

SEQUENCE LISTING

<110> Lysando AG

<120> New antimicrobial agents against Enterococcus bacteria

<130> LYS-044 PCT

<150> EP16194788

<151> 2016-10-20

<160> 105

<170> PatentIn version 3.5

<210> 1

<211> 314

<212> PRT

<213> Enterococcal bacteriophage phi1

<400> 1

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

Asp	Gly	Thr	Gly	Asp	Cys	Ser	Gly	Thr	Val	Tyr	Asp	Ser	Leu	Arg	Lys
		35					40					45			

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

Ser	Trp	Leu	Glu	Lys	Asn	Gly	Phe	Lys	Leu	Ile	Ala	Gln	Asn	Lys	Glu
65					70					75					80

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

Ser	Gly	Gly	Ser	Ala	Gly	His	Val	Val	Ile	Phe	Ile	Ser	Ser	Thr	Gln
			100					105					110		

Ile Ile His Cys Thr Trp Lys Ser Ala Thr Ala Asn Gly Val Tyr Val
115 120 125

Asp Asn Glu Ala Thr Thr Cys Pro Tyr Ser Met Gly Trp Tyr Val Tyr
130 135 140

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

Lys Val Leu Lys His Ala Thr Asn Trp Ser Pro Ser Ser Lys Gly Ala
165 170 175

Lys Met Ala Ser Phe Val Lys Gly Gly Thr Phe Glu Val Lys Gln Gln
180 185 190

Arg Pro Ile Ser Tyr Ser Tyr Ser Asn Gln Glu Tyr Leu Ile Val Asn
195 200 205

Lys Gly Thr Val Leu Gly Trp Val Leu Ser Gln Asp Ile Glu Gly Gly
210 215 220

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

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

Thr Arg Lys Asn Lys Pro Ser Leu Ser Ser Gln Thr Ala Thr Pro Leu
260 265 270

Tyr Pro Gly Gln Ser Val Arg Tyr Leu Gly Trp Lys Ser Ala Glu Gly
275 280 285

Tyr Ile Trp Ile Tyr Ala Thr Asp Gly Arg Tyr Ile Pro Val Arg Pro
290 295 300

Val Gly Lys Glu Ala Trp Gly Thr Phe Lys
305 310

<210> 2
<211> 150
<212> PRT
<213> Enterococcal bacteriophage phi1

<400> 2

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

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

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

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

Glu Lys Asn Gly Phe Lys Leu Ile Ala Gln Asn Lys Glu Trp Ser Ala
65 70 75 80

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

Ser Ala Gly His Val Val Ile Phe Ile Ser Ser Thr Gln Ile Ile His
100 105 110

Cys Thr Trp Lys Ser Ala Thr Ala Asn Gly Val Tyr Val Asp Asn Glu
115 120 125

Ala Thr Thr Cys Pro Tyr Ser Met Gly Trp Tyr Val Tyr Arg Leu Asn
130 135 140

Gly Gly Ser Thr Pro Pro
145 150

<210> 3

<211> 65
<212> PRT
<213> Enterococcal bacteriophage phi1

<400> 3

Glu Ala Thr Phe Ile Asn Gly Asn Ala Pro Ile Thr Thr Arg Lys Asn
1 5 10 15

Lys Pro Ser Leu Ser Ser Gln Thr Ala Thr Pro Leu Tyr Pro Gly Gln
20 25 30

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

Tyr Ala Thr Asp Gly Arg Tyr Ile Pro Val Arg Pro Val Gly Lys Glu
50 55 60

Ala
65

<210> 4
<211> 21
<212> PRT
<213> unknown

<220>
<223> Buforin II vertebrate

<400> 4

Thr Arg Ser Ser Arg Ala Gly Leu Gln Phe Pro Val Gly Arg Val His
1 5 10 15

Arg Leu Leu Arg Lys
20

<210> 5
<211> 313
<212> PRT
<213> Enterococcal bacteriophage phi1

<400> 5

Ser Asn Ile Asn Met Glu Thr Ala Ile Ala Asn Met Tyr Ala Leu Lys
1 5 10 15

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

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

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

Trp Leu Glu Lys Asn Gly Phe Lys Leu Ile Ala Gln Asn Lys Glu Trp
65 70 75 80

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

Gly Gly Ser Ala Gly His Val Val Ile Phe Ile Ser Ser Thr Gln Ile
100 105 110

Ile His Cys Thr Trp Lys Ser Ala Thr Ala Asn Gly Val Tyr Val Asp
115 120 125

Asn Glu Ala Thr Thr Cys Pro Tyr Ser Met Gly Trp Tyr Val Tyr Arg
130 135 140

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

Val Leu Lys His Ala Thr Asn Trp Ser Pro Ser Ser Lys Gly Ala Lys
165 170 175

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

Pro Ile Ser Tyr Ser Tyr Ser Asn Gln Glu Tyr Leu Ile Val Asn Lys

195

200

205

Gly Thr Val Leu Gly Trp Val Leu Ser Gln Asp Ile Glu Gly Gly Tyr
 210 215 220

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

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

Arg Lys Asn Lys Pro Ser Leu Ser Ser Gln Thr Ala Thr Pro Leu Tyr
 260 265 270

Pro Gly Gln Ser Val Arg Tyr Leu Gly Trp Lys Ser Ala Glu Gly Tyr
 275 280 285

Ile Trp Ile Tyr Ala Thr Asp Gly Arg Tyr Ile Pro Val Arg Pro Val
 290 295 300

Gly Lys Glu Ala Trp Gly Thr Phe Lys
 305 310

<210> 6

<211> 6

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 6

Lys Arg Lys Lys Arg Lys
 1 5

<210> 7

<211> 5

<212> PRT

<213> artificial

<220>
<223> synethtic sequence

<220>
<221> misc_feature
<222> (3)..(3)
<223> Xaa can be any naturally occurring amino acid

<400> 7

Lys Arg Xaa Lys Arg
1 5

<210> 8
<211> 5
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 8

Lys Arg Ser Lys Arg
1 5

<210> 9
<211> 5
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 9

Lys Arg Gly Ser Gly
1 5

<210> 10
<211> 9
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 10

Lys Arg Lys Lys Arg Lys Lys Arg Lys
1 5

<210> 11

<211> 9

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 11

Arg Arg Arg Arg Arg Arg Arg Arg Arg
1 5

<210> 12

<211> 8

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 12

Lys Lys Lys Lys Lys Lys Lys Lys
1 5

<210> 13

<211> 10

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 13

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys
1 5 10

<210> 14

<211> 12
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 14

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys
1 5 10

<210> 15
<211> 14
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 15

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg
1 5 10

<210> 16
<211> 16
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 16

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys
1 5 10 15

<210> 17
<211> 18
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 17

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys
1 5 10 15

Arg Lys

<210> 18
<211> 19
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 18

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys
1 5 10 15

Arg Lys Lys

<210> 19
<211> 19
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 19

Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg
1 5 10 15

Arg Arg Arg

<210> 20
<211> 19
<212> PRT
<213> artificial

<220>

<223> synthetic sequence

<400> 20

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys
1 5 10 15

Lys Lys Lys

<210> 21

<211> 20

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 21

Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg Ser Lys Arg Lys Lys Arg
1 5 10 15

Lys Lys Arg Lys
20

<210> 22

<211> 21

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 22

Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg Ser Lys Arg Lys Lys Arg
1 5 10 15

Lys Lys Arg Lys Lys
20

<210> 23

<211> 21
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 23

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys
1 5 10 15

Arg Lys Lys Arg Lys
20

<210> 24
<211> 22
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 24

Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg Gly Ser Gly Lys Arg Lys
1 5 10 15

Lys Arg Lys Lys Arg Lys
20

<210> 25
<211> 24
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 25

Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg Gly Ser Gly Ser Gly Lys
1 5 10 15

Arg Lys Lys Arg Lys Lys Arg Lys

20

<210> 26
<211> 25
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 26

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys
1 5 10 15

Arg Lys Lys Arg Lys Lys Arg Lys Lys
20 25

<210> 27
<211> 31
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 27

Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg Ser Lys Arg Lys Lys Arg
1 5 10 15

Lys Lys Arg Lys Arg Ser Lys Arg Lys Lys Arg Lys Lys Arg Lys
20 25 30

<210> 28
<211> 38
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 28

Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg Gly Ser Gly Ser Gly Lys

1 5 10 15

Arg Lys Lys Arg Lys Lys Arg Lys Gly Ser Gly Ser Gly Lys Arg Lys
20 25 30

Lys Arg Lys Lys Arg Lys
35

<210> 29
<211> 39
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 29

Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys
1 5 10 15

Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg Lys Lys Arg
20 25 30

Lys Lys Arg Lys Lys Arg Lys
35

<210> 30
<211> 42
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 30

Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg Ser Lys Arg Lys Lys Arg
1 5 10 15

Lys Lys Arg Lys Arg Ser Lys Arg Lys Lys Arg Lys Lys Arg Lys Arg
20 25 30

Ser Lys Arg Lys Lys Arg Lys Lys Arg Lys
35 40

<210> 31
<211> 37
<212> PRT
<213> Homo sapiens

<400> 31

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

Phe Lys Arg Ile Val Gln Arg Ile Lys Asp Phe Leu Arg Asn Leu Val
20 25 30

Pro Arg Thr Glu Ser
35

<210> 32
<211> 29
<212> PRT
<213> unknown

<220>
<223> SMAP-29 sheep

<400> 32

Arg Gly Leu Arg Arg Leu Gly Arg Lys Ile Ala His Gly Val Lys Lys
1 5 10 15

Tyr Gly Pro Thr Val Leu Arg Ile Ile Arg Ile Ala Gly
20 25

<210> 33
<211> 13
<212> PRT
<213> unknown

<220>
<223> Indolicidine bovine

<400> 33

Ile Leu Pro Trp Lys Trp Pro Trp Trp Pro Trp Arg Arg
1 5 10

<210> 34

<211> 18

<212> PRT

<213> unknown

<220>

<223> Protegrin Porcine

<400> 34

Arg Gly Gly Arg Leu Cys Tyr Cys Arg Arg Arg Phe Cys Val Cys Val
1 5 10 15

Gly Arg

<210> 35

<211> 31

<212> PRT

<213> unknown

<220>

<223> Cecropin P1 Mammal (pig)

