FIG.1a

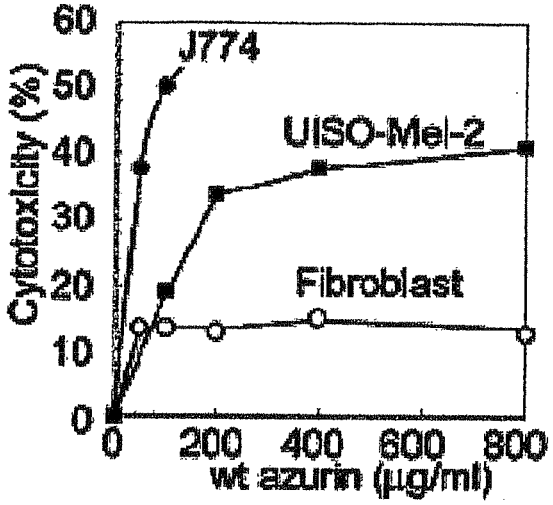

Cytotoxicity (%)
60
50
40
30
20
10
0
J774
UISO-Mel-2
Fibroblast
0
200
400
600
800
wt azurin (µg/ml)

FIG.1b

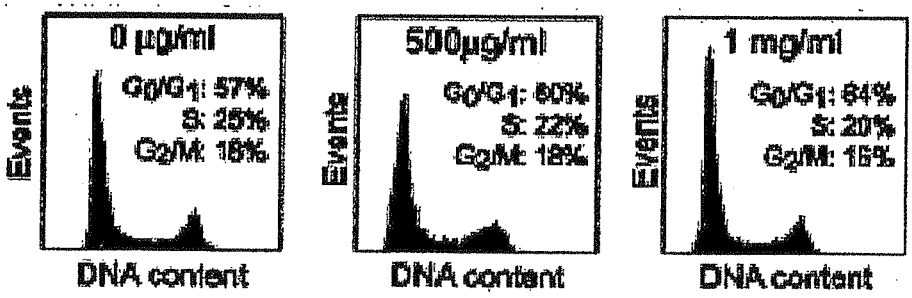

0 µg/ml
G0/G1: 57%
S: 25%
G2/M: 18%
Events
DNA content
500µg/ml
G0/G1: 60%
S: 22%
G2/M: 18%
Events
DNA content
1 mg/ml
G0/G1: 64%
S: 20%
G2/M: 16%
Events
DNA content

FIG. 2a

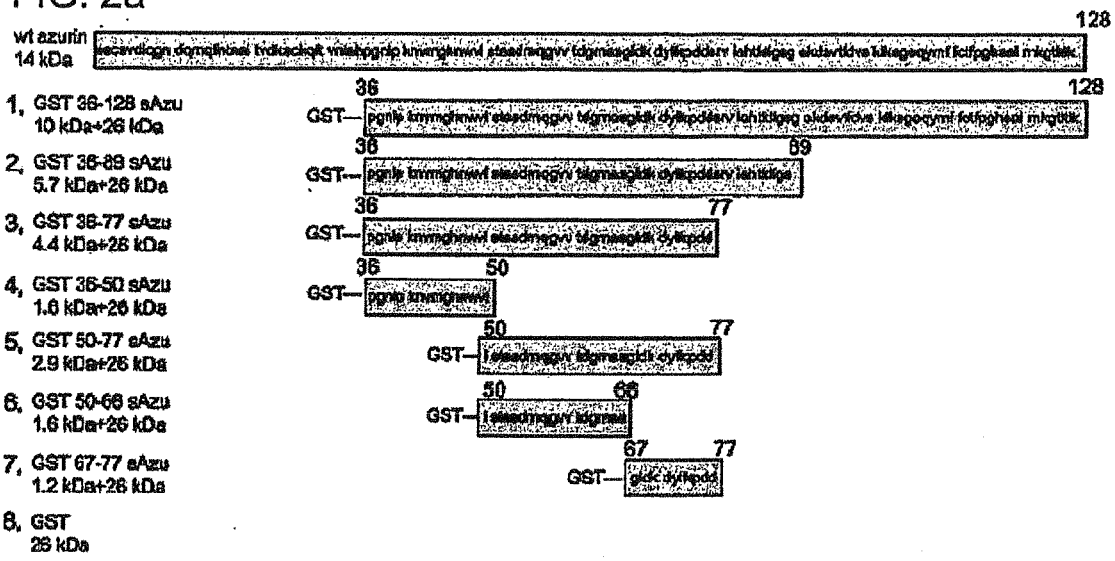

wt azurin
14 kDa
128
1, GST 36-128 sAzu
10 kDa+26 kDa
GST—
36
128
2, GST 36-69 sAzu
5.7 kDa+26 kDa
GST—
36
69
3, GST 36-77 sAzu
4.4 kDa+26 kDa
GST—
36
77
4, GST 36-50 sAzu
1.6 kDa+26 kDa
GST—
36
50
5, GST 50-77 sAzu
2.9 kDa+26 kDa
GST—
50
77
6, GST 50-66 sAzu
1.6 kDa+26 kDa
GST—
50
66
7, GST 67-77 sAzu
1.2 kDa+26 kDa
GST—
67
77
8, GST
26 kDa

FIG. 2b

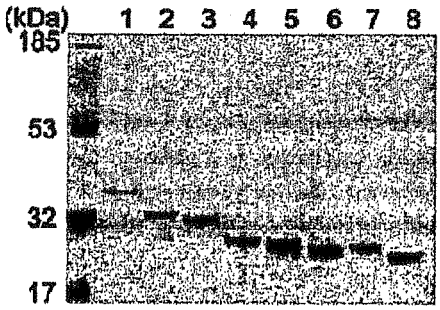

(kDa)
1 2 3 4 5 6 7 8
185
53
32
17

FIG. 3a



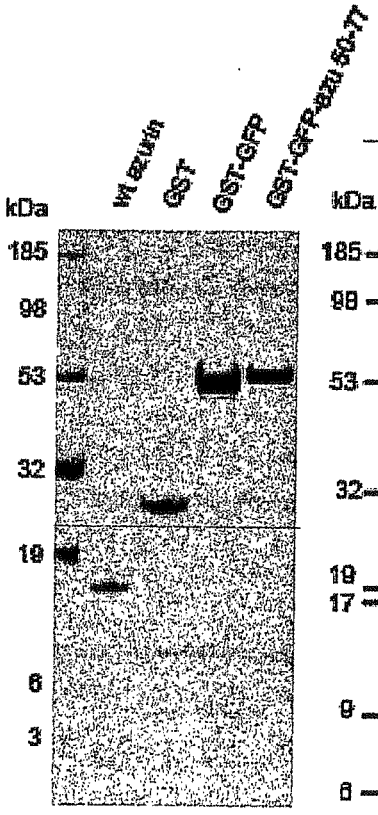


FIG. 3b

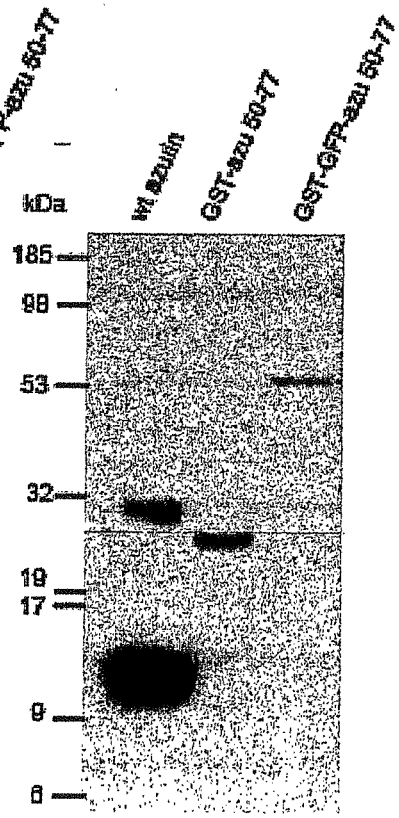


FIG. 3c

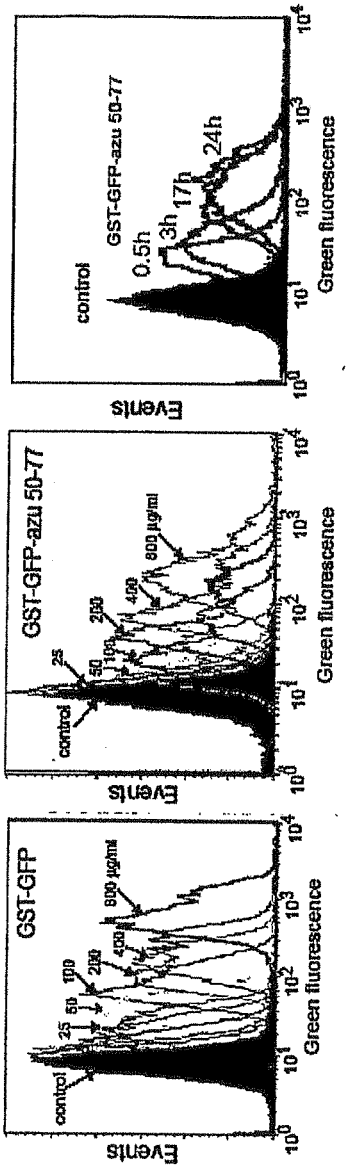


FIG. 4a FIG. 4b FIG. 4c

FIG. 5a

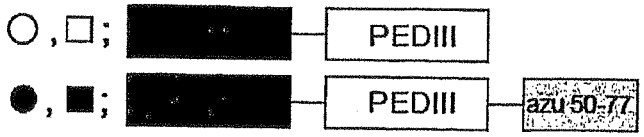


FIG. 5b

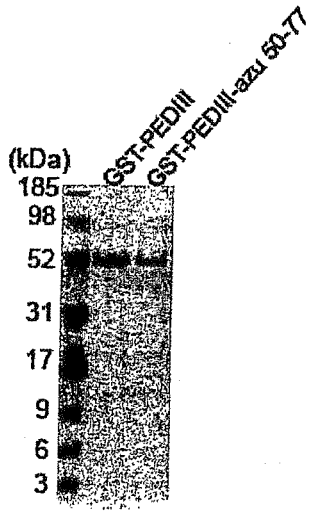
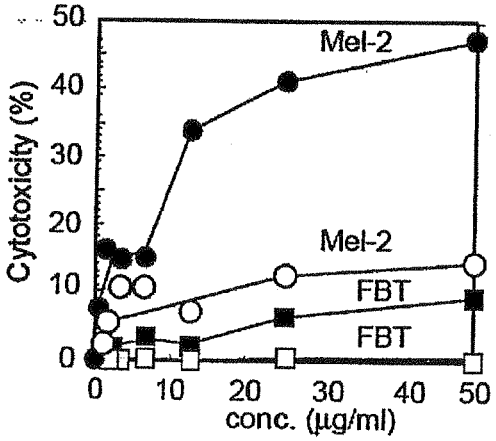


