> 164
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138-Y. enterocolitica codon optimized p107/RBL1 657-662 (AAA02489.1)

<400> 159

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

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Gly Pro Val Lys Arg
145 150 155 160

Arg Leu Phe Gly

<210> 160
<211> 164
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138-Y. enterocolitica codon optimized p21 141-160
(AAH13967.1)

<400> 160

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser

50

55

60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Lys Arg Arg Gln Thr Ser Met Thr Ala Phe Tyr His Ser Lys Arg Arg
145 150 155 160

Leu Ile Phe Ser

<210> 161

<211> 160

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138-Y. enterocolitica codon optimized p21 145-160
(AAH13967.1)

<400> 161

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Thr Ser Met Thr Ala Phe Tyr His Ser Lys Arg Arg Leu Ile Phe Ser
145 150 155 160

<210> 162
<211> 161
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138-Y. enterocolitica codon optimized p21 17-33
(AAH13967.1)

<400> 162

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser

50

55

60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Ala Cys Arg Arg Leu Phe Gly Pro Val Asp Ser Glu Gln Leu Ser Arg
145 150 155 160

Asp

<210> 163

<211> 153

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138-Y. enterocolitica codon optimized cyclin D2 139-147 (CAA48493.1)

<400> 163

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Trp Glu Leu Val Val Leu Gly Lys Leu
145 150

