SEQUENCE LISTING

<110> Flagship Pioneering Innovations V, Inc.

<120> COMPOSITIONS AND RELATED METHODS FOR AGRICULTURE

<130> 51215-003SG3

<140> PCT/US2018/015077
<141> 2018-01-24

<150> US 62/583,763
<151> 2017-11-09

<150> US 62/450,045
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cgaaagcggc ctcctaaacg aaaactgaca ctgaggcgcg aaagcgtggg gagcaaacag 780

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agaagaaaaa tattacgtca tagtttaaaa aatttatttt ctgaaacaac tttattaaat 720

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<213> Delftia

<400> 40
cagaaaggag gtgatccagc cgcaccttcc gatacggcta ccttgttacg acttcacccc 60

agtcacgaac cccgccgtgg taagcgccct ccttgcggtt aggctaccta cttctggcga 120

gacccgctcc catggtgtga cgggcggtgt gtacaagacc cgggaacgta ttcaccgcgg 180

catgctgatc cgcgattact agcgattccg acttcacgca gtcgagttgc agactgcgat 240

ccggactacg actggtttta tgggattagc tccccctcgc gggttggcaa ccctctgtac 300

cagccattgt atgacgtgtg tagccccacc tataagggcc atgaggactt gacgtcatcc 360

ccaccttcct ccggtttgtc accggcagtc tcattagagt gctcaactga atgtagcaac 420

taatgacaag ggttgcgctc gttgcgggac ttaacccaac atctcacgac acgagctgac 480

gacagccatg cagcacctgt gtgcaggttc tctttcgagc acgaatccat ctctggaaac 540

ttcctgccat gtcaaaggtg ggtaaggttt ttcgcgttgc atcgaattaa accacatcat 600

ccaccgcttg tgcgggtccc cgtcaattcc tttgagtttc aaccttgcgg ccgtactccc 660

caggcggtca acttcacgcg ttagcttcgt tactgagaaa actaattccc aacaaccagt 720

tgacatcgtt tagggcgtgg actaccaggg tatctaatcc tgtttgctcc ccacgctttc 780

gtgcatgagc gtcagtacag gtccagggga ttgccttcgc catcggtgtt cctccgcata 840

tctacgcatt tcactgctac acgcggaatt ccatcccccct ctaccgtact ctagccatgc 900

agtcacaaat gcagttccca ggttgagccc ggggatttca catctgtctt acataaccgc 960

ctgcgcacgc tttacgccca gtaattccga ttaacgctcg caccctacgt attaccgcgg 1020

ctgctggcac gtagttagcc ggtgcttatt cttacggtac cgtcatgggc cccctgtatt 1080

agaaggagct ttttcgttcc gtacaaaagc agtttacaac ccgaaggcct tcatcctgca 1140

cgcggcattg ctggatcagg ctttcgccca ttgtccaaaa ttccccactg ctgcctcccg 1200

taggagtctg ggccgtgtct cagtcccagt gtggctggtc gtcctctcag accagctaca 1260

gatcgtcggc ttggtaagct tttatcccac caactaccta atctgccatc ggccgctcca 1320

atcgcgcgag gcccgaaggg cccccgcttt catcctcaga tcgtatgcgg tattagctac 1380

tctttcgagt agttatcccc cacgactggg cacgttccga tgtattactc acccgttcgc 1440

cactcgtcag cgtccgaaga cctgttaccg ttcgacttgc atgtgtaagg catgccgcca 1500

gcgttcaatc tgagccagga tcaaactcta cagttcgatc t 1541

<210> 41
<211> 1502
<212> DNA
<213> Pelomonas

<220>
<221> misc_feature
<222> (192)..(193)
<223> n is a, g, c, or t

<220>
<221> misc_feature
<222> (832)..(833)
<223> n is a, g, c, or t

<400> 41
atcctggctc agattgaacg ctggcggcat gccttacaca tgcaagtcga acggtaacag 60

gttaagctga cgagtggcga acgggtgagt aatatatcgg aacgtgccca gtcgtggggg 120

ataactgctc gaaagagcag ctaataccgc atacgacctg agggtgaaag cgggggatcg 180

caagacctcg cnngattgga gcggccgata tcagattagg tagttggtgg ggtaaaggcc 240

caccaagcca acgatctgta gctggtctga gaggacgacc agccacactg ggactgagac 300

acggcccaga ctcctacggg aggcagcagt ggggaatttt ggacaatggg cgcaagcctg 360

atccagccat gccgcgtgcg ggaagaaggc cttcgggttg taaaccgctt ttgtcaggga 420

agaaaaggtt ctggttaata cctgggactc atgacggtac ctgaagaata agcaccggct 480

aactacgtgc cagcagccgc ggtaatacgt agggtgcaag cgttaatcgg aattactggg 540

cgtaaagcgt gcgcaggcgg ttatgcaaga cagaggtgaa atccccgggc tcaacctggg 600

aactgccttt gtgactgcat agctagagta cggtagaggg ggatggaatt ccgcgtgtag 660

cagtgaaatg cgtagatatg cggaggaaca ccgatggcga aggcaatccc ctggacctgt 720

actgacgctc atgcacgaaa gcgtggggag caaacaggat tagataccct ggtagtccac 780

gccctaaacg atgtcaactg gttgttggga gggtttcttc tcagtaacgt anntaacgcg 840

tgaagttgac cgcctgggga gtacggccgc aaggttgaaa ctcaaaggaa ttgacgggga 900

cccgcacaag cggtggatga tgtggtttaa ttcgatgcaa cgcgaaaaac cttacctacc 960

cttgacatgc caggaatcct gaagagattt gggagtgctc gaaagagaac ctggacacag 1020

gtgctgcatg gccgtcgtca gctcgtgtcg tgagatgttg ggttaagtcc cgcaacgagc 1080

gcaacccttg tcattagttg ctacgaaagg gcactctaat gagactgccg gtgacaaacc 1140

ggaggaaggt ggggatgacg tcaggtcatc atggccctta tgggtagggc tacacacgtc 1200

atacaatggc cgggacagag ggctgccaac ccgcgagggg gagctaatcc cagaaacccg 1260

gtcgtagtcc ggatcgtagt ctgcaactcg actgcgtgaa gtcggaatcg ctagtaatcg 1320

cggatcagct tgccgcggtg aatacgttcc cgggtcttgt acacaccgcc cgtcacacca 1380

tgggagcggg ttctgccaga agtagttagc ctaaccgcaa ggagggcgat taccacggca 1440

gggttcgtga ctggggtgaa gtcgtaacaa ggtagccgta tcggaaggtg cggctggatc 1500

ac 1502

<210> 42
<211> 34
<212> PRT
<213> Lactococcus lactis

<400> 42

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

Met Gly Cys Asn Met Lys Thr Ala Thr Cys His Cys Ser Ile His Val
20 25 30

Ser Lys

<210> 43
<211> 22
<212> PRT
<213> Staphylococcus epidermis

<400> 43

Ile Ala Ser Lys Phe Ile Cys Thr Pro Gly Cys Ala Lys Thr Gly Ser
1 5 10 15

Phe Asn Ser Tyr Cys Cys
20

<210> 44
<211> 44
<212> PRT
<213> Pediococcus acidilactici

<400> 44

Lys Tyr Tyr Gly Asn Gly Val Thr Cys Gly Lys His Ser Cys Ser Val
1 5 10 15

Asp Trp Gly Lys Ala Thr Thr Cys Ile Ile Asn Asn Gly Ala Met Ala
20 25 30

Trp Ala Thr Gly Gly His Gln Gly Asn His Lys Cys
35 40

<210> 45
<211> 44
<212> PRT
<213> Enterococcus faecium

<400> 45

Ala Thr Arg Ser Tyr Gly Asn Gly Val Tyr Cys Asn Asn Ser Lys Cys
1 5 10 15

Trp Val Asn Trp Gly Glu Ala Lys Glu Asn Ile Ala Gly Ile Val Ile
20 25 30

Ser Gly Trp Ala Ser Gly Leu Ala Gly Met Gly His
35 40

<210> 46
<211> 39
<212> PRT
<213> Streptococcus lactis

<400> 46

Gly Thr Trp Asp Asp Ile Gly Gln Gly Ile Gly Arg Val Ala Tyr Trp
1 5 10 15

Val Gly Lys Ala Met Gly Asn Met Ser Asp Val Asn Gln Ala Ser Arg
            20   25   30

Ile Asn Arg Lys Lys Lys His
        35

<210> 47
<211> 48
<212> PRT
<213> Lactobacillus johnsonii

<400> 47

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

Gly Ile Lys Ala Cys Lys Ser Phe Gly Pro Trp Gly Met Ala Ile Cys
            20   25   30

Gly Val Gly Gly Ala Ala Ile Gly Gly Tyr Phe Gly Tyr Thr His Asn
        35   40   45

<210> 48
<211> 70
<212> PRT
<213> Enterococcus faecalis

<400> 48

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

Asn Val Val Glu Ala Gly Gly Trp Val Thr Thr Ile Val Ser Ile Leu
            20   25   30

Thr Ala Val Gly Ser Gly Gly Leu Ser Leu Leu Ala Ala Ala Gly Arg
        35   40   45

Glu Ser Ile Lys Ala Tyr Leu Lys Lys Glu Ile Lys Lys Lys Gly Lys
    50   55   60

Arg Ala Val Ile Ala Trp
65 70

<210> 49
<211> 51
<212> PRT
<213> Staphylococcus aureus

<400> 49

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

Ala Val Ser Ala Ala Trp Lys Tyr Lys Gly Lys Val Leu Glu Trp Leu
20 25 30

Asn Val Gly Pro Thr Leu Glu Trp Val Trp Gln Lys Leu Lys Lys Ile
35 40 45

Ala Gly Leu
50

<210> 50
<211> 43
<212> PRT
<213> Lactococcus garvieae

<400> 50

Ile Gly Gly Ala Leu Gly Asn Ala Leu Asn Gly Leu Gly Thr Trp Ala
1 5 10 15

Asn Met Met Asn Gly Gly Gly Phe Val Asn Gln Trp Gln Val Tyr Ala
20 25 30

Asn Lys Gly Lys Ile Asn Gln Tyr Arg Pro Tyr
35 40

<210> 51
<211> 103

<212> PRT
<213> Escherichia coli

<400> 51

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

Ser Gly Arg Asp Ile Ala Met Ala Ile Gly Thr Leu Ser Gly Gln Phe
20 25 30

Val Ala Gly Gly Ile Gly Ala Ala Ala Gly Gly Val Ala Gly Gly Ala
35 40 45

Ile Tyr Asp Tyr Ala Ser Thr His Lys Pro Asn Pro Ala Met Ser Pro
50 55 60

Ser Gly Leu Gly Gly Thr Ile Lys Gln Lys Pro Glu Gly Ile Pro Ser
65 70 75 80

Glu Ala Trp Asn Tyr Ala Ala Gly Arg Leu Cys Asn Trp Ser Pro Asn
85 90 95

Asn Leu Ser Asp Val Cys Leu
100

<210> 52
<211> 339
<212> PRT
<213> Cp1

<400> 52

Met Val Lys Lys Asn Asp Leu Phe Val Asp Val Ser Ser His Asn Gly
1 5 10 15

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

Ile Lys Ile Ser Glu Ser Thr Thr Tyr Leu Asn Pro Cys Leu Ser Ala

```
        35                  40                  45

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

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

Asn Val Pro Met Gln Val Lys Tyr Leu Val Leu Asp Tyr Glu Asp Asp
                85                  90                  95

Pro Ser Gly Asp Ala Gln Ala Asn Thr Asn Ala Cys Leu Arg Phe Met
            100                 105                 110

Gln Met Ile Ala Asp Ala Gly Tyr Lys Pro Ile Tyr Tyr Ser Tyr Lys
        115                 120                 125

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

Pro Asn Ser Leu Trp Ile Ala Gly Tyr Gly Leu Asn Asp Gly Thr Ala
145                 150                 155                 160

Asn Phe Glu Tyr Phe Pro Ser Met Asp Gly Ile Arg Trp Trp Gln Tyr
                165                 170                 175

Ser Ser Asn Pro Phe Asp Lys Asn Ile Val Leu Leu Asp Asp Glu Glu
            180                 185                 190

Asp Asp Lys Pro Lys Thr Ala Gly Thr Trp Lys Gln Asp Ser Lys Gly
        195                 200                 205

Trp Trp Phe Arg Arg Asn Asn Gly Ser Phe Pro Tyr Asn Lys Trp Glu
    210                 215                 220

Lys Ile Gly Gly Val Trp Tyr Tyr Phe Asp Ser Lys Gly Tyr Cys Leu
225                 230                 235                 240
```

```
Thr Ser Glu Trp Leu Lys Asp Asn Glu Lys Trp Tyr Tyr Leu Lys Asp
                245                 250                 255


Asn Gly Ala Met Ala Thr Gly Trp Val Leu Val Gly Ser Glu Trp Tyr
            260                 265                 270


Tyr Met Asp Asp Ser Gly Ala Met Val Thr Gly Trp Val Lys Tyr Lys
        275                 280                 285


Asn Asn Trp Tyr Tyr Met Thr Asn Glu Arg Gly Asn Met Val Ser Asn
    290                 295                 300


Glu Phe Ile Lys Ser Gly Lys Gly Trp Tyr Phe Met Asn Thr Asn Gly
305                 310                 315                 320


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


Thr Val Ala



<210>  53
<211>  296
<212>  PRT
<213>  Dp-1

<400>  53

Met Gly Val Asp Ile Glu Lys Gly Val Ala Trp Met Gln Ala Arg Lys
1               5                   10                  15


Gly Arg Val Ser Tyr Ser Met Asp Phe Arg Asp Gly Pro Asp Ser Tyr
            20                  25                  30


Asp Cys Ser Ser Ser Met Tyr Tyr Ala Leu Arg Ser Ala Gly Ala Ser
        35                  40                  45
```

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

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

Arg Gly Asp Ile Phe Ile Trp Gly Arg Lys Gly Ala Ser Ala Gly Ala
                85                  90                  95

Gly Gly His Thr Gly Met Phe Ile Asp Ser Asp Asn Ile Ile His Cys
            100                 105                 110

Asn Tyr Ala Tyr Asp Gly Ile Ser Val Asn Asp His Asp Glu Arg Trp
        115                 120                 125

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

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

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

Glu Tyr Ile Glu Glu Asn Lys Ser Trp Phe Tyr Phe Asp Asp Gln Gly
            180                 185                 190

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

Trp Phe Asp Arg Asp Gly Tyr Met Ala Thr Ser Trp Lys Arg Ile Gly
    210                 215                 220

Glu Ser Trp Tyr Tyr Phe Asn Arg Asp Gly Ser Met Val Thr Gly Trp
225                 230                 235                 240

Ile Lys Tyr Tyr Asp Asn Trp Tyr Tyr Cys Asp Ala Thr Asn Gly Asp
```

```
                245                 250                 255

Met Lys Ser Asn Ala Phe Ile Arg Tyr Asn Asp Gly Trp Tyr Leu Leu
            260                 265                 270

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

Asp Gly Leu Ile Thr Ala Lys Val
    290                 295
```

<210> 54
<211> 233
<212> PRT
<213> gamma

<400> 54

```
Met Glu Ile Gln Lys Lys Leu Val Asp Pro Ser Lys Tyr Gly Thr Lys
1               5                   10                  15

Cys Pro Tyr Thr Met Lys Pro Lys Tyr Ile Thr Val His Asn Thr Tyr
            20                  25                  30

Asn Asp Ala Pro Ala Glu Asn Glu Val Ser Tyr Met Ile Ser Asn Asn
        35                  40                  45

Asn Glu Val Ser Phe His Ile Ala Val Asp Asp Lys Lys Ala Ile Gln
    50                  55                  60

Gly Ile Pro Leu Glu Arg Asn Ala Trp Ala Cys Gly Asp Gly Asn Gly
65                  70                  75                  80

Ser Gly Asn Arg Gln Ser Ile Ser Val Glu Ile Cys Tyr Ser Lys Ser
                85                  90                  95

Gly Gly Asp Arg Tyr Tyr Lys Ala Glu Asp Asn Ala Val Asp Val Val
            100                 105                 110
```

```
Arg Gln Leu Met Ser Met Tyr Asn Ile Pro Ile Glu Asn Val Arg Thr
        115                 120                 125


His Gln Ser Trp Ser Gly Lys Tyr Cys Pro His Arg Met Leu Ala Glu
    130                 135                 140


Gly Arg Trp Gly Ala Phe Ile Gln Lys Val Lys Asn Gly Asn Val Ala
145                 150                 155                 160


Thr Thr Ser Pro Thr Lys Gln Asn Ile Ile Gln Ser Gly Ala Phe Ser
                165                 170                 175


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


Thr Ala Asp Phe Ile Leu Gln Ser Asp Gly Leu Thr Tyr Phe Ile Ser
        195                 200                 205


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


Arg Lys Gly Trp Trp Tyr Glu Val Lys
225                 230


<210>  55
<211>  481
<212>  PRT
<213>  MR11

<400>  55

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


Ser Glu Gly Lys Gln Phe Asn Val Asp Leu Trp Tyr Gly Phe Gln Cys
            20                  25                  30


Phe Asp Tyr Ala Asn Ala Gly Trp Lys Val Leu Phe Gly Leu Leu Leu
```

```
        35                  40                  45

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

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

Asp Met Val Val Phe Gly Ser Asn Tyr Gly Ala Gly Tyr Gly His Val
                85                  90                  95

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

Asn Trp Leu Gly Gly Gly Trp Thr Asp Arg Ile Glu Gln Pro Gly Trp
        115                 120                 125

Gly Trp Glu Lys Val Thr Arg Arg Gln His Ala Tyr Asp Phe Pro Met
    130                 135                 140

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

Gln Ser Pro Thr Gln Ala Ser Lys Lys Glu Thr Ala Lys Pro Gln Pro
                165                 170                 175

Lys Ala Val Glu Leu Lys Ile Ile Lys Asp Val Val Lys Gly Tyr Asp
            180                 185                 190

Leu Pro Lys Arg Gly Gly Asn Pro Lys Gly Ile Val Ile His Asn Asp
        195                 200                 205

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

Asn Ala Pro Leu Ser Arg Leu Glu Ala Gly Ile Ala His Ser Tyr Val
225                 230                 235                 240
```

```
Ser Gly Asn Thr Val Trp Gln Ala Leu Asp Glu Ser Gln Val Gly Trp
                245                 250                 255

His Thr Ala Asn Gln Leu Gly Asn Lys Tyr Tyr Tyr Gly Ile Glu Val
            260                 265                 270

Cys Gln Ser Met Gly Ala Asp Asn Ala Thr Phe Leu Lys Asn Glu Gln
        275                 280                 285

Ala Thr Phe Gln Glu Cys Ala Arg Leu Leu Lys Lys Trp Gly Leu Pro
    290                 295                 300

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

Cys Pro His Arg Ser Ser Val Leu His Thr Gly Phe Asp Pro Val Thr
                325                 330                 335

Arg Gly Leu Leu Pro Glu Asp Lys Gln Leu Gln Leu Lys Asp Tyr Phe
            340                 345                 350

Ile Lys Gln Ile Arg Val Tyr Met Asp Gly Lys Ile Pro Val Ala Thr
        355                 360                 365

Val Ser Asn Glu Ser Ser Ala Ser Ser Asn Thr Val Lys Pro Val Ala
    370                 375                 380

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

Ala Arg Phe Thr Asn Gly Asn Gln Pro Ile Thr Val Arg Lys Ile Gly
                405                 410                 415

Pro Phe Leu Ser Cys Pro Val Ala Tyr Gln Phe Gln Pro Gly Gly Tyr
            420                 425                 430
```

Cys Asp Tyr Thr Glu Val Met Leu Gln Asp Gly His Val Trp Val Gly
        435   440   445

Tyr Thr Trp Glu Gly Gln Arg Tyr Tyr Leu Pro Ile Arg Thr Trp Asn
    450   455   460

Gly Ser Ala Pro Pro Asn Gln Ile Leu Gly Asp Leu Trp Gly Glu Ile
465   470   475   480

Ser

<210> 56
<211> 239
<212> PRT
<213> B30

<400> 56

Met Val Ile Asn Ile Glu Gln Ala Ile Ala Trp Met Ala Ser Arg Lys
1   5   10   15

Gly Lys Val Thr Tyr Ser Met Asp Tyr Arg Asn Gly Pro Ser Ser Tyr
            20   25   30

Asp Cys Ser Ser Ser Val Tyr Phe Ala Leu Arg Ser Ala Gly Ala Ser
        35   40   45

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

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

Arg Gly Asp Ile Phe Ile Trp Gly Lys Arg Gly Ala Ser Ala Gly Ala
                85   90   95

Phe Gly His Thr Gly Met Phe Val Asp Pro Asp Asn Ile Ile His Cys

```
            100                 105                 110

Asn Tyr Gly Tyr Asn Ser Ile Thr Val Asn Asn His Asp Glu Ile Trp
        115                 120                 125

Gly Tyr Asn Gly Gln Pro Tyr Val Tyr Ala Tyr Arg Tyr Ser Gly Lys
    130                 135                 140

Gln Ser Asn Ala Lys Val Asp Asn Lys Ser Val Val Ser Lys Phe Glu
145                 150                 155                 160

Lys Glu Leu Asp Val Asn Thr Pro Leu Ser Asn Ser Asn Met Pro Tyr
                165                 170                 175

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

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

Val Tyr Glu Lys Val Lys Gly Trp Ala Arg Ile Gly Ala Pro Gln Ser
    210                 215                 220

Asn Gln Trp Val Glu Asp Ala Tyr Leu Ile Asp Ala Thr Asp Met
225                 230                 235


<210>  57
<211>  495
<212>  PRT
<213>  K

<400>  57

Met Ala Lys Thr Gln Ala Glu Ile Asn Lys Arg Leu Asp Ala Tyr Ala
1               5                   10                  15

Lys Gly Thr Val Asp Ser Pro Tyr Arg Val Lys Lys Ala Thr Ser Tyr
            20                  25                  30
```

```
Asp Pro Ser Phe Gly Val Met Glu Ala Gly Ala Ile Asp Ala Asp Gly
        35                  40                  45

Tyr Tyr His Ala Gln Cys Gln Asp Leu Ile Thr Asp Tyr Val Leu Trp
    50                  55                  60

Leu Thr Asp Asn Lys Val Arg Thr Trp Gly Asn Ala Lys Asp Gln Ile
65                  70                  75                  80

Lys Gln Ser Tyr Gly Thr Gly Phe Lys Ile His Glu Asn Lys Pro Ser
                85                  90                  95

