

RESEARCH MONOGRAPH . COMPOUND PROFILE

# N-PEP-12

*A defined oral peptide fraction prepared from porcine brain tissue, marketed as a nutraceutical analog of intravenous Cerebrolysin for cognitive support.*

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## ABSTRACT

N-PEP-12 is a porcine-brain-derived peptide preparation developed by Ever Neuro Pharma (the manufacturer of Cerebrolysin) as a defined orally bioavailable analog of the parent intravenous nootropic. Cerebrolysin itself is a complex hydrolysate of porcine cerebral cortex containing approximately 25 percent free amino acids and 75 percent low-molecular-weight peptides (less than 10 kDa) administered by daily intravenous or intramuscular injection in courses of 10 to 30 days for vascular dementia, Alzheimer's disease, ischemic stroke recovery, and traumatic brain injury indications across approximately 50 jurisdictions (Europe, Asia, Russia, South America). The intravenous administration is operationally restrictive; N-PEP-12 was developed to provide a similar peptide profile in a daily oral capsule format suitable for outpatient and over-the-counter use. The published characterization describes a peptide molecular weight distribution of 1 to 10 kDa with similar amino acid composition to Cerebrolysin and shared neurotrophic activity in cortical neuron culture (BDNF and IGF-1 mimetic effects, neurite outgrowth, protection against amyloid-beta and glutamate excitotoxicity). Clinical evidence is more limited than for Cerebrolysin: published randomized trials in mild cognitive impairment (MCI) and age-associated memory impairment report modest cognitive improvements over 90 days in single-center studies. The compound is not FDA-approved; it is marketed as a dietary supplement in the United States and as a nutraceutical or medicinal food in European jurisdictions. The principal limitation on the strength of the evidence is the small number of independent clinical trials and the dominance of the

manufacturer-sponsored published record. Reconstitution is not required; oral capsules contain approximately 60 mg of peptide blend.

# 1. Compound Identification

N-PEP-12 is described as cerebrolysin-derived oral peptide fraction. A defined oral peptide fraction prepared from porcine brain tissue, marketed as a nutraceutical analog of intravenous Cerebrolysin for cognitive support.

## 1.1 Class summary

Cerebrolysin-derived oral peptide fraction

## 1.2 Subtitle

A defined oral peptide fraction prepared from porcine brain tissue, marketed as a nutraceutical analog of intravenous Cerebrolysin for cognitive support.

## 2. Abstract

N-PEP-12 is a porcine-brain-derived peptide preparation developed by Ever Neuro Pharma (the manufacturer of Cerebrolysin) as a defined orally bioavailable analog of the parent intravenous nootropic. Cerebrolysin itself is a complex hydrolysate of porcine cerebral cortex containing approximately 25 percent free amino acids and 75 percent low-molecular-weight peptides (less than 10 kDa) administered by daily intravenous or intramuscular injection in courses of 10 to 30 days for vascular dementia, Alzheimer's disease, ischemic stroke recovery, and traumatic brain injury indications across approximately 50 jurisdictions (Europe, Asia, Russia, South America). The intravenous administration is operationally restrictive; N-PEP-12 was developed to provide a similar peptide profile in a daily oral capsule format suitable for outpatient and over-the-counter use. The published characterization describes a peptide molecular weight distribution of 1 to 10 kDa with similar amino acid composition to Cerebrolysin and shared neurotrophic activity in cortical neuron culture (BDNF and IGF-1 mimetic effects, neurite outgrowth, protection against amyloid-beta and glutamate excitotoxicity). Clinical evidence is more limited than for Cerebrolysin: published randomized trials in mild cognitive impairment (MCI) and age-associated memory impairment report modest cognitive improvements over 90 days in single-center studies. The compound is not FDA-approved; it is marketed as a dietary supplement in the United States and as a nutraceutical or medicinal food in European jurisdictions. The principal limitation on the strength of the evidence is the small number of independent clinical trials and the dominance of the manufacturer-sponsored published record. Reconstitution is not required; oral capsules contain approximately 60 mg of peptide blend.

### 3. Mechanism of Action

Mixed peptide hydrolysate of porcine brain tissue. BDNF and IGF-1 mimetic activity in cortical neuron culture; neurite outgrowth; protection against amyloid-beta and glutamate excitotoxicity. Composite mechanism.

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

Two to three capsules of 60 mg peptide per oral administration daily for 30 to 90 days in published clinical studies.

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. Windisch M, Hutter-Paier B. Pharmacology of Cerebrolysin. CNS Drug Rev 1998.
2. Crook TH, et al. Effects of N-PEP-12 on memory and cognitive function. Drugs Aging 2008.
3. Alvarez XA, et al. A randomized clinical trial of N-PEP-12 in cognitively impaired older adults. Eur J Neurol 2011.

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