Data Sheet (Cat.No.Fr16624)

TargetMol

Indole-2-carboxylic acid

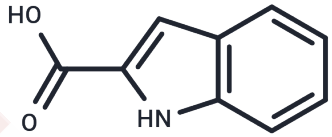
Chemical Properties

CAS No. : 1477-50-5

Formula: C9H7NO2

Molecular Weight: 161.16

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	Indole-2-carboxylic acid is an indole carboxylic acid compound with multi-target biological activity, exhibiting neuroprotective, antiviral, and antioxidant properties. Indole-2-carboxylic acid is a competitive antagonist at the glycine site of the NMDA receptor (Ki = 15 μM). Indole-2-carboxylic acid specifically inhibits the potentiating effect of glycine on NMDA-gated currents, blocking the neurotoxicity caused by excessive NMDA receptor activation, and can be used in research on the treatment of neurodegenerative diseases and cerebral ischemic injury. Indole-2-carboxylic acid is also an HIV-1 integrase inhibitor; it interferes with the integration of viral DNA into the host genome and can be used in the development of anti-HIV drugs.
Targets(IC50)	HIV Protease,Endogenous Metabolite,NMDAR,iGluR
In vitro	Methods: Rat (Long Evans, 1-10 days old) cortical or spinal cord neurons were preincubated with indole-2-carboxylic acid (0.01-1000 μM) and glycine (10 nM-40 μM). Following preincubation, NMDA (30 μM) was applied, and steady-state currents were recorded (averaged over the final 10-20 s) . Results: Indole-2-carboxylic acid (0.01-1000 μM) competitively inhibited the potentiating effect of glycine on NMDA receptors in rat cortical/spinal cord neurons, with an IC_{50} of 105 μM.[1]
In vivo	Methods: Male Sprague-Dawley rats underwent lateral fluid-impact brain injury. Indole-2-carboxylic acid (20 or 50 mg/kg) was administered intravenously 15 minutes after injury. Behavioral assessments continued for 2 weeks post-injury, and neurochemical markers were measured 48 hours post-injury. Results: Indole-2-carboxylic acid significantly improved trauma-induced cognitive impairment, and at 2 weeks post-injury, it improved neuromotor function. [2]

Solubility Information

Solubility	H2O: < 1?mg/mL?(insoluble) DMSO: 80 mg/mL (496.4 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	6.205 mL	31.0251 mL	62.0501 mL
5 mM	1.241 mL	6.205 mL	12.410 mL
10 mM	0.6205 mL	3.1025 mL	6.205 mL
50 mM	0.1241 mL	0.6205 mL	1.241 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

Huettner JE. Indole-2-carboxylic acid: a competitive antagonist of potentiation by glycine at the NMDA receptor. Science. 1989;243(4898):1611-1613.

Smith DH, et al. Effects of the excitatory amino acid receptor antagonists kynurenate and indole-2-carboxylic acid on behavioral and neurochemical outcome following experimental brain injury. J Neurosci. 1993;13(12):5383-5392.