<210> 164
<211> 397
<212> PRT
<213> Artificial Sequence

<220>
<223> SteA-Ink4a-MycHis

<400> 164

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

Lys Leu Pro His Val Ala Ala Gly Asp Tyr Glu Asn Lys Leu Ser Thr
20 25 30

Lys Ile Met Lys Gly Ile Leu Tyr Val Leu Thr Ala Gly Leu Ala Tyr
35 40 45

Gly Phe Thr Arg Val Ile Glu His Tyr Cys Asn Val Thr Pro Lys Val
50 55 60

Ala Glu Phe Cys Ala Asn Ala Gly Asn Ile His Asn His Leu Ala Asp
65 70 75 80

Ala Val Arg Asp Gly Leu Phe Thr Ile Asp Val Glu Leu Ser Asp Gly
85 90 95

Arg Met Leu Thr Phe Glu Gln Leu Ser Leu Ile Ala Glu Gly Lys Pro
100 105 110

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

Phe Glu Glu Ile Cys Met Arg Leu Glu Glu Gly Phe Phe Glu Ala Pro
130 135 140

Ala Tyr Tyr Asp Tyr Asp Ile Asp Glu Lys Tyr Lys Thr Val Arg Glu
145 150 155 160

Arg Met Ala Ala Tyr Asn Ala Leu Pro Gln Ala Leu Gly Ala Ile Pro
165 170 175

Cys Leu Glu Tyr Tyr Ile Ala Arg Ala Ser Asn Met Gln Glu Ala Lys
180 185 190

Ala Gln Trp Ala Ala Asp Ile Lys Ala Arg Tyr His Asn Tyr Leu Asp
195 200 205

Asn Tyr Gly Thr Ile Trp Glu Phe Met Glu Pro Ala Ala Gly Ser Ser
210 215 220

Met Glu Pro Ser Ala Asp Trp Leu Ala Thr Ala Ala Ala Arg Gly Arg
225 230 235 240

Val Glu Glu Val Arg Ala Leu Leu Glu Ala Gly Ala Leu Pro Asn Ala
245 250 255

Pro Asn Ser Tyr Gly Arg Arg Pro Ile Gln Val Met Met Met Gly Ser
260 265 270

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

Ala Asp Pro Ala Thr Leu Thr Arg Pro Val His Asp Ala Ala Arg Glu
290 295 300

Gly Phe Leu Asp Thr Leu Val Val Leu His Arg Ala Gly Ala Arg Leu
305 310 315 320

Asp Val Arg Asp Ala Trp Gly Arg Leu Pro Val Asp Leu Ala Glu Glu
325 330 335

Leu Gly His Arg Asp Val Ala Arg Tyr Leu Arg Ala Ala Ala Gly Gly
340 345 350

Thr Arg Gly Ser Asn His Ala Arg Ile Asp Ala Ala Glu Gly Pro Ser
355 360 365

Asp Ile Pro Asp Lys Leu Gly Pro Glu Gln Lys Leu Ile Ser Glu Glu
370 375 380

Asp Leu Asn Ser Ala Val Asp His His His His His His
385 390 395

<210> 165
<211> 292
<212> PRT
<213> Artificial Sequence

<220>
<223> SopE1-105-Ink4a-MycHis

<400> 165

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
65 70 75 80

Lys Val Val Lys Asp Phe Met Leu Gln Thr Leu Asn Asp Ile Asp Ile
85 90 95

Arg Gly Ser Ala Ser Lys Asp Pro Ala Gly Thr Ile Trp Glu Phe Met
100 105 110

Glu Pro Ala Ala Gly Ser Ser Met Glu Pro Ser Ala Asp Trp Leu Ala
115 120 125

Thr Ala Ala Ala Arg Gly Arg Val Glu Glu Val Arg Ala Leu Leu Glu
130 135 140

Ala Gly Ala Leu Pro Asn Ala Pro Asn Ser Tyr Gly Arg Arg Pro Ile
145 150 155 160

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

His Gly Ala Glu Pro Asn Cys Ala Asp Pro Ala Thr Leu Thr Arg Pro
180 185 190

Val His Asp Ala Ala Arg Glu Gly Phe Leu Asp Thr Leu Val Val Leu
195 200 205

His Arg Ala Gly Ala Arg Leu Asp Val Arg Asp Ala Trp Gly Arg Leu
210 215 220

Pro Val Asp Leu Ala Glu Glu Leu Gly His Arg Asp Val Ala Arg Tyr
225 230 235 240

Leu Arg Ala Ala Ala Gly Gly Thr Arg Gly Ser Asn His Ala Arg Ile
245 250 255

Asp Ala Ala Glu Gly Pro Ser Asp Ile Pro Asp Lys Leu Gly Pro Glu
260 265 270

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

His His His His
290

<210> 166
<211> 409
<212> PRT
<213> Artificial Sequence

<220>
<223> SteA-Ink4c-MycHis

<400> 166

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

Lys Leu Pro His Val Ala Ala Gly Asp Tyr Glu Asn Lys Leu Ser Thr
20 25 30

Lys Ile Met Lys Gly Ile Leu Tyr Val Leu Thr Ala Gly Leu Ala Tyr
35 40 45

Gly Phe Thr Arg Val Ile Glu His Tyr Cys Asn Val Thr Pro Lys Val
50 55 60

Ala Glu Phe Cys Ala Asn Ala Gly Asn Ile His Asn His Leu Ala Asp
65 70 75 80

Ala Val Arg Asp Gly Leu Phe Thr Ile Asp Val Glu Leu Ser Asp Gly
85 90 95

Arg Met Leu Thr Phe Glu Gln Leu Ser Leu Ile Ala Glu Gly Lys Pro
100 105 110

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

Phe Glu Glu Ile Cys Met Arg Leu Glu Glu Gly Phe Phe Glu Ala Pro
130 135 140

Ala Tyr Tyr Asp Tyr Asp Ile Asp Glu Lys Tyr Lys Thr Val Arg Glu
145 150 155 160

Arg Met Ala Ala Tyr Asn Ala Leu Pro Gln Ala Leu Gly Ala Ile Pro
165 170 175

Cys Leu Glu Tyr Tyr Ile Ala Arg Ala Ser Asn Met Gln Glu Ala Lys
180 185 190

Ala Gln Trp Ala Ala Asp Ile Lys Ala Arg Tyr His Asn Tyr Leu Asp
195 200 205

Asn Tyr Gly Thr Ile Trp Glu Phe Met Ala Glu Pro Trp Gly Asn Glu
210 215 220

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

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

Ala Leu Gln Val Met Lys Leu Gly Asn Pro Glu Ile Ala Arg Arg Leu
260 265 270

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

Val Ile His Asp Ala Ala Arg Ala Gly Phe Leu Asp Thr Leu Gln Thr
290 295 300

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

Leu Pro Leu His Leu Ala Ala Lys Glu Gly His Leu Arg Val Val Glu
325 330 335

Phe Leu Val Lys His Thr Ala Ser Asn Val Gly His Arg Asn His Lys
340 345 350

Gly Asp Thr Ala Cys Asp Leu Ala Arg Leu Tyr Gly Arg Asn Glu Val
355 360 365

Val Ser Leu Met Gln Ala Asn Gly Ala Gly Gly Ala Thr Asn Leu Gln
370 375 380

Lys Leu Gly Pro Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Ser
385 390 395 400

