

Product Data Sheet

Product Name: DL-Ethionine

Cat. No.: GD11710

Chemical Properties

Cas. No. 67-21-0

Formula $C_6H_{13}NO_2S$

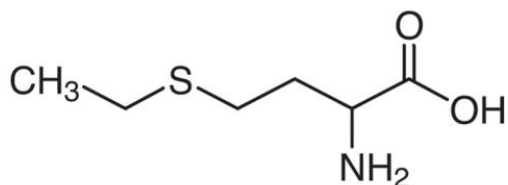
M.Wt 163.238

Solubility Storage -20°C, protect from light, away from moisture

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



Protocol

Animal experiment [1]:

Animal models Male albino rats

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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One hundred and fifty male albino rats, Wistar strain, weighing 160 to 180g, were given water ad libitum and kept in individual cages in an air-conditioned room at 68°F. One hundred and twenty-five of the rats were placed on a protein-free diet. Seventy-five of the rats on the protein-free diet received daily

Preparation Method intraperitoneal injections for 10 days of DL-Ethionine (0.7mg/g) dissolved in aqueous 0.9 sodium chloride (ethionine group). Fifty mice were kept on the protein-free diet. After day 10, the mice of both the DL-Ethionine and protein-free groups were maintained on the protein-free diet through day 28. The status of pancreatic acinar tissues in rats injected with ethionine was analyzed.

Dosage form 0.7mg/g/day for 10 days; i.p.

Applications DL-Ethionine treatment caused degenerative changes in rat pancreatic acinar tissue, including a widening of the endoplasmic reticulum, a reduction in the number of membrane-bound ribosomes, and the appearance of fine and bulky vacuoles containing nongranular, disordered membranes.

References:

[1] Herman L, Fitzgerald P J. The degenerative changes in pancreatic acinar cells caused by DL-ethionine[J]. The Journal of Cell Biology, 1962, 12(2): 277-296.

Background

DL-Ethionine, an antagonist of Methionine, is toxic and a carcinogen [1]. DL-Ethionine could increase the cyclic AMP content and stimulate the malignant transformation of cells [2]. DL-Ethionine has been widely used to induce hepatocarcinogenesis in rats[3].

In vivo, Feeding a low-choline diet containing 0.5% DL-ethionine resulted in the development of acute hemorrhagic pancreatitis with peritoneal fat necrosis in female mice within five days[4]. DL-Ethionine treatment via intraperitoneal injections for 10 days of DL-Ethionine (0.7mg/g) caused degenerative changes in rat pancreatic acinar tissue, including a widening of the endoplasmic reticulum, a

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reduction in the number of membrane-bound ribosomes, and the appearance of fine and bulky vacuoles containing nongranular, disordered membranes^[5]. C3H female mice given 150mg/kg DL-Ethionine by intubation three times a week for 30 weeks resulted in a significant increase in the incidence of liver tumors^[6].

References:

- [1] Wang J, Yao H, Lu T, et al. Spectroscopic, kinetic, and theoretical analyses of oxidation of dl-ethionine by Pt (IV) anticancer model compounds[J]. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 2019, 223: 117328.
- [2] DeRubertis F R, Craven P A. Sequential alterations in the hepatic content and metabolism of cyclic AMP and cyclic GMP induced by DL-ethionine: Evidence for malignant transformation of liver with a sustained increase in cyclic AMP[J]. Metabolism, 1976, 25(12): 1611-1625.
- [3] Kamamoto Y, Makiura S, Sugihara S, et al. The inhibitory effect of copper on DL-ethionine carcinogenesis in rats[J]. Cancer research, 1973, 33(5): 1129-1135.
- [4] Lombardi B, Estes L W, Longnecker D S. Acute hemorrhagic pancreatitis (massive necrosis) with fat necrosis induced in mice by DL-ethionine fed with a choline-deficient diet[J]. The American journal of pathology, 1975, 79(3): 465.
- [5] Herman L, Fitzgerald P J. The degenerative changes in pancreatic acinar cells caused by DL-ethionine[J]. The Journal of Cell Biology, 1962, 12(2): 277-296.
- [6] Hoover K L, Hyde C L, Wenk M L, et al. Ethionine carcinogenesis in CD-1, BALB/c and C3H mice[J]. Carcinogenesis, 1986, 7(7): 1143-1148.

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