Lansoprazole

Cat. No.: HY-13662

CAS No.: 103577-45-3

Molecular Formula: $C_{16}H_{14}F_3N_3O_2S$

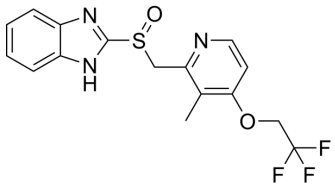
Molecular Weight: 369.36

Target: Proton Pump; Bacterial; Phospholipase

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

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (270.74 mM)

H_2O : < 0.1 mg/mL (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.7074 mL	13.5369 mL	27.0739 mL
5 mM	0.5415 mL	2.7074 mL	5.4148 mL
10 mM	0.2707 mL	1.3537 mL	2.7074 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: ≥ 2.5 mg/mL (6.77 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.77 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Lansoprazole (AG 1749) is an orally active proton pump inhibitor which prevents the stomach from producing acid. Lansoprazole (AG 1749) is a potent brain penetrant neutral sphingomyelinase (N-SMase) inhibitor (exosome inhibitor)[1][2].

In Vitro

Lansoprazole from 0.3 to 3 μM inhibits gastric acid formation in a concentration-dependent manner (IC_{50} of 0.76 μM)[4].

?Lansoprazole (30-300 μM) both induced concentration-dependent, reversible and reproducible relaxations of arteries[5].

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

In Vivo

Lansoprazole (20-40 mg/kg) treatment significantly attenuated STZ and HFD -induced memory deficits, biochemical and

histopathological alterations[3].
?Lansoprazole (20 mg/kg and 40 mg/kg, p.o.) significantly reduces the STZ and HFD- induced increase in AChE activity[3].
?Lansoprazole (20 mg/kg and 40 mg/kg, p.o.) significantly reduces the STZ and HFD- induced rise in brain MPO level[3].
?Further HFD mice treated with lansoprazole (20 mg/kg and 40 mg/kg, p.o.) shows a marked decrease in the body weight in comparison to the control animals[3].

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

Animal Model:	Swiss albino mice (20–25 g) of either sex[3].
Dosage:	20 mg/kg, 40 mg/kg.
Administration:	PO, started after second dose of STZ and then subjected to MWM test. Continued (30 min before) during the acquisition trial conducted from day 1 to day 4.
Result:	Significantly attenuated the day 4 rise in ELT and decreased in day 5 TSTQ in the STZ as well as HFD treated mice in a dose dependent manner.

CUSTOMER VALIDATION

- Nat Commun. 2023 Jul 14;14(1):4217.

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REFERENCES

[1]. Kokufu, T., et al., Effects of lansoprazole on pharmacokinetics and metabolism of theophylline. Eur J Clin Pharmacol, 1995. 48(5): p. 391-5.

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

[3]. Rupinder K Sodhi, et al. Defensive effect of lansoprazole in dementia of AD type in mice exposed to streptozotocin and cholesterol enriched diet. PLoS One. 2013 Jul 31;8(7):e70487.

[4]. Jun Matsukawa, et al. A comparative study on the modes of action of TAK-438, a novel potassium-competitive acid blocker, and lansoprazole in primary cultured rabbit gastric glands. Biochem Pharmacol. 2011 May 1;81(9):1145-51.

[5]. Erdinc Naseri, et al. Proton pump inhibitors omeprazole and lansoprazole induce relaxation of isolated human arteries. Eur J Pharmacol. 2006 Feb 15;531(1-3):226-31.

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