Ala Val Asp His His His His His His
405

<210> 167
<211> 304
<212> PRT
<213> Artificial Sequence

<220>
<223> SopE1-105-Ink4c-MycHis

<400> 167

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
65 70 75 80

Lys Val Val Lys Asp Phe Met Leu Gln Thr Leu Asn Asp Ile Asp Ile
85 90 95

Arg Gly Ser Ala Ser Lys Asp Pro Ala Gly Thr Ile Trp Glu Phe Met
100 105 110

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

Leu Glu Gln Leu Thr Ser Leu Leu Gln Asn Asn Val Asn Val Asn Ala
130 135 140

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

Pro Glu Ile Ala Arg Arg Leu Leu Leu Arg Gly Ala Asn Pro Asp Leu
165 170 175

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

Phe Leu Asp Thr Leu Gln Thr Leu Leu Glu Phe Gln Ala Asp Val Asn
195 200 205

Ile Glu Asp Asn Glu Gly Asn Leu Pro Leu His Leu Ala Ala Lys Glu
210 215 220

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

Val Gly His Arg Asn His Lys Gly Asp Thr Ala Cys Asp Leu Ala Arg
245 250 255

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

Gly Gly Ala Thr Asn Leu Gln Lys Leu Gly Pro Glu Gln Lys Leu Ile
275 280 285

Ser Glu Glu Asp Leu Asn Ser Ala Val Asp His His His His His His
290 295 300

<210> 168
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> SteA-Mad2-MycHis

<400> 168

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

Lys Leu Pro His Val Ala Ala Gly Asp Tyr Glu Asn Lys Leu Ser Thr
20 25 30

Lys Ile Met Lys Gly Ile Leu Tyr Val Leu Thr Ala Gly Leu Ala Tyr
35 40 45

Gly Phe Thr Arg Val Ile Glu His Tyr Cys Asn Val Thr Pro Lys Val
50 55 60

Ala Glu Phe Cys Ala Asn Ala Gly Asn Ile His Asn His Leu Ala Asp
65 70 75 80

Ala Val Arg Asp Gly Leu Phe Thr Ile Asp Val Glu Leu Ser Asp Gly
85 90 95

Arg Met Leu Thr Phe Glu Gln Leu Ser Leu Ile Ala Glu Gly Lys Pro
100 105 110

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

Phe Glu Glu Ile Cys Met Arg Leu Glu Glu Gly Phe Phe Glu Ala Pro
130 135 140

Ala Tyr Tyr Asp Tyr Asp Ile Asp Glu Lys Tyr Lys Thr Val Arg Glu
145 150 155 160

Arg Met Ala Ala Tyr Asn Ala Leu Pro Gln Ala Leu Gly Ala Ile Pro
165 170 175

Cys Leu Glu Tyr Tyr Ile Ala Arg Ala Ser Asn Met Gln Glu Ala Lys
180 185 190

Ala Gln Trp Ala Ala Asp Ile Lys Ala Arg Tyr His Asn Tyr Leu Asp
195 200 205

Asn Tyr Gly Thr Ile Trp Glu Phe Met Ala Leu Gln Leu Ser Arg Glu
210 215 220

Gln Gly Ile Thr Leu Arg Gly Ser Ala Glu Ile Val Ala Glu Phe Phe
225 230 235 240

Ser Phe Gly Ile Asn Ser Ile Leu Tyr Gln Arg Gly Ile Tyr Pro Ser
245 250 255

Glu Thr Phe Thr Arg Val Gln Lys Tyr Gly Leu Thr Leu Leu Val Thr
260 265 270

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

Lys Asp Trp Leu Tyr Lys Cys Ser Val Gln Lys Leu Val Val Val Ile
290 295 300

Ser Asn Ile Glu Ser Gly Glu Val Leu Glu Arg Trp Gln Phe Asp Ile
305 310 315 320

Glu Cys Asp Lys Thr Ala Lys Asp Asp Ser Ala Pro Arg Glu Lys Ser
325 330 335

Gln Lys Ala Ile Gln Asp Glu Ile Arg Ser Val Ile Arg Gln Ile Thr
340 345 350

Ala Thr Val Thr Phe Leu Pro Leu Leu Glu Val Ser Cys Ser Phe Asp
355 360 365

Leu Leu Ile Tyr Thr Asp Lys Asp Leu Val Val Pro Glu Lys Trp Glu
370 375 380

Glu Ser Gly Pro Gln Phe Ile Thr Asn Ser Glu Glu Val Arg Leu Arg
 385 390 395 400

Ser Phe Thr Thr Thr Ile His Lys Val Asn Ser Met Val Ala Tyr Lys
 405 410 415

Ile Pro Val Asn Asp Lys Leu Gly Pro Glu Gln Lys Leu Ile Ser Glu
 420 425 430

Glu Asp Leu Asn Ser Ala Val Asp His His His His His His
 435 440 445

<210> 169
 <211> 341
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> SopE1-105-Mad2-MycHis

<400> 169

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
 1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
 20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
 50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
 65 70 75 80

