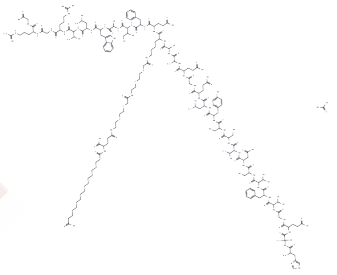
Data Sheet (Cat.No.T19850L)

TargetMol

Semaglutide Acetate

Chemical Properties



CAS No. : 1997361-85-9

Formula: C189H295N45O61

Molecular Weight: 4174.68

Storage: 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	Semaglutide Acetate is a GLP-1R agonist (EC50=6.2 pM) with long-acting, selective, competitive, and oral efficacy. Semaglutide acetate can be used in the study of type 2 diabetes.
Targets(IC50)	Apoptosis,Bcl-2 Family,Autophagy,Glucagon Receptor,IGF-1R,p38 MAPK
In vitro	**METHODS**: SH-SY5Y cells were treated with Semaglutide acetate (0, 1, 10, and 100 nM) for 24 hours, and cell viability was measured using MTT assay. **RESULTS**: Semaglutide acetate significantly increased the survival rate of SH-SY5Y cells. [1] **METHODS**: SH-SY5Y cells were treated with Semaglutide acetate for 48 hours, and target protein expression was detected using Western Blot. **RESULTS**: Semaglutide acetate increased the expression of autophagy-related proteins such as LC3II, Atg7, Beclin-1, and P62, inhibited Bax and up-regulated Bcl-2, thereby protecting nerve cells by enhancing autophagy and inhibiting apoptosis. [2] **METHODS**: Oral squamous cell carcinoma (OSCC) cells were treated with Semaglutide acetate (5-40 μM) for 48 hours, and target protein expression was detected using Western Blot. **RESULTS**: Semaglutide acetate up-regulated E-cadherin and down-regulated Vimentin, activated P38 MAPK signaling pathway (p-P38 expression increased), and induced cell apoptosis. [3]
In vivo	**METHODS**: To study the antitumor activity of Semaglutide Acetate, Semaglutide (3 μmol/kg) was subcutaneously injected into nude mice with oral squamous cell carcinoma (OSCC) transplanted tumors for 3 weeks per week for 3 consecutive weeks. **RESULTS**: Semaglutide Acetate significantly inhibited the growth of oral squamous cell carcinoma (OSCC) xenografts in nude mice, down-regulated the proliferation markers Ki67 and PCNA, up-regulated the pro-apoptotic protein Bax and down-regulated the anti-apoptotic protein Bcl-xL. Tumor cell apoptosis was induced by activation of P38 MAPK pathway. [3] **METHODS**: To investigate the effect of Semaglutide Acetate on Parkinson's disease, a mouse model of chronic MPTP-induced Parkinson's disease was induced by intraperitoneal injection of Semaglutide (25 nmol/kg) every 2 days for 30 consecutive days. **RESULTS**: Semaglutide Acetate improved chronic MPTP-induced Parkinson's disease and

In vivo	motor dysfunction in mice. Semaglutide acetate increased the number of tyrosine (TH) - positive neurons in the substantia nigra, reduced α-synuclein aggregation and glial cell activation, and decreased the level of oxidative stress marker 4-HNE. [4] **METHODS**: To study the effect of Semaglutide Acetate on fatty liver disease, metabolic dysfunction associated fatty liver disease (MASLD) mice were subcutaneously injected with Semaglutide (25 μg/kg, 100 μg/kg) once a week for 11 weeks. **RESULTS**: Semaglutide Acetate reduced body weight, blood glucose, serum liver enzymes (ALT, AST, and AP), reduced intrahepatic triglyceride deposition, ameliorated hepatic steatosis and hepatocyte balloon-like degeneration, and down-regulated de novo lipogenesis markers Acaca and Scd1. [5]

Solubility Information

Solubility	H2O: < 0.05 mg/mL (insoluble) DMSO: 4.17 mg/mL (1 mM),Sonication and heating are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.2395 mL	1.1977 mL	2.3954 mL
5 mM	0.0479 mL	0.2395 mL	0.4791 mL
10 mM	0.024 mL	0.1198 mL	0.2395 mL
50 mM	0.0048 mL	0.024 mL	0.0479 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

Liu DX, et al. Semaglutide Protects against 6-OHDA Toxicity by Enhancing Autophagy and Inhibiting Oxidative Stress. Parkinsons Dis. 2022 Jul 13;2022:6813017.

Chang YF, et al. Semaglutide-mediated protection against Aβ correlated with enhancement of autophagy and inhibition of apotosis. J Clin Neurosci. 2020 Nov;81:234-239.

Wang C, et al. Semaglutide, a glucagon-like peptide-1 receptor agonist, inhibits oral squamous cell carcinoma growth through P38 MAPK signaling pathway. J Cancer Res Clin Oncol. 2025 Mar 7;151(3):103.

Zhang L,et al. Semaglutide is Neuroprotective and Reduces α-Synuclein Levels in the Chronic MPTP Mouse Model of Parkinson's Disease. J Parkinsons Dis. 2019;9(1):157-171.

Soto-Catalán M, et al. Semaglutide Improves Liver Steatosis and De Novo Lipogenesis Markers in Obese and Type-2-Diabetic Mice with Metabolic-Dysfunction-Associated Steatotic Liver Disease. Int J Mol Sci. 2024 Mar 4;25(5):2961.

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