

- 5 H₂N-His-Aib-Gln-Gly-Thr-Phe-Thr-Ser-Asp-Leu-Ser-Lys-Gln-X14-Asp-Glu-Gln-
Arg-Ala-Lys-Leu-Phe-Ile-Glu-Trp-Leu-Aib-X28-X29-Gly-Pro-Ser-Ser-Gly-Ala-
Pro-Pro-Pro-Ser-R¹ (I)

10 group, selected from the group consisting of Lys, Orn, Dab, or Dap, wherein the -NH₂ side chain group is functionalized by -Z-C(O)-R⁵, wherein

15 selected from N and O,

X28 represents an amino acid residue selected from Ala, Lys and Ser,

X29 represents an amino acid residue selected from D-Ala and Gly,

R^1 is NH_2 or OH ,

or a salt or solvate thereof.

2. A compound of claim 1,
wherein R¹ is NH₂,
or a salt or solvate thereof.

- 25 3. A compound according to any one of claims 1 - 2,
 wherein the peptidic compound has a relative activity of at least 0.09%
 compared to that of natural glucagon at the glucagon receptor.

- 30 4. A compound according to any one of claims 1 - 3, wherein the peptidic compound exhibits a relative activity of at least 0.1% compared to that of GLP-1(7-36)-amide at the GLP-1 receptor.

5. A compound of any one of claims 1 - 4, wherein
X14 represents Lys wherein the -NH₂ side chain group is functionalized with a

group $-Z-C(O)R^5$, wherein

Z represents a group selected from γE , $\gamma E-\gamma E$, AEEAc-AEEAc- γE and AEEAc-AEEAc-AEEAc and

R^5 represents a group selected from pentadecanoyl, heptadecanoyl or 16-carboxy-hexadecanoyl.

6. A compound of any one of claims 1 - 5, wherein

X14 represents Lys wherein the $-NH_2$ side chain group is functionalized with a group $-Z-C(O)R^5$, wherein

Z represents a group selected from γE , $\gamma E-\gamma E$, AEEAc-AEEAc- γE and AEEAc-AEEAc-AEEAc and

R^5 represents a group selected from pentadecanoyl or heptadecanoyl.

7. A compound of any one of claims 1 - 6, wherein

X14 represents Lys wherein the $-NH_2$ side chain group is functionalized by (S)-4-Carboxy-4-hexadecanoylamino-butyryl-, (S)-4-Carboxy-4-octadecanoylamino-butyryl-, (S)-4-Carboxy-4-((S)-4-carboxy-4-hexadecanoylamino-butyrylamino)-butyryl-, (2-{2-[2-(2-{2-[(4S)-4-Carboxy-4-hexadecanoylamino-butyrylamino]-ethoxy}-ethoxy)-acetylamino]-ethoxy}-ethoxy)-acetyl, (2-{2-[2-(2-{2-[(4S)-4-Carboxy-4-octadecanoylamino-butyrylamino]-ethoxy}-ethoxy)-acetylamino]-ethoxy}-ethoxy)-acetyl, [2-(2-{2-[2-(2-{2-[2-(2-Octadecanoylamino-ethoxy)-ethoxy]-acetylamino}-ethoxy)-ethoxy]-acetylamino}-ethoxy)-ethoxy]-acetyl-,

X28 represents Ala,

X29 represents an amino acid residue selected from D-Ala and Gly,

R^1 represents NH_2 ,

or a salt or solvate thereof.

8. A compound of any one of claims 1 - 6, wherein

X14 represents Lys wherein the $-NH_2$ side chain group is functionalized by (S)-4-Carboxy-4-((S)-4-carboxy-4-hexadecanoylamino-butyrylamino)-butyryl-,

X28 represents Ser,

X29 represents an amino acid residue selected from D-Ala and Gly,

R^1 represents NH_2 ,

or a salt or solvate thereof.