Lys Val Val Lys Asp Phe Met Leu Gln Thr Leu Asn Asp Ile Asp Ile
 85 90 95

Arg Gly Ser Ala Ser Lys Asp Pro Ala Gly Thr Ile Trp Glu Phe Met
 100 105 110

Ala Leu Gln Leu Ser Arg Glu Gln Gly Ile Thr Leu Arg Gly Ser Ala
115 120 125

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

Gln Arg Gly Ile Tyr Pro Ser Glu Thr Phe Thr Arg Val Gln Lys Tyr
145 150 155 160

Gly Leu Thr Leu Leu Val Thr Thr Asp Leu Glu Leu Ile Lys Tyr Leu
165 170 175

Asn Asn Val Val Glu Gln Leu Lys Asp Trp Leu Tyr Lys Cys Ser Val
180 185 190

Gln Lys Leu Val Val Val Ile Ser Asn Ile Glu Ser Gly Glu Val Leu
195 200 205

Glu Arg Trp Gln Phe Asp Ile Glu Cys Asp Lys Thr Ala Lys Asp Asp
210 215 220

Ser Ala Pro Arg Glu Lys Ser Gln Lys Ala Ile Gln Asp Glu Ile Arg
225 230 235 240

Ser Val Ile Arg Gln Ile Thr Ala Thr Val Thr Phe Leu Pro Leu Leu
245 250 255

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

Val Val Pro Glu Lys Trp Glu Glu Ser Gly Pro Gln Phe Ile Thr Asn
275 280 285

Ser Glu Glu Val Arg Leu Arg Ser Phe Thr Thr Thr Ile His Lys Val
290 295 300

Asn Ser Met Val Ala Tyr Lys Ile Pro Val Asn Asp Lys Leu Gly Pro
305 310 315 320

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

His His His His His
340

<210> 170
<211> 538
<212> PRT
<213> Artificial Sequence

<220>
<223> SteA-Cdk1-MycHis

<400> 170

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

Lys Leu Pro His Val Ala Ala Gly Asp Tyr Glu Asn Lys Leu Ser Thr
20 25 30

Lys Ile Met Lys Gly Ile Leu Tyr Val Leu Thr Ala Gly Leu Ala Tyr
35 40 45

Gly Phe Thr Arg Val Ile Glu His Tyr Cys Asn Val Thr Pro Lys Val
50 55 60

Ala Glu Phe Cys Ala Asn Ala Gly Asn Ile His Asn His Leu Ala Asp
65 70 75 80

Ala Val Arg Asp Gly Leu Phe Thr Ile Asp Val Glu Leu Ser Asp Gly
85 90 95

Arg Met Leu Thr Phe Glu Gln Leu Ser Leu Ile Ala Glu Gly Lys Pro
100 105 110

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

Phe Glu Glu Ile Cys Met Arg Leu Glu Glu Gly Phe Phe Glu Ala Pro
130 135 140

Ala Tyr Tyr Asp Tyr Asp Ile Asp Glu Lys Tyr Lys Thr Val Arg Glu
145 150 155 160

Arg Met Ala Ala Tyr Asn Ala Leu Pro Gln Ala Leu Gly Ala Ile Pro
165 170 175

Cys Leu Glu Tyr Tyr Ile Ala Arg Ala Ser Asn Met Gln Glu Ala Lys
180 185 190

Ala Gln Trp Ala Ala Asp Ile Lys Ala Arg Tyr His Asn Tyr Leu Asp
195 200 205

Asn Tyr Gly Thr Ile Trp Glu Phe Met Glu Asp Tyr Thr Lys Ile Glu
210 215 220

Lys Ile Gly Glu Gly Thr Tyr Gly Val Val Tyr Lys Gly Arg His Lys
225 230 235 240

Thr Thr Gly Gln Val Val Ala Met Lys Lys Ile Arg Leu Glu Ser Glu
245 250 255

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

Glu Leu Arg His Pro Asn Ile Val Ser Leu Gln Asp Val Leu Met Gln
275 280 285

Asp Ser Arg Leu Tyr Leu Ile Phe Glu Phe Leu Ser Met Asp Leu Lys
290 295 300

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

Val Lys Ser Tyr Leu Tyr Gln Ile Leu Gln Gly Ile Val Phe Cys His
325 330 335

Ser Arg Arg Val Leu His Arg Asp Leu Lys Pro Gln Asn Leu Leu Ile
340 345 350

Asp Asp Lys Gly Thr Ile Lys Leu Ala Asp Phe Gly Leu Ala Arg Ala
355 360 365

Phe Gly Ile Pro Ile Arg Val Tyr Thr His Glu Val Val Thr Leu Trp
370 375 380

Tyr Arg Ser Pro Glu Val Leu Leu Gly Ser Ala Arg Tyr Ser Thr Pro
385 390 395 400

Val Asp Ile Trp Ser Ile Gly Thr Ile Phe Ala Glu Leu Ala Thr Lys
405 410 415

Lys Pro Leu Phe His Gly Asp Ser Glu Ile Asp Gln Leu Phe Arg Ile
420 425 430

Phe Arg Ala Leu Gly Thr Pro Asn Asn Glu Val Trp Pro Glu Val Glu
435 440 445

Ser Leu Gln Asp Tyr Lys Asn Thr Phe Pro Lys Trp Lys Pro Gly Ser
450 455 460

Leu Ala Ser His Val Lys Asn Leu Asp Glu Asn Gly Leu Asp Leu Leu
465 470 475 480

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

Ala Leu Asn His Pro Tyr Phe Asn Asp Leu Asp Asn Gln Ile Lys Lys
500 505 510

Met Lys Leu Gly Pro Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn
515 520 525

Ser Ala Val Asp His His His His His His
530 535

<210> 171
<211> 433
<212> PRT
<213> Artificial Sequence

<220>

<223> SopE1-105-Cdk1-MycHis

<400> 171

Val Thr Lys Ile Thr Leu Ser Pro Gln Asn Phe Arg Ile Gln Lys Gln
1 5 10 15

Glu Thr Thr Leu Leu Lys Glu Lys Ser Thr Glu Lys Asn Ser Leu Ala
20 25 30

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

Leu Ser Glu Arg Phe Ile Ser His Lys Asn Thr Glu Ser Ser Ala Thr
50 55 60

His Phe His Arg Gly Ser Ala Ser Glu Gly Arg Ala Val Leu Thr Asn
65 70 75 80

Lys Val Val Lys Asp Phe Met Leu Gln Thr Leu Asn Asp Ile Asp Ile
85 90 95

Arg Gly Ser Ala Ser Lys Asp Pro Ala Gly Thr Ile Trp Glu Phe Met
100 105 110

Glu Asp Tyr Thr Lys Ile Glu Lys Ile Gly Glu Gly Thr Tyr Gly Val
115 120 125

Val Tyr Lys Gly Arg His Lys Thr Thr Gly Gln Val Val Ala Met Lys
130 135 140

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

Arg Glu Ile Ser Leu Leu Lys Glu Leu Arg His Pro Asn Ile Val Ser
165 170 175

Leu Gln Asp Val Leu Met Gln Asp Ser Arg Leu Tyr Leu Ile Phe Glu
180 185 190

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

Gln Tyr Met Asp Ser Ser Leu Val Lys Ser Tyr Leu Tyr Gln Ile Leu
210 215 220

Gln Gly Ile Val Phe Cys His Ser Arg Arg Val Leu His Arg Asp Leu
225 230 235 240

Lys Pro Gln Asn Leu Leu Ile Asp Asp Lys Gly Thr Ile Lys Leu Ala
245 250 255

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

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

Ser Ala Arg Tyr Ser Thr Pro Val Asp Ile Trp Ser Ile Gly Thr Ile
290 295 300

Phe Ala Glu Leu Ala Thr Lys Lys Pro Leu Phe His Gly Asp Ser Glu
305 310 315 320

Ile Asp Gln Leu Phe Arg Ile Phe Arg Ala Leu Gly Thr Pro Asn Asn
325 330 335

Glu Val Trp Pro Glu Val Glu Ser Leu Gln Asp Tyr Lys Asn Thr Phe
340 345 350

Pro Lys Trp Lys Pro Gly Ser Leu Ala Ser His Val Lys Asn Leu Asp
355 360 365

Glu Asn Gly Leu Asp Leu Leu Ser Lys Met Leu Ile Tyr Asp Pro Ala
370 375 380

Lys Arg Ile Ser Gly Lys Met Ala Leu Asn His Pro Tyr Phe Asn Asp
385 390 395 400

Leu Asp Asn Gln Ile Lys Lys Met Lys Leu Gly Pro Glu Gln Lys Leu
405 410 415

Ile Ser Glu Glu Asp Leu Asn Ser Ala Val Asp His His His His His
420 425 430

His

<210> 172
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_745

<400> 172
catgctcgag ggtgccatcg atgatgccgc ccgcgaaggt tttctggata ccctggtggt 60
gctgcatcgc gccggtgccc gctaattcga acatg 95