<400> 35

Ser Trp Leu Ser Lys Thr Ala Lys Lys Leu Glu Asn Ser Ala Lys Lys
1 5 10 15

Arg Ile Ser Glu Gly Ile Ala Ile Ala Ile Gln Gly Gly Pro Arg
20 25 30

<210> 36

<211> 23

<212> PRT

<213> unknown

<220>

<223> Magainin frog

<400> 36

Gly Ile Gly Lys Phe Leu His Ser Ala Lys Lys Phe Gly Lys Ala Phe
1 5 10 15

Val Gly Glu Ile Met Asn Ser
20

<210> 37

<211> 25

<212> PRT

<213> unknown

<220>

<223> Pleurocidin fish

<400> 37

Gly Trp Gly Ser Phe Phe Lys Lys Ala Ala His Val Gly Lys His Val
1 5 10 15

Gly Lys Ala Ala Leu Thr His Tyr Leu
20 25

<210> 38

<211> 36

<212> PRT

<213> Aedes aegypti

<400> 38

Gly Gly Leu Lys Lys Leu Gly Lys Lys Leu Glu Gly Ala Gly Lys Arg
1 5 10 15

Val Phe Asn Ala Ala Glu Lys Ala Leu Pro Val Val Ala Gly Ala Lys
20 25 30

Ala Leu Arg Lys
35

<210> 39

<211> 40

<212> PRT

<213> Drosophila melanogaster

<400> 39

Gly Trp Leu Lys Lys Ile Gly Lys Lys Ile Glu Arg Val Gly Gln His
1 5 10 15

Thr Arg Asp Ala Thr Ile Gln Gly Leu Gly Ile Pro Gln Gln Ala Ala
20 25 30

Asn Val Ala Ala Thr Ala Arg Gly
35 40

<210> 40

<211> 39

<212> PRT

<213> unknown

<220>

<223> Sarcotoxin IA Fly

<400> 40

Gly Trp Leu Lys Lys Ile Gly Lys Lys Ile Glu Arg Val Gly Gln His
1 5 10 15

Thr Arg Asp Ala Thr Ile Gln Gly Leu Gly Ile Ala Gln Gln Ala Ala
20 25 30

Asn Val Ala Ala Thr Ala Arg
35

<210> 41

<211> 17

<212> PRT

<213> Apis mellifera

<400> 41

Ala Asn Arg Pro Val Tyr Ile Pro Pro Pro Arg Pro Pro His Pro Arg
1 5 10 15

Leu

<210> 42
<211> 24
<212> PRT
<213> unknown

<220>
<223> Ascaphine 5 Frog

<400> 42

Gly Ile Lys Asp Trp Ile Lys Gly Ala Ala Lys Lys Leu Ile Lys Thr
1 5 10 15

Val Ala Ser His Ile Ala Asn Gln
20

<210> 43
<211> 22
<212> PRT
<213> unknown

<220>
<223> Nigrocine 2 Frog

<400> 43

Gly Leu Leu Ser Lys Val Leu Gly Val Gly Lys Lys Val Leu Cys Gly
1 5 10 15

Val Ser Gly Leu Val Cys
20

<210> 44
<211> 24
<212> PRT
<213> unknown

<220>
<223> Pseudin 1 Rana Frog

<400> 44

Gly Leu Asn Thr Leu Lys Lys Val Phe Gln Gly Leu His Glu Ala Ile

1 5 10 15

Lys Leu Ile Asn Asn His Val Gln
20

<210> 45
<211> 18
<212> PRT
<213> unknown

<220>
<223> Ranalexin Frog

<400> 45

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

Lys Cys

<210> 46
<211> 26
<212> PRT
<213> unknown

<220>
<223> Melittin bee

<400> 46

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

Ile Ser Trp Ile Lys Arg Lys Arg Gln Gln
20 25

<210> 47
<211> 25
<212> PRT
<213> unknown

<220>
<223> Lycotoxin 1 Spider

<400> 47

Ile Trp Leu Thr Ala Leu Lys Phe Leu Gly Lys His Ala Ala Lys Lys
1 5 10 15

Leu Ala Lys Gln Gln Leu Ser Lys Leu
20 25

<210> 48

<211> 19

<212> PRT

<213> unknown

<220>

<223> Parasin 1 Fish

<400> 48

Lys Gly Arg Gly Lys Gln Gly Gly Lys Val Arg Ala Lys Ala Lys Thr
1 5 10 15

Arg Ser Ser

<210> 49

<211> 39

<212> PRT

<213> unknown

<220>

<223> Buforin I Toad

<400> 49

Ala Gly Arg Gly Lys Gln Gly Gly Lys Val Arg Ala Lys Ala Lys Thr
1 5 10 15

Arg Ser Ser Arg Ala Gly Leu Gln Phe Pro Val Gly Arg Val His Arg
20 25 30

Leu Leu Arg Lys Gly Asn Tyr
35

<210> 50
<211> 34
<212> PRT
<213> unknown

<220>
<223> Dermaseptin 1 Frog

<400> 50

Ala Leu Trp Lys Thr Met Leu Lys Lys Leu Gly Thr Met Ala Leu His
1 5 10 15

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

Thr Gln

<210> 51
<211> 12
<212> PRT
<213> unknown

<220>
<223> Bactenecin 1 Cow

<400> 51

Arg Leu Cys Arg Ile Val Val Ile Arg Val Cys Arg
1 5 10

<210> 52
<211> 21
<212> PRT
<213> unknown

<220>
<223> Thanatin Insect

<400> 52

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

Lys Cys Gln Arg Met
20

<210> 53
<211> 19
<212> PRT
<213> unknown

<220>
<223> Brevinin 1T Rana frogs

<400> 53

Val Asn Pro Ile Ile Leu Gly Val Leu Pro Lys Val Cys Leu Ile Thr
1 5 10 15

Lys Lys Cys

<210> 54
<211> 26
<212> PRT
<213> unknown

<220>
<223> Ranateurin 1 Rana frog

<400> 54

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

Val Ala Cys Lys Ile Asn Ile Lys Gln Cys
20 25

<210> 55
<211> 46
<212> PRT
<213> unknown

<220>
<223> Esculentin 1 Rana frogs

<400> 55

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

Ser Gly Leu Lys Asn Val Gly Lys Glu Val Gly Met Asp Val Val Arg
20 25 30

Thr Gly Ile Lys Ile Ala Gly Cys Lys Ile Lys Gly Glu Cys
35 40 45

<210> 56
<211> 17
<212> PRT
<213> Limulus polyphemus

<400> 56

Arg Trp Cys Phe Arg Val Cys Tyr Arg Gly Ile Cys Tyr Arg Lys Cys
1 5 10 15

Arg

<210> 57
<211> 25
<212> PRT
<213> unknown

<220>
<223> Androctonin Scorpion

<400> 57

Arg Ser Val Cys Arg Gln Ile Lys Ile Cys Arg Arg Arg Gly Gly Cys
1 5 10 15

Tyr Tyr Lys Cys Thr Asn Arg Pro Tyr
20 25

<210> 58
<211> 30
<212> PRT
<213> Homo sapiens

<400> 58

Asp Cys Tyr Cys Arg Ile Pro Ala Cys Ile Ala Gly Glu Arg Arg Tyr
1 5 10 15

Gly Thr Cys Ile Tyr Gln Gly Arg Leu Trp Ala Phe Cys Cys
20 25 30

<210> 59

<211> 38

<212> PRT

<213> unknown

<220>

<223> beta-defensin cow

<400> 59

Asn Pro Val Ser Cys Val Arg Asn Lys Gly Ile Cys Val Pro Ile Arg
1 5 10 15

Cys Pro Gly Ser Met Lys Gln Ile Gly Thr Cys Val Gly Arg Ala Val
20 25 30

Lys Cys Cys Arg Lys Lys
35

<210> 60

<211> 18

<212> PRT

<213> unknown

<220>

<223> theta-defensin monkey

<400> 60

Gly Phe Cys Arg Cys Leu Cys Arg Arg Gly Val Cys Arg Cys Ile Cys
1 5 10 15

Thr Arg

<210> 61
<211> 40
<212> PRT
<213> unknown

<220>
<223> defensin (sapecin A) insect

<400> 61

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

Ala Ala His Cys Leu Leu Arg Gly Asn Arg Gly Gly Tyr Cys Asn Gly
20 25 30

Lys Ala Val Cys Val Cys Arg Asn
35 40

<210> 62
<211> 46
<212> PRT
<213> unknown

<220>
<223> Thionin (crambin) plant

<400> 62

Thr Thr Cys Cys Pro Ser Ile Val Ala Arg Ser Asn Phe Asn Val Cys
1 5 10 15

Arg Ile Pro Gly Thr Pro Glu Ala Ile Cys Ala Thr Tyr Thr Gly Cys
20 25 30

Ile Ile Ile Pro Gly Ala Thr Cys Pro Gly Asp Tyr Ala Asn
35 40 45

<210> 63
<211> 50
<212> PRT
<213> unknown

<220>

<223> defensin from radish

<400> 63

Gln Lys Leu Cys Gln Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly
1 5 10 15

