

## Semax

Cat. No.:	HY-P1146
CAS No.:	80714-61-0
Molecular Formula:	C <sub>37</sub> H <sub>51</sub> N <sub>9</sub> O <sub>10</sub> S
Molecular Weight:	813.92
Sequence:	Met-Glu-His-Phe-Pro-Gly-Pro
Sequence Shortening:	MEHFPGP
Target:	Others
Pathway:	Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

### BIOLOGICAL ACTIVITY

<b>Description</b>	Semax is a nootropic neuroprotective peptide. Semax can be used in the research of brain stroke <sup>[1][2]</sup> .	
<b>In Vitro</b>	<p>Semax (25 µM and 100 µM, 48 h) reduces the Abeta oligomers (100 µM) levels<sup>[2]</sup>.</p> <p>Semax (100 nM) increase survival of cholinergic basal forebrain neurons<sup>[3]</sup>.</p> <p>Semax (100 nM) stimulates activity of choline acetyltransferase in dissociated basal forebrain tissue culture<sup>[3]</sup>.</p> <p>Semax (10 µM, 24 h) stimulates the synthesis of brain-derived neurotrophic factor (BDNF) in astrocytes cultured from rat basal forebrain<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
<b>In Vivo</b>	<p>Semax (100 µg/kg, i.p.) promotes the formation and functioning of the vascular system in Ischemia (pMCAO) rats<sup>[1]</sup>.</p> <p>Semax (50 µg and 250 µg, 100 µL/kg, intranasal inhalation) increases levels of b BDNF protein in rat basal forebrain<sup>[5]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
	Animal Model:	Ischemia (pMCAO) rats <sup>[1]</sup> .
	Dosage:	100 µg/kg
	Administration:	Intraperitoneal injections (i.p.), performed 15 min, 1, 4 and 8 h after permanent middle cerebral artery occlusion (pMCAO).
	Result:	Increased the immune response (upregulation of transcripts).
	Animal Model:	Rats <sup>[5]</sup>
	Dosage:	50 µg, 250 µg, 100 µL/kg
	Administration:	Intranasal inhalation
	Result:	Increased levels of brain-derived neurotrophic factor (BDNF) protein in rat basal forebrain.

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## REFERENCES

- [1]. Medvedeva EV, et al. The peptide semax affects the expression of genes related to the immune and vascular systems in rat brain focal ischemia: genome-wide transcriptional analysis. *BMC Genomics*. 2014 Mar 24;15:228.
- [2]. Sciacca MFM, et al. Semax, a Synthetic Regulatory Peptide, Affects Copper-Induced Abeta Aggregation and Amyloid Formation in Artificial Membrane Models. *ACS Chem Neurosci*. 2022 Feb 16;13(4):486-496.
- [3]. Grivennikov IA, et al. Effects of behaviorally active ACTH (4-10) analogue - Semax on rat basal forebrain cholinergic neurons. *Restor Neurol Neurosci*. 2008;26(1):35-43.
- [4]. Shadrina MI, et al. Rapid induction of neurotrophin mRNAs in rat glial cell cultures by Semax, an adrenocorticotrophic hormone analog. *Neurosci Lett*. 2001 Aug 3;308(2):115-8.
- [5]. Dolotov OV, et al. Semax, an analogue of adrenocorticotropin (4-10), binds specifically and increases levels of brain-derived neurotrophic factor protein in rat basal forebrain. *J Neurochem*. 2006 Apr;97 Suppl 1:82-6.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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