Semax

ACTH(4-7) Heptapeptide Analog | Neurotrophin Modulator | Neuropeptide

COMPOUND OVERVIEW

Semax is a synthetic heptapeptide analog of ACTH fragments 4-7, originally developed in Russia. It is registered as a pharmaceutical in Russia for neurological applications including stroke recovery and cognitive impairment. It lacks the hormonal activity of full-length ACTH, retaining primarily neuroprotective and neurogenic properties.

MECHANISM OF ACTION

Semax increases expression of Brain-Derived Neurotrophic Factor (BDNF) and its receptor TrkB, supporting neuronal survival and synaptic plasticity. It modulates dopaminergic and serotonergic neurotransmission and demonstrates neuroprotective effects against hypoxia and oxidative stress. Intranasal delivery achieves direct CNS access via the olfactory pathway.

RESEARCH APPLICATIONS

- BDNF expression and neurotrophin signalling research
- Neuroprotection under hypoxic and excitotoxic conditions
- Dopaminergic and serotonergic modulation studies
- Cognitive function research in neurodegeneration models

EVIDENCE STATUS & KNOWN LIMITATIONS

> ***Evidence Status:*** *Semax is a registered pharmaceutical in Russia with clinical use data. Western controlled trial literature is limited. BDNF modulation evidence is well-supported in animal models; robust independent human RCT data outside Russian regulatory studies is sparse. Researchers should review available literature with consideration of study design and institutional independence.*

ANALYTICAL & STORAGE DATA

PURITY	**>99.8% by HPLC/MS**	PHYSICAL FORM	**Lyophilised Powder**
STORAGE	**2-8 C. Heat sensitive.**	CLASS	**ACTH(4-7) Heptapeptide Analog**
RECONSTITUTION	**Bacteriostatic Water (USP)**	BATCH DOCS	**Available on Request**

RECONSTITUTION NOTE

Semax is a sensitive neuropeptide. Introduce reconstitution solvent gently against the vial wall. Allow complete dissolution without agitation. Protect from heat at all stages. Refrigerate immediately post-reconstitution.

REGULATORY CLASSIFICATION: All BioUnfolding compounds are strictly intended for laboratory evaluation and in-vitro analysis. These materials are not intended for human consumption, veterinary use, or therapeutic application. Researchers are solely responsible for compliance with applicable local regulations including SAHPRA guidelines.

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