Data Sheet (Cat.No.T6460)

TargetMol

Cysteamine hydrochloride

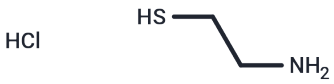
Chemical Properties

CAS No. : 156-57-0

Formula: C2H7NS·HCl

Molecular Weight: 113.61

Storage: Store under nitrogen
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.



Biological Description

Description	Cysteamine hydrochloride is an orally administered small-molecule drug commonly used for the treatment of nephropathic cystinosis. It also functions as an antioxidant and is used in experimental studies to induce gastrointestinal disorders, duodenal ulcers, and kidney injury models in mice.
Targets(IC50)	Apoptosis,Reactive Oxygen Species,Endogenous Metabolite,Autophagy
In vitro	Cysteamine enhances intracellular glutathione (GSH) levels in cystinotic cells, effectively restoring their altered redox state and demonstrating antioxidant capabilities by increasing glutathione production, thus scavenging harmful OH and HOCl. It also mitigates increased apoptosis rates in cystinotic cells by counteracting the effects of elevated caspase 3 and protein kinase Cε activity. Furthermore, Cysteamine boosts the production of various heat shock proteins (HSP), notably murine Hsp40. It exhibits a dose-dependent mitigation of doxorubicin-induced death in cancer cells, including HeLa and B16 cells, without affecting cell survival on its own. Remarkably, it enhances the efficacy of doxorubicin in doxorubicin-resistant breast cancer cells, significantly increasing cell death. Additionally, Cysteamine (100 μM) not only heightens intracellular GSH levels but also improves the development of matured oocytes to the blastocyst stage in embryo cultures. [1][2]
In vivo	Cysteamine is introduced as a treatment for cystinosis by depleting lysosomal cystine. Cystamine can inhibit transglutaminase activity by binding to the cysteine in its active center. Cysteamine increases brain levels of brain-derived neurotrophic factor (BDNF), which is caused by the increased expression of the heat shock DNAJ-containing protein 1 (HSJ1). Cysteamine inhibits the formation of gastric and mammary tumors that are induced chemically or after irradiation, respectively. The administration of Cysteamine is also able to inhibit the metastasis of pancreatic cancer in a mouse model by decreasing the expression and activity of metalloproteinases. [1]

Solubility Information

Solubility	Ethanol: 22 mg/mL (193.64 mM),Sonication is recommended. H2O: 21 mg/mL (184.84 mM),Sonication is recommended. DMSO: 71.43 mg/mL (628.73 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (17.6 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	8.802 mL	44.0102 mL	88.0204 mL
5 mM	1.7604 mL	8.802 mL	17.6041 mL
10 mM	0.8802 mL	4.401 mL	8.802 mL
50 mM	0.176 mL	0.8802 mL	1.7604 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Besouw M, et al. Drug Discov Today, 2013, 18(15-16), 785-792.
de Matos DG, et al. Mol Reprod Dev, 1995, 42(4), 432-436.