FIG. 5c



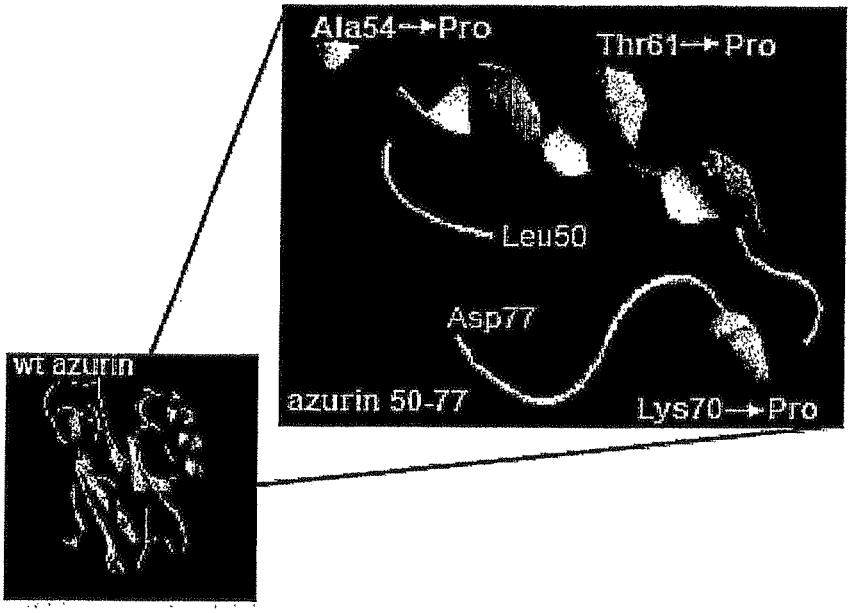

Ala54→Pro
Thr61→Pro
Leu50
Asp77
azurin 50-77
Lys70→Pro
wt azurin

FIG. 6

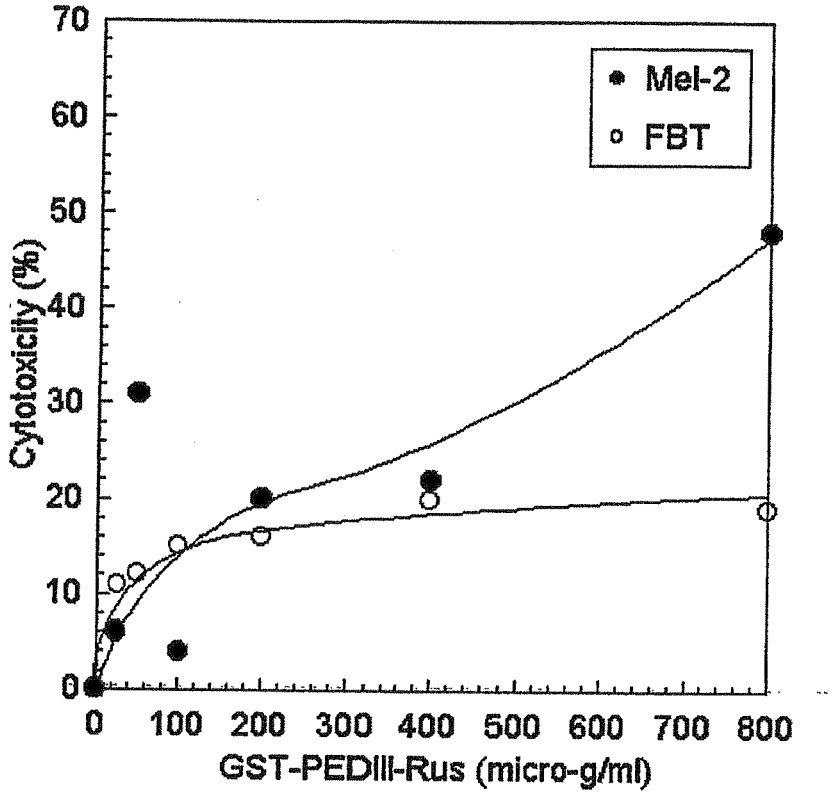

70
60
50
40
30
20
10
0
Cytotoxicity (%)
0
100
200
300
400
500
600
700
800
GST-PEDIII-Rus (micro-g/ml)
Mel-2
FBT

