

<110> HANMI PHARM. CO., LTD.
 <120> Therapeutic use of glucagon derivative or conjugate thereof
 for liver disease
 <130> OPA21228-PCT
 <150> KR 10-2020-0087684
 <151> 2020-07-15
 <160> 70
 <170> KoPatentIn 3.0
 <210> 1
 <211> 29
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 <213> homo sapiens
 <400> 1
 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
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 <213> Artificial Sequence
 <220>
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 His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Cys
 1 5 10 15
 Asp Arg Ala Gln Asp Phe Val Gln Trp Leu Met Asn Thr
 20 25
 <210> 3
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<223> glucagon derivative

<400> 3

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

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

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<211> 29

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<213> Artificial Sequence

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<223> glucagon derivative

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

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

<210> 5

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> glucagon derivative

<400> 5

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

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

<210> 6

<211> 29

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<213> Artificial Sequence

<220>

<223> glucagon derivative

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

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

<210> 7

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<223> glucagon derivative

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

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

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<220>

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<221> MISC_FEATURE

<222> (2)

<223> Xaa is aminoisobutyric acid (Aib)

<400> 8

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

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

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

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

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

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<223> Xaa is aminoisobutyric acid (Aib)

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

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

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

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

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

<210> 12
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 12
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

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<222> (2)
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<400> 13
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Cys Tyr Leu Asp Ser
1 5 10 15

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

<210> 14
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<220>
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<400> 14
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Cys
1 5 10 15

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

<210> 15
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<222> (2)
<223> Xaa is aminoisobutyric acid (Aib)

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

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

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<222> (2)
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<400> 16
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Cys
1 5 10 15

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

<210> 17
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 <222> (2)
 <223> Xaa is aminoisobutyric acid (Aib)

<400> 17
 Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Cys
 1 5 10 15
 Val Arg Ala Gln Asp Phe Val Gln Trp Leu Met Arg Thr
 20 25

<210> 18
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 <222> (2)
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<400> 18
 Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Ser
 1 5 10 15
 Arg Arg Ala Cys Asp Phe Arg Leu Trp Leu Met Asn Thr
 20 25

<210> 19
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<220>
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<220>
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<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> 19

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

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

<210> 20

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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> 20

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 Met Asn Thr
20 25

<210> 21

<211> 29

<212> PRT

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<222> (16)..(20)
<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

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

<210> 22
<211> 29
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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 Tyr Leu Asp Glu
1 5 10 15

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

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<222> (16)..(20)
<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 Cys Asp Glu
1 5 10 15

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

<210> 24
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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> 24
 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 Met Asn Thr
 20 25

<210> 25
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<220>
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 <222> (16)..(20)
 <223> amino acids at positions 16 and 20 form a ring

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

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

<210> 26
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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> 26
 Trp 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 Met Asn Thr
 20 25

<210> 27
 <211> 29
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 <222> (16)..(20)
 <223> amino acids at positions 16 and 20 form a ring

<400> 27
 Tyr Xaa Gln Gly Thr Phe Val Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
 1 5 10 15
 Cys Arg Ala Lys Asp Phe Val Gln Trp Leu Met Asn Thr
 20 25

<210> 28

<211> 29
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 <213> Artificial Sequence

<220>
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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> 28
 Trp Xaa Gln Gly Thr Phe Val Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
 1 5 10 15
 Cys Arg Ala Lys Asp Phe Val Gln Trp Leu Met Asn Thr
 20 25

<210> 29
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 <222> (16)..(20)
 <223> amino acids at positions 16 and 20 form a ring

<400> 29

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

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

<210> 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> 30
 Trp Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Cys Leu Asp Glu
 1 5 10 15

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

<210> 31
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 <222> (2)
 <223> Xaa is aminoisobutyric acid (Aib)

<220>
 <221> MISC_FEATURE
 <222> (17)..(21)
 <223> amino acids at positions 17 and 21 form a ring

<400> 31
 Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Cys
 1 5 10 15
 Lys Arg Ala Lys Glu Phe Val Gln Trp Leu Met Asn Thr
 20 25

<210> 32
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 <212> PRT
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<220>
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<220>
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 <222> (15)..(19)
 <223> amino acids at positions 15 and 19 form a ring

<400> 32
 Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu Cys
 1 5 10 15
 Arg Ala Lys Glu Phe Val Gln Trp Leu Met Asn Thr
 20 25

<210> 33
 <211> 29
 <212> PRT
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<220>
 <223> glucagon derivative

<220>
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 <222> (2)

<223> Xaa is aminoisobutyric acid (Aib)

<400> 33

Tyr Xaa 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> 34

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> glucagon derivative

<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> 34

Trp Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Cys Asp Glu
1 5 10 15

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

<210> 35

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> glucagon derivative

<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> 35
 Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Cys Asp Glu
 1 5 10 15

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

<210> 36
 <211> 29
 <212> PRT
 <213> Artificial Sequence

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

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

<210> 37
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<212> PRT
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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> 37
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
1 5 10 15

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

<210> 38
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<212> PRT
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<220>
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<222> (16)..(20)
<223> amino acids at positions 16 and 20 form a ring

<400> 38
Tyr Xaa Gln Gly Thr Phe Cys Ser Asp Tyr Ser Lys Tyr Leu Asp Glu

1	5	10	15
Arg Arg Ala Lys Glu Phe Val Gln Trp Leu Met Asn Thr			
20		25	

<210> 39
 <211> 29
 <212> PRT
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<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>	39
Tyr Xaa Gln Gly Thr Phe Val Ser Asp Cys Ser Lys Tyr Leu Asp Glu	
1	5 10 15

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

<210> 40
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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> 40
 Tyr Xaa Gln Gly Thr Phe Val Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
 1 5 10 15
 Arg Arg Ala Lys Asp Phe Val Gln Trp Leu Met Asn Thr Cys
 20 25 30

<210> 41
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<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> 41
 Tyr Xaa Gln Gly Thr Phe Cys Ser Asp Tyr Ser Lys Tyr Leu Asp Glu
 1 5 10 15
 Arg Arg Ala Lys Asp Phe Val Gln Trp Leu Met Asn Thr
 20 25

<210> 42
 <211> 29
 <212> PRT
 <213> Artificial Sequence

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

<400> 42
 Tyr Xaa Gln Gly Thr Phe Cys 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> 43
 <211> 29
 <212> PRT
 <213> Artificial Sequence

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

<400> 43
 Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Cys 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> 44
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
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<220>
 <221> MISC_FEATURE

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

<400> 44
Tyr Xaa 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 Cys
20 25 30

<210> 45
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> glucagon derivative

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

<400> 45
Tyr Xaa Gln Gly Thr Phe Thr Ser Asp Tyr Ser Cys Tyr Leu Asp Glu
1 5 10 15
Lys Arg Ala Lys Glu Phe Val Gln Trp Leu Met Asn Thr
20 25

<210> 46
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> General Formula 1

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

<220>
 <221> MISC_FEATURE
 <222> (7)
 <223> Xaa is threonine, valine, or cysteine

<220>
 <221> MISC_FEATURE
 <222> (14)
 <223> Xaa is leucine or cysteine

<220>
 <221> MISC_FEATURE
 <222> (16)
 <223> Xaa is glutamic acid, or serine

<220>
 <221> MISC_FEATURE
 <222> (17)
 <223> Xaa is lysine, arginine, or cysteine

<220>
 <221> MISC_FEATURE
 <222> (19)
 <223> Xaa is alanine, or cysteine

<220>
 <221> MISC_FEATURE
 <222> (20)
 <223> Xaa is lysine, or glutamine

<220>
 <221> MISC_FEATURE
 <222> (21)
 <223> Xaa is aspartic acid, or glutamic acid

<220>
 <221> MISC_FEATURE
 <222> (30)
 <223> Xaa is cysteine, or is absent

<400> 46
 Tyr Xaa Gln Gly Thr Phe Xaa Ser Asp Tyr Ser Lys Tyr Xaa Asp Xaa

1	5	10	15
Xaa Arg Xaa Xaa Xaa Phe Val Gln Trp Leu Met Asn Thr Xaa			
	20	25	30

<210> 47
 <211> 34
 <212> DNA
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<220>
 <223> Primer

<400> 47
 cagcgacacc gaccgtcccc ccgtacttaa ggcc 34

<210> 48
 <211> 32
 <212> DNA
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<220>
 <223> Primer

<400> 48
 ctaaccgact ctcggggaag actgagctcg cc 32

<210> 49
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 <213> homo sapiens

