CLAIMS

1. A GLP-1 and/or Glucagon receptor agonist liquid formulation comprising a GLP-1 and/or glucagon receptor agonist, or a pharmaceutically acceptable salt thereof, and an aqueous buffer solution, wherein the formulation has a pH value of from 3.5 to 8.0,

wherein the GLP-1 and/or Glucagon receptor agonist is native oxyntomodulin, an oxyntomodulin peptide analog, or an active fragment thereof, or

wherein the GLP-1 and/or Glucagon receptor agonist comprises any one of SEQ ID NOS: 1-9 or an active fragment thereof.

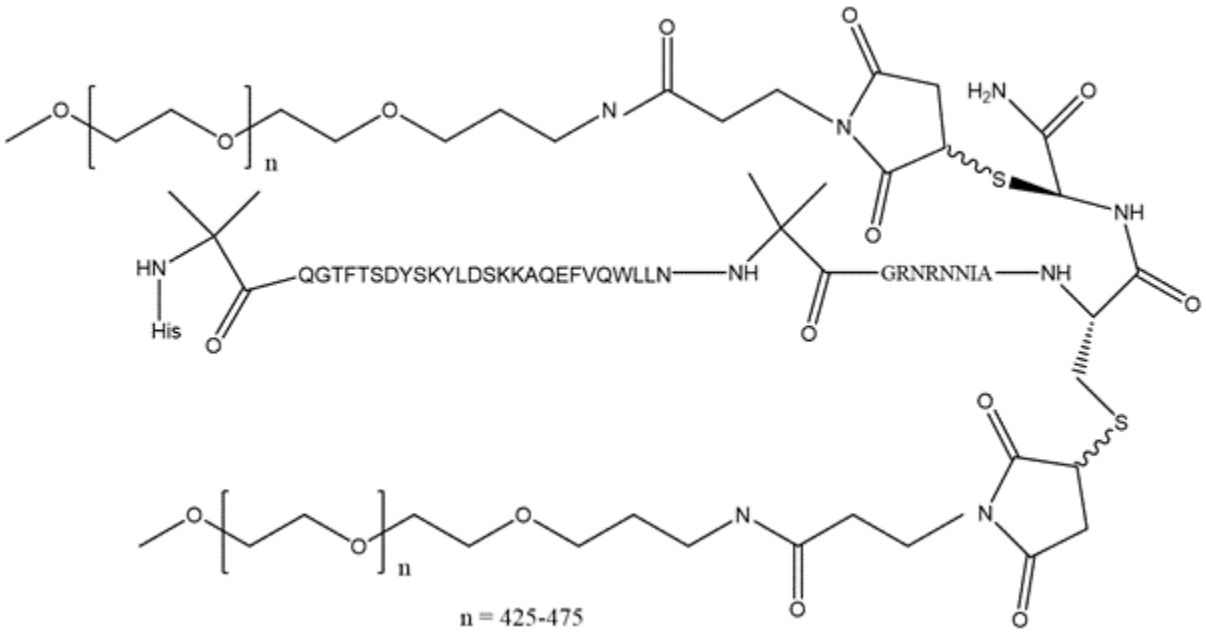
2. The formulation according to claim 1, wherein the GLP-1 and/or Glucagon receptor agonist is a PEGylated oxyntomodulin peptide analog.

3. The formulation according to any one of claims 1-2, wherein:

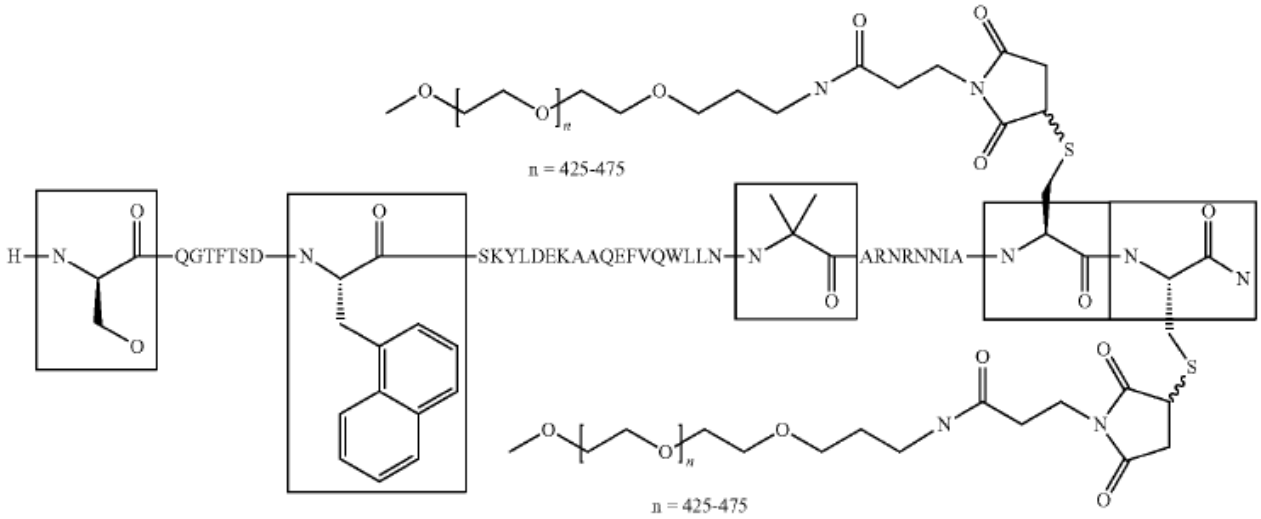
(a) the NH_2 group of Ala_{37} is PEGylated;
(b) the NH_2 group of Ala_{37} is optionally PEGylated through a linker;
(c) both Xaa_{38} and Xaa_{39} are absent and the NH_2 group of Ala_{37} is PEGylated;
(d) both Xaa_{38} and Xaa_{39} are absent and the NH_2 group of Ala_{37} is optionally PEGylated through a linker;
(e) the Cys_{38} or Cys_{39} group is PEGylated;
(f) the Cys_{38} or Cys_{39} group is optionally PEGylated through a linker;
(g) the Cys_{38} and Cys_{39} groups are PEGylated;
(h) the Cys_{38} and Cys_{39} groups are PEGylated is optionally PEGylated through a linker;
(i) the carboxyl group of the Cys_{39} is amidated; or
(j) the C-terminal amino acid is amidated.