FIG. 7

FIG. 8a

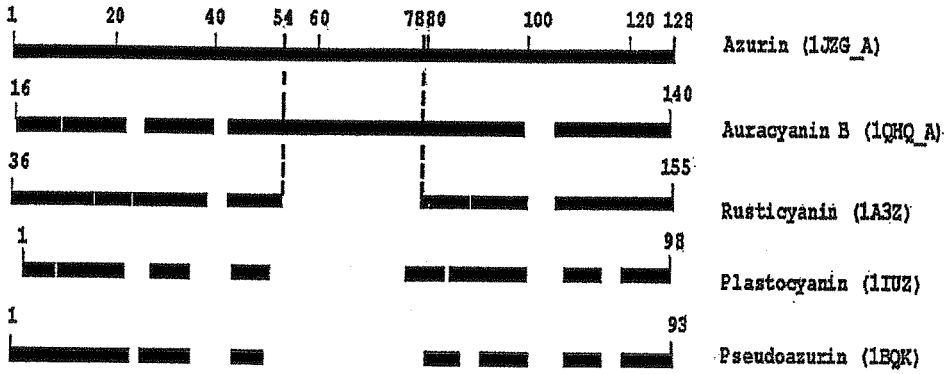


FIG. 8b

Microorganism	Accession number		
Psae	AAG08307	(51)	-STAADMQGVVTDGMASGLDKDYLKPDD (77)
Pssy	AAO58351	(51)	-SKKADASAITTDGMSVGIDKDYVKPDD (77)
Neme	AAF41888	(89)	IAKAEDMDGVFKDGVGA-ADTDYVKPDD (115)
Vipa	NP_800938	(52)	-ADTANIQAVGTDGMSAGADNSYVKPDD (78)
Bobr	AZBR	(51)	-TKTADMQAVEKDGIAAGLDNQYLKAGD (77)
Consensus			DG D Y K D

