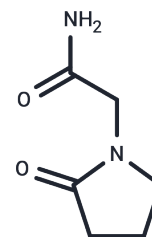


## Piracetam

## Chemical Properties

CAS No. :	7491-74-9
Formula:	C <sub>6</sub> H <sub>10</sub> N <sub>2</sub> O <sub>2</sub>
Molecular Weight:	142.16
Storage:	Powder: -20°C for 3 years   In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Piracetam (UCB-6215), a cyclic derivative of the neurotransmitter gamma-aminobutyric acid (GABA), is used in therapy of the extensive cognitive disorders.
Targets(IC50)	GluR,iGluR
In vitro	Excluding the cerebellum, Piracetam enhances active avoidance learning in aged rats and increases membrane fluidity across all brain regions. A daily dose of 300 mg/kg Piracetam significantly boosts membrane fluidity in certain cerebral areas of aged rats without noticeable effects on juvenile rats. Six weeks of daily administration of 300 mg/kg Piracetam elevates NMDA receptor density in the hippocampus, as well as the density of muscarinic cholinergic receptors in the frontal cortex and striatum, with a slight increase also observed in the hippocampal region. Oral administration of 500 mg/kg Piracetam for 14 consecutive days increases NMDA receptor density by approximately 20% in aged mice and restores the normal affinity of L-glutamate for NMDA receptors. Compared to control and alcohol-fed rats, those treated with Piracetam show a 20% increase in synaptic numbers, suggesting a mechanism of synaptic reorganization at the level of mossy fiber synapses.
In vivo	Piracetam, when pre-incubated with lipopolysaccharides (at Piracetam to peptide ratios ranging from 9.6 to 960), can dose-dependently inhibit the peptide-induced release of calcein completely. It has been observed through the reduced anisotropy of the membrane-bound fluorescent probe 1,6-diphenyl-1,3,5-hexatriene (DPH) that Piracetam (< 1.0 mM) can enhance the membrane fluidity of brain cells in aged rats, mice, and humans. Piracetam significantly reduces the fusion and destabilizing effects of Abeta 29-42 in a concentration-dependent manner. Pre-incubating Piracetam with the peptide at a 960 ratio, 20 minutes before introducing Abeta 29-42, fully protected both types of fluorescent probes.

## Solubility Information

Solubility	DMSO: 50 mg/mL (351.72 mM),Sonication is recommended. H2O: 250 mg/mL (1758.58 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (14.07 mM),Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	7.0343 mL	35.1716 mL	70.3433 mL
5 mM	1.4069 mL	7.0343 mL	14.0687 mL
10 mM	0.7034 mL	3.5172 mL	7.0343 mL
50 mM	0.1407 mL	0.7034 mL	1.4069 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

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 Brandão F, et al. Alcohol, 1996, 13(3), 239-249.

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