Esomeprazole magnesium

Cat. No.: HY-B1446

CAS No.: 161973-10-0

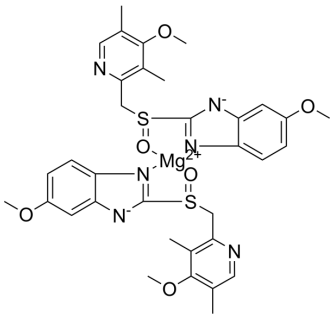
Molecular Formula: $C_{34}H_{36}MgN_6O_6S_2$

Molecular Weight: 713.12

Target: Proton Pump

Pathway: Membrane Transporter/Ion Channel

Storage: 4°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

DMSO : ≥ 125 mg/mL (175.29 mM)

H_2O : 3 mg/mL (4.21 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.4023 mL	7.0114 mL	14.0229 mL
	5 mM	0.2805 mL	1.4023 mL	2.8046 mL
	10 mM	0.1402 mL	0.7011 mL	1.4023 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: ≥ 2.08 mg/mL (2.92 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (2.92 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (2.92 mM); Clear solution
4. Add each solvent one by one: PBS
   Solubility: 1.43 mg/mL (2.01 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Esomeprazole magnesium ((S)-Omeprazole magnesium) is a potent and orally active H^+, K^+-ATPase inhibitor. Esomeprazole magnesium has the potential for upper intestinal disorders and gastroesophageal reflux disease research[1][2].

Esomeprazole magnesium 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 is an inhibitor of H^+, K^+-ATPase[1].Esomeprazole magnesium is develped from Esomeprazole strontium tetrahydrate (EST). EST contains esomeprazole, the S-enantiomer of omeprazole a salt-exchanged version of Esomeprazole magnesium trihydrate[3]. 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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