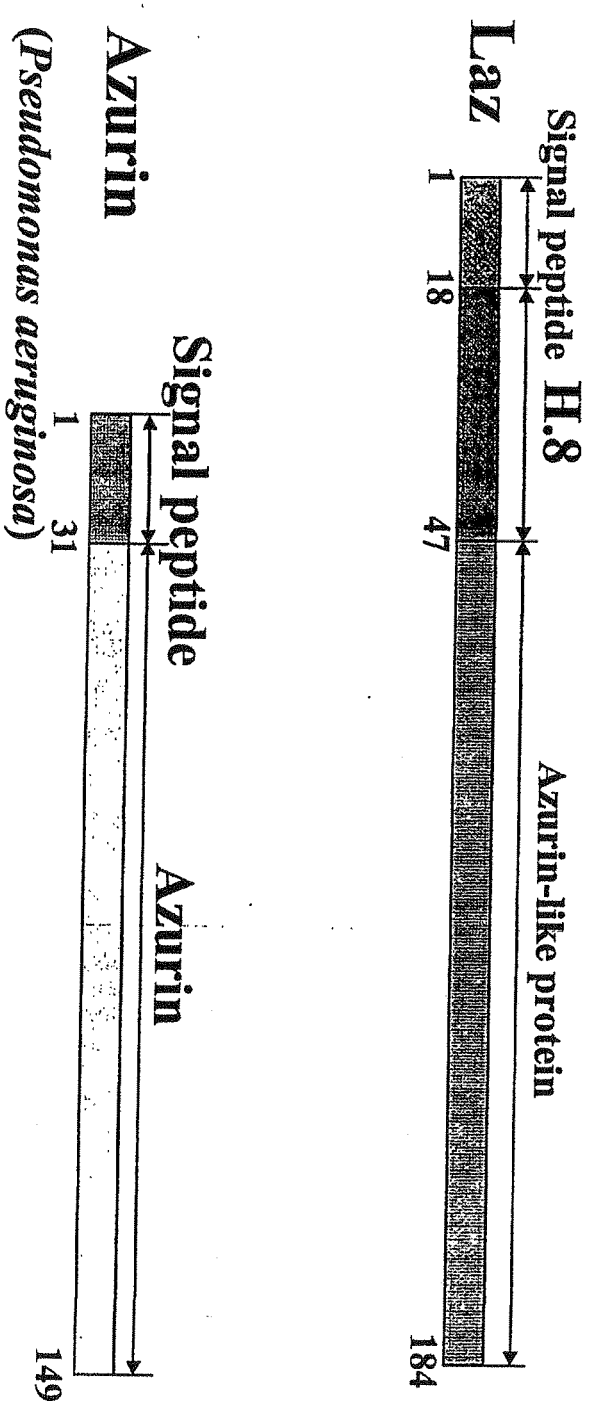


FIG. 9 PRIOR ART

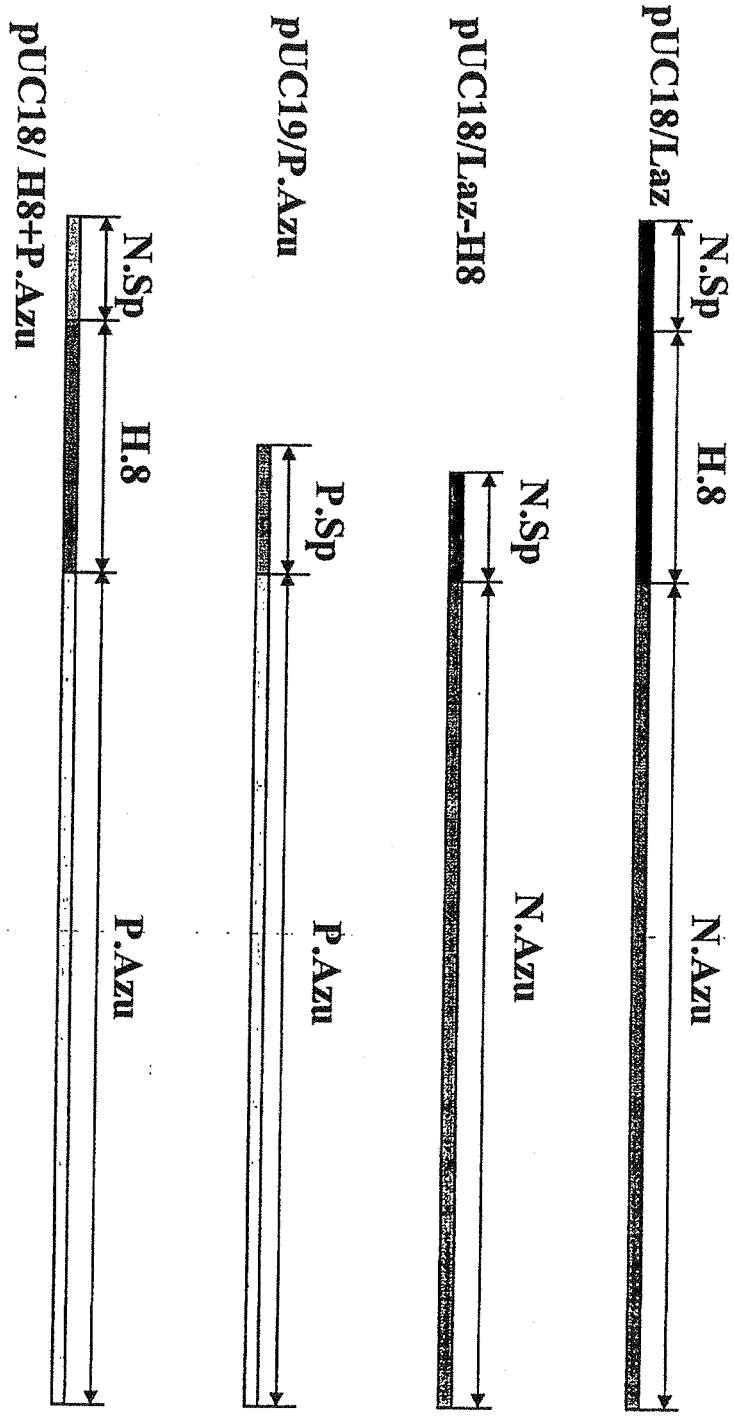

pUC18/Laz
N.Sp
H.8
N.Azu
pUC18/Laz-H8
N.Sp
N.Azu
pUC19/P.Azu
P.Sp
P.Azu
pUC18/ H8+P.Azu
N.Sp
H.8
P.Azu

FIG. 10

SEQUENCE LISTING

<110> Chakrabarty, Ananda
Das Gupta, Tapas
Yamada, Tohru
Fialho, Arsenio

<120> Cupredoxin Derived Transport Agents and Methods of Use Thereof

<130> 51282-00009

<140> Not assigned
<141> 2005-10-06

<150> 60/616,782
<151> 2004-10-07

<150> 60/680,500
<151> 2005-05-13

<150> 60/700,297
<151> 2005-07-19

<160> 48

<170> PatentIn version 3.3

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<212> PRT
<213> Pseudomonas aeruginosa

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1 5 10 15

Thr Asn Ala Ile Thr Val Asp Lys Ser Cys Lys Gln Phe Thr Val Asn
20 25 30

Leu Ser His Pro Gly Asn Leu Pro Lys Asn Val Met Gly His Asn Trp
35 40 45

Val Leu Ser Thr Ala Ala Asp Met Gln Gly Val Val Thr Asp Gly Met
50 55 60

Ala Ser Gly Leu Asp Lys Asp Tyr Leu Lys Pro Asp Asp Ser Arg Val
65 70 75 80

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

Phe Asp Val Ser Lys Leu Lys Glu Gly Glu Gln Tyr Met Phe Phe Cys
100 105 110

Thr Phe Pro Gly His Ser Ala Leu Met Lys Gly Thr Leu Thr Leu Lys
115 120 125

<210> 2
<211> 105
<212> PRT
<213> Phormidium laminosum

<400> 2

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

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20 25 30

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

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

Met Phe Ser Pro Gly Glu Ser Tyr Glu Ile Thr Phe Ser Ser Asp Phe
65 70 75 80

Pro Ala Gly Thr Tyr Thr Tyr Tyr Cys Ala Pro His Arg Gly Ala Gly
85 90 95

Met Val Gly Lys Ile Thr Val Glu Gly
100 105

<210> 3
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<212> PRT
<213> Thiobacillus ferrooxidans

<400> 3

Gly Thr Leu Asp Thr Thr Trp Lys Glu Ala Thr Leu Pro Gln Val Lys
1 5 10 15

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

```
Tyr Ser Gly Lys Thr Val His Val Val Ala Ala Ala Val Leu Pro Gly
        35                  40                  45

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

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

Lys Gly Phe Gly His Ser Phe Asp Ile Thr Lys Lys Gly Pro Pro Tyr
                85                  90                  95

Ala Val Met Pro Val Ile Asp Pro Ile Val Ala Gly Thr Gly Phe Ser
            100                 105                 110

Pro Val Pro Lys Asp Gly Lys Phe Gly Tyr Thr Asp Phe Thr Trp His
        115                 120                 125

Pro Thr Ala Gly Thr Tyr Tyr Tyr Val Cys Gln Ile Pro Gly His Ala
    130                 135                 140

Ala Thr Gly Met Phe Gly Lys Ile Val Val Lys
145                 150                 155
```

