Retatrutide

Cat. No.: HY-P3506

CAS No.: 2381089-83-2

Molecular Formula: $C_{221}H_{342}N_{46}O_{68}$

Molecular Weight: 4731.33

Sequence: Tyr-{Aib}-Gln-Gly-Thr-Phe-Thr-Ser-Asp-Tyr-Ser-Ile-{α-Me-Leu}-Leu-Asp-Lys-{diacid-C20-gamma-Glu-(AEEA)-Lys}-Ala-Gln-{Aib}-Ala-Phe-Ile-Glu-Tyr-Leu-Leu-Glu-Gly-Gly-Pro-Ser-Ser-Gly-Ala-Pro-Pro-Pro-Ser-NH2

Retatrutide

Target: GCGR; GLP Receptor

Pathway: GPCR/G Protein

Storage: Sealed storage, away from moisture and light, under nitrogen

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light, under nitrogen)

SOLVENT & SOLUBILITY

In Vitro

H_2O : 33.33 mg/mL (7.04 mM; ultrasonic and adjust pH to 7 with NaOH)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	0.2114 mL	1.0568 mL	2.1136 mL
5 mM	0.0423 mL	0.2114 mL	0.4227 mL
10 mM	---	---	---

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Retatrutide (LY3437943) is a triple agonist peptide of the glucagon receptor (GCGR), glucosedependent insulinotropic polypeptide receptor (GIPR), and glucagon-like peptide-1 receptor (GLP-1R). Retatrutide inhibits human GCGR, GIPR, and GLP-1R with EC_{50} values of 5.79, 0.0643 and 0.775 nM, respectively. Retatrutide can be used for the research of obesity[1].

IC_{50} & Target

EC50 (for human): 5.79 (GCGR), 0.0643 (GIPR), 0.775 nM (GLP-1R) [1].
EC50 (for mouse): 2.32 (GCGR), 0.191 (GIPR), 0.794 nM (GLP-1R) [1].
Ki (for human): 5.6 (GCGR), 0.057 (GIPR), 7.2 nM (GLP-1R) [1].
Ki (for mouse): 73 (GCGR), 2.8 (GIPR), 1.3 nM (GLP-1R)[1].

In Vitro

Retatrutide (LY3437943) has efficacy for human GCGR, GIPR, and GLP-1R with EC_{50} values of 5.79, 0.0643 and 0.775 nM, respectively[1].

Retatrutide has efficacy for mouse GCGR, GIPR, and GLP-1R with EC_{50} values of 2.32, 0.191 and 0.794 nM, respectively[1].
Retatrutide has binding affinity for human GCGR, GIPR, and GLP-1R with K_i values of 5.6, 0.057 and 7.2 nM, respectively[1].
Retatrutide has binding affinity for mouse GCGR, GIPR, and GLP-1R with K_i values of 73, 2.8 and 1.3 nM, respectively[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Retatrutide (LY3437943) (s.c.; 0.47 mg/kg; single) engages GCGR in vivo and can improve glucose tolerance in an ipGTT through either the GIP or GLP-1 receptors[1].
Retatrutide (s.c.; 10 mL/kg; cycle every 3 days; for 21 days) causes great body weight loss and increases energy expenditure through glucagon receptor activatio[1].
Retatrutide has safety and tolerability[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male CD-1 mice[1]
Dosage:	0.47 mg/kg
Administration:	Subcutaneous administration, single
Result:	

AUC_{last}, ng*h/mL	$AUC_{0-\infty}$, ng*h/mL	C_{max}, ng/mL	T_{max}, h	$t_{1/2}$, h	CLF, mL/h/kg
41135	41905	1680	12	21	11.22

Animal Model:	Diet-induced obese (DIO) male C57/Bl6 mice (24-25 weeks, 40-51 g)[1]
Dosage:	10 mL/kg
Administration:	Subcutaneous (SC) injection, cycle every 3 days, for 21 days
Result:	Decreased body weight and improved glycemic control.

REFERENCES

[1]. 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.

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