<110> HANMI PHARM. CO., LTD.

<120> Therapeutic use of Trigonal glucagon/GLP-1/GIP receptor agonist
or a conjugate thereof for liver disease

<130> OPA20113

<150> KR 10-2019-0077776
<151> 2019-06-28

<150> KR 10-2020-0004379
<151> 2020-01-13

<150> KR 10-2020-0004386
<151> 2020-01-13

<150> KR 10-2020-0069219
<151> 2020-06-08

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<400> 1
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Asp Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Cys
20 25 30

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<400> 2
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Asp Gly
1 5 10 15

Gln Ala Gln Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Cys
20 25 30

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<223> Xaa is aminoisobutyric acid (Aib)

<400> 3
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Leu Gly
1 5 10 15

Gln Ala Ala Lys Gln Phe Ile Ala Trp Leu Val Lys Gly Gly Gly Pro
20 25 30

Ser Ser Gly Ala Pro Pro Pro Ser Cys
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<223> Xaa is aminoisobutyric acid (Aib)

<400> 4
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Leu Gly
1 5 10 15

Gln Gln Gln Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Cys
20 25 30

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<400> 5
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Leu Gly
1 5 10 15

Gln Gln Gln Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Gly Gly Pro
20 25 30

Ser Ser Gly Ala Pro Pro Pro Ser Cys
35 40

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<400> 6
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Asp Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Val Ala Trp Leu Leu Lys Gly Cys
20 25 30

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<223> Xaa is aminoisobutyric acid (Aib)

<400> 7
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Lys Tyr Leu Asp Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Val Ala Trp Leu Leu Lys Gly Cys
20 25 30

<210> 8
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<223> Xaa is aminoisobutyric acid (Aib)

<400> 8
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Lys Tyr Leu Asp Gly
1 5 10 15

Gln Ala Ala Gln Glu Phe Val Ala Trp Leu Leu Lys Gly Cys
20 25 30

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<400> 9
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Lys Tyr Leu Asp Gly
1 5 10 15

Gln Ala Ala Gln Glu Phe Val Ala Trp Leu Leu Ala Gly Cys
20 25 30

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<223> Xaa is aminoisobutyric acid (Aib)

<400> 10
His Xaa Gln Gly Thr Phe Thr Ser Asp Val Ser Lys Tyr Leu Asp Gly
1 5 10 15

Gln Ala Ala Gln Glu Phe Val Ala Trp Leu Leu Ala Gly Gly Gly Pro
20 25 30

Ser Ser Gly Ala Pro Pro Pro Ser Cys
35 40

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<400> 11
Xaa Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Tyr Leu Asp Ser
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

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<222> (1)

<223> Xaa is 4-imidazoacetyl (CA)

<400> 12
Xaa Gly Glu Gly Thr Phe Ile Ser Asp Leu Ser Lys Tyr Met Asp Glu
1 5 10 15

Gln Ala Val Gln Leu Phe Val Glu Trp Leu Met Ala Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

<210> 13
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<220>
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<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<400> 13
Xaa Gly Glu Gly Thr Phe Ile Ser Asp Tyr Ser Ile Gln Leu Asp Glu
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

<210> 14
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<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<400> 14
Xaa Gly Gln Gly Thr Phe Thr Ser Asp Tyr Ser Ile Gln Leu Asp Glu
1 5 10 15

Ile Ala Val Arg Asp Phe Val Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

<210> 15
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<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<400> 15
Xaa Gly Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Asp Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

<210> 16
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<220>
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<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<400> 16
Xaa Gly Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Asp Ser
1 5 10 15

Glu Ala Gln Gln Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

<210> 17
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<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<400> 17
Xaa Gly Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Asp Glu
1 5 10 15

Glu Arg Ala Arg Glu Phe Ile Glu Trp Leu Leu Ala Gln Lys Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

<210> 18
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<400> 18
Xaa Gly Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Asp Ser
1 5 10 15

Glu Arg Ala Arg Glu Phe Ile Glu Trp Leu Lys Asn Thr Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

