Cysteamine hydrochloride

Cat. No.: HY-77591

CAS No.: 156-57-0

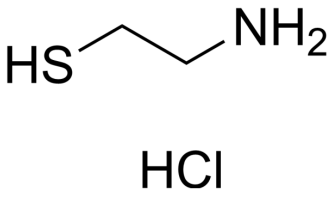
Molecular Formula: C_2H_8ClNS

Molecular Weight: 113.61

Target: Autophagy; Reactive Oxygen Species; Apoptosis; Endogenous Metabolite

Pathway: Autophagy; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis

Storage: 4°C, protect from light, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (880.20 mM; Need ultrasonic)
H_2O : ≥ 50 mg/mL (440.10 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent, Mass	1 mg	5 mg	10 mg
1 mM	8.8020 mL	44.0102 mL	88.0204 mL
5 mM	1.7604 mL	8.8020 mL	17.6041 mL
10 mM	0.8802 mL	4.4010 mL	8.8020 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (880.20 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (18.31 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (18.31 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (18.31 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cysteamine hydrochloride (2-Aminoethanethiol hydrochloride) is an orally active agent for the treatment of nephropathic cystinosis and an antioxidant.

IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Cysteamine hydrochloride (2-Aminoethanethiol hydrochloride) has been shown to increase intracellular glutathione levels in cystinotic cells, thus restoring the altered redox state of the cells. Also increased rates of apoptosis in cystinotic cells, which are thought to be the result of increased caspase 3 and protein kinase Cε activity, is counteracted by Cysteamine hydrochloride administration. Cysteamine hydrochloride has antioxidant properties as a result of increasing glutathione production. Cysteamine hydrochloride is an excellent scavenger of OH and HOCl; it also reacts with H2O2. Cysteamine hydrochloride increases the production of several heat shock proteins (HSP), including the murine Hsp40. Cysteamine hydrochloride exerts a dose-dependent effect on the doxorubicin-induced death of cancer cells, measured in both HeLa cells and B16 cells, whereas Cysteamine hydrochloride treatment alone had no influence on cell survival. In addition, in a doxorubicin-resistant breast cancer cell line, the addition of Cysteamine hydrochloride to doxorubicin results in a dramatic increase in cell death[1]. Cysteamine hydrochloride (100 μM) significantly is able to increase the intracellular GSH levels and the percentage of embryos that developed to the blastocyst stage of culture matured oocytes[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Cysteamine hydrochloride can be used in animal modeling to construct a duodenal ulcer model. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Clin Exp Pharmacol Physiol. 2017 Jul;44(7):803-814.

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REFERENCES

[1]. Besouw, M., et al., Cysteamine: an old drug with new potential. Drug Discov Today, 2013. 18(15-16): p. 785-92.

[2]. de Matos, D.G., et al., Effect of cysteamine on glutathione level and developmental capacity of bovine oocyte matured in vitro. Mol Reprod Dev, 1995. 42(4): p. 432-6.

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

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