

SEQUENCE LISTING

<110> Impossible Foods Inc.

<120> MATERIALS AND METHODS FOR PROTEIN PRODUCTION

<130> 38767-0193W01

<150> US 62/835,338

<151> 2019-04-17

<160> 37

<170> PatentIn version 3.5

<210> 1

<211> 161

<212> PRT

<213> Vigna radiata

<400> 1

Met Thr Thr Thr Leu Glu Arg Gly Phe Thr Glu Glu Gln Glu Ala Leu
1 5 10 15

Val Val Lys Ser Trp Asn Val Met Lys Lys Asn Ser Gly Glu Leu Gly
20 25 30

Leu Lys Phe Phe Leu Lys Ile Phe Glu Ile Ala Pro Ser Ala Gln Lys
35 40 45

Leu Phe Ser Phe Leu Arg Asp Ser Thr Val Pro Leu Glu Gln Asn Pro
50 55 60

Lys Leu Lys Pro His Ala Val Ser Val Phe Val Met Thr Cys Asp Ser
65 70 75 80

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

Leu Lys Lys Leu Gly Ala Thr His Phe Arg Thr Gly Val Ala Asn Glu
100 105 110

His Phe Glu Val Thr Lys Phe Ala Leu Leu Glu Thr Ile Lys Glu Ala
115 120 125

Val Pro Glu Met Trp Ser Pro Ala Met Lys Asn Ala Trp Gly Glu Ala
130 135 140

Tyr Asp Gln Leu Val Asp Ala Ile Lys Tyr Glu Met Lys Pro Pro Ser
145 150 155 160

Ser

<210> 2
<211> 133
<212> PRT
<213> Methyacidiphilum infernorum

<400> 2

Met Ile Asp Gln Lys Glu Lys Glu Leu Ile Lys Glu Ser Trp Lys Arg
1 5 10 15

Ile Glu Pro Asn Lys Asn Glu Ile Gly Leu Leu Phe Tyr Ala Asn Leu
20 25 30

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

Ser Gln Ser Arg Lys Leu Met Gln Val Leu Gly Ile Leu Val Gln Gly
50 55 60

Ile Asp Asn Leu Glu Gly Leu Ile Pro Thr Leu Gln Asp Leu Gly Arg
65 70 75 80

Arg His Lys Gln Tyr Gly Val Val Asp Ser His Tyr Pro Leu Val Gly
85 90 95

Asp Cys Leu Leu Lys Ser Ile Gln Glu Tyr Leu Gly Gln Gly Phe Thr
100 105 110

Glu Glu Ala Lys Ala Ala Trp Thr Lys Val Tyr Gly Ile Ala Ala Gln
115 120 125

Val Met Thr Ala Glu
130

<210> 3
<211> 139
<212> PRT
<213> Aquifex aeolicus

<400> 3

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

Leu Lys Glu His Gly Thr Glu Ile Thr Ala Arg Met Tyr Glu Leu Leu
20 25 30

Phe Ser Lys Tyr Pro Lys Thr Lys Glu Leu Phe Ala Gly Ala Ser Glu
35 40 45

Glu Gln Pro Lys Lys Leu Ala Asn Ala Ile Ile Ala Tyr Ala Thr Tyr
50 55 60

Ile Asp Arg Leu Glu Glu Leu Asp Asn Ala Ile Ser Thr Ile Ala Arg
65 70 75 80

Ser His Val Arg Arg Asn Val Lys Pro Glu His Tyr Pro Leu Val Lys
85 90 95

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

Val Leu Lys Ala Trp Glu Glu Ala Tyr Asp Phe Leu Ala Lys Thr Leu
115 120 125

Ile Thr Leu Glu Lys Lys Leu Tyr Ser Gln Pro
130 135

<210> 4
<211> 145
<212> PRT
<213> Glycine max

<400> 4

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

Glu Ala Phe Lys Ala Asn Ile Pro Gln Tyr Ser Val Val Phe Tyr Thr
20 25 30

Ser Ile Leu Glu Lys Ala Pro Ala Ala Lys Asp Leu Phe Ser Phe Leu
35 40 45

Ser Asn Gly Val Asp Pro Ser Asn Pro Lys Leu Thr Gly His Ala Glu
50 55 60

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

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

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

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

Ala Trp Glu Val Ala Tyr Asp Glu Leu Ala Ala Ala Ile Lys Lys Ala
130 135 140

Phe
145

<210> 5
<211> 162
<212> PRT
<213> Hordeum vulgare

<400> 5

Met Ser Ala Ala Glu Gly Ala Val Val Phe Ser Glu Glu Lys Glu Ala
1 5 10 15

Leu Val Leu Lys Ser Trp Ala Ile Met Lys Lys Asp Ser Ala Asn Leu
20 25 30

Gly Leu Arg Phe Phe Leu Lys Ile Phe Glu Ile Ala Pro Ser Ala Arg
35 40 45

Gln Met Phe Pro Phe Leu Arg Asp Ser Asp Val Pro Leu Glu Thr Asn
50 55 60

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

