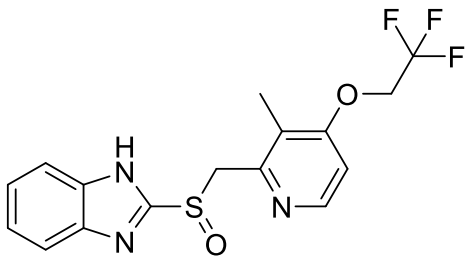
Product data sheet

MedKoo Cat#: 318087 Name: Lansoprazole CAS: 103577-45-3 Chemical Formula: $C_{16}H_{14}F_3N_3O_2S$ Exact Mass: 369.0759 Molecular Weight: 369.3615	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Lansoprazole is a proton-pump inhibitor (PPI) in the same pharmacologic class as omeprazole which inhibits the stomach's production of gastric acids. As of 2015, laboratory studies were underway on analogs of lansoprazole to explore their use as potential PET imaging agents for diagnosing tauopathies including Alzheimer's disease. Lansoprazole is also a prodrug that targets the cytochrome bc1 complex of Mycobacterium tuberculosis once converted to lansoprazole sulfide in mycobacterial host cells.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	30.0	81.22
DMSO	68.0	184.10
DMSO:PBS (pH 7.2) (1:1)	0.5	1.35
Ethanol	7.0	18.95

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.71 mL	13.54 mL	27.07 mL
5 mM	0.54 mL	2.71 mL	5.41 mL
10 mM	0.27 mL	1.35 mL	2.71 mL
50 mM	0.05 mL	0.27 mL	0.54 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Cheng Z, Liu Y, Ma M, Sun S, Ma Z, Wang Y, Yu L, Qian X, Sun L, Zhang X, Liu Y, Wang Y. Lansoprazole-induced osteoporosis via the IP3R- and SOCE-mediated calcium signaling pathways. Mol Med. 2022 Feb 19;28(1):21. doi: 10.1186/s10020-022-00448-x. PMID: 35183103; PMCID: PMC8858482.
2. Takagi T, Naito Y, Yoshikawa T. The expression of heme oxygenase-1 induced by lansoprazole. J Clin Biochem Nutr. 2009 Jul;45(1):9-13. doi: 10.3164/jcbnSR09-28. Epub 2009 Jun 30. PMID: 19590701; PMCID: PMC2704331.

In vivo study

1. Sodhi RK, Singh N. 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. doi: 10.1371/journal.pone.0070487. PMID: 23936214; PMCID: PMC3729942.

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2. Matsukawa J, Hori Y, Nishida H, Kajino M, Inatomi N. 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. doi: 10.1016/j.bcp.2011.02.009. Epub 2011 Mar 1. PMID: 21371447.

7. Bioactivity

Biological target:

Lansoprazole (AG 1749) is a potent brain penetrant neutral sphingomyelinase (N-SMase) inhibitor (exosome inhibitor).

In vitro activity

Lansoprazole induced the expression of heme oxygenase-1 (HO-1) on rat gastric epithelial cells (RGM-1 cells), and exerted anti-inflammatory effect on the dependent of HO-1 expression.

Reference: J Clin Biochem Nutr. 2009 Jul;45(1):9-13. https://pubmed.ncbi.nlm.nih.gov/19590701/

In vivo activity

The present study investigates the potential of lansoprazole (a proton pump inhibitor and agonist of liver x receptors) in experimental dementia of AD type. Streptozotocin [STZ, 3 mg/kg, injected intracerebroventricular (i.c.v), and high fat diet (HFD, administered for 90 days)] were used to induce dementia in separate groups of Swiss mice. Lansoprazole treatment significantly attenuated STZ and HFD -induced memory deficits, biochemical and histopathological alterations. It also prevented HFD-induced rise in the cholesterol level.

Reference: PLoS One. 2013 Jul 31;8(7):e70487. https://pubmed.ncbi.nlm.nih.gov/23936214/