<210> 173
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_746

<400> 173
catgttcgaa ttagcgggca ccggcgcgat gcagcaccac cagggtatcc agaaaacctt 60
cgcgggcggc atcatcgatg gcaccctcga gcatg 95

<210> 174
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_747

<400> 174
catgctcgag ggtgccatcg attatggtcg caaaaaacgc cgccaacgcc gccgcggtcc 60
ggtgaaacgc cgcctgtttg gttaattcga acatg 95

<210> 175
 <211> 95
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_748

 <400> 175
 catgttcgaa ttaaccaaac aggcggcggtt tcaccggacc gcggcggcgt tggcggcggtt 60
 ttttgcgacc ataatcgatg gcaccctcga gcatg 95

 <210> 176
 <211> 95
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_749

 <400> 176
 catgctcgag ggtgccatcg ataaacgccg ccaaaccagc atgaccgcct tttatcatag 60
 caaacgccgc ctgattttta gctaattcga acatg 95

 <210> 177
 <211> 95
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_750

 <400> 177
 catgttcgaa ttagctaaaa atcaggcggc gtttgctatg ataaaaggcg gtcatgctgg 60
 tttggcggcg tttatcgatg gcaccctcga gcatg 95

 <210> 178
 <211> 83
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_753

 <400> 178
 catgctcgag ggtgccatcg ataccagcat gaccgccttt tatcatagca aacgccgcct 60

gatttttagc taattcgaac atg 83

<210> 179
<211> 83
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_754

<400> 179
catgttcgaa ttagctaaaa atcaggcggc gtttgctatg ataaaaggcg gtcatgctgg 60
tatcgatggc accctcgagc atg 83

<210> 180
<211> 86
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_755

<400> 180
catgctcgag ggtgccatcg atgcctgtcg ccgcctgttt ggtccggtgg atagcgaaca 60
actgagccgc gattaattcg aacatg 86

<210> 181
<211> 86
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_756

<400> 181
catgttcgaa ttaatcgagg ctgagttgtt cgctatccac cggaccaaac aggcggcgac 60
aggcatcgat ggcaccctcg agcatg 86

<210> 182
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_757

<400> 182
catgctcgag ggtgccatcg attgggaact ggtggtgctg ggtaaactgt aattcgaaca 60
tg 62

<210> 183
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_758

<400> 183
catgttcgaa ttacagttta cccagcacca ccagttccca atcgatggca ccctcgagca 60
tg 62

<210> 184
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_703

<400> 184
gacatggaat tcatggagcc ggcggcg 27

<210> 185
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_704

<400> 185
catgaagctt atcggggatg tctgaggg 28

<210> 186
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_705

<400> 186
gacatggaat tcatggccga gccttgggg 29

<210> 187
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_706

<400> 187
gttaacatca gcttgaaact ccagcaaagt ctgtaaagtg tccaggaaac c 51

<210> 188
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_707

<400> 188
ggtttcctgg acactttaca gactttgctg gagtttcaag ctgatgttaa c 51

<210> 189
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_708

<400> 189
catgaagctt ttgaagattt gtggctcccc 30

<210> 190
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_709

<400> 190
gacatggaat tcatggcgct gcagctctcc 30

<210> 191

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

 <220>
 <223> Primer No. : Si_710

 <400> 191
 catgaagctt gtcattgaca ggaattttgt agg 33

<210> 192
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_711

 <400> 192
 gacatggaat tcatggaaga ttatacaaaa atagagaa 38

<210> 193
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer No. : Si_712

 <400> 193
 catgaagctt catcttctta atctgattgt ccaa 34

<210> 194
 <211> 276
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> YopE1-138-Y. enterocolitica codon optimized murine tBid

 <400> 194

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

 Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Gly Ser Gln Ala
130 135 140

Ser Arg Ser Phe Asn Gln Gly Arg Ile Glu Pro Asp Ser Glu Ser Gln
145 150 155 160

Glu Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly Asp
165 170 175

Glu Met Asp His Asn Ile Gln Pro Thr Leu Val Arg Gln Leu Ala Ala
180 185 190

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

Ala Lys Ala Leu Asp Glu Val Lys Thr Ala Phe Pro Arg Asp Met Glu
210 215 220

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

Ala Ser His Ala Pro Ser Leu Leu Arg Asp Val Phe His Thr Thr Val

245

250

255

Asn Phe Ile Asn Gln Asn Leu Phe Ser Tyr Val Arg Asn Leu Val Arg
 260 265 270

Asn Glu Met Asp
 275

<210> 195
 <211> 245
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138-Ubiquitin

