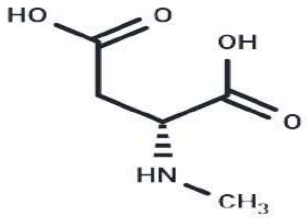
NMDA [6384-92-5]

#Cat: NB-64-35283-25mg Size: 25mg
#Cat: NB-64-35283-50mg Size: 50mg
#Cat: NB-64-35283-100mg Size: 100mg
#Cat: NB-64-35283-200mg Size: 200mg

Chemical Properties



Cas No: 6384-92-5
Formula: $C_5H_9NO_4$
Molecular weight: 147.13
Appearance: Solid
Storage: keep away from moisture
Powder: -20° C for 3 years | In solvent: -80° C for 1 year

Biological Description

Description	N-Methyl-D-aspartic acid is an amino acid that, as the D-isomer, is the defining agonist for the NMDA (N-Methyl-D-aspartic acid) receptor subtype of glutamate receptors.
Targets(IC50)	Endogenous Metabolite,NMDAR,iGluR
In vitro	NMDA is an excitatory amino acid neurotransmitter, which only binds to the NMDA receptor without effecting other glutamate receptors (such as those for AMPA and kainate). NMDA specifically binds to the NR2 subunits of NMDA receptor, and then stimulates the open of non-specific cation channel which can allow the passage of Ca2+ and Na+ into the cell and K+ out of the cell. Activation of the NMDA receptor is able to produce the excitatory postsynaptic potential (EPSP), and trigger the increase of intracellular Ca2+ content which may further take participating in various signaling pathways. NMDA receptor plays a key role in a wide range of physiological (e.g. longterm potentiation and neuronal plasticity) and pathological processes (e.g. excitotoxicity and epilepsy). [1].
In vivo	Microinjection of NMDA (0.2 nM) significantly impacts male sexual behaviors, notably reducing both mount and intromission frequencies, while also shortening the latencies to intromission and ejaculation. Furthermore, NMDA markedly enhances, whereas AP-5 distinctly inhibits, ejaculatory behavior when observed during a 30-minute copulation test. When NMDA is bilaterally microinjected into the paraventricular nucleus (PVN), there is a notable increase in baseline lumbar sympathetic nerve activity (LSNA), with the peak increment of LSNA manifesting within 5 minutes of the procedure[3].
Kinase Assay	Adrenal membranous homogenate suspensions are incubated with 10 nM [3H]Glu in 500/zl 50 mM Tris-acetate buffer (pH 7.4) at 2° C or 30° C in the presence and absence of various compounds. Incubation is terminated by the addition of 3 mL ice-cold buffer and subsequent filtration through a Whatman GF/B glass filter under a constant vacuum of 15 mm Hg. After washing the filter 4 times with 3 mL icecold buffer, the radioactivity trapped on the filter is measured by a liquid scintillation spectrometer using 5 mL modified Triton-toluene scintillant at a counting efficiency of 40-42%. The radioactivity found in the presence of 1 mM non-radioactive Glu is subtracted from each experimental value to obtain the specific binding of [3H]GIu in accordance with the yaminobutyric acid (GABA) receptor binding assay system. The kinetic parameters of [3H] GIu binding, Kd and Bma x, are calculated by Scatchard analysis of the specific binding using a personal computer with a programme for non-linear regression analysis developed in our own laboratory

Solubility Information

Solubility	H_2O: 30 mg/mL (203.9 mM),Sonication is recommended. DMSO: 10 mg/mL (67.97 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	6.7967 mL	33.9836 mL	67.9671 mL
5 mM	1.3593 mL	6.7967 mL	13.5934 mL
10 mM	0.6797 mL	3.3984 mL	6.7967 mL
50 mM	0.1359 mL	0.6797 mL	1.3593 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

Reference

Cull-Candy S, et al. Curr Opin Neurobiol, 2001, 11(3), 327-335.
Wu J, Zhao M, Jin Y, et al.Schisandrin B, a dual positive allosteric modulator of GABAA and glycine receptors, alleviates seizures in multiple mouse models.Acta Pharmacologica Sinica.2023: 1-15.
Liu G, Huang L, Tan J, et al.Characterization of a monkey model with experimental retinal damage induced by Nmethyl-D-aspartate.Disease Models & Mechanisms.2024, 17(8).
Sun X, et al. Mol Cell Biochem. 2009, 330(1-2), 181-185
Xia JD, et al. Centrally mediated ejaculatory response via sympathetic outflow in rats: role of N-methyl-D-aspartic acid receptors in paraventricular nucleus. Andrology. 2016 Nov 16.