

SEQUENCE LISTING

<110> Protagonist Therapeutics, Inc.
 Bhandari, Ashok
 Mattheakis, Larry C.
 Patel, Dinesh V.
 Frederick, Brian T.
 Mattheakis, Larry C.

<120> a4B7 INTEGRIN THIOETHER PEPTIDE ANTAGONISTS

<130> PRTH-010/02WO

<150> US 62/058,499
 <151> 2014-10-01

<150> US 62/058,501
 <151> 2014-10-01

<150> US 61/994,717
 <151> 2014-05-16

<150> US 61/994,699
 <151> 2014-05-16

<160> 50

<170> PatentIn version 3.5

<210> 1
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Construct

<220>
 <221> MISC_FEATURE
 <222> (1)..(3)
 <223> absent, any naturally occurring amino acid, suitable isosteres,
 and corresponding D-amino acids

<220>
 <221> MOD_RES
 <222> (1)..(4)
 <223> ACETYLATION

<220>
 <221> MOD_RES
 <222> (3)..(3)
 <223> N(alpha)METHYLATION

<220>
 <221> THIOETH
 <222> (4)..(10)
 <223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
 <221> MOD_RES
 <222> (4)..(4)
 <223> Modified Ser or HSer (modified to have one or two carbons for
 forming thioether bond with Xaa at pos. 10), suitable isosteres,
 and D-amino acids, aliphatic acid having from one to three
 carbons, five- or six-membered alicyclic acid with modified

<220>

<221> MOD_RES
 <222> (5)..(5)
 <223> Arg, HArg, 4-Guan, Cit, Cav, Dap, Dab, and suitable isosteres

<220>
 <221> MOD_RES
 <222> (5)..(5)
 <223> N(alpha)METHYLATION, Arg-Me-sym, Arg-Me-async

<220>
 <221> MISC_FEATURE
 <222> (6)..(6)
 <223> Ser, Gly, and suitable isosteres

<220>
 <221> MOD_RES
 <222> (7)..(9)
 <223> N(alpha)METHYLATION

<220>
 <221> MISC_FEATURE
 <222> (7)..(7)
 <223> Asp, D-Asp, Asp(OMe), and suitable isosteres for Asp

<220>
 <221> MISC_FEATURE
 <222> (8)..(8)
 <223> Thr, Gln, Ser, Asp, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Asn, Glu, Val, Tyr, Trp, Leu, Met

<220>
 <221> MISC_FEATURE
 <222> (9)..(9)
 <223> Gln, Asn, Asp, Pro, Gly, Ala, Phe, Leu, Glu, Ile, Val, HLeu, n-Butyl Ala, n-Pentyl Ala, n-Hexyl Ala, Nle, cyclobutyl-Ala, and suitable isosteres

<220>
 <221> MISC_FEATURE
 <222> (10)..(10)
 <223> Cys, D-Cys, HCys, Pen, D-Pen

<220>
 <221> MOD_RES
 <222> (11)..(14)
 <223> ACETYLATION

<220>
 <221> MISC_FEATURE
 <222> (11)..(11)
 <223> absent, Gly, Gln, Asn, Asp, Ala, Ile, Leu, Val, Met, Thr, Lys, Trp, Tyr, His, Glu, Ser, Arg, Pro, Phe, Sar, 1-Nal, 2-Nal, D-1-Nal, D-2-Nal, HPhe, Phe(4-F), O-Me-Tyr, dihydro-Trp, Dap, Dab, Dab(Ac), Orn, D-Orn, D-Dap, D-Dab, Bip, Ala(3,3diphenyl),

<220>
 <221> MISC_FEATURE
 <222> (11)..(11)
 <223> (Continued) D-Phe, aromatic ring substituted Phe, aromatic ring substituted Trp, aromatic ring substituted His, hetero aromatic amino acids, 4-Me-Phe, corresponding D-amino acids, and suitable isosteres

<220>
 <221> MISC_FEATURE
 <222> (12)..(12)
 <223> absent, amide, Glu, Lys, Gln, Pro, Gly, His, Ala, Ile, Phe, Arg, Leu, Val, Tyr, Trp, Met, Gla, Ser, Asn, COOH, D-Glu, Beta-HGlu,

2-Nal, 1-Nal, D-Asp, Bip, Beta-HPhe, Beta-Glu, D-Tyr, D-Lys,
D-Phe, Dap, Dab, Orn, D-Dap, D-Dap, suitable isosteres, D-amino

<220>

<221> MISC_FEATURE

<222> (13)..(13)

<223> absent, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val,
Tyr, Trp, Met, Glu, Ser, Asn, Gla, Dap, Dab, Orn, D-Orn, D-Lys,
D-N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres, and
corresponding D-amino acids

<220>

<221> MISC_FEATURE

<222> (14)..(14)

<223> absent, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val,
Tyr, Trp, Met, Glu, Ser, Asn, Gla, Dap, Dab, Orn, D-Orn, D-Lys,
D-N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres,
corresponding D-amino acids, corresponding N-Methyl amino acids

<400> 1

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 2

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Aromatic acid group capable of forming thioether bond with Xaa at
position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl,
butyryl

<220>

<221> THIOETH

<222> (1)..(7)

<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>

<221> MISC_FEATURE

<222> (2)..(2)

<223> Arg, HArg, 4-Guan, Cit, Cav, Dap, Dab, and suitable isosteres

<220>

<221> MOD_RES

<222> (2)..(2)

<223> N(alpha)METHYLATION; N-Me-Arg; Arg-Me-sym; Arg-Me-asy

<220>

<221> MISC_FEATURE

<222> (3)..(3)

<223> Ser, Gly, and suitable isosteres

<220>

<221> MOD_RES

<222> (4)..(4)

<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE

<222> (4)..(4)
 <223> Asp, D-Asp, Asp(OMe), and suitable isosteres for Asp

<220>
 <221> MOD_RES
 <222> (5)..(6)
 <223> N(alpha)METHYLATION

<220>
 <221> MISC_FEATURE
 <222> (5)..(5)
 <223> Thr, Gln, Ser, Asp, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Asn, Glu, Val, Tyr, Trp, Leu, Met

<220>
 <221> MISC_FEATURE
 <222> (6)..(6)
 <223> Gln, Asn, Asp, Pro, Gly, Ala, Phe, Leu, Glu, Ile, Val, HLeu, n-Butyl Ala, n-Pentyl Ala, n-Hexyl Ala, Nle, cyclobutyl-Ala, and suitable isosteres

<220>
 <221> MOD_RES
 <222> (7)..(7)
 <223> Cys, D-Cys, HCys, Pen, D-Pen

<220>
 <221> MOD_RES
 <222> (7)..(7)
 <223> Cys, D-Cys, HCys, Pen, D-Pen

<220>
 <221> MOD_RES
 <222> (8)..(8)
 <223> absent, Gly, Gln, Asn, Asp, Ala, Ile, Leu, Val, Met, Thr, Lys, Trp, Tyr, His, Glu, Ser, Arg, Pro, Phe, Sar, 1-Nal, 2-Nal, D-1-Nal, D-2-Nal, HPhe, Phe(4-F), O-Me-Tyr, dihydro-Trp, Dap, Dab, Dab(AC), Orn, D-Orn, D-Dap, D-Dab, Bip, Ala(3,3diphenyl),

<220>
 <221> MOD_RES
 <222> (8)..(8)
 <223> (continued) D-Phe, D-Tyr, aromatic ring substituted Phe, aromatic ring substituted Trp, aromatic ring substituted His, hetero aromatic amino acids, 4-Me-Phe, corresponding D-amino acids, and

<220>
 <221> MOD_RES
 <222> (8)..(10)
 <223> N(alpha)METHYLATION

<220>
 <221> MOD_RES
 <222> (8)..(10)
 <223> ACETYLATION

<220>
 <221> MISC_FEATURE
 <222> (9)..(9)
 <223> absent, amide, Glu, Lys, Gln, Pro, Gly, His, Ala, Ile, Phe, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, COOH, D-Glu, Beta-HGlu, 2-Nal, 1-Nal, D-Asp, Bip, Beta-HPhe, Beta-Glu, D-Tyr, D-Lys, D-Phe, Dap, Dab, Orn, D-Dap, D-Dap, suitable isosteres, D-amino

<220>
 <221> MISC_FEATURE
 <222> (10)..(10)
 <223> absent, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val,

