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

DMSO : 50 mg/mL (10.57 mM; Need ultrasonic)

H_2O : 20 mg/mL (4.23 mM; ultrasonic and adjust pH to 9 with NH3·H2O)

Preparing Stock Solutions	Mass / Solvent / Concentration	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	0.0211 mL	0.1057 mL	0.2114 mL

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 binds 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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