Asn Asn Asn Ala Cys Lys Asn Gln Cys Ile Arg Leu Glu Lys Ala Arg
20 25 30

His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Cys Ile Cys Tyr Phe
35 40 45

Pro Cys
50

<210> 64

<211> 44

<212> PRT

<213> Drosophila melanogaster

<400> 64

Asp Cys Leu Ser Gly Arg Tyr Lys Gly Pro Cys Ala Val Trp Asp Asn
1 5 10 15

Glu Thr Cys Arg Arg Val Cys Lys Glu Glu Gly Arg Ser Ser Gly His
20 25 30

Cys Ser Pro Ser Leu Lys Cys Trp Cys Glu Gly Cys
35 40

<210> 65

<211> 25

<212> PRT

<213> Homo sapiens

<400> 65

Asp Thr His Phe Pro Ile Cys Ile Phe Cys Cys Gly Cys Cys His Arg
1 5 10 15

Ser Lys Cys Gly Met Cys Cys Lys Thr
20 25

<210> 66
<211> 44
<212> PRT
<213> unknown

<220>
<223> Bac 5 Cow

<400> 66

Arg Phe Arg Pro Pro Ile Arg Arg Pro Pro Ile Arg Pro Pro Phe Tyr
1 5 10 15

Pro Pro Phe Arg Pro Pro Ile Arg Pro Pro Ile Phe Pro Pro Ile Arg
20 25 30

Pro Pro Phe Arg Pro Pro Leu Gly Arg Pro Phe Pro
35 40

<210> 67
<211> 39
<212> PRT
<213> unknown

<220>
<223> PR-39 Pig

<400> 67

Arg Arg Arg Pro Arg Pro Pro Tyr Leu Pro Arg Pro Arg Pro Pro Pro
1 5 10 15

Phe Phe Pro Pro Arg Leu Pro Pro Arg Ile Pro Pro Gly Phe Pro Pro
20 25 30

Arg Phe Pro Pro Arg Phe Pro
35

<210> 68

<211> 20
<212> PRT
<213> unknown

<220>
<223> Pyrrhocoricin Insect

<400> 68

Val Asp Lys Gly Ser Tyr Leu Pro Arg Pro Thr Pro Pro Arg Pro Ile
1 5 10 15

Tyr Asn Arg Asn
20

<210> 69
<211> 24
<212> PRT
<213> Homo sapiens

<400> 69

Asp Ser His Ala Lys Arg His His Gly Tyr Lys Arg Lys Phe His Glu
1 5 10 15

Lys His His Ser His Arg Gly Tyr
20

<210> 70
<211> 19
<212> PRT
<213> Unknown

<220>
<223> ECP19

<400> 70

Arg Pro Pro Gln Phe Thr Arg Ala Gln Trp Phe Ala Ile Gln His Ile
1 5 10 15

Ser Leu Asn

<210> 71
<211> 23
<212> PRT
<213> Unknown

<220>
<223> MSI-594

<400> 71

Gly Ile Gly Lys Phe Leu Lys Lys Ala Lys Lys Gly Ile Gly Ala Val
1 5 10 15

Leu Lys Val Leu Thr Thr Gly
20

<210> 72
<211> 35
<212> PRT
<213> Unknown

<220>
<223> TL-CoIM

<400> 72

Met Glu Thr Leu Thr Val His Ala Pro Ser Pro Ser Thr Asn Leu Pro
1 5 10 15

Ser Tyr Gly Asn Gly Ala Phe Ser Leu Ser Ala Pro His Val Pro Gly
20 25 30

Ala Gly Pro
35

<210> 73
<211> 18
<212> PRT
<213> Unknown

<220>
<223> SB0

<400> 73

Lys Leu Lys Lys Ile Ala Gln Lys Ile Lys Asn Phe Phe Ala Lys Leu
1 5 10 15

Val Ala

<210> 74
<211> 26
<212> PRT
<213> unknown

<220>
<223> Macedocin

<400> 74

Gly Lys Asn Gly Val Phe Lys Thr Ile Ser His Glu Cys His Leu Asn
1 5 10 15

Thr Trp Ala Phe Leu Ala Thr Cys Cys Ser
20 25

<210> 75
<211> 22
<212> PRT
<213> unknown

<220>
<223> Macedocin (Trunc)

<400> 75

Gly Lys Asn Gly Val Phe Lys Thr Ile Ser His Glu Cys His Leu Asn
1 5 10 15

Thr Trp Ala Phe Leu Ala
20

<210> 76
<211> 28
<212> PRT
<213> unknown

<220>

<223> D16

<400> 76

Ala Cys Lys Leu Lys Ser Leu Leu Lys Thr Leu Ser Lys Ala Lys Lys
1 5 10 15

Lys Lys Leu Lys Thr Leu Leu Lys Ala Leu Ser Lys
20 25

<210> 77

<211> 17

<212> PRT

<213> unknown

<220>

<223> CPF-C1

<400> 77

Gly Phe Gly Ser Leu Leu Gly Lys Ala Leu Arg Leu Gly Ala Asn Val
1 5 10 15

Leu

<210> 78

<211> 34

<212> PRT

<213> unknown

<220>

<223> TL-ColM

<400> 78

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

Tyr Gly Asn Gly Ala Phe Ser Leu Ser Ala Pro His Val Pro Gly Ala
20 25 30

Gly Pro

<210> 79
<211> 26
<212> PRT
<213> unknown

<220>
<223> TM-174E

<400> 79

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

Thr Ile Tyr Phe Trp Gly Asn Ser Asn Gly
20 25

<210> 80
<211> 45
<212> PRT
<213> unknown

<220>
<223> ECP45

<400> 80

Arg Pro Pro Gln Phe Thr Arg Ala Gln Trp Phe Ala Ile Gln His Ile
1 5 10 15

Ser Leu Asn Pro Pro Arg Cys Thr Ile Ala Met Arg Ala Ile Asn Asn
20 25 30

Tyr Arg Trp Arg Cys Lys Asn Gln Asn Thr Phe Leu Arg
35 40 45

<210> 81
<211> 50
<212> PRT
<213> unknown

<220>
<223> ColicinE3_1-51 (S37F)