Tyr, Trp, Met, Glu, Ser, Asn, Glu, Dap, Dab, Orn, D-Orn, D-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres, and corresponding D-amino acids

<220>

<221> MISC_FEATURE

<222> (11)..(11)

<223> absent, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Glu, Dap, Dab, Orn, D-Orn, D-Lys, D-N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres, corresponding D-amino acids, corresponding N-Methyl amin

<400> 2

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 3

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Aromatic acid group capable of forming thioether bond with xaa at position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>

<221> THIOETH

<222> (1)..(7)

<223> Thioether bond between xaa at position 1 and Cys at position 7

<220>

<221> MOD_RES

<222> (2)..(2)

<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (5)..(6)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (8)..(9)

<223> Xaa can be any naturally occurring amino acid

<400> 3

Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa
1 5

<210> 4

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Aromatic acid group capable of forming thioether bond with xaa at position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>

<221> THIOETH

<222> (1)..(7)

<223> Thioether bond between xaa at position 1 and xaa at position 7

<220>

<221> MOD_RES

<222> (2)..(2)

<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (5)..(6)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES

<222> (7)..(7)

<223> Pen

<220>

<221> MISC_FEATURE

<222> (8)..(9)

<223> Xaa can be any naturally occurring amino acid

<400> 4

Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa
1 5

<210> 5

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES

<222> (1)..(1)

<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 8, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (2)..(8)
<223> Thioether bond between Xaa at position 2 and Cys at position 8

<220>
<221> MOD_RES
<222> (3)..(3)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (9)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 5

Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa
1 5 10

<210> 6
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 8, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (2)..(8)
<223> Thioether bond between Xaa at position 2 and Xaa at position 8

<220>
<221> MOD_RES
<222> (3)..(3)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (9)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 6

Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 7
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (1)..(7)
<223> Thioether bond between xaa at position 1 and Cys at position 7

<220>
<221> MOD_RES
<222> (2)..(2)
<223> N(alpha)METHYLATION

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

<220>
<221> MISC_FEATURE
<222> (5)..(6)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (8)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 7

Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa
1 5 10

<210> 8
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (1)..(7)
<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>
<221> MOD_RES
<222> (2)..(2)
<223> N(alpha)METHYLATION

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

<220>
<221> MISC_FEATURE
<222> (5)..(6)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (8)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 8

Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 9
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> THIOETH
<222> (2)..(8)
<223> Thioether bond between Xaa at position 2 and Cys at position 8

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 8, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> MOD_RES
<222> (3)..(3)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (9)..(11)
<223> Xaa can be any naturally occurring amino acid

<400> 9

Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa
1 5 10

<210> 10
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES

<222> (1)..(1)
 <223> ACETYLATION

 <220>
 <221> THIOETH
 <222> (2)..(8)
 <223> Thioether bond between Xaa at position 2 and Xaa at position 8

 <220>
 <221> MISC_FEATURE
 <222> (2)..(2)
 <223> Aromatic acid group capable of forming thioether bond with Xaa at position 8, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

 <220>
 <221> MOD_RES
 <222> (3)..(3)
 <223> N(alpha)METHYLATION

 <220>
 <221> MISC_FEATURE
 <222> (4)..(4)
 <223> Xaa can be any naturally occurring amino acid

 <220>
 <221> MISC_FEATURE
 <222> (6)..(7)
 <223> Xaa can be any naturally occurring amino acid

 <220>
 <221> MOD_RES
 <222> (8)..(8)
 <223> Pen

 <220>
 <221> MISC_FEATURE
 <222> (9)..(11)
 <223> Xaa can be any naturally occurring amino acid

 <400> 10

Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

<210> 11
 <211> 12
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic Construct

 <220>
 <221> MISC_FEATURE
 <222> (1)..(2)
 <223> Xaa can be any naturally occurring amino acid

 <220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> ACETYLATION

 <220>
 <221> MISC_FEATURE
 <222> (3)..(3)

<223> Aromatic acid group capable of forming thioether bond with Xaa at position 9, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>

<221> THIOETH
<222> (3)..(9)

<223> Thioether bond between Xaa at position 3 and Cys at position 9

<220>

<221> MOD_RES
<222> (4)..(4)
<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE
<222> (7)..(8)
<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE
<222> (10)..(12)
<223> Xaa can be any naturally occurring amino acid

<400> 11

Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa
1 5 10

<210> 12

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE
<222> (1)..(2)
<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES
<222> (1)..(1)
<223> ACETYLTATION

<220>

<221> MISC_FEATURE
<222> (3)..(3)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 9, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>

<221> THIOETH
<222> (3)..(9)
<223> Thioether bond between Xaa at position 3 and Xaa at position 9

<220>

<221> MOD_RES

<222> (4)..(4)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (7)..(8)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (10)..(12)
<223> Xaa can be any naturally occurring amino acid

<400> 12

Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

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

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(3)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 10, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between Xaa at position 4 and Cys at position 10

<220>
<221> MOD_RES
<222> (5)..(5)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (6)..(6)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (8)..(9)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (11)..(13)

<223> Xaa can be any naturally occurring amino acid

<400> 13

Xaa Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa
1 5 10

<210> 14

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(3)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES

<222> (1)..(1)

<223> ACETYLATION

<220>

<221> MISC_FEATURE

<222> (4)..(4)

<223> Aromatic acid group capable of forming thioether bond with Xaa at position 10, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>

<221> THIOETH

<222> (4)..(10)

<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>

<221> MOD_RES

<222> (5)..(5)

<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE

<222> (6)..(6)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (8)..(9)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Pen

<220>
<221> MISC_FEATURE
<222> (11)..(13)
<223> Xaa can be any naturally occurring amino acid

<400> 14

Xaa Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 15
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 8, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (2)..(8)
<223> Thioether bond between Xaa at position 2 and Cys at position 8

<220>
<221> MOD_RES
<222> (3)..(3)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa can be any naturally occurring amino acid

<400> 15

Xaa Xaa Arg Xaa Asp Xaa Xaa Cys
1 5

<210> 16
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 8, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (2)..(8)
<223> Thioether bond between xaa at position 2 and Cys at position 8

<220>
<221> MOD_RES
<222> (3)..(3)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Xaa can be any naturally occurring amino acid

<400> 16

Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa
1 5

<210> 17
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 8, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (2)..(8)
<223> Thioether bond between xaa at position 2 and xaa at position 8

<220>
<221> MOD_RES
<222> (3)..(3)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Xaa can be any naturally occurring amino acid

<400> 17

Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa
1 5

<210> 18
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(2)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE

<222> (3)..(3)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 9, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (3)..(9)
<223> Thioether bond between Xaa at position 3 and Cys at position 9

<220>
<221> MOD_RES
<222> (4)..(4)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (7)..(8)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 18

Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa
1 5 10

<210> 19
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(2)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (3)..(3)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 9, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (3)..(9)
<223> Thioether bond between xaa at position 3 and xaa at position 9

<220>

<221> MOD_RES
<222> (4)..(4)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (7)..(8)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 19

Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa
1 5 10

<210> 20
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(3)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 10, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between Xaa at position 4 and Cys at position 10

<220>
<221> MOD_RES
<222> (5)..(5)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE

<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (8)..(9)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa can be any naturally occurring amino acid

<400> 20

Xaa Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa
1 5 10

<210> 21
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(3)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 10, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between xaa at position 4 and xaa at position 10

<220>
<221> MOD_RES
<222> (5)..(5)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (8)..(9)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (10)..(10)

<223> Pen

<220>

<221> MISC_FEATURE

<222> (1)..(11)

<223> Xaa can be any naturally occurring amino acid

<400> 21

Xaa Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa
1 5 10

<210> 22

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Aromatic acid group capable of forming thioether bond with xaa at position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl, butyryl

<220>

<221> THIOETH

<222> (1)..(7)

<223> Thioether bond between xaa at position 1 and xaa at position 7

<220>

<221> MOD_RES

<222> (2)..(2)

<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE

<222> (7)..(7)

<223> Cys, Pen, HCys, D-Cys

<220>

<221> MISC_FEATURE

<222> (9)..(9)

<223> Glu, D-Glu, D-Lys

<400> 22

Xaa Arg Ser Asp Thr Leu Xaa Trp Xaa
1 5

<210> 23

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Aromatic acid group capable of forming thioether bond with xaa at

position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl,
butyryl

<220>
<221> THIOETH
<222> (1)..(7)
<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>
<221> MOD_RES
<222> (2)..(2)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Leu, Nle