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<400> 19
Xaa Gly Gln Gly Thr Phe Thr Ser Asp Leu Ser Ile Gln Tyr Asp Ser
1 5 10 15

Glu His Gln Arg Asp Phe Ile Glu Trp Leu Lys Asp Thr Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

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<400> 20
Xaa Gly Gln Gly Thr Phe Thr Ser Asp Leu Ser Ile Gln Tyr Glu Glu
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser His Gly
35 40

<210> 21
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<223> amino acids at positions 16 and 20 form a ring

<400> 21
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Cys Arg Ala Lys Glu Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
35

<210> 22
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 22
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Cys Leu Asp Glu
1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser
35

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<223> amino acids at positions 16 and 20 form a ring

<400> 23
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Cys Arg Ala Lys Glu Phe Val Gln Trp Leu Leu Ala Gln Lys Gly Lys
20 25 30

Lys Asn Asp Trp Lys His Asn Ile Thr
35 40

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<223> amino acids at positions 16 and 20 form a ring

<400> 24
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Cys Arg Ala Lys Glu Phe Val Gln Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

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<223> Xaa is aminoisobutyric acid (Aib)

<400> 25
His Xaa Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Leu Asp Glu
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
35

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<223> Xaa is aminoisobutyric acid (Aib)

<400> 26
His Xaa Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Leu Asp Ser
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
35

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<223> Xaa is aminoisobutyric acid (Aib)

<400> 27
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Arg Ala Cys Gln Asp Phe Val Gln Trp Leu Leu Asp Gln Gly Gly Pro
20 25 30

Ser Ser Gly Ala Pro Pro Pro Ser
35 40

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<223> Xaa is aminoisobutyric acid (Aib)

<400> 28
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Ala Gln Glu Phe Val Cys Trp Leu Leu Ala Gln Lys Gly Lys
20 25 30

Lys Asn Asp Trp Lys His Asn Ile Thr
35 40

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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 29
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Ala Ala Lys Glu Phe Val Gln Trp Leu Leu Asn Thr Cys
20 25 30

<210> 30
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<220>
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<222> (16)..(20)
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<400> 30
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Ala Gln Lys Glu Phe Val Gln Trp Leu Leu Asp Thr Cys
20 25 30

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<223> Xaa is aminoisobutyric acid (Aib)

<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 31
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Ala Cys Lys Glu Phe Val Gln Trp Leu Leu Ala Gln
20 25

<210> 32
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<220>
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<400> 32
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Ala Cys Lys Asp Phe Val Gln Trp Leu Leu Asp Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 33
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<220>
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<223> Xaa is aminoisobutyric acid (Aib)

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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 33
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Ile Ala Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Lys Cys
20 25 30

<210> 34
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<220>
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<223> Xaa is aminoisobutyric acid (Aib)

<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 34
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Gln Lys Glu Phe Val Asn Trp Leu Leu Ala Gln Lys Cys
20 25 30

<210> 35
<211> 31
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<223> Xaa is aminoisobutyric acid (Aib)

<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 35
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Ile Ala Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Asn Thr Lys Cys
20 25 30

<210> 36
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<223> Xaa is aminoisobutyric acid (Aib)

<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 36
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Cys Glu
1 5 10 15

Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser Gly
35 40

<210> 37
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<223> Xaa is aminoisobutyric acid (Aib)

<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 37
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Cys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser Gly
35 40

<210> 38
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<220>
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<223> Xaa is 4-imidazoacetyl (CA)

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<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<400> 38
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Lys Ser Ser Tyr Leu Asp Glu
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser Ser
35 40

<210> 39
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<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<400> 39
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Gly
1 5 10 15

Gln His Ala Gln Cys Phe Val Ala Trp Leu Leu Ala Gly Gly Gly Pro
20 25 30

Ser Ser Gly Ala Pro Pro Pro Ser
35 40

<210> 40
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<212> PRT
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<220>
<223> Trigonal agonist

<220>
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<222> (2)

<223> Xaa is aminoisobutyric acid (Aib)

<400> 40
His Xaa Gln Gly Thr Phe Thr Ser Asp Lys Ser Lys Tyr Leu Asp Glu
1 5 10 15