9. A compound of any one of claims 1 - 6, wherein

X14 represents Lys wherein the -NH₂ side chain group is functionalized by (S)-4-Carboxy-4-((S)-4-carboxy-4-hexadecanoylamino-butyrylamino)-butyryl-,

X28 represents Lys,

X29 represents an amino acid residue selected from D-Ala and Gly,

R¹ represents NH₂,

or a salt or solvate thereof.

10. A compound of any one of claims 1 - 6, wherein

X14 represents Lys wherein the -NH₂ side chain group is functionalized by (S)-4-Carboxy-4-hexadecanoylamino-butyryl-, (S)-4-Carboxy-4-octadecanoylamino-butyryl-, (S)-4-Carboxy-4-((S)-4-carboxy-4-hexadecanoylamino-butyrylamino)-butyryl-,

X28 represents an amino acid residue selected from Ala, Lys and Ser,

X29 represents D-Ala,

R¹ represents NH₂,

or a salt or solvate thereof.

11. A compound of any one of claims 1 - 6, wherein X14 represents Lys wherein the -NH₂ side chain group is functionalized by (S)-4-Carboxy-4-hexadecanoylamino-butyryl-, (S)-4-Carboxy-4-octadecanoylamino-butyryl-,

(S)-4-Carboxy-4-((S)-4-carboxy-4-hexadecanoylamino-butyrylamino)-butyryl-,

(2-{2-[2-(2-{2-[(4S)-4-Carboxy-4-hexadecanoylamino-butyrylamino]-ethoxy}-ethoxy)-acetylamino]-ethoxy}-ethoxy)-acetyl, (2-{2-[2-(2-{2-[(4S)-4-Carboxy-4-octadecanoylamino-butyrylamino]-ethoxy}-ethoxy)-acetylamino]-ethoxy}-ethoxy)-acetyl,

[2-(2-{2-[2-(2-{2-[2-(2-Octadecanoylamino-ethoxy)-ethoxy]-acetylamino}-ethoxy)-ethoxy]-acetylamino}-ethoxy)-ethoxy]-acetyl-,

X28 represents an amino acid residue selected from Ala, Lys and Ser,

X29 represents Gly,

R¹ represents NH₂,

or a salt or solvate thereof.

12. A compound of any one of claims 1 - 6, wherein
X14 represents Lys wherein the -NH₂ side chain group is functionalized by (S)-
4-Carboxy-4-((S)-4-carboxy-4-hexadecanoylamino-butyrylamino)-butyryl-,
X28 represents Ala,
X29 represents an amino acid residue selected from Gly and D-Ala,
R¹ represents NH₂,
or a salt or solvate thereof.
13. The compound of any one of claims 1 - 6, selected from the compounds of
SEQ ID NO: 6-19, as well as salts or solvates thereof.
14. The compound of any one of claims 1 - 6, selected from the compounds of
SEQ ID NO: 6-18, as well as salts or solvates thereof.
15. The compound of claim 1, wherein the compound is represented by SEQ ID
NO: 7, or a salt or solvate thereof.
16. The compound of claim 1, wherein the compound is represented by SEQ ID
NO: 8, or a salt or solvate thereof.
17. The compound of any one of claims 1 - 16 for use in medicine, particularly in
human medicine.
18. The compound of any one of claims 1 - 16 for use according to claim 17,
which is present as an active agent in a pharmaceutical composition together
with at least one pharmaceutically acceptable carrier.
19. The compound of any one of claims 1 - 16 for use according to claim 17 or
18, together with at least one additional therapeutically active agent, wherein
the additional therapeutically active agent is selected from the series of Insulin
and Insulin derivatives, GLP-1, GLP-1 analogues and GLP-1 receptor
agonists, polymer bound GLP-1 and GLP-1 analogues, dual GLP1/glucagon
agonists, dual GLP1/GIP agonists, PYY3-36 or analogues thereof, pancreatic
polypeptide or analogues thereof, Glucagon receptor agonists, GIP receptor
agonists or antagonists, ghrelin antagonists or inverse agonists, Xenin and

analogues thereof, DDP4 inhibitors, SGLT2 inhibitors, dual SGLT2 / SGLT1
 inhibitors, Biguanides, Thiazolidinediones, dual PPAR agonists, Sulfonylureas,
 Meglitinides, alpha-glucosidase inhibitors, Amylin and Amylin analogues,
 GPR119 agonists, GPR40 agonists, GPR120 agonists, GPR142 agonists,
 5 systemic or low-absorbable TGR5 agonists, Cycloset, inhibitors of 11-beta-
 HSD, activators of glucokinase, inhibitors of DGAT, inhibitors of protein
 tyrosinephosphatase 1, inhibitors of glucose-6-phosphatase, inhibitors of
 fructose-1,6-bisphosphatase, inhibitors of glycogen phosphorylase, inhibitors
 of phosphoenol pyruvate carboxykinase, inhibitors of glycogen synthase
 10 kinase, inhibitors of pyruvate dehydrogenase kinase, alpha2-antagonists,
 CCR-2 antagonists, modulators of glucose transporter-4, Somatostatin
 receptor 3 agonists, HMG-CoA-reductase inhibitors, fibrates, nicotinic acid and
 the derivatives thereof, nicotinic acid receptor 1 agonists, PPAR-alpha, gamma
 or alpha/gamma agonists or modulators, PPAR-delta agonists, ACAT
 15 inhibitors, cholesterol absorption inhibitors, bile acid-binding substances, IBAT
 inhibitors, MTP inhibitors, modulators of PCSK9, LDL receptor up-regulators
 by liver selective thyroid hormone receptor β agonists, HDL-raising
 compounds, lipid metabolism modulators, PLA2 inhibitors, ApoA-I enhancers,
 thyroid hormone receptor agonists, cholesterol synthesis inhibitors, omega-3
 20 fatty acids and derivatives thereof, active substances for the treatment of
 obesity, such as Sibutramine, Tesofensine, Orlistat, CB-1receptor antagonists,
 MCH-1 antagonists, MC4 receptor agonists and partial agonists, NPY5 or
 NPY2 antagonists, NPY4 agonists, beta-3-agonists, leptin or leptin mimetics,
 agonists of the 5HT2c receptor, or the combinations of bupropione/naltrexone
 25 (CONTRAVE), bupropione/zonisamide (EMPATIC), bupropione/phentermine
 or pramlintide/metreleptin, QNEXA (Phentermine+ topiramate), lipase
 inhibitors, angiogenesis inhibitors, H3 antagonists, AgRP inhibitors, triple
 monoamine uptake inhibitors (norepinephrine and acetylcholine), MetAP2
 inhibitors, nasal formulation of the calcium channel blocker diltiazem,
 30 antisense against production of fibroblast growth factor receptor 4, prohibitin
 targeting peptide-1, drugs for influencing high blood pressure, chronic heart
 failure or atherosclerosis, such as angiotensin II receptor antagonists, ACE
 inhibitors, ECE inhibitors, diuretics, beta-blockers, calcium antagonists,
 centrally acting hypertensives, antagonists of the alpha-2-adrenergic receptor,

inhibitors of neutral endopeptidase, thrombocyte aggregation inhibitors.

- 5 20. The compound of any one of claims 1 - 16 for use in the treatment of glucose intolerance, insulin resistance, pre-diabetes, increased fasting glucose, hyperglycemia, type 2 diabetes, hypertension, dyslipidemia, arteriosclerosis, coronary heart disease, peripheral artery disease, stroke or any combination of these individual disease components.
- 10 21. The compound of any one of claims 1 – 16, which is suitable for use in control of appetite, feeding and calory intake, increase of energy expenditure, prevention of weight gain, promotion of weight loss, reduction of excess body weight, or which is for use in the treatment of obesity, including morbid obesity.
- 15 22. The compound of any one of claims 1 - 16 for use in the treatment or prevention of hyperglycemia, type 2 diabetes, obesity.
- 20 23. The compound of any one of claims 1- 16 for use in the simultaneous treatment of diabetes and obesity.
- 20 24. A pharmaceutical composition comprising at least one compound according to any one of claims 1 – 16 or a physiologically acceptable salt or a solvate of any of them.