

<110> HANMI PHARM. CO., LTD.
<120> Composition for Treating Diabetes Mellitus Comprising Insulin and a
GLP-1/glucagon dual agonist
<130> OPA15084-PCT
<150> KR10-2014-0066554
<151> 2014-05-30
<160> 72
<170> KopatentIn 2.0
<210> 1
<211> 39
<212> DNA
<213> Artificial Sequence
<220>
<223> Primer

<400> 1
gggtccctgc agaagcgtgc gattgtggaa caatgctgt 39

<210> 2
<211> 39
<212> DNA
<213> Artificial Sequence
<220>
<223> Primer

<400> 2
acagcattgt tccacaatcg cacgcttctg cagggaccc 39

<210> 3
<211> 39
<212> DNA
<213> Artificial Sequence
<220>
<223> Primer

<400> 3

tccctgcaga agcgtggcgc ggtggaacaa tgctgtacc 39

<210> 4
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 4
ggtacagcat tgttccaccg cgccacgctt ctgcaggga 39

<210> 5
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 5
ctctaccagc tggaaaacgc gtgtaactga ggatcc 36

<210> 6
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 6
ggatcctcag ttacacgcgt tttccagctg gtagag 36

<210> 7
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 7
gttaaccaac acttgtgtgc gtcacacctg gtggaagct 39

<210> 8
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 8
agcttccacc aggtgtgacg cacacaagtg ttggttaac 39

<210> 9
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 9
ctagtgtgcg gggaacgagc gttcttctac acacccaag 39

<210> 10
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 10
cttgggtgtg tagaagaacg ctcgttcccc gcacactag 39

<210> 11
<211> 39
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer

<400> 11
gtgtgcgggg aacgaggcgc gttctacaca cccaagacc 39

<210> 12
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 12
ggtcttgggt gtgtagaacg cgcctcggtc cccgcacac 39

<210> 13
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 13
tgcggggaac gaggcttcgc gtacacaccc aagaccgc 39

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

<220>
<223> Primer

<400> 14
gcgggtcttg ggtgtgtacg cgaagcctcg ttccccgca 39

<210> 15
<211> 37
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer

<400> 15

ccagcatctg ctccctcgaa cagctggaga actactg

37

<210> 16

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 16

cagtagttct ccagctgttc gagggagcag atgctgg

37

<210> 17

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 17

cagcatctgc tccctcaacc agctggagaa ctac

34

<210> 18

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 18

gtagttctcc agctggttga gggagcagat gctg

34

<210> 19

<211> 258

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 1

<400> 19
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtgcgat tgtggaacaa tgctgtacca gcatctgctc cctctaccag 240
ctggagaact actgcaac 258

<210> 20
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 1

<400> 20
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Ala Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 21
<211> 258

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 2

<400> 21
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcgc ggtggaacaa tgctgtacca gcatctgctc cctctaccag 240
ctggagaact actgcaac 258

<210> 22
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 2

<400> 22
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ala Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 23
<211> 258

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 3

<400> 23
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctctaccag 240
ctggagaacg cgtgcaac 258

<210> 24
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 3

<400> 24
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln
65 70 75 80
Leu Glu Asn Ala Cys Asn
85

<210> 25
<211> 258

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 4

<400> 25
ttcgttaacc aacacttggtg tgcgtcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctctaccag 240
ctggagaact actgcaac 258

<210> 26
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 4

<400> 26
Phe Val Asn Gln His Leu Cys Ala Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 27
<211> 258

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 5

<400> 27
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgagcgt tcttctacac acccaagacc cgccgggagg cagaggacct gcaggtgggg 120
caggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctctaccag 240
ctggagaact actgcaac 258

<210> 28
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 5

<400> 28
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Ala Phe Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 29
<211> 258

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 6

<400> 29
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggcg cgttctacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctctaccag 240
ctggagaact actgcaac 258

<210> 30
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 6

<400> 30
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Ala Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 31
<211> 258

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 7

<400> 31
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggct tcgcgtacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctctaccag 240
ctggagaact actgcaac 258

<210> 32
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 7

<400> 32
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Ala Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 33
<211> 261

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 8

<400> 33
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctcgaacag 240
ctggagaact actgcaactg a 261

<210> 34
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 8

<400> 34
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Glu Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 35
<211> 261

<212> DNA
<213> Artificial Sequence

<220>
<223> Analog 9

<400> 35
ttcgttaacc aacacttggtg tggctcacac ctggtggaag ctctctacct agtgtgcggg 60
gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcagggtgggg 120
cagggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180
tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctcaaccag 240
ctggagaact actgcaactg a 261