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

Thr Leu Lys Arg Leu Gly Gly Thr His Leu Lys Tyr Gly Val Ala Asp
100 105 110

Gly His Phe Glu Val Thr Arg Phe Ala Leu Leu Glu Thr Ile Lys Glu
115 120 125

Ala Leu Pro Ala Asp Met Trp Gly Pro Glu Met Arg Asn Ala Trp Gly
130 135 140

Glu Ala Tyr Asp Gln Leu Val Ala Ala Ile Lys Gln Glu Met Lys Pro
145 150 155 160

Ala Glu

<210> 6

<211> 1153

<212> PRT

<213> Magnaporthe oryzae

<400> 6

Met Asp Gly Ala Val Arg Leu Asp Trp Thr Gly Leu Asp Leu Thr Gly
1 5 10 15

His Glu Ile His Asp Gly Val Pro Ile Ala Ser Arg Val Gln Val Met
20 25 30

Val Ser Phe Pro Leu Phe Lys Asp Gln His Ile Ile Met Ser Ser Lys
35 40 45

Glu Ser Pro Ser Arg Lys Ser Ser Thr Ile Gly Gln Ser Thr Arg Asn

50

55

60

Gly Ser Cys Gln Ala Asp Thr Gln Lys Gly Gln Leu Pro Pro Val Gly
 65 70 75 80

Glu Lys Pro Lys Pro Val Lys Glu Asn Pro Met Lys Lys Leu Lys Glu
 85 90 95

Met Ser Gln Arg Pro Leu Pro Thr Gln His Gly Asp Gly Thr Tyr Pro
 100 105 110

Thr Glu Lys Lys Leu Thr Gly Ile Gly Glu Asp Leu Lys His Ile Arg
 115 120 125

Gly Tyr Asp Val Lys Thr Leu Leu Ala Met Val Lys Ser Lys Leu Lys
 130 135 140

Gly Glu Lys Leu Lys Asp Asp Lys Thr Met Leu Met Glu Arg Val Met
 145 150 155 160

Gln Leu Val Ala Arg Leu Pro Thr Glu Ser Lys Lys Arg Ala Glu Leu
 165 170 175

Thr Asp Ser Leu Ile Asn Glu Leu Trp Glu Ser Leu Asp His Pro Pro
 180 185 190

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

Tyr Asn His Pro Phe Asn Pro Gln Leu Gly Ala Ala Gly Ser Arg Tyr
 210 215 220

Ala Arg Ser Val Ile Pro Thr Val Thr Pro Pro Gly Ala Leu Pro Asp
 225 230 235 240

Pro Gly Leu Ile Phe Asp Ser Ile Met Gly Arg Thr Pro Asn Ser Tyr
 245 250 255

Arg Lys His Pro Asn Asn Val Ser Ser Ile Leu Trp Tyr Trp Ala Thr
 260 265 270

Ile Ile Ile His Asp Ile Phe Trp Thr Asp Pro Arg Asp Ile Asn Thr
275 280 285

Asn Lys Ser Ser Ser Tyr Leu Asp Leu Ala Pro Leu Tyr Gly Asn Ser
290 295 300

Gln Glu Met Gln Asp Ser Ile Arg Thr Phe Lys Asp Gly Arg Met Lys
305 310 315 320

Pro Asp Cys Tyr Ala Asp Lys Arg Leu Ala Gly Met Pro Pro Gly Val
325 330 335

Ser Val Leu Leu Ile Met Phe Asn Arg Phe His Asn His Val Ala Glu
340 345 350

Asn Leu Ala Leu Ile Asn Glu Gly Gly Arg Phe Asn Lys Pro Ser Asp
355 360 365

Leu Leu Glu Gly Glu Ala Arg Glu Ala Ala Trp Lys Lys Tyr Asp Asn
370 375 380

Asp Leu Phe Gln Val Ala Arg Leu Val Thr Ser Gly Leu Tyr Ile Asn
385 390 395 400

Ile Thr Leu Val Asp Tyr Val Arg Asn Ile Val Asn Leu Asn Arg Val
405 410 415

Asp Thr Thr Trp Thr Leu Asp Pro Arg Gln Asp Ala Gly Ala His Val
420 425 430

Gly Thr Ala Asp Gly Ala Glu Arg Gly Thr Gly Asn Ala Val Ser Ala
435 440 445

Glu Phe Asn Leu Cys Tyr Arg Trp His Ser Cys Ile Ser Glu Lys Asp
450 455 460

Ser Lys Phe Val Glu Ala Gln Phe Gln Asn Ile Phe Gly Lys Pro Ala
465 470 475 480

Ser Glu Val Arg Pro Asp Glu Met Trp Lys Gly Phe Ala Lys Met Glu

485

490

495

Gln Asn Thr Pro Ala Asp Pro Gly Gln Arg Thr Phe Gly Gly Phe Lys
 500 505 510

Arg Gly Pro Asp Gly Lys Phe Asp Asp Asp Asp Leu Val Arg Cys Ile
 515 520 525

Ser Glu Ala Val Glu Asp Val Ala Gly Ala Phe Gly Ala Arg Asn Val
 530 535 540

Pro Gln Ala Met Lys Val Val Glu Thr Met Gly Ile Ile Gln Gly Arg
 545 550 555 560

Lys Trp Asn Val Ala Gly Leu Asn Glu Phe Arg Lys His Phe His Leu
 565 570 575

Lys Pro Tyr Ser Thr Phe Glu Asp Ile Asn Ser Asp Pro Gly Val Ala
 580 585 590

Glu Ala Leu Arg Arg Leu Tyr Asp His Pro Asp Asn Val Glu Leu Tyr
 595 600 605

Pro Gly Leu Val Ala Glu Glu Asp Lys Gln Pro Met Val Pro Gly Val
