Omeprazole sodium

Cat. No.: HY-B0113A

CAS No.: 95510-70-6

Molecular Formula: $C_{17}H_{18}N_3NaO_3S$

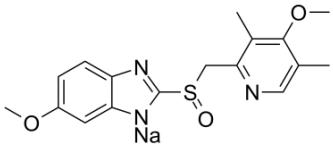
Molecular Weight: 367.4

Target: Proton Pump; Autophagy; Bacterial; Phospholipase

Pathway: Membrane Transporter/Ion Channel; Autophagy; Anti-infection; Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 250 mg/mL (680.46 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.7218 mL	13.6091 mL	27.2183 mL
5 mM	0.5444 mL	2.7218 mL	5.4437 mL
10 mM	0.2722 mL	1.3609 mL	2.7218 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 (5.66 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.66 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.66 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Omeprazole sodium (H 16868 sodium), a proton pump inhibitor (PPI), is available for treatment of acid-related gastrointestinal disorders. Omeprazole sodium shows competitive inhibition of CYP2C19 activity with a K_i of 2 to 6 μM[1]. Omeprazole sodium also inhibits growth of Gram-positive and Gram-negative bacteria[2]. Omeprazole is a potent brain penetrant neutral sphingomyelinase (N-SMase) inhibitor (exosome inhibitor)[3].

In Vitro

Omeprazole (H 16868) is a proton pump inhibitor used in the treatment of dyspepsia, peptic ulcer disease, gastroesophageal

reflux disease, laryngopharyngeal reflux, and Zollinger-Ellison syndrome. Omeprazole (H 16868) virtually eliminated intragastric acidity in all patients: the median 24 hour intragastric pH rose from 1.4 to 5.3 and the mean hourly hydrogen ion activity fell from 38.50 to 1.95 mmol(mEq)/1 (p less than 0.001). This inhibition of 24 hour intragastric acidity is more profound than that previously reported with either cimetidine 1 g daily or ranitidine 300 mg daily[1]. The pharmacokinetics of omeprazole were studied in a group of healthy male subjects after single and repeated oral doses of 30 and 60 mg. Absorption of Omeprazole (H 16868) from its enteric-coated formulation was unpredictable. There was a highly significant increase in the area under the plasma concentration time curve (AUC) after repeated dosing. Omeprazole (H 16868) increases its own relative availability following repeated dosing. This may be due to inhibition of gastric acid secretion by omeprazole which is an acid-labile compound[2].

Omeprazole sodium is a potent brain penetrant neutral sphingomyelinase (N-SMase) inhibitor (exosome inhibitor)[3].

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

REFERENCES

[1]. Li XQ, et al. Comparison of inhibitory effects of the proton pump-inhibiting drugs omeprazole, esomeprazole, lansoprazole, pantoprazole, and rabeprazole on human cytochrome P450 activities. Drug Metab Dispos. 2004 Aug;32(8):821-7.

[2]. Jonkers D, et al. Omeprazole inhibits growth of gram-positive and gram-negative bacteria including Helicobacter pylori in vitro. J Antimicrob Chemother. 1996 Jan;37(1):145-50.

[3]. 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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