Thr Val Pro Lys Lys Gly Trp Ile Ala Val Phe Thr Ser Gly Ser Tyr
            100                 105                 110

Glu Gln Trp Gly His Ile Gly Ile Val Tyr Asp Gly Gly Asn Thr Ser
        115                 120                 125

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

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

Ile Pro Val Lys Ala Gly Thr Thr Val Lys Lys Glu Thr Ala Lys Lys
                165                 170                 175

Ser Ala Ser Lys Thr Pro Ala Pro Lys Lys Lys Ala Thr Leu Lys Val
            180                 185                 190

Ser Lys Asn His Ile Asn Tyr Thr Met Asp Lys Arg Gly Lys Lys Pro
        195                 200                 205

Glu Gly Met Val Ile His Asn Asp Ala Gly Arg Ser Ser Gly Gln Gln
    210                 215                 220
```

```
Tyr Glu Asn Ser Leu Ala Asn Ala Gly Tyr Ala Arg Tyr Ala Asn Gly
225                 230                 235                 240


Ile Ala His Tyr Tyr Gly Ser Glu Gly Tyr Val Trp Glu Ala Ile Asp
                245                 250                 255


Ala Lys Asn Gln Ile Ala Trp His Thr Gly Asp Gly Thr Gly Ala Asn
            260                 265                 270


Ser Gly Asn Phe Arg Phe Ala Gly Ile Glu Val Cys Gln Ser Met Ser
        275                 280                 285


Ala Ser Asp Ala Gln Phe Leu Lys Asn Glu Gln Ala Val Phe Gln Phe
    290                 295                 300


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


Val Arg Leu His Met Glu Phe Val Pro Thr Ala Cys Pro His Arg Ser
                325                 330                 335


Met Val Leu His Thr Gly Phe Asn Pro Val Thr Gln Gly Arg Pro Ser
            340                 345                 350


Gln Ala Ile Met Asn Lys Leu Lys Asp Tyr Phe Ile Lys Gln Ile Lys
        355                 360                 365


Asn Tyr Met Asp Lys Gly Thr Ser Ser Ser Thr Val Val Lys Asp Gly
    370                 375                 380


Lys Thr Ser Ser Ala Ser Thr Pro Ala Thr Arg Pro Val Thr Gly Ser
385                 390                 395                 400


Trp Lys Lys Asn Gln Tyr Gly Thr Trp Tyr Lys Pro Glu Asn Ala Thr
                405                 410                 415


Phe Val Asn Gly Asn Gln Pro Ile Val Thr Arg Ile Gly Ser Pro Phe
```

```
            420                 425                 430

Leu Asn Ala Pro Val Gly Gly Asn Leu Pro Ala Gly Ala Thr Ile Val
        435                 440                 445

Tyr Asp Glu Val Cys Ile Gln Ala Gly His Ile Trp Ile Gly Tyr Asn
    450                 455                 460

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

Val Pro Pro Asn Gln Ile Pro Gly Val Ala Trp Gly Val Phe Lys
                485                 490                 495
```

<210> 58
<211> 281
<212> PRT
<213> A118

<400> 58

```
Met Thr Ser Tyr Tyr Tyr Ser Arg Ser Leu Ala Asn Val Asn Lys Leu
1               5                   10                  15

Ala Asp Asn Thr Lys Ala Ala Ala Arg Lys Leu Leu Asp Trp Ser Glu
            20                  25                  30

Ser Asn Gly Ile Glu Val Leu Ile Tyr Glu Thr Ile Arg Thr Lys Glu
        35                  40                  45

Gln Gln Ala Ala Asn Val Asn Ser Gly Ala Ser Gln Thr Met Arg Ser
    50                  55                  60

Tyr His Leu Val Gly Gln Ala Leu Asp Phe Val Met Ala Lys Gly Lys
65                  70                  75                  80

Thr Val Asp Trp Gly Ala Tyr Arg Ser Asp Lys Gly Lys Lys Phe Val
                85                  90                  95
```

```
Ala Lys Ala Lys Ser Leu Gly Phe Glu Trp Gly Gly Asp Trp Ser Gly
            100                 105                 110

Phe Val Asp Asn Pro His Leu Gln Phe Asn Tyr Lys Gly Tyr Gly Thr
        115                 120                 125

Asp Thr Phe Gly Lys Gly Ala Ser Thr Ser Asn Ser Ser Lys Pro Ser
    130                 135                 140

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

Asn Lys Leu Asp Ser Ser Phe Ala Asn Arg Lys Lys Leu Ala Thr Ser
                165                 170                 175

Tyr Gly Ile Lys Asn Tyr Ser Gly Thr Ala Thr Gln Asn Thr Thr Leu
            180                 185                 190

Leu Ala Lys Leu Lys Ala Gly Lys Pro His Thr Pro Ala Ser Lys Asn
        195                 200                 205

Thr Tyr Tyr Thr Glu Asn Pro Arg Lys Val Lys Thr Leu Val Gln Cys
    210                 215                 220

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

Thr Phe Pro Pro Gly Thr Val Phe Thr Ile Ser Gly Met Gly Lys Thr
                245                 250                 255

Lys Gly Gly Thr Pro Arg Leu Lys Thr Lys Ser Gly Tyr Tyr Leu Thr
            260                 265                 270

Ala Asn Thr Lys Phe Val Lys Lys Ile
        275                 280
```

<210> 59
<211> 341
<212> PRT
<213> A511

<400> 59

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


Gly Lys Leu Lys Gly Ala Asn Phe Val Ile Ala His Glu Thr Ala Asn
            20                  25                  30


Ser Lys Ser Thr Ile Asp Asn Glu Val Ser Tyr Met Thr Arg Asn Trp
        35                  40                  45


Lys Asn Ala Phe Val Thr His Phe Val Gly Gly Gly Gly Arg Val Val
    50                  55                  60


Gln Val Ala Asn Val Asn Tyr Val Ser Trp Gly Ala Gly Gln Tyr Ala
65                  70                  75                  80


Asn Ser Tyr Ser Tyr Ala Gln Val Glu Leu Cys Arg Thr Ser Asn Ala
                85                  90                  95


Thr Thr Phe Lys Lys Asp Tyr Glu Val Tyr Cys Gln Leu Leu Val Asp
            100                 105                 110


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


Thr Ser Asp Lys Gly Ile Lys Ser His Lys Trp Val Ala Asp Lys Leu
    130                 135                 140


Gly Gly Thr Thr His Gln Asp Pro Tyr Ala Tyr Leu Ser Ser Trp Gly
145                 150                 155                 160


Ile Ser Lys Ala Gln Phe Ala Ser Asp Leu Ala Lys Val Ser Gly Gly
                165                 170                 175
```

```
Gly Asn Thr Gly Thr Ala Pro Ala Lys Pro Ser Thr Pro Ala Pro Lys
            180                 185                 190

Pro Ser Thr Pro Ser Thr Asn Leu Asp Lys Leu Gly Leu Val Asp Tyr
        195                 200                 205

Met Asn Ala Lys Lys Met Asp Ser Ser Tyr Ser Asn Arg Asp Lys Leu
    210                 215                 220

Ala Lys Gln Tyr Gly Ile Ala Asn Tyr Ser Gly Thr Ala Ser Gln Asn
225                 230                 235                 240

Thr Thr Leu Leu Ser Lys Ile Lys Gly Gly Ala Pro Lys Pro Ser Thr
                245                 250                 255

Pro Ala Pro Lys Pro Ser Thr Ser Thr Ala Lys Lys Ile Tyr Phe Pro
            260                 265                 270

Pro Asn Lys Gly Asn Trp Ser Val Tyr Pro Thr Asn Lys Ala Pro Val
        275                 280                 285

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

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

Thr Asp Gln Phe Gly Arg Val Gln Val Tyr Gly Ala Pro Ser Thr Gly
                325                 330                 335

Ala Val Ile Lys Lys
            340
```

<210> 60
<211> 289
<212> PRT

<213> A500

<400> 60

```
Met Ala Leu Thr Glu Ala Trp Leu Ile Glu Lys Ala Asn Arg Lys Leu
1               5                   10                  15


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


Ile Lys Lys Met Ala Lys Glu Gly Ile Tyr Leu Cys Val Ala Gln Gly
        35                  40                  45


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


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


Asn Tyr Gly Val Ala Val Asp Leu Cys Leu Tyr Thr Asn Asp Gly Lys
                85                  90                  95


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


Ala Met Lys Ala Glu Gly Phe Lys Trp Gly Gly Asp Trp Lys Ser Phe
        115                 120                 125


Lys Asp Tyr Pro His Phe Glu Leu Cys Asp Ala Val Ser Gly Glu Lys
    130                 135                 140


Ile Pro Ala Ala Thr Gln Asn Thr Asn Thr Asn Ser Asn Arg Tyr Glu
145                 150                 155                 160


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


Ser Ser Pro Phe Arg Met Tyr Lys Val Gly Thr Glu Phe Leu Val Tyr
```

```
            180                 185                 190

Asp His Asn Gln Tyr Trp Tyr Lys Thr Tyr Ile Asp Asp Lys Leu Tyr
        195                 200                 205

Tyr Met Tyr Lys Ser Phe Cys Asp Val Val Ala Lys Lys Asp Ala Lys
    210                 215                 220

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

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

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

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

Lys
```

<210> 61
<211> 239
<212> PRT
<213> LambdaSa1 prophage

<400> 61

```
Met Val Ile Asn Ile Glu Gln Ala Ile Ala Trp Met Ala Ser Arg Lys
1               5                   10                  15

Gly Lys Val Thr Tyr Ser Met Asp Tyr Arg Asn Gly Pro Ser Ser Tyr
            20                  25                  30

Asp Cys Ser Ser Ser Val Tyr Phe Ala Leu Arg Ser Ala Gly Ala Ser
        35                  40                  45
```

```
Asp Asn Gly Trp Ala Val Asn Thr Glu Tyr Glu His Asp Trp Leu Ile
    50                  55                  60

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

Arg Gly Asp Ile Phe Ile Trp Gly Lys Arg Gly Ala Ser Ala Gly Ala
                85                  90                  95

Phe Gly His Thr Gly Met Phe Val Asp Pro Asp Asn Ile Ile His Cys
            100                 105                 110

Asn Tyr Gly Tyr Asn Ser Ile Thr Val Asn Asn His Asp Glu Ile Trp
        115                 120                 125

Gly Tyr Asn Gly Gln Pro Tyr Val Tyr Ala Tyr Arg Tyr Ala Arg Lys
    130                 135                 140

Gln Ser Asn Ala Lys Val Asp Asn Gln Ser Val Val Ser Lys Phe Glu
145                 150                 155                 160

Lys Glu Leu Asp Val Asn Thr Pro Leu Ser Asn Ser Asn Met Pro Tyr
                165                 170                 175

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

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

Val Tyr Glu Lys Val Lys Gly Trp Ala Arg Ile Gly Ala Pro Gln Ser
    210                 215                 220

Asn Gln Trp Val Glu Asp Ala Tyr Leu Ile Asp Ala Thr Asp Met
225                 230                 235
```

<210> 62
<211> 468
<212> PRT
<213> LambdaSa2 prophage

<400> 62

```
Met Glu Ile Asn Thr Glu Ile Ala Ile Ala Trp Met Ser Ala Arg Gln
1               5                   10                  15


Gly Lys Val Ser Tyr Ser Met Asp Tyr Arg Asp Gly Pro Asn Ser Tyr
            20                  25                  30


Asp Cys Ser Ser Ser Val Tyr Tyr Ala Leu Arg Ser Ala Gly Ala Ser
        35                  40                  45


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


Lys Asn Gly Tyr Glu Leu Ile Ala Glu Asn Val Asp Trp Asn Ala Val
65                  70                  75                  80


Arg Gly Asp Ile Ala Ile Trp Gly Met Arg Gly His Ser Ser Gly Ala
                85                  90                  95


Gly Gly His Val Val Met Phe Ile Asp Pro Glu Asn Ile Ile His Cys
            100                 105                 110


Asn Trp Ala Asn Asn Gly Ile Thr Val Asn Asn Tyr Asn Gln Thr Ala
        115                 120                 125


Ala Ala Ser Gly Trp Met Tyr Cys Tyr Val Tyr Arg Leu Lys Ser Gly
    130                 135                 140


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


Ala Gly Asn Tyr Gly Asn Gly Glu Ala Arg Lys Ala Val Leu Gly Asn
                165                 170                 175
```

```
Gln Tyr Glu Ala Val Met Ser Val Ile Asn Gly Lys Thr Thr Thr Asn
            180                 185                 190

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

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

Val Gln Lys Arg Val Thr Glu Leu Leu Lys Lys Gln Pro Ser Glu Pro
225                 230                 235                 240

Phe Lys Ala Gln Glu Val Asn Lys Pro Thr Glu Thr Lys Thr Ser Gln
                245                 250                 255

Thr Glu Leu Thr Gly Gln Ala Thr Ala Thr Lys Glu Glu Gly Asp Leu
            260                 265                 270

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

Gly Asn Cys Lys Lys His Asp Ile Leu Pro Ser Tyr Ala Leu Thr Ile
    290                 295                 300

Leu His Tyr Glu Gly Leu Trp Gly Thr Ser Ala Val Gly Lys Ala Asp
305                 310                 315                 320

Asn Asn Trp Gly Gly Met Thr Trp Thr Gly Gln Gly Asn Arg Pro Ser
                325                 330                 335

Gly Val Thr Val Thr Gln Gly Ser Ala Arg Pro Ser Asn Glu Gly Gly
            340                 345                 350

His Tyr Met His Tyr Ala Ser Val Asp Asp Phe Leu Thr Asp Trp Phe
        355                 360                 365
```

```
Tyr Leu Leu Arg Ala Gly Gly Ser Tyr Lys Val Ser Gly Ala Lys Thr
    370                 375                 380

Phe Ser Glu Ala Ile Lys Gly Met Phe Lys Val Gly Gly Ala Val Tyr
385                 390                 395                 400

Asp Tyr Ala Ala Ser Gly Phe Asp Ser Tyr Ile Val Gly Ala Ser Ser
                405                 410                 415

Arg Leu Lys Ala Ile Glu Ala Glu Asn Gly Ser Leu Asp Lys Phe Asp
            420                 425                 430

Lys Ala Thr Asp Ile Gly Asp Gly Ser Lys Asp Lys Ile Asp Ile Thr
        435                 440                 445

Ile Glu Gly Ile Glu Val Thr Ile Asn Gly Ile Thr Tyr Glu Leu Thr
    450                 455                 460

Lys Lys Pro Val
465
```

<210> 63
<211> 236
<212> PRT
<213> (ATCC700407) prophage

<400> 63

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

Arg Tyr Asp Met Gly Asp Arg Tyr Gly Asn Asp Ala Asp Arg Asp Gly
            20                  25                  30

Arg Ile Glu Met Asp Cys Ser Ser Ala Val Ser Lys Ala Leu Gly Ile
        35                  40                  45

Ser Met Thr Asn Asn Thr Glu Thr Leu Gln Gln Ala Leu Pro Ala Ile
```

```
    50                  55                  60

Gly Tyr Gly Lys Ile His Asp Ala Val Asp Gly Thr Phe Asp Met Gln
65                  70                  75                  80

Ala Tyr Asp Val Ile Ile Trp Ala Pro Arg Asp Gly Ser Ser Ser Leu
                85                  90                  95

Gly Ala Phe Gly His Val Leu Ile Ala Thr Ser Pro Thr Thr Ala Ile
            100                 105                 110

His Cys Asn Tyr Gly Ser Asp Gly Ile Thr Glu Asn Asp Tyr Asn Tyr
        115                 120                 125

Ile Trp Glu Ile Asn Gly Arg Pro Arg Glu Ile Val Phe Arg Lys Gly
    130                 135                 140

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

Asp Val Asn Ala Arg Leu Thr Val Ser Asp Lys Pro Tyr Tyr Glu Ala
                165                 170                 175

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

Gln Asp Lys Glu Leu Ile Lys Ala Gly Thr Arg Val Arg Val Tyr Glu
        195                 200                 205

Lys Leu Asn Gly Trp Ser Arg Ile Asn His Pro Glu Ser Ala Gln Trp
    210                 215                 220

Val Glu Asp Ser Tyr Leu Val Asp Ala Thr Glu Met
225                 230                 235
```

<210> 64
<211> 481

<212> PRT
<213> Phi11 and Phi12

<400> 64

```
Met Gln Ala Lys Leu Thr Lys Asn Glu Phe Ile Glu Trp Leu Lys Thr
1               5                  10                  15


Ser Glu Gly Lys Gln Phe Asn Val Asp Leu Trp Tyr Gly Phe Gln Cys
            20                  25                  30


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


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


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


Asp Met Val Val Phe Gly Ser Asn Tyr Gly Ala Gly Tyr Gly His Val
                85                  90                  95


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


Asn Trp Leu Gly Gly Gly Trp Thr Asp Gly Ile Glu Gln Pro Gly Trp
        115                 120                 125


Gly Trp Glu Lys Val Thr Arg Arg Gln His Ala Tyr Asp Phe Pro Met
    130                 135                 140


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


Gln Ser Pro Thr Gln Ala Pro Lys Lys Glu Thr Ala Lys Pro Gln Pro
                165                 170                 175
```

```
Lys Ala Val Glu Leu Lys Ile Ile Lys Asp Val Val Lys Gly Tyr Asp
            180                 185                 190

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

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

Asn Ala Pro Leu Ser Arg Leu Glu Ala Gly Ile Ala His Ser Tyr Val
225                 230                 235                 240

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

His Thr Ala Asn Gln Ile Gly Asn Lys Tyr Tyr Tyr Gly Ile Glu Val
            260                 265                 270

Cys Gln Ser Met Gly Ala Asp Asn Ala Thr Phe Leu Lys Asn Glu Gln
        275                 280                 285

Ala Thr Phe Gln Glu Cys Ala Arg Leu Leu Lys Lys Trp Gly Leu Pro
    290                 295                 300

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

Cys Pro His Arg Ser Ser Val Leu His Thr Gly Phe Asp Pro Val Thr
                325                 330                 335

Arg Gly Leu Leu Pro Glu Asp Lys Arg Leu Gln Leu Lys Asp Tyr Phe
            340                 345                 350

Ile Lys Gln Ile Arg Ala Tyr Met Asp Gly Lys Ile Pro Val Ala Thr
        355                 360                 365

Val Ser Asn Glu Ser Ser Ala Ser Ser Asn Thr Val Lys Pro Val Ala
```

```
    370                 375                 380

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

Ala Arg Phe Thr Asn Gly Asn Gln Pro Ile Thr Val Arg Lys Val Gly
                405                 410                 415

Pro Phe Leu Ser Cys Pro Val Gly Tyr Gln Phe Gln Pro Gly Gly Tyr
            420                 425                 430

Cys Asp Tyr Thr Glu Val Met Leu Gln Asp Gly His Val Trp Val Gly
        435                 440                 445

Tyr Thr Trp Glu Gly Gln Arg Tyr Tyr Leu Pro Ile Arg Thr Trp Asn
    450                 455                 460

Gly Ser Ala Pro Pro Asn Gln Ile Leu Gly Asp Leu Trp Gly Glu Ile
465                 470                 475                 480

Ser
```

<210> 65
<211> 481
<212> PRT
<213> (Phi)H5

<400> 65

```
Met Gln Ala Lys Leu Thr Lys Lys Glu Phe Ile Glu Trp Leu Lys Thr
1               5                   10                  15

Ser Glu Gly Lys Gln Tyr Asn Ala Asp Gly Trp Tyr Gly Phe Gln Cys
            20                  25                  30

Phe Asp Tyr Ala Asn Ala Gly Trp Lys Ala Leu Phe Gly Leu Leu Leu
        35                  40                  45
```

```
Lys Gly Val Gly Ala Lys Asp Ile Pro Phe Ala Asn Asn Phe Asp Gly
    50                  55                  60

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

Asp Met Val Val Phe Gly Ser Asn Tyr Gly Ala Gly Tyr Gly His Val
                85                  90                  95

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

Asn Trp Leu Gly Gly Gly Trp Thr Asp Gly Val Gln Gln Pro Gly Ser
        115                 120                 125

Gly Trp Glu Lys Val Thr Arg Arg Gln His Ala Tyr Asp Phe Pro Met
    130                 135                 140

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

Gln Ser Pro Thr Gln Ala Ser Lys Lys Glu Thr Ala Lys Pro Gln Pro
                165                 170                 175

Lys Ala Val Glu Leu Lys Ile Ile Lys Asp Val Val Lys Gly Tyr Asp
            180                 185                 190

Leu Pro Lys Arg Gly Ser Asn Pro Asn Phe Ile Val Ile His Asn Asp
        195                 200                 205

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

Asn Ala Pro Leu Ser Arg Leu Glu Ala Gly Ile Ala His Ser Tyr Val
225                 230                 235                 240
```

```
Ser Gly Asn Thr Val Trp Gln Ala Leu Asp Glu Ser Gln Val Gly Trp
                245                 250                 255

His Thr Ala Asn Gln Ile Gly Asn Lys Tyr Gly Tyr Gly Ile Glu Val
            260                 265                 270

Cys Gln Ser Met Gly Ala Asp Asn Ala Thr Phe Leu Lys Asn Glu Gln
        275                 280                 285

Ala Thr Phe Gln Glu Cys Ala Arg Leu Leu Lys Lys Trp Gly Leu Pro
    290                 295                 300

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

Cys Pro His Arg Ser Ser Val Leu His Thr Gly Phe Asp Pro Val Thr
                325                 330                 335

Arg Gly Leu Leu Pro Glu Asp Lys Arg Leu Gln Leu Lys Asp Tyr Phe
            340                 345                 350

Ile Lys Gln Ile Arg Ala Tyr Met Asp Gly Lys Ile Pro Val Ala Thr
        355                 360                 365

Val Ser Asn Asp Ser Ser Ala Ser Ser Asn Thr Val Lys Pro Val Ala
    370                 375                 380

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

Ala Arg Phe Thr Asn Gly Asn Gln Pro Ile Thr Val Arg Lys Val Gly
                405                 410                 415

Pro Phe Leu Ser Cys Pro Val Gly Tyr Gln Phe Gln Pro Gly Gly Tyr
            420                 425                 430

Cys Asp Tyr Thr Glu Val Met Leu Gln Asp Gly His Val Trp Val Gly
```

```
        435                 440                 445

Tyr Thr Trp Glu Gly Gln Arg Tyr Tyr Leu Pro Ile Arg Thr Trp Asn
    450                 455                 460

Gly Ser Ala Pro Pro Asn Gln Ile Leu Gly Asp Leu Trp Gly Glu Ile
465                 470                 475                 480