<400> 195

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
 115 120 125

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

Val Lys Thr Leu Thr Gly Lys Thr Ile Thr Leu Glu Val Glu Pro Ser
 145 150 155 160

Asp Thr Ile Glu Asn Val Lys Ala Lys Ile Gln Asp Lys Glu Gly Ile
 165 170 175

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

Gly Arg Thr Leu Ser Asp Tyr Asn Ile Gln Lys Glu Ser Thr Leu His
 195 200 205

Leu Val Leu Arg Leu Arg Gly Gly Phe Glu Ala Ser Lys Leu Gly Pro
 210 215 220

Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Ser Ala Val Asp His
 225 230 235 240

His His His His His
 245

<210> 196
 <211> 419
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YopE1-138-Ubiquitin-Flag-INK4C-MycHis

<400> 196

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
 20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Val Lys Thr Leu Thr Gly Lys Thr Ile Thr Leu Glu Val Glu Pro Ser
145 150 155 160

Asp Thr Ile Glu Asn Val Lys Ala Lys Ile Gln Asp Lys Glu Gly Ile
165 170 175

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

Gly Arg Thr Leu Ser Asp Tyr Asn Ile Gln Lys Glu Ser Thr Leu His
195 200 205

Leu Val Leu Arg Leu Arg Gly Gly Phe Glu Asp Tyr Lys Asp Asp Asp
210 215 220

Asp Lys Met Ala Glu Pro Trp Gly Asn Glu Leu Ala Ser Ala Ala Ala
225 230 235 240

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

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

Leu Gly Asn Pro Glu Ile Ala Arg Arg Leu Leu Leu Arg Gly Ala Asn
275 280 285

Pro Asp Leu Lys Asp Arg Thr Gly Phe Ala Val Ile His Asp Ala Ala
290 295 300

Arg Ala Gly Phe Leu Asp Thr Leu Gln Ala Leu Pro Glu Phe Gln Ala
305 310 315 320

Asp Val Asn Ile Glu Asp Asn Glu Gly Asn Leu Pro Leu His Leu Ala
325 330 335

Ala Lys Glu Gly His Leu Arg Val Val Glu Phe Leu Val Lys His Thr
340 345 350

Ala Ser Asn Val Gly His Arg Asn His Lys Gly Asp Thr Ala Cys Asp
355 360 365

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

Asn Gly Ala Gly Gly Ala Thr Asn Leu Gln Lys Leu Gly Pro Glu Gln
385 390 395 400

Lys Leu Ile Ser Glu Glu Asp Leu Asn Ser Ala Val Asp His His His
405 410 415

His His His

<210> 197
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_585

<400> 197

cagtctcgag atgcagatct tcgtcaagac 30

<210> 198
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_586

<400> 198
gttaaagctt gctagcttcg aaaccaccac gtagacgtaa gac 43

<210> 199
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer No. : Si_588

<400> 199
cagtttcgaa gattataaag atgatgatga taaaatggcc gaggccttg 48

<210> 200
<211> 165
<212> PRT
<213> Artificial Sequence

<220>
<223> YopE1-138 - Y. enterocolitica codon optimized murine BID BH3 part

<400> 200

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Ala Glu Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly
145 150 155 160

Asp Glu Met Asp His
165

<210> 201

<211> 161

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - Y. enterocolitica codon optimized murine Bax BH3 part

<400> 201

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Ala Lys Lys Leu Ser Glu Cys Leu Arg Arg Ile Gly Asp Glu Leu Asp
145 150 155 160

Ser

<210> 202

<211> 190

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - (Y. enterocolitica codon optimized murine BID BH3
part) 2

<400> 202

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser

50

55

60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Ala Glu Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly
145 150 155 160

Asp Glu Met Asp His Gly Ala Phe Asp Ala Glu Glu Ile Ile His Asn
165 170 175

Ile Ala Arg His Leu Ala Gln Ile Gly Asp Glu Met Asp His
180 185 190

<210> 203

<211> 186

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138 - (Y. enterocolitica codon optimized murine BID BH3
part)(Y. enterocolitica codon optimized murine Bax BH3 part)

<400> 203

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
 50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
 65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
 115 120 125

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

Ala Glu Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly
 145 150 155 160

Asp Glu Met Asp His Gly Ala Phe Asp Ala Lys Lys Leu Ser Glu Cys
 165 170 175

Leu Arg Arg Ile Gly Asp Glu Leu Asp Ser
 180 185

<210> 204
 <211> 53
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer No. 733

<400> 204
 ttactactcg aggggtgcat cgatgccgaa gaaattattc ataattattgc ccg

53

<210> 205
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 735

 <400> 205
 tactccttcg aattaatgat ccatttcac accaatttg 39

<210> 206
 <211> 50
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 736

 <400> 206
 ttactactcg agggtgccat cgatgccaaa aaactgagcg aatgtctgcg 50

<210> 207
 <211> 37
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 738

 <400> 207
 tactccttcg aattagctat ccagttcac accaatg 37

<210> 208
 <211> 43
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 734

 <400> 208
 tactccttcg aaggcaccat gatccatttc atcaccaatt tgg 43

<210> 209
 <211> 20
 <212> PRT
 <213> Mus musculus

<400> 209

Glu Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly Asp
1 5 10 15

Glu Met Asp His
20

<210> 210
<211> 14
<212> PRT
<213> Mus musculus

<400> 210

Ile Ala Arg His Leu Ala Gln Ile Gly Asp Glu Met Asp His
1 5 10

<210> 211
<211> 20
<212> PRT
<213> Homo sapiens

<400> 211

Glu Asp Ile Ile Arg Asn Ile Ala Arg His Leu Ala Gln Val Gly Asp
1 5 10 15

Ser Met Asp Arg
20

<210> 212
<211> 15
<212> PRT
<213> Homo sapiens

<400> 212

Ile Ala Arg His Leu Ala Gln Val Gly Asp Ser Met Asp Arg Ser
1 5 10 15

<210> 213
<211> 17
<212> PRT
<213> Mus musculus

<400> 213

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

Asn

<210> 214
<211> 14
<212> PRT
<213> Mus musculus

<400> 214

Leu Ser Glu Cys Leu Arg Arg Ile Gly Asp Glu Leu Asp Ser
1 5 10

<210> 215
<211> 17
<212> PRT
<213> Homo sapiens

<400> 215

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

Asn

<210> 216
<211> 14
<212> PRT
<213> Homo sapiens

<400> 216

Leu Ser Glu Cys Leu Lys Arg Ile Gly Asp Glu Leu Asp Ser
1 5 10

<210> 217
<211> 167
<212> PRT
<213> Artificial Sequence

<220>

<223> YopE1-138- codon optimized murine tBid BH3 extended part

<400> 217

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Phe Glu
130 135 140

Glu Ile Ile His Asn Ile Ala Arg His Leu Ala Gln Ile Gly Asp Glu
145 150 155 160

Met Asp His Asn Ile Gln Pro
165

<210> 218

<211> 168

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-138-10 Aa linker - Y. enterocolitica codon optimized murine

tBid BH3 part

<400> 218

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

Leu Gln Lys Asn His Asp Gln Phe Ala Thr Leu Glu Ser Arg Phe Glu
130 135 140

Ala Gly Gly Ala Glu Glu Ile Ile His Asn Ile Ala Arg His Leu Ala
145 150 155 160

Gln Ile Gly Asp Glu Met Asp His
165

<210> 219

<211> 186

<212> PRT

<213> Artificial Sequence

<220>

<223> YopE1-(138-Y. enterocolitica codon optimized murine Bax BH3 part-
Y. enterocolitica codon optimized murine tBid BH3 part

<400> 219

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

Val Ser Gly Ser Ser Ser Val Gly Glu Met Ser Gly Arg Ser Val Ser
20 25 30

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

Ser Pro Gln Gly Ser Ser Leu Ala Ser Arg Ile Ile Glu Arg Leu Ser
50 55 60

Ser Met Ala His Ser Val Ile Gly Phe Ile Gln Arg Met Phe Ser Glu
65 70 75 80

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

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

Thr Leu Pro Lys Tyr Met Gln Gln Leu Ser Ser Leu Asp Ala Glu Thr
115 120 125

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

Ala Lys Lys Leu Ser Glu Cys Leu Arg Arg Ile Gly Asp Glu Leu Asp
145 150 155 160

Ser Gly Ala Phe Asp Ala Glu Glu Ile Ile His Asn Ile Ala Arg His
165 170 175

Leu Ala Gln Ile Gly Asp Glu Met Asp His
180 185

<210> 220
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 725

 <400> 220
 ttactattcg aagaaattat tcataatatt gcc 33

 <210> 221
 <211> 50
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 726

 <400> 221
 tactccaagc ttacggttga atattatgat ccatttcatc accaatttgg 50

 <210> 222
 <211> 49
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 727

 <400> 222
 ttactattcg aagccggtgg tgccgaagaa attattcata atattgccc 49

 <210> 223
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer No. 728

 <400> 223
 tactccaagc ttaatgatcc atttcatca 29

 <210> 224
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>

<223> primer No. 737

<400> 224

tactccttcg aaggcaccgc tatccagttc atcaccaatg

40