Data Sheet (Cat.No.T76279)

TargetMol

Retatrutide

Chemical Properties

CAS No. : 2381089-83-2

Formula: C221H342N46O68

Molecular Weight: 4732.09

Storage: Store at low temperature,Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Retatrutide is a triple receptor agonist targeting the glucagon-like peptide-1 receptor (GLP-1R), glucose-dependent insulinotropic polypeptide receptor (GIPR), and glucagon receptor (GCGR), with FDA approval for the indication of obesity.Retatrutide may be used in studies of obesity, type 2 diabetes, and non-alcoholic steatohepatitis.
Targets(IC50)	Glucagon Receptor
In vitro	**Methods**: HEK-293 cells expressing human/mouse GCGR, GIPR, and GLP-1R were used to assess Retatrutide's cAMP production and receptor-binding capacity, and to evaluate its in vitro agonist activity. **Results**: Retatrutide is a full agonist at all three receptors, exhibiting stronger activity at the GIPR and balanced activity at the GCGR and GLP-1R.[2]
In vivo	**Methods**: C57BL/6N mice were divided into 4 groups and fed for 31 days. Control group: standard diet + tap water; Western diet group: Western diet + tap water; Western diet + sugar water group: Western diet + drinking water containing fructose/sucrose; Western diet + sugar water + terminal fructose gavage group: same as above, with a single fructose gavage (10 mg/g body weight) administered 6 hours prior to sacrifice on day 31. Subcutaneous administration of Retatrutide (30 nmol/kg) began during the final 2 weeks of the model (i.e., days 18–31), with a frequency of once every 3 days during the penultimate week and once every 2 days during the final week, for a total of 7 injections. **Results**: In female mice, compared with the solvent control group, Retatrutide intervention significantly reduced body weight, lowered ALT levels, decreased hepatic triglycerides and cholesterol, reduced hepatic inflammatory markers, and improved MASH pathological features. [1] **Methods**: Diet-induced obese (DIO) mice were administered subcutaneous injections of 0.3, 1, 3, 15, or 30 nmol/kg Retatrutide (once every 3 days for 21 consecutive days), and body weight, food intake, body composition, and glucose metabolism parameters were continuously monitored. **Results**: Retatrutide dose-dependently reduced body weight, decreased food intake, and lowered fat mass in mice, while significantly improving blood glucose levels and insulin sensitivity. [2] **Methods**: Rhesus monkeys were administered subcutaneous injections of 0.05, 0.15, or 0.5 mg/kg of Retatrutide weekly for 6 consecutive months to evaluate long-term

In vivo	cardiovascular safety. **Results**: Long-term administration of Retatrutide caused a sustained increase in heart rate, which was reversible during the recovery period following discontinuation of the drug and did not result in irreversible cardiovascular damage. [2] **Methods**: 8-week-old db/db diabetic nephropathy mice were administered 10 nmol/kg of Retatrutide via intraperitoneal injection for 10 consecutive weeks. Blood glucose, body weight, blood lipids, renal function, markers of renal inflammation and fibrosis, and intestinal butyrate levels were measured. **Results**: Retatrutide effectively reduced body weight, improved renal function, suppressed renal inflammation (TNF-α, caspase-1, NLRP3) and fibrosis (fibronectin, α-SMA, type I collagen), and increased intestinal butyrate levels. [3]

Solubility Information

Solubility	H2O: 30 mg/mL (6.34 mM),when pH is adjusted to 7 with NaOH. Sonication is recommended. DMSO: 30 mg/mL (6.34 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.2113 mL	1.0566 mL	2.1132 mL
5 mM	0.0423 mL	0.2113 mL	0.4226 mL
10 mM	0.0211 mL	0.1057 mL	0.2113 mL
50 mM	0.0042 mL	0.0211 mL	0.0423 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Viebahn GK, et al. Retatrutide improves steatohepatitis in an accelerated mouse model of diet-induced steatohepatitis with a fructose binge. Am J Physiol Gastrointest Liver Physiol. 2025 Dec 1;329(6):G680-G695.
Tamer Coskun, et al. LY3437943, a novel triple glucagon, GIP, and GLP-1 receptor agonist for glycemic control and weight loss: From discovery to clinical proof of concept. Cell Metab. 2022 Sep 6;34(9):1234-1247.e9.
Ma J, et al. Comparison of the effects of Liraglutide, Tirzepatide, and Retatrutide on diabetic kidney disease in db/db mice. Endocrine. 2025;87(1):159-169.