4. A PEGylated GLP-1 and/or Glucagon receptor agonist liquid formulation comprising a PEGylated GLP-1 and/or glucagon receptor agonist, or a pharmaceutically acceptable salt thereof, and an aqueous buffer solution, wherein the formulation has a pH value of from 3.5 to 8.0,

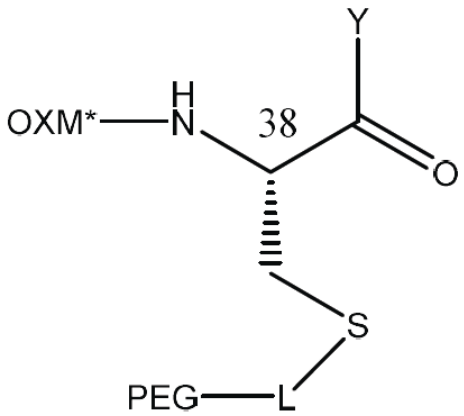
wherein said PEGylated GLP-1 and/or Glucagon receptor agonist comprises the compound of formula 3, 4, or 5,



(Formula 3),



(Formula 5), or



Formula 4

wherein

L is a linking group,

OXM* is native OXM, an OXM peptide analog, or an active fragment thereof,

PEG is a branched or linear polyethylene glycol polymer,

Y is -OH, OR, NR_2, or an amino acid, wherein said amino acid is optionally substituted with an L-PEG, and wherein said amino acid is optionally amidated, and

R is H or a C_1-C_4alkyl group.

5. The formulation according to any one of claims 1-4, wherein:

(a) said formulation contains 10.0% or less of total impurities and less than 5% of any single individual impurity measured by RP-HPLC or by size exclusion chromatography;

(b) said formulation is substantially free of a destabilizing substance;

(c) said formulation is substantially free of a destabilizing substance comprising cysteine;

(d) said formulation is substantially free of a destabilizing substance comprising cysteine, wherein the amount of cysteine is less than 25 mM;

(e) said formulation contains sodium chloride in an amount of less than 100 mM;

(f) the GLP-1 and/or Glucagon receptor agonist, or a pharmaceutically acceptable salt thereof, is present in a suitable vial at a concentration range of from 5 mg/mL to 150 mg/mL or from 20 mg/mL to 150 mg/mL;

(g) the GLP-1 and/or Glucagon receptor agonist, or a pharmaceutically acceptable salt thereof, is present in a single use vial at a concentration range of from 5 mg/mL to 150 mg/mL or from 20 mg/mL to 150 mg/mL;

(h) the concentration is 70 mg/mL;

(i) the GLP-1 and/or Glucagon receptor agonist is in the form of an acetate salt;

(j) said formulation has an osmolality of no more than 500 mOsm/kg;

(k) said formulation has a viscosity of from 10 to 60 cP;

(l) said formulation has a syringeability of Break Loose Force of less than 10 N and Glide Force of less than 30 N;

(m) said formulation causes no or little injection site reaction;

(n) said formulation is stable for at least 5 times of freeze/thaw cycles; and/or

(o) said formulation is stable at least for 48 hours at 30°C/65% RH and for 12 months at 5°C.

6. The formulation according to any one of claims 1-5, wherein the buffer solution is selected from the group consisting of an acetate buffer solution, a citrate buffer solution, and a histidine buffer solution.

7. The formulation according to any one of claims 1-6, wherein the pH value is from 4.5 to 5.

8. The formulation according to any one of claims 1-7, further comprising:

(a) a tonicity agent;
(b) a tonicity agent comprising sorbitol;
(c) one or more preservatives of from 0.001% (w/v) to 1% (w/v) based on the total volume of the liquid formulation
(d) a preservative comprising m-cresol, phenol, and/or benzyl alcohol;
(e) a preservative comprising;
(f) one or more additional pharmaceutically acceptable excipients; and/ or
(g) one or more additional pharmaceutically acceptable excipients comprising methionine, a derivative of methionine, arginine, or a derivative of arginine.

9. The formulation according to any one of claims 1-8, wherein the formulation comprises 70 mg/mL of Formula 3 in a 10 mM acetate buffer solution with a pH value of 4.5.

10. A pre-filled syringe or a multidose container having the formulation of any one of claims 1-9.

11. A pharmaceutically acceptable salt of a GLP-1 and/or Glucagon receptor agonist, wherein said GLP-1 and/or Glucagon receptor agonist comprises any one of SEQ ID NOS: 1-9 or an active fragment thereof, or is represented by a compound of formula 3, 4, or 5.

12. The pharmaceutically acceptable salt of claim 11, wherein said salt is a hydrochloric acid salt, a hydrobromic acid salt, an ascorbic acid salt, a maleic acid salt, or an acetic acid salt.