Ser
```

<210> 66
<211> 477
<212> PRT
<213> (Phi)WMY

<400> 66

```
Met Lys Thr Lys Ala Gln Ala Lys Ser Trp Ile Asn Ser Lys Ile Gly
1               5                   10                  15

Lys Gly Ile Asp Trp Asp Gly Met Tyr Gly Tyr Gln Cys Met Asp Glu
            20                  25                  30

Ala Val Asp Tyr Ile His His Val Thr Asp Gly Lys Val Thr Met Trp
        35                  40                  45

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

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

Val Trp Ser Tyr Gly Thr Phe Ala Thr Tyr Gly His Ile Ala Ile Val
                85                  90                  95

Val Asn Pro Asp Pro Tyr Gly Asp Leu Gln Tyr Ile Thr Val Leu Glu
            100                 105                 110
```

```
Gln Asn Trp Asn Gly Asn Gly Ile Tyr Lys Thr Glu Phe Ala Thr Ile
        115                 120                 125

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

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

Gln Lys Lys Ile Val Thr Pro Lys Asn Ser Val Glu Arg Ile Lys Asn
                165                 170                 175

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

Asn Arg Gly His Lys Pro Lys Gly Val Val Ile His Asn Thr Ala Gly
        195                 200                 205

Thr Ala Ser Ala Thr Gln Glu Gly Gln Arg Leu Thr Asn Met Thr Phe
    210                 215                 220

Gln Gln Leu Ala Asn Gly Val Ala His Val Tyr Ile Asp Lys Asn Thr
225                 230                 235                 240

Ile Tyr Glu Thr Leu Pro Glu Asp Arg Ile Ala Trp His Val Ala Gln
                245                 250                 255

Gln Tyr Gly Asn Thr Glu Phe Tyr Gly Ile Glu Val Cys Gly Ser Arg
            260                 265                 270

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

Glu Ala Ala Arg Arg Leu Lys Ser Trp Gly Met Arg Ala Asn Arg Asn
    290                 295                 300
```

```
Thr Val Arg Leu His His Thr Phe Ser Ser Thr Glu Cys Pro Asp Met
305                 310                 315                 320

Ser Met Leu Leu His Thr Gly Tyr Ser Met Lys Asn Gly Lys Pro Thr
                325                 330                 335

Gln Asp Ile Thr Asn Lys Cys Ala Asp Tyr Phe Met Lys Gln Ile Asn
            340                 345                 350

Ala Tyr Ile Asp Gly Lys Gln Pro Thr Ser Thr Val Val Gly Ser Ser
        355                 360                 365

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

Asn Thr Asn Glu Tyr Gly Thr Leu Trp Lys Lys Glu His Ala Thr Phe
385                 390                 395                 400

Thr Cys Gly Val Arg Gln Gly Ile Val Thr Arg Thr Thr Gly Pro Phe
                405                 410                 415

Thr Ser Cys Pro Gln Ala Gly Val Leu Tyr Tyr Gly Gln Ser Val Asn
            420                 425                 430

Tyr Asp Thr Val Cys Lys Gln Asp Gly Tyr Val Trp Ile Ser Trp Thr
        435                 440                 445

Thr Ser Asp Gly Tyr Asp Val Trp Met Pro Ile Arg Thr Trp Asp Arg
    450                 455                 460

Ser Thr Asp Lys Val Ser Glu Ile Trp Gly Thr Ile Ser
465                 470                 475
```

<210> 67
<211> 443
<212> PRT
<213> (Phi)NCTC 11261

<400> 67

```
Met Ala Thr Tyr Gln Glu Tyr Lys Ser Arg Ser Asn Gly Asn Ala Tyr
1               5                  10                  15

Asp Ile Asp Gly Ser Phe Gly Ala Gln Cys Trp Asp Gly Tyr Ala Asp
            20                  25                  30

Tyr Cys Lys Tyr Leu Gly Leu Pro Tyr Ala Asn Cys Thr Asn Thr Gly
        35                  40                  45

Tyr Ala Arg Asp Ile Trp Glu Gln Arg His Glu Asn Gly Ile Leu Asn
    50                  55                  60

Tyr Phe Asp Glu Val Glu Val Met Gln Ala Gly Asp Val Ala Ile Phe
65                  70                  75                  80

Met Val Val Asp Gly Val Thr Pro Tyr Ser His Val Ala Ile Phe Asp
                85                  90                  95

Ser Asp Ala Gly Gly Gly Tyr Gly Trp Phe Leu Gly Gln Asn Gln Gly
            100                 105                 110

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

Tyr Pro Thr Ala Phe Arg Pro Lys Val Phe Lys Asn Ala Val Thr Val
    130                 135                 140

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

Ala Tyr Gln Gln Ala Asp Leu Thr Thr Thr Cys Gln Gln Ala Gly Thr
                165                 170                 175

Thr Lys Thr Ile Ile Lys Val Ser Glu Ser Ile Ala Trp Leu Ser Asp
            180                 185                 190
```

```
Arg His Gln Gln Gln Ala Asn Thr Ser Asp Pro Ile Gly Tyr Tyr His
        195                 200                 205

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

Leu Phe Leu Ser Asn Leu Pro Ser Lys Lys Val Ser Tyr Leu Val Ile
225                 230                 235                 240

Asp Tyr Glu Asp Ser Ala Ser Ala Asp Lys Gln Ala Asn Thr Asn Ala
                245                 250                 255

Val Ile Ala Phe Met Asp Lys Ile Ala Ser Ala Gly Tyr Lys Pro Ile
            260                 265                 270

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

Ile Ile Ala Lys Tyr Pro Asn Ser Ile Trp Ile Ala Gly Tyr Pro Asp
    290                 295                 300

Tyr Glu Val Arg Thr Glu Pro Leu Trp Glu Phe Phe Pro Ser Met Asp
305                 310                 315                 320

Gly Val Arg Trp Trp Gln Phe Thr Ser Val Gly Val Ala Gly Gly Leu
                325                 330                 335

Asp Lys Asn Ile Val Leu Leu Ala Asp Asp Ser Ser Lys Met Asp Ile
            340                 345                 350

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

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

```
Leu Ser Thr Asp Tyr Tyr Val Glu Ser Lys Pro Asn Ala Ser Ser Ala
385                 390                 395                 400


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


Val Asn Gly Trp Ser Arg Ile Asn His Pro Glu Ser Ala Gln Trp Val
            420                 425                 430


Glu Asp Ser Tyr Leu Val Asn Ala Thr Asp Met
        435                 440


<210>  68
<211>  334
<212>  PRT
<213>  (Phi)FWLLm3

<400>  68

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


Gly Lys Leu Lys Gly Ala Asn Phe Val Ile Ala His Glu Thr Ala Asn
            20                  25                  30


Ser Lys Ser Thr Ile Asp Asn Glu Val Ser Tyr Met Thr Arg Asn Trp
        35                  40                  45


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


Gln Val Ala Asn Val Asn Tyr Val Ser Trp Gly Ala Gly Gln Tyr Ala
65                  70                  75                  80


Asn Ser Tyr Ser Tyr Ala Gln Val Glu Leu Cys Arg Thr Ser Asn Ala
                85                  90                  95


Thr Thr Phe Lys Lys Asp Tyr Glu Val Tyr Cys Gln Leu Leu Val Asp
            100                 105                 110
```

```
Leu Ala Lys Lys Ala Gly Ile Pro Ile Thr Leu Asp Ser Gly Ser Lys
        115                 120                 125

Thr Ser Asp Lys Gly Ile Lys Ser His Lys Trp Val Ala Asp Lys Leu
    130                 135                 140

Gly Gly Thr Thr His Gln Asp Pro Tyr Ala Tyr Leu Ser Ser Trp Gly
145                 150                 155                 160

Ile Ser Lys Ala Gln Phe Ala Ser Asp Leu Ala Lys Val Ser Gly Gly
                165                 170                 175

Gly Asn Thr Gly Thr Ala Pro Ala Lys Pro Ser Thr Pro Ser Thr Asn
            180                 185                 190

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

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

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

Lys Gly Gly Ala Pro Lys Pro Ser Thr Pro Ala Pro Lys Pro Ser Thr
                245                 250                 255

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

Val Tyr Pro Thr Asn Lys Ala Pro Val Lys Ala Asn Ala Ile Gly Ala
        275                 280                 285

Ile Asn Pro Thr Lys Phe Gly Gly Leu Thr Tyr Thr Ile Gln Lys Asp
    290                 295                 300
```

```
Arg Gly Asn Gly Val Tyr Glu Ile Gln Thr Asp Gln Phe Gly Arg Val
305                 310                 315                 320


Gln Val Tyr Gly Ala Pro Ser Thr Gly Ala Val Ile Lys Lys
                325                 330


<210>  69
<211>  1278
<212>  PRT
<213>  (Phi)BPS13

<400>  69

Met Ala Lys Arg Glu Lys Tyr Ile Phe Asp Val Glu Ala Glu Val Gly
1               5                   10                  15


Lys Ala Ala Lys Ser Ile Lys Ser Leu Glu Ala Glu Leu Ser Lys Leu
            20                  25                  30


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


Lys Glu Met Leu Ala Thr Leu Lys Ala Ala Lys Glu Val Asn Ala Glu
    50                  55                  60


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


Lys Val Ser Arg Lys Glu Phe Asn Asp Ser Lys Val Ile Asn Asn Ala
                85                  90                  95


Lys Thr Ser Val Gln Gly Gly Lys Val Thr Asp Ser Phe Gly Gln Met
            100                 105                 110


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


Asn His Arg Lys Ala Met Val Asp Arg Gly Gln Gln Tyr Thr Pro His
```

```
    130                 135                 140

Leu Lys Thr Asn Arg Lys Asp Ser Gln Gly Asn Ser Asn Pro Ser Met
145                 150                 155                 160

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

Lys Phe Leu Asn Gly Gln Asn Glu Ala Thr Thr Gly Leu Asn Gln Ala
            180                 185                 190

Leu Tyr Gln Leu Lys Glu Ile Ser Lys Leu Asn Arg Arg Ser Glu Ser
        195                 200                 205

Leu Ser Arg Arg Ala Ser Ala Ser Gly Tyr Met Ser Phe Gln Gln Tyr
    210                 215                 220

Ser Asn Phe Thr Gly Asp Arg Arg Thr Val Gln Gln Thr Tyr Gly Gly
225                 230                 235                 240

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

Thr Gly Ile Ser Lys Glu Leu Asp Arg Leu Asn Ser Lys Lys Gly Leu
            260                 265                 270

Thr Ala Arg Glu Gly Glu Glu Arg Lys Lys Leu Met Arg Gln Leu Glu
        275                 280                 285

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

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

Ala Gln Val Ser Val Lys Pro Glu Arg Gly Thr Met Arg Gly Met Met
                325                 330                 335
```

```
Tyr Glu Arg Ala Pro Ala Ile Ala Leu Ala Ile Gly Gly Ala Ile Thr
            340                 345                 350

Ala Thr Ile Gly Lys Leu Tyr Ser Glu Gly Gly Asn His Ser Lys Ala
        355                 360                 365

Met Arg Pro Asp Glu Met Tyr Val Gly Gln Gln Thr Gly Ala Val Gly
    370                 375                 380

Ala Asn Trp Arg Pro Asn Arg Thr Ala Thr Met Arg Ser Gly Leu Gly
385                 390                 395                 400

Asn His Leu Gly Phe Thr Gly Gln Glu Met Met Glu Phe Gln Ser Asn
                405                 410                 415

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

Thr Thr Gly Gln Ala Thr Phe Ala Arg Ala Thr Gly Leu Gly Ser Asp
        435                 440                 445

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

Gly Asn Gln Thr Lys Gln Phe Gln Asn Ala Phe Leu Gly Ala Met Lys
465                 470                 475                 480

Gln Ser Gly Ala Val Gly Arg Glu Lys Asp Gln Leu Lys Ala Leu Asn
                485                 490                 495

Gly Ile Leu Ser Ser Met Ser Gln Asn Arg Thr Val Ser Asn Gln Asp
            500                 505                 510

Met Met Arg Thr Val Gly Leu Gln Ser Ala Ile Ser Ser Ser Gly Val
        515                 520                 525
```

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

Asn Gly Ile Arg Glu Gly Phe Asn Asp Pro Gln Met Arg Val Leu Phe
545                 550                 555                 560

Gly Gln Gly Thr Lys Tyr Gln Gly Met Gly Gly Arg Ala Ala Leu Arg
                565                 570                 575

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

Ile Asp Ala Ser Lys Ala Ser Ala Gly Gln Asp Pro Ala Glu Gln Ala
        595                 600                 605

Glu Val Leu Ala Thr Leu Ala Ser Lys Met Gly Val Asn Met Ser Ser
    610                 615                 620

Asp Gln Ala Arg Gly Leu Ile Asp Leu Gln Pro Ser Gly Lys Leu Thr
625                 630                 635                 640

Lys Glu Asn Ile Asp Lys Val Met Lys Glu Gly Leu Lys Glu Gly Ser
                645                 650                 655

Ile Glu Ser Ala Lys Arg Asp Lys Ala Tyr Ser Glu Ser Lys Ala Ser
            660                 665                 670

Ile Asp Asn Ser Ser Glu Ala Ala Thr Ala Lys Gln Ala Thr Glu Leu
        675                 680                 685

Asn Asp Met Gly Ser Lys Leu Arg Gln Ala Asn Ala Ala Leu Gly Gly
    690                 695                 700

Leu Pro Ala Pro Leu Tyr Thr Ala Ile Ala Ala Val Val Ala Phe Thr
705                 710                 715                 720
```

```
Ala Ala Val Ala Gly Ser Ala Leu Met Phe Lys Gly Ala Ser Trp Leu
                725                 730                 735

Lys Gly Gly Met Ala Ser Lys Tyr Gly Gly Lys Gly Gly Lys Gly Gly
            740                 745                 750

Lys Gly Gly Gly Thr Gly Gly Gly Gly Gly Ala Gly Gly Ala Ala Ala
        755                 760                 765

Thr Gly Ala Gly Ala Ala Ala Gly Ala Gly Gly Val Gly Ala Ala Ala
    770                 775                 780

Ala Gly Glu Val Gly Ala Gly Val Ala Ala Gly Gly Ala Ala Ala Gly
785                 790                 795                 800

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

Lys Gly Ala Gly Lys Leu Met Leu Pro Leu Gly Ile Leu Met Gly Ala
            820                 825                 830

Ser Glu Ile Met Gln Ala Pro Glu Glu Ala Lys Gly Ser Ala Ile Gly
        835                 840                 845

Ser Ala Val Gly Gly Ile Gly Gly Gly Ile Ala Gly Gly Ala Ala Thr
    850                 855                 860

Gly Ala Ile Ala Gly Ser Phe Leu Gly Pro Ile Gly Thr Ala Val Gly
865                 870                 875                 880

Gly Ile Ala Gly Gly Ile Ala Gly Gly Phe Ala Gly Ser Ser Leu Gly
                885                 890                 895

Glu Thr Ile Gly Gly Trp Phe Asp Ser Gly Pro Lys Glu Asp Ala Ser
            900                 905                 910

Ala Ala Asp Lys Ala Lys Ala Asp Ala Ser Ala Ala Ala Leu Ala Ala
```

```
        915                 920                 925

Ala Ala Gly Thr Ser Gly Ala Val Gly Ser Ser Ala Leu Gln Ser Gln
    930                 935                 940

Met Ala Gln Gly Ile Thr Gly Ala Pro Asn Met Ser Gln Val Gly Ser
945                 950                 955                 960

Met Ala Ser Ala Leu Gly Ile Ser Ser Gly Ala Met Ala Ser Ala Leu
                965                 970                 975

Gly Ile Ser Ser Gly Gln Glu Asn Gln Ile Gln Thr Met Thr Asp Lys
            980                 985                 990

Glu Asn Thr Asn Thr Lys Lys Ala  Asn Glu Ala Lys Lys  Gly Asp Asn
        995                 1000                1005

Leu Ser  Tyr Glu Arg Glu Asn  Ile Ser Met Tyr Glu  Arg Val Leu
    1010                1015                1020

Thr Arg  Ala Glu Gln Ile Leu  Ala Gln Ala Arg Ala  Gln Asn Gly
    1025                1030                1035

Ile Met  Gly Val Gly Gly Gly  Gly Thr Ala Gly Ala  Gly Gly Gly
    1040                1045                1050

Ile Asn  Gly Phe Thr Gly Gly  Gly Lys Leu Gln Phe  Leu Ala Ala
    1055                1060                1065

Gly Gln  Lys Trp Ser Ser Ser  Asn Leu Gln Gln His  Asp Leu Gly
    1070                1075                1080

Phe Thr  Asp Gln Asn Leu Thr  Ala Glu Asp Leu Asp  Lys Trp Ile
    1085                1090                1095

Asp Ser  Lys Ala Pro Gln Gly  Ser Met Met Arg Gly  Met Gly Ala
    1100                1105                1110
```

```
Thr Phe  Leu Lys Ala Gly Gln  Glu Tyr Gly Leu Asp  Pro Arg Tyr
    1115                1120                1125

Leu Ile  Ala His Ala Ala Glu  Glu Ser Gly Trp Gly  Thr Ser Lys
    1130                1135                1140

Ile Ala  Arg Asp Lys Gly Asn  Phe Phe Gly Ile Gly  Ala Phe Asp
    1145                1150                1155

Asp Ser  Pro Tyr Ser Ser Ala  Tyr Glu Phe Lys Asp  Gly Thr Gly
    1160                1165                1170

Ser Ala  Ala Glu Arg Gly Ile  Met Gly Gly Ala Lys  Trp Ile Ser
    1175                1180                1185

Glu Lys  Tyr Tyr Gly Lys Gly  Asn Thr Thr Leu Asp  Lys Met Lys
    1190                1195                1200

Ala Ala  Gly Tyr Ala Thr Asn  Ala Ser Trp Ala Pro  Asn Ile Ala
    1205                1210                1215

Ser Ile  Met Ala Gly Ala Pro  Thr Gly Ser Gly Ser  Gly Asn Val
    1220                1225                1230

Thr Ala  Thr Ile Asn Val Asn  Val Lys Gly Asp Glu  Lys Val Ser
    1235                1240                1245

Asp Lys  Leu Lys Asn Ser Ser  Asp Met Lys Lys Ala  Gly Lys Asp
    1250                1255                1260

Ile Gly  Ser Leu Leu Gly Phe  Tyr Ser Arg Glu Met  Thr Ile Ala
    1265                1270                1275
```

<210> 70
<211> 495
<212> PRT

<213> (Phi)GH15

<400> 70

```
Met Ala Lys Thr Gln Ala Glu Ile Asn Lys Arg Leu Asp Ala Tyr Ala
1               5                  10                  15


Lys Gly Thr Val Asp Ser Pro Tyr Arg Ile Lys Lys Ala Thr Ser Tyr
            20                  25                  30


Asp Pro Ser Phe Gly Val Met Glu Ala Gly Ala Ile Asp Ala Asp Gly
        35                  40                  45


Tyr Tyr His Ala Gln Cys Gln Asp Leu Ile Thr Asp Tyr Val Leu Trp
    50                  55                  60


Leu Thr Asp Asn Lys Val Arg Thr Trp Gly Asn Ala Lys Asp Gln Ile
65                  70                  75                  80


Lys Gln Ser Tyr Gly Thr Gly Phe Lys Ile His Glu Asn Lys Pro Ser
                85                  90                  95


Thr Val Pro Lys Lys Gly Trp Ile Ala Val Phe Thr Ser Gly Ser Tyr
            100                 105                 110


Gln Gln Trp Gly His Ile Gly Ile Val Tyr Asp Gly Gly Asn Thr Ser
        115                 120                 125


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


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


Ile Pro Val Lys Ala Gly Thr Thr Val Lys Lys Glu Thr Ala Lys Lys
                165                 170                 175


Ser Ala Ser Lys Thr Pro Ala Pro Lys Lys Lys Ala Thr Leu Lys Val
```

```
            180                 185                 190

Ser Lys Asn His Ile Asn Tyr Thr Met Asp Lys Arg Gly Lys Lys Pro
        195                 200                 205

Glu Gly Met Val Ile His Asn Asp Ala Gly Arg Ser Ser Gly Gln Gln
    210                 215                 220

Tyr Glu Asn Ser Leu Ala Asn Ala Gly Tyr Ala Arg Tyr Ala Asn Gly
225                 230                 235                 240

Ile Ala His Tyr Tyr Gly Ser Glu Gly Tyr Val Trp Glu Ala Ile Asp
                245                 250                 255

Ala Lys Asn Gln Ile Ala Trp His Thr Gly Asp Gly Thr Gly Ala Asn
            260                 265                 270

Ser Gly Asn Phe Arg Phe Ala Gly Ile Glu Val Cys Gln Ser Met Ser
        275                 280                 285

Ala Ser Asp Ala Gln Phe Leu Lys Asn Glu Gln Ala Val Phe Gln Phe
    290                 295                 300

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

Val Arg Leu His Met Glu Phe Val Pro Thr Ala Cys Pro His Arg Ser
                325                 330                 335

Met Val Leu His Thr Gly Phe Asn Pro Val Thr Gln Gly Arg Pro Ser
            340                 345                 350

Gln Ala Ile Met Asn Lys Leu Lys Asp Tyr Phe Ile Lys Gln Ile Lys
        355                 360                 365

Asn Tyr Met Asp Lys Gly Thr Ser Ser Ser Thr Val Val Lys Asp Gly
    370                 375                 380
```

```
Lys Thr Ser Ser Ala Ser Thr Pro Ala Thr Arg Pro Val Thr Gly Ser
385                 390                 395                 400


Trp Lys Lys Asn Gln Tyr Gly Thr Trp Tyr Lys Pro Glu Asn Ala Thr
                405                 410                 415


Phe Val Asn Gly Asn Gln Pro Ile Val Thr Arg Ile Gly Ser Pro Phe
            420                 425                 430


Leu Asn Ala Pro Val Gly Gly Asn Leu Pro Ala Gly Ala Thr Ile Val
        435                 440                 445


Tyr Asp Glu Val Cys Ile Gln Ala Gly His Ile Trp Ile Gly Tyr Asn
    450                 455                 460


Ala Tyr Asn Gly Asp Arg Val Tyr Cys Pro Val Arg Thr Cys Gln Gly
465                 470                 475                 480


Val Pro Pro Asn His Ile Pro Gly Val Ala Trp Gly Val Phe Lys
                485                 490                 495


<210>  71
<211>  264
<212>  PRT
<213>  (Phi)8074-B1

<400>  71

Met Lys Ile Gly Ile Asp Met Gly His Thr Leu Ser Gly Ala Asp Tyr
1               5                   10                  15


