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## Product Data Sheet

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Product Name: L-Homocysteic acid

Cat. No.: GC66843

### Chemical Properties

Cas. No. 14857-77-3

Formula C<sub>4</sub>H<sub>9</sub>NO<sub>5</sub>S

M.Wt

183.18

Solubility

Storage

Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure

### Background

L-Homocysteic acid (L-HCA) is an endogenous excitatory amino acid that acts as a **NMDA** receptor agonist (**EC<sub>50</sub>**: 14 μM). L-Homocysteic acid is neurotoxic, and can be used in the research of neurological disorders<sup>[1][2][3]</sup>.

L-Homocysteic acid activates NMDA receptor with an EC<sub>50</sub> value of 14 μM<sup>[1]</sup>.

L-Homocysteic acid (100 μM) induces large currents (1.8 nA) that is insensitive to the NMDA receptor-antagonist mixture in Purkinje cells<sup>[1]</sup>.

L-Homocysteic acid (250 μM, 30 min) potently induces an acute excitotoxic reaction in *ex vivo* chick embryo retina<sup>[2]</sup>.

L-Homocysteic acid (0-2 mM, 48 h) induces a concentration-dependent neurotoxic effect in rat primary neurons<sup>[3]</sup>.

L-Homocysteic acid (intraperitoneal injection, 4-11 mmol/kg) elicits seizures in rats during early postnatal development<sup>[4]</sup>.

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<sup>[5]</sup>.

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

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Animal Model: Male albino rats of the Wistar strain<sup>[4]</sup>

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.

[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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