

Certificate of Analysis

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Product Name: Levetiracetam

Catalog No.: 2839

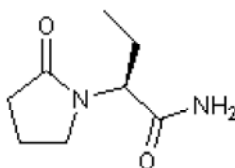
Batch No.: 2

CAS Number: 102767-28-2

IUPAC Name: (2S)-(2-Oxopyrrolidin-1-yl)butyramide

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₈H₁₄N₂O₂
Batch Molecular Weight: 170.21
Physical Appearance: White solid
Solubility: water to 100 mM
DMSO to 100 mM
Storage: Store at RT
Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 100.0% purity
Chiral HPLC: Shows 100.0% purity
¹H NMR: Consistent with structure
Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	56.45	8.29	16.46
Found	56.41	8.35	16.36

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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IUPAC Name: (2S)-(2-Oxopyrrolidin-1-yl)butyramide

Description:

Levetiracetam is an antiepileptic that displays distinctive properties from conventional antiepileptic drugs. Displays potent seizure protection in animal models of chronic epilepsy but lacks activity in acute seizure models. Binds synaptic vesicle protein 2A (SV2A) and inhibits Na⁺-dependent Cl⁻/HCO₃⁻ exchange. In a mouse model of Alzheimer's disease, Levetiracetam rescues levels of presynaptic vesicle fusion and neurotransmitter release, reduces Aβ₄₂ and APP levels and decreases deposits of amyloid plaque; in vitro Levetiracetam inhibits Aβ-induced glutamate from astrocytes.

Physical and Chemical Properties:

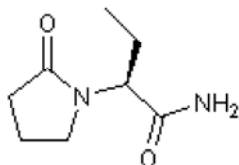
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Batch Molecular Weight: 170.21

Physical Appearance: White solid

Minimum Purity: ≥99%

Batch Molecular Structure:



References:

Rao and Savas (2021) Levetiracetam treatment normalizes levels of presynaptic endocytosis machinery and restores nonamyloidogenic APP processing in App knock-in mice *J. Proteome Res.* **20** 3580. PMID: 34106705.

Sanz-Blasco et al (2016) Levetiracetam inhibits oligomeric Aβ-induced glutamate release from human astrocytes. *Neuroreport* **27** 705. PMID: 27183239.

Sanchez et al (2012) Levetiracetam suppresses neuronal network dysfunction and reverses synaptic and cognitive deficits in an Alzheimer's disease model. *Proc.Natl.Acad.Sci. USA* **109** E2895. PMID: 22869752.

Storage: Store at RT

Solubility & Usage Info:

water to 100 mM

DMSO to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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