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Cys, Pen, HCys, D-Cys

<220>
<221> MISC_FEATURE
<222> (8)..(8)
<223> Trp, Phe, 1-Nal, 2-Nal, D-Phe, Tyr, Phe(CF3)

<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Glu, D-Glu, Beta-HGlu, Tyr, 2-Nal

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> D-Lys, Lys, Dap, Dab, Leu, Ser, Phe, His, Gln, Tyr, D-Leu, D-Ser,
D-Phe, D-Glu, D-Tyr, D-His, Glu

<220>
<221> MOD_RES
<222> (10)..(10)
<223> N(alpha)METHYLATION

<220>
<221> MOD_RES
<222> (10)..(10)
<223> ACETYLATION

<400> 23

Xaa Arg Ser Asp Thr Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 24
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Aromatic acid group capable of forming thioether bond with xaa at

position 7, 2-methylbenzoyl, propionyl, isobutyryl, acetyl,
butyryl

<220>
<221> THIOETH
<222> (1)..(7)
<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>
<221> MOD_RES
<222> (2)..(2)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Cys, Pen, HCys, D-Cys

<220>
<221> MISC_FEATURE
<222> (8)..(8)
<223> Trp, Phe, 1-Nal, 2-Nal, D-Phe, Tyr, Phe(CF3)

<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Glu, D-Glu, Beta-HGlu, Tyr, 2-Nal

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Leu, Ser, Phe, His, Gln, Tyr, D-Leu, D-Ser, D-Phe, D-Val, D-Glu,
D-Tyr, D-His, D-Glu, Glu, Asp, D-Asp

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> D-Lys, Lys, Dap, Dab, Leu, Ser, Phe, His, Gln, Tyr, D-Leu,
D-Ser,D-Phe, D-Glu, D-Tyr, D-His, Glu

<220>
<221> MOD_RES
<222> (11)..(11)
<223> N(alpha)METHYLATION

<220>
<221> MOD_RES
<222> (11)..(11)
<223> ACETYLATION

<400> 24

Xaa Arg Ser Asp Thr Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 25
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)

<223> Aromatic acid group capable of forming thioether bond with Xaa at position 7, 2-methylbenzoyl, propionyl, ha-bromoisbutyryl, acetyl, butyryl

<220>

<221> THIOETH

<222> (1)..(7)

<223> Thioether bond between Xaa at position 1 and Cys at position 7

<220>

<221> MOD_RES

<222> (2)..(2)

<223> Thioether bond between Xaa at position 1 and Cys at position 7

<220>

<221> MISC_FEATURE

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (5)..(6)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (8)..(11)

<223> Xaa can be any naturally occurring amino acid

<400> 25

Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa Xaa
1 5 10

<210> 26

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Aromatic acid group capable of forming thioether bond with Xaa at position 7, 2-methylbenzoyl, propionyl, ha-bromoisbutyryl, acetyl, butyryl

<220>

<221> THIOETH

<222> (1)..(7)

<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>

<221> MOD_RES

<222> (2)..(2)

<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (5)..(6)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (8)..(12)
<223> Xaa can be any naturally occurring amino acid

<400> 26

Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 27
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> THIOETH
<222> (2)..(8)
<223> Thioether bond between Xaa at position 2 and Cys at position 8

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Aromatic acid group capable of forming thioether bond with Xaa at position 8, 2-methylbenzoyl, propionyl, ha-bromoisbutyryl, acetyl, butyryl

<220>
<221> MOD_RES
<222> (3)..(3)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (9)..(12)

<223> Xaa can be any naturally occurring amino acid

<400> 27

Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa Xaa
1 5 10

<210> 28

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES

<222> (1)..(1)

<223> ACETYLATION

<220>

<221> THIOETH

<222> (2)..(8)

<223> Thioether bond between Xaa at position 2 and Xaa at position 8

<220>

<221> MISC_FEATURE

<222> (2)..(2)

<223> Aromatic acid group capable of forming thioether bond with Xaa at position 8, 2-methylbenzoyl, propionyl, ha-bromoisbutyryl, acetyl, butyryl

<220>

<221> MOD_RES

<222> (3)..(3)

<223> N(alpha)METHYLATION

<220>

<221> MISC_FEATURE

<222> (4)..(4)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MISC_FEATURE

<222> (6)..(7)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES

<222> (8)..(8)

<223> Peptide

<220>

<221> MISC_FEATURE

<222> (9)..(12)

<223> Xaa can be any naturally occurring amino acid

<400> 28

Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 29
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(2)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (3)..(3)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 9, 2-methylbenzoyl, propionyl, ha-bromoisbutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (3)..(9)
<223> Thioether bond between xaa at position 3 and Cys at position 9

<220>
<221> MOD_RES
<222> (4)..(4)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (7)..(8)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (10)..(13)
<223> Xaa can be any naturally occurring amino acid

<400> 29

Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa Xaa
1 5 10

<210> 30
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(2)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (3)..(3)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 9, 2-methylbenzoyl, propionyl, ha-bromoisbutyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (3)..(9)
<223> Thioether bond between Xaa at position 3 and Xaa at position 9

<220>
<221> MOD_RES
<222> (4)..(4)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (7)..(8)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (10)..(13)
<223> Xaa can be any naturally occurring amino acid

<400> 30

Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 31
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(3)
<223> Xaa can be any naturally occurring amino acid

<220>

<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 10, 2-methylbenzoyl, propionyl, ha-bromoisbtyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between Xaa at position 4 and Cys at position 10

<220>
<221> MOD_RES
<222> (5)..(5)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (8)..(9)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (11)..(14)
<223> Xaa can be any naturally occurring amino acid

<400> 31

Xaa Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Cys Xaa Xaa Xaa Xaa
1 5 10

<210> 32
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC_FEATURE
<222> (1)..(3)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Aromatic acid group capable of forming thioether bond with xaa at position 10, 2-methylbenzoyl, propionyl, ha-bromoisbtyryl, acetyl, butyryl

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
<221> MOD_RES
<222> (5)..(5)
<223> N(alpha)METHYLATION

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (8)..(9)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (10)..(10)
<223> Pen

<220>
<221> MISC_FEATURE
<222> (11)..(14)
<223> Xaa can be any naturally occurring amino acid

<400> 32

Xaa Xaa Xaa Xaa Arg Xaa Asp Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 33
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC FEATURE
<222> (1)..(3)
<223> absent or any amino acid

<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> an amino acid, aliphatic acid, alicyclic acid, or modified 2-methyl aromatic acid having a side chain with one or two carbons, and capable of forming a thioether bond

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
<221> MISC FEATURE
<222> (5)..(5)
<223> N(alpha)-Me-Arg, Arg, HomoArg, Dap, Dab, Arg-Me-sym, Arg-Me-asym, 4-Guan, Cit, Cav, N-Me-Lys, Phe(4-quanidino), Phe(4-carbamoyl amino), Phe(4-NH2), N-Me-HomoArg, Tyr, His, and

suitable isostere replacements

- <220>
<221> MISC FEATURE
<222> (6)..(6)
<223> Ser, Gly, Thr, Ile, and suitable isostere replacements
- <220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Ser, Gly, Thr, Ile, and suitable isostere replacements
- <220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Asp, N-Me-Asp, Asp(OMe), D-Asp, and a suitable isostere replacements
- <220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Asp, N-Me-Asp, Asp(OMe), D-Asp, and a suitable isostere replacements
- <220>
<221> MISC FEATURE
<222> (8)..(8)
<223> Thr, Gln, Ser, Asp, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Asn, Glu, Val, Tyr, Trp, Leu, Met, HomoLeu, Nle, or an N-Methyl amino acid including N-Me-Thr
- <220>
<221> MISC FEATURE
<222> (9)..(9)
<223> Gln, Asn, Asp, Pro, Gly, Ala, Phe, Leu, Glu, Ile, Val, HLeu, n-Butyl Ala, n-Pentyl Ala, n-Hexyl Ala, Nle, cyclobutyl-Ala, Cpa, Aoc, N-Me-Leu, or a suitable isostere replacement
- <220>
<221> MISC FEATURE
<222> (10)..(10)
<223> Cys, N-Me-Cys, D-Cys, HCys, Pen, D-Pen, or Pen(=O)
- <220>
<221> MISC FEATURE
<222> (11)..(11)
<223> absent, or Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe(4-CH3), Phe(4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3 diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl), Phe(3,4-diCl), Phe(4-carbomyl),
- <220>
<221> MISC FEATURE
<222> (11)..(11)
<223> (continued) Phe(2-carbomyl), Tyr(Me), HomoPhe, N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp, Ile, Leu, Ser, Arg, Thr, Sar, and Ser, aromatic amino acids, substituted aromatic amino acids, Gly, Gln, Asn, Asp, Ala, Ile, Leu, Val, Met, Thr, Lys, Trp, Tyr,
- <220>
<221> MISC FEATURE
<222> (11)..(11)
<223> (continued) Glu, Ser, Arg, Pro, Phe, Sar, 1-Nal, 2-Nal, D-1-Nal, D-2-Nal, HPhe, D-Phe, D-Tyr, Phe(4-F), O-Me-Tyr, dihydro-Trp, Dap, Dab, Dab(Ac), Orn, D-Orn, N-Me-Orn, N-Me-Dap, D-Dap, D-Dab, Bip, Ala(3,3diphenyl), Biphenyl-Ala,