<400> 81

Ser Gly Gly Asp Gly Arg Gly His Asn Thr Gly Ala His Ser Thr Ser
1 5 10 15

Gly Asn Ile Asn Gly Gly Pro Thr Gly Leu Gly Val Gly Gly Gly Ala
20 25 30

Ser Asp Gly Phe Gly Trp Ser Ser Glu Asn Asn Pro Trp Gly Gly Gly
35 40 45

Ser Gly
50

<210> 82

<211> 68

<212> PRT

<213> unknown

<220>

<223> ColicinE3_1-69 (S37F)

<400> 82

Ser Gly Gly Asp Gly Arg Gly His Asn Thr Gly Ala His Ser Thr Ser
1 5 10 15

Gly Asn Ile Asn Gly Gly Pro Thr Gly Leu Gly Val Gly Gly Gly Ala
20 25 30

Ser Asp Gly Phe Gly Trp Ser Ser Glu Asn Asn Pro Trp Gly Gly Gly
35 40 45

Ser Gly Ser Gly Ile His Trp Gly Gly Gly Ser Gly His Gly Asn Gly
50 55 60

Gly Gly Asn Gly
65

<210> 83

<211> 52

<212> PRT
<213> unknown

<220>
<223> ColicinD_1-53

<400> 83

Ser Asp Tyr Glu Gly Ser Gly Pro Thr Glu Gly Ile Asp Tyr Gly His
1 5 10 15

Ser Met Val Val Trp Pro Ser Thr Gly Leu Ile Ser Gly Gly Asp Val
20 25 30

Lys Pro Gly Gly Ser Ser Gly Ile Ala Pro Ser Met Pro Pro Gly Trp
35 40 45

Gly Asp Tyr Ser
50

<210> 84
<211> 34
<212> PRT
<213> Limulus polyphemus

<400> 84

Gly Phe Lys Leu Lys Gly Met Ala Arg Ile Ser Cys Leu Pro Asn Gly
1 5 10 15

Gln Trp Ser Asn Phe Pro Pro Lys Cys Ile Arg Glu Cys Ala Met Val
20 25 30

Ser Ser

<210> 85
<211> 18
<212> PRT
<213> artificial

<220>
<223> synthetic sequence

<400> 85

Gly Phe Phe Ile Pro Ala Val Ile Leu Pro Ser Ile Ala Phe Leu Ile
1 5 10 15

Val Pro

<210> 86

<211> 5

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 86

Phe Phe Val Ala Pro
1 5

<210> 87

<211> 13

<212> PRT

<213> unknown

<220>

<223> alpha4-helix of T4 lysozyme

<400> 87

Pro Asn Arg Ala Lys Arg Val Ile Thr Thr Phe Arg Thr
1 5 10

<210> 88

<211> 27

<212> PRT

<213> artificial

<220>

<223> synthetic sequence

<400> 88

Lys Arg Trp Val Lys Arg Val Lys Arg Val Lys Arg Trp Val Lys Arg

1 5 10 15

Val Val Arg Val Val Lys Arg Trp Val Lys Arg
20 25

<210> 89
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic sequence; MW2

<400> 89

Gly Lys Pro Gly Trp Leu Ile Lys Val Ala Leu Lys Phe Lys Lys Leu
1 5 10 15

Ile Arg Arg Pro Leu Lys Arg Leu Ala
20 25

<210> 90
<211> 5
<212> PRT
<213> Artificial

<220>
<223> Linker sequence

<400> 90

Gly Gly Gly Gly Ser
1 5

<210> 91
<211> 6
<212> PRT
<213> artificial sequence

<220>
<223> His-Tag (6x)

<400> 91

His His His His His His

1

5

<210> 92

<211> 336

<212> PRT

<213> Artificial sequence

<220>

<223> Enterococcal bacteriophage phi1 endolysin plus Buforin II, w/o
starting methionine

