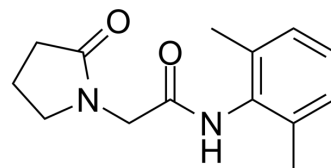


Nefiracetam

Cat. No.:	HY-B0340												
CAS No.:	77191-36-7												
Molecular Formula:	C ₁₄ H ₁₈ N ₂ O ₂												
Molecular Weight:	246.3												
Target:	GABA Receptor												
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling												
Storage:	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	2 years		-20°C	1 year
Powder	-20°C	3 years											
	4°C	2 years											
In solvent	-80°C	2 years											
	-20°C	1 year											



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (406.01 mM)
 H₂O : ≥ 25 mg/mL (101.50 mM)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent		Mass		
	Concentration		1 mg	5 mg	10 mg
	1 mM		4.0601 mL	20.3004 mL	40.6009 mL
	5 mM		0.8120 mL	4.0601 mL	8.1202 mL
	10 mM		0.4060 mL	2.0300 mL	4.0601 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (10.15 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (10.15 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (10.15 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nefiracetam is a GABAergic, cholinergic, and monoaminergic neuronal systems enhancer for Ro 5-4864-induced convulsions. Target: GABA Receptor. Nefiracetam induces a short-term depression of ACh-evoked currents at submicromolar concentrations (0.01-0.1 μM) and a long-term enhancement of the currents at micromolar concentrations (1-10 μM). Nefiracetam interacts with PKA and PKC pathways, which may explain a cellular mechanism for the action of cognition-enhancing agents. Lower (submicromolar) concentrations of the nootropic Nefiracetam reduces ACh-evoked currents to

30% (0.01 μM) and 38% (0.1 μM) of control after a 10-minute treatment [1]. Nefiracetam administered orally inhibits Ro 5-4864-induced convulsions in EL mice. Nefiracetam also efficiently inhibits Ro 5-4864-induced convulsions in DDY mice at doses higher than 10 mg/kg [2]. Nefiracetam administered daily 1 hour before each training session facilitates the acquisition process of the avoidance response [3].

REFERENCES

- [1]. Nishizaki, T., et al., Nefiracetam modulates acetylcholine receptor currents via two different signal transduction pathways. *Mol Pharmacol*, 1998. 53(1): p. 1-5.
- [2]. Shiotani, T., et al., Anticonvulsant actions of nefiracetam on epileptic EL mice and their relation to peripheral-type benzodiazepine receptors. *Brain Res*, 2000. 859(2): p. 255-61.
- [3]. Sakurai, T., et al., Effects of N-(2,6-dimethylphenyl)-2-(2-oxo-1-pyrrolidiny)acetamide (DM-9384) on learning and memory in rats. *Jpn J Pharmacol*, 1989. 50(1): p. 47-53.
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Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA