Ergothioneine

Cat. No.: HY-N1914

CAS No.: 497-30-3

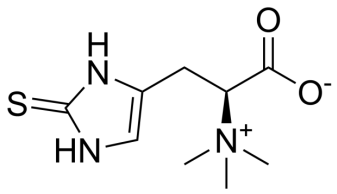
Molecular Formula: $C_9H_{15}N_3O_2S$

Molecular Weight: 229.3

Target: Endogenous Metabolite; p38 MAPK; Akt; Keap1-Nrf2; NF-κB

Pathway: Metabolic Enzyme/Protease; MAPK/ERK Pathway; PI3K/Akt/mTOR; NF-κB

Storage: -20°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 125 mg/mL (545.14 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.3611 mL	21.8055 mL	43.6110 mL
5 mM	0.8722 mL	4.3611 mL	8.7222 mL
10 mM	0.4361 mL	2.1805 mL	4.3611 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 (436.11 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Ergothioneine is an imidazole-2-thione derivative with orally active histidine betaine. Ergothioneine is a specific inhibitor of p38-MAPK and Akt, which plays a protective role in cell apoptosis induced by stress. Ergothioneine has antioxidant activity[1] [2].

IC_{50} & Target

Microbial Metabolite | Human Endogenous Metabolite

In Vitro

Ergothioneine (0.25, 1 mM, 23 h) can regulate PC12 DNA damage, MAPKs activation and cell death induced by hydrogen peroxide[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay [1]

Cell Line:	PC12

Concentration:	0.25, 1 mM
Incubation Time:	23 h
Result:	Increased cell viability by approximately 13% and 34%, respectively.

Western Blot Analysis [1]

Cell Line:	PC12
Concentration:	0.25, 1 mM
Incubation Time:	23 h
Result:	Counteracted the p38 phosphorylation induced by 1 h incubation with H2O2.

In Vivo

Ergothioneine (70 mg/kg orally, For 14 consecutive days) mediates the improvement of cisplatin-induced nephrotoxicity in rats by regulating Nrf2, p53 and NF-κB signaling and inhibiting γ-glutamyltranspeptidase[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Cisplatin-treated rats[1]
Dosage:	70 mg/kg
Administration:	p.o. For 14 consecutive days
Result:	Decreased serum creatinine and BUN. Increased GFR at two-fold. Suppressed cisplatin-induced oxidative stress and GCT. Up-regulated the levels of Nrf2, NQO1, and HO-1. Suppresses NF-κB signaling and the pro-inflammatory cytokines.

CUSTOMER VALIDATION

- ACS Appl Mater Interfaces. 2024 May 30.
- ACS Appl Mater Interfaces. 2023 Apr 13.
- Antioxid Redox Signal. 2024 May 21.
- Int Immunopharmacol. 2023 May 6;119:110211.
- Hum Exp Toxicol. 2023 Jan-Dec;42:9603271231178015.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Colognato R, et al. Modulation of hydrogen peroxide-induced DNA damage, MAPKs activation and cell death in PC12 by ergothioneine. Clin Nutr. 2006 Feb;25(1):135-45.

[2]. Salama SA, et al. Ergothioneine mitigates cisplatin-evoked nephrotoxicity via targeting Nrf2, NF-κB, and apoptotic signaling and inhibiting γ-glutamyl transpeptidase. Life Sci. 2021 Aug 1;278:119572.

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

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA