

RESEARCH MONOGRAPH . COMPOUND PROFILE

Adamax

A blood-brain-barrier-penetrant adamantyl conjugate of the Semax heptapeptide developed at the Russian Academy of Sciences for sustained nootropic exposure.

DOCUMENT	KDC-MN-1325
ISSUED	2026-05-10
REVISION	1.0
AUTHOR	Kodiac bioLabs Research
COMPOUND CLASS	Adamantyl-conjugated ACTH(4-7)-Pro-Gly-Pro nootropic peptide

RESEARCH USE ONLY

ABSTRACT

Adamax (adamantyl-Met-Glu-His-Phe-Pro-Gly-Pro; molecular weight approximately 980 Da) is a synthetic nootropic peptide developed at the Russian Academy of Sciences as a blood-brain-barrier-penetrant variant of Semax (the ACTH(4-10) analog Met-Glu-His-Phe-Pro-Gly-Pro). The structural modification is N-terminal conjugation of an adamantyl group to the methionine residue, increasing lipophilicity by approximately three log units and extending the half-life in cerebrospinal fluid relative to the parent heptapeptide, which has an intranasal central exposure of only minutes. The pharmacological signature mirrors Semax: BDNF and NGF transcriptional upregulation in cortex and hippocampus, pro-cognitive effects in passive avoidance and Morris water maze rodent models, and neuroprotective activity in middle cerebral artery occlusion stroke models. The adamantyl modification additionally enables oral and parenteral administration with central exposure, in contrast to the intranasal-restricted parent. The compound is a research-grade peptide with limited Western pharmacology characterization; the principal published record is in Russian-language journals from the Institute of Molecular Genetics RAS. Adamax is not approved by any regulatory authority and is not in active clinical development. Investigators should treat the compound as a research tool for studying central exposure of ACTH-derived heptapeptides under conditions where the parent Semax cannot be delivered intranasally. Reconstitution and handling parallel other small peptides; the adamantyl modification reduces aqueous solubility and may require co-solvent or DMSO stock for in vitro work.

1. Compound Identification

Adamax is described as adamantyl-conjugated acth(4-7)-pro-gly-pro nootropic peptide. A blood-brain-barrier-penetrant adamantyl conjugate of the Semax heptapeptide developed at the Russian Academy of Sciences for sustained nootropic exposure.

1.1 Class summary

Adamantyl-conjugated ACTH(4-7)-Pro-Gly-Pro nootropic peptide

1.2 Subtitle

A blood-brain-barrier-penetrant adamantyl conjugate of the Semax heptapeptide developed at the Russian Academy of Sciences for sustained nootropic exposure.

2. Abstract

Adamax (adamantyl-Met-Glu-His-Phe-Pro-Gly-Pro; molecular weight approximately 980 Da) is a synthetic nootropic peptide developed at the Russian Academy of Sciences as a blood-brain-barrier-penetrant variant of Semax (the ACTH(4-10) analog Met-Glu-His-Phe-Pro-Gly-Pro). The structural modification is N-terminal conjugation of an adamantyl group to the methionine residue, increasing lipophilicity by approximately three log units and extending the half-life in cerebrospinal fluid relative to the parent heptapeptide, which has an intranasal central exposure of only minutes. The pharmacological signature mirrors Semax: BDNF and NGF transcriptional upregulation in cortex and hippocampus, pro-cognitive effects in passive avoidance and Morris water maze rodent models, and neuroprotective activity in middle cerebral artery occlusion stroke models. The adamantyl modification additionally enables oral and parenteral administration with central exposure, in contrast to the intranasal-restricted parent. The compound is a research-grade peptide with limited Western pharmacology characterization; the principal published record is in Russian-language journals from the Institute of Molecular Genetics RAS. Adamax is not approved by any regulatory authority and is not in active clinical development. Investigators should treat the compound as a research tool for studying central exposure of ACTH-derived heptapeptides under conditions where the parent Semax cannot be delivered intranasally. Reconstitution and handling parallel other small peptides; the adamantyl modification reduces aqueous solubility and may require co-solvent or DMSO stock for in vitro work.

3. Mechanism of Action

BDNF and NGF transcriptional upregulation. Adamantyl conjugation increases lipophilicity and BBB penetration relative to parent Semax, extending CSF exposure.

The mechanistic profile described above represents the consensus position from peer-reviewed literature where available; for compounds with sparse formal characterization, this section reflects vendor-grade reports and structurally-related class pharmacology and should be interpreted with appropriate caution.

4. Pharmacokinetics and Routes of Administration

Pharmacokinetic data are summarized within the abstract for compounds with formal Phase 1 records. Compounds without published human pharmacokinetic studies are noted as such; investigators should treat the absence of data as a research limitation.

5. Reported Research Dose Ranges

Rodent studies report 0.1 to 1 mg/kg subcutaneously or per os. No human clinical data.

Doses are scaled from clinical use where the compound is approved as a medicine, from Phase 2/3 trials where development advanced, or from rodent dose-response data scaled by allometric assumptions where the compound has no human clinical record. Investigators should treat dose ranges from research-chemical-grade vendors as starting points for their own pharmacokinetic and tolerability characterization rather than validated dosing recommendations.

6. Sourcing and Quality Verification

Investigators should obtain analytical confirmation of identity (mass spectrometry; for peptides, additionally amino acid analysis or N-terminal sequencing) and purity (HPLC area-percent, ideally greater than 95 percent) on every lot. Vendor certificates of analysis vary in quality; third-party analytical confirmation through independent laboratories (e.g., Janoshik Analytical, Anabolic Lab) is the gold standard for research-grade peptides and small molecules.

For compounds with established pharmaceutical-grade marketing in any jurisdiction, sourcing from the marketed product (where legal and accessible) provides the highest quality assurance.

7. Reconstitution and Handling

Peptides should be reconstituted in bacteriostatic water or sterile water for injection in the volume appropriate to the desired concentration; lyophilized peptides should be allowed to come to room temperature before reconstitution to minimize precipitation. Reconstituted peptides should be stored refrigerated and used within the timeframe specified by the manufacturer (typically 14 to 30 days for bacteriostatic water reconstitutions, shorter for sterile water).

Small molecules: storage conditions vary by compound; consult the certificate of analysis for the specific product. Most are stable at room temperature in dry, dark conditions; oxidation-sensitive compounds (e.g., catecholamine precursors) require cool storage and protection from light.

8. Stack Interaction Considerations

Investigators combining this compound with other research substances should consider receptor-level interactions (additive effects at shared targets), enzyme-level interactions (CYP-mediated drug-drug interactions where applicable), and pharmacodynamic interactions (additive sedation, additive serotonergic activity, additive hemodynamic effects).

The stack interaction section in published monographs of well-characterized compounds is necessarily incomplete for any specific combination; investigators should treat novel combinations with elevated caution and titrate gradually.

9. References

1. Levitskaya NG, et al. Effects of adamantane-conjugated heptapeptide on learning and memory. Bull Exp Biol Med 2012.
2. Myasoedov NF, et al. Regulatory peptides in clinical practice. Vestnik RAMS 2014.
3. Andreeva LA, et al. Synthesis of lipophilic Semax analogues. Russ J Bioorg Chem 2010.

This monograph is provided for research use only. Not for medical, diagnostic, or therapeutic purposes. Not for human consumption. Compound class generalizations are noted where compound-specific data are sparse; investigators should weight the evidence accordingly.