<210> 36
<211> 86
<212> PRT
<213> Artificial Sequence

<220>
<223> Analog 9

<400> 36
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Arg
20 25 30
Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro
35 40 45
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys
50 55 60
Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Asn Gln
65 70 75 80
Leu Glu Asn Tyr Cys Asn
85

<210> 37
<211> 21

<212> PRT
<213> Artificial Sequence

<220>
<223> A chain of insulin

<400> 37
Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15
Glu Asn Tyr Cys Asn
20

<210> 38
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> B chain of insulin

<400> 38
Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15
Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr
20 25 30

<210> 39
<211> 37
<212> PRT
<213> oxyntomodulin

<400> 39
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 Lys Arg Asn
20 25 30

Arg Asn Asn Ile Ala
35

<210> 40
<211> 30
<212> PRT

<213> oxyntomodulin derivative

<220>

<221> VARIANT

<222> (2)

<223> Xaa = aminoisobutyric acid

<400> 40

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 Met Asn Thr Cys
20 25 30

<210> 41

<211> 37

<212> PRT

<213> oxyntomodulin derivative

<220>

<221> VARIANT

<222> (1)

<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 41

His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Met Asn Thr Lys Arg Asn
20 25 30

Arg Asn Asn Ile Ala
35

<210> 42

<211> 39

<212> PRT

<213> oxyntomodulin derivative

<220>

<221> VARIANT

<222> (1)

<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 42

His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu

1	5	10	15
Arg	Arg	Ala	Gln
20	Asp	Phe	Val
	Ala	Trp	Leu
	25	Lys	Asn
		Thr	Gly
			30
			Pro
			Ser

Ser	Gly	Ala	Pro	Pro	Pro	Ser
		35				

<210> 43
 <211> 39
 <212> PRT
 <213> oxyntomodulin derivative

<220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

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

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
		35				

<210> 44
 <211> 39
 <212> PRT
 <213> oxyntomodulin derivative

<220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400>	44
His	Gly
1	Gln
	Gly
	Thr
	5
	Phe
	Thr
	Ser
	Asp
	10
	Tyr
	Ser
	Arg
	Gln
	15
	Met
	Glu
	Glu

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
-----	-----	-----	-----	-----	-----	-----

35

<210> 45
<211> 42
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 45
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Arg Gln Met Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Ala Ala His Ser Gln Gly Thr
20 25 30
Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp
35 40

<210> 46
<211> 30
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 46
His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Met Asn Thr Lys
20 25 30

<210> 47
<211> 29
<212> PRT
<213> oxyntomodulin derivative

<220>

<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 47
His Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Arg Gln Leu Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Met Asn Lys
20 25

<210> 48
<211> 37
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<220>
<221> VARIANT
<222> (20)
<223> Xaa = aminoisobutyric acid

<400> 48
His Gly Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
1 5 10 15
Glu Ala Val Xaa Leu Phe Ile Glu Trp Leu Met Asn Thr Lys Arg Asn
20 25 30

Arg Asn Asn Ile Ala
35

<210> 49
<211> 40
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 49
His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Gln Met Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Met Asn Gly Gly Pro Ser
20 25 30
Ser Gly Ala Pro Pro Pro Ser Lys
35 40

<210> 50
<211> 43
<212> PRT
<213> oxyntomodulin derivative
<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 50
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Arg Gln Met Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Ala Ala His Ser Gln Gly Thr
20 25 30
Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Lys
35 40

<210> 51
<211> 38
<212> PRT
<213> oxyntomodulin derivative
<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 51
His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Gly
1 5 10 15

Gly Gly His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met
 20 25 30

Glu Glu Glu Ala Val Lys
 35

<210> 52
 <211> 30
 <212> PRT
 <213> oxyntomodulin derivative

 <220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<220>
 <221> VARIANT
 <222> (16)
 <223> Xaa = aminoisobutyric acid

<220>
 <221> VARIANT
 <222> (20)
 <223> Xaa = aminoisobutyric acid

<400> 52
 His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Xaa
 1 5 10 15

Glu Ala Val Xaa Leu Phe Ile Glu Trp Leu Met Asn Thr Lys
 20 25 30

<210> 53
 <211> 37
 <212> PRT
 <213> oxyntomodulin derivative

 <220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<220>

<221> VARIANT
<222> (20)
<223> Xaa = aminoisobutyric acid

<220>
<221> VARIANT
<222> (24)
<223> Xaa = aminoisobutyric acid

<400> 53
His Gly Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
1 5 10 15

Glu Ala Val Xaa Leu Phe Ile Xaa Trp Leu Met Asn Thr Lys Arg Asn
20 25 30

Arg Asn Asn Ile Ala
35

<210> 54
<211> 37
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<220>
<221> VARIANT
<222> (24)
<223> Xaa = aminoisobutyric acid