Gly Val Val Gly Leu Arg Pro Glu Ser Val Leu Thr Arg Glu Val Gly
            20                  25                  30


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

```
Cys Thr Val Asp Lys Ala Ser Ser Val Ser Glu Ser Leu Tyr Thr Arg
    50                  55                  60

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

Phe Asn Ala Thr Pro Gly Gly Thr Gly Thr Glu Val Tyr Thr Tyr Ala
                85                  90                  95

Gly Arg Gln Leu Gly Glu Ala Thr Arg Ile Arg Gln Glu Phe Lys Ser
            100                 105                 110

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

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

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

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

Asn Asn Asn Gln Gly Gly Asn Lys Val Lys Ala Val Val Ile Tyr Asn
            180                 185                 190

Glu Gly Ala Asp Arg Arg Gly Ala Glu Tyr Leu Ala Asp Tyr Leu Asn
        195                 200                 205

Cys Pro Thr Ile Ser Asn Ser Arg Thr Phe Asp Tyr Ser Cys Val Glu
    210                 215                 220

His Val Tyr Ala Val Gly Gly Lys Lys Glu Gln Tyr Thr Lys Tyr Leu
225                 230                 235                 240

Lys Thr Leu Leu Ser Gly Ala Asn Arg Tyr Asp Thr Met Gln Gln Ile
```

```
                245                 250                 255


Leu Asn Phe Ile Asn Gly Gly Lys
            260


<210>  72
<211>  209
<212>  PRT
<213>  (Phi)SPN1S

<400>  72

Met Asp Ile Asn Gln Phe Arg Arg Ala Ser Gly Ile Asn Glu Gln Leu
1               5                   10                  15


Ala Ala Arg Trp Phe Pro His Ile Thr Thr Ala Met Asn Glu Phe Gly
            20                  25                  30


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


Glu Ser Gly Gly Phe Thr Arg Leu Gln Glu Asn Phe Asn Tyr Ser Val
    50                  55                  60


Asn Gly Leu Ser Gly Phe Ile Arg Ala Gly Arg Ile Thr Pro Asp Gln
65                  70                  75                  80


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


Arg Gln Arg Ala Ile Ala Asn Leu Val Tyr Ser Lys Arg Met Gly Asn
            100                 105                 110


Asn Gly Pro Gly Asp Gly Trp Asn Tyr Arg Gly Arg Gly Leu Ile Gln
        115                 120                 125


Ile Thr Gly Leu Asn Asn Tyr Arg Asp Cys Gly Asn Gly Leu Lys Val
    130                 135                 140
```

```
Asp Leu Val Ala Gln Pro Glu Leu Leu Ala Gln Asp Glu Tyr Ala Ala
145                 150                 155                 160


Arg Ser Ala Ala Trp Phe Phe Ser Ser Lys Gly Cys Met Lys Tyr Thr
                165                 170                 175


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


Ile Asp Asp Arg Arg Thr Arg Tyr Ala Ala Ala Arg Lys Val Leu Ala
        195                 200                 205


Leu
```

<210> 73
<211> 290
<212> PRT
<213> (Phi)CN77

<400> 73

```
Met Gly Tyr Trp Gly Tyr Pro Asn Gly Gln Ile Pro Asn Asp Lys Met
1               5                   10                  15


Ala Leu Tyr Arg Gly Cys Leu Leu Arg Ala Asp Ala Ala Ala Gln Ala
            20                  25                  30


Tyr Ala Leu Gln Asp Ala Tyr Thr Arg Ala Thr Gly Lys Pro Leu Val
        35                  40                  45


Ile Leu Glu Gly Tyr Arg Asp Leu Thr Arg Gln Lys Tyr Leu Arg Asn
    50                  55                  60


Leu Tyr Leu Ser Gly Arg Gly Asn Ile Ala Ala Val Pro Gly Leu Ser
65                  70                  75                  80


Asn His Gly Trp Gly Leu Ala Cys Asp Phe Ala Ala Pro Leu Asn Ser
```

```
                85                  90                  95

Ser Gly Ser Glu Glu His Arg Trp Met Arg Gln Asn Ala Pro Leu Phe
            100                 105                 110

Gly Phe Asp Trp Ala Arg Gly Lys Ala Asp Asn Glu Pro Trp His Trp
        115                 120                 125

Glu Tyr Gly Asn Val Pro Val Ser Arg Trp Ala Ser Leu Asp Val Thr
    130                 135                 140

Pro Ile Asp Arg Asn Asp Met Ala Asp Ile Thr Glu Gly Gln Met Gln
145                 150                 155                 160

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

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

Ala Asn Ala Asn Ser Ile Ala Glu Val Pro Asp Lys Thr Trp Asp Val
        195                 200                 205

Leu Val Asp His Pro Leu Ala Lys Asn Glu Asp Gly Thr Pro Leu Lys
    210                 215                 220

Val Arg Leu Gly Asp Val Ala Lys Tyr Glu Pro Leu Glu His Gln Asn
225                 230                 235                 240

Thr Arg Asp Ala Ile Ala Lys Leu Gly Thr Leu Gln Phe Thr Asp Lys
                245                 250                 255

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

Leu Val Lys Lys Ile Val Asp Gly Val Arg Ala Leu Phe Gly Arg Ala
        275                 280                 285
```

Ala Ala
290

<210> 74
<211> 185
<212> PRT
<213> (Phi)AB2

<400> 74

Met Ile Leu Thr Lys Asp Gly Phe Ser Ile Ile Arg Asn Glu Leu Phe
1 5 10 15

Gly Gly Lys Leu Asp Gln Thr Gln Val Asp Ala Ile Asn Phe Ile Val
20 25 30

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

Leu Ala Thr Ile Tyr His Glu Thr Gly Leu Pro Ser Gly Tyr Arg Thr
50 55 60

Met Gln Pro Ile Lys Glu Ala Gly Ser Asp Ser Tyr Leu Arg Ser Lys
65 70 75 80

Lys Tyr Tyr Pro Tyr Ile Gly Tyr Gly Tyr Val Gln Leu Thr Trp Lys
85 90 95

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

Asn Pro Glu Lys Ala Leu Glu Pro Leu Ile Ala Ile Gln Ile Ala Ile
115 120 125

Lys Gly Met Leu Asn Gly Trp Phe Thr Gly Val Gly Phe Arg Arg Lys
130 135 140

```
Arg Pro Val Ser Lys Tyr Asn Lys Gln Gln Tyr Val Ala Ala Arg Asn
145                 150                 155                 160


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


Ile Phe Glu Arg Ala Leu Arg Ser Leu
            180                 185


<210>  75
<211>  262
<212>  PRT
<213>  (Phi)B4

<400>  75

Met Ala Met Ala Leu Gln Thr Leu Ile Asp Lys Ala Asn Arg Lys Leu
1               5                   10                  15


Asn Val Ser Gly Met Arg Lys Asp Val Ala Asp Arg Thr Arg Ala Val
            20                  25                  30


Ile Thr Gln Met His Ala Gln Gly Ile Tyr Ile Cys Val Ala Gln Gly
        35                  40                  45


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


Lys Pro Gly Ser Ile Val Thr Asn Ala Arg Gly Gly Gln Ser Asn His
65                  70                  75                  80


Asn Tyr Gly Val Ala Val Asp Leu Cys Leu Tyr Thr Gln Asp Gly Ser
                85                  90                  95


Asp Val Ile Trp Thr Val Glu Gly Asn Phe Arg Lys Val Ile Ala Ala
            100                 105                 110


Met Lys Ala Gln Gly Phe Lys Trp Gly Gly Asp Trp Val Ser Phe Lys
        115                 120                 125
```

```
Asp Tyr Pro His Phe Glu Leu Tyr Asp Val Val Gly Gly Gln Lys Pro
    130                 135                 140

Pro Ala Asp Asn Gly Gly Ala Val Asp Asn Gly Gly Gly Ser Gly Ser
145                 150                 155                 160

Thr Gly Gly Ser Gly Gly Gly Ser Thr Gly Gly Gly Ser Thr Gly Gly
                165                 170                 175

Gly Tyr Asp Ser Ser Trp Phe Thr Lys Glu Thr Gly Thr Phe Val Thr
            180                 185                 190

Asn Thr Ser Ile Lys Leu Arg Thr Ala Pro Phe Thr Ser Ala Asp Val
        195                 200                 205

Ile Ala Thr Leu Pro Ala Gly Ser Pro Val Asn Tyr Asn Gly Phe Gly
    210                 215                 220

Ile Glu Tyr Asp Gly Tyr Val Trp Ile Arg Gln Pro Arg Ser Asn Gly
225                 230                 235                 240

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

Tyr Trp Gly Thr Phe Lys
            260
```

<210> 76
<211> 274
<212> PRT
<213> (Phi)CTP1

<400> 76

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

```
Lys Leu Leu Phe Asn Leu Gly Tyr Ile Gly Ile Ile Ala Lys Ala Ser
            20                  25                  30

Glu Gly Gly Thr Phe Val Asp Lys Tyr Tyr Lys Gln Asn Tyr Thr Asn
        35                  40                  45

Thr Lys Ala Gln Gly Lys Ile Thr Gly Ala Tyr His Phe Ala Asn Phe
    50                  55                  60

Ser Thr Ile Ala Lys Ala Gln Gln Glu Ala Asn Phe Phe Leu Asn Cys
65                  70                  75                  80

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

Cys Thr Gly Asp Ile Thr Asp Ala Cys Leu Ala Phe Leu Asn Ile Val
            100                 105                 110

Ala Lys Lys Phe Lys Cys Val Val Tyr Cys Asn Ser Ser Phe Ile Lys
        115                 120                 125

Glu His Leu Asn Ser Lys Ile Cys Ala Tyr Pro Leu Trp Ile Ala Asn
    130                 135                 140

Tyr Gly Val Ala Thr Pro Ala Phe Thr Leu Trp Thr Lys Tyr Ala Met
145                 150                 155                 160

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

Asp Phe Ser Tyr Ile Thr Asp Glu Phe Ile Lys Tyr Ile Lys Gly Glu
            180                 185                 190

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

Ala Ala Glu Tyr Leu Ala Asp Arg Leu Ala Cys Pro Thr Ile Asn Asn
```

```
    210                 215                 220

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

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

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

Leu Lys
```

<210> 77
<211> 628
<212> PRT
<213> Staphylococcus virus 187

<400> 77

```
Met Ala Leu Pro Lys Thr Gly Lys Pro Thr Ala Lys Gln Val Val Asp
1               5                   10                  15

Trp Ala Ile Asn Leu Ile Gly Ser Gly Val Asp Val Asp Gly Tyr Tyr
            20                  25                  30

Gly Arg Gln Cys Trp Asp Leu Pro Asn Tyr Ile Phe Asn Arg Tyr Trp
        35                  40                  45

Asn Phe Lys Thr Pro Gly Asn Ala Arg Asp Met Ala Trp Tyr Arg Tyr
    50                  55                  60

Pro Glu Gly Phe Lys Val Phe Arg Asn Thr Ser Asp Phe Val Pro Lys
65                  70                  75                  80

Pro Gly Asp Ile Ala Val Trp Thr Gly Gly Asn Tyr Asn Trp Asn Thr
                85                  90                  95
```

```
Trp Gly His Thr Gly Ile Val Val Gly Pro Ser Thr Lys Ser Tyr Phe
            100                 105                 110

Tyr Ser Val Asp Gln Asn Trp Asn Asn Ser Asn Ser Tyr Val Gly Ser
        115                 120                 125

Pro Ala Ala Lys Ile Lys His Ser Tyr Phe Gly Val Thr His Phe Val
    130                 135                 140

Arg Pro Ala Tyr Lys Ala Glu Pro Lys Pro Thr Pro Pro Ala Gln Asn
145                 150                 155                 160

Asn Pro Ala Pro Lys Asp Pro Glu Pro Ser Lys Lys Pro Glu Ser Asn
                165                 170                 175

Lys Pro Ile Tyr Lys Val Val Thr Lys Ile Leu Phe Thr Thr Ala His
            180                 185                 190

Ile Glu His Val Lys Ala Asn Arg Phe Val His Tyr Ile Thr Lys Ser
        195                 200                 205

Asp Asn His Asn Asn Lys Pro Asn Lys Ile Val Ile Lys Asn Thr Asn
    210                 215                 220

Thr Ala Leu Ser Thr Ile Asp Val Tyr Arg Tyr Arg Asp Glu Leu Asp
225                 230                 235                 240

Lys Asp Glu Ile Pro His Phe Phe Val Asp Arg Leu Asn Val Trp Ala
                245                 250                 255

Cys Arg Pro Ile Glu Asp Ser Ile Asn Gly Tyr His Asp Ser Val Val
            260                 265                 270

Leu Ser Ile Thr Glu Thr Arg Thr Ala Leu Ser Asp Asn Phe Lys Met
        275                 280                 285
```

```
Asn Glu Ile Glu Cys Leu Ser Leu Ala Glu Ser Ile Leu Lys Ala Asn
    290                 295                 300

Asn Lys Lys Met Ser Ala Ser Asn Ile Ile Val Asp Asn Lys Ala Trp
305                 310                 315                 320

Arg Thr Phe Lys Leu His Thr Gly Lys Asp Ser Leu Lys Ser Ser Ser
                325                 330                 335

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

Phe Asn Asp Lys Asp Lys Leu Leu Asn Asn Lys Pro Lys Asp Val Val
        355                 360                 365

Glu Arg Ile Arg Ile Arg Thr Ile Val Lys Glu Asn Thr Lys Phe Val
    370                 375                 380

Pro Ser Glu Leu Lys Pro Arg Asn Asn Ile Arg Asp Lys Gln Asp Ser
385                 390                 395                 400

Lys Ile Asp Arg Val Ile Asn Asn Tyr Thr Leu Lys Gln Ala Leu Asn
                405                 410                 415

Ile Gln Tyr Lys Leu Asn Pro Lys Pro Gln Thr Ser Asn Gly Val Ser
            420                 425                 430

Trp Tyr Asn Ala Ser Val Asn Gln Ile Lys Ser Ala Met Asp Thr Thr
        435                 440                 445

Lys Ile Phe Asn Asn Asn Val Gln Val Tyr Gln Phe Leu Lys Leu Asn
    450                 455                 460

Gln Tyr Gln Gly Ile Pro Val Asp Lys Leu Asn Lys Leu Leu Val Gly
465                 470                 475                 480

Lys Gly Thr Leu Ala Asn Gln Gly His Ala Phe Ala Asp Gly Cys Lys
```

```
                485                 490                 495

Lys Tyr Asn Ile Asn Glu Ile Tyr Leu Ile Ala His Arg Phe Leu Glu
            500                 505                 510

Ser Ala Asn Gly Thr Ser Phe Phe Ala Ser Gly Lys Thr Gly Val Tyr
        515                 520                 525

Asn Tyr Phe Gly Ile Gly Ala Phe Asp Asn Asn Pro Asn Asn Ala Met
    530                 535                 540

Ala Phe Ala Arg Ser His Gly Trp Thr Ser Pro Thr Lys Ala Ile Ile
545                 550                 555                 560

Gly Gly Ala Glu Phe Val Gly Lys Gly Tyr Phe Asn Val Gly Gln Asn
                565                 570                 575

Thr Leu Tyr Arg Met Arg Trp Asn Pro Gln Lys Pro Gly Thr His Gln
            580                 585                 590

Tyr Ala Thr Asp Ile Ser Trp Ala Lys Val Gln Ala Gln Met Ile Ser
        595                 600                 605

Ala Met Tyr Lys Glu Ile Gly Leu Thr Gly Asp Tyr Phe Ile Tyr Asp
    610                 615                 620

Gln Tyr Lys Lys
625
```

<210> 78
<211> 291
<212> PRT
<213> (Phi)P35

<400> 78

```
Met Ala Arg Lys Phe Thr Lys Ala Glu Leu Val Ala Lys Ala Glu Lys
1               5                   10                  15
```

```
Lys Val Gly Gly Leu Lys Pro Asp Val Lys Lys Ala Val Leu Ser Ala
            20                  25                  30

Val Lys Glu Ala Tyr Asp Arg Tyr Gly Ile Gly Ile Ile Val Ser Gln
        35                  40                  45

Gly Tyr Arg Ser Ile Ala Glu Gln Asn Gly Leu Tyr Ala Gln Gly Arg
    50                  55                  60

Thr Lys Pro Gly Asn Ile Val Thr Asn Ala Lys Gly Gly Gln Ser Asn
65                  70                  75                  80

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

Gly Lys Ile Asp Ser Trp Gln Pro Ser Ala Thr Ile Val Asn Met Met
            100                 105                 110

Lys Arg Arg Gly Phe Lys Trp Gly Gly Asp Trp Lys Ser Phe Thr Asp
        115                 120                 125

Leu Pro His Phe Glu Ala Cys Asp Trp Tyr Arg Gly Glu Arg Lys Tyr
    130                 135                 140

Lys Val Asp Thr Ser Glu Trp Lys Lys Lys Glu Asn Ile Asn Ile Val
145                 150                 155                 160

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

Lys Ser Val Arg Gln Trp Lys His Gly Thr Lys Val Lys Leu Thr Lys
            180                 185                 190

His Asn Ser His Trp Tyr Thr Gly Val Val Lys Asp Gly Asn Lys Ser
        195                 200                 205
```

```
Val Arg Gly Tyr Ile Tyr His Ser Met Ala Lys Val Thr Ser Lys Asn
    210                 215                 220

Ser Asp Gly Ser Val Asn Ala Thr Ile Asn Ala His Ala Phe Cys Trp
225                 230                 235                 240

Asp Asn Lys Lys Leu Asn Gly Gly Asp Phe Ile Asn Leu Lys Arg Gly
                245                 250                 255

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

Phe Ala Ser Arg Lys Lys Thr Phe Tyr Ile Pro Arg Tyr Met Phe Asp
        275                 280                 285

Ile Lys Lys
    290
```

<210> 79
<211> 342
<212> PRT
<213> (Phi)CP-7

<400> 79

```
Met Val Lys Lys Asn Asp Leu Phe Val Asp Val Ala Ser His Gln Gly
1               5                   10                  15

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

Ile Lys Val Ser Glu Ser Thr Ser Tyr Leu Asn Pro Cys Leu Ser Ala
        35                  40                  45

Gln Val Ser Gln Ser Asn Pro Ile Gly Phe Tyr His Phe Ala Trp Phe
    50                  55                  60

Gly Gly Asn Glu Glu Glu Ala Glu Ala Glu Ala Arg Tyr Phe Leu Asp
65                  70                  75                  80
```

```
Asn Val Pro Thr Gln Val Lys Tyr Leu Val Leu Asp Tyr Glu Asp His
                85                  90                  95

Ala Ser Ala Ser Val Gln Arg Asn Thr Thr Ala Cys Leu Arg Phe Met
            100                 105                 110

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

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

Pro Asn Ser Leu Trp Ile Ala Gly Tyr Gly Leu Asn Asp Gly Thr Ala
145                 150                 155                 160

Asn Phe Glu Tyr Phe Pro Ser Met Asp Gly Ile Arg Trp Trp Gln Tyr
                165                 170                 175

Ser Ser Asn Pro Phe Asp Lys Asn Ile Val Leu Leu Asp Asp Glu Lys
            180                 185                 190

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

Ala Asn Glu Val Ile Gln Gly Leu Trp Gly Asn Gly Gln Glu Arg Tyr
    210                 215                 220

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

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

Ala Asn Glu Val Ile Gln Gly Leu Trp Gly Asn Gly Gln Glu Arg Tyr
            260                 265                 270
```

```
Asp Ser Leu Ala Asn Ala Gly Tyr Asp Pro Gln Ala Val Gln Asp Lys
        275                 280                 285

Val Asn Glu Ile Leu Asn Ala Arg Glu Ile Ala Asp Leu Thr Thr Val
    290                 295                 300

Ala Asn Glu Val Ile Gln Gly Leu Trp Gly Asn Gly Gln Glu Arg Tyr
305                 310                 315                 320

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

Val Asn Glu Leu Leu Ser
            340
```

<210> 80
<211> 328
<212> PRT
<213> (Phi)EFAP-1

<400> 80

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

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

Asn Leu Gln Pro Trp Glu Gly Ser Gln Gln Leu Ala Tyr Pro Asn Lys
        35                  40                  45

Ile Ile Leu His Glu Thr Ala Asn Pro Arg Ala Thr Gly Arg Asn Glu
    50                  55                  60

Ala Thr Tyr Met Lys Asn Asn Trp Phe Asn Ala His Thr Thr Ala Ile
65                  70                  75                  80

Val Gly Asp Gly Gly Ile Val Tyr Lys Val Ala Pro Glu Gly Asn Val
```

```
                85                  90                  95

Ser Trp Gly Ala Gly Asn Ala Asn Pro Tyr Ala Pro Val Gln Ile Glu
            100                 105                 110

Leu Gln His Thr Asn Asp Pro Glu Leu Phe Lys Ala Asn Tyr Lys Ala
        115                 120                 125

Tyr Val Asp Tyr Thr Arg Asp Met Gly Lys Lys Phe Gly Ile Pro Met
    130                 135                 140

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

Gln Trp Val Thr Asp Phe Val Trp Gly Asp His Thr Asp Pro Tyr Gly
                165                 170                 175

Tyr Leu Ala Lys Met Gly Ile Ser Lys Ala Gln Leu Ala His Asp Leu
            180                 185                 190

Ala Asn Gly Val Ser Gly Asn Thr Ala Thr Pro Thr Pro Lys Pro Asp
        195                 200                 205

Lys Pro Lys Pro Thr Gln Pro Ser Lys Pro Ser Asn Lys Lys Arg Phe
    210                 215                 220

Asn Tyr Arg Val Asp Gly Leu Glu Tyr Val Asn Gly Met Trp Gln Ile
225                 230                 235                 240

Tyr Asn Glu His Leu Gly Lys Ile Asp Phe Asn Trp Thr Glu Asn Gly
                245                 250                 255

Ile Pro Val Glu Val Val Asp Lys Val Asn Pro Ala Thr Gly Gln Pro
            260                 265                 270

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

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


Leu Ser His Val Gln Leu Pro Asn Glu Phe Ile Trp Leu Phe Thr Asp
305                 310                 315                 320


Ser Lys Gln Ala Leu Met Tyr Gln
                325
```

<210> 81
<211> 48
<212> PRT
<213> Homo sapiens

<400> 81

```
Ser Ser Leu Leu Glu Lys Gly Leu Asp Gly Ala Lys Lys Ala Val Gly
1               5                   10                  15


Gly Leu Gly Lys Leu Gly Lys Asp Ala Val Glu Asp Leu Glu Ser Val
            20                  25                  30


