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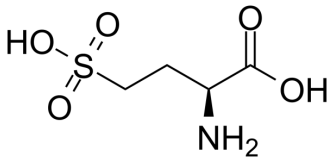
L-Homocysteic acid

Cat. No.:	HY-138903
CAS No.:	14857-77-3
Molecular Formula:	$C_4H_9NO_5S$
Molecular Weight:	183.18
Target:	iGluR
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vivo	1. Add each solvent one by one: ⊠MaximumSolubilityTest Solubility: 50 mg/mL (272.96 mM); Clear solution; Need ultrasonic and warming

BIOLOGICAL ACTIVITY

Description	L-Homocysteic acid (L-HCA) is an endogenous excitatory amino acid that acts as a NMDA receptor agonist (EC_{50}: 14 μM). L-Homocysteic acid is neurotoxic, and can be used in the research of neurological disorders[1][2][3].
IC_{50} & Target	NMDA Receptor 14 μM (EC50)
In Vitro	L-Homocysteic acid activates NMDA receptor with an EC_{50} value of 14 μM[1]. L-Homocysteic acid (100 μM) induces large currents (1.8 nA) that is insensitive to the NMDA receptor-antagonist mixture in Purkinje cells[1]. L-Homocysteic acid (250 μM, 30 min) potently induces an acute excitotoxic reaction in ex vivo chick embryo retina[2]. L-Homocysteic acid (0-2 mM, 48 h) induces a concentration-dependent neurotoxic effect in rat primary neurons[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	L-Homocysteic acid (intraperitoneal injection, 4-11 mmol/kg) elicits seizures in rats during early postnatal development[4]. L-Homocysteic acid (intraperitoneal injection, 100-1500 mg/kg) partially substitutes for NMDA, producing maximum values of 61-67% NMDA-lever responding at doses of 1000 and 560 mg/kg, respectively in Sprague-Dawley rats[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male albino rats of the Wistar strain[4]
Dosage:	4, 5.5, 8, 11 mM/kg
Administration:	Intraperitoneal injection, daily for 14 days

Result:	Induced flexion seizures at 4 mmol/kg. Led to intense tail flicking, pivoting, and locomotion. Decreased ECoG (electrocorticograms) activity for 5-9 min.

REFERENCES

[1]. M Yuzaki, et al. Characterization of L-homocysteate-induced currents in Purkinje cells from wild-type and NMDA receptor knockout mice. J Neurophysiol . 1999 Nov;82(5):2820-6.

[2]. J W Olney, et al. L-homocysteic acid: an endogenous excitotoxic ligand of the NMDA receptor. Brain Res Bull. 1987 Nov;19(5):597-602.

[3]. B Lockhart, et al. Inhibition of L-homocysteic acid and buthionine sulphoximine-mediated neurotoxicity in rat embryonic neuronal cultures with alpha-lipoic acid enantiomers. Brain Res. 2000 Feb 14;855(2):292-7.

[4]. P Mares, et al. Convulsant action of D,L-homocysteic acid and its stereoisomers in immature rats.

[5]. Katherine L Nicholson, et al. The discriminative stimulus effects of N-methyl-D-aspartate glycine-site ligands in NMDA antagonist-trained rats. Psychopharmacology (Berl). 2009 Apr;203(2):441-51.

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