Esomeprazole magnesium trihydrate

Cat. No.: HY-17022

CAS No.: 217087-09-7

Molecular Formula: $C_{34}H_{42}MgN_6O_9S_2$

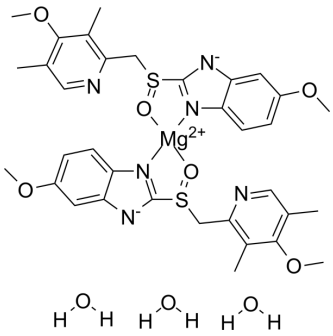
Molecular Weight: 767.17

Target: Proton Pump

Pathway: Membrane Transporter/Ion Channel

Storage: 4°C, sealed storage, away from moisture and light

* The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (65.17 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3035 mL	6.5175 mL	13.0349 mL
	5 mM	0.2607 mL	1.3035 mL	2.6070 mL
	10 mM	0.1303 mL	0.6517 mL	1.3035 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 5 mg/mL (6.52 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 5 mg/mL (6.52 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 5 mg/mL (6.52 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Esomeprazole magnesium trihydrate ((S)-Omeprazole magnesium trihydrate) is a potent and orally active H^+, K^+-ATPase inhibitor. Esomeprazole magnesium trihydrate has the potential for upper intestinal disorders and gastroesophageal reflux disease research[1][2]. Esomeprazole magnesium trihydrate acts as an exosome inhibitor by blocking the exosome release via the inhibition of V-H^+-ATPases[4].

IC_{50} & Target

H^+, K^+-ATPase[1]

In Vitro

Esomeprazole magnesium trihydrate is develped from Esomeprazole strontium tetrahydrate (EST). EST contains esomeprazole, the S-enantiomer of omeprazole a salt-exchanged version of Esomeprazole magnesium trihydrate[2].

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

In Vivo

Esomeprazole magnesium (0.5-50 mg/kg; oral gavage; daily; for 10 days; A/J mice) treatment increases gastric total antioxidant capacity and Cu/Zn-superoxide dismutase activity[1].

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

Animal Model:	A/J mice[1]
Dosage:	0.5 mg/kg, 5 mg/kg, 50 mg/kg
Administration:	Oral gavage; daily; for 10 days
Result:	Gastric total antioxidant capacity and Cu/Zn-superoxide dismutase activity are increased.

REFERENCES

[1]. Timothy R Koch, et al. Effect of the H, K-ATPase inhibitor, esomeprazole magnesium, on gut total antioxidant capacity in mice. J Nutr Biochem. 2004 Sep;15(9):522-6.

[2]. Pankaj Kumar, et al. Preparation and characterization of pH-sensitive methyl methacrylate-g-starch/hydroxypropylated starch hydrogels: in vitro and in vivo study on release of esomeprazole magnesium. Drug Deliv Transl Res. 2015 Jun;5(3):243-56.

[3]. 2013 Annual Meeting. Abstract Supplement

[4]. Huarui Zhang, et al. Advances in the discovery of exosome inhibitors in cancer. J Enzyme Inhib Med Chem. 2020 Dec;35(1):1322-1330.

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