Taspoglutide

Cat. No.: HY-P0165

CAS No.: 275371-94-3

Molecular Formula: $C_{152}H_{232}N_{40}O_{45}$

Molecular Weight: 3339.71

Sequence: His-{Aib}-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser-Ser-Tyr-Leu-Glu-Gly-Gln-Ala-Ala-Lys-Glu-Phe-Ile-Ala-Trp-Leu-Val-Lys-{Aib}-Arg-NH2

H-{Aib}-EGTFTSDVSSYLEGQAAKEFIAWLVK-{Aib}-R-NH_2

Sequence Shortening: H-{Aib}-EGTFTSDVSSYLEGQAAKEFIAWLVK-{Aib}-R-NH2

Target: GCGR

Pathway: GPCR/G Protein

Storage: Sealed storage, away from moisture and light

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)

SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (14.97 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	0.2994 mL	1.4971 mL	2.9943 mL
	5 mM	0.0599 mL	0.2994 mL	0.5989 mL
	10 mM	0.0299 mL	0.1497 mL	0.2994 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 1.25 mg/mL (0.37 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 1.25 mg/mL (0.37 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Taspoglutide is a long-acting glucagon-like peptide 1 (GLP-1) receptor agonist developed for treatment of type 2 diabetes, with an EC_{50} value of 0.06 nM.

IC_{50} & Target

EC50: 0.06 nM (GLP-1)[1]

In Vitro	Taspoglutide (R1583/BIM51077) is a long acting 10% formulation of (Aib8-35) human GLP-1 (7-36 amides) with 93% homology with the native polypeptide. It activates the GLP-1 receptor. Taspoglutide has comparable affinity (affinity constant 1.1±0.2 nM) to the natural ligand (affinity constant 1.5±0.3 nM) for the hGLP-1 receptor and exhibits comparable potency in stimulating cAMP production[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Taspoglutide has been shown to enhance the rate of glucose-induced insulin secretion from isolated, cultured rat islets and the perfused ZDF rat pancreas. Taspoglutide in Sprague-Dawley rats and diabetic db/db mice have shown a dose-related enhancement of glucose-dependent insulin release, which lower blood glucose in the db/db mouse model of type 2 diabetes[3]. Acute treatment with taspoglutide reduces glucose excursion and increased insulin response during oGTT. In chronically treated rats, glucose excursion and levels of GIP, PYY and triglycerides during oGTT on day 21 are significantly reduced[4]. Hepatic triglyceride levels are significantly reduced in livers from taspoglutide-treated. Taspoglutide does not reduce plaque area or lipid content in the aortic arch or abdominal aorta, and no significant change in aortic macrophage accumulation is detected after taspoglutide or metformin mice[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [4][5]	Rats: The Zucker diabetic fatty (ZDF) rats (animal model of type 2 diabetes) are used in the study. ZDF rats are treated acutely (0.1, 1, 10 μg/kg) or chronically (sustained-release of 1 mg) with a single long-acting dose of taspoglutide. Pioglitazone is used as a positive control in the chronic study. Postprandial glucose, body weight, glycaemic control and insulin sensitivity are assessed over 21 days in chronically treated animals[4]. Mice: High-fat diet-fed male ApoE$^{-/-}$ mice are used in the study. Mice with glucose levels from 15-25 mM are then randomized to different groups and treated for 12 wk with a once-monthly sc 0.4-mg taspoglutide microtablet suspension, a sc placebo microtablet, or metformin (400 mg/kg*d) continuously provided in the drinking water plus a sc placebo microtablet[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Sebokova E, et al. Taspoglutide, an analog of human glucagon-like Peptide-1 with enhanced stability and in vivo potency. Endocrinology. 2010 Jun;151(6):2474-82.

[2]. Retterstol K, et al. Taspoglutide: a long acting human glucagon-like polypeptide-1 analogue. Expert Opin Investig Drugs. 2009 Sep;18(9):1405-11.

[3]. Nauck MA, et al. Treatment with the human once-weekly glucagon-like peptide-1 analog taspoglutide in combination with metformin improves glycemic control and lowers body weight in patients with type 2 diabetes inadequately controlled with metformin alone:

[4]. Sebokova E, et al. Taspoglutide, a novel human once-weekly analogue of glucagon-like peptide-1, improves glucose homeostasis and body weight in the Zucker diabetic fatty rat. Diabetes Obes Metab. 2010 Aug;12(8):674-82.

[5]. Panjwani N, et al. GLP-1 receptor activation indirectly reduces hepatic lipid accumulation but does not attenuate development of atherosclerosis in diabetic male ApoE(-/-) mice. Endocrinology. 2013 Jan;154(1):127-39.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA