Claims:

1. A peptide comprising or consisting of the amino acid sequence of: SEQ ID NO: 17, or a pharmaceutically acceptable salt thereof.

2. A dimer or multimer comprising a peptide of claim 1, or a pharmaceutically acceptable salt thereof.

3. A pharmaceutical composition comprising the peptide of claim 1, or a pharmaceutically acceptable salt thereof; and a pharmaceutically acceptable carrier.

4. The pharmaceutical composition of claim 3, comprising an anti-diabetic or anti-obesity agent.

5. The pharmaceutical composition of Claim 3 or 4 for use in treating a disease or medical condition in a patient, wherein the disease or medical condition is selected from the group consisting of: metabolic syndrome, diabetes, obesity, liver steatosis, and a neurodegenerative disease.

6. The pharmaceutical composition of claim 5, for use in combination with an anti-diabetic for treating diabetes.

7. The pharmaceutical composition of claim 5, for use in combination with an anti-obesity agent for treating obesity.

8. Use of the peptide of claim 1 or a pharmaceutically acceptable salt thereof; in the manufacture of a medicament for treating a disease or medical condition, wherein the disease or medical condition is selected from the group consisting of: metabolic syndrome, diabetes, obesity, liver steatosis, and a neurodegenerative disease.

Claims:

1. A peptide comprising or consisting of the amino acid sequence of :

a) SEQ ID NO: 17;

b) SEQ ID NO: 12;

c) SEQ ID NO: 13;

d) SEQ ID NO: 14;

e) SEQ ID NO: 15, or

f) SEQ ID NO: 16;

or a pharmaceutically acceptable salt thereof.

2. A peptide comprising the amino acid sequence of SEQ ID NO: 17, or a pharmaceutically acceptable salt thereof.

3. A peptide comprising the amino acid sequence of SEQ ID NO: 12, or a pharmaceutically acceptable salt thereof.

4. The peptide of Claim 1 comprising the amino acid sequence of SEQ ID NO: 13, or a pharmaceutically acceptable salt thereof.

5. The peptide of Claim 1 comprising the amino acid sequence of SEQ ID NO: 14, or a pharmaceutically acceptable salt thereof.

6. The peptide of Claim 1 comprising the amino acid sequence of SEQ ID NO: 15, or a pharmaceutically acceptable salt thereof.

7. The peptide of Claim 1 comprising the amino acid sequence of SEQ ID NO: 16, or a pharmaceutically acceptable salt thereof.

8. A variant peptide comprising an amino acid sequence that is at least 85%, 90%, or 95% identical to the amino acid sequence of the peptide of Claim 1, said variant peptide differing from the amino acid sequence of the peptide of claim 1 in that the variant peptide comprises one or more of the following features:

a. an acylated amino acid or an alkylated amino acid at position 10;

b. an acylated amino acid or an alkylated amino acid is replaced with the corresponding amino acid of native glucagon (SEQ ID NO: 1) at that position or a conservative substitution of the native amino acid, and optionally a new acylated or alkylated amino acid is introduced at a different position;

c. the variant peptide comprises an amino acid covalently attached to a hydrophilic moiety at position 24;

d. an amino acid covalently attached to a hydrophilic moiety is replaced with the corresponding amino acid of native glucagon (SEQ ID NO: 1) at that position, and optionally a new amino acid covalently attached to a hydrophilic moiety is introduced at a different position;

e. the C-terminal amino acid of the variant peptide comprises a C-terminal amide in place of a C-terminal alpha carboxylate;

f. an amino acid at any of positions 1 through 29 is replaced with the corresponding amino acid of native glucagon (SEQ ID NO: 1) at that position;

g. or any combinations thereof;

or a pharmaceutically acceptable salt thereof,

wherein the variant peptide exhibits enhanced activity at the GLP-1 receptor, as compared to native glucagon, and exhibits at least 100-fold greater selectivity for the human GLP-1 receptor versus the GIP receptor, or a pharmaceutically acceptable salt thereof.

9. The variant peptide of Claim 8, comprising a hydrophilic moiety covalently attached to an amino acid at position 16, 17, 21, 24, 29, a position within a C-terminal extension, or at the C-terminus, or a pharmaceutically acceptable salt thereof.

10. The variant peptide of Claim 8, comprising a Cys, Lys, Orn, homocysteine, and Ac-Phe covalently attached to a hydrophilic moiety, optionally, wherein

the Cys, Lys, Orn, homocysteine, and Ac-Phe is located at position 16, 17, 21, 24, 29, a position within a C-terminal extension, or at the C-terminus of the variant peptide , or a pharmaceutically acceptable salt thereof.

