

RESEARCH MONOGRAPH . COMPOUND PROFILE

Cycloprolylglycine (CPG)

An endogenous dipeptide present in mammalian CSF; the principal active metabolite of noopept and a research probe for endogenous nootropic mechanisms.

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COMPOUND CLASS	Endogenous dipeptide / noopept metabolite

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ABSTRACT

Cyclopropylglycine (CPG; cyclic Pro-Gly dipeptide) is an endogenous cyclic dipeptide identified in human cerebrospinal fluid and brain tissue. The compound is the principal active metabolite of noopept (formed by enzymatic cyclization after the parent compound's hydrolysis) and has been investigated as an independent research probe. Pharmacology overlaps with noopept: BDNF and NGF upregulation, antioxidant effects, modulation of NMDA and AMPA receptor expression, modest cholinergic facilitation. CPG itself is sold as a research peptide for investigators studying the noopept mechanism without the parent compound's prodrug pharmacology. Pharmacokinetics: plasma half-life ~2 hours; oral bioavailability presumed adequate. Doses are not formally established; rodent doses scale to micrograms per kilogram.

1. Compound Identification

Cycloprolylglycine (CPG) is described as endogenous dipeptide / noopept metabolite. An endogenous dipeptide present in mammalian CSF; the principal active metabolite of noopept and a research probe for endogenous nootropic mechanisms.

1.1 Class summary

Endogenous dipeptide / noopept metabolite

1.2 Subtitle

An endogenous dipeptide present in mammalian CSF; the principal active metabolite of noopept and a research probe for endogenous nootropic mechanisms.

2. Abstract

Cycloprolylglycine (CPG; cyclic Pro-Gly dipeptide) is an endogenous cyclic dipeptide identified in human cerebrospinal fluid and brain tissue. The compound is the principal active metabolite of noopept (formed by enzymatic cyclization after the parent compound's hydrolysis) and has been investigated as an independent research probe. Pharmacology overlaps with noopept: BDNF and NGF upregulation, antioxidant effects, modulation of NMDA and AMPA receptor expression, modest cholinergic facilitation. CPG itself is sold as a research peptide for investigators studying the noopept mechanism without the parent compound's prodrug pharmacology. Pharmacokinetics: plasma half-life ~2 hours; oral bioavailability presumed adequate. Doses are not formally established; rodent doses scale to micrograms per kilogram.

3. Mechanism of Action

Endogenous cyclic dipeptide; BDNF/NGF upregulation, NMDA/AMPA modulation. Active metabolite of noopept.

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

Not formally established; sub-milligram research-grade doses.

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. Gudasheva TA, et al. Identification of cycloprolylglycine in mammalian brain and its activity. Bull Exp Biol Med 1996.

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