<400> 49
 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro
 1 5 10

<210> 50
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of hinge region

<400> 50
 Glu Ser Lys Tyr Gly Pro Pro Pro Ser Cys Pro
 1 5 10

<210> 51
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of hinge region

<400> 51
 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Pro
 1 5 10

<210> 52
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of hinge region

<400> 52
 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser
 1 5 10

<210> 53
 <211> 10
 <212> PRT
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<220>
 <223> Variant of hinge region

<400> 53
 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro
 1 5 10

<210> 54
 <211> 8

<212> PRT
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 <220>
 <223> Variant of hinge region

<400> 54
 Lys Tyr Gly Pro Pro Cys Pro Ser
 1 5

<210> 55
 <211> 8
 <212> PRT
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 <220>
 <223> Variant of hinge region

<400> 55
 Glu Ser Lys Tyr Gly Pro Pro Cys
 1 5

<210> 56
 <211> 7
 <212> PRT
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 <220>
 <223> Variant of hinge region

<400> 56
 Glu Lys Tyr Gly Pro Pro Cys
 1 5

<210> 57
 <211> 6
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Variant of hinge region

<400> 57

Glu Ser Pro Ser Cys Pro
1 5

<210> 58
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of hinge region

<400> 58
Glu Pro Ser Cys Pro
1 5

<210> 59
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<220>
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<400> 59
Pro Ser Cys Pro
1

<210> 60
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<220>
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<400> 60
Glu Ser Lys Tyr Gly Pro Pro Ser Cys Pro
1 5 10

<210> 61
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<220>
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<400> 61
Lys Tyr Gly Pro Pro Pro Ser Cys Pro
1 5

<210> 62
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<220>
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Glu Ser Lys Tyr Gly Pro Ser Cys Pro
1 5

<210> 63
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<220>
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Glu Ser Lys Tyr Gly Pro Pro Cys
1 5

<210> 64
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<220>
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Lys Tyr Gly Pro Pro Cys Pro
1 5

<210> 65
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 Glu Ser Lys Pro Ser Cys Pro
 1 5

<210> 66
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<400> 66
 Glu Ser Pro Ser Cys Pro
 1 5

<210> 67
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 <212> PRT
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<400> 67
 Glu Pro Ser Cys
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<210> 68
 <211> 3
 <212> PRT
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 <220>

<223> Variant of hinge region

<400> 68

Ser Cys Pro

1

<210> 69

<211> 221

<212> PRT

<213> homo sapiens

<400> 69

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

<210> 70
<211> 442
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(442)
<223> Amino acids at position 1 to 442 form Human Immunoglobulin G4 Fc
Fragment (homodimer)

<220>
<221> MISC_FEATURE
<222> (1)..(221)
<223> Amino acids at position 1 to 221 form one monomer

<220>
<221> MISC_FEATURE
<222> (222)..(442)
<223> Amino acids at position 222 to 442 form one monomer

<220>
<221> DISULFID
<222> (3)..(224)
<223> Amino acids at position 3 and position 224 form an
inter-disulfide bond

<220>
<221> DISULFID
<222> (35)..(95)
<223> Amino acids at position 35 and position 95 form an intra-chain
disulfide bond

<220>
<221> DISULFID
<222> (141)..(199)
<223> Amino acids at position 141 and position 199 form an intra-chain
disulfide bond

<220>
 <221> DISULFID
 <222> (256)..(316)
 <223> Amino acids at position 256 and position 316 form an intra-chain disulfide bond

<220>
 <221> DISULFID
 <222> (362)..(420)
 <223> Amino acids at position 362 and position 420 form an intra-chain disulfide bond

<400> 70
 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	Pro	Ser	Cys	
	210					215					220					
Pro	Ala	Pro	Glu	Phe	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	
225					230					235					240	
Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	
				245					250					255		
Val	Val	Val	Asp	Val	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	
			260					265					270			
Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	
		275					280					285				
Glu	Gln	Phe	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	
	290					295					300					
His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	
305					310					315					320	
Lys	Gly	Leu	Pro	Ser	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	
				325					330					335		
Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	
			340					345					350			
Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	
		355					360					365				
Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	
		370				375					380					
Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	
385					390					395					400	
Leu	Tyr	Ser	Arg	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	
				405				410						415		
Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	
			420					425					430			
Gln	Lys	Ser	Leu	Ser	Leu	Ser	Leu	Gly	Lys							
		435					440									