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> (continued) aromatic ring substituted Phe, aromatic ring substituted Trp, aromatic ring substituted His, hetero aromatic amino acids, N-Me-Lys, N-Me-Lys(AC), 4-Me-Phe, Phe(4tBu), Phe(4-OMe), Phe(4-COOH), Phe(2-carbonyl), Phe(3-carbonyl),

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> (continued) Phe(2,4-diCl), Phe(3,4-diCl), Aic, N-Me-Tyr, N-Me-Phe, Tic, Phe(4CF3), or a corresponding D-amino acid or suitable isostere replacement

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> (continued) Phe(2,4-diCl), Phe(3,4-diCl), Aic, N-Me-Tyr, N-Me-Phe, Tic, Phe(4CF3), or a corresponding D-amino acid or suitable isostere replacement

<220>
 <221> MISC FEATURE
 <222> (12)..(12)
 <223> absent, or an aromatic amino acid, a substituted aromatic amino acid, Glu, D-Glu, HomoGlu, Beta-Homo-Glu, Asp, D-HomoGlu, Amide, Lys, COOH, CONH2, Gln, Pro, Gly, His, Ala, Ile, Phe, Arg, Leu, Val, Tyr, Trp, Met, Gla,

<220>
 <221> MISC FEATURE
 <222> (12)..(12)
 <223> (continued) Ser, Asn, D-Glu, ?-HGlu, 2-Nal, 1-Nal, D-Asp, Bip, ?-HPhe, ?-Glu, D-Tyr, D-Phe, D-Lys, Dap, Dab, Orn, D-Orn, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me Lys, D-Dap, D-Dab, D-His, F(4-COOH), Tic, D-Trp, D-Leu, D-Arg, D-Thr,

<220>
 <221> MISC FEATURE
 <222> (12)..(12)
 <223> (continued) a suitable isostere, or a corresponding D-amino acid

<220>
 <221> MISC FEATURE
 <222> (13)..(13)
 <223> absent or any amino acid

<220>
 <221> MISC FEATURE
 <222> (13)..(13)
 <223> absent or any amino acid

<220>
 <221> MISC FEATURE
 <222> (14)..(14)
 <223> absent, any amino acid, or any amino acid with an amine side chain, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, N-Me-Orn, Dab, N-Me-Dab, Dap, N-Me-Dap, Homo-Lys, D-Dap, D-Dab, D-Orn, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu,

<220>
 <221> MISC FEATURE
 <222> (14)..(14)
 <223> (continued) Asn, Gla, Cys, HomoCys, COOH, CONH2, a suitable

isostere, a corresponding D-amino acid, or a corresponding N-Methyl amino acid.

<400> 33

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 34

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC FEATURE

<222> (1)..(3)

<223> absent, any naturally occurring amino acid, a suitable isostere, and corresponding D-amino acids

<220>

<221> MISC FEATURE

<222> (4)..(4)

<223> an amino acid, aliphatic acid, alicyclic acid, or modified 2-methyl aromatic acid having a side chain with one or two carbons, and capable of forming a thioether bond with Xaa at position 10

<220>

<221> THIOETH

<222> (4)..(10)

<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> N(alpha)-Me-Arg, Arg, HomoArg, Dap, Dab, Arg-Me-sym, Arg-Me-asy, 4-Guan, Cit, Cav, N-Me-Lys, Phe (4-quanidino), Phe (4-carbonyl amino), Phe(4-NH2), N-Me-Homo-Arg, Tyr and His, and suitable isostere replacements

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> N(alpha)-Me-Arg, Arg, HomoArg, Dap, Dab, Arg-Me-sym, Arg-Me-asy, 4-Guan, Cit, Cav, N-Me-Lys, Phe (4-quanidino), Phe (4-carbonyl amino), Phe(4-NH2), N-Me-Homo-Arg, Tyr and His, and suitable isostere replacements

<220>

<221> MISC FEATURE

<222> (6)..(6)

<223> Ser, Gly, Thr, Ile, and suitable isostere replacements

<220>

<221> MISC FEATURE

<222> (7)..(7)

<223> Asp, N-Me-Asp, Asp(OMe), D-Asp, and a suitable isostere replacement

<220>

<221> MISC FEATURE

<222> (8)..(8)

<223> Thr, Gln, Ser, Asp, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Asn,

Glu, Val, Tyr, Trp, Leu, Met, hLeu, Nle and N-Methyl amino acids including N-Me-Thr

<220>

<221> MISC FEATURE

<222> (9)..(9)

<223> Gln, Asn, Asp, Pro, Gly, Ala, Phe, Leu, Glu, Ile, Val, HomoLeu, n-Butyl Ala, n-Pentyl Ala, n-Hexyl Ala, Nle, cyclobutyl-Ala, N-Me-Leu, Cpa, Aoc and suitable isostere replacements

<220>

<221> MISC FEATURE

<222> (10)..(10)

<223> Cys, N-Me-Cys, D-Cys, HomoCys, Pen, D-Pen, modified HomoSer and modified Ser

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> absent, aromatic amino acids, substituted aromatic amino acids, Tic, and corresponding D-amino acids and suitable isostere replacements

<220>

<221> MISC FEATURE

<222> (12)..(12)

<223> absent, aromatic amino acids, substituted aromatic amino acids, Glu, D-Glu, homoGlu, Asp, D-Asp, D-homoGlu, Gla, beta-Homo-Glu, Tic, and corresponding D-amino acids and suitable isosteres

<220>

<221> MISC FEATURE

<222> (13)..(13)

<223> absent, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Gla, Dap, Dab, Orn, D-Orn, D-Lys, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me-Lys, D-N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres, and corresponding D-amino acids

<220>

<221> MISC FEATURE

<222> (14)..(14)

<223> absent, any amino acid, any amino acid with an amine side chain, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, N-Me-Orn, Dab, N-Me-Dab, Dap, N-Me-Dap, Homo-Lys, D-Dap, D-Dab, D-Orn, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn,

<220>

<221> MISC FEATURE

<222> (14)..(14)

<223> (continued) Gla, Cys, HomoCys, Pen, COOH, CONH2, suitable isosteres, corresponding D-amino acids, and corresponding N-Methyl amino acids

<400> 34

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 35

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>
<221> MISC FEATURE
<222> (1)..(3)
<223> absent, acetyl, or any amino acid

<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> Cys, HomoCys, Pen, Homo-Ser-Cl, Homo-Ser, and a 2-methylbenzoyl moiety

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
<221> MISC FEATURE
<222> (5)..(5)
<223> N-Me-Arg, Arg, N-Me-Lys, Phe (4-quantidino), Phe(+carbonylamino), Cit, Phe(4-NH2), N-Me-Homo-Arg, Homo-Arg, Tyr and His

<220>
<221> MISC FEATURE
<222> (6)..(6)
<223> Ser, Gly, Ile or Thr

<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Asp or D-Asp

<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> Thr, Val, Ile, Leu, hLeu and Nle

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> Leu, Nle, Cpa, Cba, HomoLeu, Aoc, and N-Me-Leu

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> Cys, D-Cys, HomoCys, Pen, modified HomorSer and modified Ser

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> absent, aromatic amino acids, and substituted aromatic amino acids

<220>
<221> MISC FEATURE
<222> (12)..(12)
<223> absent, aromatic amino acids, substituted aromatic amino acids, Glu, D-Glu, homoGlu, Asp, D-Asp, D-homoGlu, Gla, beta-Homo-Glu, and corresponding D-amino acids and suitable isosteres

<220>
<221> MISC FEATURE
<222> (13)..(13)
<223> absent or Pro

<220>
<221> MISC FEATURE
<222> (14)..(14)

<223> any amino acid, any amino acid with an amine side chain, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, N-Me-Orn, Dab, N-Me-Dab, Dap, N-Me-Dap, Homo-Lys, D-Dap, D-Dab, D-Orn, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Gla,

<220>

<221> MISC FEATURE

<222> (14)..(14)

<223> (continued) HomoCys, Pen, COOH, CONH₂, suitable isosteres, corresponding D-amino acids, and corresponding N-Methyl amino acids

<400> 35

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 36

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC FEATURE

<222> (1)..(3)

<223> absent or any amino acid

<220>

<221> THIOETH

<222> (4)..(10)

<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>

<221> MISC FEATURE

<222> (4)..(4)

<223> 2-methyl-benzoyl moiety or a modified HomoSer, optionally Homo-Ser-Cl

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> N-Me-Arg, Arg, N-Me-Lys, Phe (4-guanidino), Phe(4-carbonylamino), Cit, Phe(4-NH₂), N-Me-Homo-Arg, Homo-Arg, Tyr and His

<220>

<221> MISC FEATURE

<222> (6)..(6)

<223> Ser, Gly, Thr or Ile

<220>

<221> MISC FEATURE

<222> (7)..(7)

<223> Asp or D-Asp

<220>

<221> MISC FEATURE

<222> (8)..(8)

<223> Thr, Val, Ile, Leu, hLeu, Nle, and Val

<220>

<221> MISC FEATURE

<222> (9)..(9)

<223> Leu, Nle, Cpa, Cba, HomoLeu, Aoc, and N-Me-Leu

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> Pen, Cys, D-Cys or HomoCys

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe(4-CH3), Phe(4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3-diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl), Phe(3,4-diCl), Phe(4-carbonyl), Phe(3-Carbonyl), Phe

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> (continued) Tyr(Me), HomoPhe, N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp, Ilu, Leu, Arg, Thr, Sar, and Ser

<220>
<221> MISC FEATURE
<222> (12)..(12)
<223> absent or selected from the group consisting of: any aromatic amino acid, Glu, D-Glu, homoGlu, Asp, D-Asp, D-homoGlu, D-Asp, Gla, beta-homo-Glu, corresponding D-amino acid, and isosteres

<220>
<221> MISC FEATURE
<222> (13)..(13)
<223> absent or any amino acid

<220>
<221> MISC FEATURE
<222> (14)..(14)
<223> any amino acid, any amino acid with a free amino group on a side chain, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab, Dap, Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn

<400> 36
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 37
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC FEATURE
<222> (1)..(3)
<223> absent or any amino acid

<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> 2-methylbenzoyl moiety or a modified HomoSer, optionally Homo-Ser-Cl

<220>
<221> THIOETH

<222> (4)..(10)
 <223> Thioether bond between xaa at position 4 and xaa at position 10

<220>
 <221> MISC FEATURE
 <222> (5)..(5)
 <223> N-Me-Arg

<220>
 <221> MISC FEATURE
 <222> (6)..(6)
 <223> Ser, Gly, Thr, or Ile

<220>
 <221> MISC FEATURE
 <222> (7)..(7)
 <223> Asp or D-Asp

<220>
 <221> MISC FEATURE
 <222> (8)..(8)
 <223> Thr, Val, Ile, Leu, hLeu and Nle

<220>
 <221> MISC FEATURE
 <222> (9)..(9)
 <223> Leu, Nle, Cpa, Cba, HomoLeu, Aoc, and N-Me-Leu

<220>
 <221> MISC FEATURE
 <222> (10)..(10)
 <223> Pen, Cys, D-Cys or HomoCys

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe
 (4-CH3), Phe (4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3
 diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl),
 Phe(3,4-diCl), Pge(4-carbomyl), Phe(3-Carbomyl), Tyr(Me),

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> (continued), N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp, Ilu, Leu,
 Ser, Arg, Thr, Sar, Ser and any substituted aromatic amono acid
 and corresponding D-amino acids

<220>
 <221> MISC FEATURE
 <222> (12)..(12)
 <223> any aromatic amino acid, Glu, D-Glu, homoGlu, Asp, D-Asp,
 D-homoGlu, Gla, beta-homo-Glu, corresponding D-amino acid and
 isostere

<220>
 <221> MISC FEATURE
 <222> (13)..(13)
 <223> absent

<220>
 <221> MISC FEATURE
 <222> (14)..(14)
 <223> any amino acid, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab, Dap,
 Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn

<400> 37

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 38
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC FEATURE
<222> (1)..(3)
<223> absent or any amino acid

<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> 2-methylbenzoyl moiety or a modified HomoSer optionally
Homo-Ser-Cl

<220>
<221> THIOETH
<222> (4)..(10)
<223> any amino acid, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab, Dap,
Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn

<220>
<221> MISC FEATURE
<222> (5)..(5)
<223> N-Me-Arg

<220>
<221> MISC FEATURE
<222> (6)..(6)
<223> Ser, Gly, Thr, or Ile

<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Asp or D-Asp

<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> Thr, Val, Ile, Leu, hLeu and Nle

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> Leu, Me, Cpa, Cba, HomoLeu, Aoc, and N-Me-Leu

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> Pen, Cys, D-Cys or HomoCys

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe
(4-CH3), Phe (4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3
diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl),
Phe(3,4-diCl), Pge(4-carbonyl), Phe(3-Carbonyl), Tyr(Me),

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> (continued) N-Me-Phe, N-Me-Tyr, Sar, Dihydro Trp, Ile, Leu, Ser,
Arg, Thr, Sar, and Ser

<220>
<221> MISC FEATURE
<222> (12)..(12)
<223> any aromatic amino acid, Glu, D-Glu, homoGlu, Asp, D-Asp,
D-homoGlu, Gla, beta-homo-Glu, corresponding D-amino acid and
isosteres

<220>
<221> MISC FEATURE
<222> (13)..(13)
<223> absent

<220>
<221> MISC FEATURE
<222> (14)..(14)
<223> any amino acid, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab, Dap,
Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn

<400> 38

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 39
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC FEATURE
<222> (1)..(3)
<223> absent or any amino acid

<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> 2-methylbenzoyl moiety or a modified HomoSer, optionally
Homo-Ser-C¹

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
<221> MISC FEATURE
<222> (5)..(5)
<223> N-Me-Arg

<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Asp or D-Asp

<220>

<221> MISC FEATURE
<222> (8)..(8)
<223> Thr or Val

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> Leu, Nle, Cpa, Cba, HomoLeu, Aoc, and N-Me-Leu

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> Pen, Cys, D-Cys or HomoCys

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-OF3), Phe
(4-CH3), Phe (4-tBu), Bip, Phe(4-COOH), Gly, 3,3-diPhenylGly, 3,3
diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl),
Phe(3,4-diCl), Pge(4-carbomyl), Phe(3-Carbomyl), Tyr(Me),

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> (continued) N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp, Ilu, Leu,
Ser, Arg, Thr, Sar, and Ser

<220>
<221> MISC FEATURE
<222> (12)..(12)
<223> any aromatic amino acid, Glu, D-Glu, homoGlu, Asp, D-Asp,
D-homoGlu, Gla, beta-homo-Glu, corresponding D-amino acid and
isosteres

<220>
<221> MISC FEATURE
<222> (13)..(13)
<223> absent

<220>
<221> MISC FEATURE
<222> (14)..(14)
<223> any amino acid, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab, Dap,
Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn

<400> 39

Xaa Xaa Xaa Xaa Xaa Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 40
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC FEATURE
<222> (1)..(3)
<223> is absent or any amino acid

<220>

<221> THIOETH
 <222> (4)..(10)
 <223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
 <221> MISC FEATURE
 <222> (4)..(4)
 <223> 2-methylbenzoyl moiety or a modified HomoSer, optionally
 Homo-Ser-Cl

<220>
 <221> MISC FEATURE
 <222> (5)..(5)
 <223> N-Me-Arg

<220>
 <221> MISC FEATURE
 <222> (7)..(7)
 <223> Asp or D-Asp

<220>
 <221> MISC FEATURE
 <222> (8)..(8)
 <223> Thr or Val

<220>
 <221> MISC FEATURE
 <222> (9)..(9)
 <223> Leu, Nle, Cpa, Cba, HomoLeu, Aoc, and N-Me-Leu

<220>
 <221> MISC FEATURE
 <222> (10)..(10)
 <223> Pen, Cys, D-Cys or HomoCys

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe
 (4-CH3), Phe (4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3
 diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl),
 Phe(3,4-diCl), Pge(4-carbonyl), Phe(3-Carbonyl), Tyr(Me),

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> (continued) N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp, Ile,
 Leu, Ser, Arg, Thr, Sar, and Ser

<220>
 <221> MISC FEATURE
 <222> (12)..(12)
 <223> absent or selected from the group consisting of: any aromatic
 amino acid, Glu, D-Glu, and beta-homo-Glu

<220>
 <221> MISC FEATURE
 <222> (13)..(13)
 <223> absent

<220>
 <221> MISC FEATURE
 <222> (14)..(14)
 <223> is any amino acid; or Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab,
 Dap, Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn.

<400> 40

Xaa Xaa Xaa Xaa Xaa Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 41
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> MISC FEATURE
<222> (1)..(3)
<223> absent or any amino acid

<220>
<221> THIOETH
<222> (4)..(10)
<223> Thioether bond between xaa at position 4 and xaa at position 10

<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> 2-methylbenzoyl moiety or a modified HomoSer, optionally
Homo-Ser-Cl

<220>
<221> MISC FEATURE
<222> (5)..(5)
<223> N-Me-Arg

<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Asp or D-Asp

<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> Thr or Val

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> Pen, Cys, D-Cys or HomoCys

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe
(4-CH3), Phe (4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3
diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl),
Phe(3,4-diCl), Pge(4-carbonyl), Phe(3-Carbonyl), Tyr(Me),

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> (continued) N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp, Ile, Leu,
Ser, Arg, Thr, Sar, and Ser

<220>
<221> MISC FEATURE
<222> (12)..(12)

<223> any aromatic amino acid, Glu, D-Glu, beta-homo-Glu, corresponding D-amino acid and isosteres

<220>

<221> MISC FEATURE

<222> (13)..(13)

<223> absent

<220>

<221> MISC FEATURE

<222> (14)..(14)

<223> any amino acid or Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab, Dap, Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn

<400> 41

Xaa Xaa Xaa Xaa Xaa Ser Xaa Xaa Leu Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 42

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC FEATURE

<222> (1)..(3)

<223> absent or any amino acid

<220>

<221> THIOETH

<222> (4)..(10)

<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>

<221> MISC FEATURE

<222> (4)..(4)

<223> 2-methylbenzoyl moiety or a modified Homoser, optionally Homo-Ser-Cl

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> N-Me-Arg

<220>

<221> MISC FEATURE

<222> (7)..(7)

<223> Asp or D-Asp

<220>

<221> MISC FEATURE

<222> (8)..(8)

<223> Thr or Val

<220>

<221> MISC FEATURE

<222> (10)..(10)

<223> Pen, Cys, D-Cys or HomoCys

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe
(4-CH3), Phe (4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3
diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl),
Phe(3,4-diCl), Pge(4-carbomyl), Phe(3-Carbomyl), Tyr(Me),

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) HomoPhe, N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp,
Ile, Leu, Ser, Arg, Thr, Sar, and Ser

<220>

<221> MISC FEATURE

<222> (12)..(12)

<223> any aromatic amino acid, Glu, D-Glu, and beta-homo-Glu

<220>

<221> MISC FEATURE

<222> (13)..(13)

<223> absent

<220>

<221> MISC FEATURE

<222> (14)..(14)

<223> any amino acid, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, Dab, Dap,
Homo-Lys, D-Dap, D-Dab, Cys, HomoCys, Pen, or D-Orn

<400> 42

Xaa Xaa Xaa Xaa Xaa Ser Xaa Xaa Leu Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 43

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC FEATURE

<222> (1)..(3)

<223> absent or any amino acid

<220>

<221> THIOETH

<222> (4)..(10)

<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>

<221> MISC FEATURE

<222> (4)..(4)

<223> 2-methylbenzoyl moiety or a modified HomoSer, optionally
Homo-Ser-Cl

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> N-Me-Arg

<220>

<221> MISC FEATURE

<222> (6)..(6)

<223> N-Me-Arg

<220>
 <221> MISC FEATURE
 <222> (8)..(8)
 <223> Thr or Val

<220>
 <221> MISC FEATURE
 <222> (10)..(10)
 <223> Pen, Cys, D-Cys or HomoCys

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe(4-CH3), Phe(4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3-diPhenyl Ala, Tic, b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl), Phe(3,4-diCl), Pge(4-carbomyl), Phe(3-Carbomyl), Tyr(Me),

<220>
 <221> MISC FEATURE
 <222> (11)..(11)
 <223> (continued) N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp, Ile, Leu, Ser, Arg, Thr, Sar, and Ser

<220>
 <221> MISC FEATURE
 <222> (12)..(12)
 <223> any aromatic amino acid, Glu, D-Glu, and beta-homo-Glu

<220>
 <221> MISC FEATURE
 <222> (13)..(13)
 <223> absent

<220>
 <221> MISC FEATURE
 <222> (14)..(14)
 <223> any amino acid or D-Lys, N-Me-Lys, and D-N-Me-Lys

<400> 43

Xaa Xaa Xaa Xaa Xaa Ser Asp Xaa Leu Xaa Xaa Xaa Xaa Xaa
 1 5 10

<210> 44
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Construct

<220>
 <221> MISC FEATURE
 <222> (1)..(3)
 <223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
 <221> THIOETH
 <222> (4)..(10)
 <223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>
 <221> MISC FEATURE
 <222> (4)..(4)

<223> 2-methylbenzoyl moiety or a modified HomoSer, optionally
Homo-Ser-Cl

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> N-Me-Arg

<220>

<221> MISC FEATURE

<222> (7)..(7)

<223> Asp or D-Asp

<220>

<221> MISC FEATURE

<222> (8)..(8)

<223> Asp or D-Asp

<220>

<221> MISC FEATURE

<222> (10)..(10)

<223> Pen, Cys, D-Cys or HomoCys

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> Trp, Phe, 2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF3), Phe
(4-CH3). Phe (4-tBu), Bip, Phe(4-COOH), Gly, 3,3-DiPhenylGly, 3,3
diPhenyl Ala, Tic, b-homo-Trp,

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) D-1-Nal, D-2-Nal, Phe(2,4-diCl), Phe(3,4-diCl),
Pge(4-carbomyl), Phe(3-Carbomyl), Tyr(Me), and HomoPhe

<220>

<221> MISC FEATURE

<222> (12)..(12)

<223> ny aromatic amino acid, Glu, D-Glu, or beta-homo-Glu;

<220>

<221> MISC FEATURE

<222> (13)..(13)

<223> absent

<220>

<221> MISC FEATURE

<222> (14)..(14)

<223> any amino acid;or selected from the group consisting of: D-Lys,
N-Me-Lys, and D-N-Me-Lys

<400> 44

Xaa Xaa Xaa Xaa Xaa Ser Xaa Xaa Leu Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 45

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> THIOETH
 <222> (1)..(7)
 <223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>
 <221> MISC FEATURE
 <222> (1)..(7)
 <223> a group, e.g., optionally an aromatic group, that is capable of forming a thioether bond with Xaa7.

<220>
 <221> MISC FEATURE
 <222> (2)..(2)
 <223> selected from the group consisting of N(alpha)-Me-Arg, Arg, HArg, Dap, Dab, Arg-Me-sym, Arg-Me-asym, 4-Guan, Cit, Cav, and suitable isostere replacements

<220>
 <221> MISC FEATURE
 <222> (3)..(3)
 <223> selected from the group consisting of Ser, Gly, Thr, Ile and suitable isostere replacements

<220>
 <221> MISC FEATURE
 <222> (4)..(4)
 <223> selected from the group consisting of Asp, N-Me-Asp, Asp(OMe), D-Asp, and a suitable isostere replacements.

<220>
 <221> MISC FEATURE
 <222> (5)..(5)
 <223> selected from the group consisting of Asp, N-Me-Asp, Asp(OMe), D-Asp, and a suitable isostere replacements.

<220>
 <221> MISC FEATURE
 <222> (6)..(6)
 <223> selected from the group consisting of Gln, Asn, Asp, Pro, Gly, Ala, Phe, Leu, Glu, Ile, Val, HLeu, n-Butyl Ala, n-Pentyl Ala, n-Hexyl Ala, Nle, cyclobutyl-Ala, N-Me-Leu, and suitable isostere replacements.

<220>
 <221> MISC FEATURE
 <222> (7)..(7)
 <223> selected from the group consisting of Cys, N-Me-Cys, D-Cys, HCys, Pen, D-Pen and Pen(=O).

<220>
 <221> MISC FEATURE
 <222> (8)..(8)
 <223> absent of Gly, Gln, Asn, Asp, Ala, Ile, Leu, Val, Met, Thr, Lys, Trp, Tyr, His, Glu, Ser, Arg, Pro, Phe, Sar, 1-Nal, 2-Nal, D-1-Nal, D-2-Nal, D-Phe, D-Tyr, HPhe, Phe(4-F), O-Me-Tyr, dihydro-Trp, Dap, Dab, Dab(Ac), Orn, D-Orn,

<220>
 <221> MISC FEATURE
 <222> (8)..(8)
 <223> (continued) N-Me-Orn, N-Me-Dap, D-N-Me-Lys, D-Dap, D-Dab, Bip, Ala(3,3diphenyl), Biphenyl-Ala, Phe(4tBu), Phe(4-OMe), Phe(4-COOH), Phe(2-carbonyl), Phe(3-carbonyl), Phe(CF3), Phe(2,4-diCl), Phe(3,4-diCl),

<220>
 <221> MISC FEATURE
 <222> (8)..(8)

<223> (continued) Aic, N-Me-Tyr, N-Me-Phe, Tic, Phe(4CF3), aromatic ring substituted Phe, aromatic ring substituted Trp, aromatic ring substituted His, hetero aromatic amino acids, N-Me-Lys, N-Me-Lys(Ac), 4-Me-Phe,

<220>

<221> MISC FEATURE

<222> (8)..(8)

<223> (continued) and corresponding D-amino acids and suitable isostere replacements.

<220>

<221> MISC FEATURE

<222> (9)..(9)

<223> absent or selected from the group consisting of Glu, Amide, Lys, COOH, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, D-Glu, ?-Hglu, 2-Nal, 1-Nal, D-1-Nal, D-2-Nal,

<220>

<221> MISC FEATURE

<222> (9)..(9)

<223> (continued) D-Phe, D-Tyr, D-Asp, Bip, ?-HPhe, ?-Glu, D-Tyr, D-Lys, Dap, Dab, Orn, D-Orn, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me-Lys, D-N-Me-Lys D-Dap, D-Dab, O-Me-Glu, suitable isosteres, and corresponding D-amino acids.

<220>

<221> MISC FEATURE

<222> (10)..(10)

<223> absent or selected from the group consisting of Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Glu, Dap, Dab, Orn, D-Orn, D-Lys, N-Me-Orn,

<220>

<221> MISC FEATURE

<222> (10)..(10)

<223> (continued) N-Me-Dap, N-Me-Dab, D-N-Me-Lys N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres, and corresponding D-amino acids.

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> selected from the group consisting of Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Glu, Dap, Dab, Orn, D-Orn, D-Lys, N-Me-Orn, N-Me-Dap, N-Me-Dab, D-N-Me-Lys, N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) and corresponding D-amino acids or any amino acid.

<400> 45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 46

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>
<221> THIOETH
<222> (1)..(7)
<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>
<221> MISC FEATURE
<222> (1)..(1)
<223> 2-methylbenzoyl

<220>
<221> MISC FEATURE
<222> (2)..(2)
<223> N-Me-Arg

<220>
<221> MISC FEATURE
<222> (3)..(3)
<223> Ser, Gly, Thr, or Ile

<220>
<221> MISC FEATURE
<222> (6)..(6)
<223> Ser, Gly, Thr, or Ile

<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Pen, Cys or d-Cys

<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> Phe, D-Phe, Tyr, Bip, Tic, 1-Nal, 2-Nal, or Trp

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> D-Glu, Glu, Tyr, b-homo-Glu, or 2-Nal

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> D-Lys, N-Me-D-Lys, Dap, Phe, D-Phe or absent.

<400> 46

Xaa Xaa Xaa Asp Thr Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 47
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> THIOETH
<222> (1)..(7)
<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>

<221> MISC FEATURE
<222> (1)..(1)
<223> 2-methylbenzoyl

<220>
<221> MISC FEATURE
<222> (2)..(2)
<223> N-Me-Arg

<220>
<221> MISC FEATURE
<222> (6)..(6)
<223> Leu or Nle

<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> Pen, Cys, homoCys, Pen(=O), or D-Cys

<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> Phe, D-Phe, Tyr, D-Tyr, His, Bip, Tic, 1-Nal, 2-Nal, F(CH3),
F(2,4-diCl), F(3,4-diCl), Aic, N-Me-Tyr, N-Me-Phe, F(2-carbonyl),
F(3-carbonyl), F(4-COOH), F(4OMe), F(4tBu), F-(4-F), F(4CF3), or
Trp

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> absent, Glu, -homo-Glu, Bip, O-Me-Glu, D-Lys, D-Phe, Tyr, 2-Nal,
D-Tyr, Pro, Tic, D-Glu, D-Thr, D-Arg, D-Leu, D-Trp, F(4-COOH),
D-His, Pro, D-Pro, or E(OMe)

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> absent or any amino acid residue or D-Lys, N-Me-Lys, N-Me-D-Lys,
Lys, Dap, Dab, D-Dab, D-Dap, Orn N-Me-Orn, D-Orn

<400> 47

Xaa Xaa Ser Asp Thr Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 48
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> THIOETHER
<222> (1)..(7)
<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>
<221> MISC FEATURE
<222> (1)..(1)
<223> 2-methylbenzoyl moiety

<220>
<221> MISC FEATURE
<222> (2)..(2)

<223> N-methyl-Arg

<220>

<221> MISC FEATURE

<222> (3)..(3)

<223> Ser, Gly, Thr, or Ile

<220>

<221> MISC FEATURE

<222> (6)..(6)

<223> Leu or Nle

<220>

<221> MISC FEATURE

<222> (7)..(7)

<223> Cys, D-Cys, Hcys, or Pen

<220>

<221> MISC FEATURE

<222> (8)..(8)

<223> Trp, Tic, Bip, 1-Nal, 2-Nal, Phe(4tBu), or Phe(4-COOH)

<220>

<221> MISC FEATURE

<222> (9)..(9)

<223> Trp, Tic, Bip, 1-Nal, 2-Nal, Phe(4tBu), or Phe(4-COOH)

<220>

<221> MISC FEATURE

<222> (10)..(10)

<223> any amino acid

<400> 48

Xaa Xaa Xaa Asp Thr Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 49

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>

<221> MISC FEATURE

<222> (1)..(3)

<223> Absent or any amino acid

<220>

<221> THIOETHER

<222> (4)..(10)

<223> Thioether bond between Xaa at position 4 and Xaa at position 10

<220>

<221> MISC FEATURE

<222> (4)..(4)

<223> An amino acid, aliphatic acid, alicyclic acid, or modified 2-methyl aromatic acid having a side chain with one or two carbons, and capable of forming a thioether bond with xaa

<220>

<221> MISC FEATURE

<222> (5)..(5)

<223> N(alpha)-Me-Arg, Arg, HomoArg, Dap, Dab, Arg-Me-sym,

Arg-Me-asym, 4-Guan, Cit, Cav, N-Me-Lys, Phe(4-quanidino),
Phe(4-carbamoyl amino), Phe(4-NH₂), N-Me-HomoArg, Tyr, His, or a
suitable isostere replacement

<220>

<221> MISC FEATURE

<222> (6)..(6)

<223> selected from the group consisting of Ser, Gly, Thr, Ile, and
suitable isostere replacements

<220>

<221> MISC FEATURE

<222> (7)..(7)

<223> selected from the group consisting of Asp, N-Me-Asp, Asp(OMe),
D-Asp, and suitable isostere replacements

<220>

<221> MISC FEATURE

<222> (8)..(8)

<223> selected from the group consisting of Thr, Gln, Ser, Asp, Pro,
Gly, His, Ala, Ile, Phe, Lys, Arg, Asn, Glu, Val, Tyr, Trp, Leu,
Met, HomoLeu, Nle, and N-Methyl amino acids including N-Me-Thr

<220>

<221> MISC FEATURE

<222> (9)..(9)

<223> consisting of Gln, Asn, Asp, Pro, Gly, Ala, Phe, Leu, Glu, Ile,
Val, HLeu, n-Butyl Ala, n-Pentyl Ala, n-Hexyl Ala, Nle,
cyclobutyl-Ala, Cpa, Aoc, N-Me-Leu, and suitable isostere
replacements

<220>

<221> MISC FEATURE

<222> (10)..(10)

<223> selected from the group consisting of Cys, N-Me-Cys, D-Cys, HCys,
Pen, D-Pen, and Pen(=O)

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> absent or is selected from the group consisting of: Trp, Phe,
2-Nal, 1-Nal, Tyr, His, Phe(4-F), Phe(4-CF₃), Phe(4-CH₃), Phe
(4-tBu), Bip, Phe(4-COOH),

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) Gly, 3,3-DiphenylGly, 3,3 diphenyl Ala, Tic,
b-homo-Trp, D-1-Nal, D-2-Nal, Phe(2,4-diCl), Phe(3,4-diCl),
Phe(4-carbonyl), Phe(3-Carbonyl), Phe(2-carbonyl), Tyr(Me),

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) HomoPhe, N-Me-Phe, N-Me-Tyr, Ser, Sar, Dihydro Trp,
Ile, Leu, Ser, Arg, Thr, Sar, and Ser, aromatic amino acids ,
substituted aromatic amino acids, Gly, Gln, Asn, Asp, Ala,

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) Ile, Leu, Val, Met, Thr, Lys, Trp, Tyr, His, Glu,
Ser, Arg, Pro, Phe, Sar, 1-Nal, 2-Nal, D-1-Nal, D-2-Nal, HPhe,
D-Phe, D-Tyr, Phe(4-F), O-Me-Tyr, dihydro-Trp, Dap, Dab,

<220>

<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) Dab(Ac), Orn, D-Orn, N-Me-Orn, N-Me-Dap, D-Dap, D-Dab, Bip, Ala(3,3diphenyl), Biphenyl-Ala, aromatic ring substituted Phe, aromatic ring substituted Trp, aromatic ring substituted His, hetero aromatic amino acids,

<220>
<221> MISC FEATURE

<222> (11)..(11)

<223> (continued) N-Me-Lys, N-Me-Lys(Ac), 4-Me-Phe, Phe(4tBu), Phe(4-OMe), Phe(4-COOH), Phe(2-carbonyl), Phe(3-carbonyl), Phe(CF3), Phe(2,4-diCl), Phe(3,4-diCl), Aic, N-Me-Tyr, N-Me-Phe, Tic, Phe(4CF3),

<220>
<221> MISC FEATURE

<222> (12)..(12)

<223> absent or selected from the group consisting of aromatic amino acids, substituted aromatic amino acids, Glu, D-Glu, HomoGlu, Beta-Homo-Glu, Asp, D-HomoGlu, Amide, Lys, COOH, CONH2,

<220>
<221> MISC FEATURE

<222> (12)..(12)

<223> (continued) Gln, Pro, Gly, His, Ala, Ile, Phe, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, D-Glu, ?-HGlu, 2-Nal, 1-Nal, D-Asp, Bip, ?-HPhe, ?-Glu, D-Tyr, D-Phe, D-Lys, Dap, Dab, Orn, D-Orn, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me Lys,

<220>
<221> MISC FEATURE

<222> (12)..(12)

<223> (continued) D-Dap, D-Dab, D-His, F(4-COOH), Tic, D-Trp, D-Leu, D-Arg, D-Thr, N-Me-Glu, N-Me-Asp, alpha-H-Glu, suitable isosteres, and corresponding D-amino acids

<220>
<221> MISC FEATURE

<222> (13)..(13)

<223> absent or any amino acid

<220>
<221> MISC FEATURE

<222> (14)..(14)

<223> absent or any amino acid, or one of any amino acid with an amine side chain, Lys, D-Lys, N-Me-Lys, D-N-Me-Lys, Orn, N-Me-Orn, Dab, N-Me-Dab, Dap, N-Me-Dap, Homo-Lys, D-Dap, D-Dab, D-Orn, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys,

<220>
<221> MISC FEATURE

<222> (14)..(14)

<223> (continued) Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Glu, Cys, HomoCys, COOH, CONH2, suitable isosteres, corresponding D-amino acids, and corresponding N-Methyl amino acids

<400> 49

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 50

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Construct

<220>
<221> THIOETH
<222> (1)..(7)
<223> Thioether bond between Xaa at position 1 and Xaa at position 7

<220>
<221> MISC FEATURE
<222> (1)..(1)
<223> a 2-Me-benzoyl group capable of forming a thioether bond with xaa7

<220>
<221> MISC FEATURE
<222> (2)..(2)
<223> N(alpha)-Me-Arg, Arg, HArg, Dap, Dab, Arg-Me-sym, Arg-Me-asym, 4-Guan, Cit, Cav, or a suitable isostere replacement

<220>
<221> MISC FEATURE
<222> (3)..(3)
<223> selected from the group consisting of Ser, Gly, and suitable isostere replacements

<220>
<221> MISC FEATURE
<222> (4)..(4)
<223> selected from the group consisting of Asp, N-Me-Asp, Asp(OMe), D-Asp, and a suitable isostere replacements

<220>
<221> MISC FEATURE
<222> (5)..(5)
<223> selected from the group consisting of Thr, Gln, Ser, Asp, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Asn, Glu, Val, Tyr, Trp, Leu, Met, and N-Methyl amino acids including N-Me-Thr, and suitable isostere replacements

<220>
<221> MISC FEATURE
<222> (6)..(6)
<223> selected from the group consisting of Gln, Asn, Asp, Pro, Gly, Ala, Phe, Leu, Glu, Ile, Val, HLeu, n-Butyl Ala, n-Pentyl Ala, n-Hexyl Ala, Nle, cyclobutyl-Ala, N-Me-Leu, and suitable isostere replacements

<220>
<221> MISC FEATURE
<222> (7)..(7)
<223> selected from the group consisting of Cys, N-Me-Cys, D-Cys, HCys, Pen, and D-Pen

<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> absent or Gly, Gln, Asn, Asp, Ala, Ile, Leu, Val, Met, Thr, Lys, Trp, Tyr, His, Glu, Ser, Arg, Pro, Phe, Sar, 1-Nal, 2-Nal, HPhe, Phe(4-F), O-Me-Tyr, dihydro-Trp, Dap, Dab, Dab(Ac),

<220>
<221> MISC FEATURE
<222> (8)..(8)
<223> (continued) Orn, D-Orn, N-Me-Orn, N-Me-Dap, D-Dap, D-Dab, Bip, Ala(3,3diphenyl), Biphenyl-Ala, aromatic ring substituted Phe, aromatic ring substituted Trp, aromatic ring substituted His,

<220>

<221> MISC FEATURE
<222> (8)..(8)
<223> (continued) hetero aromatic amino acids, N-Me-Lys, N-Me-Lys(Ac), Bpa, Phe(3-Me), Phe(2-Me), Phe(2-CF3), -Me-Phe, 4-Me-Phe, and corresponding D-amino acids or suitable isostere replacements

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> absent or Glu, Amide, Lys, COOH, CONH2, Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, D-Glu, ?-HGLu, 2-Nal, 1-Nal, D-Asp, Bip, ?-HPhe, ?-Glu, D-Tyr, D-Lys, Dap,

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> (continued)Dab, Orn, D-Orn, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me Lys, D-Dap, D-Dab, Glu, N-Me-Asp, alpha-H-Glu, suitable isosteres, and corresponding D-amino acids

<220>
<221> MISC FEATURE
<222> (9)..(9)
<223> (continued)Dab, Orn, D-Orn, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me Lys, D-Dap, D-Dab, Glu, N-Me-Asp, alpha-H-Glu, suitable isosteres, and corresponding D-amino acids

<220>
<221> MISC FEATURE
<222> (10)..(10)
<223> absent or Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Glu, Dap, Dab, Orn, D-Orn, D-Lys, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres, and corresponding D-amino acids

<220>
<221> MISC FEATURE
<222> (11)..(11)
<223> absent or Gln, Pro, Gly, His, Ala, Ile, Phe, Lys, Arg, Leu, Val, Tyr, Trp, Met, Glu, Ser, Asn, Glu, Dap, Dab, Orn, D-Orn, D-Lys, N-Me-Orn, N-Me-Dap, N-Me-Dab, N-Me-Lys, D-Dap, D-Dab, COOH, CONH2, suitable isosteres, and corresponding D-amino acids

<400> 50

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10