Gly Lys Gly Ala Val His Asp Val Lys Asp Val Leu Asp Ser Val Leu
        35                  40                  45
```

<210> 82
<211> 37
<212> PRT
<213> Hyalophora cecropia

<400> 82

```
Lys Trp Lys Leu Phe Lys Lys Ile Glu Lys Val Gly Gln Asn Ile Arg
1               5                   10                  15


Asp Gly Ile Ile Lys Ala Gly Pro Ala Val Ala Val Val Gly Gln Ala
            20                  25                  30


Thr Gln Ile Ala Lys
```

35

<210> 83
<211> 62
<212> PRT
<213> Drosophila teissieri

<400> 83

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

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

Ala Leu His Thr Gly Ala Gln Ala Gly Phe Lys Leu Ile Arg Pro Val
35 40 45

Glu Arg Gly Ala Thr Pro Lys Lys Ser Glu Lys Pro Glu Lys
50 55 60

<210> 84
<211> 66
<212> PRT
<213> Bombyz mori

<400> 84

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

Val Ser Cys Ser Thr Ala Ala Pro Ala Lys Ile Pro Ile Lys Ala Ile
20 25 30

Lys Thr Val Gly Lys Ala Val Gly Lys Gly Leu Arg Ala Ile Asn Ile
35 40 45

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

Lys His
65

<210> 85
<211> 71
<212> PRT
<213> Ceratitis capitata

<400> 85

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

Ala Leu Gln Cys Val Val Ala Glu Pro Ala Ala Glu Asp Ser Val Val
20 25 30

Val Lys Arg Ser Ile Gly Ser Ala Leu Lys Lys Ala Leu Pro Val Ala
35 40 45

Lys Lys Ile Gly Lys Ile Ala Leu Pro Ile Ala Lys Ala Ala Leu Pro
50 55 60

Val Ala Ala Gly Leu Val Gly
65 70

<210> 86
<211> 53
<212> PRT
<213> Apis mellifera

<400> 86

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

Ala Phe Ala Tyr Val Pro Leu Pro Asn Val Pro Gln Pro Gly Arg Arg
20 25 30

Pro Phe Pro Thr Phe Pro Gly Gln Gly Pro Phe Asn Pro Lys Ile Lys
35 40 45

Trp Pro Gln Gly Tyr
    50

<210> 87
<211> 283
<212> PRT
<213> Apis mellifera

<400> 87

Lys Asn Phe Ala Leu Ala Ile Leu Val Val Thr Phe Val Val Ala Val
1   5   10   15

Phe Gly Asn Thr Asn Leu Asp Pro Pro Thr Arg Pro Thr Arg Leu Arg
            20   25   30

Arg Glu Ala Lys Pro Glu Ala Glu Pro Gly Asn Asn Arg Pro Val Tyr
        35   40   45

Ile Pro Gln Pro Arg Pro Pro His Pro Arg Leu Arg Arg Glu Ala Glu
    50   55   60

Pro Glu Ala Glu Pro Gly Asn Asn Arg Pro Val Tyr Ile Pro Gln Pro
65   70   75   80

Arg Pro Pro His Pro Arg Leu Arg Arg Glu Ala Glu Leu Glu Ala Glu
                85   90   95

Pro Gly Asn Asn Arg Pro Val Tyr Ile Ser Gln Pro Arg Pro Pro His
            100   105   110

Pro Arg Leu Arg Arg Glu Ala Glu Pro Glu Ala Glu Pro Gly Asn Asn
        115   120   125

Arg Pro Val Tyr Ile Pro Gln Pro Arg Pro Pro His Pro Arg Leu Arg
    130   135   140

Arg Glu Ala Glu Leu Glu Ala Glu Pro Gly Asn Asn Arg Pro Val Tyr

```
145                 150                 155                 160

Ile Ser Gln Pro Arg Pro Pro His Pro Arg Leu Arg Arg Glu Ala Glu
                165                 170                 175

Pro Glu Ala Glu Pro Gly Asn Asn Arg Pro Val Tyr Ile Pro Gln Pro
            180                 185                 190

Arg Pro Pro His Pro Arg Leu Arg Arg Glu Ala Glu Pro Glu Ala Glu
        195                 200                 205

Pro Gly Asn Asn Arg Pro Val Tyr Ile Pro Gln Pro Arg Pro Pro His
    210                 215                 220

Pro Arg Leu Arg Arg Glu Ala Glu Pro Glu Ala Glu Pro Gly Asn Asn
225                 230                 235                 240

Arg Pro Val Tyr Ile Pro Gln Pro Arg Pro Pro His Pro Arg Leu Arg
                245                 250                 255

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

Ile Pro Gln Pro Arg Pro Pro His Pro Arg Ile
        275                 280
```

<210> 88
<211> 228
<212> PRT
<213> Sus scrofa

<400> 88

```
Met Glu Thr Gln Arg Ala Ser Leu Cys Leu Gly Arg Trp Ser Leu Trp
1               5                   10                  15

Leu Leu Leu Leu Ala Leu Val Val Pro Ser Ala Ser Ala Gln Ala Leu
            20                  25                  30
```

```
Ser Tyr Arg Glu Ala Val Leu Arg Ala Val Asp Arg Leu Asn Glu Gln
        35                  40                  45

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

Lys Ala Asp Glu Asp Pro Gly Thr Pro Lys Pro Val Ser Phe Thr Val
65                  70                  75                  80

Lys Glu Thr Val Cys Pro Arg Pro Thr Arg Arg Pro Pro Glu Leu Cys
                85                  90                  95

Asp Phe Lys Glu Asn Gly Arg Val Lys Gln Cys Val Gly Thr Val Thr
            100                 105                 110

Leu Asp Gln Ile Lys Asp Pro Leu Asp Ile Thr Cys Asn Glu Gly Val
        115                 120                 125

Arg Arg Phe Pro Trp Trp Trp Pro Phe Leu Arg Arg Pro Arg Leu Arg
    130                 135                 140

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

Pro Asn Val Pro Gly Pro Arg Phe Pro Pro Pro Asn Phe Pro Gly Pro
                165                 170                 175

Arg Phe Pro Pro Pro Asn Phe Pro Gly Pro Arg Phe Pro Pro Pro Asn
            180                 185                 190

Phe Pro Gly Pro Pro Phe Pro Pro Pro Ile Phe Pro Gly Pro Trp Phe
        195                 200                 205

Pro Pro Pro Pro Pro Phe Arg Pro Pro Pro Phe Gly Pro Pro Arg Phe
    210                 215                 220
```

Pro Gly Arg Arg
225

<210> 89
<211> 144
<212> PRT
<213> Bos taurus

<400> 89

Met Gln Thr Gln Arg Ala Ser Leu Ser Leu Gly Arg Trp Ser Leu Trp
1 5 10 15

Leu Leu Leu Leu Gly Leu Val Val Pro Ser Ala Ser Ala Gln Ala Leu
20 25 30

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

Ser Ser Glu Ala Asn Leu Tyr Arg Leu Leu Glu Leu Asp Pro Pro Pro
50 55 60

Lys Asp Asn Glu Asp Leu Gly Thr Arg Lys Pro Val Ser Phe Thr Val
65 70 75 80

Lys Glu Thr Val Cys Pro Arg Thr Ile Gln Gln Pro Ala Glu Gln Cys
85 90 95

Asp Phe Lys Glu Lys Gly Arg Val Lys Gln Cys Val Gly Thr Val Thr
100 105 110

Leu Asp Pro Ser Asn Asp Gln Phe Asp Leu Asn Cys Asn Glu Leu Gln
115 120 125

Ser Val Ile Leu Pro Trp Lys Trp Pro Trp Trp Pro Trp Arg Arg Gly
130 135 140

<210> 90
<211> 149

<212> PRT
<213> Sus scrofa

<400> 90

Met Glu Thr Gln Arg Ala Ser Leu Cys Leu Gly Arg Trp Ser Leu Trp
1 5 10 15

Leu Leu Leu Leu Ala Leu Val Val Pro Ser Ala Ser Ala Gln Ala Leu
20 25 30

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

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

Lys Ala Asp Glu Asp Pro Gly Thr Pro Lys Pro Val Ser Phe Thr Val
65 70 75 80

Lys Glu Thr Val Cys Pro Arg Pro Thr Arg Gln Pro Pro Glu Leu Cys
85 90 95

Asp Phe Lys Glu Asn Gly Arg Val Lys Gln Cys Val Gly Thr Val Thr
100 105 110

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

Gly Val Arg Gly Gly Arg Leu Cys Tyr Cys Arg Arg Arg Phe Cys Val
130 135 140

Cys Val Gly Arg Gly
145

<210> 91
<211> 17
<212> PRT
<213> Tachypleus gigas

<400> 91

Lys Trp Cys Phe Arg Val Cys Tyr Arg Gly Ile Cys Tyr Arg Arg Cys
1 5 10 15

Arg

<210> 92
<211> 102
<212> PRT
<213> Anopheles gambiae

<400> 92

Met Lys Cys Ala Thr Ile Val Cys Thr Ile Ala Val Val Leu Ala Ala
1 5 10 15

Thr Leu Leu Asn Gly Ser Val Gln Ala Ala Pro Gln Glu Glu Ala Ala
20 25 30

Leu Ser Gly Gly Ala Asn Leu Asn Thr Leu Leu Asp Glu Leu Pro Glu
35 40 45

Glu Thr His His Ala Ala Leu Glu Asn Tyr Arg Ala Lys Arg Ala Thr
50 55 60

Cys Asp Leu Ala Ser Gly Phe Gly Val Gly Ser Ser Leu Cys Ala Ala
65 70 75 80

His Cys Ile Ala Arg Arg Tyr Arg Gly Gly Tyr Cys Asn Ser Lys Ala
85 90 95

Val Cys Val Cys Arg Asn
100

<210> 93
<211> 70
<212> PRT

<213> Drosophila melanogaster

<400> 93

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

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

Tyr Lys Gly Pro Cys Ala Val Trp Asp Asn Glu Thr Cys Arg Arg Val
35 40 45

Cys Lys Glu Glu Gly Arg Ser Ser Gly His Cys Ser Pro Ser Leu Lys
50 55 60

Cys Trp Cys Glu Gly Cys
65 70

<210> 94
<211> 63
<212> PRT
<213> Medicago truncatula

<400> 94

Met Thr Lys Ile Val Val Phe Ile Tyr Val Val Ile Leu Leu Leu Thr
1 5 10 15

Ile Phe His Val Ser Ala Lys Lys Lys Arg Tyr Ile Glu Cys Glu Thr
20 25 30

His Glu Asp Cys Ser Gln Val Phe Met Pro Pro Phe Val Met Arg Cys
35 40 45

Val Ile His Glu Cys Lys Ile Phe Asn Gly Glu His Leu Arg Tyr
50 55 60

<210> 95
<211> 76

<212> PRT
<213> Medicago truncatula

<400> 95

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

Ile Phe Ile Ile Thr Leu Gln Val Asn Val Val Val Cys Glu Ile Asp
            20   25   30

Ala Asp Cys Pro Gln Ile Cys Met Pro Pro Tyr Glu Val Arg Cys Val
        35   40   45

Asn His Arg Cys Gly Trp Val Asn Thr Asp Asp Ser Leu Phe Leu Thr
    50   55   60

Gln Glu Phe Thr Arg Ser Lys Gln Tyr Ile Ile Ser
65   70   75

<210> 96
<211> 76
<212> PRT
<213> Medicago truncatula

<400> 96

Met Tyr Lys Val Val Glu Ser Ile Phe Ile Arg Tyr Met His Arg Lys
1   5   10   15

Pro Asn Met Thr Lys Phe Phe Lys Phe Val Tyr Thr Met Phe Ile Leu
            20   25   30

Ile Ser Leu Phe Leu Val Val Thr Asn Ala Asn Ala His Asn Cys Thr
        35   40   45

Asp Ile Ser Asp Cys Ser Ser Asn His Cys Ser Tyr Glu Gly Val Ser
    50   55   60

Leu Cys Met Asn Gly Gln Cys Ile Cys Ile Tyr Glu

65 70 75

<210> 97
<211> 64
<212> PRT
<213> Medicago truncatula

<400> 97

Met Val Glu Thr Leu Arg Leu Phe Tyr Ile Met Ile Leu Phe Val Ser
1 5 10 15

Leu Cys Leu Val Val Val Asp Gly Glu Ser Lys Leu Glu Gln Thr Cys
20 25 30

Ser Glu Asp Phe Glu Cys Tyr Ile Lys Asn Pro His Val Pro Phe Gly
35 40 45

His Leu Arg Cys Phe Glu Gly Phe Cys Gln Gln Leu Asn Gly Pro Ala
50 55 60

<210> 98
<211> 67
<212> PRT
<213> Medicago truncatula

<400> 98

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

Leu Phe Leu Val Ala Thr Lys Ala Ala Arg Gly Tyr Leu Cys Val Thr
20 25 30

Asp Ser His Cys Pro Pro His Met Cys Pro Pro Gly Met Glu Pro Arg
35 40 45

Cys Val Arg Arg Met Cys Lys Cys Leu Pro Ile Gly Trp Arg Lys Tyr
50 55 60

Phe Val Pro
65

<210> 99
<211> 96
<212> PRT
<213> Medicago truncatula

<400> 99

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

Ile Ile Phe Phe Phe Leu Tyr Phe Phe Phe Arg Gln Met Ile Ile Leu
20 25 30

Arg Leu Asn Thr Thr Phe Arg Pro Leu Asn Phe Lys Met Leu Arg Phe
35 40 45

Trp Gly Gln Asn Arg Asn Ile Met Lys His Arg Gly Gln Lys Val His
50 55 60

Phe Ser Leu Ile Leu Ser Asp Cys Lys Thr Asn Lys Asp Cys Pro Lys
65 70 75 80

Leu Arg Arg Ala Asn Val Arg Cys Arg Lys Ser Tyr Cys Val Pro Ile
85 90 95

<210> 100
<211> 65
<212> PRT
<213> Medicago truncatula

<400> 100

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

Leu Val Ser Tyr Phe Ser Tyr Phe Ser Thr Tyr Ile Ile Glu Cys Lys
20 25 30

```
Thr Asp Asn Asp Cys Pro Ile Ser Gln Leu Lys Ile Tyr Ala Trp Lys
        35                  40                  45


Cys Val Lys Asn Gly Cys His Leu Phe Asp Val Ile Pro Met Met Tyr
    50                  55                  60


Glu
65


<210>  101
<211>  79
<212>  PRT
<213>  Medicago truncatula

<400>  101

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


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


Asp Cys Glu Lys Leu Tyr Pro Thr Asn Glu Tyr Arg Met Met Cys Asp
        35                  40                  45


Ser Gly Tyr Cys Met Asn Leu Leu Asn Gly Lys Ile Ile Tyr Leu Leu
    50                  55                  60


Cys Leu Lys Lys Lys Lys Phe Leu Ile Ile Ile Ser Val Leu Leu
65                  70                  75


<210>  102
<211>  95
<212>  PRT
<213>  Medicago truncatula

<400>  102

Met Ala Glu Ile Ile Lys Phe Val Tyr Ile Met Ile Leu Cys Val Ser
1               5                   10                  15
```

```
Leu Leu Leu Ile Glu Val Ala Gly Glu Glu Cys Val Thr Asp Ala Asp
            20                  25                  30


Cys Asp Lys Leu Tyr Pro Asp Ile Arg Lys Pro Leu Met Cys Ser Ile
        35                  40                  45


Gly Glu Cys Tyr Ser Leu Tyr Lys Gly Lys Phe Ser Leu Ser Ile Ile
    50                  55                  60


Ser Lys Thr Ser Phe Ser Leu Met Val Tyr Asn Val Val Thr Leu Val
65                  70                  75                  80


Ile Cys Leu Arg Leu Ala Tyr Ile Ser Leu Leu Leu Lys Phe Leu
                85                  90                  95


<210>  103
<211>  100
<212>  PRT
<213>  Medicago truncatula

<400>  103

Met Ala Glu Ile Leu Lys Asp Phe Tyr Ala Met Asn Leu Phe Ile Phe
1               5                   10                  15


Leu Ile Ile Leu Pro Ala Lys Ile Arg Gly Glu Thr Leu Ser Leu Thr
            20                  25                  30


His Pro Lys Cys His His Ile Met Leu Pro Ser Leu Phe Ile Thr Glu
        35                  40                  45


Val Phe Gln Arg Val Thr Asp Asp Gly Cys Pro Lys Pro Val Asn His
    50                  55                  60


Leu Arg Val Val Lys Cys Ile Glu His Ile Cys Glu Tyr Gly Tyr Asn
65                  70                  75                  80
```

Tyr Arg Pro Asp Phe Ala Ser Gln Ile Pro Glu Ser Thr Lys Met Pro
85 90 95

Arg Lys Arg Glu
100

<210> 104
<211> 78
<212> PRT
<213> Medicago truncatula

<400> 104

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

Leu Ile Ile Leu Ala Val Lys Ile Arg Gly Ala His Phe Pro Cys Val
20 25 30

Thr Asp Asp Asp Cys Pro Lys Pro Val Asn Lys Leu Arg Val Ile Lys
35 40 45

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

Ser Glu Ile Ser Glu Ser Thr Lys Met Pro Cys Lys Gly Glu
65 70 75

<210> 105
<211> 72
<212> PRT
<213> Medicago truncatula

<400> 105

Met Phe His Ala Gln Ala Glu Asn Met Ala Lys Val Ser Asn Phe Val
1 5 10 15

Cys Ile Met Ile Leu Phe Leu Ala Leu Phe Phe Ile Thr Met Asn Asp
20 25 30

```
Ala Ala Arg Phe Glu Cys Arg Glu Asp Ser His Cys Val Thr Arg Ile
        35                  40                  45


Lys Cys Val Leu Pro Arg Lys Pro Glu Cys Arg Asn Tyr Ala Cys Gly
    50                  55                  60


Cys Tyr Asp Ser Asn Lys Tyr Arg
65                  70


<210>  106
<211>  78
<212>  PRT
<213>  Medicago truncatula

<400>  106

Met Gln Met Arg Gln Asn Met Ala Thr Ile Leu Asn Phe Val Phe Val
1               5                   10                  15


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


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


Asp Cys Pro Ser Ile Ser Cys Val Asn Pro Gln Val Pro Lys Cys Ile
    50                  55                  60


Met Phe Glu Cys His Cys Lys Tyr Ile Pro Thr Thr Leu Lys
65                  70                  75


<210>  107
<211>  71
<212>  PRT
<213>  Medicago truncatula

<400>  107

Met Ala Thr Ile Leu Met Tyr Val Tyr Ile Thr Ile Leu Phe Ile Ser
1               5                   10                  15
```

Ile Leu Thr Val Leu Thr Glu Gly Leu Tyr Glu Pro Leu Tyr Asn Phe
            20   25   30

Arg Arg Asp Pro Asp Cys Arg Arg Asn Ile Asp Cys Pro Ser Tyr Leu
        35   40   45

Cys Val Ala Pro Lys Val Pro Arg Cys Ile Met Phe Glu Cys His Cys
    50   55   60

Lys Asp Ile Pro Ser Asp His
65   70

<210> 108
<211> 57
<212> PRT
<213> Medicago truncatula

<400> 108

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

Leu Leu Leu Val Val Met Gly Gly Ile Arg Arg Phe Glu Cys Arg Gln
            20   25   30

Asp Ser Asp Cys Pro Ser Tyr Phe Cys Glu Lys Leu Thr Val Pro Lys
        35   40   45

Cys Phe Trp Ser Lys Cys Tyr Cys Lys
    50   55

<210> 109
<211> 57
<212> PRT
<213> Medicago truncatula

<400> 109

Met Thr Thr Ser Leu Lys Phe Val Tyr Val Ala Ile Leu Phe Leu Ser

1 5 10 15

Leu Leu Leu Val Val Met Gly Gly Ile Arg Lys Lys Glu Cys Arg Gln
20 25 30

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

Cys Ile His Ser Thr Cys Leu Cys Lys
50 55

<210> 110
<211> 66
<212> PRT
<213> Medicago truncatula

<400> 110

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

Ile Ile Leu Phe Leu Ser Ile Phe Leu Cys Ile Thr Val Ser Asn Ser
20 25 30

Ser Phe Ser Gln Ile Phe Asn Ser Ala Cys Lys Thr Asp Lys Asp Cys
35 40 45

Pro Lys Phe Gly Arg Val Asn Val Arg Cys Arg Lys Gly Asn Cys Val
50 55 60

Pro Ile
65

<210> 111
<211> 57
<212> PRT
<213> Medicago truncatula

<400> 111

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


Val Leu Phe Leu Ala Thr Thr Asn Val Glu Asp Phe Val Gly Gly Ser
            20                  25                  30


Asn Asp Glu Cys Val Tyr Pro Asp Val Phe Gln Cys Ile Asn Asn Ile
        35                  40                  45


Cys Lys Cys Val Ser His His Arg Thr
    50                  55
```

<210> 112
<211> 74
<212> PRT
<213> Medicago truncatula

<400> 112

```
Met Gln Lys Arg Lys Asn Met Ala Gln Ile Ile Phe Tyr Val Tyr Ala
1               5                   10                  15


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


Asn Pro Glu Lys Pro Cys Val Thr Asp Ala Asp Cys Asp Arg Tyr Arg
        35                  40                  45


His Glu Ser Ala Ile Tyr Ser Asp Met Phe Cys Lys Asp Gly Tyr Cys
    50                  55                  60


Phe Ile Asp Tyr His His Asp Pro Tyr Pro
65                  70
```

