[187] FIG. 1 is a graph showing the change in blood triglyceride levels caused by administration of a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (#: indicates a significant increase compared to a general diet group within a confidence of 99.9% ($p<0.001$);*:indicates a significant decrease compared to a high-fat diet group within a confidence of 99.9% ($p<0.001$).

[188] FIG. 2 is a graph showing the change in blood total cholesterol levels caused by administration of a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (#: indicates a significant increase compared to a general diet group within a confidence of 99.9% ($p<0.001$);*:indicates a significant decrease compared to a high-fat diet group within a confidence of 99.9% ($p<0.001$).

[189] FIG. 3 is a graph showing the change in blood LDL-cholesterol levels caused by administration of a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (#: indicates a significant increase compared to a general diet group within a confidence of 99.9% ($p <0.001$);*:indicates a significant decrease compared to a high-fat diet group within a confidence of 99.9% ($p<0.001$).

[190] FIG. 4 is a graph showing the change in blood HDL-cholesterol levels caused by administration of a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (*: indicates a significant ~~decrease~~ increase compared to a high-fat diet group within a confidence of 99% ($p<0.01$).

[191] FIG. 5 is a graph showing the change in blood HDL/LDL-cholesterol levels caused by administration of a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (*: shows a significant ~~decrease~~ increase compared to a high-fat diet group within a confidence of 95% ($p<0.05$).

[192] FIG. 6 is a graph showing the change in blood total cholesterol levels caused by administration of VICTOZA® or a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (***: indicates a significant decrease compared to a high-fat diet group within a confidence of 99.9% ($p<0.001$).

[193] FIG. 7 is a graph showing the change in blood LDL-cholesterol levels caused by administration of VICTOZA® or a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (***: indicates a significant decrease compared to a high-fat diet group within a confidence of 99.9% ($p<0.001$).

[194] FIG. 8 is a graph showing the change in blood HDL-cholesterol levels caused by administration of VICTOZA® or a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (*: indicates a significant decrease compared to a high-fat diet group within a confidence of 95% ($p<0.05$).

[195] FIG. 9 is a graph showing the change in blood HDL/LDL-cholesterol levels caused by administration of VICTOZA® or a long-acting oxyntomodulin derivative to high-fat diet-induced hyperlipidemia hamsters (**: indicates a significant decrease compared to

activity to activate GLP-1 receptor and glucagon receptor compared to native oxyntomodulin, and thus can be used to treat hyperlipidemia and the fatty liver disease and arteriosclerosis related to hyperlipidemia, in place of native oxyntomodulin.

[228]

[229] Example 3: Preparation of a conjugate comprising an oxyntomodulin derivative (SEP ID NO : 23) with immunoglobulin Fc (immunoglobulin Fc –conjugated oxyntomodulin derivative 23)

[230]

[231] In order to pegylate a cysteine residue at position 24 of an oxyntomodulin derivative of SEQ ID NO: ~~24~~23 with MAL-IOK-ALD PEG (NOF., Japan), the oxyntomodulin derivative (SEQ ID NO: 23) and MAL-IOK-ALD PEG were allowed to react with each other at molar ratio of 1:3 at a protein concentration of 3mg/m*l* at room temperature for 3 hours. The reaction was performed in 50mM Tris buffer (pH 8.0) containing 1M guanidine. After completion of the reaction, the reaction solution was purified using SOURCE S under the following conditions, thereby obtaining an oxyntomodulin mono-pegylated into the cysteine: column: SOURCE S, flow rate: 2.0 m*l*/min, gradient: A 0 ⟶100% 50 min B (A: 20 mM Na-citrate, pH 3.0 + 45% ethanol, B: A + 1M KCl)).

[232] Then, the purified mono-pegylated oxyntomodulin derivative (SEQ ID NO: 23) and immunoglobulin Fc were allowed to react with each other at a molar ratio of 1:5 at a protein concentration of 20 mg/m*l* at 4 °C for 16 hours. The reaction was performed in 100 mM potassium phosphate buffer (pH 6.0) containing 20mM SCB as a reducing agent. After completion of the reaction, the reaction solution was purified under the following conditions, thereby obtaining a conjugate comprising the oxyntomodulin derivative (SEQ ID NO: 23) and immunoglobulin: column: SOURCE 15Q, flow rate: 2.0 m*l*/min, gradient: A 0 ⟶ 4% 1 min, B ⟶ 20% 80 min B (A: 20mM Tris-HCl, pH 7.5, B: A + 1M NaCl)); source ISO column: SOURCE ISO, flow rate: 2.0 m*l*/min, gradient: B 0 ⟶ 100% 100 min A, (A: 20mM Tris-HCl, pH 7.5, B: A + 1.1M AS).

[233]

[234] Example 4: Preparation of a conjugate comprising an oxyntomodulin derivative (SEQ ID NO : 25) with immunoglobulin Fc (immunoglobulin Fc –conjugated oxyntomodulin derivative 25)

[235]

[236] In order to pegylate a cysteine residue at position 30 of an oxyntomodulin derivative of SEQ ID NO: 25 with MAL-10K-ALD PEG, the oxyntomodulin derivative (SEQ ID NO: 25) and MAL-10K-ALD PEG were allowed to react with each other at molar ratio of 1:3 at a protein concentration of 3 mg/m*l* at room temperature for 3 hours. The reaction was performed in 50mM Tris buffer (pH 8.0) containing 1M guanidine. After