11. The variant peptide of any one of Claims 8 to 10, wherein the hydrophilic moiety is a polyethylene glycol, optionally, a PEG of molecular weight between 10 kDa and 40 kDa, or a pharmaceutically acceptable salt thereof.

12. The variant peptide of any one of Claims 8 to 11, comprising an acylated or alkylated amino acid which comprises a C8 to C20 alkyl chain, a C12 to C18 alkyl chain, or a C14 or C16 alkyl chain, or a pharmaceutically acceptable salt thereof.

13. The variant peptide of any one of Claims 8 to 12, comprising an acylated or alkylated amino acid which an acylated or alkylated amino acid of Formula I, Formula II, or Formula III, optionally, wherein the amino acid of Formula I is Lys, or a pharmaceutically acceptable salt thereof.

14. The variant peptide of any one of Claims 8 to 13, comprising an acylated or alkylated amino acid, wherein the acyl group or alkyl group is covalently attached to the amino acid via a spacer, optionally, wherein the spacer is an amino acid or a dipeptide, or a pharmaceutically acceptable salt thereof.

15. The variant peptide of Claim 14, wherein the spacer comprises one or two acidic residues, or a pharmaceutically acceptable salt thereof.

16. The peptide or variant peptide of any one of the preceding claims, wherein the

$$\frac{\text{(EC50 at the glucagon receptor)}}{\text{(EC50 at the GLP-1 receptor)}}$$

is about 20 or less, or a pharmaceutically acceptable salt thereof.

17. The peptide or variant peptide of any one of the preceding claims, which exhibits an EC50 at the GLP-1 receptor which is two- to ten-fold greater than the EC50 at the glucagon receptor, or a pharmaceutically acceptable salt thereof.

18. A conjugate comprising a peptide or variant peptide of any one of the preceding claims conjugated to a heterologous moiety, or a pharmaceutically acceptable salt

thereof, wherein the conjugate exhibits enhanced activity at the GLP-1 receptor, as compared to native glucagon, and exhibits at least 100-fold greater selectivity for the human GLP-1 receptor versus the GIP receptor.

19. The conjugate of Claim 18, wherein the heterologous moiety comprises one or more of: a peptide, a polypeptide, a nucleic acid molecule, an antibody or fragment thereof, a polymer, a quantum dot, a small molecule, a toxin, a diagonostic agent, or a pharmaceutically acceptable salt thereof.

20. The conjugate of Claim 19, wherein the heterologous moiety is a peptide and conjugate is a fusion peptide or a chimeric peptide, or a pharmaceutically acceptable salt thereof.

21. The conjugate of Claim 20, comprising an extension of 1-21 amino acids C-terminal to the amino acid at position 31 of the peptide or variant peptide, or a pharmaceutically acceptable salt thereof.

22. The conjugate of Claim 21, wherein the extension is selected from the group consisting of: Gly, Glu, Cys, Gly-Gly, Gly-Glu, GPSSGAPPPS (SEQ ID NO: 9) or GGPSSGAPPPS (SEQ ID NO: 10) , or a pharmaceutically acceptable salt thereof.

23. A dimer or multimer comprising a peptide or variant peptide of any one of the preceding claims, or a pharmaceutically acceptable salt thereof.

24. A pharmaceutical composition comprising the peptide or variant peptide of any one of the preceding claims, or a pharmaceutically acceptable salt thereof; a conjugate of Claim 18 to 22, or a pharmaceutically acceptable salt thereof; a dimer or multimer of Claim 23, or a pharmaceutically acceptable salt thereof; or a combination thereof, and a pharmaceutically acceptable carrier.

25. The pharmaceutical composition of claim 24, comprising an anti-diabetic or anti-obesity agent.

26. The pharmaceutical composition of Claim 24 or 25 for use in treating a disease or medical condition in a patient, wherein the disease or medical condition is selected from the group consisting of: metabolic syndrome, diabetes, obesity, liver steatosis, and a neurodegenerative disease.

27. The pharmaceutical composition of claim 26, for use in combination with an anti-diabetic for treating diabetes.

28. The pharmaceutical composition of claim 26, for use in combination with an anti-obesity agent for treating obesity.

Use of the peptide or variant peptide of any one of the preceding claims, or a pharmaceutically acceptable salt thereof; a conjugate of Claim 18 to 22, or a pharmaceutically acceptable salt thereof; a dimer or multimer of Claim 23, or a combination thereof in the manufacture of a medicament for treating a disease or medical condition, wherein the disease or medical condition is selected from the group consisting of: metabolic syndrome, diabetes, obesity, liver steatosis, and a neurodegenerative disease.