Arg Ala Cys Gln Asp Phe Val Gln Trp Leu Leu Asp Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 41
<211> 39
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<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<400> 41
His Xaa Gln Gly Thr Phe Thr Ser Asp Lys Ser Lys Tyr Leu Asp Glu
1 5 10 15

Cys Ala Ala Gln Asp Phe Val Gln Trp Leu Leu Asp Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 42
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<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>

<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 42
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 43
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 43
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Ala Lys Glu Phe Val Gln Trp Leu Leu Asp His His Cys Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
35

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

<220>
<223> Trigonal agonist

<400> 44
His Gly Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Gln Leu Asp Gly
1 5 10 15

Gln Ala Ala Gln Glu Phe Val Ala Trp Leu Leu Ala Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 45
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<400> 45
His Gly Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Met Asp Gly
1 5 10 15

Gln Ala Ala Gln Asp Phe Val Ala Trp Leu Leu Ala Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 46
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<220>

<223> Trigonal agonist

<400> 46
His Gly Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Leu Asp Glu
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
35

<210> 47
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<220>
<223> Trigonal agonist

<400> 47
His Gly Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Leu Asp Gly
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
35

<210> 48
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<212> PRT
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<220>
<223> Trigonal agonist

<400> 48
His Gly Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Leu Asp Gly
1 5 10 15

Gln Arg Ala Gln Asp Phe Val Asn Trp Leu Leu Ala Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 49
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<220>
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<220>
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<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<220>
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<223> Xaa is aminoisobutyric acid (Aib)

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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 49
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Ile Cys Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Asn Thr Lys
20 25 30

<210> 50
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<212> PRT
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<220>
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<222> (2)
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 50
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 51
<211> 30
<212> PRT
<213> Artificial Sequence

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<223> amino acids at positions 16 and 20 form a ring

<400> 51
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1 5 10 15

Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asn Thr Cys
20 25 30

<210> 52
<211> 30
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<400> 52
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asp Thr Cys
20 25 30

<210> 53
<211> 30
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<223> amino acids at positions 16 and 20 form a ring

<400> 53
His Xaa Glu Gly Thr Phe Thr Ser Asp Tyr Ser Ile Ala Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Cys
20 25 30

<210> 54
<211> 30
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1 5 10 15

Ile His Gln Lys Asp Phe Val Asp Trp Leu Leu Ala Glu Cys
20 25 30

<210> 55
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<400> 55
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1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Cys
20 25 30

<210> 56
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<400> 56
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1 5 10 15

Lys Arg Gln Lys Glu Phe Val Asn Trp Leu Leu Ala Gln Cys
20 25 30

<210> 57
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<223> amino acids at positions 16 and 20 form a ring

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1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Asn Thr Cys
20 25 30

<210> 58
<211> 31
<212> PRT
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<222> (16)..(20)
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<400> 58
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1 5 10 15

Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asn Thr Lys Cys

20 25 30

<210> 59
<211> 30
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<400> 59
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1 5 10 15

Lys His Gln Lys Asp Phe Val Asn Trp Leu Leu Asn Thr Lys
20 25 30

<210> 60
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20 25 30

<210> 61
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1 5 10 15

Ile Ala Cys Lys Asp Phe Val Asn Trp Leu Leu Asn Thr Lys
20 25 30

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<222> (2)
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<400> 62
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Lys Ser Lys Tyr Leu Asp Glu
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
35

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<400> 63
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Leu Asp Glu
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
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1 5 10 15

Cys Ala Ala Lys Glu Phe Val Gln Trp Leu Leu Asp His His Pro Ser

20 25 30

Ser Gly Gln Pro Pro Pro Ser
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Ser Gly Gln Pro Pro Pro Ser
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<400> 66
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Cys Arg Ala Lys Asp Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
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1 5 10 15

Cys Ala Ala Lys Asp Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
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<210> 68
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1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser
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<210> 69
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<400> 69
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1 5 10 15

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20 25 30

Ser Gly Gln Pro Pro Pro Ser
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<210> 70
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<400> 70
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1 5 10 15