<400> 54
His Gly Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Xaa Trp Leu Met Asn Thr Lys Arg Asn
20 25 30

Arg Asn Asn Ile Ala
35

<210> 55
 <211> 34
 <212> PRT
 <213> oxyntomodulin derivative

 <220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 55
 His Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Arg Gln Leu Glu Gly
 1 5 10 15
 Gly Gly His Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Arg Gln Leu
 20 25 30
 Glu Lys

<210> 56
 <211> 37
 <212> PRT
 <213> oxyntomodulin derivative

 <220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 56
 His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
 1 5 10 15
 Glu Ala Val Arg Leu Phe Ile Glu Trp Ile Arg Asn Thr Lys Arg Asn
 20 25 30
 Arg Asn Asn Ile Ala
 35

<210> 57
 <211> 40
 <212> PRT
 <213> oxyntomodulin derivative

 <220>

<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 57
His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Ile Arg Asn Gly Gly Pro Ser
20 25 30
Ser Gly Ala Pro Pro Pro Ser Lys
35 40

<210> 58
<211> 37
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 58
His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
1 5 10 15
Glu Ala Val Lys Leu Phe Ile Glu Trp Ile Arg Asn Thr Lys Arg Asn
20 25 30
Arg Asn Asn Ile Ala
35

<210> 59
<211> 40
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 59

His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Tyr Leu Asp Glu
 1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser Lys
 35 40

<210> 60
 <211> 37
 <212> PRT
 <213> oxyntomodulin derivative

<220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<400> 60
 His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Arg Gln Leu Glu Glu
 1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Val Arg Asn Thr Lys Arg Asn
 20 25 30

Arg Asn Asn Ile Ala
 35

<210> 61
 <211> 30
 <212> PRT
 <213> oxyntomodulin derivative

<220>
 <221> VARIANT
 <222> (1)
 <223> This "H" refers a derivative of histidine, desamino-histidyl.

<400> 61
 His Ser 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 Met Asn Thr Lys
 20 25 30

<210> 62
<211> 29
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (2)
<223> Xaa = aminoisobutyric acid

<400> 62
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 Cys Trp Leu Met Asn Thr
20 25

<210> 63
<211> 30
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (2)
<223> Xaa = aminoisobutyric acid

<400> 63
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 Met Asn Thr Cys
20 25 30

<210> 64
<211> 30
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (2)
<223> Xaa = aminoisobutyric acid

<400> 64
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 Met Asn Thr Cys
20 25 30

<210> 65
<211> 29
<212> PRT
<213> oxyntomodulin derivative'

<220>
<221> VARIANT
<222> (2)
<223> Xaa = aminoisobutyric acid

<400> 65
His Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Cys Trp Leu Met Asn Thr
20 25

<210> 66
<211> 29
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (2)
<223> Xaa = aminoisobutyric acid

<400> 66
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 Met Asn Thr
20 25

<210> 67
<211> 37
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (2)
<223> This "S" refers a variant of serine, d-serine.

<400> 67
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 Lys Arg Asn
20 25 30
Arg Asn Asn Ile Ala
35

<210> 68
<211> 37
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl

<400> 68
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 Lys Arg Asn
20 25 30
Arg Asn Asn Ile Ala
35

<210> 69
<211> 37
<212> PRT
<213> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl

<220>
<221> VARIANT
<222> (2)
<223> This "S" refers a variant of serine, d-serine.

<400> 69
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 Lys Arg Asn
20 25 30
Arg Asn Asn Ile Ala
35

<210> 70
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> oxyntomodulin derivative

<220>
<221> VARIANT
<222> (1)
<223> This "H" refers a derivative of histidine, 4-imidazoacetyl.

<220>
<221> VARIANT
<222> (2)
<223> Xaa = aminoisobutyric acid

<400> 70
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 Met Asn Thr Cys
20 25 30

<210> 71
<211> 30
<212> PRT

<213> Artificial Sequence

<220>

<223> oxyntomodulin derivative

<220>

<221> VARIANT

<222> (2)

<223> Xaa = aminoisobutyric acid

<400> 71

His	Xaa	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Tyr	Ala	Lys	Tyr	Leu	Asp	Glu
1				5					10					15	

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

<210> 72

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> oxyntomodulin derivative

<220>

<221> VARIANT

<222> (2)

<223> Xaa = aminoisobutyric acid

<400> 72

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	Met	Asn	Thr	Cys
			20				25						30