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<212> PRT
<213> Achromabacter cycloclastes

<400> 4

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1               5                   10                  15

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

Phe Ile Pro Thr Asp Lys Gly His Asn Val Glu Thr Ile Lys Gly Met
        35                  40                  45

Ile Pro Asp Gly Ala Glu Ala Phe Lys Ser Lys Ile Asn Glu Asn Tyr
    50                  55                  60
```

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

His Tyr Gly Met Gly Met Val Gly Val Val Gln Val Gly Asp Ala Pro
85 90 95

Ala Asn Leu Glu Ala Val Lys Gly Ala Lys Asn Pro Lys Lys Ala Gln
100 105 110

Glu Arg Leu Asp Ala Ala Leu Ala Ala Leu Gly Asn
115 120

<210> 5
<211> 93
<212> PRT
<213> Pseudomonas aeruginosa

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1 5 10 15

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20 25 30

Leu Asp Lys Asp Tyr Leu Lys Pro Asp Asp Ser Arg Val Ile Ala His
35 40 45

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

Ser Lys Leu Lys Glu Gly Glu Gln Tyr Met Phe Phe Cys Thr Phe Pro
65 70 75 80

Gly His Ser Ala Leu Met Lys Gly Thr Leu Thr Leu Lys
85 90

<210> 6
<211> 54
<212> PRT
<213> Pseudomonas aeruginosa

<400> 6

Pro Gly Asn Leu Pro Lys Asn Val Met Gly His Asn Trp Val Leu Ser
1 5 10 15

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

Leu Asp Lys Asp Tyr Leu Lys Pro Asp Asp Ser Arg Val Ile Ala His
35 40 45

Thr Lys Leu Ile Gly Ser
50

<210> 7
<211> 42
<212> PRT
<213> Pseudomonas aeruginosa

<400> 7

Pro Gly Asn Leu Pro Lys Asn Val Met Gly His Asn Trp Val Leu Ser
1 5 10 15

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

Leu Asp Lys Asp Tyr Leu Lys Pro Asp Asp
35 40

<210> 8
<211> 15
<212> PRT
<213> Pseudomonas aeruginosa

<400> 8

Pro Gly Asn Leu Pro Lys Asn Val Met Gly His Asn Trp Val Leu
1 5 10 15

<210> 9
<211> 28
<212> PRT
<213> Pseudomonas aeruginosa

<400> 9

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

Ser Gly Leu Asp Lys Asp Tyr Leu Lys Pro Asp Asp
20 25

<210> 10
<211> 17
<212> PRT
<213> Pseudomonas aeruginosa

<400> 10

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

Ser

<210> 11
<211> 11
<212> PRT
<213> Pseudomonas aeruginosa

<400> 11

Gly Leu Asp Lys Asp Tyr Leu Lys Pro Asp Asp
1 5 10

<210> 12
<211> 37
<212> DNA
<213> Artificial sequence

<220>
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<210> 13
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<212> DNA
<213> Artificial sequence

<220>
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<210> 14
<211> 39
<212> DNA
<213> Artificial sequence

<220>

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<400> 14
ggccacaact gggtactgtg aaccgccgcc gacatgcag 39

<210> 15
<211> 39
<212> DNA
<213> Artificial sequence

<220>
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<400> 15
ctgcatgtcg gcggcggttc acagtaccca gttgtggcc 39

<210> 16
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<220>
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<400> 16
cctgaagccc gacgactgac gtgtcatcgc ccacacc 37

<210> 17
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<400> 17
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<210> 18
<211> 38
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<210> 19
<211> 38
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<213> Artificial sequence

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<210> 20
<211> 33
<212> DNA
<213> Artificial sequence

<220>
<223> forward primer for pGST-azu 50-77

<400> 20
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<210> 21
<211> 38
<212> DNA
<213> Artificial sequence

<220>
<223> forward primer for pGST-azu 67-77

<400> 21
cgggatcccc ggcctggaca aggattacct gaagcccg 38

<210> 22
<211> 28
<212> DNA
<213> Artificial sequence

<220>
<223> reverse primer for pGST-azu 50-77 and pGST-azu 67-77

<400> 22
cggaattcgc atcacttcag ggtcaggg 28

<210> 23
<211> 34
<212> DNA
<213> Artificial sequence

<220>
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<400> 23
gacggcatgg cttcctgact ggacaaggat tacc 34

<210> 24
<211> 34
<212> DNA
<213> Artificial sequence

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<210> 25
<211> 26
<212> DNA
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<220>
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<400> 25
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<210> 26
<211> 30
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<220>
<223> reverse primer for green fluoresence protein gene

<400> 26
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<210> 27
<211> 33
<212> DNA
<213> Artificial sequence

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<400> 27
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<210> 28
<211> 43
<212> DNA
<213> Artificial sequence

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<212> PRT
<213> Pseudomonas syringae

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1 5 10 15

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20 25 30

Ser Cys Lys Glu Phe Thr Leu Asn Leu Thr His Ser Gly Ser Leu Pro
35 40 45

Lys Asn Val Met Gly His Asn Trp Val Leu Ser Lys Lys Ala Asp Ala
50 55 60

Ser Ala Ile Thr Thr Asp Gly Met Ser Val Gly Ile Asp Lys Asp Tyr
65 70 75 80

Val Lys Pro Asp Asp Thr Arg Val Ile Ala His Thr Lys Ile Ile Gly
85 90 95

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

Ala Glu Asp Tyr Gln Phe Phe Cys Thr Phe Pro Gly His Ile Ser Met
115 120 125

Met Lys Gly Ala Val Thr Leu Lys
130 135

<210> 30
<211> 183
<212> PRT
<213> Neisseria meningitidis

<400> 30

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

```
Ala Cys Ser Gln Glu Pro Ala Ala Pro Ala Ala Glu Ala Thr Pro Ala
            20                  25                  30

Ala Glu Ala Pro Ala Ser Glu Ala Pro Ala Ala Glu Ala Ala Pro Ala
        35                  40                  45

Asp Ala Ala Glu Ala Pro Ala Ala Gly Asn Cys Ala Ala Thr Val Glu
    50                  55                  60

Ser Asn Asp Asn Met Gln Phe Asn Thr Lys Asp Ile Gln Val Ser Lys
65                  70                  75                  80

Ala Cys Lys Glu Phe Thr Ile Thr Leu Lys His Thr Gly Thr Gln Pro
                85                  90                  95

Lys Thr Ser Met Gly His Asn Ile Val Ile Gly Lys Thr Glu Asp Met
            100                 105                 110

Asp Gly Ile Phe Lys Asp Gly Val Gly Ala Ala Asp Thr Asp Tyr Val
        115                 120                 125

Lys Pro Asp Asp Ala Arg Val Val Ala His Thr Lys Leu Ile Gly Gly
    130                 135                 140

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

Glu Tyr Lys Phe Ala Cys Thr Phe Pro Gly His Gly Ala Leu Met Asn
                165                 170                 175

Gly Lys Val Thr Leu Val Asp
            180
```

<210> 31
<211> 150
<212> PRT
<213> Vibrio parahaemolyticus

<400> 31

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

Phe Gly Ala Gln Ala Ser Ala Glu Cys Glu Val Ser Ile Asp Ala Asn
            20                  25                  30
```

Asp Met Met Gln Phe Ser Thr Lys Thr Leu Ser Val Pro Ala Thr Cys
35 40 45

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

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

Val Gly Thr Asp Gly Met Ser Ala Gly Ala Asp Asn Ser Tyr Val Lys
85 90 95

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

Glu Ser Thr Ser Ile Thr Phe Ser Thr Glu Lys Met Thr Ala Gly Gly
115 120 125

Asp Tyr Ser Phe Phe Cys Ser Phe Pro Gly His Trp Ala Ile Met Gln
130 135 140

Gly Lys Phe Glu Phe Lys
145 150

<210> 32
<211> 129
<212> PRT
<213> Bordetella bronchiseptica

<400> 32

Ala Glu Cys Ser Val Asp Ile Ala Gly Thr Asp Gln Met Gln Phe Asp
1 5 10 15

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

Leu Lys His Thr Gly Lys Leu Pro Arg Asn Val Met Gly His Asn Trp
35 40 45

Val Leu Thr Lys Thr Ala Asp Met Gln Ala Val Glu Lys Asp Gly Ile
50 55 60

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

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

Phe Asp Val Ala Lys Leu Ala Ala Gly Asp Asp Tyr Thr Phe Phe Cys
100 105 110

Ser Phe Pro Gly His Gly Ala Leu Met Lys Gly Thr Leu Lys Leu Val
115 120 125

Asp

<210> 33
<211> 162
<212> PRT
<213> Chloroflexus aurantiacus

<400> 33

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

Ala Met Val Leu Ala Ala Cys Gly Gly Gly Gly Ser Ser Gly Gly Ser
20 25 30

Thr Gly Gly Gly Ser Gly Ser Gly Pro Val Thr Ile Glu Ile Gly Ser
35 40 45

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

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

His Asn Trp Ile Leu Val Lys Gly Gly Glu Ala Glu Ala Ala Asn Ile
85 90 95

Ala Asn Ala Gly Leu Ser Ala Gly Pro Ala Ala Asn Tyr Leu Pro Ala
100 105 110

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

Thr Val Glu Val Thr Phe Thr Ala Pro Ala Ala Gly Thr Tyr Leu Tyr
130 135 140

Ile Cys Thr Val Pro Gly His Tyr Pro Leu Met Gln Gly Lys Leu Val
145 150 155 160

Val Asn

<210> 34
<211> 140
<212> PRT
<213> Chloroflexus aurantiacus

<400> 34

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

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

Thr Ser Leu Ser Leu Pro Ala Asn Thr Val Val Arg Leu Asp Phe Val
35 40 45

Asn Gln Asn Asn Leu Gly Val Gln His Asn Trp Val Leu Val Asn Gly
50 55 60

Gly Asp Asp Val Ala Ala Ala Val Asn Thr Ala Ala Gln Asn Asn Ala
65 70 75 80

Asp Ala Leu Phe Val Pro Pro Pro Asp Thr Pro Asn Ala Leu Ala Trp
85 90 95

Thr Ala Met Leu Asn Ala Gly Glu Ser Gly Ser Val Thr Phe Arg Thr
100 105 110

Pro Ala Pro Gly Thr Tyr Leu Tyr Ile Cys Thr Phe Pro Gly His Tyr
115 120 125

Leu Ala Gly Met Lys Gly Thr Leu Thr Val Thr Pro
130 135 140

<210> 35
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<223> Xaa can be any naturally occurring amino acid