Lys Arg Ala Lys Asp Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
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<210> 71
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<223> amino acids at positions 16 and 20 form a ring

<400> 71
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Arg Ala Cys Lys Asp Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
35

<210> 72
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<212> PRT
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 72
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Cys Ser Lys Tyr Leu Asp Glu
1 5 10 15

Arg Ala Ala Lys Asp Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
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<211> 39
<212> PRT
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<400> 73
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Cys Arg Ala Lys Glu Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
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<210> 74
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Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Cys Leu Asp Glu
1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser
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1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 76
<211> 40
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1 5 10 15

Lys Arg Ala Lys Asp Phe Val Gln Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 77
<211> 40
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1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 78
<211> 31
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Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asp Thr Lys Cys
20 25 30

<210> 79
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1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Lys Cys
20 25 30

<210> 80
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<400> 80
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1 5 10 15

Ile His Gln Lys Asp Phe Val Asp Trp Leu Leu Ala Glu Lys Cys
20 25 30

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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

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1 5 10 15

Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asn Thr Cys
20 25 30

<210> 82
<211> 30
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<223> amino acids at positions 16 and 20 form a ring

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Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asp Thr Cys
20 25 30

<210> 83
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<212> PRT

<213> Artificial Sequence

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<400> 83
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1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Cys
20 25 30

<210> 84
<211> 30
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<223> amino acids at positions 16 and 20 form a ring

<400> 84
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1 5 10 15

Ile His Gln Lys Asp Phe Val Asp Trp Leu Leu Ala Glu Cys
20 25 30

<210> 85
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<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 85
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1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Cys
20 25 30

<210> 86
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<220>
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<223> amino acids at positions 16 and 20 form a ring

<400> 86
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Gln Lys Glu Phe Val Asn Trp Leu Leu Ala Gln Cys
20 25 30

<210> 87
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<212> PRT
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<223> amino acids at positions 16 and 20 form a ring

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1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Asn Thr Cys
20 25 30

<210> 88
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1 5 10 15

Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asn Thr Lys Cys
20 25 30

<210> 89
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<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 89
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Gln Lys Glu Phe Val Gln Trp Leu Leu Asp Thr Lys Cys
20 25 30

<210> 90
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
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<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 90
Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Tyr Ser Ile Ala Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Lys Cys
20 25 30

<210> 91
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<220>
<221> MISC_FEATURE

<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 91
Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Tyr Ser Ile Ala Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asp Trp Leu Leu Ala Glu Lys Cys
20 25 30

<210> 92
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 92
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Ile Ala Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Ala Gln Lys Cys
20 25 30

<210> 93
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 93
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Gln Lys Glu Phe Val Asn Trp Leu Leu Ala Gln Lys Cys
20 25 30

<210> 94
<211> 31
<212> PRT
<213> Artificial Sequence

<220>

<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is 4-imidazoacetyl (CA)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 94
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Ile Ala Met Asp Glu
1 5 10 15

Ile His Gln Lys Asp Phe Val Asn Trp Leu Leu Asn Thr Lys Cys
20 25 30

<210> 95
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 95
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Ala Lys Glu Phe Val Gln Trp Leu Leu Cys His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
35

<210> 96
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 96
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Ala Lys Glu Phe Val Gln Trp Leu Leu Asp His Cys Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
35

<210> 97
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 97
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Lys Arg Ala Lys Glu Phe Val Gln Trp Leu Leu Asp Cys His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser
35

<210> 98
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 98
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Ala Leu Asp Glu

1 5 10 15

Lys Ala Ala Lys Glu Phe Val Asn Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 99
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
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<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 99
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Ala Leu Asp Glu
1 5 10 15

Lys Ala Ala Lys Asp Phe Val Asn Trp Leu Leu Asp His His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 100
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 100
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Ala Leu Asp Glu
1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 101
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 101
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Ala Leu Asp Glu
1 5 10 15

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

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 102
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Trigonal agonist

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

<220>
<221> MISC_FEATURE
<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 102
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Ala Leu Asp Glu
1 5 10 15

Lys Ala Ala Lys Asp Phe Val Asn Trp Leu Leu Asp Gln His Pro Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser Cys
35 40

<210> 103
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> General Formula 1

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is His (H), 4-imidazoacetyl (CA), or Tyr (Y)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is Gly (G), alpha-methyl-glutamic acid, or Aib
(aminoisobutyric acid)

<220>
<221> MISC_FEATURE
<222> (3)
<223> Xaa is Glu (E) or Gln (Q)

<220>
<221> MISC_FEATURE
<222> (7)
<223> Xaa is Thr (T) or Ile (I)

<220>
<221> MISC_FEATURE
<222> (10)
<223> Xaa is Leu (L), Tyr (Y), Lys (K), Cys (C), or Val (V)

<220>
<221> MISC_FEATURE
<222> (12)
<223> Xaa is Lys (K), Ser (S), or Ile (I)

<220>
<221> MISC_FEATURE
<222> (13)
<223> Xaa is Gln (Q), Tyr (Y), Ala (A), or Cys (C)

<220>
<221> MISC_FEATURE
<222> (14)
<223> Xaa is Leu (L), Met (M), or Tyr (Y)

<220>
<221> MISC_FEATURE
<222> (15)
<223> Xaa is Cys (C), Asp (D), Glu (E), or Leu (L)

<220>
<221> MISC_FEATURE
<222> (16)
<223> Xaa is Gly (G), Glu (E), or Ser (S)

<220>
<221> MISC_FEATURE
<222> (17)
<223> Xaa is Gln (Q), Arg (R), Ile (I), Glu (E), Cys (C), or Lys (K)

<220>
<221> MISC_FEATURE
<222> (18)
<223> Xaa is Ala (A), Gln (Q), Arg (R), or His (H)

<220>
<221> MISC_FEATURE
<222> (19)
<223> Xaa is Ala (A), Gln (Q), Cys (C), or Val (V)

<220>
<221> MISC_FEATURE
<222> (20)
<223> Xaa is Lys (K), Gln (Q), or Arg (R)

<220>
<221> MISC_FEATURE
<222> (21)
<223> Xaa is Glu (E), Gln (Q), Leu (L), Cys (C), or Asp (D)

<220>
<221> MISC_FEATURE
<222> (23)
<223> Xaa is Ile (I) or Val (V)

<220>
<221> MISC_FEATURE
<222> (24)
<223> Xaa is Ala (A), Gln (Q), Cys (C), Asn (N), Asp (D), or Glu (E)

<220>

<221> MISC_FEATURE
<222> (27)
<223> Xaa is Val (V), Leu (L), Lys (K), or Met (M)

<220>
<221> MISC_FEATURE
<222> (28)
<223> Xaa is Cys (C), Lys (K), Ala (A), Asn (N), or Asp (D)

<220>
<221> MISC_FEATURE
<222> (29)
<223> Xaa is Cys (C), Gly (G), Gln (Q), Thr (T), Glu (E), or His (H)

<220>
<221> MISC_FEATURE
<222> (30)
<223> Xaa is Cys (C), Gly (G), Lys (K), or His (H), or is absent; and
Xaa can be further linked to R1, wherein R1 is Cys (C),
GKKNDWKHNIT, m-SSGAPPPS-n, or m-SSGQPPPS-n, or is absent, and
wherein m is -Cys-, -Pro-, or -Gly-Pro-, and n is -Cys-, -Gly-,
-Ser-, or -His

<400> 103
Xaa Xaa Xaa Gly Thr Phe Xaa Ser Asp Xaa Ser Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Phe Xaa Xaa Trp Leu Xaa Xaa Xaa Xaa
20 25 30

<210> 104
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> General Formula 2

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is His (H), 4-imidazoacetyl (CA), or Tyr (Y)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is Gly (G), alpha-methyl-glutamic acid, or Aib (aminoisobutyric acid)

<220>
<221> MISC_FEATURE
<222> (10)
<223> Xaa is Tyr (Y) or Cys (C)

<220>
<221> MISC_FEATURE
<222> (13)
<223> Xaa is Gln (Q), Tyr (Y), Ala (A), or Cys (C)

