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Zuschläge

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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

Semaglutide

| | |
|--------------------|---|
| Cat. No.: | HY-114118 |
| CAS No.: | 910463-68-2 |
| Molecular Formula: | C ₁₈₇ H ₂₉₁ N ₄₅ O ₅₉ |
| Molecular Weight: | 4113.58 |
| Target: | GCGR |
| Pathway: | GPCR/G Protein |
| Storage: | Sealed storage, away from moisture Powder -80°C 2 years -20°C 1 year |

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

Semaglutide

SOLVENT & SOLUBILITY

In Vitro

H₂O : 22.22 mg/mL (5.40 mM; ultrasonic and adjust pH to 1 with HCl)
DMSO : 4.17 mg/mL (1.01 mM; ultrasonic and warming and heat to 60°C)

| | Solvent Concentration | Mass | | |
|------------------------------|--------------------------|-----------|-----------|-----------|
| | | 1 mg | 5 mg | 10 mg |
| Preparing Stock Solutions | 1 mM | 0.2431 mL | 1.2155 mL | 2.4310 mL |
| | 5 mM | 0.0486 mL | 0.2431 mL | 0.4862 mL |
| | 10 mM | --- | --- | --- |

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

BIOLOGICAL ACTIVITY

| | |
|-------------------------------------|---|
| Description | Semaglutide, a long-acting GLP-1 analogue, is a glucagon-like peptide-1 (GLP-1) receptor agonist. Semaglutide has the potential for type 2 diabetes treatment. |
| IC₅₀ & Target | GLP-1 receptor ^[1] . |
| In Vitro | Semaglutide has two amino acid substitutions compared to human GLP-1 (Aib ⁸ , Arg ³⁴) and is derivatized at lysine 26. The GLP-1R affinity of Semaglutide is 0.38±0.06 nM ^[1] . Semaglutide is a GLP-1 analogue with 94% sequence omology to human GLP-1 ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| In Vivo | 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 ^[1] . 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 NN-2211 in most parameters^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration ^[2]

Mice^[2]

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) NN-2211 group treated with saline and NN-2211 (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 NN-2211 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^[2].
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.

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