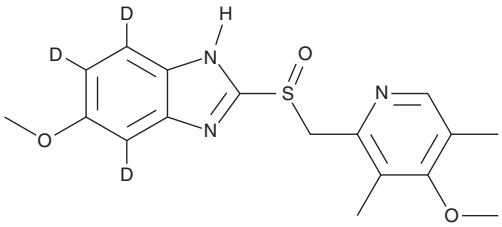
PRODUCT INFORMATION

Omeprazole-d_3

Item No. 22087

CAS Registry No.: 934293-92-2
Formal Name: 6-methoxy-2-[[(4-methoxy-3,5-dimethyl-2-pyridinyl)methyl]sulfinyl]-1H-benzimidazole-4,5,7-d_3
Synonyms: OMEP-d_3, OMP-d_3, OMZ-d_3
MF: $C_{17}H_{16}D_3N_3O_3S$
FW: 348.4
Chemical Purity: ≥95% (Omeprazole)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤1% d_0
Supplied as: A solid
Storage: Room temperature
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Omeprazole-d_3 is intended for use as an internal standard for the quantification of omeprazole (Item No. 14880) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Omeprazole-d_3 is supplied as a solid. A stock solution may be made by dissolving the omeprazole-d_3 in the solvent of choice, which should be purged with an inert gas. Omeprazole-d_3 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of omeprazole-d_3 in DMSO and DMF is approximately 30 mg/ml and approximately 5 mg/ml in ethanol.

Description

Omeprazole is an inhibitor of gastric H^+/K^+ ATPase (IC_{50} = 1.1 µM for the pig ATPase).[1] It is a racemic mixture of esomeprazole (Item No. 17303) and (R)-omeprazole (Item No. 18874).[2] Omeprazole (100 µM) decreases zymosan-induced oxygen free radical production in isolated human neutrophils.[3] It is active against 17 strains of *H. pylori* (MIC_{50}s = 12.5-50 µg/ml).[4] It decreases histamine-induced acid secretion in dogs (ED_{50} = 0.35 µmol/kg).[5] Formulations containing omeprazole have been used in the treatment of duodenal and gastric ulcers, gastroesophageal reflux disease, and erosive esophagitis.

References

1. Smolka, A.J., Goldenring, J.R., Gupta, S., *et al.* Inhibition of gastric H,K-ATPase activity and gastric epithelial cell IL-8 secretion by the pyrrolizine derivative ML 3000. *BMC Gastroenterol.* **4(4)**, 1-11 (2004).
2. Lind, T., Rydberg, L., Kylebäck, A., *et al.* Esomeprazole provides improved acid control vs. omeprazole in patients with symptoms of gastro-oesophageal reflux disease. *Aliment. Pharmacol. Ther.* **14(7)**, 861-867 (2000).
3. Suzuki, M., Mori, M., Miura, S., *et al.* Omeprazole attenuates oxygen-derived free radical production from human neutrophils. *Free Radic. Biol. Med.* **21(5)**, 727-731 (1996).
4. Iwahi, T., Satoh, H., Nakao, M., *et al.* Lansoprazole, a novel benzimidazole proton pump inhibitor, and its related compounds have selective activity against *Helicobacter pylori*. *Antimicrob. Agents Chemother.* **35(3)**, 490-496 (1991).
5. Larsson, H., Carlsson, E., Junggren, U., *et al.* Inhibition of gastric acid secretion by omeprazole in the dog and rat. *Gastroenterology* **85(4)**, 900-907 (1983).

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