 610 615 620

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

Val Cys Leu Val Arg Gly Asp Arg Phe Tyr Thr Thr Asp Phe Thr Pro
 645 650 655

Arg Asn Leu Thr Asn Trp Gly Tyr Lys Glu Val Asp Tyr Asp Leu Ser
 660 665 670

Val Asn His Gly Cys Val Phe Tyr Lys Leu Phe Ile Arg Ala Phe Pro
 675 680 685

Asn His Phe Lys Gln Asn Ser Val Tyr Ala His Tyr Pro Met Val Val
 690 695 700

Pro Ser Glu Asn Lys Arg Ile Leu Glu Ala Leu Gly Arg Ala Asp Leu
705 710 715 720

Phe Asp Phe Glu Ala Pro Lys Tyr Ile Pro Pro Arg Val Asn Ile Thr
725 730 735

Ser Tyr Gly Gly Ala Glu Tyr Ile Leu Glu Thr Gln Glu Lys Tyr Lys
740 745 750

Val Thr Trp His Glu Gly Leu Gly Phe Leu Met Gly Glu Gly Gly Leu
755 760 765

Lys Phe Met Leu Ser Gly Asp Asp Pro Leu His Ala Gln Gln Arg Lys
770 775 780

Cys Met Ala Ala Gln Leu Tyr Lys Asp Gly Trp Thr Glu Ala Val Lys
785 790 795 800

Ala Phe Tyr Ala Gly Met Met Glu Glu Leu Leu Val Ser Lys Ser Tyr
805 810 815

Phe Leu Gly Asn Asn Lys His Arg His Val Asp Ile Ile Arg Asp Val
820 825 830

Gly Asn Met Val His Val His Phe Ala Ser Gln Val Phe Gly Leu Pro
835 840 845

Leu Lys Thr Ala Lys Asn Pro Thr Gly Val Phe Thr Glu Gln Glu Met
850 855 860

Tyr Gly Ile Leu Ala Ala Ile Phe Thr Thr Ile Phe Phe Asp Leu Asp
865 870 875 880

Pro Ser Lys Ser Phe Pro Leu Arg Thr Lys Thr Arg Glu Val Cys Gln
885 890 895

Lys Leu Ala Lys Leu Val Glu Ala Asn Val Lys Leu Ile Asn Lys Ile
900 905 910

Pro Trp Ser Arg Gly Met Phe Val Gly Lys Pro Ala Lys Asp Glu Pro

915

920

925

Leu Ser Ile Tyr Gly Lys Thr Met Ile Lys Gly Leu Lys Ala His Gly
 930 935 940

Leu Ser Asp Tyr Asp Ile Ala Trp Ser His Val Val Pro Thr Ser Gly
 945 950 955 960

Ala Met Val Pro Asn Gln Ala Gln Val Phe Ala Gln Ala Val Asp Tyr
 965 970 975

Tyr Leu Ser Pro Ala Gly Met His Tyr Ile Pro Glu Ile His Met Val
 980 985 990

Ala Leu Gln Pro Ser Thr Pro Glu Thr Asp Ala Leu Leu Leu Gly Tyr
 995 1000 1005

Ala Met Glu Gly Ile Arg Leu Ala Gly Thr Phe Gly Ser Tyr Arg
 1010 1015 1020

Glu Ala Ala Val Asp Asp Val Val Lys Glu Asp Asn Gly Arg Gln
 1025 1030 1035

Val Pro Val Lys Ala Gly Asp Arg Val Phe Val Ser Phe Val Asp
 1040 1045 1050

Ala Ala Arg Asp Pro Lys His Phe Pro Asp Pro Glu Val Val Asn
 1055 1060 1065

Pro Arg Arg Pro Ala Lys Lys Tyr Ile His Tyr Gly Val Gly Pro
 1070 1075 1080

His Ala Cys Leu Gly Arg Asp Ala Ser Gln Ile Ala Ile Thr Glu
 1085 1090 1095

Met Phe Arg Cys Leu Phe Arg Arg Arg Asn Val Arg Arg Val Pro
 1100 1105 1110

Gly Pro Gln Gly Glu Leu Lys Lys Val Pro Arg Pro Gly Gly Phe
 1115 1120 1125

Tyr Val Tyr Met Arg Glu Asp Trp Gly Gly Leu Phe Pro Phe Pro
1130 1135 1140

Val Thr Met Arg Val Met Trp Asp Asp Glu
1145 1150

<210> 7
<211> 530
<212> PRT
<213> Fusarium oxysporum

<400> 7

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

Ala Ser Gln Leu Val Trp Pro Ser Lys Trp Asp Glu Val Glu Asp Leu
20 25 30

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

Arg Thr Cys Glu Phe Gly Ser Asn Val Pro Gly Thr Gln Asn Thr Ala
50 55 60

Glu Trp Leu Arg Thr Ala Phe His Asp Ala Ile Thr His Asp Ala Lys
65 70 75 80

Ala Gly Thr Gly Gly Leu Asp Ala Ser Ile Tyr Trp Glu Ser Ser Arg
85 90 95

Pro Glu Asn Pro Gly Lys Ala Phe Asn Asn Thr Phe Gly Phe Phe Ser
100 105 110

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

Thr Val Leu Ala Val Gly Ala Cys Asn Gly Pro Arg Ile Pro Phe Arg
130 135 140

Ala Gly Arg Ile Asp Ala Tyr Lys Ala Gly Pro Ala Gly Val Pro Glu
145 150 155 160

Pro Ser Thr Asn Leu Lys Asp Thr Phe Ala Ala Phe Thr Lys Ala Gly
165 170 175

Phe Thr Lys Glu Glu Met Thr Ala Met Val Ala Cys Gly His Ala Ile
180 185 190

Gly Gly Val His Ser Val Asp Phe Pro Glu Ile Val Gly Ile Lys Ala
195 200 205

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

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

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

Phe Asp Asn Asp Lys Ala Thr Met Lys Lys Leu Ser Thr Lys Ala Gly
260 265 270

Phe Asn Ser Met Cys Ala Asp Ile Leu Thr Arg Met Ile Asp Thr Val
275 280 285

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

Pro Tyr Ile Thr Glu Leu Ser Leu Asn Asn Lys Asn Lys Ile His Phe
305 310 315 320

Thr Gly Ser Val Arg Val Arg Ile Thr Asn Asn Ile Arg Asp Asn Asn
325 330 335

Asp Leu Ala Ile Asn Leu Ile Tyr Val Gly Arg Asp Gly Lys Lys Val
340 345 350

Thr Val Pro Thr Gln Gln Val Thr Phe Gln Gly Gly Thr Ser Phe Gly
355 360 365

Ala Gly Glu Val Phe Ala Asn Phe Glu Phe Asp Thr Thr Met Asp Ala
370 375 380

Lys Asn Gly Ile Thr Lys Phe Phe Ile Gln Glu Val Lys Pro Ser Thr
385 390 395 400

Lys Ala Thr Val Thr His Asp Asn Gln Lys Thr Gly Gly Tyr Lys Val
405 410 415

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

Lys Leu Pro Asn Ala Pro Leu Val Val Thr Ala Met Val Arg Asp Ala
435 440 445

Arg Ala Lys Asp Ala Leu Thr Leu Arg Val Ala His Lys Lys Pro Val
450 455 460

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

Ala Thr Gly Lys Lys Ser Ser Gly Tyr Thr Gly Phe Gln Ala Lys Thr
485 490 495

Met Phe Glu Glu Gln Ser Thr Tyr Phe Asp Ile Val Leu Gly Gly Ser
500 505 510

Pro Ala Ser Gly Val Gln Phe Leu Thr Ser Gln Ala Met Pro Ser Gln
515 520 525

Cys Ser
530

<210> 8
<211> 358
<212> PRT
<213> *Fusarium graminearum*

<400> 8

Met Ala Ser Ala Thr Arg Gln Phe Ala Arg Ala Ala Thr Arg Ala Thr
1 5 10 15

Arg Asn Gly Phe Ala Ile Ala Pro Arg Gln Val Ile Arg Gln Gln Gly
20 25 30

Arg Arg Tyr Tyr Ser Ser Glu Pro Ala Gln Lys Ser Ser Ser Ala Trp
35 40 45

Ile Trp Leu Thr Gly Ala Ala Val Ala Gly Gly Ala Gly Tyr Tyr Phe
50 55 60

Tyr Gly Asn Ser Ala Ser Ser Ala Thr Ala Lys Val Phe Asn Pro Ser
65 70 75 80

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

Glu Lys Asp Asp Tyr Asp Asp Gly Ser Tyr Gly Pro Val Leu Val Arg
100 105 110

Leu Ala Trp His Ala Ser Gly Thr Tyr Asp Lys Glu Thr Gly Thr Gly
115 120 125

Gly Ser Asn Gly Ala Thr Met Arg Phe Ala Pro Glu Ser Asp His Gly
130 135 140

Ala Asn Ala Gly Leu Ala Ala Ala Arg Asp Phe Leu Gln Pro Val Lys
145 150 155 160

Glu Lys Phe Pro Trp Ile Thr Tyr Ser Asp Leu Trp Ile Leu Ala Gly
165 170 175

Val Cys Ala Ile Gln Glu Met Leu Gly Pro Ala Ile Pro Tyr Arg Pro
180 185 190

Gly Arg Ser Asp Arg Asp Val Ser Gly Cys Thr Pro Asp Gly Arg Leu
195 200 205

Pro Asp Ala Ser Lys Arg Gln Asp His Leu Arg Gly Ile Phe Gly Arg
210 215 220

Met Gly Phe Asn Asp Gln Glu Ile Val Ala Leu Ser Gly Ala His Ala

Phe Leu Ala Tyr Ala Leu Gly Gly Ala Ser Glu Trp Lys Gly Lys Asp
50 55 60

Met Arg Thr Ala His Lys Asp Leu Val Pro His Leu Ser Asp Val His
65 70 75 80

Phe Gln Ala Val Ala Arg His Leu Ser Asp Thr Leu Thr Glu Leu Gly
85 90 95

Val Pro Pro Glu Asp Ile Thr Asp Ala Met Ala Val Val Ala Ser Thr
100 105 110

Arg Thr Glu Val Leu Asn Met Pro Gln Gln
115 120

<210> 10
<211> 121
<212> PRT
<213> Tetrahymena pyriformis

<400> 10

Met Asn Lys Pro Gln Thr Ile Tyr Glu Lys Leu Gly Gly Glu Asn Ala
1 5 10 15

Met Lys Ala Ala Val Pro Leu Phe Tyr Lys Lys Val Leu Ala Asp Glu
20 25 30

Arg Val Lys His Phe Phe Lys Asn Thr Asp Met Asp His Gln Thr Lys
35 40 45

Gln Gln Thr Asp Phe Leu Thr Met Leu Leu Gly Gly Pro Asn His Tyr
50 55 60

Lys Gly Lys Asn Met Thr Glu Ala His Lys Gly Met Asn Leu Gln Asn
65 70 75 80

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

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

His Thr Arg Lys Asp Met Leu Gly Lys
115 120

<210> 11
<211> 117
<212> PRT
<213> Paramecium caudatum

<400> 11

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

Thr Ala Gln Phe Tyr Ala Asn Ile Gln Ala Asp Ala Thr Val Ala Thr
20 25 30

Phe Phe Asn Gly Ile Asp Met Pro Asn Gln Thr Asn Lys Thr Ala Ala
35 40 45

Phe Leu Cys Ala Ala Leu Gly Gly Pro Asn Ala Trp Thr Gly Arg Asn
50 55 60

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

Thr Val Ile Gly His Leu Arg Ser Ala Leu Thr Gly Ala Gly Val Ala
85 90 95

Ala Ala Leu Val Glu Gln Thr Val Ala Val Ala Glu Thr Val Arg Gly
100 105 110

Asp Val Val Thr Val
115

<210> 12
<211> 147
<212> PRT
<213> Aspergillus niger

<400> 12

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

Val Leu Gln Glu Tyr Gly Thr Lys Ile Thr Thr Ala Phe Tyr Met Asn
20 25 30

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

Gln Val Lys Gly His Gln Ala Arg Ala Leu Ala Gly Ala Leu Phe Ala
50 55 60

Tyr Ala Ser His Ile Asp Asp Leu Gly Ala Leu Gly Pro Ala Val Glu
65 70 75 80

Leu Ile Cys Asn Lys His Ala Ser Leu Tyr Ile Gln Ala Asp Glu Tyr
85 90 95

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

Asp Ala Cys Thr Asp Asp Ile Leu Asp Ala Trp Gly Ala Ala Tyr Trp
115 120 125

Ala Leu Ala Asp Ile Met Ile Asn Arg Glu Ala Ala Leu Tyr Lys Gln
130 135 140

Ser Gln Gly
145

<210> 13
<211> 165
<212> PRT
<213> Zea mays

<400> 13

Met Ala Leu Ala Glu Ala Asp Asp Gly Ala Val Val Phe Gly Glu Glu
1 5 10 15

Gln Glu Ala Leu Val Leu Lys Ser Trp Ala Val Met Lys Lys Asp Ala
20 25 30

Ala Asn Leu Gly Leu Arg Phe Phe Leu Lys Val Phe Glu Ile Ala Pro
35 40 45

Ser Ala Glu Gln Met Phe Ser Phe Leu Arg Asp Ser Asp Val Pro Leu
50 55 60

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

Thr Cys Glu Ala Ala Ala Gln Leu Arg Lys Ala Gly Lys Val Thr Val
85 90 95

Arg Glu Thr Thr Leu Lys Arg Leu Gly Ala Thr His Leu Arg Tyr Gly
100 105 110

Val Ala Asp Gly His Phe Glu Val Thr Gly Phe Ala Leu Leu Glu Thr
115 120 125

Ile Lys Glu Ala Leu Pro Ala Asp Met Trp Ser Leu Glu Met Lys Lys
130 135 140

Ala Trp Ala Glu Ala Tyr Ser Gln Leu Val Ala Ala Ile Lys Arg Glu
145 150 155 160

Met Lys Pro Asp Ala
165

<210> 14
<211> 169
<212> PRT
<213> Oryza sativa

<400> 14

Met Ala Leu Val Glu Gly Asn Asn Gly Val Ser Gly Gly Ala Val Ser
1 5 10 15

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

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

Glu Val Ala Pro Ser Ala Ser Gln Met Phe Ser Phe Leu Arg Asn Ser

50

55

60

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

Val Phe Val Met Thr Cys Glu Ala Ala Ala Gln Leu Arg Lys Ala Gly
85 90 95

Lys Val Thr Val Arg Asp Thr Thr Leu Lys Arg Leu Gly Ala Thr His
100 105 110

Phe Lys Tyr Gly Val Gly Asp Ala His Phe Glu Val Thr Arg Phe Ala
115 120 125

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

Ala Met Lys Ser Ala Trp Ser Glu Ala Tyr Asn Gln Leu Val Ala Ala
145 150 155 160

Ile Lys Gln Glu Met Lys Pro Ala Glu
165

<210> 15

<211> 160

<212> PRT

<213> Arabidopsis thaliana

<400> 15

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

Val Val Lys Ser Trp Ser Val Met Lys Lys Asn Ser Ala Glu Leu Gly
20 25 30

Leu Lys Leu Phe Ile Lys Ile Phe Glu Ile Ala Pro Thr Thr Lys Lys
35 40 45

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

Lys Leu Lys Pro His Ala Met Ser Val Phe Val Met Cys Cys Glu Ser
65 70 75 80

Ala Val Gln Leu Arg Lys Thr Gly Lys Val Thr Val Arg Glu Thr Thr
85 90 95

Leu Lys Arg Leu Gly Ala Ser His Ser Lys Tyr Gly Val Val Asp Glu
100 105 110

His Phe Glu Val Ala Lys Tyr Ala Leu Leu Glu Thr Ile Lys Glu Ala
115 120 125

Val Pro Glu Met Trp Ser Pro Glu Met Lys Val Ala Trp Gly Gln Ala
130 135 140

Tyr Asp His Leu Val Ala Ala Ile Lys Ala Glu Met Asn Leu Ser Asn
145 150 155 160

<210> 16
<211> 147
<212> PRT
<213> Pisum sativum

<400> 16

Met Gly Phe Thr Asp Lys Gln Glu Ala Leu Val Asn Ser Ser Trp Glu
1 5 10 15

Ser Phe Lys Gln Asn Leu Ser Gly Asn Ser Ile Leu Phe Tyr Thr Ile
20 25 30

Ile Leu Glu Lys Ala Pro Ala Ala Lys Gly Leu Phe Ser Phe Leu Lys
35 40 45

Asp Thr Ala Gly Val Glu Asp Ser Pro Lys Leu Gln Ala His Ala Glu
50 55 60

Gln Val Phe Gly Leu Val Arg Asp Ser Ala Ala Gln Leu Arg Thr Lys
65 70 75 80

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

Arg Gly Val Thr Asp Pro His Phe Val Val Val Lys Glu Ala Leu Leu
100 105 110

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

Thr Ala Trp Glu Val Ala Tyr Asp Gly Leu Ala Thr Ala Ile Lys Lys
130 135 140

Ala Met Thr
145

<210> 17
<211> 145
<212> PRT
<213> Vigna unguiculata

<400> 17

Met Val Ala Phe Ser Asp Lys Gln Glu Ala Leu Val Asn Gly Ala Tyr
1 5 10 15

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

Thr Ile Leu Glu Lys Ala Pro Ala Ala Lys Asn Leu Phe Ser Phe Leu
35 40 45

Ala Asn Gly Val Asp Ala Thr Asn Pro Lys Leu Thr Gly His Ala Glu
50 55 60

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

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

Ala Val Asn Asp Ala Gln Phe Val Val Val Lys Glu Ala Leu Val Lys
100 105 110

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

Ala Val Glu Leu Ala Tyr Asp Glu Leu Ala Ala Ala Ile Lys Lys Ala
130 135 140

Tyr
145

<210> 18
<211> 154
<212> PRT
<213> Bos taurus

<400> 18

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

Lys Val Glu Ala Asp Val Ala Gly His Gly Gln Glu Val Leu Ile Arg
20 25 30

Leu Phe Thr Gly His Pro Glu Thr Leu Glu Lys Phe Asp Lys Phe Lys
35 40 45

His Leu Lys Thr Glu Ala Glu Met Lys Ala Ser Glu Asp Leu Lys Lys
50 55 60

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

Gly His His Glu Ala Glu Val Lys His Leu Ala Glu Ser His Ala Asn
85 90 95

Lys His Lys Ile Pro Val Lys Tyr Leu Glu Phe Ile Ser Asp Ala Ile
100 105 110

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

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

Ala Gln Tyr Lys Val Leu Gly Phe His Gly

145

150

<210> 19

<211> 154

<212> PRT

<213> Sus scrofa

<400> 19

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

Lys Val Glu Ala Asp Val Ala Gly His Gly Gln Glu Val Leu Ile Arg
 20 25 30

Leu Phe Lys Gly His Pro Glu Thr Leu Glu Lys Phe Asp Lys Phe Lys
 35 40 45

His Leu Lys Ser Glu Asp Glu Met Lys Ala Ser Glu Asp Leu Lys Lys
 50 55 60

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

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

Lys His Lys Ile Pro Val Lys Tyr Leu Glu Phe Ile Ser Glu Ala Ile
 100 105 110

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

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

Ala Lys Tyr Lys Glu Leu Gly Phe Gln Gly
 145 150

<210> 20

<211> 154

<212> PRT

<213> Equus caballus

<400> 20

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

Lys Val Glu Ala Asp Ile Ala Gly His Gly Gln Glu Val Leu Ile Arg
20 25 30

Leu Phe Thr Gly His Pro Glu Thr Leu Glu Lys Phe Asp Lys Phe Lys
35 40 45

His Leu Lys Thr Glu Ala Glu Met Lys Ala Ser Glu Asp Leu Lys Lys
50 55 60

His Gly Thr Val Val Leu Thr Ala Leu Gly Gly Ile Leu Lys Lys Lys
65 70 75 80

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

Lys His Lys Ile Pro Ile Lys Tyr Leu Glu Phe Ile Ser Asp Ala Ile
100 105 110

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

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

Ala Lys Tyr Lys Glu Leu Gly Phe Gln Gly
145 150

<210> 21

<211> 152

<212> PRT

<213> *Nicotiana benthamiana*

<400> 21

Met Ser Ser Phe Thr Glu Glu Gln Glu Ala Leu Val Val Lys Ser Trp
1 5 10 15

Asp Ser Met Lys Lys Asn Ala Gly Glu Trp Gly Leu Lys Leu Phe Leu
20 25 30

Lys Ile Phe Glu Ile Ala Pro Ser Ala Lys Lys Leu Phe Ser Phe Leu
35 40 45

Lys Asp Ser Asn Val Pro Leu Glu Gln Asn Ala Lys Leu Lys Pro His
50 55 60

Ser Lys Ser Val Phe Val Met Thr Cys Glu Ala Ala Val Gln Leu Arg
65 70 75 80

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

Ala Thr His Phe Lys Tyr Gly Val Ala Asp Glu His Phe Glu Val Thr
100 105 110

Lys Phe Ala Leu Leu Glu Thr Ile Lys Glu Ala Val Pro Glu Met Trp
115 120 125

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

Asn Ala Ile Lys Thr Glu Met Lys
145 150

<210> 22
<211> 132
<212> PRT
<213> Bacillus subtilis

<400> 22

Met Gly Gln Ser Phe Asn Ala Pro Tyr Glu Ala Ile Gly Glu Glu Leu
1 5 10 15

Leu Ser Gln Leu Val Asp Thr Phe Tyr Glu Arg Val Ala Ser His Pro
20 25 30

Leu Leu Lys Pro Ile Phe Pro Ser Asp Leu Thr Glu Thr Ala Arg Lys
35 40 45

Gln Lys Gln Phe Leu Thr Gln Tyr Leu Gly Gly Pro Pro Leu Tyr Thr
50 55 60

Glu Glu His Gly His Pro Met Leu Arg Ala Arg His Leu Pro Phe Pro
65 70 75 80

Ile Thr Asn Glu Arg Ala Asp Ala Trp Leu Ser Cys Met Lys Asp Ala
85 90 95

Met Asp His Val Gly Leu Glu Gly Glu Ile Arg Glu Phe Leu Phe Gly
100 105 110

Arg Leu Glu Leu Thr Ala Arg His Met Val Asn Gln Thr Glu Ala Glu
115 120 125

Asp Arg Ser Ser
130

<210> 23
<211> 131
<212> PRT
<213> Corynebacterium glutamicum

<400> 23

Met Thr Thr Ser Glu Asn Phe Tyr Asp Ser Val Gly Gly Glu Glu Thr
1 5 10 15

Phe Ser Leu Ile Val His Arg Phe Tyr Glu Gln Val Pro Asn Asp Asp
20 25 30

Ile Leu Gly Pro Met Tyr Pro Pro Asp Asp Phe Glu Gly Ala Glu Gln
35 40 45

Arg Leu Lys Met Phe Leu Ser Gln Tyr Trp Gly Gly Pro Lys Asp Tyr
50 55 60

Gln Glu Gln Arg Gly His Pro Arg Leu Arg Met Arg His Val Asn Tyr
65 70 75 80

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

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

Glu His Met Val Arg Ala Ala Asp Met Leu Ile Asn Ser Asn Pro Asp
115 120 125

Pro His Ala
130

<210> 24
<211> 124
<212> PRT
<213> Synechocystis sp.

<400> 24

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

Ala Val Asp Lys Phe Tyr Glu Arg Val Leu Gln Asp Asp Arg Ile Lys
20 25 30

His Phe Phe Ala Asp Val Asp Met Ala Lys Gln Arg Ala His Gln Lys
35 40 45

Ala Phe Leu Thr Tyr Ala Phe Gly Gly Thr Asp Lys Tyr Asp Gly Arg
50 55 60

Tyr Met Arg Glu Ala His Lys Glu Leu Val Glu Asn His Gly Leu Asn
65 70 75 80

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

Glu Met Gly Val Pro Glu Asp Leu Ile Ala Glu Val Ala Ala Val Ala
100 105 110

Gly Ala Pro Ala His Lys Arg Asp Val Leu Asn Gln
115 120

<210> 25

<211> 183
<212> PRT
<213> Synechococcus sp.