<210> 113
<211> 76
<212> PRT
<213> Medicago truncatula

<400> 113

```
Met Gln Met Arg Lys Asn Met Ala Gln Ile Leu Phe Tyr Val Tyr Ala
1               5                   10                  15


Leu Leu Ile Leu Phe Thr Pro Phe Leu Val Ala Arg Ile Met Val Val
            20                  25                  30


Asn Pro Asn Asn Pro Cys Val Thr Asp Ala Asp Cys Gln Arg Tyr Arg
        35                  40                  45


His Lys Leu Ala Thr Arg Met Ile Cys Asn Gln Gly Phe Cys Leu Met
    50                  55                  60


Asp Phe Thr His Asp Pro Tyr Ala Pro Ser Leu Pro
65                  70                  75


<210>  114
<211>  64
<212>  PRT
<213>  Medicago truncatula

<400>  114

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


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


Phe Glu Cys Arg Arg Lys Ile Asn Ile Leu Arg Cys Ile Tyr Arg Gln
        35                  40                  45


Glu Lys Pro Met Cys Ile Asn Ser Ile Cys Thr Cys Val Lys Leu Leu
    50                  55                  60


<210>  115
<211>  67
<212>  PRT
<213>  Medicago truncatula
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<400> 115

Met Gln Arg Glu Lys Asn Met Ala Lys Ile Phe Glu Phe Val Tyr Ala
1 5 10 15

Met Ile Ile Phe Ile Leu Leu Phe Leu Val Glu Lys Asn Val Val Ala
20 25 30

Tyr Leu Lys Phe Glu Cys Lys Thr Asp Asp Asp Cys Gln Lys Ser Leu
35 40 45

Leu Lys Thr Tyr Val Trp Lys Cys Val Lys Asn Glu Cys Tyr Phe Phe
50 55 60

Ala Lys Lys
65

<210> 116
<211> 61
<212> PRT
<213> Medicago truncatula

<400> 116

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

Leu Phe His Val Val Lys Asn Asp Asp Gly Ser Phe Cys Phe Lys Asp
20 25 30

Ser Asp Cys Pro Asp Glu Met Cys Pro Ser Pro Leu Lys Glu Met Cys
35 40 45

Tyr Phe Leu Gln Cys Lys Cys Gly Val Asp Thr Ile Ala
50 55 60

<210> 117
<211> 59
<212> PRT
<213> Medicago truncatula

<400> 117

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

Phe Leu Ala Ser Asn Asn Val Glu Gly Tyr Val Asn Cys Glu Thr Asp
            20   25   30

Ala Asp Cys Pro Pro Ser Thr Arg Val Lys Arg Phe Lys Cys Val Lys
        35   40   45

Gly Glu Cys Arg Trp Thr Arg Met Ser Tyr Ala
    50   55

<210> 118
<211> 63
<212> PRT
<213> Medicago truncatula

<400> 118

Met Gln Arg Arg Lys Lys Lys Ala Gln Val Val Met Phe Val His Asp
1   5   10   15

Leu Ile Ile Cys Ile Tyr Leu Phe Ile Val Ile Thr Thr Arg Lys Thr
            20   25   30

Asp Ile Arg Cys Arg Phe Tyr Tyr Asp Cys Pro Arg Leu Glu Tyr His
        35   40   45

Phe Cys Glu Cys Ile Glu Asp Phe Cys Ala Tyr Ile Arg Leu Asn
    50   55   60

<210> 119
<211> 57
<212> PRT
<213> Medicago truncatula

<400> 119

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


Pro Phe Leu Leu Ala Thr Phe Arg Thr Arg Leu Pro Cys Glu Lys Asp
            20                  25                  30


Asp Asp Cys Pro Glu Ala Phe Leu Pro Pro Val Met Lys Cys Val Asn
        35                  40                  45


Arg Phe Cys Gln Tyr Glu Ile Leu Glu
    50                  55
```

<210> 120
<211> 77
<212> PRT
<213> Medicago truncatula

<400> 120

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Met Ile Lys Gln Phe Ser Val Cys Tyr Ile Gln Met Arg Arg Asn Met
1               5                   10                  15


Thr Thr Ile Leu Lys Phe Pro Tyr Ile Met Val Ile Cys Leu Leu Leu
            20                  25                  30


Leu His Val Ala Ala Tyr Glu Asp Phe Glu Lys Glu Ile Phe Asp Cys
        35                  40                  45


Lys Lys Asp Gly Asp Cys Asp His Met Cys Val Thr Pro Gly Ile Pro
    50                  55                  60


Lys Cys Thr Gly Tyr Val Cys Phe Cys Phe Glu Asn Leu
65                  70                  75
```

<210> 121
<211> 73
<212> PRT
<213> Medicago truncatula

<400> 121

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

Met Ile Ile Cys Val Phe Leu Leu Asn Ile Ala Ala Gln Glu Ile Glu
            20   25   30

Asn Gly Ile His Pro Cys Lys Lys Asn Glu Asp Cys Asn His Met Cys
        35   40   45

Val Met Pro Gly Leu Pro Trp Cys His Glu Asn Asn Leu Cys Phe Cys
    50   55   60

Tyr Glu Asn Ala Tyr Gly Asn Thr Arg
65   70

<210> 122
<211> 85
<212> PRT
<213> Medicago truncatula

<400> 122

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

Leu Phe His Val Ala Lys Asn Asp Asp Asn Lys Leu Leu Leu Ser Phe
            20   25   30

Ile Glu Glu Gly Phe Leu Cys Phe Lys Asp Ser Asp Cys Pro Tyr Asn
        35   40   45

Met Cys Pro Ser Pro Leu Lys Glu Met Cys Tyr Phe Ile Lys Cys Val
    50   55   60

Cys Gly Val Tyr Gly Pro Ile Arg Glu Arg Arg Leu Tyr Gln Ser His
65   70   75   80

Asn Pro Met Ile Gln

85

<210> 123
<211> 69
<212> PRT
<213> Medicago truncatula

<400> 123

Met Arg Lys Asn Met Thr Lys Ile Leu Met Ile Gly Tyr Ala Leu Met
1 5 10 15

Ile Phe Ile Phe Leu Ser Ile Ala Val Ser Ile Thr Gly Asn Leu Ala
20 25 30

Arg Ala Ser Arg Lys Lys Pro Val Asp Val Ile Pro Cys Ile Tyr Asp
35 40 45

His Asp Cys Pro Arg Lys Leu Tyr Phe Leu Glu Arg Cys Val Gly Arg
50 55 60

Val Cys Lys Tyr Leu
65

<210> 124
<211> 58
<212> PRT
<213> Medicago truncatula

<400> 124

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

Leu Ile Ala Asn Asn Ile Glu Asp Asp Ile Phe Cys Ile Thr Asp Asn
20 25 30

Asp Cys Pro Pro Asn Thr Leu Val Gln Arg Tyr Arg Cys Ile Asn Gly
35 40 45

Lys Cys Asn Leu Ser Phe Val Ser Tyr Gly
    50   55

<210> 125
<211> 61
<212> PRT
<213> Medicago truncatula

<400> 125

Met Asp Glu Thr Leu Lys Phe Val Tyr Ile Leu Ile Leu Phe Val Ser
1   5   10   15

Leu Cys Leu Val Val Ala Asp Gly Val Lys Asn Ile Asn Arg Glu Cys
            20   25   30

Thr Gln Thr Ser Asp Cys Tyr Lys Lys Tyr Pro Phe Ile Pro Trp Gly
        35   40   45

Lys Val Arg Cys Val Lys Gly Arg Cys Arg Leu Asp Met
    50   55   60

<210> 126
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 126

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

Leu Phe Leu Val Ala Lys Asn Val Asn Gly Trp Thr Cys Val Glu Asp
            20   25   30

Ser Asp Cys Pro Ala Asn Ile Cys Gln Pro Pro Met Gln Arg Met Cys
        35   40   45

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

<210> 127
<211> 61
<212> PRT
<213> Medicago truncatula

<400> 127

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

Met Leu Leu Val Thr Thr Lys Glu Asp Gly Ser Val Glu Cys Ile Ala
            20   25   30

Asn Ile Asp Cys Pro Gln Ile Phe Met Leu Pro Phe Val Met Arg Cys
        35   40   45

Ile Asn Phe Arg Cys Gln Ile Val Asn Ser Glu Asp Thr
    50   55   60

<210> 128
<211> 67
<212> PRT
<213> Medicago truncatula

<400> 128

Met Asp Glu Ile Leu Lys Phe Val Tyr Thr Leu Ile Ile Phe Phe Ser
1   5   10   15

Leu Phe Phe Ala Ala Asn Asn Val Asp Ala Asn Ile Met Asn Cys Gln
            20   25   30

Ser Thr Phe Asp Cys Pro Arg Asp Met Cys Ser His Ile Arg Asp Val
        35   40   45

Ile Cys Ile Phe Lys Lys Cys Lys Cys Ala Gly Gly Arg Tyr Met Pro
    50   55   60

Gln Val Pro
65

<210> 129
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 129

Met Gln Arg Arg Lys Asn Met Ala Asn Asn His Met Leu Ile Tyr Ala
1   5   10   15

Met Ile Ile Cys Leu Phe Pro Tyr Leu Val Val Thr Phe Lys Thr Ala
            20   25   30

Ile Thr Cys Asp Cys Asn Glu Asp Cys Leu Asn Phe Phe Thr Pro Leu
        35   40   45

Asp Asn Leu Lys Cys Ile Asp Asn Val Cys Glu Val Phe Met
    50   55   60

<210> 130
<211> 65
<212> PRT
<213> Medicago truncatula

<400> 130

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

Met Phe Phe Val Leu Ile Asp Val Asp Gly His Val Leu Val Glu Cys
            20   25   30

Ile Glu Asn Arg Asp Cys Glu Lys Gly Met Cys Lys Phe Pro Phe Ile
        35   40   45

Val Arg Cys Leu Met Asp Gln Cys Lys Cys Val Arg Ile His Asn Leu
    50   55   60

Ile

65

<210> 131
<211> 74
<212> PRT
<213> Medicago truncatula

<400> 131

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

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

Leu Ser Ala Leu Val Thr Asn Ala Asn Ile Phe Phe Cys Ser Thr Asp
35 40 45

Glu Asp Cys Thr Trp Asn Leu Cys Arg Gln Pro Trp Val Gln Lys Cys
50 55 60

Arg Leu His Met Cys Ser Cys Glu Lys Asn
65 70

<210> 132
<211> 58
<212> PRT
<213> Medicago truncatula

<400> 132

Met Asp Glu Val Phe Lys Phe Val Tyr Val Met Ile Ile Phe Pro Phe
1 5 10 15

Leu Ile Leu Asp Val Ala Thr Asn Ala Glu Lys Ile Arg Arg Cys Phe
20 25 30

Asn Asp Ala His Cys Pro Pro Asp Met Cys Thr Leu Gly Val Ile Pro
35 40 45

Lys Cys Ser Arg Phe Thr Ile Cys Ile Cys
    50   55

<210> 133
<211> 64
<212> PRT
<213> Medicago truncatula

<400> 133

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

Met Phe Ile Leu Ile Ser Leu Phe Leu Val Val Thr Asn Ala Asn Ala
            20   25   30

Asn Asn Cys Thr Asp Thr Ser Asp Cys Ser Ser Asn His Cys Ser Tyr
        35   40   45

Glu Gly Val Ser Leu Cys Met Asn Gly Gln Cys Ile Cys Ile Tyr Glu
    50   55   60

<210> 134
<211> 69
<212> PRT
<213> Medicago truncatula

<400> 134

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

Ile Leu Leu Ile Tyr Pro Leu Leu Val Val Thr Glu Glu Ser His Tyr
            20   25   30

Met Lys Phe Ser Ile Cys Lys Asp Asp Thr Asp Cys Pro Thr Leu Phe
        35   40   45

Cys Val Leu Pro Asn Val Pro Lys Cys Ile Gly Ser Lys Cys His Cys
    50   55   60

Lys Leu Met Val Asn
65

<210> 135
<211> 64
<212> PRT
<213> Medicago truncatula

<400> 135

Met Val Glu Thr Leu Arg Leu Phe Tyr Ile Met Ile Leu Phe Val Ser
1 5 10 15

Leu Tyr Leu Val Val Val Asp Gly Val Ser Lys Leu Ala Gln Ser Cys
20 25 30

Ser Glu Asp Phe Glu Cys Tyr Ile Lys Asn Pro His Ala Pro Phe Gly
35 40 45

Gln Leu Arg Cys Phe Glu Gly Tyr Cys Gln Arg Leu Asp Lys Pro Thr
50 55 60

<210> 136
<211> 63
<212> PRT
<213> Medicago truncatula

<400> 136

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

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

Cys Lys Glu Asp Arg Asp Cys Asp Asn Ile Cys Ser Val His Ala Val
35 40 45

Thr Lys Cys Ile Gly Asn Met Cys Arg Cys Leu Ala Asn Val Lys
50 55 60

<210> 137
<211> 61
<212> PRT
<213> Medicago truncatula

<400> 137

Met Arg Ile Asn Arg Thr Pro Ala Ile Phe Lys Phe Val Tyr Thr Ile
1   5   10   15

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

Asn Ile Cys Glu Lys Asp Glu Asp Cys Leu Glu Phe Cys Ala His Asp
        35   40   45

Lys Val Ala Lys Cys Met Leu Asn Ile Cys Phe Cys Phe
    50   55   60

<210> 138
<211> 54
<212> PRT
<213> Medicago truncatula

<400> 138

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

Leu Ile Leu Ala Val Ile Ser Gln His Pro Phe Thr Pro Cys Glu Thr
            20   25   30

Asn Ala Asp Cys Lys Cys Arg Asn His Lys Arg Pro Asp Cys Leu Trp
        35   40   45

His Lys Cys Tyr Cys Tyr
    50

<210> 139

<211> 65
<212> PRT
<213> Medicago truncatula

<400> 139

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

Leu Phe Ile Tyr Ser Leu Phe Val Ile Glu Ser Phe Gly His Arg Phe
            20   25   30

Leu Ile Tyr Asn Asn Cys Lys Asn Asp Thr Glu Cys Pro Asn Asp Cys
        35   40   45

Gly Pro His Glu Gln Ala Lys Cys Ile Leu Tyr Ala Cys Tyr Cys Val
    50   55   60

Glu
65

<210> 140
<211> 58
<212> PRT
<213> Medicago truncatula

<400> 140

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

Ile Phe Leu Ser Ala Gly Asn Ser Lys Ser Tyr Gly Pro Cys Thr Thr
            20   25   30

Leu Gln Asp Cys Glu Thr His Asn Trp Phe Glu Val Cys Ser Cys Ile
        35   40   45

Asp Phe Glu Cys Lys Cys Trp Ser Leu Leu
    50   55

<210> 141
<211> 64
<212> PRT
<213> Medicago truncatula

<400> 141

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

Leu Leu Leu Ile Ala Glu Ala Ser Gly Lys Glu Cys Val Thr Asp Ala
            20   25   30

Asp Cys Glu Asn Leu Tyr Pro Gly Asn Lys Lys Pro Met Phe Cys Asn
        35   40   45

Asn Thr Gly Tyr Cys Met Ser Leu Tyr Lys Glu Pro Ser Arg Tyr Met
    50   55   60

<210> 142
<211> 64
<212> PRT
<213> Medicago truncatula

<400> 142

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

Leu Leu Leu Ile Val Glu Ala Gly Gly Lys Glu Cys Val Thr Asp Val
            20   25   30

Asp Cys Glu Lys Ile Tyr Pro Gly Asn Lys Lys Pro Leu Ile Cys Ser
        35   40   45

Thr Gly Tyr Cys Tyr Ser Leu Tyr Glu Glu Pro Pro Arg Tyr His Lys
    50   55   60

<210> 143
<211> 64
<212> PRT

<213> Medicago truncatula

<400> 143

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

Leu Phe Phe Leu Ala Met Asn Val Ala Gly Gly Arg Glu Cys His Ala
20 25 30

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

Glu Cys Trp Asn Tyr Ala Cys Val Cys Tyr Asp Ser Asn Lys Tyr Arg
50 55 60

<210> 144
<211> 55
<212> PRT
<213> Medicago truncatula

<400> 144

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

Leu Phe Leu Met Gly Thr Ser Gly Met Lys Asn Gly Cys Lys His Thr
20 25 30

Gly His Cys Pro Arg Lys Met Cys Gly Ala Lys Thr Thr Lys Cys Arg
35 40 45

Asn Asn Lys Cys Gln Cys Val
50 55

<210> 145
<211> 69
<212> PRT
<213> Medicago truncatula

<400> 145

Met Thr Glu Ile Leu Lys Phe Val Cys Val Met Ile Ile Phe Ile Ser
1   5   10   15

Ser Phe Ile Val Ser Lys Ser Leu Asn Gly Gly Gly Lys Asp Lys Cys
            20   25   30

Phe Arg Asp Ser Asp Cys Pro Lys His Met Cys Pro Ser Ser Leu Val
        35   40   45

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

Val Gln Leu Asn Pro
65

<210> 146
<211> 69
<212> PRT
<213> Medicago truncatula

<400> 146

Met Ala His Ile Ile Met Phe Val Tyr Ala Leu Ile Tyr Ala Leu Ile
1   5   10   15

Ile Phe Ser Ser Leu Phe Val Arg Asp Gly Ile Pro Cys Leu Ser Asp
            20   25   30

Asp Glu Cys Pro Glu Met Ser His Tyr Ser Phe Lys Cys Asn Asn Lys
        35   40   45

Ile Cys Glu Tyr Asp Leu Gly Glu Met Ser Asp Asp Asp Tyr Tyr Leu
    50   55   60

Glu Met Ser Arg Glu
65

<210> 147

<211> 77
<212> PRT
<213> Medicago truncatula

<400> 147

Met Tyr Arg Glu Lys Asn Met Ala Lys Thr Leu Lys Phe Val Tyr Val
1   5   10   15

Ile Val Leu Phe Leu Ser Leu Phe Leu Ala Ala Lys Asn Ile Asp Gly
            20   25   30

Arg Val Ser Tyr Asn Ser Phe Ile Ala Leu Pro Val Cys Gln Thr Ala
        35   40   45

Ala Asp Cys Pro Glu Gly Thr Arg Gly Arg Thr Tyr Lys Cys Ile Asn
    50   55   60

Asn Lys Cys Arg Tyr Pro Lys Leu Leu Lys Pro Ile Gln
65   70   75

<210> 148
<211> 56
<212> PRT
<213> Medicago truncatula

<400> 148

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

Leu Phe Leu Met Val Thr Asn Gly Ile His Ile Gly Cys Asp Lys Asp
            20   25   30

Arg Asp Cys Pro Lys Gln Met Cys His Leu Asn Gln Thr Pro Lys Cys
        35   40   45

Leu Lys Asn Ile Cys Lys Cys Val
    50   55

<210> 149
<211> 77
<212> PRT
<213> Medicago truncatula

<400> 149

Met Ala Glu Ile Leu Lys Cys Phe Tyr Thr Met Asn Leu Phe Ile Phe
1   5   10   15

Leu Ile Ile Leu Pro Ala Lys Ile Arg Glu His Ile Gln Cys Val Ile
            20   25   30

Asp Asp Asp Cys Pro Lys Ser Leu Asn Lys Leu Leu Ile Ile Lys Cys
        35   40   45

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

Gln Ile Pro Lys Ser Thr Lys Met Pro Tyr Lys Gly Glu
65   70   75

<210> 150
<211> 70
<212> PRT
<213> Medicago truncatula

<400> 150

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

Leu Phe Phe Val Val Ile Asn Gly Val Lys Ser Leu Leu Leu Ile Lys
            20   25   30

Val Arg Ser Phe Ile Pro Cys Gln Arg Ser Asp Asp Cys Pro Arg Asn
        35   40   45

Leu Cys Val Asp Gln Ile Ile Pro Thr Cys Val Trp Ala Lys Cys Lys
    50   55   60

Cys Lys Asn Tyr Asn Asp
65 70

<210> 151
<211> 64
<212> PRT
<213> Medicago truncatula

<400> 151

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

Leu Phe Phe Ile Ala Lys Asn Asp Ala Thr Ala Thr Phe Cys His Asp
20 25 30

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

Gln Cys Arg Asn Glu Ala Cys Gly Cys Tyr His Ser Asn Lys Phe Arg
50 55 60

<210> 152
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 152

Met Gly Glu Ile Met Lys Phe Val Tyr Val Met Ile Ile Tyr Leu Phe
1 5 10 15

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

Thr Ser Cys Asp Ser Ser Lys Asp Cys Arg Ser Phe Leu Cys Tyr Ser
35 40 45

Pro Lys Phe Pro Val Cys Lys Arg Gly Ile Cys Glu Cys Ile
50 55 60

<210> 153
<211> 61
<212> PRT
<213> Medicago truncatula

<400> 153

Met Gly Glu Met Phe Lys Phe Ile Tyr Thr Phe Ile Leu Phe Val His
1   5   10   15

Leu Phe Leu Val Val Ile Phe Glu Asp Ile Gly His Ile Lys Tyr Cys
            20   25   30

Gly Ile Val Asp Asp Cys Tyr Lys Ser Lys Lys Pro Leu Phe Lys Ile
        35   40   45

Trp Lys Cys Val Glu Asn Val Cys Val Leu Trp Tyr Lys
    50   55   60

<210> 154
<211> 63
<212> PRT
<213> Medicago truncatula

<400> 154

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

Leu Phe Leu Val Ala Asn Gly Leu Lys Ile Phe Cys Ile Asp Val Ala
            20   25   30

Asp Cys Pro Lys Asp Leu Tyr Pro Leu Leu Tyr Lys Cys Ile Tyr Asn
        35   40   45

Lys Cys Ile Val Phe Thr Arg Ile Pro Phe Pro Phe Asp Trp Ile
    50   55   60

<210> 155

<211> 66
<212> PRT
<213> Medicago truncatula

<400> 155

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

Leu Phe Phe Ile Gly Met Asn Asp Ala Ala Ile Leu Glu Cys Arg Glu
20 25 30

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

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

His His
65

<210> 156
<211> 68
<212> PRT
<213> Medicago truncatula

<400> 156

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

Leu Ile Leu Phe Ile Ser Ile Phe His Val Val Ile Val Cys Asp Ser
20 25 30

Ile Tyr Phe Pro Val Ser Arg Pro Cys Ile Thr Asp Lys Asp Cys Pro
35 40 45

Asn Met Lys His Tyr Lys Ala Lys Cys Arg Lys Gly Phe Cys Ile Ser
50 55 60

Ser Arg Val Arg
65

<210> 157
<211> 72
<212> PRT
<213> Medicago truncatula

<400> 157

Met Gln Ile Arg Lys Ile Met Ser Gly Val Leu Lys Phe Val Tyr Ala
1 5 10 15

Ile Ile Leu Phe Leu Phe Leu Phe Leu Val Ala Arg Glu Val Gly Gly
20 25 30

Leu Glu Thr Ile Glu Cys Glu Thr Asp Gly Asp Cys Pro Arg Ser Met
35 40 45

Ile Lys Met Trp Asn Lys Asn Tyr Arg His Lys Cys Ile Asp Gly Lys
50 55 60

Cys Glu Trp Ile Lys Lys Leu Pro
65 70

<210> 158
<211> 54
<212> PRT
<213> Medicago truncatula

<400> 158

Met Phe Val Tyr Asp Leu Ile Leu Phe Ile Ser Leu Ile Leu Val Val
1 5 10 15

Thr Gly Ile Asn Ala Glu Ala Asp Thr Ser Cys His Ser Phe Asp Asp
20 25 30

Cys Pro Trp Val Ala His His Tyr Arg Glu Cys Ile Glu Gly Leu Cys
35 40 45

Ala Tyr Arg Ile Leu Tyr
    50

<210> 159
<211> 69
<212> PRT
<213> Medicago truncatula

<400> 159

Met Gln Arg Arg Lys Lys Ser Met Ala Lys Met Leu Lys Phe Phe Phe
1   5   10   15

Ala Ile Ile Leu Leu Leu Ser Leu Phe Leu Val Ala Thr Glu Val Gly
            20   25   30

Gly Ala Tyr Ile Glu Cys Glu Val Asp Asp Asp Cys Pro Lys Pro Met
        35   40   45

Lys Asn Ser His Pro Asp Thr Tyr Tyr Lys Cys Val Lys His Arg Cys
    50   55   60

Gln Trp Ala Trp Lys
65

<210> 160
<211> 140
<212> PRT
<213> Medicago truncatula

<400> 160

Met Phe Val Tyr Thr Leu Ile Ile Phe Leu Phe Pro Ser His Val Ile
1   5   10   15

Thr Asn Lys Ile Ala Ile Tyr Cys Val Ser Asp Asp Asp Cys Leu Lys
            20   25   30

Thr Phe Thr Pro Leu Asp Leu Lys Cys Val Asp Asn Val Cys Glu Phe
        35   40   45

```
Asn Leu Arg Cys Lys Gly Lys Cys Gly Glu Arg Asp Glu Lys Phe Val
    50                  55                  60

Phe Leu Lys Ala Leu Lys Lys Met Asp Gln Lys Leu Val Leu Glu Glu
65                  70                  75                  80

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

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

Asp Tyr Asp Asp Asp Asp Glu Glu Glu Glu Glu Glu Glu Asp Asp Val
        115                 120                 125

Asp Met Trp Phe His Leu Pro Asp Val Val Cys His
    130                 135                 140
```

<210> 161
<211> 60
<212> PRT
<213> Medicago truncatula

<400> 161

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

Leu Phe Leu Val Glu Thr Ala Ile Thr Asn Ile Arg Cys Val Ser Asp
            20                  25                  30

Asp Asp Cys Pro Lys Val Ile Lys Pro Leu Val Met Lys Cys Ile Gly
        35                  40                  45

Asn Tyr Cys Tyr Phe Phe Met Ile Tyr Glu Gly Pro
    50                  55                  60
```

<210> 162
<211> 58
<212> PRT
<213> Medicago truncatula

<400> 162

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

Leu Val Ala Lys Asn Val Lys Gly Tyr Val Val Cys Arg Thr Val Asp
            20   25   30

Asp Cys Pro Pro Asp Thr Arg Asp Leu Arg Tyr Arg Cys Leu Asn Gly
        35   40   45

Lys Cys Lys Ser Tyr Arg Leu Ser Tyr Gly
    50   55

<210> 163
<211> 61
<212> PRT
<213> Medicago truncatula

<400> 163

Met Gln Arg Lys Lys Asn Met Gly Gln Ile Leu Ile Phe Val Phe Ala
1   5   10   15

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

Ile Pro Cys Thr Phe Ile Asp Asp Cys Pro Lys Met Pro Leu Val Val
        35   40   45

Lys Cys Ile Asp Asn Phe Cys Asn Tyr Phe Glu Ile Lys
    50   55   60

<210> 164
<211> 57
<212> PRT

<213> Medicago truncatula

<400> 164

Met Ala Gln Thr Leu Met Leu Val Tyr Ala Leu Ile Ile Phe Thr Ser
1   5   10   15

Leu Phe Leu Val Val Ile Ser Arg Gln Thr Asp Ile Pro Cys Lys Ser
            20   25   30

Asp Asp Ala Cys Pro Arg Val Ser Ser His His Ile Glu Cys Val Lys
        35   40   45

Gly Phe Cys Thr Tyr Trp Lys Leu Asp
    50   55

<210> 165
<211> 77
<212> PRT
<213> Medicago truncatula

<400> 165

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

Leu Leu Ile Tyr Ile Phe Leu Phe Leu Val Ile Thr Ser Ser Ala Asn
            20   25   30

Ile Pro Cys Asn Ser Asp Ser Asp Cys Pro Trp Lys Ile Tyr Tyr Thr
        35   40   45

Tyr Arg Cys Asn Asp Gly Phe Cys Val Tyr Lys Ser Ile Asp Pro Ser
    50   55   60

Thr Ile Pro Gln Tyr Met Thr Asp Leu Ile Phe Pro Arg
65   70   75

<210> 166
<211> 59

<212> PRT
<213> Medicago truncatula

<400> 166

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

Leu Leu Tyr Val Val Asn Gly Thr Arg Cys Asn Arg Asp Glu Asp Cys
            20   25   30

Pro Phe Ile Cys Thr Gly Pro Gln Ile Pro Lys Cys Val Ser His Ile
        35   40   45

Cys Phe Cys Leu Ser Ser Gly Lys Glu Ala Tyr
    50   55

<210> 167
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 167

Met Asp Ala Ile Leu Lys Phe Ile Tyr Ala Met Phe Leu Phe Leu Phe
1   5   10   15

Leu Phe Val Thr Thr Arg Asn Val Glu Ala Leu Phe Glu Cys Asn Arg
            20   25   30

Asp Phe Val Cys Gly Asn Asp Asp Glu Cys Val Tyr Pro Tyr Ala Val
        35   40   45

Gln Cys Ile His Arg Tyr Cys Lys Cys Leu Lys Ser Arg Asn
    50   55   60

<210> 168
<211> 67
<212> PRT
<213> Medicago truncatula

<400> 168

Met Gln Ile Gly Arg Lys Lys Met Gly Glu Thr Pro Lys Leu Val Tyr
1 5 10 15

Val Ile Ile Leu Phe Leu Ser Ile Phe Leu Cys Thr Asn Ser Ser Phe
20 25 30

Ser Gln Met Ile Asn Phe Arg Gly Cys Lys Arg Asp Lys Asp Cys Pro
35 40 45

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

Ile Asp Ser
65

<210> 169
<211> 76
<212> PRT
<213> Medicago truncatula

<400> 169

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

Leu Leu Ile Leu Phe Ser Pro Phe Leu Val Ala Arg Ile Met Val Val
20 25 30

Asn Pro Asn Asn Pro Cys Val Thr Asp Ala Asp Cys Gln Arg Tyr Arg
35 40 45

His Lys Leu Ala Thr Arg Met Val Cys Asn Ile Gly Phe Cys Leu Met
50 55 60

Asp Phe Thr His Asp Pro Tyr Ala Pro Ser Leu Pro
65 70 75

<210> 170
<211> 77
<212> PRT
<213> Medicago truncatula

<400> 170

Met Tyr Val Tyr Tyr Ile Gln Met Gly Lys Asn Met Ala Gln Arg Phe
1   5   10   15

Met Phe Ile Tyr Ala Leu Ile Ile Phe Leu Ser Gln Phe Phe Val Val
            20   25   30

Ile Asn Thr Ser Asp Ile Pro Asn Asn Ser Asn Arg Asn Ser Pro Lys
        35   40   45

Glu Asp Val Phe Cys Asn Ser Asn Asp Asp Cys Pro Thr Ile Leu Tyr
    50   55   60

Tyr Val Ser Lys Cys Val Tyr Asn Phe Cys Glu Tyr Trp
65   70   75

<210> 171
<211> 67
<212> PRT
<213> Medicago truncatula

<400> 171

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

Leu Phe Leu Val Ala Thr Lys Gly Gly Ser Lys Pro Phe Leu Thr Arg
            20   25   30

Pro Tyr Pro Cys Asn Thr Gly Ser Asp Cys Pro Gln Asn Met Cys Pro
        35   40   45

Pro Gly Tyr Lys Pro Gly Cys Glu Asp Gly Tyr Cys Asn His Cys Tyr
    50   55   60

Lys Arg Trp
65

<210> 172
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 172

Met Val Arg Thr Leu Lys Phe Val Tyr Val Ile Ile Leu Ile Leu Ser
1 5 10 15

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

Ala Ala Ser Cys Pro Arg Leu Met Tyr Pro Leu Val Tyr Lys Cys Leu
35 40 45

Asp Asn Lys Cys Val Lys Phe Met Met Lys Ser Arg Phe Val
50 55 60

<210> 173
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 173

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

Leu Phe Leu Val Ala Lys Gly Asp Asp Val Lys Ile Lys Cys Val Val
20 25 30

Ala Ala Asn Cys Pro Asp Leu Met Tyr Pro Leu Val Tyr Lys Cys Leu
35 40 45

Asn Gly Ile Cys Val Gln Phe Thr Leu Thr Phe Pro Phe Val
50 55 60

<210> 174
<211> 65
<212> PRT
<213> Medicago truncatula

<400> 174

Met Ser Asn Thr Leu Met Phe Val Ile Thr Phe Ile Val Leu Val Thr
1   5   10   15

Leu Phe Leu Gly Pro Lys Asn Val Tyr Ala Phe Gln Pro Cys Val Thr
            20   25   30

Thr Ala Asp Cys Met Lys Thr Leu Lys Thr Asp Glu Asn Ile Trp Tyr
        35   40   45

Glu Cys Ile Asn Asp Phe Cys Ile Pro Phe Pro Ile Pro Lys Gly Arg
    50   55   60

Lys
65

<210> 175
<211> 76
<212> PRT
<213> Medicago truncatula

<400> 175

Met Lys Arg Val Val Asn Met Ala Lys Ile Val Lys Tyr Val Tyr Val
1   5   10   15

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

Tyr Tyr Tyr Lys Cys Phe Lys Asp Ser Asp Cys Val Lys Leu Leu Cys
        35   40   45

Arg Ile Pro Leu Arg Pro Lys Cys Met Tyr Arg His Ile Cys Lys Cys

```
    50                  55                  60

Lys Val Val Leu Thr Gln Asn Asn Tyr Val Leu Thr
65                  70                  75


<210>  176
<211>  66
<212>  PRT
<213>  Medicago truncatula

<400>  176

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


Thr Leu Val Leu Tyr Leu Phe Leu Val Val Thr Lys Ala Ser Asp Asp
            20                  25                  30


Glu Cys Lys Ile Asp Gly Asp Cys Pro Ile Ser Trp Gln Lys Phe His
        35                  40                  45


Thr Tyr Lys Cys Ile Asn Gln Lys Cys Lys Trp Val Leu Arg Phe His
    50                  55                  60


Glu Tyr
65


<210>  177
<211>  64
<212>  PRT
<213>  Medicago truncatula

<400>  177

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


Leu Phe Leu Val Ser Lys Asn Val Ala Ile Asp Ile Phe Val Cys Gln
            20                  25                  30
```

Thr Asp Ala Asp Cys Pro Lys Ser Glu Leu Ser Met Tyr Thr Trp Lys
        35   40   45

Cys Ile Asp Asn Glu Cys Asn Leu Phe Lys Val Met Gln Gln Met Val
    50   55   60

<210> 178
<211> 59
<212> PRT
<213> Medicago truncatula

<400> 178

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

Phe Leu Val Ala Asn Asn Val Glu Gly Tyr Val Asn Cys Glu Thr Asp
            20   25   30

Ala Asp Cys Pro Pro Ser Thr Arg Val Lys Arg Phe Lys Cys Val Lys
        35   40   45

Gly Glu Cys Arg Trp Thr Arg Met Ser Tyr Ala
    50   55

<210> 179
<211> 59
<212> PRT
<213> Medicago truncatula

<400> 179

Met Ala His Phe Leu Met Phe Val Tyr Ala Leu Ile Thr Cys Leu Ser
1   5   10   15

Leu Phe Leu Val Glu Met Gly His Leu Ser Ile His Cys Val Ser Val
            20   25   30

Asp Asp Cys Pro Lys Val Glu Lys Pro Ile Thr Met Lys Cys Ile Asn
        35   40   45

Asn Tyr Cys Lys Tyr Phe Val Asp His Lys Leu
    50   55

<210> 180
<211> 66
<212> PRT
<213> Medicago truncatula

<400> 180

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

Leu Phe Pro Val Ile Thr Asn Gly Asp Arg Ile Pro Cys Val Thr Asn
            20   25   30

Gly Asp Cys Pro Val Met Arg Leu Pro Leu Tyr Met Arg Cys Ile Thr
        35   40   45

Tyr Ser Cys Glu Leu Phe Phe Asp Gly Pro Asn Leu Cys Ala Val Glu
    50   55   60

Arg Ile
65

<210> 181
<211> 61
<212> PRT
<213> Medicago truncatula

<400> 181

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

Ile Phe Phe Ser Leu Phe Phe Val Leu Thr Asn Gly Glu Leu Glu Ile
            20   25   30

Arg Cys Val Ser Asp Ala Asp Cys Pro Leu Phe Pro Leu Pro Leu His
        35   40   45

Asn Arg Cys Ile Asp Asp Val Cys His Leu Phe Thr Ser
    50   55   60

<210> 182
<211> 60
<212> PRT
<213> Medicago truncatula

<400> 182

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

Leu Phe Leu Val Glu Ser Ile Lys Ile Phe Thr Glu His Arg Cys Arg
            20   25   30

Thr Asp Ala Asp Cys Pro Ala Arg Glu Leu Pro Glu Tyr Leu Lys Cys
        35   40   45

Gln Gly Gly Met Cys Arg Leu Leu Ile Lys Lys Asp
    50   55   60

<210> 183
<211> 56
<212> PRT
<213> Medicago truncatula

<400> 183

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

Leu Phe Leu Val Ala Thr Asn Gly Asp Leu Ser Pro Cys Leu Arg Ser
            20   25   30

Gly Asp Cys Ser Lys Asp Glu Cys Pro Ser His Leu Val Pro Lys Cys
        35   40   45

Ile Gly Leu Thr Cys Tyr Cys Ile

50 55

<210> 184
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 184

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

Phe Ile Ile Ser Ile Ser Leu Phe Leu Val Val Thr Asn Gly Val Lys
20 25 30

Ile Pro Cys Val Lys Asp Thr Asp Cys Pro Thr Leu Pro Cys Pro Leu
35 40 45

Tyr Ser Lys Cys Val Asp Gly Phe Cys Lys Met Leu Ser Ile
50 55 60

<210> 185
<211> 66
<212> PRT
<213> Medicago truncatula

<400> 185

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

Val Tyr Leu Val Val Leu Asp Gly Arg Pro Val Ser Cys Lys Asp His
20 25 30

Tyr Asp Cys Arg Arg Lys Val Lys Ile Val Gly Cys Ile Phe Pro Gln
35 40 45

Glu Lys Pro Met Cys Ile Asn Ser Met Cys Thr Cys Ile Arg Glu Ile
50 55 60

Val Pro
65

<210> 186
<211> 86
<212> PRT
<213> Medicago truncatula

<400> 186

Met Lys Ser Gln Asn His Ala Lys Phe Ile Ser Phe Tyr Lys Asn Asp
1   5   10   15

Leu Phe Lys Ile Phe Gln Asn Asn Asp Ser His Phe Lys Val Phe Phe
            20   25   30

Ala Leu Ile Ile Phe Leu Tyr Thr Tyr Leu His Val Thr Asn Gly Val
        35   40   45

Phe Val Ser Cys Asn Ser His Ile His Cys Arg Val Asn Asn His Lys
    50   55   60

Ile Gly Cys Asn Ile Pro Glu Gln Tyr Leu Leu Cys Val Asn Leu Phe
65   70   75   80

Cys Leu Trp Leu Asp Tyr
                85

<210> 187
<211> 62
<212> PRT
<213> Medicago truncatula

<400> 187

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

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

```
Phe Asp Cys Arg Gln Asn Val Gln Gln Val Gly Cys Ser Phe Arg Glu
        35                  40                  45


Ile Pro Gln Cys Ile Asn Ser Ile Cys Lys Cys Met Lys Gly
    50                  55                  60


<210>  188
<211>  63
<212>  PRT
<213>  Medicago truncatula

<400>  188

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


Ile Tyr Val Gly Val Asn Asp Cys Lys Arg Ile Pro Cys Lys Asp Asn
            20                  25                  30


Asn Asp Cys Asn Asn Asn Trp Gln Leu Leu Ala Cys Arg Phe Glu Arg
        35                  40                  45


Glu Val Pro Arg Cys Ile Asn Ser Ile Cys Lys Cys Met Pro Met
    50                  55                  60


<210>  189
<211>  60
<212>  PRT
<213>  Medicago truncatula

<400>  189

Met Val Gln Thr Pro Lys Leu Val Tyr Val Ile Val Leu Leu Leu Ser
1               5                   10                  15


Ile Phe Leu Gly Met Thr Ile Cys Asn Ser Ser Phe Ser His Phe Phe
            20                  25                  30


Glu Gly Ala Cys Lys Ser Asp Lys Asp Cys Pro Lys Leu His Arg Ser
        35                  40                  45
```

Asn Val Arg Cys Arg Lys Gly Gln Cys Val Gln Ile
    50   55   60

<210> 190
<211> 77
<212> PRT
<213> Medicago truncatula

<400> 190

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

Ile Phe Leu Val Ala Ser Tyr Thr Asp Glu Cys Ser Thr Asp Ala Asp
            20   25   30

Cys Glu Tyr Ile Leu Cys Leu Phe Pro Ile Ile Lys Arg Cys Ile His
        35   40   45

Asn His Cys Lys Cys Val Pro Met Gly Ser Ile Glu Pro Met Ser Thr
    50   55   60

Ile Pro Asn Gly Val His Lys Phe His Ile Ile Asn Asn
65   70   75

<210> 191
<211> 64
<212> PRT
<213> Medicago truncatula

<400> 191

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

Leu Phe Leu Val Ser Lys Asn Val Ala Leu Tyr Ile Ile Glu Cys Lys
            20   25   30

Thr Asp Ala Asp Cys Pro Ile Ser Lys Leu Asn Met Tyr Asn Trp Arg

```
        35                  40                  45

Cys Ile Lys Ser Ser Cys His Leu Tyr Lys Val Ile Gln Phe Met Val
    50                  55                  60


<210>  192
<211>  72
<212>  PRT
<213>  Medicago truncatula

<400>  192

Met Gln Lys Glu Lys Asn Met Ala Lys Thr Phe Glu Phe Val Tyr Ala
1               5                   10                  15


Met Ile Ile Phe Ile Leu Leu Phe Leu Val Glu Asn Asn Phe Ala Ala
            20                  25                  30


Tyr Ile Ile Glu Cys Gln Thr Asp Asp Asp Cys Pro Lys Ser Gln Leu
        35                  40                  45


Glu Met Phe Ala Trp Lys Cys Val Lys Asn Gly Cys His Leu Phe Gly
    50                  55                  60


Met Tyr Glu Asp Asp Asp Asp Pro
65                  70


<210>  193
<211>  57
<212>  PRT
<213>  Medicago truncatula

<400>  193

Met Ala Ala Thr Arg Lys Phe Ile Tyr Val Leu Ser His Phe Leu Phe
1               5                   10                  15


Leu Phe Leu Val Thr Lys Ile Thr Asp Ala Arg Val Cys Lys Ser Asp
            20                  25                  30
```

Lys Asp Cys Lys Asp Ile Ile Ile Tyr Arg Tyr Ile Leu Lys Cys Arg
        35   40   45

Asn Gly Glu Cys Val Lys Ile Lys Ile
    50   55

<210> 194
<211> 75
<212> PRT
<213> Medicago truncatula

<400> 194

Met Gln Arg Leu Asp Asn Met Ala Lys Asn Val Lys Phe Ile Tyr Val
1   5   10   15

Ile Ile Leu Leu Leu Phe Ile Phe Leu Val Ile Ile Val Cys Asp Ser
            20   25   30

Ala Phe Val Pro Asn Ser Gly Pro Cys Thr Thr Asp Lys Asp Cys Lys
        35   40   45

Gln Val Lys Gly Tyr Ile Ala Arg Cys Arg Lys Gly Tyr Cys Met Gln
    50   55   60

Ser Val Lys Arg Thr Trp Ser Ser Tyr Ser Arg
65   70   75

<210> 195
<211> 102
<212> PRT
<213> Medicago truncatula

<400> 195

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

Gln Phe Leu Thr Cys Lys Gly Leu Thr Val Pro Cys Glu Asn Pro Thr
            20   25   30

Thr Cys Pro Glu Asp Phe Cys Thr Pro Pro Met Ile Thr Arg Cys Ile
        35   40   45

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

Asp Gly Pro Glu Pro Glu Tyr Asp His Lys Gly Asp Phe Leu Ser Val
65   70   75   80

Lys Pro Lys Ile Ile Asn Glu Asn Met Met Met Arg Glu Arg His Met
                85   90   95

Met Lys Glu Ile Glu Val
            100

<210> 196
<211> 59
<212> PRT
<213> Medicago truncatula

<400> 196

Met Ala Gln Phe Leu Met Phe Ile Tyr Val Leu Ile Ile Phe Leu Tyr
1   5   10   15

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

Arg Cys Val Thr Asp Ala Asp Cys Pro Asn Val Val Lys Pro Leu Lys
        35   40   45

Pro Lys Cys Val Asp Gly Phe Cys Glu Tyr Thr
    50   55

<210> 197
<211> 70
<212> PRT
<213> Medicago truncatula

<400> 197

Met Lys Met Arg Ile His Met Ala Gln Ile Ile Met Phe Phe Tyr Ala
1   5   10   15

Leu Ile Ile Phe Leu Ser Pro Phe Leu Val Asp Arg Arg Ser Phe Pro
            20   25   30

Ser Ser Phe Val Ser Pro Lys Ser Tyr Thr Ser Glu Ile Pro Cys Lys
        35   40   45

Ala Thr Arg Asp Cys Pro Tyr Glu Leu Tyr Tyr Glu Thr Lys Cys Val
    50   55   60

Asp Ser Leu Cys Thr Tyr
65   70

<210> 198
<211> 41
<212> PRT
<213> Medicago truncatula

<400> 198

Thr Arg Met Leu Thr Ile Pro Cys Thr Ser Asp Asp Asn Cys Pro Lys
1   5   10   15

Val Ile Ser Pro Cys His Thr Lys Cys Phe Asp Gly Phe Cys Gly Trp
            20   25   30

Tyr Ile Glu Gly Ser Tyr Glu Gly Pro
        35   40

<210> 199
<211> 69
<212> PRT
<213> Medicago truncatula

<400> 199

Met Ala Gln Phe Leu Leu Phe Val Tyr Ser Leu Ile Ile Phe Leu Ser

1 5 10 15

Leu Phe Phe Gly Glu Ala Ala Phe Glu Arg Thr Glu Thr Arg Met Leu
20 25 30

Thr Ile Pro Cys Thr Ser Asp Asp Asn Cys Pro Lys Val Ile Ser Pro
35 40 45

Cys His Thr Lys Cys Phe Asp Gly Phe Cys Gly Trp Tyr Ile Glu Gly
50 55 60

Ser Tyr Glu Gly Pro
65

<210> 200
<211> 78
<212> PRT
<213> Buchnera aphidicola

<400> 200

Met Lys Leu Leu His Gly Phe Leu Ile Ile Met Leu Thr Met His Leu
1 5 10 15

Ser Ile Gln Tyr Ala Tyr Gly Gly Pro Phe Leu Thr Lys Tyr Leu Cys
20 25 30

Asp Arg Val Cys His Lys Leu Cys Gly Asp Glu Phe Val Cys Ser Cys
35 40 45

Ile Gln Tyr Lys Ser Leu Lys Gly Leu Trp Phe Pro His Cys Pro Thr
50 55 60

Gly Lys Ala Ser Val Val Leu His Asn Phe Leu Thr Ser Pro
65 70 75

<210> 201
<211> 77
<212> PRT

<213> Buchnera aphidicola

<400> 201

Met Lys Leu Leu Tyr Gly Phe Leu Ile Ile Met Leu Thr Ile His Leu
1 5 10 15

Ser Val Gln Tyr Phe Glu Ser Pro Phe Glu Thr Lys Tyr Asn Cys Asp
20 25 30

Thr His Cys Asn Lys Leu Cys Gly Lys Ile Asp His Cys Ser Cys Ile
35 40 45

Gln Tyr His Ser Met Glu Gly Leu Trp Phe Pro His Cys Arg Thr Gly
50 55 60

Ser Ala Ala Gln Met Leu His Asp Phe Leu Ser Asn Pro
65 70 75

<210> 202
<211> 86
<212> PRT
<213> Buchnera aphidicola

<400> 202

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

Ile Met Ser Pro Val Thr Pro Thr Ser Val Phe Ile Ser Ala Val Cys
20 25 30

Tyr Ser Gly Cys Gly Ser Leu Ala Leu Val Cys Phe Val Ser Asn Gly
35 40 45

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

Ser Glu Thr Ser Cys Gly Glu Ala Phe Asp Thr Cys Thr Asp His Cys
65 70 75 80

Leu Ala Asn Phe Lys Phe
85

<210> 203
<211> 69
<212> PRT
<213> Buchnera aphidicola

<400> 203

Met Arg Leu Leu Tyr Gly Phe Leu Ile Ile Met Leu Thr Ile Tyr Leu
1 5 10 15

Ser Val Gln Asp Phe Asp Pro Thr Glu Phe Lys Gly Pro Phe Pro Thr
20 25 30

Ile Glu Ile Cys Ser Lys Tyr Cys Ala Val Val Cys Asn Tyr Thr Ser
35 40 45

Arg Pro Cys Tyr Cys Val Glu Ala Ala Lys Glu Arg Asp Gln Trp Phe
50 55 60

Pro Tyr Cys Tyr Asp
65

<210> 204
<211> 77
<212> PRT
<213> Buchnera aphidicola

<400> 204

Met Arg Leu Leu Tyr Gly Phe Leu Ile Ile Met Leu Thr Ile His Leu
1 5 10 15

Ser Val Gln Asp Ile Asp Pro Asn Thr Leu Arg Gly Pro Tyr Pro Thr
20 25 30

Lys Glu Ile Cys Ser Lys Tyr Cys Glu Tyr Asn Val Val Cys Gly Ala

```
        35                  40                  45

Ser Leu Pro Cys Ile Cys Val Gln Asp Ala Arg Gln Leu Asp His Trp
    50                  55                  60

Phe Ala Cys Cys Tyr Asp Gly Gly Pro Glu Met Leu Met
65                  70                  75

<210>  205
<211>  108
<212>  PRT
<213>  Buchnera aphidicola

<400>  205

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

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

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

Val Arg Val Ser Ser Ala Asp Ser Gly Gly Ser Ser Lys Thr Ser Ser
    50                  55                  60

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

Lys Ile Phe Gly Thr Tyr Ser Asp Ala Ala Pro Ala Met Pro Pro Ile
                85                  90                  95

Pro Pro Ala Leu Arg Lys Asn Arg Gly Met Leu Ala
            100                 105

<210>  206
<211>  178
<212>  PRT
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<213> Buchnera aphidicola

<400> 206

```
Met Val Ala Cys Lys Val Ile Leu Ala Val Ala Val Val Phe Val Ala
1               5                  10                  15


Ala Val Gln Gly Arg Pro Gly Gly Glu Pro Glu Trp Ala Ala Pro Ile
            20                  25                  30


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


Leu Asp Asn Ala Gly Glu Tyr Ala Thr Ala Ala Lys Asn Asn Leu Asn
    50                  55                  60


Ala Phe Ala Glu Ser Leu Lys Thr Glu Ala Ala Val Phe Ser Lys Ser
65                  70                  75                  80


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


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


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


Met Val Glu His Gly Thr Glu Ile Thr Lys Lys Ala Gln Gly Asn Thr
    130                 135                 140


Glu Thr Glu Lys Glu Ile Lys Glu Phe Phe Lys Lys Gln Ile Glu Asn
145                 150                 155                 160


Leu Ile Gly Gln Gly Lys Ala Leu Gln Ala Lys Ile Ala Glu Ala Lys
                165                 170                 175


Lys Ala
```

<210> 207
<211> 311
<212> PRT
<213> Buchnera aphidicola

<400> 207

```
Met Lys Thr Ser Ser Ser Lys Val Phe Ala Ser Cys Val Ala Ile Val
1               5                   10                  15


Cys Leu Ala Ser Val Ala Asn Ala Leu Pro Val Gln Lys Ser Val Ala
            20                  25                  30


Ala Thr Thr Glu Asn Pro Ile Val Glu Lys His Gly Cys Arg Ala His
        35                  40                  45


Lys Asn Leu Val Arg Gln Asn Val Val Asp Leu Lys Thr Tyr Asp Ser
    50                  55                  60


Met Leu Ile Thr Asn Glu Val Val Gln Lys Gln Ser Asn Glu Val Gln
65                  70                  75                  80


Ser Ser Glu Gln Ser Asn Glu Gly Gln Asn Ser Glu Gln Ser Asn Glu
                85                  90                  95


Gly Gln Asn Ser Glu Gln Ser Asn Glu Val Gln Ser Ser Glu His Ser
            100                 105                 110


Asn Glu Gly Gln Asn Ser Lys Gln Ser Asn Glu Gly Gln Asn Ser Glu
        115                 120                 125


Gln Ser Asn Glu Val Gln Ser Ser Glu His Ser Asn Glu Gly Gln Asn
    130                 135                 140


Ser Glu Gln Ser Asn Glu Val Gln Ser Ser Glu His Ser Asn Glu Gly
145                 150                 155                 160
```

```
Gln Asn Ser Lys Gln Ser Asn Glu Gly Gln Asn Ser Lys Gln Ser Asn
                165                 170                 175

Glu Val Gln Ser Ser Glu His Trp Asn Glu Gly Gln Asn Ser Lys Gln
            180                 185                 190

Ser Asn Glu Asp Gln Asn Ser Glu Gln Ser Asn Glu Gly Gln Asn Ser
        195                 200                 205

Lys Gln Ser Asn Glu Gly Gln Asn Ser Lys Gln Ser Asn Glu Asp Gln
    210                 215                 220

Asn Ser Glu Gln Ser Asn Glu Gly Gln Asn Ser Lys Gln Ser Asn Glu
225                 230                 235                 240

Val Gln Ser Ser Glu Gln Ser Asn Glu Gly Gln Asn Ser Lys Gln Ser
                245                 250                 255

Asn Glu Gly Gln Ser Ser Glu Gln Ser Asn Glu Gly Gln Asn Ser Lys
            260                 265                 270

Gln Ser Asn Glu Val Gln Ser Pro Glu Glu His Tyr Asp Leu Pro Asp
        275                 280                 285

Pro Glu Ser Ser Tyr Glu Ser Glu Glu Thr Lys Gly Ser His Glu Ser
    290                 295                 300

Gly Asp Asp Ser Glu His Arg
305                 310
```

<210> 208
<211> 431
<212> PRT
<213> Buchnera aphidicola

<400> 208

```
Met Lys Thr Ile Ile Leu Gly Leu Cys Leu Phe Gly Ala Leu Phe Trp
```

```
1               5                   10                  15

Ser Thr Gln Ser Met Pro Val Gly Glu Val Ala Pro Ala Val Pro Ala
            20                  25                  30

Val Pro Ser Glu Ala Val Pro Gln Lys Gln Val Glu Ala Lys Pro Glu
        35                  40                  45

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

Lys Pro Val Asp Ala Glu Val Lys Pro Thr Val Ser Glu Val Lys Ala
65                  70                  75                  80

Glu Ser Glu Gln Lys Pro Ser Gly Glu Pro Lys Pro Glu Ser Asp Ala
                85                  90                  95

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

Ala Ala Val Val Glu Ser Lys Pro Glu Asn Asp Ala Val Ala Pro Glu
        115                 120                 125

Thr Asn Asn Asp Ala Lys Pro Glu Asn Ala Ala Ala Pro Val Ser Glu
    130                 135                 140

Asn Lys Pro Ala Thr Asp Ala Lys Ala Glu Thr Glu Leu Ile Ala Gln
145                 150                 155                 160

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

Ala Ala Lys Pro Asn Ser Glu Val Pro Val Ala Leu Pro Leu Asn Pro
            180                 185                 190

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

```
Gln Ala Ala Pro Ala Ala Ala Gln Ala Asp Pro Ala Ala Ala Pro Ala
    210                 215                 220

Ala Asp Pro Ala Pro Ala Pro Ala Ala Ala Pro Val Ala Ala Glu Glu
225                 230                 235                 240

Ala Lys Leu Ser Glu Ser Ala Pro Ser Thr Glu Asn Lys Ala Ala Glu
                245                 250                 255

Glu Pro Ser Lys Pro Ala Glu Gln Gln Ser Ala Lys Pro Val Glu Asp
            260                 265                 270

Ala Val Pro Ala Ala Ser Glu Ile Ser Glu Thr Lys Val Ser Pro Ala
        275                 280                 285

Val Pro Ala Val Pro Glu Val Pro Ala Ser Pro Ser Ala Pro Ala Val
    290                 295                 300

Ala Asp Pro Val Ser Ala Pro Glu Ala Glu Lys Asn Ala Glu Pro Ala
305                 310                 315                 320

Lys Ala Ala Asn Ser Ala Glu Pro Ala Val Gln Ser Glu Ala Lys Pro
                325                 330                 335

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

Lys Pro Val Glu Glu Gln Lys Pro Ala Glu Val Ala Lys Pro Ala Glu
        355                 360                 365

Gln Ser Lys Ser Glu Ala Pro Ala Glu Ala Pro Lys Pro Thr Glu Gln
    370                 375                 380

Ser Ala Ala Glu Glu Pro Lys Lys Pro Glu Ser Ala Asn Asp Glu Lys
385                 390                 395                 400
```

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

Pro Thr Asp Ser Ile Met Lys Lys Gln Lys Gln Lys Lys Ala Asn
420 425 430

<210> 209
<211> 160
<212> PRT
<213> Buchnera aphidicola

<400> 209

Met Asn Gly Lys Ile Val Leu Cys Phe Ala Val Val Phe Ile Gly Gln
1 5 10 15

Ala Met Ser Ala Ala Thr Gly Thr Thr Pro Glu Val Glu Asp Ile Lys
20 25 30

Lys Val Ala Glu Gln Met Ser Gln Thr Phe Met Ser Val Ala Asn His
35 40 45

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

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

Ala Asn Lys Met Lys Asp Ile Val Arg Lys Asn Ala Asp Pro Lys Leu
85 90 95

Val Glu Lys Tyr Asp Glu Leu Glu Lys Glu Leu Lys Lys His Leu Ser
100 105 110

Thr Ala Lys Asp Met Phe Glu Asp Lys Val Val Lys Pro Ile Gly Glu
115 120 125

Lys Val Glu Leu Lys Lys Ile Thr Glu Asn Val Ile Lys Thr Thr Lys

130 135 140

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

<210> 210
<211> 415
<212> PRT
<213> Buchnera aphidicola

<400> 210

Met His Leu Phe Leu Ala Leu Gly Leu Phe Ile Val Cys Gly Met Val
1 5 10 15

Asp Ala Thr Phe Tyr Asn Pro Arg Ser Gln Thr Phe Asn Gln Leu Met
20 25 30

Glu Arg Arg Gln Arg Ser Ile Pro Ile Pro Tyr Ser Tyr Gly Tyr His
35 40 45

Tyr Asn Pro Ile Glu Pro Ser Ile Asn Val Leu Asp Ser Leu Ser Glu
50 55 60

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

Lys Met Ser Thr Gln Asp Val Asn Ser Val Pro Arg Thr Gln Tyr Gln
85 90 95

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

Pro Ser Leu Phe Pro Glu Glu Asp Ser Tyr Asp Tyr Lys Tyr Leu Gly
115 120 125

Ser Pro Leu Asn Lys Tyr Leu Thr Arg Pro Ser Thr Gln Glu Ser Gly
130 135 140

```
Ile Ala Ile Asn Leu Val Ala Ile Lys Glu Thr Ser Val Phe Asp Tyr
145                 150                 155                 160


Gly Phe Pro Thr Tyr Lys Ser Pro Tyr Ser Ser Asp Ser Val Trp Asn
                165                 170                 175


Phe Gly Ser Lys Ile Pro Asn Thr Val Phe Glu Asp Pro Gln Ser Val
            180                 185                 190


Glu Ser Asp Pro Asn Thr Phe Lys Val Ser Ser Pro Thr Ile Lys Ile
        195                 200                 205


Val Lys Leu Leu Pro Glu Thr Pro Glu Gln Glu Ser Ile Ile Thr Thr
    210                 215                 220


Thr Lys Asn Tyr Glu Leu Asn Tyr Lys Thr Thr Gln Glu Thr Pro Thr
225                 230                 235                 240


Glu Ala Glu Leu Tyr Pro Ile Thr Ser Glu Glu Phe Gln Thr Glu Asp
                245                 250                 255


Glu Trp His Pro Met Val Pro Lys Glu Asn Thr Thr Lys Asp Glu Ser
            260                 265                 270


Ser Phe Ile Thr Thr Glu Glu Pro Leu Thr Glu Asp Lys Ser Asn Ser
        275                 280                 285


Ile Thr Ile Glu Lys Thr Gln Thr Glu Asp Glu Ser Asn Ser Ile Glu
    290                 295                 300


Phe Asn Ser Ile Arg Thr Glu Glu Lys Ser Asn Ser Ile Thr Thr Glu
305                 310                 315                 320


Glu Asn Gln Lys Glu Asp Asp Glu Ser Met Ser Thr Thr Ser Gln Glu
                325                 330                 335
```

```
Thr Thr Thr Ala Phe Asn Leu Asn Asp Thr Phe Asp Thr Asn Arg Tyr
            340                 345                 350

Ser Ser Ser His Glu Ser Leu Met Leu Arg Ile Arg Glu Leu Met Lys
        355                 360                 365

Asn Ile Ala Asp Gln Gln Asn Lys Ser Gln Phe Arg Thr Val Asp Asn
    370                 375                 380

Ile Pro Ala Lys Ser Gln Ser Asn Leu Ser Ser Asp Glu Ser Thr Asn
385                 390                 395                 400

Gln Gln Phe Glu Pro Gln Leu Val Asn Gly Ala Asp Thr Tyr Lys
                405                 410                 415
```

<210> 211
<211> 126
<212> PRT
<213> Sitophilus zeamais

<400> 211

```
Met Thr Arg Thr Met Leu Phe Leu Ala Cys Val Ala Ala Leu Tyr Val
1               5                   10                  15

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

Asp Glu Ala Pro Ser Asn Asp Gln Ala Met Tyr Glu Ser Ile Gln Arg
        35                  40                  45

Tyr Arg Arg Phe Val Asp Gly Asn Arg Tyr Asn Gly Gly Gln Gln Gln
    50                  55                  60

Gln Gln Gln Pro Lys Gln Trp Glu Val Arg Pro Asp Leu Ser Arg Asp
65                  70                  75                  80

Gln Arg Gly Asn Thr Lys Ala Gln Val Glu Ile Asn Lys Lys Gly Asp
                85                  90                  95
```

```
Asn His Asp Ile Asn Ala Gly Trp Gly Lys Asn Ile Asn Gly Pro Asp
            100                 105                 110


Ser His Lys Asp Thr Trp His Val Gly Gly Ser Val Arg Trp
        115                 120                 125


<210>  212
<211>  220
<212>  PRT
<213>  Acyrthosiphon pisum

<400>  212

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


Ile Leu Ala Lys Pro Leu Gly Leu Lys Ala Val Asn Glu Cys Lys Arg
            20                  25                  30


Leu Gly Asn Asn Ser Cys Arg Ser His Gly Glu Cys Cys Ser Gly Phe
        35                  40                  45


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


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


Asn Asn Gly Val His Glu Arg Ile Asp Asp Val Phe Glu Arg Gly Val
                85                  90                  95


Cys Ser Tyr Tyr Lys Gly Pro Ser Ile Thr Ala Asn Gly Asp Val Phe
            100                 105                 110


Asp Glu Asn Glu Met Thr Ala Ala His Arg Thr Leu Pro Phe Asn Thr
        115                 120                 125
```

```
Met Val Lys Val Glu Gly Met Gly Thr Ser Val Val Val Lys Ile Asn
    130                 135                 140

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

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

Gln Leu Lys Phe Val Leu Asp Gly Ser Gly Cys Thr Pro Asp Tyr Gly
            180                 185                 190

Asp Thr Cys Val Leu His His Glu Cys Cys Ser Gln Asn Cys Phe Arg
        195                 200                 205

Glu Met Phe Ser Asp Lys Gly Phe Cys Leu Pro Lys
    210                 215                 220
```

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

<220>
<223> Penetratin

<400> 213

```
Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys
1               5                   10                  15
```

<210> 214
<211> 13
<212> PRT
<213> Human immunodeficiency virus 1

<400> 214

```
Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln
1               5                   10
```

<210> 215
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> pVEC

<400> 215

Leu Leu Ile Ile Leu Arg Arg Arg Ile Arg Lys Gln Ala His Ala His
1   5   10   15

Ser Lys

<210> 216
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Transportan

<400> 216

Gly Trp Thr Leu Asn Ser Ala Gly Tyr Leu Leu Gly Lys Ile Asn Leu
1   5   10   15

Lys Ala Leu Ala Ala Leu Ala Lys Lys Ile Leu
            20   25

<210> 217
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> MPG

<400> 217

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

Ala Trp Ser Gln Pro Lys Lys Lys Arg Lys Val
            20   25

<210> 218
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Pep-1

<400> 218

Lys Glu Thr Trp Trp Glu Thr Trp Trp Thr Glu Trp Ser Gln Pro Lys
1   5   10   15

Lys Lys Arg Lys Val
            20

<210> 219
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> MAP

<400> 219

Lys Leu Ala Leu Lys Leu Ala Leu Lys Ala Leu Lys Ala Ala Leu Lys
1   5   10   15

Leu Ala

<210> 220
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> R6W3

<400> 220

Arg Arg Trp Trp Arg Arg Trp Arg Arg
1 5

<210> 221
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Buchnera forward primer

<400> 221
gtcggctcat cacatcc 17

<210> 222
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Buchnera reverse primer

<400> 222
ttccgtctgt attatctcct 20

<210> 223
<211> 390
<212> DNA
<213> Sitophilus zeamais

<400> 223
catatgatga cccgcaccat gctgtttctg gcgtgcgtgg cggcgctgta tgtgtgcatt 60

agcgcgaccg cgggcaaacc ggaagaattt gcgaaactga gcgatgaagc gccgagcaac 120

gatcaggcga tgtatgaaag cattcagcgc tatcgccgct ttgtggatgg caaccgctat 180

aacggcggcc agcagcagca gcagcagccg aaacagtggg aagtgcgccc ggatctgagc 240

cgcgatcagc gcggcaacac caaagcgcag gtggaaatta acaaaaaagg cgataaccat 300

gatattaacg cgggctgggg caaaaacatt aacggcccgg atagccataa agatacctgg 360

catgtgggcg gcagcgtgcg ctggctcgag 390

<210> 224
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> ColA Forward primer

<400> 224
gtatctattc ccgtctacga acatatggaa ttcc 34

<210> 225
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> ColA Reverse primer

<400> 225
ccgctcgagc catctgacac ttcctccaa 29

<210> 226
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Bacillus forward primer

<400> 226
gaggtagacg aagcgacctg 20

<210> 227
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Bacillus reverse primer

<400> 227
ttccctcacg gtactggttc 20

<210> 228
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Buch_groES_18F

<400> 228
catgatcgtg tgcttgttaa g 21

<210> 229
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Buch_groES_98R

<400> 229
ctgttcctcg agtcgatttc c 21

<210> 230
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> ApEF1a 107F

<400> 230
ctgattgtgc cgtgcttatt g 21

<210> 231
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> ApEF1a 246R

<400> 231
tatggtggtt cagtagagtc c 21

<210> 232
<211> 13
<212> PRT
<213> Pandinum imperator

<400> 232

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

<210> 233
<211> 13
<212> PRT
<213> Urodacus yaschenkoi

<400> 233

Ile Leu Ser Ala Ile Trp Ser Gly Ile Lys Ser Leu Phe
1   5   10

<210> 234
<211> 13
<212> PRT
<213> Scorpiops tibetanus

<400> 234

Leu Trp Gly Lys Leu Trp Glu Gly Val Lys Ser Leu Ile
1   5   10

<210> 235
<211> 22
<212> PRT
<213> Apostichopus japonicus

<400> 235

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

Ser Ala Ile Lys Arg Leu
            20

<210> 236

<211> 13
<212> PRT
<213> Urodacus yaschenkoi

<400> 236

Ile Leu Ser Ala Ile Trp Ser Gly Ile Lys Gly Leu Leu
1 5 10

<210> 237
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Uy192 + cell penetrating peptide

<400> 237

Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Phe Leu Ser Thr Ile
1 5 10 15

Trp Asn Gly Ile Lys Gly Leu Leu
20

<210> 238
<211> 20
<212> DNA
<213> Sod For

<400> 238
atagctgtcc agacgcttcg 20

<210> 239
<211> 20
<212> DNA
<213> Sod rev

<400> 239
atgtcgtcga ggcgattacc 20

<210> 240
<211> 20
<212> DNA

<213> SACT144 For

<400> 240
ggtgttggcg tacaagtcct 20

<210> 241
<211> 20
<212> DNA
<213> SACT314 Rev

<400> 241
gaattgcctg atggacaggt 20

<210> 242
<211> 11
<212> PRT
<213> synthetic construct

<400> 242

Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10