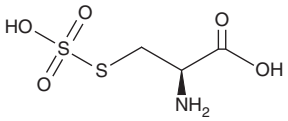
PRODUCT INFORMATION

S-Sulfocysteine

Item No. 34559

CAS Registry No.: 1637-71-4
Formal Name: S-sulfo-L-cysteine
Synonyms: L-Cysteine S-Sulfate, L-S-Sulphocysteine, S-Sulfo-L-Cysteine
MF: $C_3H_7NO_5S_2$
FW: 201.2
Purity: ≥90%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

S-Sulfocysteine is supplied as a solid. A stock solution may be made by dissolving the S-sulfocysteine in the solvent of choice, which should be purged with an inert gas. S-Sulfocysteine is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of S-sulfocysteine in these solvents is approximately 3 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of S-sulfocysteine can be prepared by directly dissolving the solid in aqueous buffers. The solubility of S-sulfocysteine in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

S-Sulfocysteine is an NMDA receptor agonist.[1] It is selective for the NMDA receptor over the AMPA receptor in radioligand binding assays (EC_{50}s = 8.2 and 59 µM, respectively). S-Sulfocysteine (200 µM) is cytotoxic to primary mouse neuronal cells.[2] It induces calcium influx and activates calpain-dependent degradation of the post-synaptic scaffolding protein gephyrin when used at a concentration of 100 µM. S-Sulfocysteine (2 mM) increases swimming and seizure-like movements, indicating neurodegeneration, in zebrafish larvae when administered three days post-fertilization.[3] Urinary and plasma levels of S-sulfocysteine are increased in patients with molybdenum cofactor deficiency (MoCD), an inborn error of metabolism characterized by neurodegeneration and early childhood death.[2]

References

1. Patneau, D.K. Structure-activity relationships for amino acid transmitter candidates acting at *N*-methyl-D-aspartate and quisqualate receptors. *J. Neurosci.* **10(7)**, 2385-2399 (1990).
2. Kumar, A., Dejanovic, B., Hetsch, F., *et al.* S-sulfocysteine/NMDA receptor-dependent signaling underlies neurodegeneration in molybdenum cofactor deficiency. *J. Clin. Invest.* **127(12)**, 4365-4378 (2017).
3. Plate, J., Sassen, W.A., Hassan, A.H., *et al.* S-sulfocysteine induces seizure-like behaviors in zebrafish. Front. Pharmacol. **10**, 122 (2019).

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