<220>
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<222> (14)..(15)
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<400> 35

Asp Gly Xaa Xaa Xaa Xaa Xaa Asp Xaa Xaa Tyr Xaa Lys Xaa Xaa Asp
1 5 10 15

<210> 36
<211> 183
<212> PRT
<213> Neisseris gonorrhoeae

<400> 36

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

Ala Cys Ser Gln Glu Pro Ala Ala Pro Ala Ala Glu Ala Thr Pro Ala
20 25 30

Gly Glu Ala Pro Ala Ser Glu Ala Pro Ala Ala Glu Ala Ala Pro Ala
35 40 45

Asp Ala Ala Glu Ala Pro Ala Ala Gly Asn Cys Ala Ala Thr Val Glu
50 55 60

Ser Asn Asp Asn Met Gln Phe Asn Thr Lys Asp Ile Gln Val Ser Lys
65 70 75 80

Ala Cys Lys Glu Phe Thr Ile Thr Leu Lys His Thr Gly Thr Gln Pro
85 90 95

Lys Ala Ser Met Gly His Asn Leu Val Ile Ala Lys Ala Glu Asp Met
100 105 110

Asp Gly Val Phe Lys Asp Gly Val Gly Ala Ala Asp Thr Asp Tyr Val
115 120 125

Lys Pro Asp Asp Ala Arg Val Val Ala His Thr Lys Leu Ile Gly Gly
130 135 140

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

Asp Tyr Lys Phe Ala Cys Thr Phe Pro Gly His Gly Ala Leu Met Asn
165 170 175

Gly Lys Val Thr Leu Val Asp
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<210> 37
<211> 18
<212> PRT
<213> Pseudomonas aeruginosa

<400> 37

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

Ser Gly

<210> 38
<211> 33
<212> PRT
<213> Chloroflexus aurantiacus

<400> 38

His Asn Trp Val Leu Val Asn Gly Gly Asp Asp Val Ala Ala Ala Val
1 5 10 15

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

Asp

<210> 39
<211> 28
<212> PRT
<213> Bordetella pertussis

<400> 39

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

Ala Gly Leu Asp Asn Gln Tyr Leu Lys Ala Gly Asp
20 25

<210> 40
<211> 27
<212> PRT
<213> Nesseria meningtitidis

<400> 40

Ile Gly Lys Thr Glu Asp Met Asp Gly Ile Phe Lys Asp Gly Val Gly
1 5 10 15

Ala Ala Asp Thr Asp Tyr Val Lys Pro Asp Asp
20 25

<210> 41
<211> 21
<212> PRT
<213> Pseudomonas aeruginosa

<400> 41

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

Leu Asp Lys Asp Tyr
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<210> 42
<211> 15

<212> PRT
<213> Pseudomonas aeruginosa

<400> 42

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

<210> 43
<211> 129
<212> PRT
<213> Bordetella pertussis

<400> 43

Ala Glu Cys Ser Val Asp Ile Ala Gly Thr Asp Gln Met Gln Phe Asp
1 5 10 15

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

Leu Lys His Thr Gly Lys Leu Pro Arg Asn Val Met Gly His Asn Trp
35 40 45

Val Leu Thr Lys Thr Ala Asp Met Gln Ala Val Glu Lys Asp Gly Ile
50 55 60

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

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

Phe Asp Val Ala Lys Leu Ala Ala Gly Asp Asp Tyr Thr Phe Phe Cys
100 105 110

Ser Phe Pro Gly His Gly Ala Leu Met Lys Gly Thr Leu Lys Leu Val
115 120 125

Asp

<210> 44
<211> 27
<212> PRT
<213> Pseudomonas aeruginosa

<400> 44

Ser Thr Ala Ala Asp Met Gln Gly Val Val Thr Asp Gly Met Ala Ser
1 5 10 15

Gly Leu Asp Lys Asp Tyr Leu Lys Pro Asp Asp
20 25

<210> 45
<211> 27
<212> PRT
<213> Pseudomonas syringae

<400> 45

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

Gly Ile Asp Lys Asp Tyr Val Lys Pro Asp Asp
20 25

<210> 46
<211> 27
<212> PRT
<213> Vibrio parahaemolyticus

<400> 46

Ala Asp Thr Ala Asn Ile Gln Ala Val Gly Thr Asp Gly Met Ser Ala
1 5 10 15

Gly Ala Asp Asn Ser Tyr Val Lys Pro Asp Asp
20 25

<210> 47
<211> 27
<212> PRT
<213> Bordetella bronchiseptica

<400> 47

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

Gly Leu Asp Asn Gln Tyr Leu Lys Ala Gly Asp
20 25

<210> 48
<211> 15

<212> PRT
<213> Artificial sequence

<220>
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<400> 48

Asp Gly Xaa Xaa Xaa Xaa Asp Xaa Xaa Tyr Xaa Lys Xaa Xaa Asp
1 5 10 15