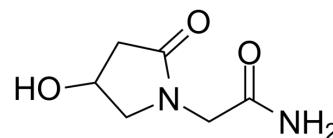


Oxiracetam

Cat. No.:	HY-B1715		
CAS No.:	62613-82-5		
Molecular Formula:	C ₆ H ₁₀ N ₂ O ₃		
Molecular Weight:	158.16		
Target:	GABA Receptor; NO Synthase		
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling; Immunology/Inflammation		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

H₂O : ≥ 100 mg/mL (632.27 mM)
 DMSO : 25 mg/mL (158.07 mM; Need ultrasonic)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	6.3227 mL	31.6136 mL	63.2271 mL
	5 mM	1.2645 mL	6.3227 mL	12.6454 mL
	10 mM	0.6323 mL	3.1614 mL	6.3227 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Oxiracetam (ISF2522) is an orally active and a BBB-penetrable cyclic derivative of γ -aminobutyric acid (GABA). Oxiracetam reaches the hippocampus and cerebral cortex in high concentrations. Oxiracetam can promote cognitive function and regulate inflammatory response, with powerful neuroprotective effects. Oxiracetam can be used in the study of central nervous system diseases^{[1][2][3]}.

In Vitro

Oxiracetam (100 μ M; 12-24 h) inhibits A β -induced cell activation, inflammatory molecules expression and NO production in BV2 cells^[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Real Time qPCR^[1]

Cell Line: A β treated BV2 microglial cells

Concentration: 100 μ M

	<table border="1"> <tr> <td data-bbox="318 96 618 191">Incubation Time:</td> <td data-bbox="618 96 1529 191">12 h</td> </tr> <tr> <td data-bbox="318 191 618 275">Result:</td> <td data-bbox="618 191 1529 275">Reduced the level of iNOS mRNA.</td> </tr> </table>	Incubation Time:	12 h	Result:	Reduced the level of iNOS mRNA.				
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Result:	Reduced the level of iNOS mRNA.								
In Vivo	<p>Oxiracetam (30 mg/kg; intraperitoneal injection; 4 weeks) improves cognitive impairment induced by chronic cerebral ischemia in rats^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td data-bbox="318 411 618 516">Animal Model:</td> <td data-bbox="618 411 1529 516">Male adult Sprague-Dawley rats (220-240 g) with chronic cerebral hypoperfusion (CCH) model^[2]</td> </tr> <tr> <td data-bbox="318 516 618 569">Dosage:</td> <td data-bbox="618 516 1529 569">30 mg/kg</td> </tr> <tr> <td data-bbox="318 569 618 621">Administration:</td> <td data-bbox="618 569 1529 621">Intraperitoneal injection (i.p.) 4 weeks</td> </tr> <tr> <td data-bbox="318 621 618 852">Result:</td> <td data-bbox="618 621 1529 852"> Prevented spatial learning and memory impairment induced by CCH. Rescued the CCH-induced LTP decrease. Prevented the white matter lesions of CA3 nerve fibres. Maintained BDNF levels and CREB activity in rat brains. Prevented CCH-induced deterioration of dendritic spines and synapses. </td> </tr> </table>	Animal Model:	Male adult Sprague-Dawley rats (220-240 g) with chronic cerebral hypoperfusion (CCH) model ^[2]	Dosage:	30 mg/kg	Administration:	Intraperitoneal injection (i.p.) 4 weeks	Result:	Prevented spatial learning and memory impairment induced by CCH. Rescued the CCH-induced LTP decrease. Prevented the white matter lesions of CA3 nerve fibres. Maintained BDNF levels and CREB activity in rat brains. Prevented CCH-induced deterioration of dendritic spines and synapses.
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REFERENCES

- [1]. Zhang H, et al. Oxiracetam Offers Neuroprotection by Reducing Amyloid β -Induced Microglial Activation and Inflammation in Alzheimer's Disease. *Front Neurol.* 2020 Jul 17;11:623
- [2]. Yao XL, et al. Oxiracetam can improve cognitive impairment after chronic cerebral hypoperfusion in rats. *Psychiatry Res.* 2016 Dec 30;246:284-292.
- [3]. Li W, et al. (S)-Oxiracetam is the Active Ingredient in Oxiracetam that Alleviates the Cognitive Impairment Induced by Chronic Cerebral Hypoperfusion in Rats. *Sci Rep.* 2017 Aug 30;7(1):10052.

Caution: Product has not been fully validated for medical applications. For research use only.

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