<400> 92

Thr Arg Ser Ser Arg Ala Gly Leu Gln Phe Pro Val Gly Arg Val His
1 5 10 15

Arg Leu Leu Arg Lys Gly Ser Ser Asn Ile Asn Met Glu Thr Ala Ile
20 25 30

Ala Asn Met Tyr Ala Leu Lys Ala Arg Gly Ile Thr Tyr Ser Met Asn
35 40 45

Tyr Ser Arg Thr Gly Ala Asp Gly Thr Gly Asp Cys Ser Gly Thr Val
50 55 60

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

Asn Thr Asp Ser Met His Ser Trp Leu Glu Lys Asn Gly Phe Lys Leu
85 90 95

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

Phe Gly Lys Lys Gly Ala Ser Gly Gly Ser Ala Gly His Val Val Ile
115 120 125

Phe Ile Ser Ser Thr Gln Ile Ile His Cys Thr Trp Lys Ser Ala Thr
130 135 140

Ala Asn Gly Val Tyr Val Asp Asn Glu Ala Thr Thr Cys Pro Tyr Ser
145 150 155 160

Met Gly Trp Tyr Val Tyr Arg Leu Asn Gly Gly Ser Thr Pro Pro Lys
165 170 175

Pro Asn Thr Lys Lys Val Lys Val Leu Lys His Ala Thr Asn Trp Ser
180 185 190

Pro Ser Ser Lys Gly Ala Lys Met Ala Ser Phe Val Lys Gly Gly Thr
195 200 205

Phe Glu Val Lys Gln Gln Arg Pro Ile Ser Tyr Ser Tyr Ser Asn Gln
210 215 220

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

Gln Asp Ile Glu Gly Gly Tyr Gly Ser Asp Arg Val Gly Gly Ser Lys
245 250 255

Pro Lys Leu Pro Ala Gly Phe Thr Lys Glu Glu Ala Thr Phe Ile Asn
260 265 270

Gly Asn Ala Pro Ile Thr Thr Arg Lys Asn Lys Pro Ser Leu Ser Ser
275 280 285

Gln Thr Ala Thr Pro Leu Tyr Pro Gly Gln Ser Val Arg Tyr Leu Gly
290 295 300

Trp Lys Ser Ala Glu Gly Tyr Ile Trp Ile Tyr Ala Thr Asp Gly Arg
305 310 315 320

Tyr Ile Pro Val Arg Pro Val Gly Lys Glu Ala Trp Gly Thr Phe Lys
325 330 335

<210> 93
<211> 337

<212> PRT

<213> Artificial sequence

<220>

<223> Enterococcal bacteriophage phi1 endolysin plus Buforin II

<400> 93

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

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

Ile Ala Asn Met Tyr Ala Leu Lys Ala Arg Gly Ile Thr Tyr Ser Met
35 40 45

Asn Tyr Ser Arg Thr Gly Ala Asp Gly Thr Gly Asp Cys Ser Gly Thr
50 55 60

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

Leu Asn Thr Asp Ser Met His Ser Trp Leu Glu Lys Asn Gly Phe Lys
85 90 95

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

Ile Phe Gly Lys Lys Gly Ala Ser Gly Gly Ser Ala Gly His Val Val
115 120 125

Ile Phe Ile Ser Ser Thr Gln Ile Ile His Cys Thr Trp Lys Ser Ala
130 135 140

Thr Ala Asn Gly Val Tyr Val Asp Asn Glu Ala Thr Thr Cys Pro Tyr
145 150 155 160

Ser Met Gly Trp Tyr Val Tyr Arg Leu Asn Gly Gly Ser Thr Pro Pro
165 170 175

Lys Pro Asn Thr Lys Lys Val Lys Val Leu Lys His Ala Thr Asn Trp
180 185 190

Ser Pro Ser Ser Lys Gly Ala Lys Met Ala Ser Phe Val Lys Gly Gly
195 200 205

Thr Phe Glu Val Lys Gln Gln Arg Pro Ile Ser Tyr Ser Tyr Ser Asn
210 215 220

Gln Glu Tyr Leu Ile Val Asn Lys Gly Thr Val Leu Gly Trp Val Leu
225 230 235 240

Ser Gln Asp Ile Glu Gly Gly Tyr Gly Ser Asp Arg Val Gly Gly Ser
245 250 255

Lys Pro Lys Leu Pro Ala Gly Phe Thr Lys Glu Glu Ala Thr Phe Ile
260 265 270

Asn Gly Asn Ala Pro Ile Thr Thr Arg Lys Asn Lys Pro Ser Leu Ser
275 280 285

Ser Gln Thr Ala Thr Pro Leu Tyr Pro Gly Gln Ser Val Arg Tyr Leu
290 295 300

Gly Trp Lys Ser Ala Glu Gly Tyr Ile Trp Ile Tyr Ala Thr Asp Gly
305 310 315 320

Arg Tyr Ile Pro Val Arg Pro Val Gly Lys Glu Ala Trp Gly Thr Phe
325 330 335

Lys

<210> 94

<211> 345

<212> PRT

<213> Artificial sequence

<220>

<223> Enterococcal bacteriophage phi1 endolysin plus Buforin II and HisTag

<400> 94

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

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

Ile Ala Asn Met Tyr Ala Leu Lys Ala Arg Gly Ile Thr Tyr Ser Met
35 40 45

Asn Tyr Ser Arg Thr Gly Ala Asp Gly Thr Gly Asp Cys Ser Gly Thr
50 55 60

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

Leu Asn Thr Asp Ser Met His Ser Trp Leu Glu Lys Asn Gly Phe Lys
85 90 95

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

Ile Phe Gly Lys Lys Gly Ala Ser Gly Gly Ser Ala Gly His Val Val
115 120 125

Ile Phe Ile Ser Ser Thr Gln Ile Ile His Cys Thr Trp Lys Ser Ala
130 135 140

Thr Ala Asn Gly Val Tyr Val Asp Asn Glu Ala Thr Thr Cys Pro Tyr
145 150 155 160

Ser Met Gly Trp Tyr Val Tyr Arg Leu Asn Gly Gly Ser Thr Pro Pro
165 170 175

Lys Pro Asn Thr Lys Lys Val Lys Val Leu Lys His Ala Thr Asn Trp
180 185 190

Ser Pro Ser Ser Lys Gly Ala Lys Met Ala Ser Phe Val Lys Gly Gly
195 200 205

Thr Phe Glu Val Lys Gln Gln Arg Pro Ile Ser Tyr Ser Tyr Ser Asn
210 215 220

Gln Glu Tyr Leu Ile Val Asn Lys Gly Thr Val Leu Gly Trp Val Leu
225 230 235 240

Ser Gln Asp Ile Glu Gly Gly Tyr Gly Ser Asp Arg Val Gly Gly Ser
245 250 255

Lys Pro Lys Leu Pro Ala Gly Phe Thr Lys Glu Glu Ala Thr Phe Ile
260 265 270

Asn Gly Asn Ala Pro Ile Thr Thr Arg Lys Asn Lys Pro Ser Leu Ser
275 280 285

Ser Gln Thr Ala Thr Pro Leu Tyr Pro Gly Gln Ser Val Arg Tyr Leu
290 295 300

Gly Trp Lys Ser Ala Glu Gly Tyr Ile Trp Ile Tyr Ala Thr Asp Gly
305 310 315 320

Arg Tyr Ile Pro Val Arg Pro Val Gly Lys Glu Ala Trp Gly Thr Phe
325 330 335

Lys Leu Glu His His His His His His
340 345

<210> 95

<211> 450

<212> DNA

<213> Artificial sequence

<220>

<223> encoding SEQ ID NO:2

<400> 95

atcaatatgg aaaccgccat tgcaaatatg tatgcactga aagcacgtgg cattacctat	60
agcatgaatt atagccgtac cgggtgcagat ggcaccgggtg attgtagcgg caccgtttat	120
gatagcctgc gtaaagccgg tgcaagtgat gcaggttggg ttctgaatac cgatagcatg	180
catagctggc tggaaaaaaaa tggctttaaa ctgattgccc agaacaaaga atggtcagca	240
aaacgtgggtg atgtgggtgat ttttggtaaa aaaggtgcaa gcggtggtag cgcaggtcat	300
gttggttatct ttattagcag caccagatt attcactgta cctggaaaag cgcaaccgca	360
aatgggtgtt atgttgataa tgaagcaacc acctgtccgt atagcatggg ttggtatgtt	420
tatcgtctga atgggtggtag caccctccg	450