<220>
<221> MISC_FEATURE
<222> (14)
<223> Xaa is Leu (L), Met (M), or Tyr (Y)

<220>
<221> MISC_FEATURE
<222> (15)
<223> Xaa is Asp (D), Glu (E), or Leu (L)

<220>
<221> MISC_FEATURE
<222> (16)
<223> Xaa is Gly (G), Glu (E), or Ser (S)

<220>
<221> MISC_FEATURE
<222> (17)
<223> Xaa is Gln (Q), Arg (R), Ile (I), Glu (E), Cys (C), or Lys (K)

<220>
<221> MISC_FEATURE
<222> (18)
<223> Xaa is Ala (A), Gln (Q), Arg (R), or His (H)

<220>

<221> MISC_FEATURE
<222> (19)
<223> Xaa is Ala (A), Gln (Q), Cys (C), or Val (V)

<220>
<221> MISC_FEATURE
<222> (20)
<223> Xaa is Lys (K), Gln (Q), or Arg (R)

<220>
<221> MISC_FEATURE
<222> (21)
<223> Xaa is Glu (E), Gln (Q), Leu (L), Cys (C), or Asp (D)

<220>
<221> MISC_FEATURE
<222> (23)
<223> Xaa is Ile (I) or Val (V)

<220>
<221> MISC_FEATURE
<222> (24)
<223> Xaa is Ala (A), Gln (Q), Cys (C), Asn (N), or Glu (E)

<220>
<221> MISC_FEATURE
<222> (28)
<223> Xaa is Cys (C), Lys (K), Asn (N), or Asp (D)

<220>
<221> MISC_FEATURE
<222> (29)
<223> Xaa is Cys (C), Gly (G), Gln (Q), or His (H)

<220>
<221> MISC_FEATURE
<222> (30)
<223> Xaa is Cys (C), Gly (G), Lys (K), or His (H)

<220>
<221> MISC_FEATURE
<222> (31)

<223> Xaa is Pro (P) or Cys (C)

<220>
<221> MISC_FEATURE
<222> (40)
<223> Xaa is Cys (C), or is absent

<400> 104
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Xaa Ser Lys Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Phe Xaa Xaa Trp Leu Leu Xaa Xaa Xaa Xaa Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser Xaa
35 40

<210> 105
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> General Formula 3

<220>
<221> MISC_FEATURE
<222> (1)
<223> Xaa is His (H) or Tyr (Y)

<220>
<221> MISC_FEATURE
<222> (2)
<223> Xaa is alpha-methyl-glutamic acid, or Aib (aminoisobutyric acid)

<220>
<221> MISC_FEATURE
<222> (13)
<223> Xaa is Tyr (Y), Ala (A), or Cys (C)

<220>
<221> MISC_FEATURE
<222> (17)

<223> Xaa is Arg (R), Cys (C), or Lys (K)

<220>
<221> MISC_FEATURE
<222> (18)
<223> Xaa is Ala (A) or Arg (R)

<220>
<221> MISC_FEATURE
<222> (19)
<223> Xaa is Ala (A) or Cys (C)

<220>
<221> MISC_FEATURE
<222> (21)
<223> Xaa is Glu (E) or Asp (D)

<220>
<221> MISC_FEATURE
<222> (24)
<223> Xaa is Gln (Q) or Asn (N)

<220>
<221> MISC_FEATURE
<222> (28)
<223> Xaa is Cys (C) or Asp (D)

<220>
<221> MISC_FEATURE
<222> (29)
<223> Xaa is Cys (C), Gln (Q), or His (H)

<220>
<221> MISC_FEATURE
<222> (30)
<223> Xaa is Cys (C) or His (H)

<220>
<221> MISC_FEATURE
<222> (31)
<223> Xaa is Pro (P) or Cys (C)

<220>
<221> MISC_FEATURE
<222> (40)
<223> Xaa is Cys (C), or is absent

<400> 105
Xaa Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Xaa Leu Asp Glu
1 5 10 15

Xaa Xaa Xaa Lys Xaa Phe Val Xaa Trp Leu Leu Xaa Xaa Xaa Xaa Ser
20 25 30

Ser Gly Gln Pro Pro Pro Ser Xaa
35 40

<210> 106
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 106
Gly Lys Lys Asn Asp Trp Lys His Asn Ile Thr
1 5 10

<210> 107
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 107
Ser Ser Gly Ala Pro Pro Pro Ser
1 5

<210> 108
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 108
Ser Ser Gly Gln Pro Pro Pro Ser
1 5

<210> 109
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 109
Cys Ser Ser Gly Gln Pro Pro Pro Ser
1 5

<210> 110
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 110
Gly Pro Ser Ser Gly Ala Pro Pro Pro Ser
1 5 10

<210> 111
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 111
Gly Pro Ser Ser Gly Ala Pro Pro Pro Ser Cys
1 5 10

<210> 112
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 112
Pro Ser Ser Gly Ala Pro Pro Pro Ser
1 5

<210> 113
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 113
Pro Ser Ser Gly Ala Pro Pro Pro Ser Gly
1 5 10

<210> 114
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 114
Pro Ser Ser Gly Ala Pro Pro Pro Ser His Gly
1 5 10

<210> 115
<211> 10
<212> PRT
<213> Artificial Sequence

<220>

<223> R1

<400> 115
Pro Ser Ser Gly Ala Pro Pro Pro Ser Ser
1 5 10

<210> 116
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 116
Pro Ser Ser Gly Gln Pro Pro Pro Ser
1 5

<210> 117
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> R1

<400> 117
Pro Ser Ser Gly Gln Pro Pro Pro Ser Cys
1 5 10

<210> 118
<211> 29
<212> PRT
<213> Homo sapiens

<400> 118
His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Ser
1 5 10 15

Arg Arg Ala Gln Asp Phe Val Gln Trp Leu Met Asn Thr
20 25

<210> 119

<211> 12
<212> PRT
<213> HOMO SAPIENS

<400> 119
Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro
1 5 10

<210> 120
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 120
Glu Ser Lys Tyr Gly Pro Pro Pro Ser Cys Pro
1 5 10

<210> 121
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 121
Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Pro
1 5 10

<210> 122
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 122
Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser
1 5 10

<210> 123
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 123
Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro
1 5 10

<210> 124
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 124
Lys Tyr Gly Pro Pro Cys Pro Ser
1 5

<210> 125
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 125
Glu Ser Lys Tyr Gly Pro Pro Cys
1 5

<210> 126
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 126
Glu Lys Tyr Gly Pro Pro Cys
1 5

<210> 127
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 127
Glu Ser Pro Ser Cys Pro
1 5

<210> 128
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 128
Glu Pro Ser Cys Pro
1 5

<210> 129
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 129
Pro Ser Cys Pro
1

<210> 130

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

<220>
<223> Variant of hinge region

<400> 130
Glu Ser Lys Tyr Gly Pro Pro Ser Cys Pro
1 5 10

<210> 131
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 131
Lys Tyr Gly Pro Pro Pro Ser Cys Pro
1 5

<210> 132
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 132
Glu Ser Lys Tyr Gly Pro Ser Cys Pro
1 5

<210> 133
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 133
Glu Ser Lys Tyr Gly Pro Pro Cys
1 5

<210> 134
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 134
Lys Tyr Gly Pro Pro Cys Pro
1 5

<210> 135
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 135
Glu Ser Lys Pro Ser Cys Pro
1 5

<210> 136
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 136
Glu Ser Pro Ser Cys Pro
1 5

<210> 137
<211> 4
<212> PRT

<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 137
Glu Pro Ser Cys
1

<210> 138
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 138
Ser Cys Pro
1

<210> 139
<211> 221
<212> PRT
<213> homo sapiens

<400> 139
Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu
1 5 10 15

Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu
20 25 30

Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln
35 40 45

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

Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu
65 70 75 80

Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
85 90 95

Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys

100 105 110

Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
115 120 125

Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
130 135 140

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
145 150 155 160

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

Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln
180 185 190

Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
195 200 205

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
210 215 220