

## Semaglutide TFA

**Cat. No.:** HY-114118A

**Molecular Formula:**  $C_{189}H_{292}F_3N_{45}O_{61}$

**Molecular Weight:** 4227.66

**Target:** GCGR

**Pathway:** GPCR/G Protein

**Storage:** Sealed storage, away from moisture  
Powder -80°C 2 years  
-20°C 1 year

### Semaglutide (TFA salt)

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

## SOLVENT & SOLUBILITY

### In Vitro

H<sub>2</sub>O : 100 mg/mL (23.65 mM; Need ultrasonic)  
DMSO : 100 mg/mL (23.65 mM; ultrasonic and warming and heat to 60°C)

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		0.2365 mL	1.1827 mL	2.3654 mL
	5 mM		0.0473 mL	0.2365 mL	0.4731 mL
	10 mM		0.0237 mL	0.1183 mL	0.2365 mL

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

## BIOLOGICAL ACTIVITY

<b>Description</b>	Semaglutide TFA, a long-acting GLP-1 analogue, is a glucagon-like peptide-1 (GLP-1) receptor agonist. Semaglutide TFA has the potential for type 2 diabetes treatment.
<b>IC<sub>50</sub> &amp; Target</b>	GLP-1 receptor <sup>[1]</sup> .
<b>In Vitro</b>	Semaglutide has two amino acid substitutions compared to human GLP-1 (Aib <sup>8</sup> , Arg <sup>34</sup> ) and is derivatized at lysine 26. The GLP-1R affinity of Semaglutide is 0.38±0.06 nM <sup>[1]</sup> . Semaglutide is a GLP-1 analogue with 94% sequence omology to human GLP-1 <sup>[3]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
<b>In Vivo</b>	The plasma half-life of Semaglutide is 46h in mini-pigs following i.v. administration and semaglutide has an MRT of 63.6h after s.c. dosing to mini-pigs <sup>[1]</sup> . Semaglutide improves 1-methyl-4-phenyl-1,2,3,6- tetrahydropyridine (MPTP)-induced motor impairments. In addition, Semaglutide rescues the decrease of tyrosine hydroxylase (TH) levels, alleviates the inflammation response, reduces lipid peroxidation, inhibits the apoptosis pathway, and also increases autophagy- related protein expression, to protect dopaminergic neurons in the substantia nigra and striatum. Moreover, the long-acting GLP-1

analogue semaglutide is superior to liraglutide in most parameters<sup>[2]</sup>. Semaglutide lowers blood glucose by stimulating the release of insulin and also lowers body weight<sup>[3]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## PROTOCOL

### Animal Administration <sup>[2]</sup>

Mice<sup>[2]</sup>

Male C57BL/6 mice 10 weeks old (20-25 g) are used throughout the study. Mice are randomized divided into six groups (n=12 per group) (i) control group treated with saline alone; (ii) liraglutide group treated with saline and liraglutide (25 nmol/kg ip. once daily for 7 days); (iii) Semaglutide group treated with saline and Semaglutide (25 nmol/kg ip. once daily for 7 days), (iv) MPTP group treated with MPTP alone (once daily 20 mg/kg ip. for 7 days); (v) MPTP (once daily 20 mg/kg ip. for 7 days) followed immediately by liraglutide treated group (25 nmol/kg ip. once daily for 7 days). (vi) MPTP (20 mg/kg ip. once daily for 7 days) followed immediately by Semaglutide treated group (25 nmol/kg ip. Once daily for 7 days). At the end of drug treatments, measure the behavioral changes, neuronal damage, inflammatory markers, and other biomarkers<sup>[2]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Int J Mol Med. 2021 Dec;48(6):219.
- bioRxiv. 2023 Jul 19.

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## REFERENCES

- [1]. Marso SP, et al. Semaglutide and Cardiovascular Outcomes in Patients with Type 2 Diabetes. N Engl J Med. 2016 Nov 10;375(19):1834-1844.
- [2]. Zhang L, et al. Neuroprotective effects of the novel GLP-1 long acting analogue semaglutide in the MPTP Parkinson's disease mouse model. Neuropeptides. 2018 Oct;71:70-80.
- [3]. Dhillon S, et al. Semaglutide: First Global Approval. Drugs. 2018 Feb;78(2):275-284.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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