<210> 96

<211> 195

<212> DNA

<213> Artificial sequence

<220>

<223> Encoding SEQ ID NO:3

<400> 96

gaggccacct ttattaacgg caatgcaccg attaccaccc gtaaaaacaa accgagcctg	60
agcagccaga ccgcaacacc gctgtatccg ggtcagagcg ttcgttatct gggctggaaa	120
tcagcagaag gttatatttg gatttatgcc accgatggtc gttatattcc gggtcgtccg	180
gttggtaaaag aagca	195

<210> 97

<211> 939

<212> DNA

<213> Artificial sequence

<220>

<223> encoding enterococcal phage phi1 endolysin w/o initial methionine

<400> 97

agcaacatca atatggaaac cgccattgca aatatgtatg cactgaaagc acgtggcatt	60
---	----

acctatagca tgaattatag ccgtaccggt gcagatggca ccggtgattg tagcggcacc	120
gtttatgata gcctgcgtaa agccgggtgca agtgatgcag gttgggttct gaataccgat	180
agcatgcata gctggctgga aaaaaatggc tttaaactga ttgcccagaa caaagaatgg	240
tcagcaaaac gtggtgatgt ggtgattttt ggtaaaaaag gtgcaagcgg tggtagcgca	300
ggtcatgttg ttatctttat tagcagcacc cagattattc actgtacctg gaaaagcgca	360
accgcaaattg gtgtttatgt tgataatgaa gcaaccacct gtccgtatag catgggttgg	420
tatgtttatc gtctgaatgg tggtagcacc cctccgaaac cgaataccaa aaaagttaaa	480
gttctgaaac acgccaccaa ttggagcccg agcagcaaag gtgccaaaat ggcaagcttt	540
gttaaagggtg gtacgtttga agttaaacag cagcgtccga ttagctacag ctatagcaat	600
caagaatatc tgatcgtgaa taaaggcacc gttctggggt gggtgctgag ccaggatatt	660
gaagggtggt atggtagcga tcgtgttggg ggtagtaaac cgaaactgcc tgcaggtttt	720
acaaaagaag aggccacctt tattaacggc aatgcaccga ttaccacccg taaaaacaaa	780
ccgagcctga gcagccagac cgcaacaccg ctgtatccgg gtcagagcgt tcgttatctg	840
ggctggaaat cagcagaagg ttatatattg atttatgcc a ccgatggtcg ttatatccg	900
gttcgtccgg ttggtaaaga agcatggggc acctttaaa	939

<210> 98
 <211> 63
 <212> DNA
 <213> Artificial sequence

<220>
 <223> encoding Buforin II vertebrate

<400> 98	
acccgtagct ctcgtgctgg cctgcagttt ccggttggtc gcgtgcaccg tctgctccgc	60
aaa	63