<400> 25

Met Asp Val Ala Leu Leu Glu Lys Ser Phe Glu Gln Ile Ser Pro Arg
1 5 10 15

Ala Ile Glu Phe Ser Ala Ser Phe Tyr Gln Asn Leu Phe His His His
20 25 30

Pro Glu Leu Lys Pro Leu Phe Ala Glu Thr Ser Gln Thr Ile Gln Glu
35 40 45

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

Pro Asp Ile Leu Gln Pro Ala Leu Lys Ser Leu Gly Ala Arg His Ala
65 70 75 80

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

Ile Glu Thr Phe Ala Glu Tyr Leu Ala Ala Asp Trp Thr Glu Gln Leu
100 105 110

Ala Thr Ala Trp Val Glu Ala Tyr Asp Val Ile Ala Ser Thr Met Ile
115 120 125

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

Tyr Glu Trp Leu Asp Leu Tyr Gly Glu Glu Ser Pro Lys Val Arg Asn
145 150 155 160

Ala Ile Ala Thr Leu Thr His Phe His Tyr Gly Glu Asp Pro Gln Asp
165 170 175

Val Gln Arg Asp Ser Arg Gly
180

<210> 26
<211> 118
<212> PRT
<213> Nostoc commune

<400> 26

Met Ser Thr Leu Tyr Asp Asn Ile Gly Gly Gln Pro Ala Ile Glu Gln
1 5 10 15

Val Val Asp Glu Leu His Lys Arg Ile Ala Thr Asp Ser Leu Leu Ala
20 25 30

Pro Val Phe Ala Gly Thr Asp Met Val Lys Gln Arg Asn His Leu Val
35 40 45

Ala Phe Leu Ala Gln Ile Phe Glu Gly Pro Lys Gln Tyr Gly Gly Arg
50 55 60

Pro Met Asp Lys Thr His Ala Gly Leu Asn Leu Gln Gln Pro His Phe
65 70 75 80

Asp Ala Ile Ala Lys His Leu Gly Glu Arg Met Ala Val Arg Gly Val
85 90 95

Ser Ala Glu Asn Thr Lys Ala Ala Leu Asp Arg Val Thr Asn Met Lys
100 105 110

Gly Ala Ile Leu Asn Lys
115

<210> 27
<211> 136
<212> PRT
<213> Bacillus megaterium

<400> 27

Met Arg Glu Lys Ile His Ser Pro Tyr Glu Leu Leu Gly Gly Glu His
1 5 10 15

Thr Ile Ser Lys Leu Val Asp Ala Phe Tyr Thr Arg Val Gly Gln His
20 25 30

Pro Glu Leu Ala Pro Ile Phe Pro Asp Asn Leu Thr Glu Thr Ala Arg
 35 40 45

Lys Gln Lys Gln Phe Leu Thr Gln Tyr Leu Gly Gly Pro Ser Leu Tyr
 50 55 60

Thr Glu Glu His Gly His Pro Met Leu Arg Ala Arg His Leu Pro Phe
 65 70 75 80

Glu Ile Thr Pro Ser Arg Ala Lys Ala Trp Leu Thr Cys Met His Glu
 85 90 95

Ala Met Asp Glu Ile Asn Leu Glu Gly Pro Glu Arg Asp Glu Leu Tyr
 100 105 110

His Arg Leu Ile Leu Thr Ala Gln His Met Ile Asn Ser Pro Glu Gln
 115 120 125

Thr Asp Glu Lys Gly Phe Ser His
 130 135

<210> 28
 <211> 933
 <212> DNA
 <213> Pichia pastoris

<400> 28
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 tctcacacat aagtgccaaa cgcaacagga ggggatacac tagcagcaga ccgttgcaaa 120
 cgcaggacct ccactcctct tctcctcaac acccactttt gccatcgaaa aaccagccca 180
 gttattgggc ttgattggag ctcgctcatt ccaattcctt ctattaggct actaacacca 240
 tgactttatt agcctgtcta tcctggcccc cctggcgagg ttcatgtttg tttatttccg 300
 aatgcaacaa gtcctgcatt acacccgaac atcactccag atgagggctt tctgagtgtg 360
 ggggtcaaata gtttcatgtt ccccaaattg cccaaaactg acagtttaaa cgctgtcttg 420
 gaacctaaata tgacaaaagc gtgatctcat ccaagatgaa ctaagtttgg ttcgttgaaa 480
 tgctaacggc cagttgggtca aaaagaaact tccaaaagtc ggcataccgt ttgtcttggt 540
 tggattgat tgacgaatgc tcaaaaataa tctcattaat gcttagcgca gtctctctat 600

cgcttctgaa ccccggtgca cctgtgccga aacgcaaatg gggaaacacc cgcttttttg	660
atgattatgc attgtctcca cattgtatgc ttccaagatt ctggtgggaa tactgctgat	720
agcctaacgt tcatgatcaa aatttaactg ttctaacccc tacttgacag caatatataa	780
acagaaggaa gctgccctgt cttaaaccct tttttttatc atcattatta gcttactttc	840
ataattgcga ctggttccaa ttgacaagct tttgatttta acgactttta acgacaactt	900
gagaagatca aaaaacaact aattattcga aac	933

<210> 29
 <211> 933
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> mutated sequence

<400> 29	
aacatccaaa gacgaaaggt tgaatgaaac ctttttgcca tccgacatcc acaggtccat	60
tctcacacat aagtgccaaa cgcaacagga ggggatacac tagcagcaga ccgttgcaaa	120
cgcaggacct ccactcctct tctccccaac acctactttt gccatcgaaa aaccagccca	180
gttattgggc ttgattggag ctcgctcatt ccaattcctt ctattaggct actaacacca	240
tgactttatt agcctgtcta tcctggcccc cctggcgagg ttcatgtttg tttatttccg	300
aacgcaacaa gtcctgcatt acacccgaac atcactccag atgagggctt tctgagtgtg	360
gggtcaaata gtttcatgtt ccccaaattg cccaaaactg acagttttaa cgctgtcttg	420
gaaccaaata tgtcgaaagc gtgatctcat ccaagatgaa ctaagtttgg ttcgttgaaa	480
tgctaacggc cagttggtca aaaagaaact tccaaaagtc ggcataccga ttgtcttggt	540
tggtattgat tgacgaatgc tcaaaaataa tttcattaat gcttagcgca gtctccctat	600
cgcttctgaa ccccggcgca cctgtgccga aacgcaaatg gggaaacacc cgcttttttg	660
atgattatgc attgtctcca cattgtacgc ttccatgatt ccggtgggga tgcggctgat	720
agcctaacgt tcatgatcaa aatttaactg ttctaacccc tacttgacag caatatataa	780
acagaaggag gctgccctgt cttaaaccct tttttttatc atcattatta gcttactttc	840
ttaattgcga ctggttccaa tagacaagct tttgatttta acgactttta acgacaactt	900
gagaagatca aaaaacaact aattattcga aac	933

<210> 30
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 30
gagggtctcg gatgacagct ttaactgaag gggcc 35

<210> 31
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 31
gagggtctcg attattggta agtgtcgaga tcaactgcc 39

<210> 32
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 32
gtgctaggat ccaacatcca aagacg 26

<210> 33
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 33
tttttctaga accttatcaa gatagctaga aatagaaatg gttgc 45

<210> 34
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
 <223> synthetic primer

 <400> 34
 tcctgcagcc cgggggatcc aacatccaaa ga 32

 <210> 35
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic primer

 <400> 35
 cttcagttaa agctgtcatc gtttcgaata attagt 36

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

 <220>
 <223> synthetic primer

 <400> 36
 aacaactaat tattcgaaac gatgacagct ttaact 36

 <210> 37
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic primer

 <400> 37
 acctttcgtc tttggatggt ggatcccccg gg 32