<210> 99
 <211> 1011
 <212> DNA
 <213> artificial sequence

<220>

<223> Encoding enterococcal bacteriophage phi1 endolysin plus Buforin II

<400> 99

```
atgacccgta gctctcgtgc tggcctgcag tttccggttg gtcgcgtgca ccgtctgctc      60
cgcaaaggat ccagcaacat caatatggaa accgccattg caaatatgta tgcactgaaa      120
gcacgtggca ttacctatag catgaattat agccgtaccg gtgcagatgg caccggtgat      180
tgtagcggca ccgtttatga tagcctgcgt aaagccggtg caagtgatgc aggttggggtt      240
ctgaataccg atagcatgca tagctggctg gaaaaaaatg gctttaaact gattgcccag      300
aacaagaat ggtcagcaaa acgtggtgat gtggtgattt ttggtaaaaa aggtgcaagc      360
ggtggtagcg caggtcatgt tggtatcttt attagcagca cccagattat tctactgtacc      420
tggaaaagcg caaccgcaaa tgggtgtttat gttgataatg aagcaaccac ctgtccgtat      480
agcatggggtt ggtatgttta tcgtctgaat ggtggttagca cccctccgaa accgaatacc      540
aaaaaagtta aagttctgaa acacgccacc aattggagcc cgagcagcaa aggtgccaaa      600
atggcaagct ttgttaaagg tggtagcttt gaagttaaac agcagcgtcc gattagctac      660
agctatagca atcaagaata tctgatcgtg aataaaggca ccgttctggg ttgggtgctg      720
agccaggata ttgaagggtg ttatggtagc gatcgtgttg gtggtagtaa accgaaactg      780
cctgcagggtt ttacaaaaga agaggccacc tttattaacg gcaatgcacc gattaccacc      840
cgtaaaaaca aaccgagcct gagcagccag accgcaacac cgctgtatcc gggtcagagc      900
gttcgttatc tgggctggaa atcagcagaa gggttatatt ggatttatgc caccgatggt      960
cgttatattc cggttcgtcc ggttggtaaa gaagcatggg gcacctttaa a          1011
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<210> 100

<211> 7

<212> PRT

<213> Homo sapiens

<400> 100

His Pro Gln Tyr Asn Gln Arg
1 5

<210> 101
<211> 322
<212> PRT
<213> Artificial sequence

<220>
<223> Enterococcal bacteriophage phi1 endolysin plus peptide, w/o
starting methionine

<400> 101

Ser Asn Ile Asn Met Glu Thr Ala Ile Ala Asn Met Tyr Ala Leu Lys
1 5 10 15

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

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

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

Trp Leu Glu Lys Asn Gly Phe Lys Leu Ile Ala Gln Asn Lys Glu Trp
65 70 75 80

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

Gly Gly Ser Ala Gly His Val Val Ile Phe Ile Ser Ser Thr Gln Ile
100 105 110

Ile His Cys Thr Trp Lys Ser Ala Thr Ala Asn Gly Val Tyr Val Asp
115 120 125

Asn Glu Ala Thr Thr Cys Pro Tyr Ser Met Gly Trp Tyr Val Tyr Arg
130 135 140

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

Val Leu Lys His Ala Thr Asn Trp Ser Pro Ser Ser Lys Gly Ala Lys
165 170 175

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

Pro Ile Ser Tyr Ser Tyr Ser Asn Gln Glu Tyr Leu Ile Val Asn Lys
195 200 205

Gly Thr Val Leu Gly Trp Val Leu Ser Gln Asp Ile Glu Gly Gly Tyr
210 215 220

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

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

Arg Lys Asn Lys Pro Ser Leu Ser Ser Gln Thr Ala Thr Pro Leu Tyr
260 265 270

Pro Gly Gln Ser Val Arg Tyr Leu Gly Trp Lys Ser Ala Glu Gly Tyr
275 280 285

Ile Trp Ile Tyr Ala Thr Asp Gly Arg Tyr Ile Pro Val Arg Pro Val
290 295 300

Gly Lys Glu Ala Trp Gly Thr Phe Lys Gly Ser His Pro Gln Tyr Asn
305 310 315 320

Gln Arg

<210> 102

<211> 323

<212> PRT

<213> Artificial sequence

<220>

<223> Enterococcal bacteriophage phi1 endolysin plus peptide

<400> 102

Met Ser Asn Ile Asn Met Glu Thr Ala Ile Ala Asn Met Tyr Ala Leu
1 5 10 15

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

Asp Gly Thr Gly Asp Cys Ser Gly Thr Val Tyr Asp Ser Leu Arg Lys
35 40 45

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

Ser Trp Leu Glu Lys Asn Gly Phe Lys Leu Ile Ala Gln Asn Lys Glu
65 70 75 80

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

Ser Gly Gly Ser Ala Gly His Val Val Ile Phe Ile Ser Ser Thr Gln
100 105 110

Ile Ile His Cys Thr Trp Lys Ser Ala Thr Ala Asn Gly Val Tyr Val
115 120 125

Asp Asn Glu Ala Thr Thr Cys Pro Tyr Ser Met Gly Trp Tyr Val Tyr
130 135 140

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

Lys Val Leu Lys His Ala Thr Asn Trp Ser Pro Ser Ser Lys Gly Ala
165 170 175

Lys Met Ala Ser Phe Val Lys Gly Gly Thr Phe Glu Val Lys Gln Gln

180

185

190

Arg Pro Ile Ser Tyr Ser Tyr Ser Asn Gln Glu Tyr Leu Ile Val Asn
 195 200 205

Lys Gly Thr Val Leu Gly Trp Val Leu Ser Gln Asp Ile Glu Gly Gly
 210 215 220

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

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

Thr Arg Lys Asn Lys Pro Ser Leu Ser Ser Gln Thr Ala Thr Pro Leu
 260 265 270

Tyr Pro Gly Gln Ser Val Arg Tyr Leu Gly Trp Lys Ser Ala Glu Gly
 275 280 285

Tyr Ile Trp Ile Tyr Ala Thr Asp Gly Arg Tyr Ile Pro Val Arg Pro
 290 295 300

Val Gly Lys Glu Ala Trp Gly Thr Phe Lys Gly Ser His Pro Gln Tyr
 305 310 315 320

Asn Gln Arg

<210> 103

<211> 329

<212> PRT

<213> Artificial sequence

<220>

<223> Enterococcal bacteriophage phi1 endolysin plus HisTag and peptide

<400> 103

Met Ser Asn Ile Asn Met Glu Thr Ala Ile Ala Asn Met Tyr Ala Leu

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

Lys Gly Thr Val Leu Gly Trp Val Leu Ser Gln Asp Ile Glu Gly Gly
210 215 220

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

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

Thr Arg Lys Asn Lys Pro Ser Leu Ser Ser Gln Thr Ala Thr Pro Leu
260 265 270

Tyr Pro Gly Gln Ser Val Arg Tyr Leu Gly Trp Lys Ser Ala Glu Gly
275 280 285

Tyr Ile Trp Ile Tyr Ala Thr Asp Gly Arg Tyr Ile Pro Val Arg Pro
290 295 300

Val Gly Lys Glu Ala Trp Gly Thr Phe Lys Gly Ser His His His His
305 310 315 320

His His His Pro Gln Tyr Asn Gln Arg
325

<210> 104

<211> 241

<212> PRT

<213> Artificial Sequence

<220>

<223> aa 2-242 of Streptococcus suis enzyme (WP_029171101.1); C136S

<400> 104

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

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

Cys Ser Ser Ser Val Tyr Tyr Ala Leu Met Ser Ala Gly Ala Ile Ser
35 40 45

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

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

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

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

Tyr Ala Arg Asn Ser Ile Thr Val Asp Asn Tyr Asn Gln Thr Ala Ala
115 120 125

Ala Ser Gly Trp Met Tyr Ser Tyr Val Tyr Arg Leu Ala Asn Gln Thr
130 135 140

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

Gly Lys Tyr Gly Asn Gly Asp Gln Arg Lys Ala Ala Leu Gly Asn Gln
165 170 175

Tyr Glu Ala Val Met Ala Val Ile Asn Gly Lys Ala Thr Ala Pro Lys
180 185 190

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

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

Gln Lys Arg Val Thr Glu Leu Leu Lys Lys Gln Pro Ser Glu Pro Ser

225

230

235

240

Lys

<210> 105

<211> 346

<212> PRT

<213> Artificial sequence

<220>

<223> aa 2-242 of Streptococcus suis enzyme (WP_029171101.1); C136S,
plus enterococcal bacteriophage phi1 endolysin CBD plus HisTag and
peptide

<400> 105

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

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

Asp Cys Ser Ser Ser Val Tyr Tyr Ala Leu Met Ser Ala Gly Ala Ile
35 40 45

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

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

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

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

Asn Tyr Ala Arg Asn Ser Ile Thr Val Asp Asn Tyr Asn Gln Thr Ala
115 120 125

Ala Ala Ser Gly Trp Met Tyr Ser Tyr Val Tyr Arg Leu Ala Asn Gln
130 135 140

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

Ala Gly Lys Tyr Gly Asn Gly Asp Gln Arg Lys Ala Ala Leu Gly Asn
165 170 175

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

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

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

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

Ser Lys Gly Ser Asp Arg Val Gly Gly Ser Lys Pro Lys Leu Pro Ala
245 250 255

Gly Phe Thr Lys Glu Glu Ala Thr Phe Ile Asn Gly Asn Ala Pro Ile
260 265 270

Thr Thr Arg Lys Asn Lys Pro Ser Leu Ser Ser Gln Thr Ala Thr Pro
275 280 285

Leu Tyr Pro Gly Gln Ser Val Arg Tyr Leu Gly Trp Lys Ser Ala Glu
290 295 300

Gly Tyr Ile Trp Ile Tyr Ala Thr Asp Gly Arg Tyr Ile Pro Val Arg
305 310 315 320

Pro Val Gly Lys Glu Ala Trp Gly Thr Phe Lys Gly Ser His His His

325

330

335

His His His His Pro Gln Tyr Asn Gln Arg
340 345